

Possible Alien Artifacts in the King's Valley, Libya Montes, Mars

Greg Orme*

University of Queensland, Brisbane, Australia

*Corresponding author: Greg O, School of Engineering Science, Undergraduate Science Student, University of Queensland, Brisbane, Australia, Tel: 0733656195; E-mail: gregorme@gmail.com

Received: October 15, 2016; Accepted: April 10, 2017; Published: April 17, 2017

Abstract

The King's Valley on Mars is proposed to contain strong evidence for artificiality. Here the different formations are considered in turn, to present a complete overview of the valley. This also provides an a priori prediction, that on reimaging these formations will appear more not less artificial. It is important to assert this ahead of time as a falsifiable hypothesis. In many cases the geology of the formations is also falsified, that natural explanations do not suffice to explain them. The sheer number of possible artifacts in 5 kilometers of this valley is also proposed to be highly unlikely to occur by chance.

Keywords: King's valley; Crowned face; Paleosea; Libya montes; Polar wander; Lacustrine; Fluvial

Introduction

While the Crowned Face is best known, there are many other unusual formations in the King's Valley. In some areas it is difficult to find any part of the valley wall without a face of some kind on it. This paper shows some of these other features, artificiality is not proven with all of them as with the Crowned Face, but their proximity to each other makes them hard to explain. Other valleys in Libya Montes have no possible artifacts in them, these are all concentrated within five kilometers in one valley.

Libya Montes contains some of the oldest surviving Noachian terrain on Mars, it is also considered by astrobiologists to be one of the most likely areas to find life signs. This is because of the dense concentrations of dendritic valley networks indicating atmospheric precipitation and longitudinal valleys indicating groundwater. This also makes it more likely to contain artifacts, since the Noachian terrain dates back 3.8 Ga to 2.8 Ga this is when sentient life on Mars could have created these formations. It is likely the King's Valley adjoined a paleosea that appeared without a clear cause and then sublimated after around a billion years. To allow for this paleosea and precipitation the atmosphere would have been much thicker. It may then be that life had long enough to evolve to a rudimentary level of sentience shown by these formations. One hypothesis is this may all have happened by a chance shallow impact of the Argyre meteor on the pole at 3.8 Ga. Another hypothesis is that aliens traveled to our solar system around 4 billion years ago to seed and terraform Mars with this same directed meteor impact, and perhaps the Earth as well. Our DNA might then have come from this original terraforming of Mars, or it could have evolved along with indigenous life on Mars. Rather than concentrating on only the best evidence the emphasis here is on completing the catalogue of formations in the King's Valley, building on a previous paper [1].

Methodology

The method used in this paper is to catalogue all the formations with prospects of being artificial. This necessarily makes the paper longer as there are so many, however they all need to be examined as part of this overall model of the valley. If someone created these then each one has a relationship to the others, for example there are five fish shapes which would be associated with an ecosystem in this paleosea. Each appears to be a different species, one seems to be a bottom feeding fish while another is pellagric like a reef

Citation: Greg M. Possible Alien Artifacts in the King's Valley, Libya Montes, Mars. J Space Explor. 2017;6(1):118. © 2017 Trade Science Inc.

fish. One appears to be eaten as the bones are showing through, they need then to be taken together to appreciate their significance. The recurrence of crown shaped faces represents a cohesive whole that is difficult to cut down in number, we do not know what is the most significant. For example, it might represent a succession of rulers, a tapestry of a time line of events, or separate artistic creations. This paper then is attempting to look at the big picture, rather than to pick and choose to create a possibly misleading interpretation. Some are more speculative, but predictions need to be made before this area is reimaged.

Entropy is also discussed as in [1], the creation of an artifact such as a face or fish carving must lower entropy. This is because if the terrain was formerly randomly eroded, then a sculptor would have arranged it according to a nonrandom design. Repetition also lowers entropy, the more often a common motif such as a crowned face appears the less random it would be. Leopold and Langbein [2] discuss this in terms of a river system, the King's Valley may also have been formed as a fluvial river, it may also be from sapping due to groundwater from the nearby paleosea. Entropy is expressed in terms of the probability of various states, so where a possible artifact is found in the valley it is a change in the overall entropy. Entropy also relates to the distribution of energy, usually a river system is formed by the increasing entropy as energy is dissipated by water running downhill. The most probable condition would then exist when energy in a river system is uniformly distributed subject to physical constraints like the kinds of rocks that may erode at different rates. This is seen in the other fluvial valleys in Libya Montes (FIG. 4). The most probable state of the valley walls would be random with higher entropy; fluvial and Aeolian erosion increases this entropy by breaking up repetitive patterns. In the King's Valley a repetition of patterns indicates lower entropy, a valley full of faces would be expected to erode away into random patterns. It follows that higher entropy should not be increasing the number of crowned faces or making them more similar to each other.

The Isidis Basin

This area has been intensively investigated by planetary scientists in recent years. Erkeling et al. [3] discuss fluvial landforms, paleolakes and possible shorelines close to the King's Valley. They say a complex hydrological cycle could have existed between 3.7 and 3.1 billion years ago in this area. It is proposed the King's Valley was associated with sentient life at that time. One hypothesis [4] is that aliens terraformed Mars and seeded it, and perhaps the Earth, with life at that time. This can give a possible explanation for many of the water related evidence from that time. Another is that this life evolved indigenously because of this long lived paleosea of over a billion years. Erkeling et al. [5] suggest lake sized ponding and an alluvial delta in this area. Because of the triple point of water this could only have occurred with a much thicker atmosphere, hence the suggestions that at least primitive life could have existed at this time. In FIG. 1, below the King's Valley is on the left hand vertical side of the red box.



FIG. 1. The king's valley is on the left edge of this box.

In FIG. 2, below is shown a paleolake, Erkaling et al. [3] propose it was connected to the paleosea in the Isidis Basin. The King's Valley is close to this, about the width of the terrain shown to the left of this image. It was then likely to have had close contact to this paleosea, including groundwater. The main debate in astrobiology today is not whether there was life on Mars at this time, many planetary scientists think this is possible, but whether it could have been intelligent enough to build these formations. We tend to equate this possibility to whether life could have evolved on the Earth in so short a time, but there is no way to assess this. As will be shown, the possible artifacts in the King's Valley include 5 different kinds of fish on the valley walls. The hypothesis of a paleosea nearby then may connect to this evidence of fish that lived in that sea, and presumably were part of a food chain these creatures lived on.

Ivanov et al. [5] suggest these fluvial and glacial processes occurred in the Early Hesperian to early Amazonian or 3.8 to 2.8 billion years ago. Jaumann et al. [6] examine this area with regard to the evolution of life. FIG. 3. shows how they consider Libya Montes to be of particular interest for life signs because it has phyllosilicates, fluvial valleys such as the King's Valley and the paleosea in Isidis Planitia. They also suggest that paleolakes (FIG. 2) are privileged targets in the search for life there. Phyllosilicates indicate the alteration of minerals by liquid water in this area. They also say these are good targets to look for organic materials, as pointed out this is next to the King's Valley. Tectonic, Aeolian and glacial processes were examined by them and were considered to be insufficient to account for the probable shoreline near the King's Valley.

Erkaling et al. [7] suggest this paleosea in the Isidis Basin was short lived and then sublimated to be deposited at the poles. It was suggested in [4] that Mars was terraformed by shallow impacts directed at the poles at that time, the South Pole was in the current position of Tharsis Montes and the North Pole was north of and perhaps overlapping into Isidis Basin. Sprenke and Baker [8] shows these approximate positions and the possible polar wander that would have followed. This terraforming could have been intentional or simply a lucky accident, a shallow impact at Argyre Crater directed at the edge of the pole at Tharsis would have spread the shock wave across the pole, melting it while creating volcanoes and directing the water down a former chasma that became Valles Marineris. Erkaling et al. [3] suggest that Chryse and Amazonis also had paleoseas, they would in this impact hypothesis have been formed by the melting of the South Pole around Tharsis Montes by the Argyre impact crater. They also say that wave action appears to have cut the cliffs of Libya Montes along its paleoshore, it indicates the paleosea was large and there was enough air pressure to produce wind to create these waves.

By antipodal volcanism, the South Pole is proposed to have been melted forming this paleosea in Isidis Basin. Antipodal volcanism from the Argyre impact then may have formed Elysium Mons, Hecates Tholus, and Albor Tholus melting this North Pole. The second hypothesis is a shallow meteor impact directed at this North Pole, from Isidis Crater or Amazonis Planitia, created the



FIG. 2. This lake is adjacent to the King's Valley.

Elysium Highlands like the Argyre impact would have created Tharsis Montes. A single impact could then have caused all this by chance, two impacts at the poles simultaneously is unlikely enough to imply the terraforming hypothesis.

The existence of these volcanoes on the poles would have thickened the atmosphere, and kept the paleoseas liquid for a long time until they eventually sublimated as the poles wandered. More of this hypothesis is explained in [4], it also is a possible way we could terraform Mars with similar impacts at the current poles also explained in the book. The short length of time in which this sea appeared and then sublimated is part of this overall hypothesis of the impact creating these paleoseas. If enough frozen air remains at the poles, then similar shallow impacts could melt the current North pole to refill part of the Northern Lowlands. A similar impact could fill the Prometheus Basin around the current South Pole, perhaps also Hellas Basin. It might even create paleoseas that lasted as long as they did then, this would be more than enough for a colonization of Mars by us.

Soucek et al. [9] suggest that Isidis was filled by a large ice sheet, this may have been from the pole there at the time. They say this ice sheet could have existed when the air pressure was low, the King's valley and similar valley networks in the area could then have been associated with eskers and tunnel valleys draining this water outwards. A pole would be consistent with this ice sheet, it would then have melted into a paleosea for up to a billion years and then sublimated to the poles. The hypothesized impact could then have created this paleosea from a pole, and then the water would have sublimated to a different polar area after polar wander. Guidat et al. [10] also suggest this ice sheet existed, the thumbprint terrain of arcuate ridges and cone fields in Isidis Basin is named for its resemblance to fingerprints. In the terraforming hypothesis, the single Argyre impact would have melted the base of this ice sheet from more diffuse antipodal volcanism, also allowing meltwater to drain outwards. Eventually this became the paleosea, this melting would have been assisted by the formation of Elysium Mons close to it. When Elysium Mons cooled sufficiently then this may have led to the paleosea freezing then sublimating to the new poles.

It is suggested [4] that the pole in Isidis Basin migrated eastward then northward to its current position, the pole at Tharsis Montes would then have migrated eastward then southward to the current South Pole position. This polar wander may have happened while Tharsis Montes and Elysium Mons maintained these paleoseas, the existence of possible artifacts on a great circle like an equator implies this South Pole may have stopped west of Hellas for a long period. As these volcanoes cooled then most life in the King's Valley area, whether it evolved indigenously or was introduced, would have been extinguished. As the atmosphere froze at the poles this would have preserved the possible artifacts over these billions of years in a near vacuum.

Erkaling et al. [7] discuss how these fluvial valleys In Libya Montes flowed into this paleosea (FIG. 4). The King's Valley then was likely formed at this time.

Crumpler and Tanaka [11] say these Noachian highlands contain one of the highest densities of valley networks on Mars. Because this is one of the oldest and lowest areas identified on Mars the sedimentary material here dates to the earliest Martian history. It may be significant then that the best evidence for artifacts on Mars is in an area better preserved. Many cycles of fluvial activity would have occurred here, such as rain or higher groundwater causing fans of sedimentary debris to be deposited into Isidis Basin. Because this valley was likely formed by groundwater it would be better preserved than if it was part of a dendritic fluvial valley subject to cycles of flooding. They examine part of the King's Valley (FIG. 5). The Crowned Face is just to the right in this image.



FIG. 3. The paleosea and fluvial valleys in libya montes.



FIG. 4. The edge of this paleosea with fluvial valleys, one of these is the king's valley.



FIG. 5. The King's Valley.

Erkaling et al. [12] refer to dendritic valley networks that suggest atmospheric precipitation while longitudinal valleys would be formed more by groundwater. It is likely then at this time the King's Valley was formed by groundwater because of this lack of dendritic tributaries. Having rain in the area also supports the hypothesis of sentient life either evolving here or being introduced. Because this paleosea lasted perhaps a billion years it is possible sentient life managed to evolve. In this case the Argyre impact may have accidentally spurred the evolution of more primitive life by chance, then this sentient life died out before it could acquire enough technological ability to survive the cooling of Mars. In [4] it is described how all these changes on Mars could have occurred with a single shallow impact creating Argyre Crater. If this was by accident rather than design, then there would be no alien visitation associated with these formations. Erkaling et al. [12] also refer to this as one of the oldest areas of Mars, this may be why these formations survived rather than being destroyed by volcanism as in so many other areas.

A Geological Summary

As has been shown, the King's Valley probably abutted a paleosea for up to a billion years. It is considered to be one of the area's most likely to have had life if it existed on Mars at this time. This is because of the high concentration of fluvial valleys in the area. It is also suggested that at the time there was atmospheric precipitation or rain, also that groundwater would have connected these valleys to the paleosea. It is also consistent with this paleosea appearing and then sublimating to the poles, this would have happened with the hypothesis on either aliens terraforming Mars or this happening by an accidental impact. The area is also one of the oldest on Mars and so is more likely to have had possible artifacts survive there.

Entropy and Degrees of Freedom

A controversial subject like this is difficult to prove. It is important then to understand the methodology followed here. Pareidolia is often raised as an objection, that people see faces in clouds and so if people look at enough Mars images they will find faces there too. In some cases, this can be true, however if there are legitimate artifacts on Mars it would be a tragedy to dismiss them on the basis of this argument. The concept of entropy is related to probability and degrees of freedom. Generally, the higher the entropy the more random Martian terrain would be, this would be seen in highly eroded areas for example. Conversely low entropy is seen where patterns are repeated, if there are many fluvial valleys in Libya Montes this is low entropy because they are similar to each other. Said in another way the degrees of freedom statistically are lower because valley networks have less freedom to change and still be regarded as having been created by fluvial processes. Low entropy represents an ordered structure and a repetition of similar patterns, these are broken up by erosion over time so the terrain increases in entropy.

In the same way then the King's Valley is examined in terms of its low entropy and degrees of freedom. It is not so important then how high the quality of evidence is for an individual formation because if random these should all be independent variables. Because of this the odds against chance multiply together rather than add or average. Seeing one crowned face in a cloud or a valley then might be from random chance, seeing many crowned faces over and over in one cloud or valley is of much lower entropy and degrees of freedom. This is because faces seen like this are generally very different to each other, this allows for more degrees of freedom and so they can happen more often by chance.

The concentration of these formations is another degree of freedom, if they were random then they should be scattered all over Mars. However, the main formations here are packed into only 5 kilometers of one valley, this contains more evidence of artificiality than the rest of Mars put together. Not included here are the contents of [1] which contains much more evidence of crowned faces, it should be read in conjunction with this paper. Since the circumference of Mars is 3,397 kilometers 5 kilometers represents about 15% of this distance. Some might object that there could be other concentrations of faces not yet seen, however I have personally looked at all the Mars Orbital Camera and HiRise images without seeing them. Mars is also well known for sensational claims of animals, skulls, sculptures, etc. in the Rover images. This has also occurred with HiRise and Mars Orbiter Camera images, but not even the most sensational claims have been concentrated in one area like this. There is nothing special about one small valley having crowned faces all over it from geological processes and then the same processes not forming them in any other valley on Mars. This should be apparent to any geologist, there are many fluvial valleys even in Libya Montes but only one has these possible artifacts. There is not sufficient room here to demonstrate this, however the author has looked at all the other valleys in Libya Montes without finding a single possible artifact.

The possible artifacts in the King's Valley and in some areas of Mars display low entropy, they conform to a narrow range of possibilities that keeps repeating like a motif or theme. This it is suggested falsifies the pareidolia or null hypothesis. The four main areas of possible artifacts are situated on a great circle like a former equator, this would correspond to a South Pole known to have existed west of Hellas Crater. More is explained on this in [4]. In the King's Valley the faces are similar to each other, nearly all have a crown shape which reduces the degrees of freedom to having different kinds of hats for example. The faces are also similar looking to each other, in [4] this was shown with an overlay of the 3 main crowned faces onto each other, and 2 other faces called the Meridiani Face and the Cydonia Face. The similarity is very high and the probabilities against chance were estimated to be astronomically large. There is then a consistent trend where degrees of freedom are not found, instead there is the same or similar face with a crown found over and over.

It is comparing this low entropy that the evidence should be viewed, not in taking each formation individually as this is not an accurate statistical method. A common problem seems to be the preconceptions of the reader, if aliens visited Mars then these faces are not the kind of evidence these people expected to be found. This attitude is particularly strong in the opposition to finding faces, in part because of the claims of pareidolia, and also because they would have preferred a geometric message. But we cannot decide what aliens or indigenous Martians should have done 4 billion years ago to attract our attention. We have this evidence and must evaluate it on its own terms.

Pareidolia

Liu et al. [13] conduct an experiment where the subjects see faces in random noise. However, this is not the same as the King's Valley because the same motifs repeat over and over there. If these subjects were shown one face, and then asked to see when they saw something similar to that face only, then this experiment would be very unlikely to succeed. This is because by random chance a similar shape would not recur often enough. With letter pareidolia this is where alphabetic letters are seen. But if the subjects were asked to look only for the letter A in Times in New Roman then they would not see it often, in the same way the repetition of a very small range of artifact shapes is less likely to be pareidolia. It is then the similarities between these formations which is used to falsify the pareidolia hypothesis. This point seems to be the hardest for readers to understand, the idea of faces in clouds is obvious and researchers generally can tell when a formation is fanciful like this. The problem is that there are common motifs that are connecting over time into a comprehensive model of a previous civilization of some kind.

Di Lazzaro et al. [14] discuss the brain's ability to form images in low light conditions, however the faces and other formations in the King's Valley are well lit with high levels of contrast. It is indeed possible to see things on Mars that don't exist, this can be done by using pixilated or fuzzy images. It can also occur from software compression of images where this introduces defects from the JPEG compression process using Fourier Transforms. This can all be avoided by only examining larger formations that are not ambiguous like this. Also, finding inscriptions in their experiment is a process with an infinite number of degrees of freedom, any significant shape can be included as a discovery. By contrast the King's Valley is showing a repetition of the same motifs over and over. If they were all different enough from each other, then this could be easily dismissed as pareidolia.

Nearly all have some kind of crown and the faces are similar enough to be all of the same creature. There is only one without a hat, this is found in the recent HiRise images and is called the Sculptor. This difference in the headdress may be because they represent the creators of these formations. The only other formations that are different are five fish shapes, these are also similar enough to be recognized as fish. There may be some variation of species being depicted, however there need not have been an intention of repeating the same fish shape. It is fortunate that for some reason the crowned face seems to be so similar as to be the same creature over and over, this reduces the chances for pareidolia to explain them. It should be emphasized however that these possible artifacts are probably not a message to anyone, but would have been made for the local inhabitants. That they convey a message poorly, or are not what we expected is the same as for any archeological site.

Sheen and Jordan [15] also discuss this pareidolia in the Shroud of Turin. However, the variations in the cloth give rise to these illusions, some defects in the weave for example might appear to be insects. In the King's Valley however, any such defects would be very small by comparison to these faces. A clumping of pixels might look like an insect as they found, some have proposed insects like this can be seen in Mars Rover images. But this is another example of open ended looking for anything significant, with so many degrees of freedom small objects will eventually look like something recognizable. They don't look like crowned faces and these formations are far too large for chance rock formations to look like them. Saunders et al. [16] also discuss formations in the King's Valley.

A Crown Shaped Depression

This first feature in FIG. 6 has a basic face like shape with a flat top like a crown, this is found to the right of the Crowned Face and has a similar outline to the Cydonia Face. Being a crowned shape its location in the King's Valley makes it worth examining, the more similar motifs like flat tops or crowns are observed the less this is likely to be by random chance. There is a possible dark right eye and mouth, these are very unclear but are pointed out as a prediction. If this is a real face shape then later images at higher resolution should see facial features, unless they are eroded away. When the features in this paper are unclear they should be considered as predictions on this basis.

This shows a close-up of the shape (FIG. 7), it is nearly completely buried in dunes so features are hard to see. These dunes seem to be also shaped by the rounded jaw line on the left. On the right there are no lighter areas of soil until outside the shape. Later there is another shape called the Shield Face, another similar shape in the King's Valley is shown. It is then a recurring motif.

In FIG. 8, there is the outline, possibly of one eye and a mouth. These are very unclear; however, they represent a useful prediction for when this is reimaged. The main point is that the shape is not like a known natural formation, it is not a crater as they are round or elliptical. Dunes around it form random shapes or are aligned at right angles to the wind which would have come from the left. When the dunes hit the left edge of this shape their movement to the right was altered as shown. The sides and crown shape are



FIG. 6. Crown shaped depression.

FIG. 7. Close-up of the crowned shape.

FIG. 8. Outline of the crowned depression.

approximately straight and the bottom of the face is an arc, similar to the Cydonia Face.

A Partial Face

In FIG. 9, there is a partial face shape, to the right it is like the pale layer of rock has disappeared or perhaps lost its pale coating. This is unusual because if this layer is gone, it has not turned to dust. If the pale coating has disappeared so completely then a geological formation should not have a coating like this. If it was light sand then it should be to the right, this is the direction that dunes appear to be moving in the valley.

It may then have been made of mud and washed away, some of these features may have been made of highly erodible materials. The edges are quite sharp and the pale areas seem much higher. The face remaining is similar to others in the King's Valley, the vertical lines on the chin appear to be from dunes. The mouth is quite clear and in the right position. There are also two jagged pieces of this pale material extending to the right, one to the right of the nose and the other to the right of the chin. There is a strong impression of the material to the right disappearing or collapsing.

In FIG. 10, below there is the shape of an eye in the right position at B, this would need to be confirmed when reimaged. A shows the left eye. C shows a dark area like the right side of the face. D shows the end of the nose or perhaps nostrils. E shows the mouth. F shows the vertical dunes on the chin shape. G shows the left side of the face which follows a line of shadows. To the left of the dark area goes up at an angle like a typical crown shape in the valley, if a crown was excluded from the terrain then this would partially falsify the repeated motif of another crowned face. Nearly all have some form of crown with the exception of the Sculptor and the Coin face seen later. Both of these are much smaller and may relate to the creator of these sculptures

A More Ambiguous Face

This formation FIG. 11 was shown in [4] from the Mars Orbital Camera image, it may well be pareidolia with an unusual jaw and nose. It remains ambiguous, with higher magnification it retains the same shape but is different from the other faces and has no crown. It is likely then to be an example of pareidolia, seeing faces in random patterns. The open mouth is also different from the other faces; it may however be a highly-eroded face that looks different now. When someone looked at the Crowned Face from the opposite side of the valley, on Wall 2, they would see this face almost directly behind it. Some of the faces shown here then are better than others, there is no attempt to cherry pick the best evidence. This is to show the low degrees of freedom, how even with this poorer evidence there are still many similarities. Because of the high amount of erosion this poorer quality may simply mean a formation has survived less intact over billions of years.

In FIG. 12, A shows an unclear eye much longer than on the other faces. B shows an open mouth which has some resemblance to the Sculptor mouth. C shows a jawline and D a nose unlike that of the other faces. It may be a representation of the Sculptor which also appears in profile as does the coin face shown later in this paper. Pareidolia should be occurring somewhere, this may be an example of it but there is no way to tell without this being reimaged.

FIG. 9. Partial face shape.

FIG. 10. Annotations of the partial face.

FIG. 11. A more dubious face shape, perhaps Pareidolia.

Walls 1,2,3, 4 and 5

To make some form of classification, there are 5 main walls defined in the King's Valley. Wall 1 is where the main Crowned Face is found with the straight cliff to its left and right. The face in FIG. 11. would then be above Wall 1. Wall 2 is opposite Wall 1 and contains the Sculptor and the fish shapes as will be shown. Wall 3 is at an angle to Wall 1 and has FIG. 4. above it. Wall 4, as will be seen, connects at another angle to Wall 3 off to the left and has some other face shapes. Wall 5 has no clear face shapes but they may be eroded, many areas appear to have ambiguous shapes. These Wall classifications are arbitrary but can help to point out separate groups of formations. Later in this paper it will be shown how Walls 1 and 3 may repeat very similar shapes that seem arbitrary at first. It may then represent two murals of the same composite array of faces. This hypothesis of two murals is also a significant prediction that could easily be falsified. The face like formations on Wall 3 are unclear and so this is highly unlikely to occur by chance.

FIG. 12. The face shape annotated.

Wall 1

In FIG. 13, Wall 1 extends to the left with the arrow, Wall 3 to the right with the right facing arrow. A shows the face in FIG. 11. From the Mars Orbital Camera image, this could be regarded as wearing a kind of crown or hat shape. B shows the Crowned Face also called Face 2.

A Buried Crown

In FIG. 14, below there is a shape like another buried crowned face, this is referred to as face 4 in my book. It is found to the left of the Crowned Face and would be on Wall 1. This is part of a small section of Walls 1 and 3 not reimaged by HiRise yet, so formations in this area represent predictions that they will look more artificial in a HiRise image. There is also a section of Wall 2 opposite this that has not been reimaged. Since there are fish shapes on both sides a prediction is that more fish will be found there by HiRise.

In FIG. 15, A shows the top of two apparent ridges that come from the top of the crown and point in at each other. B shows the edge of a crown line which continues on to the right. C shows a shape which may be part of the crown, like an animal or snake head. The ground below this is very smooth and it may be buried under sand. It is possible then, with no way to tell, that there may be a face connected to the crown buried here. This is then an a priori prediction that, when this area is reimaged by HiRise, more artificial shapes will be found.

The Boundary between Walls 3 and 4

In FIG. 16, below Walls 1,3 and 4 are shown. Wall 1 is the small arrow pointing to the left, Wall 3 is the large arrow pointing to the left. Wall 4 is the arrow pointing to the right. Wall 3 is completely covered with possible face shapes; Wall 4 has many ambiguous eroded features that may have been faces. Two high quality faces are examined here. The color in HiRise images is a false color based on three different color filtered CCDs: red ("RED"), blue-green ("BG"), and near-infrared ("IR"). The wavelengths of these filters are: RED: 570-830 nanometers BG: <580 nanometers IR: >790 nanometers. These colors then are different from what we would see, because the HiRISE camera views Mars in a different part of the spectrum to human eyes. According to the HiRise team [17] false color imagery is extremely valuable because it illuminates the distinction between different materials and textures.

A Repeat of Wall 1

FIG. 17 shows a complex set of interlocking formations, this may be a repeated pattern of those on Wall 1. This is very unlikely to occur by chance; these formations could have been any other shape. Because many of these are not clear they represent a falsifiable prediction when they are reimaged. The more then this becomes similar to the Crowned Faces and Profile Crowned Face on Wall 1 the less likely this is by chance.

A shows Face 4, B shows the eye, C the nose, and E the mouth. This would be the same as Face 4 partially buried. F and H show

FIG. 13. Walls 1 and 3.

FIG. 14. A buried crown shape.

a similar face like shape to face 1 on wall 1. The ravine in the middle of the face is similar to that of face 1, this also gives a nose shape here at H. F is a vague shape like an eye, G is the top of the crown. This would resolve a mystery in regard to why Face 1 is so eroded, it may be intended to look like this. Both seem to have a ravine or recessed area through them which is unlikely to occur by chance. I shows an edge like between faces 1 and 2 on wall 1. This continues down to the jaw line at N. K and O are eyes for this face. L and M show the nose and mouth. K then would be Face 2 or the main Crowned Face as a replica of it.

J shows the side of the next face which continues down to the jawline at Q. This is similar to face 3 on wall 1, the face that joins onto the main Crowned Face using its right eye. O and Z show its eyes; the right eye is lower than the left as on face 3. P shows the nose shape. This nose also bends to the left like on face 3. The three main Crowned Faces are usually seen together, these would then have been repeated as a motif with the three faces containing G, K, and O.

T shows a hollow below a nose shape, the same hollow appears as a mouth on wall 1. This may then be intentional and not a piece

FIG. 15. The buried crown annotated.

FIG. 16. The dividing corner between walls 3 and 4.

of the cliff that has fallen off. It may not be a face shape but some other kind of repeated motif. R and S show an unclear shape.

U shows the right jaw and face line of this second Profile Crowned Face, this would then correspond to face 6 on Wall 1. Just above U is a rounded shape that distorts this face, it may be a piece that has broken off. The upper side of this shows a layer that is missing below, this could be where the break occurred. V shows the nose which is less clear. W shows the eyes. X shows the crown shape which is similar to that of the first profile Crowned Face but has a wider area towards its bottom.

The Second Profile Crowned Face

FIG. 18 below shows the second Profile Crowned Face; this is connected to the other faces to its left like those on Wall 1 to the first Profile Crowned Face. It is harder to see; the first Profile Crowned Face was also difficult to see at first because of its 3D effect of standing out from the cliff. It looks out to the right like the other profile face on Wall 1. This face also represents an a priori

FIG. 17. Wall 3 annotated.

FIG. 18. The second profile crowned face.

prediction, if this line of faces is being repeated as a motif then there should be a face in profile here. If this face then becomes much clearer when reimaged it would tend to falsify the null hypothesis, that these are random formations.

Below FIG. 19 is a separate outline of this face. The area above the mouth is at an angle, perhaps a piece broke off here. There is a nose shape just under this angled break. The hat is unusual and not the typical crown, it shows the unusual situation of so many similar crowned faces that one with a slightly different hat is remarkable. It shows again the exception proves the rule, there should not be this much repetition of crowned faces in one small valley by chance. The odds of this would be inconceivably large. It is also significant that this 3D face is on the corner between Walls 3 and 4, it may then look different according to where on the opposite

FIG. 19. The face annotated.

cliff it is viewed. This then would be more like the Mount Rushmore faces that also change with the perspective.

So far there are virtually no parts of Walls 1 and 3 that do not contain some kind of crowned face. The chances of this happening by coincidence are truly astronomical. It is also unlikely to be pareidolia because there are no other places on Mars where similar faces have been consistently found. The Nefertiti face, the Meridiani Face, and the Cydonia Face are other face formations but no one has suggested other clear faces near them. Like a picture puzzle there are two other crowned figures (FIG. 20), the one on the right is on the edge of Wall 4.

The Reclining Crowned figure

This other profile Crowned Face can be called the reclining Figure, the torso is shown above the line of faces (FIG. 20) and the head off to the left of them. There is a line connecting the back of the neck running right across wall 2, it seems have a symmetric pelvis shape. Also the ravine under it may have a hand going down, at the end there is a corrugation at the bottom like knuckles. This reclining Figure only became clear using logarithmic stretching in the image, it darkened the face features enough to be visible. This face looks to the left and down on the left edge of this image. A face like this would be hard to form naturally, it does not follow the shadows of dunes. It appears to be carved into the rock, the elliptical shape of the top of the crown is very unnatural.

In FIG. 21, A is a nearby face examined in [4]. B shows fingers and C the left arm. D is the line of faces (FIG. 12). E is the mouth similar to the sculptor, F the nose, and G the eye. H is a 3D crown. I is the right shoulder and J the right arm with fingers. K is a line following the spine to a symmetrical rump shape at M. L is the left side. N are fingers on the right arm at O. P is the chest, Q the chin, R the nose, and S the eyes. T is an insignia on the 3D crown shape at U. The left reclining crowned Figure appears to be crouching on its knees so the legs aren't visible. It seems to be giving an emotional message like humor.

The gap in the cliff seems to be used to have an arm go down to the floor of the valley, with an impression of the knuckles of a hand there. It can be demonstrating how it worked on the faces, like a tradesperson down on their knees concreting for example. It also gives the only clue so far as to how the torso was formed, this seems to show either a spinal cord or a line down their back. The pelvis shape may be meant to represent bone or perhaps markings on it, even clothes. Features like this will be critical for understanding more about these creatures. It then indicates how their joints worked, such as their shoulders and hips. It shows how far the head can tilt back. It shows how long their arms were, the Sculptor also showed this with one arm, and how straight their backs were. It also shows an attempt to convey a message with body positions like humor, this can give an estimate of their intelligence level and perhaps emotions. Because there are few signs of advanced technology their intelligence may have been low, they had few resources to build with, or they were in an early stage of evolution.

The Crowned Figure

The Crowned Figure on the right (FIG. 21) might be the same creature, it could start at standing up on the right and then the next

FIG. 20. The reclining crowned Figure is not obvious.

FIG. 21. The two crowned Figures annotated.

representation shows it lying down and working on the left. The message of this is very striking, it could also appear to be showing a crowned Figure as the boss overseeing the valley while the other crowned Figure as a worker was building it. The result then is like a mural depicting cultural events and not just enigmatic faces. It implies as a prediction that the other faces also have different emotional features, and look in particular directions for a reason. We might ascribe for example a neutral smile to the main Crowned Face like the Mona Lisa, but the Crowned Face to its right as Face 3 appears angry. It is unlikely emotions would be so similar that we could read facial expressions like this, however on Earth we can see anger and some other emotions in the facial expressions of nearly any kind of animal. We can even detect fear or aggression in how fish move, given the fish carvings on Wall 2 there might be a common enough evolution to have similar emotional expressions. Panspermia may have connected the DNA on both planets, this can explain some of the similarities.

Walls 4 and 5

In FIG. 22, Wall 4 and 5 are seen in total. The arrow to the left shows Wall 4 and the right arrow Wall 5. It is a prediction that reimaging will show more crowned faces on Wall 5.

The Shield Face

In FIG. 23, there is another face shape with a flat top like a crown. This is to the right of the Crowned Figure, shown on the right

FIG. 22. Walls 4 and 5.

FIG. 23. The shield face.

(FIG. 21). This is much more eroded and the rest of the cliff has other possible faces too unclear to point out. To give it a name this is called the Shield Face, as if a face was painted onto a shield a soldier might carry. There is no evidence of what this was except for a need to give it a name here. It may have represented an animal face because the nose is much thicker than on the other faces. If it is an animal face, then it may be another clue of the ecosystem there at the time.

In FIG. 24, the face is outlined. This is so eroded that much higher resolution would be needed to falsify this from natural terrain. The shape is very similar to the depression (FIG. 6). The top has a similar straight band and the sides are also approximately straight. The area is highly eroded so some claim could be made that this is also random deep ravines and gullies. However, the boundary seems to be carved in a nearly continuous line. It would be easy to fault individual formations like this one, however the point here is their concentration in a small area and their similarities.

The Brooding Face

In FIG. 25 there may be yet another crowned face above the previously mentioned Crowned Figure, there are some dunes partially

FIG. 24. The shield face annotated.

FIG. 25. The brooding face above the crowned figure.

FIG. 26. The brooding face outlined.

obscuring it. It is facing the same way as the Crowned Figure towards the main area of faces in the King's Valley. The large crater obscuring the right side of the Crowned Figure's face indicates it is very old. It is called the Brooding Face because it seems to have this kind of emotional expression, though this is probably a coincidence. With so many crowned faces it becomes difficult to have enough friendly names for them rather than just numbers. It may represent two different emotional states, happy in the lower face and angry in the upper face, like with the two main Crowned Faces. The two faces are also similar; they look down at the same angle with similar eye shapes except one has a different crown. The two noses are approximately the same and the mouths are about the same angle and size. There is a fold of skin to the right of the mouth like an edge of the cheek in both faces.

The program used to analyze these images is called ENVI, it enables an image to be stretched in different ways. This stretching

affects the shading of various parts of the image, a logarithmic stretching makes an image much darker in some areas because of the nonlinear log curve. Square root shading takes the square root of the brightness for each pixel, this has the appearance of reducing the variations between lighter and darker areas. One good reason for using standardized settings is that manually adjusting them can bring out what the observer subconsciously wants to find. For example, a face shape might have its brightness and contrast adjusted until it looks clearest, but this might also tweak a random shape into looking artificial. None of the images here have been adjusted except for these standardized settings.

In FIG. 26, the face is outlined.

FIG. 27 shows it using logarithmic shading, it stretches the light and dark shading more. There appear to be eye shapes in the right positions

FIG. 28 shows it using square root shading.

A Triangle

In ESP_034864_1830 another part of the King's Valley is imaged, there is a triangle shape in that image (FIG. 29). It appears to be standing out from the cliff as if built to be seen like a sign, or it could have been buried with less erodible rock and been exposed over time. It is close to the possible dumping ground area shown later. There is a possible face on this but very unclear. When reimaged if a clear face is there, then it will match the next triangle shown.

The Coin Face

There is another triangle on the edge of ESP_18223_1830, similar to the triangle above. This is shown in FIG. 30. It appears to have a face looking to the right with a smaller triangle shape below it. Because of this coin like profile it is referred to as the Coin face, on Earth some triangular coins have been used.

In FIG. 31, the triangle with the possible face is outlined below, there may also be another face next to it looking to the right. It may be a kind of plaque with a face on it, perhaps the same creature as the Sculptor. There is an impression of hair or some kind of cape, there is a squarish shape in the rock behind its head, this may have been a crown like on the other faces. The Sculptor also appears to have hair on its head but no crown. It may have a concave base like the triangle in FIG. 29 and the smaller triangle under it also has a concave base. This then gives three triangles with similar shapes in their base like a common motif.

The grooves in the hair may be difficult to explain geologically. The ones at the top are near vertical and might occur from water

FIG. 27. Logarithmic shading.

FIG. 28. Square root shading.

FIG. 29. A triangle shape.

running down the rock. However, on the back of the head they are more horizontal, so water cannot run that way. They should then have the same process that formed them. Other cracks like these are not clear elsewhere on the cliff or on the other triangles. The face is also roughly the same size as the sculptor face in the King's Valley. The two triangles may represent boundaries or signs to denote the main face area is ending there. Beyond these triangles would be the dumping ground of rubble referred to in the paper on construction materials.

FIG. 30. The coin face.

 $FIG.\ 31.$ The coin face and small triangle outlined.

Fish Sculptures

In FIG. 32, below the fish shape looking to the left was shown in [4], there may be another looking to the right about the same size and shape. Most people easily see the fish on the right. It is like an Earth pelagic fish similar to a parrotfish or many other kinds living on coral reefs. It might then indicate a common feeding pattern to those on Earth, having eaten kelp or other food on coral or stromatolite formations.

Bianciardi et al. [18] suggest the Opportunity Rover may have found stromatolites in Meridiani Planum not far from Libya Montes. More recently a controversy occurred with the Curiosity Rover where fossilized microbial mats may have been passed without examination. On Earth, there are found carpet-like colonies of microbes in shallow bodies of water such as lakes and coastal areas, this would be similar to the paleosea near the King's Valley and the paleolake to its east (FIG. 2). These are known as microbially-induced sedimentary structures (or MISS), they are found in shallow water all over the world throughout Earth's history including at the same time this paleosea existed next to the King's Valley. Bianciardi et al. [18] discuss these formations in Gale Crater which is close to the King's Valley. If true then these may give more clues to that ancient ecosystem of food for this fish, panspermia may have connected Earth and Mars with simple microbes like this.

This second fish is shown outlined (FIG. 33). The tail section is clearly cut into the cliff; the pale material could denote a different kind of fish or the fish on the right had this coloring but it was eroded away. If artificial these details are important information, they give clues as to the aquatic ecosystem that would have existed at the time. It implies there was a paleosea and that these sentient creatures ate fish, they perhaps were aquatic or amphibious themselves. This would explain why few signs of construction have been found, most might be under the dried mud when the oceans sublimated and froze at the poles.

Visitors to the King's Valley might then have spent a lot of time on the water, fish as food might have been significant culturally to them here. There is no indication of scales on any of these fish, however there may be a slit for gills or the edge of a fin. Some of this correspondence with Earth species could also have come from panspermia, material exchanged between Earth and Mars on meteors with some organic material on them. While it is unlikely fish eggs could make this journey other kinds of life such as algae might have. This might then be tailored to evolve a kind of fish suited to it, and so a similar fish could evolve from this panspermia.

Two More Fish

Further up the valley wall towards the possible dumping ground there may be another two fish. One (FIG. 34] appears to be a different species, the fin is much higher like a goldfish, an angelfish, or many other kinds of fish living around coral reefs. The eye shape is clear and in the right position. There is nothing here out of proportion compared to an Earth fish. This is an important point because a formation could look like a fish in a cartoonish or exaggerated way, this looks more like a tracing from a photograph. Not only is it strong evidence for artificiality but is almost an anatomical diagram for what this species could have looked like. At some point, then when the reality of what things like this are is established, the more interesting discussion will be of what they are showing.

The outline is shown below (FIG. 35). It appears to be carved into the cliff with a different albedo to the rocks around it.

In FIG. 36, there seems to be a demersal fish, similar to a flatfish like a bottom feeder seen from above. Like the other fish shape this seems to be carved into the rock. Another fish of this shape may appear in FIG. 33, in [4] it was proposed the fish on the right had a second one of this same shape on top of it. There could then be a representation of a pile of fish as if caught. The tracing of this second fish is very similar to in FIG. 36, which represents a successful implicit prediction. It is a prediction then that when a

FIG. 32. Two fish.

FIG. 33. The Left Fish Outlined.

FIG. 34. Another fish with a dimersal fish shape.

FIG. 35. The fish outlined.

FIG. 36. A flatfish or dimersal fish.

possible artificial shape is found others of similar shapes should also be found in the same area. These prevents a statistical fallacy of whatever is found seeming to be significant. The implicit predictions in the King's Valley then are the same kinds of fish and crowned faces will be found over and over.

This is shown outlined in FIG. 37 below.

A Higher Face

This face FIG. 38 is found opposite the previous two fish shapes. It is higher up and should be visible from the valley floor.

In FIG. 39, A and B show the eyes, C the mouth D the nose, and E the crown.

FIG. 40 reduces the contrast much more to show details in the crown. The two pale shapes on the sides of the crown are symmetrical, there is a central pale line in the middle of the crown. On the left the edge of the crown is much more pronounced.

FIG. 41 shows the context of this High Face, shown in the red rectangle at the top. At the bottom of the image is the King's Valley floor, standing in this position looking at this High Face the two fish shapes (FIG. 34 and 36) would be behind you. This should be visible from the valley floor; the cliff may be excavated under the face to make it easier to see. It is a similar motif to Mount Rushmore seen from below.

Overlays of Faces 2 and 3

In [4] the Crowned Face, also referred to as Face 2 here, was overlaid on Face 1 and Face 3. These three are the main Crowned Faces. It was a prediction that with the HiRise images this overlay would be much clearer and with more matches between the faces. Face 1 on the left of the main Crowned Face has not been reimaged yet, below FIG. 42 is an overlay from the HiRise image of Faces 2 and 3. This shows Face 3, the Angry Face, with a 30% transparency meaning that from 0% being invisible and 100% being opaque this is at 30%. The correspondence between the two is quite close. It is an indication then of this low entropy, faces in clouds tend to look very different from each other. Not only are the faces in the King's Valley similar to each other but three of them overlay very precisely on each other. This should be impossible to occur by chance. The two faces are so similar that this overlay might appear to not be working, it would be like if the reader made an overlay of their own face with two slightly different facial expressions. As the overlay changed from one to another, like the appearance of a smile to a frown here, the difference would be hard to see. It is not then a problem with the overlay but how similar these two faces are.

FIG. 37. The fish outlined.

FIG. 38. The high face.

FIG. 39. The high face annotated.

FIG. 40. Low contrast image of the high face.

FIG. 41. Context image of the high face.

FIG. 43 shows the overlay with a 40% transparency. In [4] different points of correspondence between the 2 faces are analyzed, then gave each a 1 in 10 chance of occurring by chance. 30 or more could be found here giving 1030 to 1 against this being a coincidence. This Figure may well be high, but the chance of 2 people on Earth looking so similar might well be in the hundreds of millions to 1. A p value with such a result would be considered highly significant, even proof, in statistics.

FIG. 44 has a 50% transparency. The faces are still very similar, the nose has a slightly different bend in it, also the mouths have a different expression. If this was presented as a single face from an image it would be difficult to even see the overlay it is so close.

FIG. 45 is at 60% transparency. The 2 eyes have merged so they appear like a slightly different face. An overlay can give additional insights into what these creatures looked like.

FIG. 42. 30% Transparency.

FIG. 43. 40% Transparency.

FIG. 44. 50% Transparency.

FIG. 45. 60% Transparency.

FIG. 46 has a 70% transparency. Face 3, also known as the Angry Face, is becoming clearer. This was shown in [4] where the overlay is arguably closer than could be done by taking random human faces. There is then less variation between these two faces than there is between human faces. It is probably representing the same creature with different moods or whatever these facial expressions represent. It starts out then as smiling then gets progressively angrier looking, this would happen as the two kinds of facial expressions merged into each other.

FIG. 47 is at 80% transparency. This is mainly the Angry Face; the overlay progresses from the more equivocal Mona Lisa like smile of the main Crowned Face to the angrier expression of Face 3. It then gives shades of emotional expressions as the overlays change. We don't know what these changing facial expressions actually signified, however on Earth we can usually recognize happy or angry expressions in many animals. If the DNA was similar enough for these faces to be recognizable then this may have carried on into similar emotional expressions. In animals, similar emotions are caused by using the same hormones and genes for many functions, adrenaline for example is commonly used with a FIGht or flight reflex. When one animal eats another it makes sense for these similarities to be maintained, a predator might use the adrenaline or parts of it from the prey they devour. Because this is related to FIGht or flight it can be connected to both predator and prey. With panspermia then there may have been enough genetic exchange between the Earth and Mars for similar emotional responses to evolve on both planets.

A Ground View of the Crowned Face

In FIG. 48 below the Crowned Face is adjusted to be viewed from the opposing cliff. The face may be a little too wide but this depends on the shape from shading algorithm in Google Mars. Also, we do not know how wide the creature's faces were, this problem occurs in each face which has its viewpoint changed like this. If these were designed to be viewed from above, then putting them on angled valley walls would have been pointless. It would have been more logical to place them on a plain, even the Nefertiti formation might have been viewable from the other side of the gulley it faces.

A Possible Dumping Ground

The idea of a dumping ground of materials used in the construction of artifacts was raised in [4], however it was part of my searching in the Viking images around Cydonia even before the Mars Orbital Camera images. It represents then a way to distinguish chance formations by looking for these materials used in their construction. Leopold and Langbein [2] discuss how entropy in a river system grows with the uniform distribution of energy. The ejecta of a crater is also an increase in entropy as the disorder caused by the meteor impact creates a random ejecta pattern.

FIG. 46. 70% Transparency.

FIG. 47. 80% Transparency.

FIG. 48. The crowned face from ground level.

FIG. 49 shows a pile of rubble partially in the crater shown. In [4] I proposed this was an ancient dam from a Mars Orbiter Camera image, but this was shown in the HiRise images to be a trick or light and shadow. The dark lines of soil running out of the rubble appeared from another angle to be like the shadows of a dam wall. It is then a cautionary tale of mistakes made in extrapolating shapes from low resolution images.

However, the pile of soil is hard to explain naturally. It is not ejecta because it is on one small part of the crater, also there are no large craters from which ejecta consistent with this rubble could come from. In FIG. 50 below the only crater nearby is shown, it has no ejecta rubble anywhere else and is not a typical crater to be putting out ejecta like this. In terms of entropy the rubble goes against the flow of water forming the valley, whether by a fluvial flow or groundwater sapping. To create a rubble pile energy must be expended to move rocks off the ground, conversely entropy would increase as these rocks eroded away into sand or fell back onto the ground. The crater experienced higher entropy in its formation, however some low entropy expression of energy caused this rubble pile to obscure part of the crater wall. If it was ejecta from another crater, then the random nature of an impact would not concentrate it into one pile. Also, there is light and dark sand under the rocks, some has leached out as if from rainfall. This shows the normal direction of entropy returning the sand to a more random state. There are no indications of a more uniform energy process that would build a mound of rubble like this, or would make the pile larger.

The right-hand crater also appears to be newer and so could not then be under the ejecta from an older crater. There is little sign of erosion in the valley degrading this rubble, the dark streaks may have come from ancient groundwater leaching out some minerals.

The rubble also does not appear to be a dune that could have blown here and could blow away because the rocks are too large, there are many small dunes in the King's Valley unlike this formation. It looks like a pile of large rocks, what someone might have left from constructing the crowned faces. They would not need to take the soil very far, just outside the face area like this is. Assuming any visitors to the valley came from the paleosea in Isidis Planitia (FIG. 51), then this is on the other side of the area they would want to look at. If they came from the paleosea (FIG. 2) over to the King's Valley, then this would also be away from their path. Putting this rubble in the valley then is problematic if visitors would come this way. Nearly all possible artifacts have either been on islands or near shorelines, in this direction there would be no water so there may have been few or no inhabitants coming from this direction.

As shown below this soil partially fills the crater, ejecta is not going to bounce back and land in a crater so it did not come from here. The rubble is so large it would almost fill the crater, it could not then have come from there but seems to be only in this position. There are no piles of rubble like this elsewhere in this valley or anywhere else in the Libya Montes images.

FIG. 52 is from HiRise; it shows the dark soil more clearly. It is likely to have been dumped there as well as the larger rocks. This image shows the pile is higher in the middle, it is like dark soil has been leaching out of the pile on the upper and lower sides. The cliff opposite the pile might also have parts cut out of it. It may have supplied material for the artifacts, or it could have been dug out and placed in a pile so some could be used. As seen below there are no dug out areas in the valley wall away from this pile, there are

FIG. 49. The rubble is in the central crater.

FIG. 50. No ejecta from the crater on the left.

FIG. 51. The Paleosea would have been on the top of this image, in Isidis Crater. The paleolake would have been to the right.

FIG. 52. A Hirise color image of the rubble.

also none in any other part of the valley. It's likely then this rubble came from the cliff or further down the valley where the faces were constructed. Evidence for artificiality need not be a constructed artifact, it can also be the waste left behind that should not be there.

In FIG. 53 many large rocks are on the edge of the crater, some appear to have rolled down the slope. This rubble cannot come from the impact that created this crater, the force is directed outwards. Also, when a crater forms ejecta it expels it in all direction but here it is only on one side. It looks like a pile of rubble which has been slowly settling. It is also a different color to the soil in the crater as well as the soil of the valley, it does not seem then to come from either. There are no other rocks nearby except for on the pile so the rocks do not seem to have come from the soil around it.

Also unusual is the groove shown below (FIG. 54), it seems to have been carved from the hill. It could not form from erosion of something running down the hill because it is at right angles to the slope. It could have acted like a ramp allowing the builders to move materials up and down the hill. In FIG. 54, one end seems to go all the way up to the ground above the valley. Leopold and Langbein [2] discuss how the uniform distribution of energy relates to increasing entropy, however the ramp shape has a relatively constant width and is different from other parts of the valley wall. The constraint here should be the rock in the valley wall, as the water flow carved out this valley it increased entropy and the randomness of shapes on the valley wall. A ramp like this then would be built by expending energy, a creature might do this with tools such as a pick and shovel. As entropy increased the ramp would tend to be erased to look like the rest of the valley wall, not become more like a ramp. In the same way, a ramp should not spontaneously appear elsewhere as the energy distribution becomes more uniform.

The ramp starts at A in the top right of the image at ground level, the builders would have moved down it along the arrow to the left. Then there appears to be a smaller ramp on the left side with an arrow pointing down. The arrow to the right may be another part of this ramp. The elevations are difficult to see from the image, whether the right end of this section is at ground level or above it. Another use may have been to put materials on this lower ramp from the valley floor, then move them to the left and then back to the right up the ramp to the ground level.

Also unusual are these grooves running down the slope opposite the pile (FIG. 55), they are not on other parts of the valley wall as seen from either side of them. They may have been caused by someone rolling the debris down the slope. The problem is if

FIG. 53. A close-up of the rubble.

FIG. 54. A ramp up from the valley floor.

something rolled down the slope it must have been rocks, but these are no longer at the bottom of the slope. But rocks cannot just move themselves from the bottom onto the pile of rubble. Soil might also have been poured down the slope burying the rocks but unlike near the crowned face there are no dunes at the bottom to hide rocks.

These marks may have been caused by someone dragging rocks and baskets up and down the slope, perhaps with a rope. Some appear then to have dug into the slope like a rope making a groove. There are no other marks like this in the King's Valley.

At the other end of the King's Valley there appears to be a cut in the bank, on the left side of the dunes running down the valley. This might also be from taking soil for construction, however this would be along the proposed path for entry so it may be a designed shape. On the right of this is a similar cut which is in the silhouette shape of a crowned face shown upside down. This is shown in

FIG. 55. Vertical grooves in the valley wall.

FIG. 56 below. Leopold and Langbein [2] discuss how entropy increases with the uniform distribution of energy, however the cuts (FIG. 56 and 57) are consistent with a low entropy carving of shapes against this natural terrain. They are surrounded by the natural shapes that water erosion would provide, experience would suggest over time these cuts would disappear and look like the rest of these images. Conversely increasing entropy should not be cutting the rover bank like this or carving out face shapes.

Next to this is a cleared area like a crowned face, (FIG. 57) now the right way up. This is difficult to explain naturally because the dunes at the right stop on its edge, they should have spread over it too. It is a depression so the dunes should not have been stopped by it. Even this is very hard or impossible to explain naturally, the sand in dunes should move with gravity and not stop on the edge of a depression. This is seen in the bottom part of this face shape where some dunes have crossed into it. If this depression was as old as the valley, then the dunes should be all through it or at least over its upper right edge. To see that it is a depression there is a small crater to its upper right with the shadow on its right edge. This is the same side as the right edge of the face shape, hence it is a depression. The cut bank is on the other side of the dunes, on the right.

The Jetty Structure

In FIG. 58, the crowned face is shown at the bottom, at the top is a jetty shape. This appears to be where the paleosea began as shown in FIG. 4. the terrain is much smoother and it appears like a shoreline.

In FIG. 59 below this shape is found in a HiRise image ESP_019357_1835. It may be an imprint from a former organically based structure like a wooden jetty. It is virtually exactly where someone would walk to from the King's Valley entrance to get to the water in the shortest path.

FIG. 60 shows how this jetty shape is partially in the red rectangle of the HiRise image. There is no clear path from the jetty shape southward like a road or steps, however there are some smoother areas and the path would not be difficult. A trail might be buried under the sand.

FIG. 61 shows an adjacent square shape, perhaps another part of the jetty. It would indicate these were made of organic materials since they would have completely disappeared leaving a hollow. It can then be other buildings may have used organic materials, perhaps explaining why few are seen now. An imprint like this then can imply some formation was there that disappeared completely, this can give insights on possible kinds of construction. Just below this is a smoother area where someone could have moved from the jetty and this shape to the right and then south. This path is marked with the arrow pointing right, the second indented jetty area is marked as A.

FIG. 62 shows the jetty shape is directly in line with the large face, travelers could then have moved directly from left to right here and then seen the large face from a cliff top.

FIG. 56. A possible cut in the wall of the valley.

FIG. 57. A crowned face-shaped depression.

In FIG. 63 the straight line shows a bird's eye path from this large face to the King' Valley. This indicates how the jetty shape is the nearest point on the coast. A possible path is shown as a series of lines following the lower areas, then past the large face into the main face area. Alternatively, visitors could have come via the paleolake in FIG. 2.

In FIG. 64 is another image of the jetty shape from a CTX context image, it appears clearer with different shadows.

FIG. 65 shows an outline of the main jetty shape, north of this would have been the paleosea.

The Large Face

FIG. 66 shows a CTX context image of the large face shape. This would have been the first face the hypothetical visitors would have seen. They would likely have observed this from the ground so the shape would have been foreshortened. It can also be a natural hill at the fork in the river system. A hypothesis is that someone rearranged some of this hill to appear more face like. Differentiating the face from the natural hill relies mainly on appearance which can also be pareidolia. It represents an a priori prediction that reimaging this formation will make it look more artificial. It also predicts that features will be found falsifying the natural or geological hypothesis that this was formed by erosion.

FIG. 58. The jetty to the King's Valley.

FIG. 59. A close-up of the jetty shape.

FIG. 60. The jetty shape on this coastline.

FIG. 61. A second jetty shape.

FIG. 67 shows possible eyes, nose and mouth. Without knowing the angle of viewing and the exact shape of this hill it cannot be determined whether these features are of the right proportions.

It is hard to accurately render how this face would have appeared from the opposite cliff. Google Mars has a limited ability to extrapolate elevations from the shape and the shading. It is still recognizable as the face shape below (FIG. 68), however the Meridiani Face and Nefertiti both seem to be made to be seen from above. It is not clear if this is artificial, however the motif of a crown is used so many times in the King's Valley that some modification of this hill would seem logical. HiRise images of this may be needed to resolve this question.

FIG. 69 shows another CTX context image, the left eye is ambiguous perhaps because of erosion or the wrong viewing angle. Different images have slightly different shading which makes some features stand out more.

FIG. 62. The jetty compared to the large face position.

FIG. 63. Two possible routes.

FIG. 64. Another image of the jetty shape.

FIG. 65. The jetty outlined.

FIG. 66. The large face.

FIG. 67. Outlined features.

FIG. 68. A simulated low angle view.

FIG. 69. Another CTX image.

FIG. 70 shows this left eye lower down, perhaps from the wrong viewing angle. The eyes, nose, and mouth appear to be well defined in all three images shown. The left eye can be drawn higher up in its cavity to be more naturally proportioned.

FIG. 71 below has a slightly different angle, the left eye cavity is more visible.

The eyes, nose, and mouth are again marked. This represents a successful prediction, that these features should be more face like in the CTX images than seen in Google Mars. The left eye is lower than it perhaps should be but this is seen also in the Crowned Face. It may look more in proportion when viewed from the cliff on the left. Overall the left eye is much clearer in these images with a suggestion of a mound in it acting as a pupil. Lips also seem to be more visible, with the crown there is a strong resemblance to the main Crowned Face.

Another interpretation is the eyes would have been higher (FIG. 73), the crown would then begin above the words "eye" and then extend up to the top of the image. To resolve this a HiRise full resolution image is needed.

FIG. 74 shows a square shape on the cliff opposite the large face, this may have been a viewing platform. Visitors then may have moved from the jetty to this platform.

FIG. 75 shows this with straight lines, there are no other straight rock formations in this image. The other straight shapes nearby appear to be dunes but this square is not a dune.

FIG. 76 shows the square just to the right of the letter A. This could have been a viewing area for the Large Face.

Face 18 Reimaged

Face 18 (FIG. 77) also appears more artificial when reimaged by HiRise. Some of the early faces were numbered for reference in [4]. This is also the face marked A (FIG. 21) the reclining crowned Figure is looking at.

In FIG. 78, A and C are eye shapes with iris shapes at B and D. The left eye is lower as with faces 1,2, and 3. E is a crown shape similar to the previous 4 faces. I is a jawline like Faces 2 and 3.

Conclusions

The King's Valley was probably next to a paleosea that lasted for close to a billion years. It is in an area considered to be a plausible location for Martian life to have existed. This are would have experienced many cycles of rain and a water table or groundwater

FIG. 70. A different left eye position.

FIG. 71. A third CTX image.

FIG. 72. A third set of face features outlined.

FIG. 73. An alternative set of facial features.

FIG. 74. A possible platform.

FIG. 75. The square outlined.

FIG. 76. The possible viewing platform and the large face.

FIG. 77. A partially buried face.

FIG. 78. The face outlined with annotations.

connected to the paleosea. There have been suggestions of stromatolite fossils and microbial mats have been observed by the Rovers nearby in Gale Crater [4] according to Bontemps [19]. This could have been food for the five-possible species of fish on the King's Valley wall. In turn this can represent a food chain for life that was intelligent enough to build these simple structures before going extinct. It then depends on whether this paleosea existed for long enough and whether Martian life could have evolved quickly enough before the planet cooled. Some chance mutations in a high radiation environment may have caused accelerated evolution to occur. Alternatively, Mars could have been terraformed by visiting aliens of an AI probe as explored in [4]. By creating Tharsis Montes and Elysium Mons this would have caused these paleoseas to form. Much of this is speculation but is based on the geological evidence generally accepted.

The formations over and over portray crowned faces and Figures in different poses and expressions rather than other possible shapes. This represents low entropy and low degrees of freedom, each time the similarities repeat they could have been something recognizable yet very different. This is not how pareidolia works, we might see something we recognize as a face but not as the same kind of face over and over. In the author's opinion, there is simply too much evidence in the King's Valley for a natural explanation to be credible.

REFERENCES

- 1. Orme GM. Possible alien artefacts in Libya Montes Mars. J Space Explo. 2015;4(2).
- 2. Luna BL, Walter B. The concept of entropy in landscape evolution. Geological survey professional paper 500-A United States Government Printing Office, Washington; 1962.
- 3. Erkeling G, Reiss D, Hiesinger H, et al. Valleys, paleolakes and possible shorelines at the Libya Montes/Isidis boundary: Implications for the hydrologic evolution of Mars. Icarus. 2012;219(1):393-413.
- 4. Orme GM. Why we must go to Mars: The King's Valley Createspace; 2011.
- Ivanov MA, Hiesinger H, Erkeling G, et al. Major episodes of geologic history of Isidis Planitia on Mars. Icarus. 2012;218(1):24-46.
- 6. Jaumann R, Tirsch D, Hauber E, et al. Water and Martian habitability: Results of an integrative study of water related processes on Mars in context with an interdisciplinary Helmholtz research alliance "Planetary Evolution and Life''. Planet Space Sci. 2014;98:128-45.
- 7. Erkeling G, Reiss D, Hiesinger H, et al. Landscape formation at the Deuteronilus contact in southern Isidis Planitia, Mars: Implications for an Isidis Sea? Icarus. 2014;242:329-51.

- 8. Sprenke KF, Baker LL. Polar wandering on Mars? Lunar and Planetary Science XXXI; 1930.
- 9. Souček O, Bourgeois O, Pochat S, et al. A 3 Ga old polythermal ice sheet in Isidis Planitia, Mars: Dynamics and thermal regime inferred from numerical modeling. Earth Planet Sci Lett. 2015;426:176-90.
- 10. Souček O, Bourgeois O, Pochat S, et al. Landform assemblage in Isidis Planitia, Mars: Evidence for a 3 Ga old polythermal ice sheet. Earth Planet Sci Lett. 2015;411:253-67.
- Crumpler LS, Tanaka KL. Geology and MER target site characteristics along the southern rim of Isidis Planitia, Mars. J Geophys Res Planets. 2003;108:E12.
- Erkeling G, Reiss D, Hiesinger H, et al. Morphologic, stratigraphic and morphometric investigations of valley networks in eastern Libya Montes, Mars: Implications for the Noachian/Hesperian climate change. Earth Planet Sci Lett. 2010;294(3):291-305.
- 13. Jiangang L, Jun L, Lu F, et al. Seeing Jesus in toast: Neural and behavioral correlates of face pareidolia. Cortex. 2014;53:60-77.
- Lazzaro Paolo D, Daniele M, Barrie S. Pattern recognition after image processing of low-contrast images, the case of the Shroud of Turin. Pattern Recogn. 2013;46(7):1964-70.
- Sheen M, Jordan Tr. Believing is seeing: A perspective on perceiving images of objects on the shroud of Turin. Arch Psychol Relig. 2016;38(2):232-51.
- William RS, George JH, James SM, et al. A composite band of facial features within a winding valley of Libya Montes on the planet Mars. J Space Explo. 2015;4(2).
- 17. High Resolution Imaging Science Experiment [internet]. Frequently Asked Questions about HiRISE [Cited on March 31st, 2017]. Available from: [https://hirise.lpl.arizona.edu/faq/#Colors]
- Giorgio B, Vincenzo R, Nicola C. Opportunity rover's image analysis: Microbialites on Mars? Int J Aeronaut Space Sci. 2014;15(4):419-33.
- 19. Bontemps J. Potential signs of ancient life in Mars rover photos. Astrobiology Magazine; 2015.