Ice_2004

BUBBLE CRATERS OF MARS

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In 2003, I had temporary custody of a Mars MOLA globe and had my first real look at its surface. This started at the Blue Ash Airport Days, north of Cincinnati. A Guard member assigned to weekend security, SSgt Mike Harter, looked at the globe on Saturday and returned the next day with a new idea. The thought hit him overnight that Hellas Planitia isn't the result of an impact: “It's a sinkhole!” (collapse structure).

I found a picture of the Hellas Basin from NASA/JPL showing the full area which was taken from an angled view to show detail. The area strikes me as one that had sunken into the planet. The sides of the basin are very steep, practically straight up-and-down. There isn’t a raised brim around the basin as I would expect from a meteor; it looks more like a vacuum force sucked the land into the planet, such as by the settling of gases and elements in the cooling and forming of the planet.

Anyway, the globe came home with me after the event. With the new mindset from Mike's revelation, I had a revelation of my own: Mars had bubbles! Some of the “meteor” craters on the surface of Mars – and other planetary bodies - are the remnants of burst bubbles!

A forming Mars likely had thick liquid. Think here of a thick cake batter before it's cooked. The bubbles do rise, but slowly due to the thick liquid surrounding it. They then reach the surface; when they pop, a crater remains. In our cake example, the bottom of the bubble is usually round and perfectly smooth, and the edge around it is slightly raised. (Sound familiar?) As the cake is baked, the "bubble crater" solidifies in that form and remains that way until eaten. As for Mars, I think the cold of space would have had the same solidifying effect.

An example that shows this clearly is a picture of Tempe Terra (Fig. 1). It’s labeled as being a “volcano”, but there is no evidence of any volcanic activity. What it does look like is a popped bubble. The shape of the crater is a near-perfect circle. The inside is perfectly smooth, and the rim around it is raised, evenly at that. Beside it is another formation that is oblong, but still has the smooth insides. The land around the oblong formation is slightly raised to it, as if a rising bubble brought some of the surrounding land with it, just like in cake batter. This type of formation is abundant – especially the “perfect circle” bubble crater – in the cake batter and on planetary surfaces.

So, if these craters really are popped bubbles, shouldn’t we find unpopped bubbles, as an in-between state? My answer: OLYMPUS MONS. I’ve seen many pictures of Olympus Mons; one picture I saw of it showed more of a side view (Fig. 2). The curvature in the

middle of the mountain looked like a rising bubble that hadn't broken through the surface. Instead of succeeding, it "tore" the land around it, lifting up that land with it. (I've seen similar formations in my baking.) The result may have formed the ring of cliffs around the bottom and the plateau on one side. This all could have frozen in place during Mars' formation. As for Olympus Mons being a volcano, the craters on top of the mountain don't look like lava outlets; they look like bubbles that burst after Olympus Mons rose. There appears to be no ejecta, which would be present if it was formed through volcanic activity. The "caldera" looks like it caved in on itself, possibly filling in a popped bubble's middle. (Fortunately, we have excellent pictures of this.) The largest crater in the center is the oldest. This is true because the smaller craters, also popped bubbles, rose to the surface and popped where the existent crater was. The newer craters disturbed the pattern of the large one in both overlapping its edges and by pushing the soil away from their location. This is what formed the wrinkles in the large crater. The newest craters are perfectly round and smooth on the inside, just like the inside of bubbles is (as in our cake example). The craters on top of Olympus Mons would've popped after the "Olympus Mons Bubble" rose; otherwise, they would not be shaped like they are now.

In my studies of Olympus Mons, I made some unexpected observations. It's been noted that some of the areas of the cliff rim at the bottom of Olympus Mons have been "eroded". The theory again is that this was caused by lava flow. My thought is "dust". Studying many satellite pictures, I found a very defined line starting on the planitia beyond the mountain. It continues to the mountain cliffs, showing a *very* distinct difference between the left and right sides of it. This line continues up the mountain, but it *doesn't* lead to the top; rather, it goes to the *side* of the top – something lava wouldn't do and continues across to the cliffs on the other side and beyond, through the next planitia. (At least one picture shows this line continuing for a long distance from both sides of the mountain.) The side of the mountain with the "eroded" cliffs looks like sand dunes, as if from a dust storm. We know Mars has a LOT of dust storms. The line itself on either side of the planitia shows a raised level of soil in an almost straight line. It appears as a "step" because the land level is so different. Blowing dust against the sharp cliffs and other areas would get caught, building up as dust dunes over time. One thing here that struck me is the unaffected cliff area on the dust dune side of the mountain is EXACTLY PARALLEL to the line I mentioned earlier. This is another reason I don't believe this was caused by lava or collapse. If a dust storm blew, the still-defined cliffs that are parallel to the line would not have built up dust dunes because the wind would go right on by them. Imagine holding a piece of cardboard on a windy day. If you hold it perpendicular to the wind, it will get blown. Any slanted angle you hold it at will also get blown, but if you hold the cardboard parallel to the wind, the wind goes right on by. This may have happened here. (It is still a very strange phenomenon.)

Mars has many different – and very interesting – geological features. My "Bubble Crater" theory may or may not be correct, but hopefully, this will give you a new way of looking at it.

Figure 1

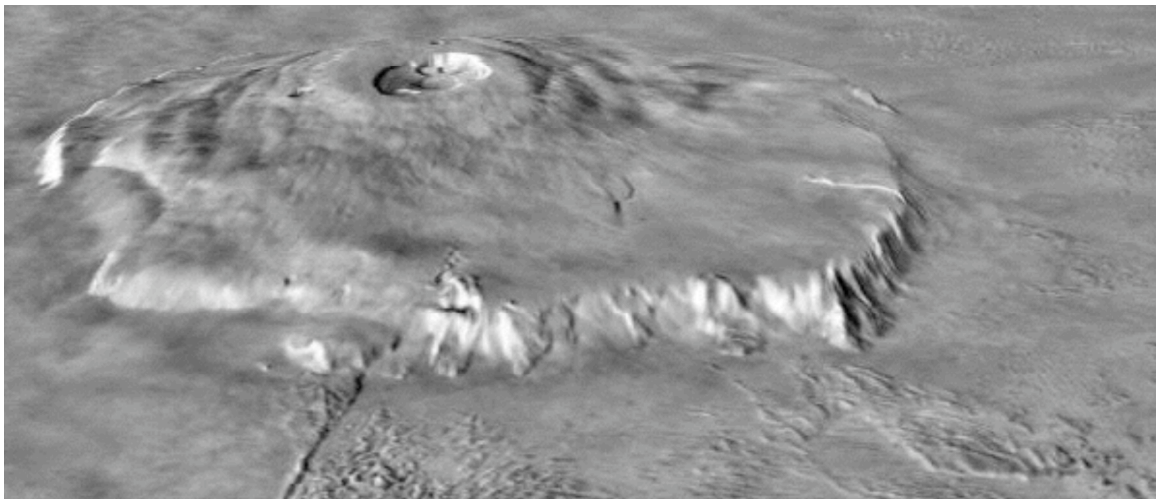

Figure 2