

SPANISH MISSION ARCHITECTURE IN THE PIMERÍA ALTA: STRUCTURAL  
REMAINS AT MISSION GUEVAVI

By

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## **Abstract**

Mission Guevavi was the first Spanish colonial mission established in Arizona. This paper will discuss the history of occupation at Mission Guevavi and of the larger Pimería Alta. These different groups left their unique impressions on the site, which includes their forms of architecture. The style of architecture implemented by the missionaries was a unique composite of Spanish, Mexican, and Moorish styles which came to be known as Mission Architecture. More specifically, this paper will examine the architectural remains at Mission Guevavi and determine how these remains relate to the prehistoric or historic Native American groups occupying the site. Architectural remains will be evaluated using field documentation of previous excavations of the site, as well as the author's personal experience and insight gained while participating in excavations at Mission Guevavi.

## Introduction

Mission Guevavi is a colonial Spanish mission located near Nogales, Arizona. Originally a settlement of the O'odham, the mission was founded by Jesuit missionaries in 1691.

Franciscans would take control of this mission after the Jesuit Expulsion of 1767. The Pimería Alta is the name designated to the area in Southern Arizona/Northern Sonora where the Spanish missionaries began their conversion efforts and built the first structures which would serve as churches, living quarters, and community meeting areas. Mission Guevavi was established as a *cabecera*, or head mission, meant to administer to the surrounding populations, including those communities at adjacent missions. These adjacent missions included San Cayetano de Tumacácori and Mission San Cayetano de Calabazas.

Mission Guevavi is located on a terrace in the Santa Cruz River Valley. The Potrero Hills lie to the west, while the Patagonia Mountains are due east. The area is a desert grassland. Plants in the area include mesquite, acacia, and cottonwood. Native builders and missionaries would have to work with the scarce raw materials around them in this harsh desert environment. Native people inhabiting this area included the prehistoric Hohokam, and later the O'odham. These groups had different building techniques which are illustrated in the archaeological remains present at sites in the Santa Cruz Valley, including Mission Guevavi. Edward Danson conducted a detailed survey of prehistoric sites in the Santa Cruz River Valley (Danson 1946).

The design of the churches ushered in a new style of architecture which was a composite of different cultural influences and native building techniques and would be known as Spanish Mission Architecture. An elaboration of native building techniques and architecture in the

Pimería Alta is based upon remains at archaeological sites found in the Santa Cruz River Valley and at San Cayetano de Tumacácori.



Figure 1: Photo from Robinson 1976: 148

### **The Santa Cruz River Valley**

In 1941, Edward Danson conducted a series of excavations in the Santa Cruz River Valley. The architecture excavated at these sites show what house and village structures built by the prehistoric occupants would have looked like. Throughout the valley, he categorized the archaeological remains that he discovered. Danson excavated prehistoric and historic sites. One

type of prehistoric site that he excavated were camp sites. Camps sites were found all along the River and refer to places of short occupation, with little evidence left behind (Danson 1946: 17). Of the twenty camp sites that were excavated, only one had hearthstones and minimal amounts of pottery was found, indicating that this site was not occupied for an extended period of time.

Another type of prehistoric site that was excavated were house ring sites. These are named for the circular formations of rock that are typically found. It is important to note that only one of these sites was found north of the border. No mortar was used in the placement of these rocks. The rocks appeared to be placed around the base of a house and a break in the ring, indicating an opening, was found facing east (Danson 1946:8).

Early Sherd Areas are larger prehistoric sites which show evidence of lengthy occupation by a group. Trash mounds, hearths, and rock mounds were usually found at Early Sherd sites. These sites are also very hard to date, but the estimated date of occupation is likely between 1400 and 1700 (Danson 1946: 38).

Late Sherd Areas differ from Early Sherd Areas in that they have more sherds and much more painted ware. These sites also were characterized by the discovery of trough metates (Danson 1946: 13).

Sherd and mound areas are large and have consistent evidence of occupation on the surface. These are permanent dwellings. These sites can be dated somewhere between 900 and 1400 AD (Danson 1946: 14). Trough, slab, and base metates were found at these sites as were trash mounds.

Compound sites each had one or more compound enclosures, and were the largest site types noted by Danson. Long periods of occupation were indicated at these sites. All compound sites had hearths, trash mounds, house rings, filled pithouses, and rock walls. Each of the

compound sites also had a depression lined with rock, 25 feet long, which ran from one end of the site to the other. The use or function of these depressions is not known. They were probably used as irrigation canals or paved walkways. The Hohokam were possibly the early occupants at these compound sites. Based on the sherds, these sites can be dated from 500-1400 AD (Danson 1946: 42).

Other sites that did not quite conform to any of the categories described above were also found. Rock Mounds were similar to House Ring sites (Danson 1946: 18). The rocks in these mounds were not burned. Rectangular Stone House Outline sites were characterized by a rectangular outline of a wattle and daub house. Some of these houses were twenty feet in length, while others were only six feet square (Danson 1946: 20). Trash mounds and piles of heat cracked rock were common at these sites. They were most likely occupied during the same time as the sherd and mound area sites (Danson 1946: 45). Rock Walled Sites consisted of low rock walls, measuring one or two feet high. Small points as well as trough metate were found at one of these sites. These walls were probably built for defensive purposes and can be dated from 1200-1400 AD (Danson 1946: 46).

Danson also conducted excavations at three different historic sites. These included Spanish and/or Anglo-American ranches, Spanish and/or Anglo-American towns, and Spanish Missions. The historic sites are important since they offer information about the time period in which mission sites became the center of Native American populations (Danson 1946: 47).

Excavations were also conducted at four Spanish-era missions in Southern Arizona: San Lazaro, Guevavi, Calabazas, and Tumacácori. In his report, Danson describes the only pieces of standing architecture that were left at Guevavi at the time of his visit, which included the north,

east, and west walls of the church (32). The church was built during the Jesuit occupation of Guevavi.

### **The Mission Period**

When entering a new area, missionaries had to engage and intrigue the local population, but also had to be unimposing enough to seem nonthreatening. First, initial contact was made at a new site and to the people living there (Fontana 1989: 48). Second, conversion efforts commenced. This included building a church, usually in an area that was already occupied (Fontana 1989: 48). And third, the indoctrination into the religion began, through baptisms and teaching (Fontana 1989: 48). This process was implemented by the Jesuits who arrived in the Pimería Alta to build missions.

The Jesuit period of occupation at Guevavi extended from 1690-1768. Jesuits began their missionary efforts in the New World in 1544 (Kessell 1970: 8). The Jesuits did not begin their work in the Pimería Alta until after the Pueblo Rebellion of 1680 in New Mexico (Forrest 1929: 229). San Gabriel de Guevavi would become the first Jesuit mission in Arizona, founded by Father Kino. Guevavi was named after the archangel Gabriel. In 1732, a Jesuit priest added “San Rafael” to the mission’s name and 12 years later, another priest “San Miguel” (Fontana, ed 1996: 85). These three names were combined, resulting in the patronage Los Santos Ángeles.

In 1690 Kino and Padre Juan Maria de Salvatierra arrived to begin Jesuit missionary labors in the Pimería Alta. When the padres arrived at Tumacácori, they baptized infants, then left for Guevavi. This signified the first Jesuit missionary efforts in the Santa Cruz River Valley (Di Peso 1956: 36). Even though there is some contention relating to the date of founding of the mission at Guevavi, the most conclusive evidence comes from Father Kino's journal. In January

of 1691 he wrote: "We went on to the rancharía of Guebaui and to the valley and rancharía of Santa Maria, a journey of fifteen leagues, where we remained five days, catechizing and baptizing infants and adults" (Kino 1919: 120). This is the beginning of Jesuit occupation of this site. In 1697, a military inspection counted 80 residents at Guevavi (Di Peso 1956: 44). In 1701 the church was established as a *cabecera*, or head mission, and Padre Juan de San Martín was appointed head priest. *Visitas* were located at San Cayetano (Tumacácori), San Luis, and Los Reyes. San Martín and the Jesuits constructed a simple church structure and laid a foundation for a more permanent church (Robinson 1976:143). However, San Martín left Guevavi in 1701, unable to acclimate himself to the harsh desert environment.

Father Kino continued his missionary work in the Pimería Alta, which included visits to Guevavi and repeated attempts to keep a resident priest and staff at the mission, until his death in 1711. Following Kino's death, the mission was neglected, as no Spanish priests would be sent to Arizona for the next 20 years (Forrest 1929: 234).

In 1732, the Jesuits returned with a new interest in the Pimería Alta. Father Grazhoffer took charge of the mission and inhabitants at Guevavi. Grazhoffer did not arrive alone however, but was accompanied by a military squad led by Juan Baptista de Anza (Robinson 1976:143). Grazhoffer administered to the *visitas* of Guevavi, which included 1,400 people (Di Peso 1956: 57). Grazhoffer changed the name of the mission from San Gabriel to San Rafael. The location of the constructed mission under Grazhoffer may not have been the same as that of Father Kino but was almost certainly the same as the present remains of the church (Robinson 1976:143). The architectural mark left by Grazhoffer's time at Guevavi was a small house and a ramada church. He is also thought to have begun construction on more structures. Father Grazhoffer died at Guevavi in 1733.

Grazhoffer was replaced by Father Segesser, whose former post was San Xavier. Frequent illness caused Segesser to leave Guevavi before accomplishing much or building any structures (Robinson 1976:143). Guevavi was again left without a resident priest until 1736. A quick succession of intermittent priests came and left Guevavi without making much of an impact. This included Father Stigler, who left in 1736, and Father Keller, who was replaced by Father Alexandro Rapicani, who became the first priest at Guevavi to last more than a year (Robinson 1976:144). Rapicani left Guevavi in 1740 and was replaced by Father Torres Perea. There is no evidence of either of these resident priests making any advances in architecture or construction at the mission.

In 1745, Father Joseph Garrucho arrived at Guevavi, again changing the name and patronage of the mission to San Miguel de Guevavi. He would become the priest who "changed the face of Guevavi" (Robinson 1976:144). Records indicate that the church Garrucho saw upon his arrival would still have been a simple ramada, potentially with abode walls added.

In the summer of 1751, a builder from Sonora named Joachin de Casares arrived with fellow artisans to begin construction at the mission. The intention was to build a rectangular church which would measure 15X50 feet, and a *convento*, which would measure 90x105 feet (Kessell 1970: 100). The foundation for these buildings was a local conglomerate rock cemented with mud mortar. The walls were made to sun-dried adobe bricks which were plastered in mud, whitewashed, and painted. The roof of the church was flat and held up by *vigas*. The *convento* would include a living quarters for the priest, a small chapel, a school for the Indians, a kitchen, and a refectory (Kessell 1970: 100). Construction, and life at Guevavi in general, was halted by the Pima Revolt of 1751.

The Pima Revolt was the culmination of perhaps decades of repressed emotions and violent feelings held by many O'odham. The O'odham had been the subjects of the Jesuit's soul-saving mission since the arrival of the Europeans near the end of the 17th century. In a letter sent to the bishop of Durango in 1732 regarding the missionary efforts of Jesuits, the O'odham are described:

"All the Pimas of the north, although warlike, proud, and valiant, are agreeable, docile, and generous, as they demonstrated in the reception which they gave us. In all places a long distance from the road many Indians on foot and horse, sallied forth to receive us...celebrating with other marks of benevolence the joy and happiness with which they received us as desirous of having the padres" (Hammond 1929: 231).

This letter presents the efforts of the Jesuits to be well received and the O'odham to be very agreeable and eager to be baptized. When the first interaction between the Jesuits and O'odham was not violent, it was perceived as complacent.

The Pima Revolt reached Guevavi on November 21, 1751. Word of the revolt came from Tubutama and quickly spread throughout the area (Di Peso 1956: 60). On an otherwise typical Sunday at the mission, the foreman from Tubac arrived, badly beaten, and reported that the O'odham had revolted (Kessell 1970: 106). At this, the O'odham at Guevavi grabbed their weapons and ran while they were still able. This implies perhaps that the O'odham were not willing to defend the mission against almost certain destruction. It was evident to Garrucho that, without the native people, the mission would not be able to defend itself from the coming attack. Therefore, the only viable option was to abandon the mission (Kessell 1970: 106). On December 23, a military inspection was sent to the Guevavi, where the houses were found to be plundered,

and the church and the padre's home were in ruins (Di Peso 1956: 61). Garrucho would never return to Guevavi. Though construction was not yet complete, the church was still used when the Jesuits returned to the mission (Robinson 1976:145).

In 1753, Jesuit priest Father Francisco Xavier Pauer was installed at Guevavi. His time was mostly spent economically and structurally recovering from the Pima Revolt (Kessell 1970: 148). He preformed minor renovations on the church and brought the mission back to life (Robinson 1976:145). The succession of priests from 1760-1767 was Father Miguel Gerstner, Father Pfefferkorn, and Father Ximeno. During these seven years, the Apache presence in the Santa Cruz area became more significant and more dangerous (Robinson 1976:145). These years were also significant because Tumacácori became more populated as more people left Mission Guevavi.

In July 1767, the Jesuit order was expelled from New Spain by King Carlos III. Their forced exit was sudden and effective. The Franciscans arrived to repair the Jesuit churches left, and in some cases to build new ones. The Franciscans first arrived in Guevavi in summer of 1768. By this time there was few people, and not much hope left at the mission. When Franciscan Bartholome Ximeno was sent to replace Fray Juan, who had fallen ill, he soon suggested that the mission be abandoned. In a report written by Father Bartholome to his superiors, he described the dwindling population at Guevavi, the impracticality of its location, and the constant threat of Apache raids (Kessell 1964: 308). Father Bartholome wanted to unite the missions at Guevavi and Sonoita. Guevavi was no longer the most important mission in the Pimería Alta, therefore Tumacácori was made *cabecera* (Di Peso 1956: 64). The Franciscans turned their attention and efforts toward Tumacácori. The missionaries abandoned Guevavi in 1784 and it would never again be used for missionary purposes. Yaqui miners did occupy the

site in the 19<sup>th</sup> century. During their occupation of the Pimería Alta and beyond, the Jesuit and Franciscan missionaries, aided by the ingenuity of the native builders, would create a new and unique style of building design called Mission Architecture.

### **Mission Architecture**

After the Jesuit expulsion, the Franciscan occupation, and after generations of Native American groups came and went, the churches built by the missionaries still stand in the Pimería Alta. Spanish mission architecture was developed in unusual circumstances by people who were not native to the area in which they were designing and building. The result was something completely unique. The remains at the mission sites in Southern Arizona offer information about the builders and the architectural styles at the time.

The architecture used by the missionaries was very unique in New Spain. It was a new composite of several different architectural influences. Prototypes for the mission architecture of the Pimería Alta can be found in Mexico. Most Mexican churches followed a basic design in which the belfry was usually quite prominent, since clocks were not used (Duell 1919: 14). Bells were used to mark the passing hours of the day, serving the same function as a clock.

Since the Spanish settled Mexico, they brought their architectural influence and traditions with them. There is a history of conquest in Spain which includes the Romans, the Visigoths, and the Moslems (or Moors). This colonial history, no doubt influenced the architecture in Spain (Duell 1919: 9). The missionaries throughout Northern Sonora attempted to recreate Spanish colonial architecture. They were not able to achieve this, but instead inadvertently created a new style called Mission architecture. The best examples of this architecture were built in the 17<sup>th</sup>

and 18th centuries. The singular best exemplification of mission architecture is found at San Xavier del Bac (Duell 1919: 4).

The development of the Spanish mission style of architecture can be divided into three different periods. The first period is characterized by rudimentary small adobe building (Duell 1919: 20). These were meant to serve the minimal needs of the priests and the small community. These are the types of structures that would initially have been built at Guevavi. The second period of mission architecture is characterized by a heavy *fachada*, or facade (Duell 1919: 20). This added ornamentation was influenced by the architecture in Mexico at the time. Most of the California missions are categorized in this second period. The third period is characterized by a more basic application of the Plateresque and Churrigueresque forms of Spain. The Churrigueresque style consists of high pilasters, decorated panels, and the incorporation of sculpture into the architecture (Pickens 1993:12). These features can be seen on the exterior and interior walls of San Xavier del Bac.

Once a mission became more established, more permanent structures were built. The structures built at the missions were meant to serve utilitarian purposes, including protection from harsh weather conditions and from raiding Indian tribes (Duell 1919: 27). The padres who arrived in New Spain were forced to work with materials and under conditions that they had never before experienced. Oftentimes, masons and master masons would arrive from Spain to assist with the construction of the more complicated churches. They were expected to understand how to work with the materials, such as rocks, mortar, and bricks. The master mason was expected to be trained in the principles of geometry and architectural technique (Giffords 2007: 74). They had never worked with the clay found in the Pimería Alta or labored with so little water and such scarce and often unstable wood (Duell 1919: 27). These churches were also

different from anything the native people had ever built. However, during construction, the builders were met with the same problems they would have encountered when building traditional structures. These included defense, arid heat, and letting enough natural light into the church (Giffords 2007: 13).

Most missions were built with a rectangular nave. The floor plans for almost all of the churches in northern New Spain were very similar. It consisted of a rectangular nave oftentimes with a circular formation near the apse (Giffords 2007: 44). Walls were made from adobe and bricks were three to six inches thick. It is the use of adobe brick which made the mission churches look so similar to the preexisting native dwellings (Giffords 2007: 13). Walls were finished with a cement stucco on the outside, and a lime plaster on the inside. Almost all churches in Northern New Spain had plaster applied to the inside and the outside walls. Plaster usually consisted of adobe mixed with organic fibers, lime or gypsum, or sand and was applied to the outmost layer of the walls (Giffords 2007: 104). Roof and ceiling construction could be quite varied among the missions. Only San Xavier del Bac maintains a roof made completely of brick (Duell 1919: 34). The more simple missions used roofs constructed of large red tiles placed on brush which are attached to wooden trusses (Duell 1919: 34). Some did not have tiles at all. The arid climate in Southern Arizona was quite suitable for an adobe roof, since it would not be tarnished by rainfall, but they do require constant maintenance. Most existing adobe roofs eventually caved in and were replaced.

Usually there was extensive decoration around the entrance to the churches. The decoration throughout the interior varied from mission to mission. Churches had only one or two entrances and small windows. The windows were reinforced using small wood lintels while the

doorways, in their simplest form, consisted of a wooden panel on a wooden frame (Pickens 1993:9).

For construction of the missions, two most common forms of structural systems were post-and-lintel and arch-and-pier. Post and lintel involved simple construction. It consisted of horizontally placed lintels supported by vertical beams. This construction was used for roofs, porches, and choir lofts. Post and lintel was a popular construction system among the Jesuit and Franciscan builders (Giffords 1992: 109). Arch and pier construction was more complicated. The arch would span a room, with each side of the arch resting on vertical supports. The brick arch was often covered in plaster to ensure its support (Giffords 1992: 110). Different shapes and types of vaults were used by colonial builders.

As mentioned above, the belfries were prominent components of mission life. The inhabitants relied on the bell tolls to call them to work and prayer (Duell 1919: 35). Bells regulated the routine of mission life, marked the beginning of services, and even indicated impending danger. The bells were usually sent to the missions from Mexico, even Spain. Other bells were made in New Spain. There is a story relating to the bells at the Spanish missions that states that the clappers were formed from a meteorite found in the Santa Rita Mountains (Duell 1919: 37). The bell towers were usually the last component of mission construction to be completed (Giffords 2007: 95).

*Mudéjar* is a style of architecture which was popular in Spain from the 13th to the 16th centuries. This style was prevalent among the churches across northern New Spain. This style was used by the Moorish builders in North African and became popular in Spanish cities such as Analucía. It demonstrated the technique, ornamentation and aesthetic of the Moors (Giffords 2007: 13). The Muslims, or Moors, came to power in Spain in 711 AD and remained for 800

years. Spanish art and architecture would be certainly be effected by the dominating Moorish influence, especially since this occupation was so long. In Mexico, the *mudéjar* influence was evident in the decoration of brick, tiles, and wood (Giffords 2007: 13). This influence can also be found in the shapes of arches and windows.

The dry climate of the Middle East was similar to that of northern Sonora. Therefore, people native to both of these regions would have used similar building techniques in similar environments. Adobe bricks were used as far back as 5,000 BC in Crete. The Moorish builders used sun-dried adobe bricks similar to what the Hohokam Indians employed. The adobe structures were then be covered in plaster and painted (Giffords 2007: 13). Adobe bricks are one of the influential building techniques that the Moors passed on to the Spanish (Giffords 2007: 76). Due to the arid environment, the Moors did not have access to large amounts of wood to use for construction. Without long wooden beams, the buildings had to be very narrow. In the Middle East, power was constantly shifting from nation to nation, meaning that the structures they built would need to be able to withstand a certain amount of battering (Giffords 2007: 13). In a hot desert environment, the abode walls also helped keep the interior of the buildings cool. For this reason, the adobe walls were very thick.

Other decorative details of Moorish architecture can be found in Spanish mission architecture. This includes painted beams, or *vigas*, and carved panels of the doors and window shutters (Giffords 2007: 14). The use of plaster and paint on the churches is also a Moorish technique

The churches of New Spain were very fortress-like, decorated with small rectangular windows, and built with long naves (Giffords 2007: 18). The churches were usually quite narrow, since having a wider church would require longer *vigas*. Wood with which to create

*vigas* that could span a very wide space was difficult to find in the middle of the Sonoran desert (Pickens 1993:10). Corbels could be used at the end of shorter *vigas* in order to shorten the length that the *vigas* had to span.

There would have been a variety of floor plans for Spanish colonial missions, some more complicated than others. A simple rectangular church would have consisted nave with an altar at one end and an entrance at the other (Giffords 2007: 44). The completed church at Guevavi had an altar, an entrance at the opposite end, and side entrance which led into the *convento*.

Oftentimes there was an additional entrance to a baptistry located next to the sanctuary. Beams and a flat roof would have covered a simple church, though vaulting was also sometimes used.

Native building techniques varied by group but tended to include wattle and daub, puddled adobe, shaping adobe bricks by hand, random rubble construction, rammed earth, palisades of poles or tree trunks, and plastering with adobe or gypsum (Giffords 2007: 95). Techniques for cutting and molding bricks, firing bricks, creating and applying lime plaster, and forging steel were all introduced into New Spain by the Spaniards.

Sun-dried adobe bricks were used to build the church at Mission Guevavi. Wood was integral for the construction of roof beams and window and door frames. Lime plaster, which was a mixture of lime, sand, and water, was applied to adobe bricks in order to help prevent erosion. Lime plastering was especially prevalent in Moorish Andalucía (Giffords 2007: 81).

Since wood was scarce, the first very basic, impermanent houses and structures in the Pimería Alta most likely would not had completed roofs. Instead, the structures were have been covered by timbers, twigs, grasses, and other plant materials (Giffords 2007: 78). More detail regarding the building techniques that would have been used by the Native Americans in the Pimería Alta will be outlined in a later section.

Post and beam was the most popular structural system among the Jesuit and Franciscan builders in the Pimería Alta. This consisted of posts holding up horizontally placed lintels. Impost blocks were then placed on top of the posts to bear the weight of the beams (Giffords 2007: 108).

### **Pimería Alta in Prehistory: Hohokam**

The site of Mission Guevavi was occupied by several different groups leading up to the period of colonial occupation. These groups included the Hohokam, who occupied the site in prehistory, the Sobaípurí, and the O'odham, who were occupying the site when the Spanish arrived.

The Hohokam arrived in Pimería Alta from Mexico between 900-1000 AD and coexisted with the O'odham (Di Peso 1956: 19). The Hohokam were gone from the area by 1450 AD. There is a significant gap in knowledge between the disappearance of the Hohokam and the arrival of the O'odham (Seymour 2007: 1). The Classic Period of Hohokam occupation in Southern Arizona lasted from 1150-1400 AD. The Hohokam created a network of dependent villages. They created complicated irrigation systems, designated burial sites, and specific village plans (Di Peso 1956: 260). Each village had a designated cremation area and trash mounds. Upon the arrival of the Spanish, the village plans did not change much, but Spanish-style structures were incorporated into the pre-existing architecture.

In terms of architecture, this period was characterized by solid-walled and contiguous roomed structures in which the walls were lined with caliche (Schroeder 1953:174). The Hohokam housing before this period (during the Sacaton phase, from 900-1150 AD) consisted of single-unit, rectangular houses with rounded corners. The houses were built in a shallow pit in

the ground, with a flat or domed roof which was held up by poles lining the perimeter of the house (Reid 1997: 89). The floors were usually very simple, excavated and finished with caliche while the walls consisted of closely tied vertical poles and the roof was held up by floor posts (Schroeder 1953:174). Hohokam ceremonial structures were generally larger than domestic structures (Di Peso 1956: 264).

The construction of compound walls, as opposed to post-reinforced walls, became popular during the Classical Period. Three types of these compounds are distinguishable from one another. The first type consists of a house mound with post-reinforced walls. The second type consists of caliche-lined walls with no house mound. The third type consists of compound walls with no reinforcement from posts (Schroeder 1953:180). Roofing among Hohokam sites, such as Snaketown and Roosevelt: 9:6 varied slightly from house to house. However, the most common roofing technique consisted of one central beam supported by two smaller posts (Martin 1973: 94).

The next section will detail components of Hohokam architecture. The information related comes from excavations conducted at San Cayetano de Tumacácori, which was located about 5 leagues from Mission Guevavi. Hohokam sites excavated beneath the ranchería of San Cayetano de Tumacácori shows a close ceramic relationship with other Hohokam sites in the area (Di Peso 1956: 100). At Tumacácori, an Upper Pima village was built on top of the Hohokam village.

Hohokam sites in Southern Arizona were not defensive structures. Hohokam structures were connected by adobe-paved walkways. Houses were not built in continuous units and ramadas often connected two houses (Di Peso 1956: 221). Ramadas were simple roofed structures with open sides, ideal for working outside while still being shaded (Reid1997: 90).

Since the Hohokam cremated their dead, burial patterns were different. The Hohokam typically had a single, centrally located burial plot (Di Peso 1956: 222). The houses were built with a light frame which was usually made from organic material. Some house types had plastered floor. The numerous support poles indicate a lack of long timbers for roof construction. The roofs were also made of organic material.

There are 4 types of Hohokam housing units, specifically evidenced at San Cayetano de Tumacácori. In general, earlier Hohokam houses were larger than later houses. The shapes also changed. Early Hohokam pithouses were square, becoming more rectangular and eventually elliptical in shape (Martin 1973: 146). At San Cayetano, all four types were built in shallow pits, while the pit walls were not used as part of the building structure. Each house was an independent unit (Di Peso 1956: 229).

### **Sobaípurí**

The Sobaípurí are a Native American subgroup of the O'odham who occupy similar areas in Southern Arizona/Northern Sonora. They were among the occupants of Guevavi when the Jesuits first arrived. Evidence found along the Santa Cruz River indicates that the Sobaípurí were active in the Pimería Alta in the 1400s and 1500s. This knowledge implies that the Sobaípurí either replaced the Hohokam, absorbed the Hohokam, or are a modified form of the Hohokam (Seymour 2007: 2). Sobaípurí villages are characterized by household pairing, use of adobe, high population levels, and dense settlement (Seymour 2007:2).

There are several components of Sobaípurí architecture that are quite unique. Some of these aspects were present at a Sobaípurí site called Santa Cruz del Pitaitugam. Charles Di Peso conducted an excavation at this site, which was incorrectly believed to be the location of an

attack by a group of Apache, Janos, Jócomes, Mansus, and Sumas on a Sobaípuri village called Santa Cruz de Gaybanipitea. According to historical records, when the attack began the Sobaípuri retreated to a large adobe structure where they attempted to seek shelter (Seymour 2010: 2).

At Santa Cruz de Pitaitutgam, Di Peso excavated a village which consisted of 25 domed housing structures with roofs made of branches and covered with mats and mud. Dirt was added to the base of the house in order to prevent water from entering (Seymour 2010: 4). Rocks were placed between the branches in order to support the walls and roof. At this site, the houses were arranged in pairs and were placed in parallel rows. A large adobe structure was also excavated at this site. The structure measured 6.25m x 6.70m and had a stone foundation (Seymour 2009: 298). The bricks were rather crude and measured 50cm x 30 cm and were 10cm high.

An excavation was also conducted at what is believed to be the actual site of Santa Cruz del Gaybanipitea. A three room, single story adobe structure was excavated. This structure measured about 40m squared, 1.75m in height and was almost certainly used for defense (Seymour 2010: 5). The structure was built on a foundation trench that was filled with mortar and puddled adobe. Puddled adobe is a building technique in which adobe walls were constructed without using molded bricks. The mud would be applied in separate layers and patted into a certain shape. After that layer was dried, another layer would be applied directly on top of it. Shaped adobe was laid on top of the mortar, then more adobe, and the process was repeated. River cobbles was added to the mortar and adobe walls in order to stabilize it. Another method was to use flat sandstone slabs instead of the adobe- the mortar and sandstone were layered in the same way (Seymour 2010: 5). In this structure, mortar also coated the interior wall, like a plaster

This building method is very similar to wattle and daub, except stone and abode are being coated instead of wood (Seymour 2010: 6). This is an elaboration of traditional technique with a new material. Wattle and daub is another technique used in the formation of simple adobe structures. The first step of this process was to insert posts into the ground, forming a line which would eventually form the wall. Then smaller twigs and branches were interwoven horizontally between the vertical posts from the bottom of the posts to the top (Giffords 2007: 100). A layer of daub was applied to the outside of the walls. Once the daub was dry, lime and plaster was applied on top of the adobe in order to strengthen the walls and help prevent erosion.

### **Tohono O'odham**

The O'odham were also among the groups living at Guevavi at the beginning of colonial occupation. Many O'odham live in the area of the Southwestern Arizona desert called the Papaguería (Reid 1997: 75). O'odham groups settled along the Salt, Gila, and Santa Cruz Rivers. This gave the people ready access to water, therefore their villages were larger and more permanent (Reid 1997: 76). O'odham architecture can be simply described as “dry” (Fontana 1989: 41).

Simple adobe structures oftentimes did not have a foundation. The adobe walls would be built directly onto the ground. But if a more permanent building was desired, the foundation was usually built of river stones, boulders, or blocks (Giffords 2007: 96). At Guevavi, there is evidence of foundations made of local conglomerate.

Adobe was an integral building technique which, as opposed to buildings made of grass and brush, offered a more permanent building. Different methods of construction with adobe bricks were used by Native Americans, including the O'odham.

O'odham settlements commonly had ramadas and houses which had simple roofs made of organic material, like grasses, and brush (Fontana 1989: 41). The roofing of simple adobe structures consisted of branches and other organic materials. Flat roofs would have been common. To construct a flat roof, *vigas* were placed atop corbels or corbelled impost blocks on columns (Giffords 2007: 108). Across the *vigas*, smaller latillas, or pieces of wood or planks, were fitted. Other grasses and brush were placed on top of this layer. Sometimes, the whole roof was covered in adobe and sealed with plaster.

### **Excavations at Guevavi**

As a recent student in the Mission Guevavi Archaeological Field School through the University of Arizona, I participated in the excavation of several structures from the Mission period. These excavations give an insight into the materials these builders may have used, the living arrangements and structural techniques implemented by the Indians living at the Mission, as well as the building architecture and design created by the missionaries. The information I offer in this section comes from the Desert Archaeology, Inc. Field Forms and the excavations I describe were conducted from January-April 2013 as part of the spring 2013 Field School.

We excavated two prehistoric pithouses, though there were likely many in the area. This pithouse (feature 28) was located in the roadbed and was identified based on the dark staining on the surface. It appeared to be cleaned out by the occupants and then burned. This structure was 6.70m long and 3.10m wide. The entrance faced east.

Three different stratum, distinguished based on appearance, were excavated within this feature. The first stratum was completely disturbed and not many artifacts were discovered, due

to the location of the structure in a roadbed. A *mano* was found in the second strata of this unit. A small piece of red on brown pottery was also found in the fill. In the third strata, several burned artifacts were found. This included a small burned wasps' nest and two burnt maize kernels.

The floor of this pithouse was almost completely burned. No plaster was present and there was no evidence of remodeling within the structure. The only artifact recovered on the floor of the structure was a core. In this pithouse, a single roofbeam was visible and only one rectangular posthole was uncovered. It was located near the convergence of the entrance and a wall.

The second excavated pithouse (feature 29) was likely cleaned out before it was abandoned. Like the pithouse described above, the floor of this pithouse was also completely burned. Few artifacts were uncovered within the fill of this structure. Some flaked stone, animal bones, and a high density of fire cracked rock was uncovered. A broken *mano* and *metate* were excavated. A potentially reconstructable vessel was found near the floor of this unit. This was determined to be a Red on Brown Gila shoulder jar.

No postholes were found within this structure and there was no evidence of remodeling. The only evidence of plaster within this structure was found in the hearth, which was lined with plaster. The hearth had a circular top and a basin-shaped profile. The hearth was 21cm in diameter and had a dept of 4 cm. No artifacts were uncovered within the hearth.

Wallfall from an adobe structure was also excavated, as was the floor of the structure (feature 20). The bricks from this structure were 13.2 inches in length and 3.5 inches thick. The floor was made of compacted clay and was the same color as the adobe bricks from the walls. This implies that it may have been made from the same material. The walls were made of abode

brick with mortar. The walls were grayish in color and made of adobe mixed with sand and gravel. There was some evidence of fire as some of the interior surface appeared to be partially burned.

The base of the wall consisted of adobe bricks embedded with small rocks. Burned mesquite roofing beams and daub with latilla impressions were found in the floor fill. The daub on top of the beams was hardened, indicating that the daub had been fired. A large amount of charcoal was found within this unit.

Feature 20 was most likely a Spanish-era structure. A large amount of silt was found on the floor, which probably blew in after the structure was abandoned. The beams and daub were on top of the silty floor layer. Small artifacts, such as bone, were found between the layers of floor fill. The north wall of the structure fell outward after the building was burned. Wallfall consisting of thirteen courses of adobe bricks were exposed, measured, and mapped in the road surface.

Other excavations have been conducted at this site which yield even more information about the architecture of Mission Guevavi.

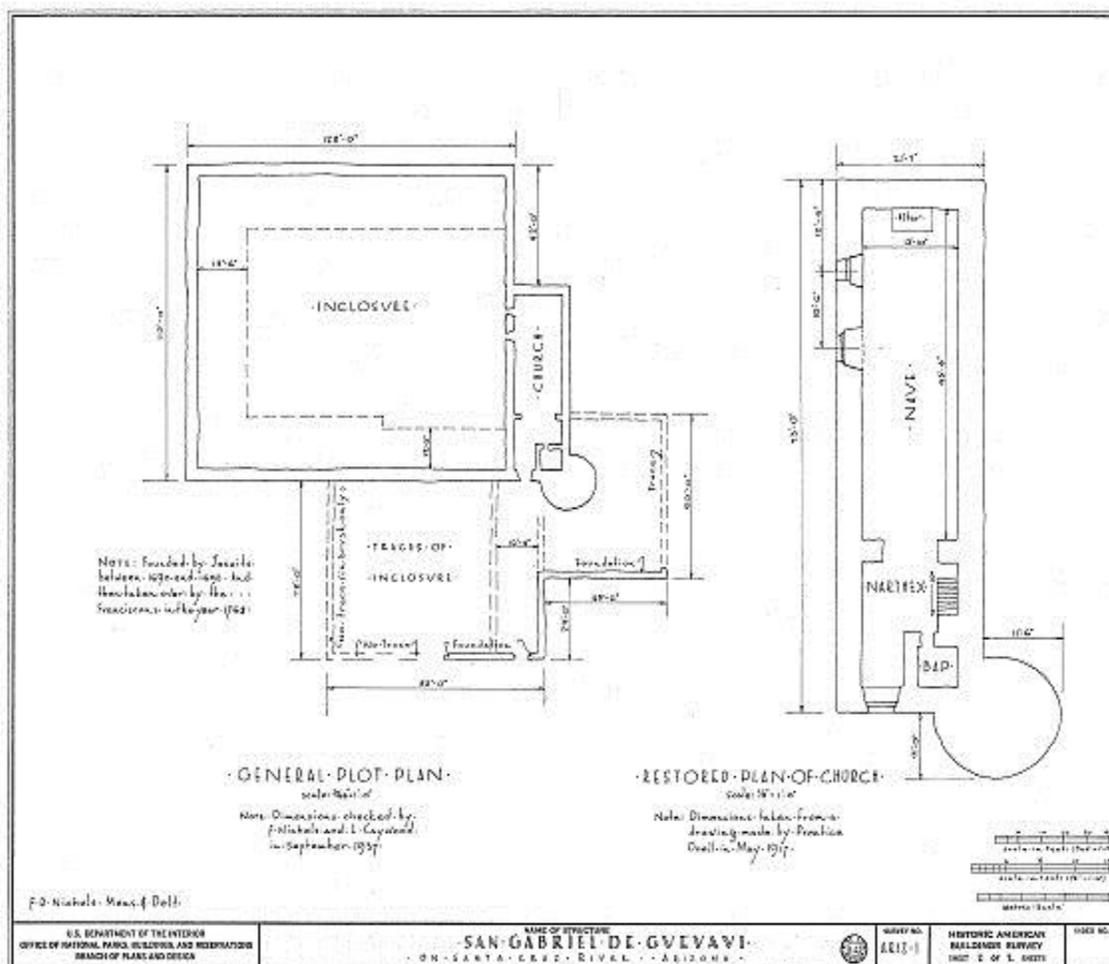


Figure 2: Image from Historic American Buildings Survey

### Architectural Remains from Mission Period: The Church

Two features of the Church structure were determined during the excavations by Robinson, though the interior of the church was not excavated. The front end of the church faced southeast and there was a door opening on the same side as the *convento*. This doorway was located near the junction between the nave and the sanctuary (Robinson 1976:146). The church consisted of three sections, which included the sanctuary, nave and narthex. The three different sections were separated with pilasters and the walls were made of unfired adobe bricks

which measured 4" thick. A possible circular tower was on the southeast corner of the church which measured 20 feet in diameter (Burton 1992: 9). There was also a window located above the sanctuary. The interior was painted with a thin white plaster, though some light red paint did remain in some places when the site was surveyed in 1935 (Pickens 1993:138). There is some evidence, based on the placement of wall abutments, which indicates that the front part of the church, which consisted of the narthex, baptistery, and tower, was added at a later time (Burton 1992: 11). A layer of mortar at the end of the nave wall could indicate that that wall was at one time the front of the church.

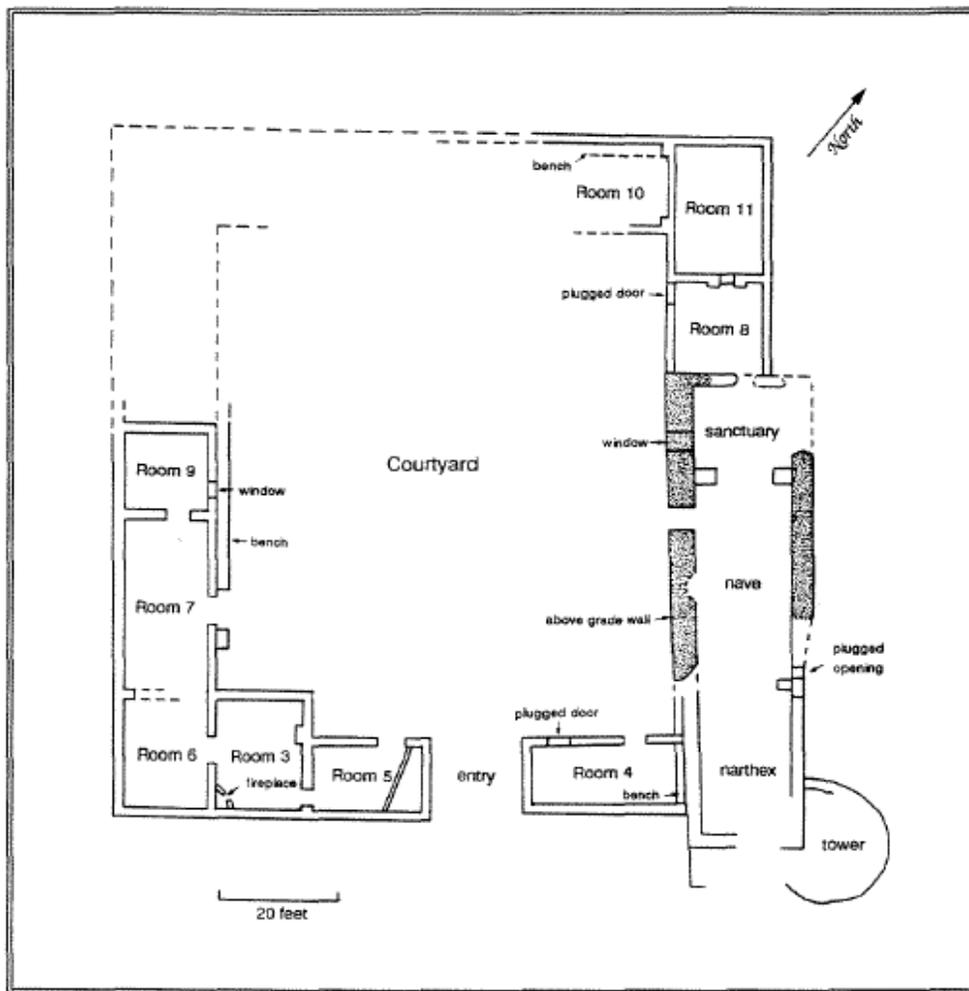


Figure 3: Image from Burton 1992: 11

### The Convento

A series of excavations have also been conducted on the *convento*. Nine different rooms were identified during excavation, while an area that was not excavated is expected to contain five more rooms. Some of the excavated rooms showed evidence of almost certain occupation during the post-mission period, when the structures were used for mining operations.

The foundation throughout the *convento* was quite consistent and was made of local conglomerate (Robinson 1976:147). Material used in the construction of the *convento* included

adobe bricks. These bricks were placed in two parallel rows and made up the walls of the *convento*. The bricks were sun-dried adobe reinforced with straw, set with a muddy black mortar (Robinson 1976:148). Evidence of roofing material was only found in two of the excavated rooms. This evidence consisted of fragments of *vigas* found in one room, and pine planks found in another. All the aforementioned wood was identified as ponderosa pine (Robinson 1976:148).

Interesting features were found in the excavations of the various rooms of the *convento*. Pilasters were found in Room 3, one of which had remains of plaster on it. In the same room, a beehive fireplace was located in the corner of the room (Robinson 1976:149). The sides of said fireplace were made of conglomerate and adobe bricks. There is evidence that the sides of the fireplace may have supported a lintel. The burials of one adult and two infants were excavated in the same room, though were probably not remains from the mission occupation.

In Room 4, two different layers of plaster were found on the walls. One coat was brown and sandy while the other was white (Robinson 1976:149). A bench was found placed along this shared wall (Burton 1992:12). Two different doorways were found in this room, though there was evidence that one of the doorways had been filled in. In Room 5 in the *convento*, evidence of the roofing materials used was found. Several pine beams were discovered on the floor of the room, in addition to two postholes. Another interesting feature of this room was a short adobe wall that acted as a partition through the room. It is not known how high this wall measured (Robinson 1976:150).

In Room 6, the crown of a failed brass bell was discovered. These pieces could have been brought to the mission by the Padres to use as scrap metals or it could be a piece of a bell which the people at the mission unsuccessfully attempted to cast themselves. This artifact was from the mission period (Robinson 1976:165).

Room 7 was a particularly large room in the *convento*, measuring 4.40m x 9.20m. This room also contained evidence of post mission occupation, including ash and slag. Two doors were found in this room. One led directly into the courtyard, while the other led into an adjacent room. In Room 9, plaster was found on all of these walls and a definite layer of red hematite covered one of the walls (Robinson 1976:151). The size and apparent decoration of this room suggests that it was used by the priest as a chapel (Burton 1992: 12). The adjacent room contained a window that looked out onto the courtyard.

Room 8, which was located directly north of the church was likely under construction, but was apparently never finished. This room also had a door that accessed the courtyard and a door flanked by pilasters led to an adjacent room. Pine planks were discovered on the floor of this room, indicating that there was roofing (Robinson 1976:151).

Room 11 was very disturbed, and excavation was therefore difficult, but some features were uncovered. Pilasters were found in two corners of the room. A bench which was made of cobbles and abode ran along one of the walls (Robinson 1976:151).

In the cloister itself, another bench was found along the *convento* walls directly across from the church. When the bench came to the window, which was described above, it dropped in height and therefore had the appearance of a step in front of the window (Robinson 1976:152). A circular feature located in the cloister, measuring about 10 feet in diameter, may have been the remains of an *arrastra*, a mill used to process silver ore (Burton 1992:14).

A plaza was located south of the *convento*, and low mounds were visible before excavation, indicating the areas to be excavated. Many components of these structures were different than those in the *convento*. The material used to form the walls was different than that used in the *convento*, and the bricks themselves were smaller. The foundation was not the same

conglomerate, but was made of river cobbles and lime mortar, lighter in color. Evidence of lime plaster was found, and hard mortar was used on the walls (Robinson 1976:153). Lime plaster was also found on the floors, an architectural feature that did not occur in the *convento*.

One room within the plaza was built of different materials than the rest of the structures and was distinct from any construction in the *convento* or the church. A wall divided the room in two (Burton 1992: 14). The wall was added after the room was built. The bricks were pink in color and softer than the others. There was an area in the room where a fire had probably been present, but no distinct fireplace was found (Robinson 1976:153).

### **Conclusion**

In conclusion, the structural remains at Guevavi demonstrate the influence of several different groups who occupied this site at various times before and during its use as a mission. These different occupations are illustrated in the architecture.

At Mission Guevavi, the layout of the site during the Mission occupation was heavily influenced by Spanish techniques. The Church building was part of a square *convento*. There are also indications of additional, smaller square enclosures (see Figure 2). This creation of a community area, which would include a church and a belfry, was an important component of Spanish Mission Architecture. The fact that the church and *convento* were in a different location than the residential areas only reinforces the differences between the Spanish missionaries and the native populations.

The pithouses excavated at Guevavi were prehistoric and are an indication of the Hohokam occupation of the site. Hohokam pithouses were rectangular or square in shape, built in shallow pits in the ground, with flat roofs made of organic material held up by floor posts.

Hearths were usually built in Hohokam dwellings. The pithouses excavated at Guevavi were rectangular and evidence of a hearth was found near the entrance of one of the pithouses (feature 29). Evidence of roofing, based on postholes, was found in the pithouse excavations at Guevavi.

There is extensive evidence of the use of adobe bricks at Mission Guevavi. The size, and extent to which the adobe was used during the construction of the mission, indicate a heavy influence from the Spanish. As evidenced by Danson, wattle and daub was an adobe technique used in the Santa Cruz River Valley. However, there is also evidence of the use of unfired adobe bricks at Sobaípurí sites. The adobe structure that was excavated at Santa Cruz del Gaybanipitea had several architectural elements in common with those at Guevavi. First, the function of the adobe structure at Santa Cruz del Gaybanipitea was likely defensive, similar to the adobe buildings at Guevavi. Due to raiding Native American groups and the harsh desert climate, adobe walls at Mission Guevavi were very thick. Second, puddled adobe was used at the Santa Cruz del Gaybanipitea site and at Mission Guevavi, including in the construction of feature 20. Third, in their construction of adobe walls, Sobaípurí reinforced the adobe by adding river cobble to the mortar. At Mission Guevavi, the adobe was mixed with sand and gravel and lime mortar was added to several of the structures in the plaza. The influence of the Sobaípurí occupation of Guevavi is evident in the architecture, especially relating to the adobe bricks.

Roofing techniques indicated in the structural remains at Guevavi are also consistent with several different group occupations. As was mentioned above, the evidence of roofing within the excavated pithouses at Guevavi demonstrates the influence of Hohokam techniques. In feature 20, *latilla* impressions were found in daub. This perhaps indicates that there was some sort of roofing on this structure beyond the simple grass and brush. This style of roofing is more consistent with Spanish Mission architecture than any of the native building techniques. Though

O'odham builders would put dirt on top of their grass and brush roofs and hope that eventually rain would form a sealed mud layer, similar to an adobe roof. At the Sobaípuri site Santa Cruz de Pitaitutgam, and at Mission Guevavi, postholes were reinforced by the placement of rocks at the base of the post.

The Church at Guevavi is was built in the typical Spanish Mission style. It had a rectangular nave, divided into three sections, was built using adobe bricks, had plaster and stucco applied to the inside and outside walls, and had a belfry. There is also evidence that the church was painted, which was typical of Spanish missions. The church did not have a complicated roofing structure. It was likely made of wood and grasses and held up using the post-and-lintel system.

Evidence of the use of white plaster was also found in many of the rooms in the *convento*. The inside of the church was covered in a layer of plaster, a brown/sandy plaster was used in Room 4 of the *convento*, and evidence of lime plaster was found in walls in the plaza. The use of plaster is not an exclusively-Spanish technique. The Hohokam used lime plaster during their construction and the Sobaípuri used mortar, like a plaster, on their interior walls.

The architectural remains at Mission Guevavi paint a picture of a site influenced by native and foreign styles and techniques. This site demonstrates that, though the Jesuit and Franciscan missionaries arrived in the Pimería Alta with a detailed plan and oftentimes, with architects and masons, they could not erase or discount the influence of the native builders which would ultimately become clear in the architecture.

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