

Science Feature

A 16th-century Spanish inscription in Grand Canyon?

A hypothesis

By Ray Kenny

THE AMAZING JOURNEY OF Francisco Vázquez de Coronado is well-known to historians as well as aficionados of the human history at Grand Canyon National Park, Arizona. A handful of Spaniards sent by Coronado from New Mexico first visited the Grand Canyon in September 1540. The story of the first visitation is told in many books and is based upon interpretations from George Parker Winship's 1892 translation of the accounts of Coronado's journey written by members of the expedition (De Coronado 1892). As told by Winship in an introduction to the account of Coronado's journey:

It was perhaps on July 4th, 1540 that Coronado drew up his force in front of the first of the "Seven Cities," and after a sharp fight forced his way into the stronghold, the stone and adobe-built pueblo of Hawikuh, whose ruins can still be traced on a low hillock a few miles southwest of the village now occupied by the New Mexican Zuñi Indians. Here the Europeans camped for several weeks. . . . A small party was sent off toward the northwest, where another group of seven villages was found. . . . As a result of information found here [at the villages], another party journeyed *westward* until its progress was stopped by the Grand Cañon of the Colorado, then seen for the first time by Europeans.

Coronado had dispatched Don Pedro de Tovar to one of the seven villages with 17 horsemen and 3 or 4 foot soldiers. At the village, Tovar obtained information about a large river to the west. Tovar was not commissioned to go farther than the



THE FIRST OF THE RACE.

Spanish conquistador

village and returned to Coronado with the information he had secured from the Native Americans. Upon learning about the news of a large river in the arid lands, Coronado dispatched Don Garcia Lopez de Cárdenas with 12 companions to go see this river. Cárdenas and his party returned to the Native American village loaded with provisions because they had to travel through a desert before reaching their destination, which the Native Americans said

was more than twenty days' journey. After they had gone twenty days they came to the banks of the river. It seemed to be more than 3 or 4 leagues [a unit of distance equal to about 3 miles] in an

air line across to the other bank of the stream which flowed between them.

The exact location where Cárdenas and his party first saw Grand Canyon, in the words of J. Donald Hughes (1978), "is not known." The location where Cárdenas and his men first laid eyes upon Grand Canyon was described in the account of Coronado's journey as

elevated and full of low twisted pines, very cold, and lying open toward the north, so that, this being the warm season, no one could live there on account of the cold.

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Most historians, based on this meager and ambiguous description, have surmised that Cárdenas arrived at the South Rim of Grand Canyon in the area between Moran Point and Desert View (e.g., Bartlett 1940) (fig. 1). Historians have reasoned that this area best fits the vague description and the area would have been along an old Native American trail. However, many areas along the south canyon rim have “low twisted pines” and have vistas that “open toward the north.” Additionally, almost any route you take approaching the main canyon rim from the south results in traveling *up* in elevation. Furthermore, old Native American trails also led to *many* other locations along the entire length of the South Rim, including the western sections of the south canyon rim. In reality, the accounts of the exploration are too general with respect to distance, directions, and natural features to pinpoint what parts of the south canyon

rim Cárdenas’s men visited and explored. What we do know is that Cárdenas’s men

spent three days on this bank looking for a passage down to the river. It was impossible to descend, for after the three days Captain Melgosa and one Juan Galeras and another companion, made an attempt to go down at the least difficult place, and went down until those that were above were unable to keep sight of them. They returned . . . in the [late] afternoon, not having succeeded in reaching the bottom on account of the great difficulties which they found, because what seemed easy from above was not so, but instead very hard and difficult. They said they had been down about a third of the way and that the river seemed very large from the place which they reached.

Upon their return to the south canyon rim, the Native American guides convinced the party to travel no farther because of lack

of water, and they returned to Coronado’s camp.

Historical interpretation and reevaluation

So where was this enigmatic location where the Spaniards sought to find passage to the river? Where along the South Rim did the early Spanish explorers descend “about a third of the way” down off the rim? Without additional evidence beyond the vague description from the account of Coronado’s journey, it may be a question without an answer. But is it possible that the Spanish explorers left a clue to mark their visitation site?

Examples of the Spaniards’ presence in the New World in the form of inscriptions,

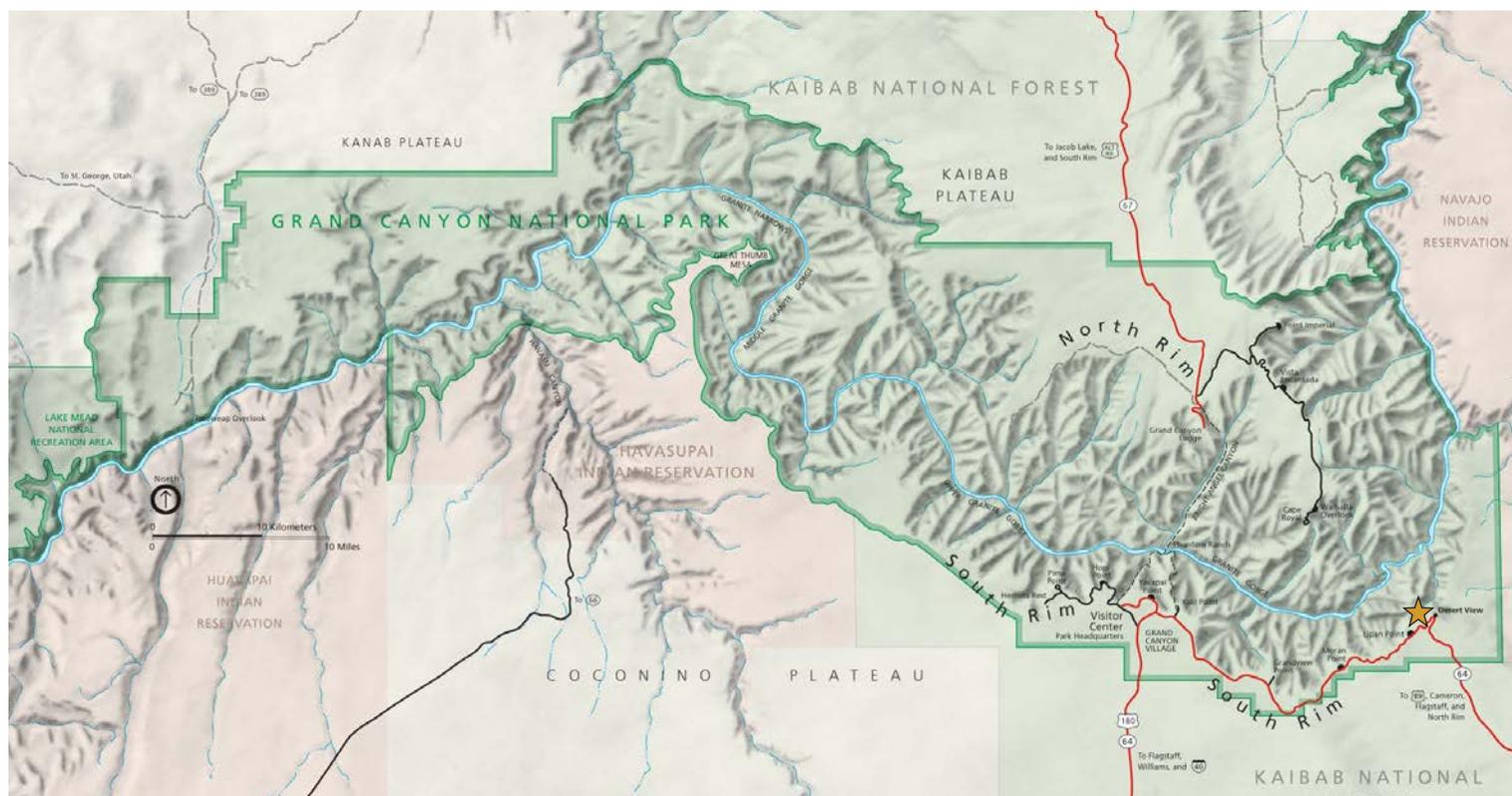


Figure 1. Grand Canyon National Park and surroundings. The gold star marks the historically accepted location where Spaniards first viewed Grand Canyon.

religious artifacts, and related influences can be found throughout the text describing the journey of Coronado, and as relics throughout southwestern North America. However, the small party that was sent to see the river traveled long distances, for 20 days, and was led over vast arid areas without much water. In reality, they may have been limited in their ability to adequately mark their passage. If indeed the Spaniards left some evidence of their passing, the inadequate and “open-ended” description of their journey (which could describe just about any place along the south canyon rim) would make searching for any evidence of their passing extremely difficult—indeed, it would be like looking for the proverbial needle in a haystack!

Although historians have suggested that the Spaniards first viewed the canyon near Desert View (based in part on known Native American travel routes), it seems equally reasonable to suggest that the Native Americans would *not* lead the Spaniards to the area near Desert View because they had established travel routes that led directly into the canyon and over to holy salt deposits and the sacred Sipapu (near the confluence of the Little Colorado River). Certainly, the Native Americans could easily have led the Spaniards to the river via several routes. Instead, as others have suggested, they may have been trying to take the Spaniards on a longer, more arduous journey with the hopes of convincing the foreigners to leave the area entirely. Hence, it seems equally plausible that the Native Americans led the Spaniards along routes that might lead them *far away* from their *most* sacred areas. Additionally, early Native American trails led to the far western reaches of present-day Grand Canyon, some 50 or more miles (>80 km) west of Desert View (fig. 1). Some of these old Native American trails (west of the present-day South Rim Village) descend into the canyon, have vistas of the river, are characterized by “low, twisted pines” along the rim, and open to the north and northwest.



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Figure 2. The inscription in the Esplanade Sandstone is about 50 miles (80 km) west of Desert View in Grand Canyon National Park, Arizona. Perceptible weathering, a diminutive lichen colony growing inside some of the engraved letters, the Spanish- or Portuguese-derivative words, and a comparison with 16th-century Spanish calligraphy suggest that the inscription may have been carved by early Spanish explorers from the Coronado expedition in the year 1540. The scale marker is 13 cm (approximately 5 in.) in length.

One old trail, in particular, readily allows travel below the canyon rim down to the top of the Esplanade Sandstone (which is about one-third of the way down from the rim to the river). However, travel from the Esplanade Sandstone down to the river is only accomplished via a much less distinct trail. In contrast, the trails that descend from the south canyon rim near Desert View do not have any obvious impassable areas about one-third of the way down from the rim that would have stopped the Spanish explorers from making the journey to the Colorado River.

The inscription

In the 1990s while working on permitted research related to the geology of the area, I found an inscription (fig. 2) that may provide a clue to the location where the Spanish explorers first tried to descend to the Colorado River. Is the old, weathered,

and worn inscription an engraving from the first Spanish explorers?

The inscription is carved into the Esplanade Sandstone at an awe-inspiring canyon ledge with an unobstructed view of the river and the North Rim. While there is not much detailed information from the original account of the descent, one thing seems clear: the three men who made the descent off the rim were able to *see* the river from the point at which they stopped (about a third of the way down from the South Rim). At the inscription site, there is a clear and unobstructed view of the river.

The inscription is not far from an old Native American trail that could have been used to lead the Spaniards all the way down to the river. The route is relatively easy to follow from the south canyon rim to the top of the Esplanade Sandstone (Supai Group), but the route from the Esplanade down to the Colorado River is not readily obvious and could easily have

been overlooked by the three explorers (Captain Melgosa, Juan Galeras, and another companion). Indeed, an alternative route, one that does not lead to the Colorado River but instead leads to an old Native American dwelling or hunting site (now a ruin near a hidden spring) would likely have been the most obvious route for the men to follow. If the explorers continued on a northward trend toward the river, following what might appear to be the most direct route, they would have arrived at the prominent cliff that now bears the simple inscription. The cliff and the inscription are less than a mile (<1.6 km) beyond the old occupation site near the narrowest part of the sandstone promontory. (Note: the exact location of the inscription has been purposely omitted from this article.)

Although the inscription is worn from centuries of exposure, two Spanish- or Portuguese-derivative words are still visible:

MONTE VIDEO.

The exact “old Spanish” meaning of the words is unclear and may be lost to time, but “monte” could be translated as “mount” (as in mountain); “video” may be loosely translated as “seer” or “sighted” or possibly even “view.” The location of the inscription does have a spectacular view of the topographically higher North Rim (perhaps interpreted as a mountain?).

Calligraphic considerations

The letters of the inscription appear to be written in an artistic and elegant style, which suggests that the inscriber(s) took great care and pride in making the inscription, and the style of lettering appears to resemble the block letter calligraphy of 16th-century Spanish writings (Brown 1921). Figure 3 shows a comparison of the



Figure 3. The “stone-cut” inscription is juxtaposed with an example of lettering from a 16th-century Spanish manuscript. The sample letters come from the writings of Francisco Lucas, a Spanish lettering master who penned the renowned Spanish manuscript “Arte de Escribir” (around 1577). The block letter samples (lower left) are from Lucas’s 16th-century Spanish roman lettering; the lowercase letter samples (lower right) are from Lucas’s 16th-century Spanish round gothic style. The stone-cut inscription letters “N,” “T,” “E,” “V,” “I,” and “D” all display slab-style serifs similar to the 16th-century Spanish roman lettering. Slab-style serifs refer to the small decorative strokes that cross the ends of letters, visually creating a “square” or “block-like” appearance. For example, this capital “T” does not have slab serifs, whereas this “T” does. The letter “m” in the stone-cut inscription seems similar to the lowercase letters of Lucas’s 16th-century Spanish round gothic style, but was inscribed as a capital letter. The tops of the letters show a high degree of horizontal alignment, which may be a result of a guideline drawn (or etched) across the top prior to engraving. This was typically done during the early years of calligraphy to better align the letters.

“stone-cut” inscription in Grand Canyon with some of the writings of Francisco Lucas (a Spanish lettering master who penned the renowned Spanish manuscript “Arte de Escribir” around 1577). One must take note that the 16th-century writing of Francisco Lucas was *not* incised in stone; in comparing the lettering of the stone-cut engraving to the writing of Lucas, allowances should be made for the different materials in which the letters were originally executed. Nevertheless, there are numerous similarities between the stone-cut inscription and the 16th-century Spanish calligraphy (fig. 3). In particular, consider the following style comparisons.

The letter “M” in the Grand Canyon inscription consists of a series of vertical strokes that converge at a horizontal guideline at the top of the letter. This style is similar to the 16th-century Spanish round Gothic letters, although the style of the stone-cut “M” more closely resembles a lowercase lettering style (fig. 3).

The letters “N,” “T,” “E,” “V,” “I,” and “D” all display slab-style serifs and resemble 16th-century Spanish roman lettering (slab-style serifs refer to the small decorative strokes that cross the ends of letters, visually creating a “square” or “block-like” appearance; fig. 3). At the very least, engraving serifs takes patience, time, and attention to detail.

The letter “O” does appear to be slightly smaller than the other characters, which was also typical for this time period.

The tops of the letters (especially in the word “MONTE”) show a high degree of horizontal alignment, which may be the result of a guideline drawn (or etched) across the top prior to engraving. This was typically done during the early years of calligraphy to better align the letters before engraving.

The Esplanade Sandstone near the inscription site is also soft enough to permit

engraving with the steel weapons the Spaniards likely would have carried with them. Also, the explorers probably would have had the time to carve the inscription and return to the rim by late afternoon. I tested the “temporal” part of this theory and easily traveled (in late August and early September) from the rim to the inscription site and back up to the rim in a few hours.

Inscription age

Does the inscription truly date from the 16th century? Again, this may be a question without an answer. Certainly, the ability to obtain weathering rates on exposed rock would be very useful for determining the age of the inscription. Unfortunately, obtaining accurate weathering rates for such a short span of geologic time is difficult at best. Successful research endeavors have mostly used independent proxy data to verify weathering rate estimates. For example, in the 1970s Peter Birkeland estimated the age of glacial deposits using lichen (*Rhizocarpon geographicum*) growth rates. However, the growth rate of lichens varies as a function of climate and microclimate, and studies that assume constant growth rates without correlating them with known weathering rates in the same geographic location are probably unreliable. Lichen cover at the inscription is minimal, which is consistent with an arid climate, making it hard to measure. Significantly, the error range associated with this dating method is greater than the maximum potential age estimate of the inscription.

More recently, cosmogenic (i.e., atmospheric exposure) age dating has been developed and successfully applied to geomorphically young surfaces. This technique relies on the measurement of cosmogenic nuclides (e.g., ^{36}Cl , ^3He , ^{10}Be) that build up in rock as soon as it is exposed at the surface. However, sandstone is not

This enigmatic inscription suggests that the intrepid Spaniard may have traveled to this point more than 470 years ago.

ideal for obtaining meaningful exposure dates, and the methodology is primarily used for material that has been exposed for a much longer time. Other quantitative measurement techniques, such as in situ weathering rinds and optically stimulated luminescence dating also require much longer exposure. As such, no attempt has been made to quantify the age of the inscription in Grand Canyon because established methodology is not applicable.

I have previously worked on research related to the biogeophysical and biogeochemical weathering of old inscriptions carved into sandstone (Kenny and Lancour 2001). I undertook the work on more than 200 inscriptions dating back to 1806 at Autograph Rock in Oklahoma in an effort to quantitatively determine the primary contributing factor leading to their weathering and degradation (Kenny 2000). (The site is part of the Santa Fe National Historic Trail and, like the letters at Grand Canyon, these are carved in sandstone.) The primary agent destroying the historical inscriptions was lichen. The microclimatic zones along the 30-foot-high (10 m) outcrop at Autograph Rock were variable, resulting in some inscriptions—those with more lichen cover—showing greater weathering, and others of comparable age—though with less lichen cover—appearing fresh and surprisingly unaltered.

Admittedly the climate in Oklahoma is different from that of northern Arizona, but the percentage of lichen cover may still be the primary factor leading to enhanced disintegration of sandstone. Lichen is a symbiotic relationship between fungi and

algae, and the fungal component of lichen bears root-like rhizines, the hypha that anchor fungi to the surface and subsurface. The rhizines penetrate into sandstone interstices (tiny openings between the sand grains and the cement holding them together) and gradually pry apart (i.e., physically weather) the rock substrate. Disintegration of the substrate is also accomplished chemically by an increase in (phenolic) acidity in the microenvironment generated by the lichen. The rate at which physical and chemical disintegration can proceed depends in large part on the sustained availability of water or moisture: the more arid the climate (or microclimate), the slower the disintegration or weathering rate.

The inscription at Grand Canyon (1) is fully exposed to the elements—that is, no vegetation or rock outcrop provides any shade or microclimate; (2) is in a semiarid to arid climate; and (3) has only minor lichen growth in only a few of the inscription depressions. In spite of the area’s natural aridity and the inscription’s minimal to nonexistent lichen cover, the inscription does exhibit some degree of enhanced weathering (e.g., the “DEO” in “VIDEO”). While the climate has likely varied over the last few centuries, with both drier and wetter intervals (Cook et al. 2004), environmental conditions at the inscription location are conducive to a relatively slow disintegration or weathering rate. This might result in a sandstone inscription that is legible, even after several hundred years.

Other historical figures

Historians have established that the Spanish priest Francisco Tomas Hermenegildo Garces roamed extensively in Arizona in the years 1768–1781 (Coues 1900). In 1776, he traveled along what is now referred to as the Hualapai Trail and visited the Village of Supai in what is today western Grand Canyon. Father Garces commented and reflected on countless observations in his extensive diary, including the natural “barrier which nature had fixed,” but *no* mention is made of an entrada into Grand Canyon aside from the one into the Village of Supai. Though it is possible that Father Garces did venture into the Grand Canyon at other locations, it becomes problematic to suggest that he made the inscription without so much as one historical reference to support this supposition.

It is also possible that the inscription was carved during the 1800s by an unknown traveler or travelers who descended from the South Rim into the canyon proper—perhaps led by one of the early Grand Canyon pioneers or guides. If this were the case, the architect of the inscription may be lost to history. But it begs the question, why would such a traveler inscribe a Spanish- or Portuguese-derivative phrase? Furthermore, I find it especially curious that of all the known inscriptions in Grand Canyon, this is the *only* Spanish- or Portuguese-derivative inscription yet to be found.

Summation

The “MONTE VIDEO” inscription in the Esplanade Sandstone in Grand Canyon is clearly worn from centuries of subaerial exposure to an arid to semiarid climate. The elegant and meticulous lettering arguably resembles the surviving examples of 16th-century Spanish calligraphy. The remote location of the inscription is near

one of several old routes that could have been used by the Native American guides to escort the Spaniards to Grand Canyon and down toward the Colorado River.

The scant description of the site where the Spanish first saw Grand Canyon could be applied equally to any number of South Rim locations and is not unique to the Desert View area, which some historians have suggested was the most likely descent location. The argument and preliminary evidence presented here suggest that the area near Desert View may *not* have been where the Spaniards first laid eyes upon Grand Canyon. Rather, the Native Americans may have led the Spaniards to a south canyon rim area far from the Desert View area trails that led into the canyon and down to their most sacred sites.

So is this weather-worn and elegant inscription carved in sandstone an engraving from Captain Melgosa, Juan Galeras, or the unknown companion? Did the three ancient Spaniards leave a clue to their labors, stand at this daunting point, and gaze out into the abyss for the last time before leaving the canyon forever? We may never know for sure, but this enigmatic inscription suggests that the intrepid Spaniards may have traveled to this point more than 470 years ago.

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