Divine Shine

Light in eighteenth century religious architecture: Spain, Mexico and the Philippines.

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General Issues

History of early modern architecture has usually underlined the importance of light in its development, being especially obvious in churches (Bonet Correa, 1978). Spanish Baroque interiors proposed a different space compared with previous ones (Luengo, 2016). Such innovations were parallel to their expansion and consolidation first in America and later in the Philippines, creating a culturally globalised scenario. Traditional historiographical interest on light has been based on subjective approaches (Bonet Correa, 1978), due to the lack of analytical tools now available. In the last years, some efforts have allowed to digitally reconstruct destroyed structures, and survey preserved ones in all these three countries, allowing a digital analysis from light simulations (Luengo, 2019). In parallel, few scholars have worked on the topic for other chronological and geographical frameworks with significative success (Moullou et al., 2012; Moullou et al., 2015; Papadopoulous, 2017). This growing academic field requires more digital samples, including both natural and artificial light simulation, in order to find diverse spatial solutions.

This paper aims to define the particularities of the Spanish religious interior in terms of sun light, providing a first approach to the use of candles, from the experiences by Moullou and others (2015). In addition to this, different technical approaches will be compared in results to find the most accurate or cheapest option. To do this, a selection of eighteenth-century churches has been done, including three in Spain: San Luis de los Franceses (1), San Jacinto (2), and San Pablo (Seville, Spain) (3), one in Mexico: Basilica de Guadalupe (4), and one in Manila (Philippines): the eighteenth-century Cathedral (5). The digital reconstruction has been obtained from different methods to be compared. Some have been done by RTC360 laser scanner (1 and 3); one by close range photogrammetry (2), see Figure 1, while the last two were manually reconstructed (4 and 5), see Figure 2 and 3. Although the details obtained, and the time required are not the same, this paper aims to discuss if these three options are enough to get basic conclusions.

First results show that there was a lighting pattern to be preserved in different continents even when contemporary treatises and contract rarely address this topic. The presbytery is usually dark compared with the light of the nave and the choir. In the same line, walls are not illuminated, underlining the central space. Finally, it is noteworthy that sunrays are avoided against a more homogenic solution. This solution is clearly linked with the liturgical functions of pieces of art. On the one hand, avoiding direct sun in the walls is required by preserving paintings, which must be under 250 lux. On the other hand, darkening the main altar allowed to use candles and mirrors to manage artificial light at every event in a theatrical manner. Finally, underlining the upper part of the building insisted on the divine character of the building, reducing at the same time the heat effect on tropical climates. After this baroque solution, as part of the enlightenment phenomenon, churches were clearly better illuminated, in an average range of 300-500 lux. Such levels changed the spiritual space into a bright scenario, but at the same time made impossible to keep the variety of pieces of art previously used. Paintings,

tabernacles, little chapels, and even pipe organs and choir stalls were eliminated or simplified as part of a new paradigm and a new light exposure consequence. Apart from a stylistic feature, this paper aims to show that it was also a national element. Compared to other religious spaces built by French or Italian architects both in Europe and abroad, it can be shown that the solutions were drastically different. The importance of marbles, and not so much oil paintings and wood tabernacles, allowed a completely different approach.

As a result, this paper shows that light function was preserved in different geographical contexts. Lack of skilful architects, earthquake challenges, or different cultural approaches to light, were not obstacles to keep a common interpretation of the sacred space. As a consequence, presbyteries were kept dark to be artificially illuminated by candles in a theatrical manner. On the contrary, naves had more sun light. In any case, sun rays were not common, preferring blurred effects.

Figures

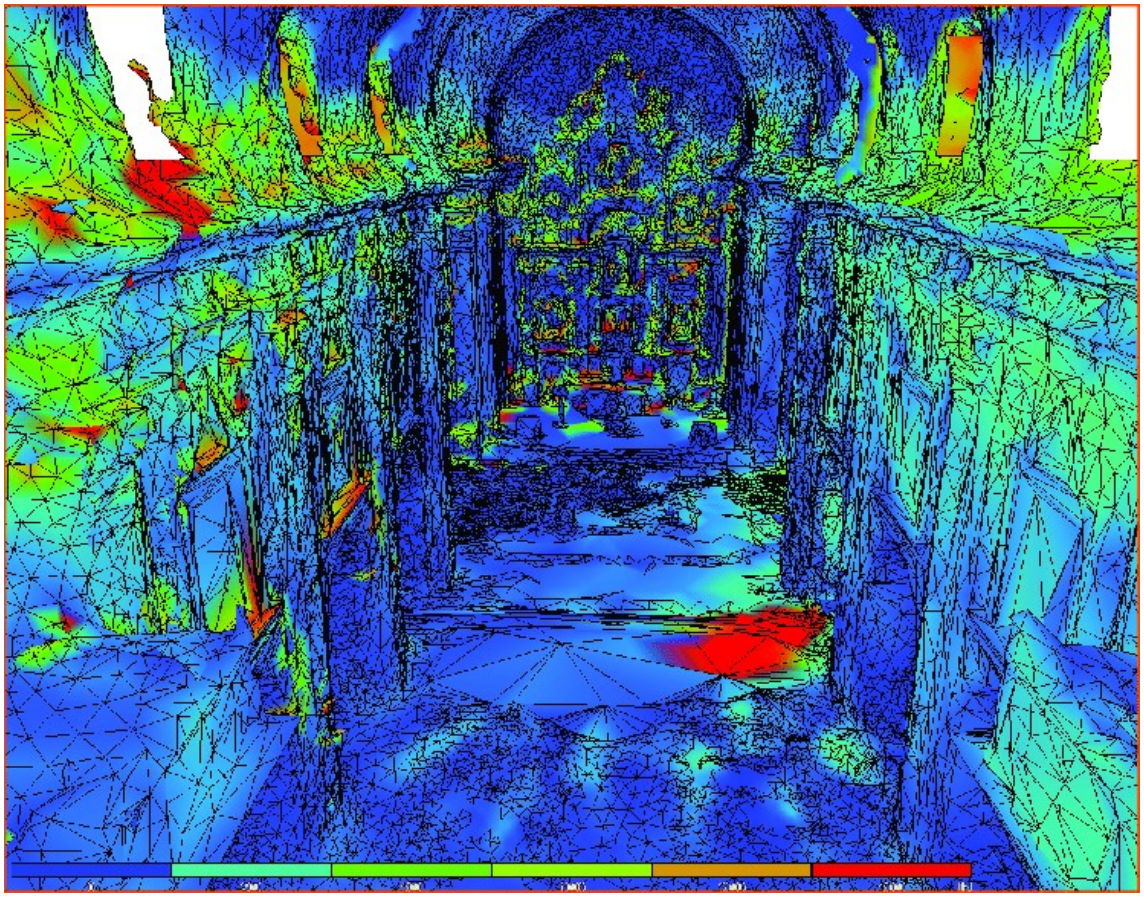

Fig. 1. Digital analysis of light incidence in San Jacinto Church. Seville, Spain.

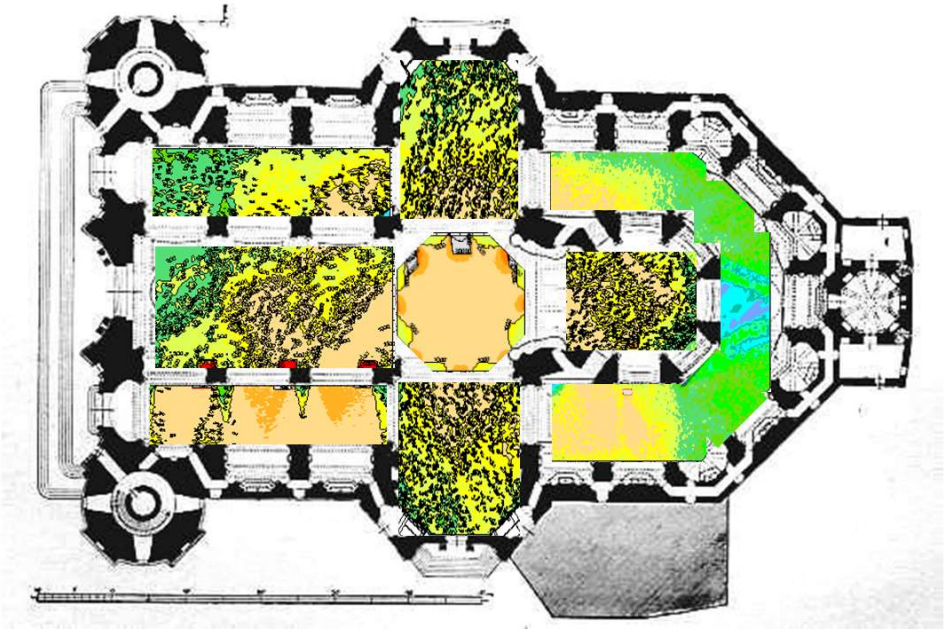

Fig. 2. Digital analysis of light incidence in Cadiz Cathedral. Cadiz, Spain.

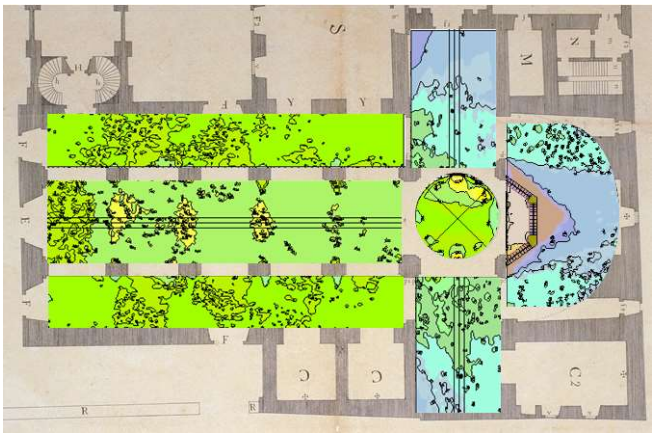

Fig. 2. Digital analysis of light incidence in eighteenth century Manila Cathedral. Manila, Philippines.

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