

## **Cultural Encounters between the East and the West. The adaptation of European models to new environments during the Age of Exploration**

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### **ABSTRACT**

The Iberians founded a large number of settlements along the routes of discoveries that led to the first direct and fluid contact between vast Asian regions, the American continent and Europe, largely determining later cultural manifestations both in the “new territories” and in Europe. In this context, reciprocal influences between the European baroque and that of the new territories manifest both ornamentally and in more general concepts, including the relationship with the environment and the use of day lighting as a mystical resource with all the decorative techniques involved. Although the excellence of day lighting in baroque architecture is celebrated by architectural historians, very few scientific analyses have been developed, producing a two-fold result: day lighting’s beneficial effects cannot be transmitted nor reproduced in new buildings. Moreover, while the relationship between European and American Baroque architecture has been frequently discussed, its connection to Japanese and Asian influences has been sparsely studied, perhaps because of an excessive reverence for Euro centrism. In the following paper we discuss the results of a day lighting simulation software capable of analyzing the operating limits of baroque models in order to show the meaning of their cross-cultural influences between the East and West.

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## 1. Introduction

The Spaniards founded in the American continent more than 1000 cities, while the Portuguese spread out their cultural influence in the extensive territory of Brazil (Jimenez et al., 2007). Moreover, the route of the Cape of Good Hope that for a period was shared by Spaniards and Portuguese, facilitated the establishment of cities and provisioning posts of particular interest. Among them we can highlight Luanda, Lobito and Mozambique Island in the Indian Ocean. We also want to highlight the golden and mythical Goa, as well as Damao, Diu and Cochin for being relevant Portuguese settlements, along with Malacca, Macao, Manila and finally, some enclaves on the Japanese coast, such as Nagasaki.

The American connection was completed at the other end by the famous Manila Galleon, which made the route from Acapulco to Manila twice a year. Therefore, the relationship between Asia and America was well-established. This is evidenced by the abundance of the Philippine sangleyes art works found today in museums in Mexico, Peru or Ecuador, as well as the many missionaries and martyrs that America sent to Japan and the Philippines.

The architectural discoveries followed the way back towards the Metropolis, while the descriptions that missionaries and merchants made about the architecture of the new cities and their civilization were also influencing what was decided in Europe. In this regard, we would like to highlight the book published around 1600 "History of Japan" (in Portuguese) by Luis Fróis. Later, around 1660, Athanasius Kircher published a complete Sinology treaty based on the experiences of the great Mateo Ricci, who for the first time introduced the notions of the Aula de Sphaera of Sacrobosco and the theories of Clavius in the East. These lessons of mathematics and perspective were translated into Chinese and Japanese, which produced a great commotion in those countries scientific communities (Findlen, 2004).

The flow of cultural exchanges that took place through the new European settlements, led to a process of acculturation, which moved to architecture in a natural way, resulting in the emergence of what we refer to as "baroque reason", reason which maintains among other attributes the understanding of the world as a global system of cultural sensibilities and allows, for example, Brazilian historians such as



Carlos Ott to locate the origin of Baroque in the Khmer architecture of Angkor Wat (Ott, 1991).

## **2. The Jesuit Mission in Japan. The first fluid contact with the West**

The Jesuit mission in Japan was a national enterprise. Francis Xavier was commissioned by D. Joao III for the evangelization of India, and left Lisbon as Nuncio of Eastern India in 1541. Later he was also commissioned to convert the Japanese to Christianity.

While St. Xavier was in Malacca he received a report on Japan from Jorge Álvares, in which he provided such meticulous and objective information about its people, customs and religions that even today it is appreciated as a valuable document. He also received information from Anjiro, a young Japanese exile who was baptized in Goa as Paulo da Santa Fe, becoming the first Japanese Christian.

Xavier disembarked in 1549 in Kagoshima, which was the port and capital city of the Kingdom of Sasuma. He had the great dream of illuminating that end of the world – which boasted 66 kingdoms, customs and strange lifestyles – with the Christian faith.

He used a realistic evaluation of the environment as a tactic to establish friendship with the Buddhist priests and to obtain the permission to preach from the emperor. He studied Japanese language with enthusiasm, having had Paulo da Santa Fe, who was deeply responsible for the introduction of Christianity in Japan, as a teacher and interpreter.

In September of 1551, a Portuguese ship arrived at the city of Bungo with news from India. St. Xavier considered that his presence there was necessary and he left in the ship. Xavier never returned to Japan. He thought that it would be easier to evangelize Japan if he had first obtained the Christianization of China. However, he died before achieving it on December 3, 1552.

## **3. Cultural aftermaths of Francis Xavier's labor in Japan**

During the two years and three months in which Xavier was in Japan, he toured the island of Kyushu and the southern part of Honshu. The letters he sent to Europe show the first detailed descriptions of Japan and its people and made him famous in the most well-known cultural centers of that time in Europe.



In Japan he left the foundations of a deeply-rooted Christian mission. He was a pioneer of cross-culturality, trying to assimilate Japanese values and to adapt them to Christianity, as long as this did not conflict with his religion. Thus, Francis Xavier was a messenger of religious values from the West to the East and vice versa. This adaptation to the cultural environment was later followed by the Jesuits in their missions, as Matteo Ricci and Roberto di Nobili made in China and India respectively. Therefore, some authors, including Bailey (2001), postulate that there was not a uniform type of Jesuit architecture in all the territories in which the Order carried out its work (Brazil, India, California, Japan, etc.), but rather an adaptation to different local cultural and environmental conditions.

Even a popular art form emerged, mainly in painting, called Nanban (barbarians of the South), consisting of a fusion of Christian iconography, which the missionaries had carried from Europe, with typical Japanese representations.

#### **4. Reunification of Japan and the beginning of religious persecution**

In the late sixteenth century (Momoyama period), Toyotomi Hideyoshi, known as the great unifier, consolidated his power in Japan. Hideyoshi promulgated the first edict prohibiting Christianity in 1587, which marked the end of religious freedom. In 1612 there were already persecutions in Edo and Kyôto, and a decree of expulsion of all missionaries was finally promulgated in January of 1614.

A dramatic sign of that new era occurred in 1621 due to the crucifixion of 26 Christians, including the Franciscans and Jesuits, in Nagasaki. It was a transcendental event in the history of the Baroque era whose importance still has not been recognized. It was an impediment to Western expansion, determining, to an unsuspected extent, the sense of the world as we know it today. Understanding the reasons for this event may explain, from our point of view, many of the transformations taking place in the art of the late Renaissance.



### **5. Cultural interchanges with Europe and America. The Hasekura Embassy**

In this turbulent atmosphere, other Christian orders competed with the Jesuits to evangelize Japan. The Franciscan Father Luis Sotelo, who was born in Seville (Spain), convinced Date Masamune daimyo of Sendai (north of Honshu) to organize a mission to Spain, in which the daimyo hoped to obtain commercial advantages and Sotelo, in turn, hoped to be appointed bishop of Japan.

The Japanese leader at the embassy was Hasekura Rokuemon, who left Tsukinoura on October 28, 1613, and from that day began to write a diary of his experiences abroad. After his death, the diary was preserved for some time in Japan, but was subsequently lost or destroyed by feudal authorities. It is a great loss, since it is perhaps the only trustworthy source capable of providing reliable data about that mysterious mission.

So little is known about this embassy, which both Western and Japanese historians have practically ignored until recent times. Although there are many secondary documents in Madrid and Rome, the main questions about the reasons

for the trip remain unanswered. Scipione Amati, an Italian archivist, traveled with the group as an interpreter between August 1615 and January 1616, and wrote a report of the trip titled History of the Regno di Voxu. However, Amati's report can only be trusted when he narrates the facts that he witnessed.

The galleon in which they left arrived in Acapulco on January 28, 1614. Ironically, that was almost the same day that Ieyasu promulgated the edict expelling the Christian population, an act which marked the beginning of the end of missionary activities in Japan.

The approximately twenty Japanese who embarked from Veracruz on June 10, 1614, were probably the first to cross the Atlantic Ocean. The emissaries were welcomed in Seville, hometown of Sotelo. They got an audience with the King Felipe III of Spain in which Hasekura declared that he considered himself "the most honorable of all my compatriots", for having left a dark land and having received the light of a Christian nation. Hasekura was baptized on February 17, 1615, by the king's personal chaplain, and was appointed senator and Roman patrician when he arrived in Rome.



The Spanish government received adverse reports from the Jesuits, who questioned the real objectives of the embassy and could not provide a reasonable response to the emissaries' requests. Consequently, the group languished in Spain for almost ten months. Finally, when the ambassador of Macao confirmed the crucifixions that took place in Nagasaki, the evangelization of Japan was completely abandoned. Sotelo then considered that his only option was the Pope. His audience with Paul V on November 3, 1615, although carefully prepared, yielded few concrete results. Subsequently, other Jesuits sent by Xavier visited Gregory XIII and experienced similar disappointing results.

In 1620, Hasekura was allowed to return to his country. A few years later, the Shogunate prohibited all Japanese citizens from leaving the country and also suppressed trade with the majority of other nations. This prohibition would last 250 years.

The aims of Hasekura's mission had been totally abandoned during his trip, and Hasekura was viewed with suspicion by Japanese society, which was quite isolationist at that time. Most authors insist that Hasekura ratified his new

faith and was therefore condemned to die in prison in 1622. That same year Sotelo returned disguised to Japan, was discovered, and suffered martyrdom on August 25, 1624.

In 1623, with the third Tokugawa Shogun (Iemitsu), the persecution of the Christians reached its maximum intensity. The number of martyrs before 1651, when Iemitsu died, exceeds 5,000 without counting the 30,000 victims of the Shimabara rebellion. In 1662, Metello Saccano, the last Jesuit resident in Japan, died in prison due to torture.

## **6. Initiation Of The Environmental Research**

Within this context of cultural exchanges, there were reciprocal influences between the Iberian's Baroque art and that of the territories in which the Europeans, and in particular the Jesuits, were penetrating. These influences, which have been sparsely studied - either due to an excessive reverence for Eurocentrism or a lack of research - are particularly clear for us in the case of the East and more specifically Japan.





Hasekura and his compatriots failed to accomplish their objectives and returned to Japan unsuccessful and humiliated. They met several rulers in the West; however, all their encounters were frustrating. However, when they all faced an abyss of despair and probable death, they realized that they had come to understand other realities that make their own afflictions bearable. This was not just a geographic journey; it was also a spiritual journey.

In the case of Japan, it has been proven that Javier, Sotelo and other missionaries visited the main sculptural and architectural works of the Kamakura and Muromachi eras. In particular, they were interested in buildings covered with “gold”, including the Kinkaku-ji Temple and Sanjusangendo enclosure with 1001 gilded Kannon statues.

However, the Japanese emissaries also knew the main monuments of Mexico, Seville and Madrid. Both groups, unequal in fortune, developed on the architectural influences that they had received. In the European case, the influences take place both in the ornamentation and in more general concepts, including the relation with the environment, adaptation to the

climate and use of the day lighting as a mystical resource with all the decorative techniques involved: such as the massive use of gildings, lacquers, mirrors and reflectors to handle the darkness of the spaces.

The knowledge of day lighting has interested many architectural theorists, including Sigfried Giedion, who said:

“Light and space are inseparable. If light is eliminated, the emotional content of Space disappears, becomes impossible to apprehend.” (Giedion, 1964, 495).

Following this concern, we have been involved, for some years, in the development of lighting simulations to show more deeply the meaning of these influences and how to apply them in the patrimonial rehabilitation.

To this end, a series of mathematical developments have been used that obviously exceed the objective of this article, but are available for verification. The algorithms are based on the new method of configuration factors (Cabeza et al., 2019) and take into account both direct and reflected illumination using matrix and finite difference methods. This



procedure extends the radiation properties of diffuse sources to luminous exitance of all kinds of building surfaces irrespective of their shape. These surfaces are therefore treated as radiative emitters by means of the generalized law of the projected solidangle (Almodovar et al., 2018).

In brief, we hope to contribute to that "baroque reason" which constitutes, more than anything, a new mode of scientific thinking. Also, as Max Jammer stated:

“It is my firm conviction that the study of the history of scientific thought is most essential to a full understanding of the various aspects and achievements of modern culture. Such understanding is not to be reached by dealing with the problems of priority in the history of discoveries, the details of the chronology of inventions, or even the juxtaposition of all the histories of the particular sciences. It is the history of scientific thought in its broadest perspective against the cultural background of the period which has decisive importance of the modern mind.” (Jammer, 1964, IX).

## **7. The search for daylight. General overview**

When we focus on the analysis of architectural spaces and its cultural implications, it is important to adequately establish the potential of its physical components. Therefore, we have compared with the help of the aforementioned simulation model and also through on-site measurements, the lighting performance of baroque religious buildings located in Europe, America and Asia, and we will show some cross-cultural influences which affected its architectural composition.

In particular, we have studied European baroque paradigms such as the extraordinary Jesuit Church of St. Louis of the French, which has been compared with precedents in Rome like Sant'Ivo alla Sapienza. Moreover, we have analyzed Baroque temples in America, more specifically, in Mexico and Brazil, where news and goods from Asia arrived prior to reaching Europe. On the other hand, we have studied some examples in Japan, including the well-known Ryoan-ji temple in Kyoto.



## 8. European Precedents

In Europe, relevant religious buildings such as Saint Louis of the Frenchmen in Seville and Sant'Ivo alla Sapienza in Rome have been analyzed to establish a comparison between precedents in the old continent and “new territories” in America and Asia.

### 8.1. Saint Louis of the Frenchmen

The Church of Saint Louis of the Frenchmen, located in Seville (37° 22' N), is one of the most relevant examples of good illumination found in Southern Spain. It was constructed by the Society of Jesus between 1699 and 1731.



Figure 1. Interior of Saint Louis of the Frenchmen. Left: niche of St. Xavier. Right: representation of the three martyrs of Japan. Source: author.

Particularly, some of the most significant events of the Jesuit mission in Japan have been represented. In a niche appears St. Xavier when arrives on the beaches of Kagoshima in Kyushu. Moreover, presiding the altarpiece of St. Francis Borgia, there is a representation of the three martyrs of Japan (Pablo Miki, Juan Soan de Goto and Diego Kisai), in apotheosis, holding palm and embracing the Cross symbol of their faith (Fig. 1).

Naturally, news of the great martyrdom of Nagasaki was soon known in southern Spain. Most of the missionaries who traveled to the Philippines left from the ports of Seville and the nearby city of Cadiz.

The introduction of gilding and massive reflectors is critical in maintaining an acceptable visual level with a slightly-glazed surface. The medallion representing the three martyrs of Japan never receives direct illumination and is always in backlight.

## 8.2. Sant'Ivo alla Sapienza

Sant'Ivo has been treated like a Borromini masterpiece by many architecture critics. This significant Italian architect created spaces with innovative and complex geometries, using advanced scientific knowledge at that time. In this regard, Borromini connected the harmony of nature with mathematical concepts, creating a relationship between architecture, science and nature.

Diffusing glasses were employed at Sant'Ivo, tilted  $15^\circ$  from the vertical. Consequently, the inclination of the glazing plane reinforces horizontal levels of day lighting.

An example from a simulated film is presented below to depict different situations at the church, together with stereographic sun charts (Fig. 2).

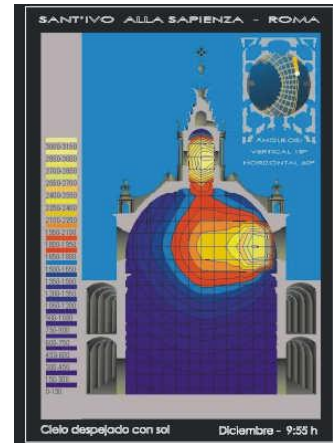


Figure 2. Excerpt from the simulation sequence of the interior of the church of Sant'Ivo, December at 9:45 h (section). Source: author.

Comparing with the Church of Saint Louis, slightly higher results are observed in Sant'Ivo. It is clear that good lighting situations are experienced in this central plan temple located in a higher latitude than Seville ( $41^\circ 54' N$ ). Therefore, the ways of conception of European baroque models were closely affected by the climate of Southern Europe, as Climate does not exist apart from History (Watsuji 1986).

## 9. Religious buildings in America

The diverse lighting performance of religious buildings in America influenced not only formal details but also the decorative arts associated with domes techniques, frescoes, surface finishes and sculpture.

We have to take into account that in subtropical latitudes (near to the Equator), the incidence of solar radiation is usually more intense than in mid latitudes. However, the availability of daylight in vertical surfaces, where windows are often placed, is not as high as it would be expected. Moreover, adequate lighting was hard to experience as sunlight easily reached the floor plan and its efficacy was reduced because of furniture, dark floor materials and failure to illuminate the task planes.

Consequently, in Brazil we find many references to such limits in the church of Sao Bento in Salvador Bahia (8° S). Salvador was the first capital city of Brazil and served as a communication nexus between Lisbon, Goa and other Portuguese settlements in Asia.

In Sao Bento, the architect is willing to augment the size of fenestration, but rapidly becomes aware of the futility of this procedure because of increased thermal radiation which does not correspond with higher levels of daylighting (Fig. 3). It is an emotive checkpoint. However, no other solution was available at the time and the process continued open to innovations (Almodovar et al., 2008).



Figure 3. Interior of the church of Sao Bento.  
Source: author.

#### **10. Examples in Asia.**

Macao (22° 12' N), was the first European settlement in China. A large number of Japanese Christians escaped to Macao after they were persecuted. Among them were artisans and craftsmen who worked on the facade of St. Paul's Church. Recent excavations discovered the rest of the bones of the martyrs crucified in Nagasaki. Here is also located the tomb of Father Allesandro Valignano who played a relevant role in establishing Christianity in Japan.

The St. Joseph Jesuit Seminary, whose construction began around 1750, was apparently a replica of the St. Paul Old Seminary, but nevertheless it is admirably

adapted to the climatic conditions (Fig. 4). European motifs merge with others of Chinese, Indian or Japanese origin. Lime is used on the walls to highlight the surrounding building, lattice windows are made with teak wood and translucent shells replace the glasses.



Figure 4. Details of the Saint Joseph's Church dome. Source: author.

### 11. Temples Of Tile And Gold

Through contacts of Iberian soldiers and mainly Portuguese merchants with Asia, other techniques of light treatment were spread to America and then to Europe.



Figure 5. Kinkaku-ji temple in Kyoto, 1390  
Source: author.

Those techniques included detailed knowledge of gilded interiors of Japanese temples, as can be seen in the writings of Jesuits missionaries. It is proved that San Francisco Javier, Luis Sotelo and other missionaries had visited Japan and had contact with the main sculptural and architectural works of the Kamakura and Muromachi eras, including the Kinkaku-ji (Fig. 5) and the 1001 gilded kannon statues of the Sanjusangendo temple (Fig. 6).



Figure 6. Sanjusangendo temple in Kyoto. 1001 Kannon statues. Source: author



Ceramics and azulejo tile, another Asian feature conveniently added to the walls, we're able to create a similar effect, as we see today in many Portuguese and Brazilian churches. It is interesting to stress that most azulejo-bearing examples in Portugal are late-baroque retrofits, such as the case of Sao Lorenzo's Chapel (Fig. 7). This clearly indicates a change of mentality in relation to the interior design.



Figure 7. The chapel of Sao Lorenzo in Algarve. Portugal. Totally covered with azulejo tile.

## 12. Conclusion

We have discussed at historic and scientific search which begins during the first attempt of globalization during the Age of Exploration that is not yet concluded, because American and Asian architectures are still looking for their cultural identities in the contemporary world.

Cultural hints cannot therefore be overlooked in this debate, but the help of computer tools clarifies the terms in the discussion, because without some degree of objectivity we would not be able to overwhelm or even appreciate our ever-opening history.

In this regard, some results can be drawn from the analysis, as follows:

Simulation is a viable alternative both for knowledge of the historical patrimony and to help in the decision-making process of the retrofitting policy. More specifically on questions of space-qualified, energy-savings and restoration and maintenance of artworks like paintings, gilds and sculptures.

That kind of holistic approach is now required from environmental architecture to ensure that the physical and aesthetic aims of all members of a multi-cultural society are fulfilled.

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## Conflict of Interests

The author declared no conflict of interests.

## References

- 1) Almodovar, J.M., J.M. Cabeza and I. Rodriguez, *Historical Buildings: Scientific Analysis of the Church of Saint Louis of the Frenchmen in Sevilla. Sustainability*, 2018. 10, 3352.
- 2) Almodovar, J.M., J.M. Cabeza and J.R. Jimenez, *Nineteen Thirties Architecture for Tropical Countries: Le Corbusier's Brise-Soleil at the Ministry of Education in Rio de Janeiro. Journal of Asian Architecture and Building Engineering*, 2008. 7 (1): p. 9-14.
- 3) Jimenez, J.R., J.M. Cabeza and J.M. Almodovar, *Considerations Concerning Measurements Relating to the Urban Design of the Spanish-American City*, 2007. *Journal of Asian Architecture and Building Engineering*. 6 (1): p. 9-16.
- 4) Bailey, G.A., *Art of the Jesuit missions in Asia and Latin America, 1542-1773*. 2001, Toronto: University of Toronto Press.
- 5) Cabeza, J.M., and J.M. Almodovar, *Daylight and Architectural Simulation of the Egebjerg School (Denmark): Sustainable Features of a New Type of Skylight. Sustainability*, 2019. 11, 5878.
- 6) Finch, H.L., Wittgenstein. 1995, Shaftesbury, UK: Element Books Ltd.
- 7) Findlen, P., *Athanasius Kircher: the last man who knew everything*. 2004, Oxford, UK: Roudledge.
- 8) Giedion, S., *The eternal Present. The beginning of Architecture*. 1964, Oxford, UK: Oxford University Press.
- 9) Jammer, M., *Concepts of space: the history of theories of space in physics*. 1993, New York, USA: Dover Publications.
- 10) Ott, C., *History of Visual Arts in Bahia (In Portuguese)*. 1991, Salvador in Bahia, Brazil: Alfa Gráfica.
- 11) Watsuji, T., *Climate and Culture*. 1986, New York, USA: Greenwood Press.