*Mediterranean Archaeology and Archaeometry, Vol. 16, No 4,(2016), pp. 503-508*


**10.5281/zenodo.220976**

# THE OLD AND THE NEW ROME: FRANCESCO BIANCHINI'S ASTRONOMICAL EXCHANGES WITH THE COURT OF LISBON

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**Received: 24/02/2016**
**Accepted: 08/03/2016**

## ABSTRACT

In the 1720s a patronage relationship developed between King João V (1689-1750) of Portugal and the Italian astronomer Francesco Bianchini (1662-1729). This was hardly surprising in a time when Portuguese diplomatic and cultural relations with Rome were so intense. Dom João V ambitioned to be treated by the papacy on a par with Spanish and French kings who held the titles *Rex Catholicissimus* and *Rex Christianissimus*. Bianchini dedicated his *opus magnum,* the book *Hesperi et Phosphori* (Rome, 1728), to the Portuguese monarch, the generous patron of the opulent volume. In this work the Veronese presented detailed observations of the planet Venus and the cartography of spots he saw on its apparent face. Bianchini labeled those features honoring Portuguese and Italian historical figures. The dedication, inscribing the glory and power of the Portuguese king in the heavens, is to be seen in the context of the preceding cases of Galileo, with his four Medician Stars, and of Giovanni Domenico Cassini's discovery of four moons of Saturn, dedicated to Louis XIV. If to Dom João V this patronage was part of an effort to enhance status and prestige of the Portuguese monarchy in Europe, in particular within the catholic world, to Bianchini it meant an opportunity to accomplish and communicate more efficiently his astronomical discoveries.

**KEYWORDS:** Francesco Bianchini, Venus, King JoãoV, Giovanni Battista Carbone, reflecting telescope, patronage

## 1. INTRODUCTION

In this paper relations maintained by Veronese canon, astronomer and antiquarian Francesco Bianchini (1662-1729) with the Portuguese court in the 1720s will be addressed, in particular looking into the patronage relationship established between King João V (1689-1750) and Bianchini (Heilbron, 1999, 2005; Silva, 2009a, 2009b). Bianchini was a prominent figure in the papal court, occupying the positions of *chamberlain of honour*, secretary to the commission on the calendar and president of the antiquities of Rome in the pontificates of Clement XI (p. 1700-1720), Innocent XIII (p. 1721-1724) and Benedict XIII (p. 1724-1730).

In spite of moments of conflict – namely with the interruption of diplomatic relations, communications and trade between 1728 and 1732 – this patronage bond occurred in a phase of strong diplomatic and cultural relations between Portugal and Rome (Silva, 2006; Quieto, 1994). The reign of João V was also an era in which the Portuguese monarch tried to emulate papal Rome especially through the magnificent project of Lisbon's new Patriarchal Church, where even the ceremonial was the one followed by the Holy Father. These events, and all steps taken in that direction, led contemporary commentators to call Lisbon a new Rome (Delaforce, 1993).

The reign of King João V (1689-1750), which spanned 1707-1750, was characterized by a continued and sustained cultural activity, essentially centered on the court, and it is generally seen as the culmination of absolutism and baroque culture in Portugal (Monteiro, 1998; Ramos, 2009). João V's policy promoted the image of a monarch protector of the arts and sciences, an image that echoed throughout Europe. In fact, the cultural renewal of King João V's period was more profound in the arts and architecture than in other areas, such as the sciences. But it must also be noted that, among other factors, the need of geographical and nautical knowledge of the vast Portuguese Empire, the encouragement of manufacturing activities and further technical needs of State Administration led to the introduction of foreign technicians and likewise to the promotion of qualified Portuguese artists and scientific experts.

Different types of scholars involved with scientific and technical matters received the support of Dom João V. Father Bartolomeu Lourenço (1685-1724), the author of the first aerostatic experiments in the West – performed several times before the court in 1709 – and Swiss naturalist Charles Fréderic de Merveilleux (fl. 1723-26), to whom a general natural history of the kingdom was commissioned in 1724, are just two examples (Taunay, 1935; Almeida, 1988). Even Jesuit astronomers in distant locations as China received the support of the king or were assisted by other eminent members of the Portuguese court (Simon, 1970; Rodrigues, 1990).

Portugal benefited economically from the peace achieved in the Utrecht Treaties (1713-1715) – putting an end to the War of the Spanish Succession – from the gold and diamonds arriving from Brazil and, above all, by the income of custom duties from the European trade and new and increased taxes (Marques, 1998). There was a favorable context for the creation and sponsorship by the king of different cultural enterprises. The majestic Mafra Palace-Convent-Basilica (with its own library), the University of Coimbra library, the enlargement of the royal library at the Palace of Ribeira and the creation of the Royal Academy of Portuguese History, in 1720, with its notorious editorial activity, attest the cultural dynamics of the Johanine period (Delaforce, 2002).

## 2. PORTUGUESE POLITICAL AND CULTURAL DIPLOMACY IN ROME

One religious and artistic project in particular was demonstrative of João V's political and artistic involvement with Rome. St. John the Baptist chapel for the Jesuit church of São Roque, in Lisbon, was produced in the Eternal City and sent to the Portuguese capital in 5 ships. This was a way of reinforcing the power of the Portuguese monarchy in relation to the Holy See. The very rich and sumptuous chapel survived the great Lisbon earthquake of November 1755 and remains an eloquent testimony to the appropriation of the roman baroque style in Portugal, and to the relations with Rome and the papacy established in the first half of the eighteenth century (Pimentel, 2013).

The relevance to Portugal of its Rome diplomacy in this period is also illustrated in another surviving piece of evidence: the magnificent Ocean's coach of the marquis of Fontes extraordinary embassy (Bessone, 1996; Quieto, 1990). Now at the National Coach Museum, in Lisbon, this was one of the five coaches commissioned in Rome to take part in the procession of the public entry of the Portuguese ambassador, the marquis of Fontes, in the Roman court in 8 July 1716. Rules of protocol were scrupulously observed and the total number of coaches even exceeded the officially stipulated – fifteen instead of the requisite twelve. As a repercussion of the embassy, and fulfilling the marquis of Fontes' mission, in November 1716 pope Clement XI established the Patriarchate of Lisbon.

João V sought to be treated on the same level as Spain and France by the papacy, where kings held the titles of *Rex Catholicissimus* and *Rex Christianissimus*. This recognition was eventually obtained in 1748 with the attribution of the title *Rex Fidelissimus*

(Most Faithful Majesty) to the Portuguese monarch (Brazão, 1937). The Neapolitan Jesuit Giovanni Battista Carbone (1694-1750), João V's royal mathematician and astronomer, acted as an intermediary in the difficult negotiations that led up to this success. But from his privileged position within the Portuguese diplomatic network, at Lisbon´s court, Carbone also coordinated all astronomical communications during the 1720s. Carbone had arrived in Lisbon on September 1722 with his fellow Jesuit Domenico Capacci (1694-1736), intending to work in the cartography of Brazil. However, he ended up staying in the metropolis, assuming in 1724 the duties of royal mathematician and private secretary to King João V (Almeida, 2001).

On their way to Lisbon, in July 1722, Carbone and Capacci had met Francesco Bianchini in Rome, and a friendly and frequent correspondence developed between Carbone and Bianchini, that would last until Bianchini's death in 1729. In their letters the astronomers shared their data and thoughts on technical aspects of celestial observations. Some of Bianchini's results were forwarded to the Royal Society by Carbone and published in the Philosophical Transactions. Making use of diplomatic channels and his royal status Carbone succeeded in communicating and publishing Bianchini's observations of a comet in 1723 and of a lunar eclipse the following year (Carvalho, 1956).

*Figure 1. Francesco Bianchini. Line engraving by G. Bozza after C. Rizzardini (Wellcome Library, London; Wellcome Images).*

## 3. ASTRONOMICAL EXCHANGES BETWEEN LISBON AND ROME

Carbone and Portuguese diplomats played also a crucial role in the diffusion of new instruments — such as a reflecting telescope offered by João V to Francesco Bianchini. In 1725 Samuel Molyneux (1689-1728) astronomer, instrument maker and secretary to the Prince of Wales offered a 26-inch Newtonian of his own construction to the Portuguese king as a diplomatic gift. It must have been one of the first reflecting telescopes on the continent since the instrument had become a practical tool, with sufficient size and quality for useful astronomical observations. It had been developed by John Hadley (1682-1744) in the early 1720s. Hadley shared his expertise with a circle of makers, including Molyneux and his collaborator James Bradley (1693-1762) (Simpson, 2009). Through diplomatic channels a similar telescope was offered to Francesco Bianchini in 1726, commissioned to Molyneux by Carbone. The Veronese astronomer used the new instrument to observe the moon in the night of 30 December 1726. A note on his logbook expresses Bianchini's praise of the instrument. He admired the distinctness of the moon's image and, in spite of its focal length, the small size of the telescope (Tirapicos, 2010).

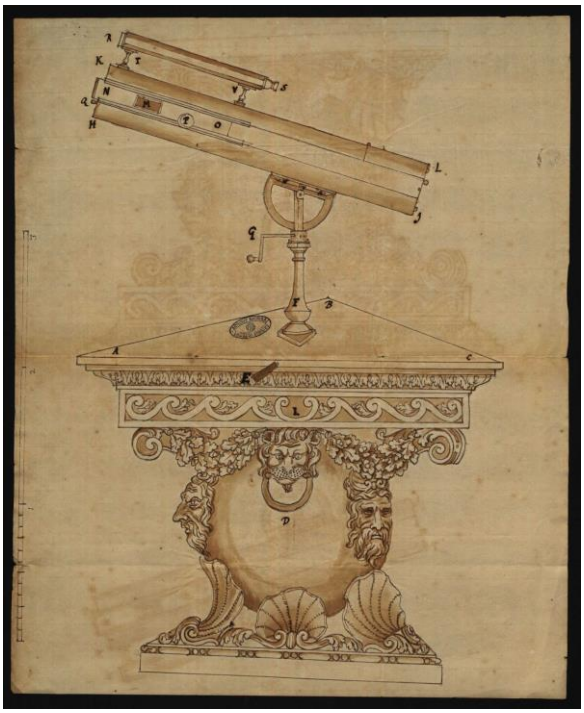

*Figure 2. Telescope made by Samuel Molyneux and presented to King João V in 1725 (Arquivo Nacional Torre do Tombo, Lisbon, Cartório dos Jesuítas, mç. 78, n.º 41).*

A material document confirming Bianchini's astronomical exchanges with the astronomers in Lisbon has recently been found at the University of Coimbra (Tirapicos & Pereira, 2012). A rare objective lens signed by the Italian optician Antonio Degola (fl. 1680-1710) in 1716, contains an inscription with a dedication to Bianchini. Possibly it belonged to the

large cabinet of physics of the *Colégio dos Nobres* (College for Young Noblemen) in Lisbon – which had been formed from a number of collections in the city. That cabinet was transferred to Coimbra in the 1770's. Hence it is possible that the Degola lens arrived via the Jesuits or through the direct relationship Francesco Bianchini maintained with his royal patron.

As a result of the exchange of favors between Bianchini and the Portuguese monarch the former's *opus magnum*, the book *Hesperi et Phosphori*, was dedicated to Dom João V, the generous patron of the costly volume (Bianchini, 1996; Heilbron, 2005). In this work Bianchini presented detailed observations of the planet Venus and for the first time lavishly illustrated cartography of spots on the apparent surface of the planet. The author labelled these features in honor of several Portuguese historical figures. The dedication, inscribing the glory and power of the Portuguese king in the heavens, was framed and preceded by the cases of Galileo with his four Medician Stars and by Giovanni Domenico Cassini's discovery of four moons of Saturn, dedicated to Louis XIV.

***Figure 3. Bianchini's Hesperi et Phosphori nova phaenomena frontispiece (Linda Hall Library).***

As can be seen in the frontispiece of *Hesperi et Phosphori* a globe and a model of Venus' orbit are offered to the king of Portugal, apparently a strictly allegorical and symbolic representation. However, the depicted artifacts correspond in fact to real instruments sent to King João V that certainly were incorporated in his royal library at the Palace of Ribeira. On July 1728 Bianchini sent to Lisbon three wooden boxes and a tin tube containing a globe of Venus, the planet's orbital model and several engravings and manuscripts. The gift was recorded in Bianchini's correspondence. One of the boxes included the 'golden metal machine', an armillary model of the orbit of Venus, with which he intended to reward his Portuguese patron (Tirapicos, forthcoming; Feist, 2011). The Venus Globe was in another box – excluding the earth and moon it is the first known planetary globe, and a wooden copy can still be admired in the Museo della Specola in Bologna (Dal Prete, 2003, 2005; Feist, 2011).

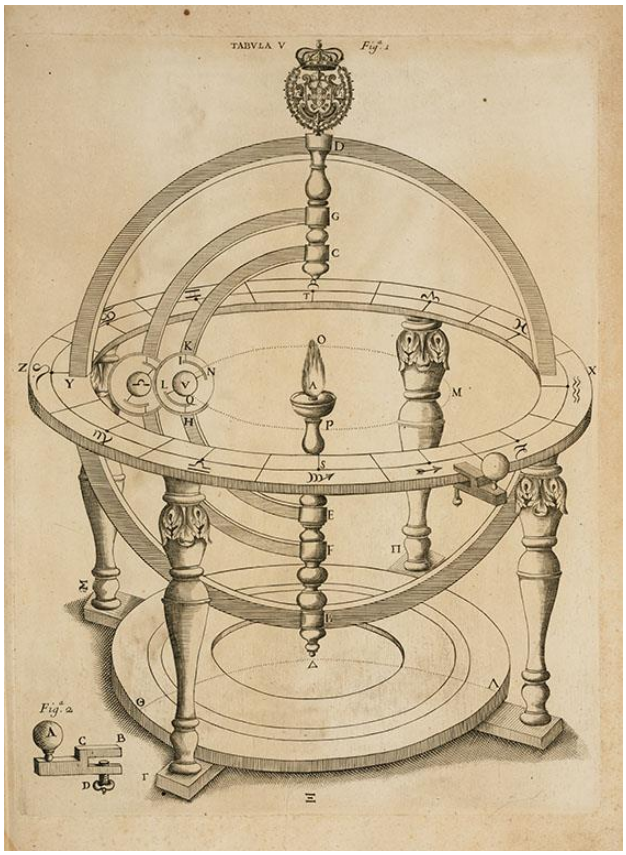


***Figure 4. The "golden metal machine" in Bianchini's Hesperi et Phosphori (Linda Hall Library).***

An engraving of the 'golden metal machine', clearly heliocentric, topped by King João V's coat of arms can also be found in *Hesperi et Phosphori*. Bianchini explains in his book that the option for a heliocentric model did not imply that the true system was heliocentric – the armillary could be made to represent the Tychonic system; but that would increase its size at the same scale by 75 percent. So Bianchini 'for the sake of economy' preferred the smaller and the simpler model of the Venus orbit. As John Heilbron remarked, Bianchini became used to thinking in Copernican terms in spite of his ambiguous position, not favoring Copernicus or Tycho (Heilbron, 2005). The manifestation of the Baroque style is very clear

in this instrument, which is consistent with the fact that it was elaborated in Rome, one of the most powerful centers of Baroque artistic expression.

A pair of globes was another splendid commission placed in Rome through Bianchini. Pelegrino Mazza, of Bologna, was chosen as the maker of these exceptionally large globes, 6-foot diameter, among the largest known in all European libraries of the time. The work involved hiring good painters and the celestial globe followed Johann Bayer's (1572-1625) *Uranometria* (1603) cartography and iconography. Mazza died before completing the ambitious enterprise but Bianchini managed to finish the globes with the help of a friend: the Abbot Lelio Cosatti (Tirapicos, forthcoming).

As stated by Bianchini in his letters to Carbone these 'machines' and instruments should be made in accordance with the monarch's 'excellent taste ordering everything you may imagine, more appropriate in the perfection of the Sciences, and the arts'. And, of course, everything presented to the king was fashioned according to his magnificence (Tirapicos, forthcoming).

As one of Bianchini's astronomical correspondents Giovanni Battista Carbone was part of an epistolary network that also included, among others, John Flamsteed (1646-1719), Eustachio Manfredi (1674-1739) and the astronomers of the Paris Observatory (Baldini, 2010). It was through this network that Bianchini tried to convince contemporary astronomers of the veracity of his observations of stable spots in the apparent surface of the planet, prior to the publication of *Hesperi et Phosphori*. In the summer of 1727 he sent to Lisbon a long-focus telescope by Campani hoping Carbone would confirm the Venusian spots (Feist, 2011). Apparently, Carbone never succeeded in the observation of the elusive spots, but the episode shows how Bianchini trusted in the observational capabilities of his Jesuit collaborator in Lisbon and how important was for him the Portuguese royal patronage.

## 4. CONCLUSION

In an effort to enhance the status and prestige of the Portuguese monarchy, in particular with regard to his catholic counter parts, King João V's policy promoted close relations with the papacy and the Eternal City. These were not strictly political or religious but also cultural and scientific. In this context the Portuguese king sponsored Roman artists and academies, hired architects, artists and mathematicians for his projects in Portugal, and sent Portuguese painters for training stays to Rome.

It was also in this context that Francesco Bianchini obtained the generous support for his lavishly illustrated book *Hesperi et Phosphori*, the first dedicated to a single planet, produced a Venus globe – excluding globes of the earth and moon – the first known planetary globe, saw some of his observations communicated to the Royal Society and try to legitimate Venusian discoveries through observations performed at Lisbon. To Bianchini the patronage relationship with Dom João V of Portugal served to pursue and communicate more efficiently the astronomical observations and discoveries he was carrying out. In effect this exchange of favours materialized in a book and several instruments with the opulence of a baroque king, but rewarding the Portuguese political and diplomatic agenda.

## ACKNOWLEDGEMENTS

This work was supported by the *Fundação para a Ciência e a Tecnologia* (FCT, Portugal) in two different ways. Through a Ph.D. scholarship (FCT/MCTES, SFRH/BD/78881/2011) and by funding the Research Project: *On the instruments' trail: Exploring Royal Cabinets of Natural Philosophy in Portugal (18th-19th century)*, (PTDC/HISHCT/098970/2008), 2010-2012. The author would also like to thank the *Linda Hall Library* (Kansas City, Missouri, USA) for the award of a resident fellowship in the academic year 2013-2014.

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