

RESEARCH  
ARTICLE

# The Badlands Guardian: A Human Portrait with Feathered Headdress

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## HIGHLIGHTS

A famous pattern within a glacier-related landform in Canada might not be a natural formation but man-made artwork depicting a human head in a feathered headdress. If this idea is confirmed, it would represent an important new archaeological discovery.

## ABSTRACT

This is an analysis of a large facial formation known as the Badlands Guardian, set within a glacial moraine along the southeast corner of Alberta, Canada. The formation is presented here in one aerial and three satellite images acquired over the past 70 years by the Alberta Department of Lands & Forests and Google Earth. The images reveal a profiled portrait of a human head wearing a feathered headdress. The facial features include an eye, nose, mouth, chin, neck, and jawline. The headdress consists of a headband containing a staggered set of feather-shaped extensions. When taken together these aesthetic features create the visual impression of a left-facing portrait of an indigenous tribesman wearing a feathered headdress. A claim of intelligent shaping is offered, and a geologist and geoscientist examine natural mechanisms that could contribute to the formation of these aesthetic features. A comparison of the iconographic tribal motifs of both North and South America is presented and a request for an extensive ground exploration and additional satellite images of this formation is encouraged.

## KEYWORDS

Badlands Guardian, Medicine Hat, Alberta, Mayan, geoglyph, archaeology, proportional image analysis

## HISTORY

A large, profiled portrait resembling a left-facing human head wearing a feathered headdress was discovered in the southern region of Alberta, Canada, by Lynn Hickox in November 2006 (Figure 1). The formation was found while accessing Google Earth in search of directions to a local dinosaur museum (Rajkumar, 2014). Hickox noticed a large facial portrait with a feathered headdress set within the winding hills and shallow gullies of the region. The image resembled a portrait of an indigenous tribesman whose people occupied the surrounding area that encompasses a portion of the western plains of the United States and Canada. The facial features included a forehead and

brow, an eye, nose, and mouth with lips. It continues with a chin, jawline, and neck which are supported by a pair of shoulders. There is also a linear road that leads up the neck to a small structure.

## THE HUMAN PROFILE WITH FEATHERED HEADDRESS

### The Alberta Department of Lands & Forests

Before the advent of Google Earth, an aerial image of the area was acquired by the Alberta Department of Lands & Forests (ADLF) during a mapping period between 1949 and 1951 (Figure 2). The aerial photographs





**Figure 1.** Badlands Guardian. Alberta, Canada (Google Earth, 2006).



**Figure 2.** Badlands Guardian (circled) in Alberta region, Canada. Detail of Alberta Department of Lands & Forests image (1949–1951). (Photo credit: University of Lethbridge Digitized Collection)



**Figure 3.** Badlands Guardian in Alberta, Canada. Detail of Alberta Department of Lands & Forests image (1949–1951). University of Lethbridge Digitized Collection.

of the area acquired by the ADLF are currently available at the University of Lethbridge Digitized Collection (Spatial Data Collection, 1949/1950/1951).

The ADLF image shows a distinct human profile with a large, feathered headdress. One can see the contours of a nose, mouth, chin, and jawline (Figure 3). There is also evidence of the neck, shoulders, and shirt.

### Google Earth (Alberta Region)

Over the past twenty years, three satellite images of the Alberta region have been acquired by Google Earth that includes the area surrounding the Badlands Guardian. The formation is located between the coordinates of 50° 0'38.20"N, 110° 06' 48.32"W. This set of satellite images track the seasonal effects on the facial features and headdress observed by Hickox in 2006. The first Google Earth image was released on November 13, 2002 (Figure 4). This image provides the highest clarity and resolution of the overall formation. It provides evidence of the forehead and brow, an eye with eyelid, a nose, and a mouth with full lips. It also shows a chin, jawline, and neck, which are supported by a pair of shoulders. The headdress is created by a set of feather-like extensions that flow from the back of the head toward the east. One can see a small structural compound with a linear road leading down its neck.

The second satellite image was posted on December



**Figure 4.** Badlands Guardian in Alberta, Canada. Image detail, Google Earth, 2002.

30, 2012 (Figure 5). This image was taken in early winter and its contours are dark and slightly distorted. The dark areas appear to be caused by dense foliage obscuring linear detail. You can see the forehead, eye, and eyelid. The formation has a defined nose bridge; however, the nostril area is severely darkened by shadow or foliage. The lips are also dark and appear swollen. The contours of the chin are slightly dissolved, while the jawline and neck are pronounced by the darkened terrain. The feathered headdress is still recognizable; however, it lacks the detail observed in the 2002 image.

The most recent image of the area was taken during midsummer and released on August 31, 2015 (Figure 6). The facial detail in this new image is faint and appears washed out in some areas. This may be the result of harsh sunlight or being partially obscured by foliage.

### Geological Context

The topographical landforms in the Alberta region of Canada include relief forms that range in size from mountains to sand dunes, eskers, moraines, sandy beaches, and floodplains (Mollard, 1972). The landforms in the area of the Badlands Guardian are dominated by the remnants of glacial moraines left behind by the Laurentide ice sheet Kulig (1996). The glacial maximum occurred about 20,000 years ago and reached a thickness of more than one kilo-



**Figure 5.** Badlands Guardian Alberta, Canada. Image detail, Google Earth, 2012.

meter thick (Cavanaugh et al., 2006). The ice surrounding the area was completely gone roughly 11,000 years ago (Campbell, 1997), and further alteration of the landscape was left to the effects of rain, snow, and wind (Museum of Archaeology & Ethnology, no date). To fully understand the present landscape we have to consider the effects of glaciation and glacial meltwater processes.

The glacial impact entered the region on a southwestern trajectory, as evident by the streamlined subglacial bedforms that are illustrated by the black lines in Map 1 (Atkinson et al., 2014). Glacial moraines are unconsolidated deposits of rocks, sand, silt, and clay called till (illustrated by the brown lines in Map 1). Within the moraines are minor meltwater channels which carved themselves into the glacial till creating coulees and gullies (illustrated by the thick and thin blue lines in Map 1). Although in a semi-arid region, the moraines and coulees have seen further alteration by rain and snowmelt over the millennia since the final meltwaters disappeared. The face and headdress are, in most part, concave features defined by the surrounding ridgeline. The interspersing of smaller ridges adds definition to the facial contours and shape of the headdress.

The curvaceous topography that supports the overall facial formation of the Badlands Guardian is blanketed with prairie grass and sparse vegetation cover and conforms to the surrounding lithologies which are dominated by active smectite clays and steep slopes that are associated with well-defined rill systems (Kerr & Cooke, 2017).

The central axis of the head is perfectly aligned to due north while its gaze is due west. Its interior basin contains a structural compound with a linear feature running down its neck that many observers have interpreted as an iPod



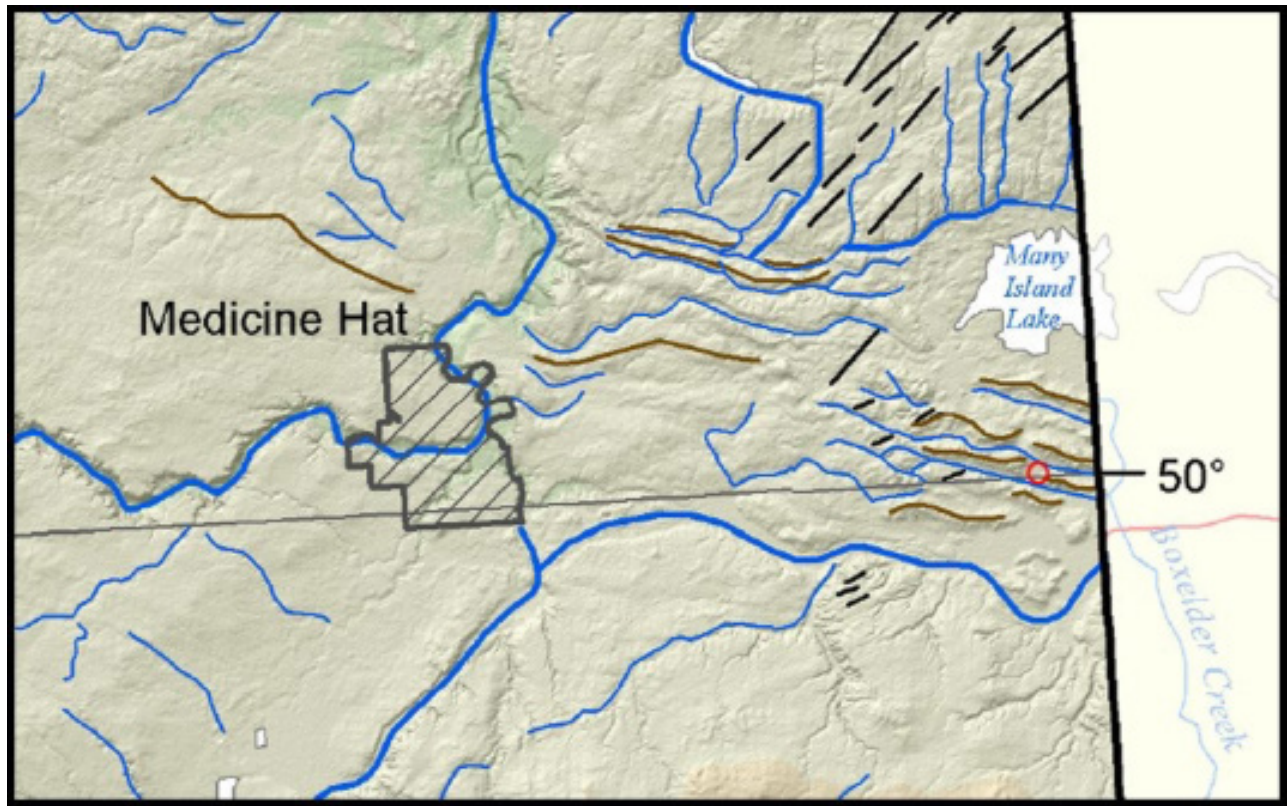
**Figure 6.** Badlands Guardian in Alberta, Canada. Image detail, Google Earth, 2015.

or earphone, with an attached wire leading down its neck (Hutcheon, 2006). The “iPod” and attached “wire” are a gas wellhead and access road that are situated in one of Canada’s key natural gas fields (50° 0’38.20” N, 110° 6’48.32” W). The nearest urban center to the site is the city of Medicine Hat (Map 1). The city, which claims to be Canada’s sunniest spot, has more than 63,000 residents and is known as “The Gas City.”

### Anatomical Analysis and Measurements

The facial features and headdress of the Badlands Guardian are illustrated in an analytical drawing provided in Figure 7, while its features are highlighted in Figure 8 with each of its proposed features labeled A through T.

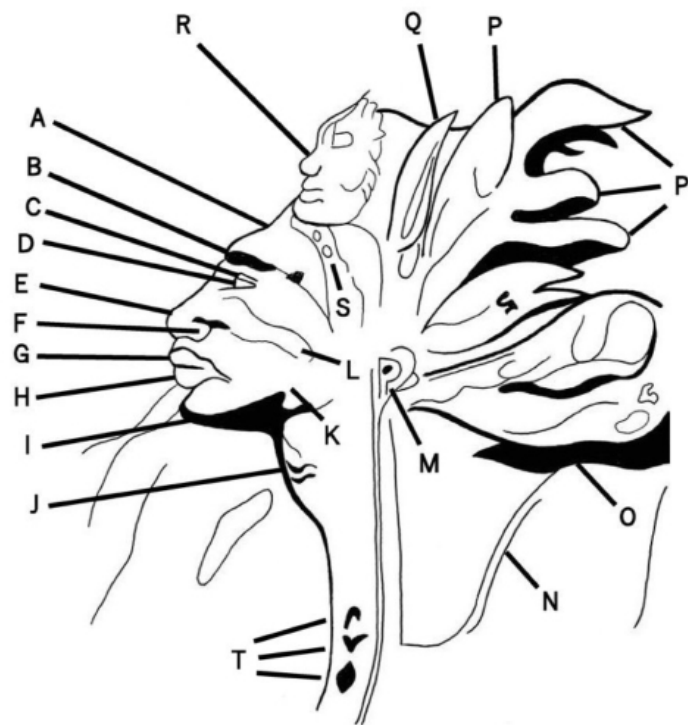
The features notated in Figure 8 include a forehead (A) with brow (B) and eye socket and eyelid (C) that support a profiled view of an eye (D). The eye is positioned correctly, by showing a side-view orientation. The face also has a defined cheek form (L), a nose (E) with a defined nostril (F), and a pair of upper (G) and lower lips (H). The area in which an ear should be located has been obscured by an odd feature that resembles an earphone or earbud with an attached wire (M). This odd feature is an access road leading up to a building that supports a natural gas drilling lease and wellhead. The original ear feature may have



**Map 1.** Alberta Geological Survey Map 604 [detail] (Atkinson et al., 2014). Red circle = location of Badlands Guardian. Black lines = streamlined bedforms. Brown lines = moraine ridges. Thick blue lines = major meltwater channels. Thin blue lines = minor meltwater channels.



**Figure 7.** Badlands Guardian, Alberta, Canada. Image source: Google Earth, 2002. Analytical drawing by George J. Haas.

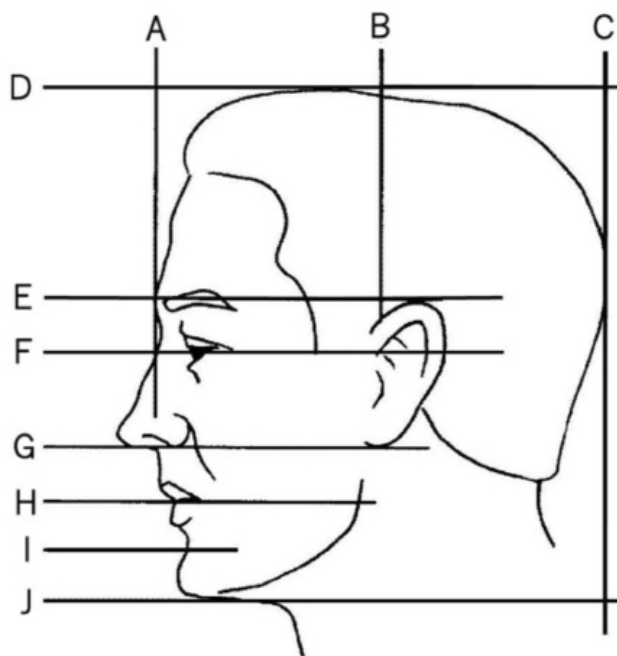


**Figure 8.** Badlands Guardian, Alberta, Canada, with notated features. Image source: Google Earth, 2002. Analytical drawing labeled A–T by George J. Haas.

been destroyed when constructing the drilling pad and access road. The contours of the head show a highly defined jawline (K) and chin (I), which are supported by a thick neck with aligned marks (J) and a lower neckband of embedded symbols (T). The portrait is further supported by a broad pair of flanking shoulders. The right shoulder (O) has two parallel ridgelines that flow from the top of the shoulder, down to the neck. The closest ridge line curves under the neck suggesting the partial figure is wearing a vest or sleeveless shirt (N). The main headdress includes what appears to be a single feather or a sharp horn-like feature (Q) which stands before a set of large feathers flowing from the back of the headdress toward the east (P). There is also evidence of a linear headband or facial tattoo with a dot pattern (S) that runs down along the forehead. The front of the headdress has a small facial portrait (R) of an effigy head that is attached just above the Badlands Guardian's forehead (A). The left-facing effigy head has a large nose, an eye socket, and fish barbs along the top of its head and side of the jawline.

The standard proportions of a human head, when viewed in profile, can be divided into ten sections that start from the forehead (A) to the bottom of the chin (J) (Figure 9). Beginning with the eye (F), it is positioned halfway between the top of the head (D) and the bottom of the chin (J). The nose and nose bridge occupies an area between the center of the eye (F) and lob of the ear (B), which is twice as long as the area between the bottom of the nose (G) and the center of the lips (H). The bottom of the nose (G) is positioned halfway between the eye (F) and the chin (J). The mouth and lips (H) are one-third of the distance between the nose (G) and the chin (J), while the distance between the eyes (F), in a frontal view, is equal to the width of one eye. The corners of the mouth (H) line up with the centers of the eyes (F). The ear (B) is located at the center of the head. Horizontally it lies between the forehead (A) and back of the head (C), while vertically it lies between the eyebrow (E) and the bottom of the nose (G). The top of the ear (B) lines up slightly above the eye (F) and is in line with the outer tips of the eyebrows (E). The bottom of the ear lines up with the bottom of the nose (G). The distance between the chin and the bottom of the nose is divided into three equal sections. The first is the distance from the bottom of the nose (G) to the center of the mouth and lips (H). The second section is the area that lies between the central line of the mouth to the beginning of the anterior mandible region of the chin (I). The third area begins where the anterior mandible region starts (I) and ends at the bottom of the jaw (J). The width of the shoulders is equal to the length of two heads (Hogarth, 1965).

When the analytical drawing of the facial features of the 2002 Google Earth image of the Badlands Guardian is

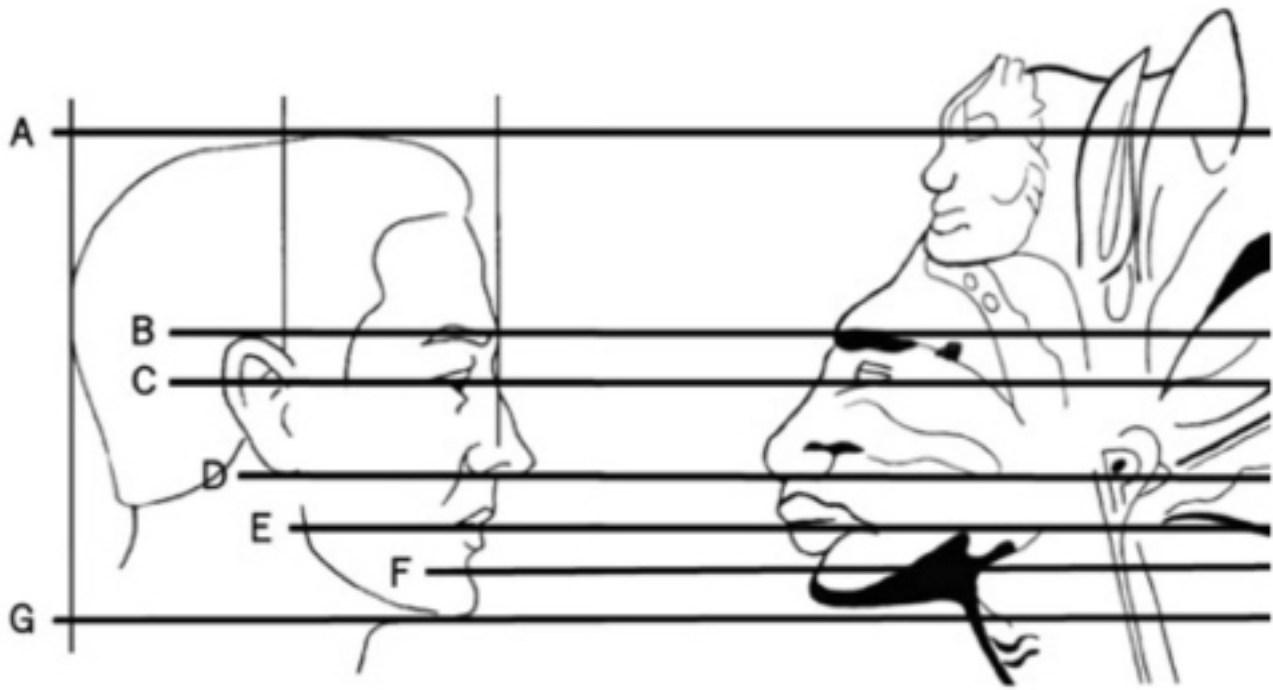


**Figure 9.** Standard proportions of human head, profile. Analytical drawing and notations by George J. Haas.

compared to the standard facial proportions of a human profiled head (Figure 9), a high degree of anatomical correctness can be observed (Figure 10). The position of the eyebrow (B) and eye (C) feature observed within the Badlands Guardian is aligned correctly with the location of the human eyebrow (B) and eye (C). The area extending between the human eye (C) and the bottom of the nose (D) is equal to the area between the eye (C) and nose formation (D) observed within the Badlands Guardian. The three segmented areas of the human profile located between the bottom of the nose, which includes the mouth and lips (E) and mental region of the chin (G) are also equal to the same facial features observed within the Badlands Guardian. The horizontal alignment of the corner of the mouth of the human profile with the side of the nose and the center of the eye can also be observed within the Badlands Guardian.

Utilizing the 2002 image of the Badlands Guardian and the measuring tool provided on Google Earth, we found that the overall dimensions of the formation fell within those of a template for a human head. The measurements were found to be proportional and adhered to the proper orientation of a human face.

The structural perimeters from the tip of the nose to the back of the head equals the distance from the chin to the top of the forehead, which measures 230 m. The distance from the base of the chin (labeled G in Figure 10) to the top of the mental region (labeled F in Figure 10) measures 20 m, from the mental region to the center of the lips (labeled E in Figure 10) is 22 m. The distance from the



**Figure 10.** Proportions of human head, profile with Badlands Guardian. Left: Human head. Drawing by George J. Haas. Right: Badlands Guardian. Image source: Google Earth, 2002. Analytical drawing by George J. Haas.

center of the lips to the base of the nose (labeled D in Figure 10) measures 22 m. The distance from the base of the nose to the center of the eye (labeled C in Figure 10) measures 65 m. The measurement from the center of the eye to the brow and forehead (labeled B in Figure 10) is 22 m. The width of the mouth is 44 m, while the width eye socket is 22 m.

Utilizing a vintage portrait of a Native American Indian taken in the early 1900s by the American photographer Edward Curtis, a comparison of common facial features can be examined (Figure 11). Notice the alignment shared between the eyebrow (a) and the eye (b) of the Native American Indian with the carved features of the Badlands Guardian. There is also a common alignment between the start



**Figure 11.** Profile comparison. Left: Profile of Native Man, Edward Curtis (circa 1907). Right: Badlands Guardian. Image detail Google Earth, 2002.

of the nose bridge (b) and the bottom of the nose (c). The full lips and strong chin of the Native American Indian are directly aligned with its companion features located on the Badlands Guardian in Alberta, Canada.

## CULTURAL REFERENCE

The Badlands Guardian is located roughly forty kilometers east of the city of Medicine Hat, Alberta. The name "Medicine Hat" is the English translation of 'Saamis' (SA-MUS), which is a Blackfoot word for the eagle tail feather headdress worn by medicine men called the Medicine Hat (Peters, no date). Several legends are associated with the name Medicine Hat. One tells of a mythical "merman" or river serpent named Soy-yee-daa-bee—the Creator—who appeared to a hunter and instructed him to sacrifice his wife to get mystical powers which were manifest in a special hat. Another legend tells of a battle that took place long ago between the Blackfoot and the Cree in which a retreating Cree "Medicine Man" lost his headdress in the South Saskatchewan River (Levasseur et al., 2014).

The stern facial features and feathered headdress worn by the Badlands Guardian (Figure 4) have a remarkable resemblance to indigenous tribal peoples of both North and South America. Figure 12 provides a photograph from 1872 of a Sioux medicine man, known as Many Horses, wearing a Medicine Hat. Notice the open arrangement of large eagle tail feathers.



**Figure 12.** Many Horses wearing a Medicine Hat (detail). Teton Lakota (Sioux), 1872. Note the eagle tail feather headdress.

The facial features of the Badlands Guardian also strongly resemble the portraits of young lords often depicted on Mesoamerican vessels such as those produced by the Maya. On a Codex-styled vase, from Mexico (Figure 13), is the image of a young lord presented with a similar profile showing a prominent nose bridge and nose. The young lord also wears a headdress adorned with a staggered set of eagle feathers.



**Figure 13.** Maya lord with feathered headdress, detail of Codex style vase K1229, Mexico. Drawing by George J. Haas.

## Terrestrial Geoglyphs

The majority of comparative examples of manipulated terrestrial geology come to us in the form of earthworks that were created by ancient cultures throughout North and South America. Many of these huge mounds and earthworks were shaped like animals and human figures, while others took the form of geometric symbols. It is estimated that the number of earthworks found throughout North America number in the hundreds of thousands. However, over time almost all of these monuments have been either destroyed by natural erosion or by the rapid expansion of rural and urban development.

There are a limited number of terrestrial examples of profiled heads that exhibit the same level of detail and content observed within the superior profiled face of the Badlands Guardian. The best examples are found in figurative and facial portraits that were created recently. Two such marvels were created in the 20<sup>th</sup> century in South Dakota. The first is Mount Rushmore with four portraits depicting U.S. presidents George Washington, Thomas Jefferson, Theodore Roosevelt, and Abraham Lincoln. The second is the Crazy Horse Memorial. Moving east there is the Civil War memorial at Stone Mountain in Georgia fea-



turing Jefferson Davis, Robert E. Lee, and Thomas “Stonewall” Jackson. Looking to the other side of the globe we must recognize the colossal facial carving of Decebalus, the last king of Dacia, carved on a mountain in Romania. Unfortunately, none of these faces can be seen from above. They are all designed to be viewed from the ground within a horizontal plane.

Since there are a limited number of examples of facial portraits to be viewed from above within the available database, only five meet the criteria of this study with comparable detail and content.

There are two surviving examples of humanoid faces etched on the surface of the Nazca plains of Peru. The first is a round humanoid face (Figure 14). Notice the formation’s basic simplicity, which consists of two round mounds forming a pair of eyes, a rectangular shape as a nose, and an oval impression forming a mouth. The circular head measures about 9 m by 8.5 m. The formation also has an arrangement of radial lines on the left and right sides (Levasseur et al., 2014) (Figure 14).



**Figure 14.** Round humanoid face, Nazca, Peru (400 BCE).

The second example is a figurative geoglyph with a round head known as the Astronaut or the Spaceman (Figure 15). Notice its facial features are very basic. It has a bulbous head with two circular eyes and a round mouth. It has a long slender body with two legs and blocky feet that resemble the clay animation figure Gumby. It also has an outstretched left arm above its head.

A third example is a simple rendering of an immense human head located just beyond an ancient complex of half-buried pyramids found within the ruins of Caral, Peru (Figure 16). The half-faced formation was discovered in early 2000 at a site that has been dated to well before 2600 BCE (Solis et al., 2001). Produced by precisely placing stones across the surface, a D-shaped head is created with a sweeping mat of raked hair and a large gaping mouth. The forehead appears incomplete and there is no evidence of an ear or neckline. Its facial features include a large nose and a small, undefined, football-shaped eye.



**Figure 15.** Astronaut (spaceman), Nazca, Peru (500 BCE).



**Figure 16.** Grotesque Face, Caral, Peru (2500 BC). Courtesy of Smithsonian, August 2002, Vol. 33. No. 5, page 64.



**Figure 17.** Marcahuasi Face, Marcahuasi, Peru.

The fourth example is the Marcahuasi Face or the Monument to Humanity (Docore, 2006), also located in Peru. It is found within a plateau in the central Andes of Peru known as Marcahuasi (Figure 17). The rock formation takes on the shape of a profile face of a woman. The head includes a smooth helmet-like feature that ends with a curling hairline that covers the ear and the side of the face. Its facial features include a forehead and recessed eye socket with an eye. It has a slightly curved nose bridge that ends with a rounded tip. Below the nose is space for a philtrum that meets the mouth. The mouth is parted, and a darker coloring of the rock highlights the lips. The face ends with a strong chin and a short jawline. All these features appear to be spaced within the standard proportions of a human head.

The last example is the most recent. It is a 455-foot portrait of the founder of the Mongol empire, Genghis Khan

that was produced on a hillside in the south of Ulaanbaatar, Mongolia in 2006 (Figure 18). Local Chinese artists created this gigantic face on a Mongolian hillside to mark the summer festival celebration of Naadam. Genghis Khan's portrait was created by exposing the white stone under the surface of the hillside (Chris, 2007).

The contoured linear portrait of exposed white rock creates an elongated head wearing a small hat with a rectangular brim. The oval-shaped head has an ear on the left side of the head with an earring. The eyes are almond-shaped with simple linear eyebrows. The right eyebrow flows down forming the ridge of the nose while a large arching line forms a mustache above a trapezoid-shaped mouth. The shoulder line is not parallel, with his right shoulder sitting higher than the left. The jaw is bracketed by a pair of vertical lines suggesting the collar of a V-necked shirt.



**Figure 18.** Genghis Khan, hillside in the south of Ulaanbaatar, Mongolia, 2006.



**Figure 19.** Genghis Khan, hillside in the south of Ulaanbaatar, Mongolia. Left: Google Earth, 2006. Right: Google Earth, 2022.

### Google Earth (Ulaanbaatar Region)

Over the past 14 years, 3 satellite images of the Ulaanbaatar region of Mongolia have been acquired by Google Earth that include the area surrounding the Genghis Khan geoglyph. This set of satellite images tracks the seasonal effects on the facial features since it was created. The first Google Earth image was released in 2008 and provides the highest clarity and resolution of the overall formation (Figure 18). The second Google Earth image was released in 2013 (Figure 19). This image shows that the linear portrait has maintained much of the clarity and resolution and is comparable to the first. The third Google Earth image was released in 2021 (Figure 19). The current image reviewed in 2022 shows massive erosion of its left eye and eyebrow. The contours of the left side of the nose and mouth are also highly diminished along with the vertical lines of the collar.

As was done with the profiled view of a human head with the Badlands Guardian, we have created a comparative portrait of a frontal view of a human head with the Genghis Kahn portrait. In this comparison, we obtained a portrait of a native Mongolian man provided by the photographer Cyril Galline (Figure 20). Starting with the hillside portrait of Genghis Kahn, notice the alignment between the top of his head or hat (a) are not in alignment with the similar features seen in the portrait of the Mongolian man (a). The intersection of the forehead and hat line is almost in agreement within the two portraits (b). The eyebrow (c) and eye line (d) of the Genghis Kahn portrait is above the eyebrow (c) and eye line (d) of the portrait of the Mongolian man. There is, however, a common alignment between the start of the nose bridge (d) and the bottom of the nose (e) in both portraits. The full lips of the Genghis Kahn portrait are also directly aligned with the lips of the portrait of the



**Figure 20.** Portrait comparison (frontal view). Left: Genghis Kahn, hillside in Ulaanbaatar, Mongolia (2006). Right: Portrait of Mongolian man by Cyril Galline.

Mongolian man (f). The strong chin of the Genghis Kahn portrait (g) falls far below the chin seen in the portrait of the Mongolian man (g). Unlike the portrait comparison between the Badlands Guardian and the profile of a Native Man, in which every facial feature fell within the standard proportions of a human head, the geoglyphic portrait of Genghis Kahn does not.

## FALSE IMAGES

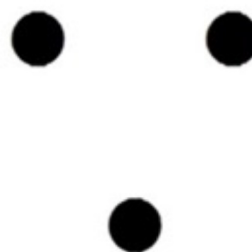
The types of facial formations we see within a random landscape, along rolling hills and mountain ranges can be referred to as false faces. They are normally viewed from the ground with the sky as a backdrop and the facial formation rarely points skyward. They normally require unique lighting conditions and a particular viewing perspective to be fully recognized. The Old Man of the Mountain located in New Hampshire is a common example used to show how these false faces are created within the natural landscape (Figure 21). Notice the jagged profile of the old man's face only vaguely resembles a profile. The facial formation includes a pointy chin, a blocky nose, and a heavy brow. The profile is very basic, there isn't much detail.

The Old Man of the Mountain was so popular that it became an iconic monument, which was used as the state's emblem. It was also featured on license plates along with a U.S. postal stamp and a coin. Unfortunately, after many years of structural fatigue, the popular formation collapsed in 2003 (Dakss, 2003).



**Figure 21.** Old Man of the Mountain, New Hampshire.

Like the Old Man of the Mountain, most of these natural facial formations are crude or grotesque in some manner and generally consist of only an outlined silhouette with very little facial detail. They don't conform to the right size, shape, and orientation of a properly proportioned face. At best they are generic imprints of a face and project only the slightest hint of an eye, nose, and mouth. They never contain secondary features, such as an iris, nostrils, cheeks, defined lips, hair, or even ears. Despite the lack of an official reference guide providing a standard for designating an acceptable facial formation as artificial, it can be agreed that the pattern-seeking mind needs only the barest of features to see a face. One can argue that the mind's eye needs only the modest hint of a face, such as a triangular grouping of mounds set within a vacant landscape (Figure 22). Although the mind forms a visual projection of a facial formation by transforming this group of mounds into a pair of eyes and a nose (Levasseur et al., 2014), we are aware that these are mounds and not a real face.



**Figure 22.** Facial projection with 3 mounds. Graphic by the authors.

## SIMULACRUM AND PAREIDOLIA

The observation of unnatural formations that resemble recognizable animals and face-like structures within any given landscape should be challenged by secondary observers and mainstream scientists. These types of formations are often dismissed and reduced to nothing more than the brain's tendencies to find faces in rock formations by creating recognizable patterns. These facial formations are thought to be the effects of our imagination or illusion-based conditions known as simulacrum or Pareidolia.

The word simulacrum is based on a Latin word meaning likeness or similarity. It is a word often used by skeptics referring to the human mind's ability to anthropomorphize inanimate objects and for the eye to perceive facial and figurative representations in the natural environment (Mamiya, 2016). They classify them as visual projections created by chance and that were not intentionally created.

The origin of the word “pareidolia” finds its roots in the study of mental illness. It is a visual disorder that haunts a patient’s psyche with facial hallucinations as opposed to anthropomorphic projections. The word first appeared in an 1868 paper published in *The Journal of Mental Science* describing a mental disorder where patients see faces everywhere around them (Longman et al., 1868).

The word was misused in the early 1990s by UFO debunker Steven Goldstein in an article published in the *Skeptical Inquirer* magazine (Goldstein, 1994). Subsequently, the word has been used to reduce any visual acknowledgment of formations such as the Face on Mars to mere projections or hallucinations. From that point on, the word pareidolia became politicized and quickly adopted by skeptics to discredit any facial or figurative pattern observed within a random landscape. The slanderous accusation of pareidolia is now used to convince the inquisitive public that the human eye not only seeks patterns but also can see facial features everywhere, in everyday objects (Palmer & Clifford, 2020).

## IMPLICATIONS AND APPLICATIONS

The individual facial features that produce a recognizable portrait of an indigenous tribesman wearing a feathered headdress within the province of Alberta, Canada, are persistent in four images. One of the images is an aerial photograph taken over the past seventy years and three satellite images taken between 2002 and 2015. All of the images were obtained at different times of day and during different seasons of the year. The surface features are accurately depicted in a 1949–1951 aerial photograph provided by the University of Lethbridge and again in 2002, 2012, and 2015 Google Earth satellite images. This diverse set of images shows the geoglyphic formation is consistent and has maintained structural integrity over the past 72 years. The synthetic impression of the facial features and feathered headdress remains exceptional with regard to its tonality, plasticity, and anatomical appearance. The continuity of cultural references is eloquently expressed within the iconographic motifs of artwork produced in North American and Mesoamerican cultures and shows a common aesthetic design.

The facial features observed in this Badland Guardian (Figure 4) are well proportioned and highly detailed despite the actions of natural depositional and erosional agents. While there are known geological mechanisms that are capable of creating and destroying the individual facial features presented in this formation, the natural creation of aesthetically designed formations within the limited boundaries of anatomical correctness seems to go well beyond the probability of chance. Considering the historic

study of geoglyphic formations that span from the half-face profile observed at Caral Peru and the Genghis Khan geoglyph in Mongolia, it is becoming clear that there is growing evidence to support the artificial origins of this formation.

The projections of pareidolia and simulacrum were discussed and dismissed as an explanation for the creation of the Badlands Guardian formation. The perception of its facial features within the landscape is not a mental projection, but a real work of design. The facial features observed within the Badlands Guardian are exquisite and appear to have suffered little alteration despite the effects of seasonal growth and the modern construction of a road and a natural gas compound. It has even survived the effects of natural erosion despite the absence of any conservation or maintenance programs that support the preservation of such national monuments as Mount Rushmore (2017).

Therefore, we conclude that the surface features that produce the unique facial components of a human portrait with a feathered headdress are real and exhibit a high level of consistency that is highly suspect not to have been created naturally. In his review of the dataset, image analyst Mark Carlotto concluded that “it is not impossible that a pre-existing landform could have been modified in specific ways to produce this face” (Carlotto, 2019).

We recommend, therefore, that both archaeologists and geologists examine this area with the aid of a qualified imaging team to direct their satellite cameras and acquire additional data and images of this anomalous formation. New satellite images should be acquired at different times of day and under various sun angles for further analysis. The use of LiDAR (light detection and ranging) should also be utilized to create digital 3-D representations of the formation’s topography. If these facial features are found to be consistent, we would encourage the archaeological and geological pursuit of ground truth, which would provide an intense survey and analysis of this sculptural formation.

Since its discovery in 2006 the Badlands Guardian has attracted worldwide attention and much debate concerning its origins and its tribal connections with the indigenous peoples of Canada. It has been described as a “net sensation” by the *Sydney Morning Herald* (Hutcheon, 2006) and a “geological marvel” by *PC World* magazine (PC World, 2007). It was ranked as the seventh most visited site in *Time* magazine’s Top Ten Google Earth finds (Fletcher, 2019) and named a “curious, hidden wonder” in the book *Atlas Obscura* (Nerman, 2016). It has also been featured on numerous programs such as *What on Earth?* (2015) and *Ancient Aliens* (2019). Despite its popularity, its care and preservation have not been addressed. The creation of a conservation committee to maintain and preserve the integrity of this geoglyphic formation should be established. Such a committee could protect the area and increase

awareness of its value and vulnerability from stakeholders and society. Tourism to the site is limited due to the fact that when it is viewed on the ground its facial features are almost indistinguishable from its surrounding terrain. It can only be fully realized when viewed from above. Viewers can safely explore the site from the comforts of their own homes by accessing Google Earth and becoming online tourists. Hopefully, its importance and preservation will be recognized as a World Heritage Site that has cultural, historical, and scientific significance.

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## REFERENCES

- Atkinson, N., Utting, D. J., & Pawley, S. M. (2014, July 7). Glacial landforms of Alberta, Canada, Map 604. Alberta Geological Survey. [https://ags.aer.ca/document/MAP/Map\\_604.pdf](https://ags.aer.ca/document/MAP/Map_604.pdf)
- Ancient Aliens. (2019, June 7). *The Badlands Guardian*. The History Channel, Season 14, Episode 2.
- Campbell, C. (1997, Spring). Postglacial geomorphic response and environmental change in Southeastern Alberta Canada (1–200). University of Alberta.
- Carlotto, M. (2019, January 9). Three faces: Altered landforms or pareidolia? (Part 1—The Badlands Guardian). Before Atlantis. <https://beforeatlantis.com/>
- Cavanaugh, C. A., Payne, M. B., & Wetherell, D.G. (2006). *Alberta Formed, Alberta Transformed*, (Vol. 1, p. 6). University of Alberta.
- Chris, J. (2007). Genghis Khan. Trek Earth.
- Dakss, B. (2003, May 3). Old Man of the Mountain collapses. CBS News. <https://www.cbsnews.com/news/old-man-of-the-mountain-collapses/>
- Doore, K. (2006). *Peru's inexplicable stone forest, Markawasi* (p. 48). Kathleen Doore.
- Fletcher, D. (2019). Top 10 Google Earth finds: A face in the clay. Armchair Exploration, *Time* magazine.
- Goldstein, S. (1994). Watch what you're thinking! The Skeptic's Toolbox II Conference. *The Skeptical Inquirer*, 18(4), 347.
- Hogarth, B. (1965). *Drawing the human head* (pp. 32–44). Watson-Guptill Publications.
- Hutcheon, S. (2006, November 13). Gran's canyon is a net sensation. *Sydney Morning Herald*.
- Kerr, J. G., & Cooke, C. A. (2017, October 15). Erosion of the Alberta badlands produces highly variable and elevated heavy metal concentrations in the Red Deer River, Alberta (pp. 427–436). *Science of the total environment*, Vol. 596–597.
- Kulig, J. J. (1996). The glaciation of the Cypress Hills of Alberta and Saskatchewan and its regional implications. *Quaternary International*, 32, 53–77.
- Levasseur, J. P., Haas, G. J., & Saunders, W. R., et al. (2014). Analysis of the MGS and MRO images of the Syria Planum Profile Face on planet Mars. *Journal of Space Exploration*, 14(3), 221.
- Longman, Green, Longman, & Roberts (1868). *The Journal of Mental Science*, 13, 238. Association of Medical Officers of Asylums and Hospitals for the Insane. Medico-psychological Association of Great Britain and Ireland, Royal Medico-psychological Association, Harvard University.
- Mamiya, Y. (2016). The pareidolia test: A simple neuropsychological test measuring visual hallucination-like illusions. *PLOS One*, 11(5), e0154713.
- Mollard, J. D. (1972). *Air photo interpretation manual of landforms and landscapes of Canada*.
- Mount Rushmore. (2017, April 19). Historic culture preservation.
- Museum of Archaeology & Ethnology. (no date). Glaciation of North America. Simon Fraser University. <https://www.sfu.ca/archaeology/museum/exhibits/virtual-exhibits/glacial-and-post-glacial-archaeology-of-north-america/glaciation-of-north-america.html>
- Nerman, D. (2016, September 25). *Atlas Obscura* names Alberta's 'Badlands Guardian' curious, hidden wonder. CBS News.
- Palmer, C. J., & Clifford, W. G. (2020, August). Face pareidolia recruits mechanisms for detecting human social attention. *Psychological Science*, 31(8), 1001–1012.
- PC World. (2007, July 9). *PC World* in Pictures, the strangest sights in Google Earth.
- Peters, H. (no date). How Medicine Hat got its name (1/3). In *The great white north*. HamersonPeters.com. <http://hamersonpeters.com/?p=88>
- Rajkumar, R. (2014, October 11). Badlands Guardian, elixir of knowledge. <https://www.elixirofknowledge.com/2014/10/badlands-guardian.html>
- Solis, R., Haas, J., & Creamer, W. (2001, May). Dating Caral a Pre-ceramic site in Supe Valley on the central coast of Peru. *Science*, 292(5517), 723–726.
- Spatial Data Collection. (1949/1950/1951). Mosaic of Map Sheet Area 72L/01 [Many Island Lake, Alberta-Saskatchewan]. University of Lethbridge Digitized Collections. <https://digitallibrary.uleth.ca/digital/collection/geo/id/184/rec/1>; [https://www.trekearth.com/gallery/Asia/Mongolia/East/Ulaanbaatar/Ulan\\_Bator/photo776347.htm](https://www.trekearth.com/gallery/Asia/Mongolia/East/Ulaanbaatar/Ulan_Bator/photo776347.htm); <https://www.nps.gov/moru/learn/historyculture/preservation.htm>
- What on Earth? (2015, March 10), *North Korea is burning*. Science Channel, Season 1, Episode 5.