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The painting by Ramirez

The construction of the Cathedral of Antigua Guatemala in the 17th century from the pictorial documents

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ABSTRACT

In 1678, the painter Antonio Ramírez elaborated a picture explaining the condition of the works of the cathedral of Santiago de Guatemala (now La Antigua Guatemala), a picture that allows us to establish the evolution undergone by the cathedral from the second half of the XVII century to its current state.

Throughout this evolution, we want to highlight those construction elements that have been able to withstand not only the course of time, but above all, the force of the numerous earthquakes that have affected Guatemala since 1678 until today.

In addition, Ramírez's work offers a series of brief but very illustrative brushstrokes on the organization of a construction in the second half of the XVII century, data that enriches the history of Guatemalan colonial architecture.

KEYWORDS

Guatemalan colonial architecture / Restoration criteria



1. THE PAINTING BY ANTONIO RAMÍREZ

Figure 1.

The painting by Ramírez

In the 1960s, engineer Teodoro Amerlinck located a painting at Francisco González de la Fuente's antiques gallery "La Granja" in Mexico City, which dealt with the reconstruction of the Cathedral of Santiago de Guatemala (now la Antigua) made during the second half of the XVII century.

Amerlinck conveyed his finding to the historians Heinrich Berlin and Xavier Moysen, who notified the Guatemalan historian Luis Luján.

Both Moysen and Luján published excellent works on the painting. Moysen (1969), referring to the construction process of the cathedral, and Luján (1969) focusing more on the aspects of daily life that were reflected.

However, it was in the thesis of María Concepción Amerlinck, the daughter of Teodoro Amerlinck and discoverer of the painting, where more information about the latter was provided. This information included the name of its author, Antonio Ramírez, who painted several images between February and October of 1678 in order to send the progress made in the works to the New Spain and the Council of the Indies. Thus, there was more than one picture, although currently only the one we studied is preserved (Amerlinck 1981).

Nowadays, the painting is privately owned and is protected by the Fomento Cultural de Banamex.

2. THE COMPOSITION OF THE PAINTING

As we have mentioned before, the painting reflects the progress made in the works of the cathedral in 1678, as well a colorful representation of society during that period of time.

The city of Santiago de Guatemala had been founded in 1524 in the region of Iximché, from where the Spanish had to flee, establishing the city in the valley of Almolonga in 1527. There, a parish church was built that later became a cathedral after the parson of Santiago de Guatemala, Francisco Marroquín, became bishop in 1534 (Amerlinck 1981). This new settlement was devastated by a flood in 1541. The city moved to the Panchoy Valley (where Antigua Guatemala is still located at the present time) and there a second cathedral was built, as early as 1543. The work reflected in the painting by Ramirez would be a reconstruction of this second cathedral, referred to as the third cathedral, whose ruins remain until today.

To deepen the information provided by the painting as a priceless historiographical document, we can start by focusing on its dimensions, it is a canvas on a frame 157 cm wide and 165 cm high. It is hardly a large painting which would allow its easy transfer to the New Spain and once there, ideal for decorating a medium-sized room, sacristy, dean residence or similar, and as indicated before, although several pictures were made in resemblance this is the only one that remains. It was common to create oil paintings to preserve and show the progress and the status of the works at this time. The conservation and collection of architectural plans had not yet developed as to become documents of historiographic value for monitoring constructions (Castaño 2012). Instead, oil paintings were used as they were more enduring and hardwearing, allowing for long transfers.

The painting is in good condition, although you can see certain pathologies naturally produced as linear cracks or small old age slits (which occur as the painting is drying and straining).

The colors used in the painting have survived over

time displaying much earthier tones than desired. The colors are completely darkened under the layers of artificial dirt, which have deposited on the surface of the piece as well as environmental pollution and oxidation. During this time, natural resins were used as varnishes. These turned yellow with time, so it is possible that the yellowish and brownish color exhibited is due to the oxidation (polymerization) of the layers of varnish, which stop fulfilling their protective role, to become a filter that distorts all the natural colors of the painting, flattening and subtracting volume from the figures or objects of the composition.

In addition, the layer of varnish is the layer or substratum that traps the largest amount of surface dirt and pollution which helps it age and darken more.

In any case, the palette of colors allows the picture to be perceived as a feature of the colonial style, although the intense colors have been lost like the red ones or yellows leaving the painting with quite homogenous earthy tones, a characteristic of the base paint with which paintings were made at the time and where some pigments have lost their intensity. Even so, there are still some clean whites, used to add glossiness to the columns or garments of some characters, and some intense blacks, in certain details. Regarding the composition, it is somewhat strange because it represents the cathedral in a parallel perspective encased in the frame of the canvas. Although the perspective may portray as being linear, instead, the vast majority is parallel, as can be seen in the succession of domes that are all of equal size, even the most distant.

This suggests that the author, or did not know, or was not interested in the use of laws of perspective already known and used. The same perspective of the main chapel shows this inexperience by the flatness of its inferior ring. Another element to emphasize is the scaffold that has been represented with a changed perspective of the projection and which is opposite to the rest of the picture. It seems that the narrative value of history at the moment had more importance than the development of a more proper perspective. Likewise, the house portico in the lower right corner

is represented with projections and perspective lines totally different from those of the cathedral, so it can be understood that from the drawing perspective and its science the picture does not comply with rigorous perspective rules, but plays a more illustrative rather than scientific role. In this sense, it is worth highlighting that in the dome of the main chapel, number 3 in the painting, the intrados is presented, a totally forced perspective regarding this didactic eagerness.

Moreover, on the other hand, the dimensions of the characters in the picture are represented in two sizes with a sort of perspective; those who are closest in the square all of them are more or less the same size opposite to those who are carrying out the work of the cathedral which have a smaller but equally homogeneous size, thus in this way confirming the intuitive but not very rigorous use of the perspective, creating two fields with homogeneous dimensions: that of the square and that of the work.

If we wanted to resemble the work with a known drawing format, we could understand that it is a cavalier perspective where the facade has remained orthogonal and the depth has been projected obliquely at an angle close to 135°.

As for the formal composition of the painting, it transmits a certain awkwardness since it seems that the representation needed a larger canvas, cutting the facade on its left side and on the right cutting the representation of the building of the square hence leaving the body of the cathedral encased with the domes in the background. In this setting the composition is strange since it gives the central value to the domes of the main chapel and the choir, placing them in the center of the canvas, conditioning the composition and displacing the facade in regards to the axis of the painting, downgrading the ceremonial importance that needed to be present in the facade and life setting of the square.

3. THE CONSTRUCTION PROCESS OF THE CATHEDRAL

Currently immersed in the process of restoring the cathedral, the analysis of Ramírez's painting is essential, since it will help us to understand the structural solutions that were already proposed in this third cathedral, relate them to the conserved vestiges and consider if such solutions can still be valid in our desire to preserve the building.

Beyond question, we must be careful when establishing the chronology of the preserved ruins, for although it is true that the present aspect of the cathedral resembles Ramírez's painting quite similarly, we are aware that numerous subsequent interventions have modified the building notably.

Thus, the actions after the earthquakes of 1717 and 1751, especially those made by Diego de Porres after the earthquake of 1717 and the construction of the Socorro chapel around 1768.

Or the wreck caused by the earthquake of Santa Marta in 1773 and its subsequent adaptation of a part of the property as a parish in the early nineteenth century.

Or the restorations undertaken during the government of Jorge Ubico, in the early 1940s, when a romantic look was given to the ruin.

Or finally, the damages caused after the earthquakes of 1976 and, especially, the interventions of the Consejo Nacional para la Protección de la Antigua Guatemala after this last earthquake.

3.1 THE CONSTRUCTORS

The first element to retain in the picture of Ramírez is the presence of the different actors who participated in the completion of the cathedral.

We start with the potential master of work, in this case José de Porres. In our opinion, it is the figure that appears on the tambour of the dome under construction (identified with numbers 5 and 6), which holds the level (González Tascón 1992). Its central position in the part of the painting dedicated to the work of the cathedral and the fact that it is the only

character that bears the level is what leads us to think that it is the master of work. He has a mustache, wears a hat and has dark skin. This brown skin could indicate both an autochthonous American origin and an African ancestor. In general, the natives were beardless, but not the mulattoes, which is the known



Figure 2.

José de Porres

racial condition of José de Porres.

There is a second character who seems to have some authority in the part corresponding to the work. He stands in the Gospel's portico, is dressed in a white shirt and doublet and black shorts. He wears a hat and has a stick. Both Lujan and Moysen considered him to be José de Porres. We think that because of his dress code and the rod, he could be a mayor or, perhaps, the butler or treasurer of the factory.

Among the specialists, we can distinguish two groups. On one hand, the stonemasons, concentrated in the Sacristan's House, number 37. There we can see four stonemasons tracing with a dry point compass (one of them) and sculpting with mace and chisel (the other three) the stone moldings. We do not know to what part of the cathedral these moldings could be destined to, given that in the construction moment

that appears in the picture, all the stone elements we know of that cathedral in XVII century had already been placed, essentially, the bases of the pillars and pilasters.

On the other hand, the masons, spread throughout the site, perched on the scaffolds, several of them



Figure 3.

The stonemasons.

with a spoon or trowel in hand, placing the mortar and the brick. If we notice the masons who are working the second body of the main facade, number 8, we can see the characteristics indicated, with the orderly arrangement of the brick reinforcements. It draws our attention that the lime moldings were ready as the bricks are still being placed. That is, they did not wait to finish the structural work to move on to the fine workmanship. Another thing that catches the eye, is that we virtually do not see anyone doing this fine workmanship, except an operator, next to the tambour of the dome of Santiago, number 3, which seems to be giving a final whitewash.

There is a third group of specialists to whom we want to draw attention to and who are also spread throughout the building site, on the scaffolds. They are workers who carry about two and a half meter rods. We can

see them on each side of José de Porres, on domes 14 and 17 or at the extreme part of the Tabernacle chapel.

We consider that what they carry are levelling rods that were used to take measures and that, in this case, could be about three Castilian varas (Herrero Salas 2015). Hence, they would be assisting both the master of work and the bricklayers when measuring the different parts of the factory.



Figure 4.

A mason giving a final whitewash.

We miss a group of particular specialists, the carpenters. We may not see them because, on the one hand, the scaffolds seem to be assembled by the same masons. You only have to observe the two labourers that are carrying one of the beams next to dome 27. Furthermore, there is no wooden roof in this third cathedral, only masonry, and the doors or windows have not yet been built.

In addition to the specialists, we have the helpers or labourers that carry the materials. It seems that the ascent of these materials was done in sectors. Thus, we see the bricks being raised either by the staircase

next to dome 27, or by the pulley of the door of the epistle. The lime is lifted by a second pulley, opposite the main door, and the sand or tepetate, by a third pulley, at the left end of the facade, next to dome 21. Once the material has been raised, it is distributed to the different working spots, where the labourers that carry the bricks and the labourers that carry the mixture mingle.

Finally, we do not want to finish this review without



Figure 5.

A masons with a levelling rod

reference to two other groups.

First, a singular group of four musicians, who with trumpets and drums encouraged the construction, on domes 16 and 17. The second, the herdsman, who had driven the ox carts which carried the building materials and who leaning on his pike, speaks merrily with a gentleman at the front door. This gentleman could be the master worker, Jerome Betanzos and Quiñones (Amerlinck 1981), who was in charge of checking the order of payments. The only drawback is that Betanzos was religious and the gentleman who speaks with the herdsman is wearing secular clothes.

3.2 THE CONSTRUCTION MATERIALS

We have already seen, when discussing the constructors, that the building materials in essence are brick, lime (for mortar, but also for the finishing) and sand or tepetate, in addition to those stone ashlar whose following location we do not know, as we have seen engraved next to the Sacristan's house. To these materials used we would have to add the



Figure 6.

Musicians

wood for the scaffolds.

If we compare the bricks that several labourers are carrying through the door of the epistle with those that are loaded in the pulley that rises in front of this same door, we face a certain doubt.

What the labourers carry with their tumplines are finer and redder bricks than those that rise on the pulley, thicker and darker. We have come to think that these finer bricks could be floor tiles. We cannot say for sure.

3.3. The construction process.

The material arrived to the site semi or fully prepared, like the bricks that were carried in by the oxcarts, or like the ashlar that the stonemasons are working in.

From here, it was moved to the place where the material was to be prepared, seemingly no permanent intermediate storage point can be seen within the site itself. This aspect is not surprising at all, as the inside of

the cathedral is hidden we cannot assure that material is not piled up within.

In order to raise the material, the labourers used pulleys that hung from the scaffolds or upon entering the cathedral climbed the stairs, seen together in domes 14 and 27. If we follow the path taken by the bricks brought in by the oxcarts, we see how the labourers, using the tumplines, introduce them inside the cathedral through the door of the epistle and then



Figure 7.

Using stairs.

we see other labourers, leaving the ladder next to dome 27, carrying less bricks, now directly upon the head.

This smaller amount is normal because given the size of the ladder, the tumplines could no longer be used. From there on, the material was delivered by the labourers to the masons, who placed it in the intended position.

As we pointed out earlier, it strikes us that the fine workmanship seems to take place immediately after the structural work, since we can only observe two or

three brick reinforcements in each case. It is even more striking that, as we said before, we see no bricklayer doing those finishing, so it may seem that after placing several layers of brick, the masons themselves took care of the plasters and the final decoration, which is somewhat an unusual form of work, as it would have been very easy to damage the final finishes. In order to construct the walls and decks, in addition to the remarkable use of the scaffolds, the masonry itself was used to distribute the materials and serve as support to prepare them, implying that the risk for finishing was even greater.

3.4 THE RESULTING WORK

Ramírez's painting shows the state of the cathedral in 1678, when the work had not yet been completed, and many details are missing regarding the building that suffered the earthquakes of 1717, 1751 and, above all, 1773.

However, we do have a general overview of how the cathedral was in the seventeenth century. A masonry of very thick walls, essentially made of brick, with five naves, the central one covered by a succession of semi-spherical domes, and the other lateral four, with segmental vaults.

In the central nave, several of the domes rise on tambour.

We must pinpoint that the number of lateral domes match the remains that we have nowadays. However, this is not the case regarding the domes of the central nave. In the picture only seven domes appear, whereas today we can observe the remains of ten domes. It could be that by the height of the domes on tambour, other possible segmental domes remain hidden. But if we observe dome number 1, the one of the Royal Chapel, in the picture it rests on three sections of the nave, when in reality, the dome rests only on one section. Namely, if in 1678 there were ten domes in the central nave, the ten that we see today, either the painter represented them in the wrong way, or there was a radical change in the deck of the central nave after one of the earthquakes of the eighteenth century. Given that the drawing shows hemispherical

domes, impossible to lean on three consecutive sections, we bet on an error of the painter.

In the upper part of the picture, to the left, we can see a bell tower with a belfry under the dome that rounds off the tower. To access this belfry, we see two windows that could serve to lighten the continuing stair that we indicate next to dome 14.

In this bell tower, we can see the Crown of Castile's



Figure 8.

The access to the belfry.

coat of arms, with a second one below with some religious motive, and a third episcopal coat of arms, whose owner we have not yet managed to identify but could give us a clue about date of construction or a major renovation of the tower.

In any case, this belfry already existed before the reconstruction of the cathedral in this second half of the XVII century. That is to say, it belonged to the so-called second cathedral, built after the relocation

from Santiago de Guatemala to the Panchoy Valley. To this belfry the other two towers that were built on the main façade should be added, on each side of the entrance doors, and that do not appear in this picture. These two towers still remained standing in the nineteenth century, until about 1870 (Garín y Rodríguez 2015).

In the picture, we find no indication of these future towers, which would have been located at the ends of the facade, beyond the double columns that frame the side doors. These towers were made between 1684 and 1686 (Amerlinck 1981), which could explain why there is no evidence eight years prior.

4. THE CURRENT REALITY

Amid the cathedral that we can see in Ramírez's picture and the present, obviously, there are many changes. But we must remember, as we said at the beginning, that not only numerous earthquakes damaged the building (1717, 1751, 1773, 1917, 1976), but also important modifications were made (in the XVIII century, in the 20s of the XIX century, in the 40s of the XX century, after the earthquakes of 1976). We must keep in mind these modifications, even more so if we think that since Amerlinck's thesis, which focused on this third cathedral of the XVII century, there has not been systematic work done on the building, causing that all the alterations we have just listed to be poorly known.

With all, the fundamental part of the work, walls, bays and roofs, the ruin that is preserved today is still very similar to what we see in Ramirez's picture.

We must point out that in the ruin the main walls remain, as well as all but one of the pillars, and almost all until its ending, which shows that the colonial architects achieved an optimal balance between the composition of the masonry, its thickness and ability to withstand earthquakes.

Equally, most of the segmental domes, have also withstood the action of the earthquakes.

This was not the case with the semi-spherical domes,

which we know failed after the earthquake of 1717, and fell definitively after the earthquake of 1773.

As for the towers, the one located on the rear east façade and the oldest, was demolished in 1768 in order to build the chapel of Our Lady of Perpetual Help (Amerlinck 1981). The chapel was covered with a semi-spherical dome that also collapsed with the earthquake of 1773.

The other two bell towers, those of the main façade, remained standing, although in very bad condition, until the second half of the XIX century, when it was decided they would be demolished.

The result is a complex building, certainly in ruins, but where most of the enduring elements have been preserved, as well as most of the segmental roofs, elements that we could already see in the picture of 1678 and that still stand today, giving us a lesson on how to build architecture that supports the action of earthquakes, a lesson we want to embody in the restoration we have been doing since 2016.

5. CONCLUSION

The analysis of Ramirez's painting of 1678 tries to be one more link in the restoration project that is currently being carried out in the cathedral of Santiago de Guatemala. We pretend that the historical study not only serves as a reminder of the most prominent milestones of the building, but, above all, as a basis to establish the criteria of intervention to follow.

The painting by Antonio Ramírez was not a snapshot of a fixed moment in 1678. This point needs to be emphasized, in order to avoid any misreading.

We have already pointed throughout this article some contradictions that demonstrate that it is not a fixed photograph of a given moment: that strange relation between the structural work and the final finishing; the presence of the stonemasons when the work had already been completed in stone; the absence of places of temporary storage for materials. Moreover, it is not even a fixed photograph from a single point of view, but different visions of the whole, which promote these different perspectives and allow us see the exterior and interior of the domes at the same time.

Therefore, the author of the painting took certain liberties in the making. It is true that he created a perfectly recognizable spatial frame: the cathedral, the Main Square and the surrounding streets. He placed all the architectural references of this spatial frame, with particular attention to many details of the work done on the cathedral, which, in short, was the objective of the painting.

But what he created was a diachronic story that we must learn to read in the painting, combining different stages of construction and possibly also different moments of the life of the Main Square.

Stating clearly, then, that it is not an unbiased photo of a given moment, but an approximate account of the history of the construction of the cathedral, as we pointed out above, there are certain structural elements that did become recurrent in the cathedral: the thick masonries, the segmental vaults.

Currently, as we have already indicated, we retain the master walls and pillars almost entirely. In addition, there are still a good number of the segmental domes,

thirty-four, compared to the fourteen that have fallen. First lesson to extract: the thickness of the masonries and the type of vaults seem the most successful against earthquakes.

In the central nave, almost all the semi-spherical domes failed after 1773, in addition to the one we know fell in 1976. In this year, the only pillar that has flawed also fell down. It was the absence of these domes from the central nave, after the earthquake of 1773, which weakened the domes of the side aisles and triggered the fall of some of them.

The second lesson to be drawn, therefore, is that in addition to preserving the current state of the ruin, it is imperative to recover the top tether of the decks to provide the whole set of the necessary horizontal stiffness.

Failure to do so, can cause future earthquakes to aggravate the ruin.

Therefore, the analysis of Antonio Ramírez's painting coupled with the structural study of the cathedral constitute two valuable elements that will provide a possible answer to assure the permanence of the monument in time.

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