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## Revisiting the Calendar Case (1664-1669): Science, Religion, and Politics in Early Qing Beijing\*

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The Calendar Case (*liyu* 曆獄)<sup>1</sup> is well known to historians of Chinese astronomy and to historians of the Jesuit mission to China. The Jesuit missionary Johann Adam Schall von Bell (1592-1666) was in charge of the affairs of the Astronomical Bureau (*Qintianjian* 欽天監) from 1644, when Beijing fell to the Manchus. In 1664, under the rule of the four regents who governed in the name of the young Kangxi emperor (b. 1654, r. 1662-1722), Schall was impeached and tried, following accusations made by Yang Guangxian 楊光先 (1597-1669), a literatus who held no official position. Four years later, the emperor had the verdict reversed and appointed another Jesuit, Ferdinand Verbiest (1623-1688), as official astronomer. This position was thereafter held by missionaries for more than a century.<sup>2</sup>

Schall's impeachment had a strong impact on Catholic proselytization in China: all the missionaries residing outside the capital were banished, and sent to Guangzhou. They were only allowed to return to their residences in 1671. But that is not the only reason why these events provide a remarkable case study for analysing the

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<sup>1</sup> To the best of my knowledge the term *liyu* 曆獄 is not found in primary sources, but has appeared in secondary literature since the 1990s. So far as I can tell, the term first appears in Huang Yi-Long, "Tang Ruowang yu Qingchu xili zhi zhengtonghua" 湯若望與清初西曆之正統化, in Wu Jiali 吳嘉麗 and Ye Fengsa 葉鴻灑 eds., *Xinbian Zhongguo keji shi* 新編中國科技史, 2 vols. (Taipei: Yinhe wenhua shiye, 1990), vol. 2, 465-490, on 479.

<sup>2</sup> For summaries of this affair, see Chao-ying Fang, "Yang Kuang-hsien," in Arthur W. Hummel ed., *Eminent Chinese of the Ch'ing Period*, 2 vols. (Washington, D. C.: US Government Printing Office, 1944), vol. 2, 889-892; Ad Dudink, "Opponents," in Nicolas Standaert ed., *Handbook of Christianity in China. Volume One: 635-1800* (Leiden: Brill, 2001), 503-533, on 513-515; Benjamin Elman, *On Their Own Terms: Science in China 1550-1900* (Cambridge, MA: Harvard University Press, 2005), 133-144.

links between science and religion. The two were intertwined not only because the Jesuits' practice of astronomy and other sciences in China was simply a means to an end, but also because Yang Guangxian's manifold accusations against Schall involved both the religious and scientific dimensions of the imperial astronomers' tasks.

First reported by the Jesuits in their correspondence, and in some of their European language publications, this story has been appropriated as part of the history of the Jesuit mission to China: it was told as one of persecution against the Catholic faith. Symmetrically, Qing dynasty Chinese literati viewed Yang Guangxian as a defender of moral values threatened by the Jesuits' missionary enterprise.<sup>3</sup> As we shall see, these two views have had very diverse fortunes in twentieth-century historiography.

In this paper, I would like to review some of the scholarship on the Calendar Case published over the last sixty years, and to show how the complexity of the stakes in the affair, and the multifaceted interpretations to which it seems to lend itself have gradually emerged. I will then try to account for the way in which I have constructed my own narrative of it.<sup>4</sup> This narrative is summarized in the first part of the paper below. I hope it will help the reader follow the subsequent historiographical argument, while the final part of the paper will clarify the choices that underlie my narrative of the affair.

My review of recent accounts of the Calendar Case is organized chronologically. This will bring to light the fact that the evolution of the historiography parallels that of the history of Chinese science, but also those of Christianity in China and of the history of science more generally.

## An Overview of the Affair<sup>5</sup>

Schall's appointment to the Astronomical Bureau, secured during the very first days of the Manchu rule in Beijing, was controversial both within the mission and among Chinese officials and literati. Thus, in 1649, his fellow Jesuit Gabriel de Magalhães (1610-1677) wrote a lengthy report to Rome denouncing Schall's practice of astronomy in the service of what Magalhães regarded as superstition, such as the determination of auspicious times and places for various official rituals:

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<sup>3</sup> See Chu Pingyi's article included in this special issue, "Numerology and Calendrical Learning: the Stories of Yang Guangxian and Liu Xiangkui," 479-497.

<sup>4</sup> Catherine Jami, *The Emperor's New Mathematics: Western Learning and Imperial Authority During the Kangxi Reign (1662-1722)* (Oxford: Oxford University Press, 2012), 49-65.

<sup>5</sup> For the sources on which this overview is based, see Jami, *The Emperor's New Mathematics*, 49-65.

For when the Fathers do not have the administration of this prefecture [the Astronomical Bureau] and occupy themselves with mathematics, they occupy themselves with a thing that is in itself neutral and indifferent, nay good, if it tends towards a good end, as the growth of Christianity. But when Fr. Adam has the charge of mathematics with a prefectural office, then he treats of this thing with a bad end.<sup>6</sup>

Thus Magalhães did not object to the use of the mathematical sciences in the service of evangelisation as initiated by Matteo Ricci (1552-1610), but only to their use within Chinese imperial institutions. However, his accusations do not seem to have prompted any action from the Jesuit hierarchy. Tensions between Schall and some of the astronomers under his authority at the Bureau, on the other hand, had more perceptible effects. Some of these men were the descendants of Persian astronomers recruited during the Yuan dynasty (1279-1367). They worked in the Muslim Section (*Huihui ke* 回回科) of the Astronomical Bureau, headed by Wu Mingxuan 吳明炫. In 1657, Schall succeeded in having this section closed down, following acute conflicts. The following year, after one of the Shunzhi emperor's (r. 1644-1661) sons died of smallpox, the time prescribed by the Astronomical Bureau for his funeral was later alleged to have been erroneous. When Yang Guangxian wrote texts attacking the Jesuits in 1659, he mentioned this mistake as a potential threat to the imperial family. At the time, Schall's favour with the Shunzhi emperor made these accusations vain. Later events, however, seemed to prove Yang Guangxian right: the prince's mother, and then the emperor himself also died of smallpox.

With the young emperor's death, Schall lost his protector. The heir to the throne was then only seven years old, and four Manchu regents were appointed to rule in his name. In 1664, a memorial in which Yang Guangxian accused the Jesuits of sedition found a favourable reception with them, and the four Jesuits who resided in Beijing, including Schall himself and Magalhães, were arrested. While they awaited trial, a comet appeared in the sky; as we shall see, this played a significant role in narratives of the affair. The first change resulting from Schall's impeachment concerned the title page of calendars: the Ministry of Rites decided that the phrase "according to the new Western method" (*yi xiyang xinfa* 依西洋新法) which had been printed on that page every year since 1645 should be changed to "approved after submission to the emperor" (*zouzhun* 奏准). Then, on 15 April 1665, a sentence against the Jesuits and their Chinese collaborators was submitted to the regents: it was proposed that eight officials of the Astronomical Bureau, including Schall and five Christians, should be put to death by dismembering. The next day, a strong earthquake occurred in North China. This may have been one of the reasons why the regents called for review of the sentence. In the end, Schall

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<sup>6</sup> Quoted in Antonella Romano, "Observer, vénéral, servir: une polémique jésuite autour du Tribunal des mathématiques de Pékin," *Annales* 59:4 (2004), 729-756, on 748.

was pardoned in consideration of his earlier service to the dynasty. He and the three other Jesuits who had been arrested at the same time were to remain in house detention in Beijing. By contrast with this lenient treatment, the five Christian astronomers sentenced earlier were beheaded. In September of the same year, it was decided that all Catholic missionaries residing in the provinces would be deported to Macao. Thus Schall's downfall brought an end to the missionary effort initiated more than eighty years earlier by Ricci and his companions. Meanwhile, a reluctant Yang Guangxian was appointed to Schall's former position at the Astronomical Bureau, and Wu Mingxuan was put in charge of the calendar. They were to implement the return to earlier calendrical methods which Yang had advocated.

The reopening of the case took place in quite different political circumstances: while Oboi 鳌拜 (d. 1669), one of the four regents, gradually came to monopolise all powers in his hands, the young emperor formally ascended the throne in 1667, and sought to assume personal rule. He seems to have used issues related to astronomy to try his hand. After a "white light" (*baiguang* 白光) was visible for several days in the Beijing sky in March 1668, he issued an edict stating the importance of astronomical matters and requesting that those expert in them should be sent to the capital. Later that year, after the calendar of the following year was officially issued, Wu Mingxuan himself reported that there were several mistakes in it. This caused quite a scandal, and the emperor decided to call on the Jesuits' expertise. Verbiest, who had been Schall's assistant in astronomy, and had continued to practice it during his years in house detention, then memorialised to point to a number of further mistakes in Wu Mingxuan's calendar. Kangxi then sought the means to decide which of them should be trusted. Following Verbiest's suggestion, he put the Jesuit's competence in astronomy to test by having the accuracy of his predictions of the length of the shadow of a gnomon on three consecutive days verified by officials. Despite the emperor's wish that all astronomers should collaborate in his service, reconciliation between the two parties was impossible. A committee was set up to arbitrate between them. Following further tests, it recommended that Verbiest should be put in charge of the calendar. But this did not satisfy the emperor. Recalling Schall's conviction four years earlier, he ordered the committee to get back to work so as to provide him with solid arguments to explain why they were calling for a reversal of the decision made four years earlier. The committee took the advice of some officials of the Astronomical Bureau promoted under Yang Guangxian, and reported that they sided with Verbiest as regarded calendrical astronomy. The Jesuit was then appointed as assistant-director of the Astronomical Bureau in charge of the calendar, which had been Wu Mingxuan's post.

In June 1669, two months after Verbiest's appointment, Kangxi had Oboi arrested, and assumed personal rule. A gilded armillary sphere made by Verbiest for the young emperor at the time commemorated their double victory. It was Verbiest's turn to accuse Yang Guangxian; one of the charges was that he had been in favour with Oboi; but like Schall, Yang was pardoned. Two years later, in 1671,

Catholic missionaries were finally allowed back in the provinces of the Qing Empire.

The story of the Calendar Case has long been known in Europe as well as in China. In Europe, it was at first mainly of interest to historians connected with the Society of Jesus. From the second half of the twentieth century, it began to attract considerable attention in wider historical circles.

## Positivist Historiography and Jesuit Apologetics

Two works published at only three years' interval mention the Calendar Case in very different ways. Joseph Needham's (1900-1995) *Science and Civilisation in China* refers to the Calendar Case in passing in its section devoted to astronomy, published in 1959:

[...] after the change of dynasty Schall evidently felt that he could freely use the term "Western"; after all, the Manchus were foreigners too. So for many years printed calendars bore the title "... i Hsi-Yang Hsin Fa" (依西洋新法) (according to the New Western Methods). For this he was taken to task in 1661 by Yang Kuang-Hsien, and three years later formally condemned by the President of the Ministry of Rites for having used a formula "injurious to the empire."<sup>7</sup>

Needham mentions the affair only as an anecdote, to illustrate his view that "[t]he Jesuits might insist that Renaissance science was primarily 'Western,' but the Chinese understood clearly that it was primarily 'new.'"<sup>8</sup> In a footnote, Yang Guangxian is depicted as "a scholar, amateur astronomer, and pertinacious anti-Jesuit controversialist." Needham credits him with having seen that the Jesuits' science was not dependent on their religion: in Needham's positivist terms, this science was "modern" and universal, and should therefore not be called "Western." Needham concludes the anecdote by pointing to the fact that eventually Jesuit astronomy was given a more fitting name, when Kangxi had the astronomical compendium used to compute the calendar (which had been entitled first *Chongzhen lishu* 崇禎曆書, then *Xiyang xinfa lishu* 西洋新法曆書 since 1644) renamed *Xinfa lishu* 新法曆書 (Books on Calendrical Astronomy [according to] the New Method). In Needham's view, the use of the word "new" had the same implication in this title as it had when used by members of the Royal Society of London who were developing "a new, experimental philosophy" at the time.<sup>9</sup>

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<sup>7</sup> Joseph Needham, *Science and Civilisation in China*, vol. 3 (Cambridge: Cambridge University Press, 1959), 449.

<sup>8</sup> Needham, *Science and Civilisation*, 449.

<sup>9</sup> Needham, *Science and Civilisation*, 450.

When Joseph Needham and Wang Ling wrote volume 3 of *Science and Civilisation in China*, the main secondary literature available on the Calendar Case was Jesuit scholarship; they mainly relied on Henri Bernard-Maître's work.<sup>10</sup> Three years after their volume came out, George H. Dunne (1906-1998) published what was perhaps the first book in English intended for a wide readership devoted to the Jesuits in China. Dunne was a Jesuit who taught and worked at universities run by the Society of Jesus in the United States. He had worked as a missionary in China in the 1930s, but he was "best known for his criticism in the 1940s of racial segregation, particularly in Roman Catholic institutions." In the 1950s, he became a strong supporter of the civil rights movement. In 1968, he was appointed the first director of the Committee on Society, Development, and Peace, an ecumenical group based in Geneva.<sup>11</sup> This should be kept in mind when reading Dunne's assessment of Yang Guangxian:

Arch-conspirator in the movement against Schall was one Yang Kuang-hsien, a notorious and self-seeking charlatan [...]. His arguments reveal a bitter, bigoted, but sharp mind. [...] If he centered his attack upon Schall it was because of the latter's prominence and because, in the mind of reactionaries, the cause of European science was closely allied to the cause of Christianity.<sup>12</sup>

Elsewhere in the book Dunne quotes Needham, commending him for giving "a balanced view of the strengths and weaknesses of Jesuit and of Chinese science," and quoting passages where Needham talks about the Jesuits' astronomy in laudatory terms.<sup>13</sup> It should be noted that Dunne was better informed than Needham on the Calendar Case, having checked some primary sources.

Both Needham and Dunne take sides, albeit opposite ones. The former considers that Schall was wrong in assuming that his science was a product of Christianity—an assumption which in Needham's view underlies the description of this science as "Western." If he blames Schall and his confreres, it is for regarding science as a means to an end, rather than as an aim in itself.<sup>14</sup> Following Needham's logic, their mistake was to fail to recognise the universality of the "modern science" they were practising. Yang Guangxian, then, is on the side of scientific universalism. This

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<sup>10</sup> Especially on Henri Bernard-Maître, "L'encyclopédie astronomique du Père Schall," *Monumenta Serica* 3 (1937-38), 35-77, 441-527.

<sup>11</sup> Obituary in the *New York Times*, 14 July 1998; <http://www.nytimes.com/1998/07/14/us/george-dunne-92-priest-and-ecumenist-dies.html> (accessed on 2015. 1. 10).

<sup>12</sup> George Dunne, *Generation of Giants: The Story of the Jesuits in China in the Last Decades of the Ming Dynasty* (Notre Dame, IN: University of Notre Dame Press, 1962), 360.

<sup>13</sup> Dunne, *Generation of Giants*, 69, 221-222.

<sup>14</sup> Needham, *Science and Civilisation*, 449; See Chu Pingyi, "Scientific Dispute in the Imperial Court: the 1664 Calendar Case," *Chinese Science* 14 (1997), 7-34, on 12-13.

contrasts sharply with Dunne's view of him: here the judgement is not only intellectual but also moral and, more surprisingly, political. Yang Guangxian now takes a "reactionary" posture by linking Schall's science to his religion. However, Dunne and Needham agree on the disjunction between science and religion, a disjunction that seems to transcend the particular moment of the Calendar Case.

## Astronomy in Context: Professional Rivalry and Divination

A more complex and nuanced interpretation of the Calendar Case has been proposed by Huang Yi-Long 黃一農, who has devoted about ten articles to the subject (most of which were published in the early 1990s). Each of these deals with an issue raised by Yang Guangxian in his accusations against Schall,<sup>15</sup> putting it in historical perspective.<sup>16</sup>

Huang's work has changed our understanding of the Calendar Case in many ways. For one thing, he brought out a group of actors who had until then remained unnoticed, namely the Muslim astronomers of the Astronomical Bureau. As mentioned above, these were the descendants of astronomers brought from Persia during the Mongol rule of China. They belonged to a separate section of the Bureau, the Muslim Section. The astronomical system used in this section, the Muslim (*Huihui* 回回) system, was a legacy of Islamic astronomy; it provided alternative predictions for astronomical events to those yielded by the Chinese *Datong* 大統 system, and, since 1644, by the Jesuits' *Shixian* 時憲 system.<sup>17</sup> Professional rivalry, even more than religious antipathy (the latter mainly felt on the Jesuits' side, it seems), turned this group into Schall's main opponents within the Bureau.

As well as new actors, new stakes appear in Huang's work: in his view, the main

<sup>15</sup> Yang Guangxian et al., *Budeyi fu er zhong* 不得已附二種, edited by Chen Zhanshan 陳占山 (Hefei: Huangshan shushe, 2000), 43-48.

<sup>16</sup> See a.o. Huang Yi-Long 黃一農, "Kangxi chao sheji 'liyu' de tianzhujiao zhongwen zhushu kao" 康熙朝涉及「曆獄」的天主教中文著述考, *Shumu jikan* 書目季刊 25:1 (1991), 12-27; idem., "Qingchu Qintianjian zhong ge minzu tianwenjia de quanli qifu" 清初欽天監中各民族天文家的權力起伏, *Xin zhixue* 新史學 2:2 (1991), 75-108; idem., "Qingchu tianzhujiao yu huijiao tianwenjia de douzheng" 清初天主教與回教天文家的鬥爭, *Jiuzhou xuekan* 九州學刊 5:3 (1993), 47-69; idem., "L'attitude des missionnaires jésuites face à l'astrologie et à la divination chinoises," in Catherine Jami and Hubert Delahaye eds., *L'Europe en Chine: interactions scientifiques, religieuses et culturelles aux XVIIe et XVIIIe siècles* (Paris: Collège de France, 1993), 87-108.

<sup>17</sup> Yunli Shi, "Islamic Astronomy in the Service of the Yuan and Ming Monarchs," in Kim Sang-Hyuk and Yang Hong-Jin eds., *Proceedings of 2012 International Symposium on Historical Astronomy* (Seoul: Korean Institute for Advanced Studies, 2012), 29-40.



cause of Schall's downfall, the most damning accusation among the many raised by Yang Guangxian had to do with neither European astronomy nor with the Christian religion, but with Chinese ritual: Yang pointed out that the Bureau had made a mistake in the burial time chosen for the Shunzhi emperor's son, Prince Rong 榮, who had died in 1658. At that time, the two officials of the Board of Rites, guilty of the mistranslation from Chinese into Manchu that had caused the funeral to take place at an inauspicious time, were tried and sentenced to beheading. However, they were not executed, but merely dismissed from office, and the property of one of them was confiscated.<sup>18</sup> When Yang took up the matter during the regency, he alleged that the mistake had caused the death of the infant prince's mother, and then that of the emperor himself. In his view, Schall was ultimately responsible for all this: he was after all in charge of the Astronomical Bureau, where the day and time of the burial of the prince had been selected. Yang criticized not just the mistranslation, but the very method used to determine Prince Rong's burial site and time: according to Huang, beneath what has always been interpreted as a Sino-Western controversy also lay a conflict concerning the methods to be used in hemerology.<sup>19</sup> This adds yet another dimension to the complexity of the affair, which, once situated within Chinese history, turns out to involve not only one religion—Christianity—and hostility to it, but also practices related to Chinese religious beliefs. A striking symmetry has thus become visible thanks to Huang's work: Schall and his colleagues were accused not only of preaching a heterodox religion, but also of undermining Chinese state rituals, and thereby the dynasty they were supposed to serve, by the very way they practised astronomy in its service. If one adds to this picture the accusation of putting his mathematical skills in the service of Chinese superstition brought against Schall by his confrère Magalhães, it becomes apparent that Schall's strategy, which has long been admired uncritically by European historians, was both questionable and risky.<sup>20</sup>

The main feature of Huang's research compared to the ones discussed above is that it is based mostly on Chinese primary sources; although today this seems completely obvious, it should be emphasised that in this respect he was at the forefront of what has become a general trend towards writing the history of the Jesuit mission and that of Christianity in China on the basis of such sources.<sup>21</sup> At the same time, his work also fits into historiographical changes in the history of science. One of these changes concerns the study of science in pre-modern China:

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<sup>18</sup> Huang Yi-Long, "Court Divination and Christianity in the K'ang-hsi Era," *Chinese Science* 10 (1991), 1-20, on 5.

<sup>19</sup> Huang, "Court Divination and Christianity," 16-20.

<sup>20</sup> Romano, "Observer, vénérer, servir," (cit. n. 6).

<sup>21</sup> On this renewal in the historiography, see Nicolas Standaert ed., *Handbook of Christianity in China* (Leiden: Brill, 2001), ix-x.

what used to be called “pseudo-science” has gradually been integrated into the narrative constructed by historians of Chinese science; so much so that the very term “pseudo-science” has more or less fallen into disuse among them. In this respect too Huang Yi-Long was a pioneer. Evidently, as he read the Chinese sources, he chose to account for them as wholes in his research, rather than just select within them what was relevant to a pre-defined notion of “science”—as Joseph Needham had done. Huang was no longer looking for “scientific” gems as he dug into pre-modern writings; rather, in his own terms, he unearthed and brought to light “whole statues.”<sup>22</sup> Indeed one could say that he has brought to light the whole Calendar Case, and that, more generally, mining has given way to archaeology in the historiography of East Asian science. And paradoxically, he has systematically used, and perhaps coined, the terms *liyu* 曆獄 in Chinese and “Calendar Case” in English to refer to the affair, while showing that this affair was not primarily about the calendar, nor even about astronomical systems—as many historians of astronomy nowadays prefer to translate *li* 曆.<sup>23</sup>

Another feature of Huang’s work is its neutrality: while the story he tells is one of an on-going conflict that reached a climax with Schall’s impeachment, he sides neither with him nor with Yang Guangxian. The issue of whether either of them is in the right or in the wrong, either intellectually or morally, is irrelevant in his work.

Last but not least, it is worth noting that in the years preceding Huang Yi-Long’s research on the Calendar Case, historians of science had begun to put new emphasis on the study of controversies, showing that their outcome is more often contingent than determined by the fact that one side alone holds “the scientific truth,” whereas the other one is wrong, intellectually or morally, or both at the same time. Huang Yi-Long’s research on the Calendar Case was conducted in the years that followed the publication of *Leviathan and the Air Pump*,<sup>24</sup> when the theme of this research might have been considered of high relevance to debates in “mainstream” history of science. But as appears to be usual in the case of research centred on East Asia, “mainstream” history of science has failed to notice it.

## Yang Guangxian’s Side

Although at first mainly focused on the history of science, Huang Yi-Long’s work has also contributed to a renewal in historical studies of the Jesuit mission to China.

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<sup>22</sup> Personal conversation with Huang Yi-Long during his visit to Paris in the 1990s.

<sup>23</sup> Huang, “Tang Ruowang yu Qingchu xili,” (cit. n. 1).

<sup>24</sup> Steven Shapin and Simon Schaffer, *Leviathan and the Air Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985).

Thus the conference held in 1992 to commemorate the four-hundredth anniversary of Schall's birth included a number of contributions on Yang Guangxian and on the Calendar Case.<sup>25</sup> These contributions and other essays published during the same decade were devoted to analysing Yang Guangxian's writings, and to showing that his ideas were consistent.<sup>26</sup> According to Grete Moortgat, Yang's prioritising of *li* 理 (principles) over *fa* 法 (methods) and rejection of the latter without the former can be seen as the stand taken by a scholar against technical experts, combined with the belief that it was not only impossible to supersede the knowledge of astronomy of the golden age of Yao 堯 and Shun 舜, the mythical sage emperors of remote antiquity, but also morally wrong to claim to be able to supersede it. Such an attitude was not unprecedented in Chinese history.<sup>27</sup> Eugenio Menegon has argued that although Yang advocated the return to what he understood to be the practices of antiquity, he nonetheless approved of using the methods once imported by Muslim astronomers, with whom he allied himself against Schall.<sup>28</sup> Indeed, Yang claimed that Schall's astronomy was plagiarised from that of the Muslims—a point which was later taken up by scholars versed in the mathematical sciences such as Mei Wending 梅文鼎 (1633-1721).<sup>29</sup> This claim does not seem unreasonable to us today, considering the genealogy of early modern European astronomy. However, it certainly ran contrary to the close link established by the Jesuits between their science and their religion. In Yang's view China could indeed have Western astronomy, but this should not be at the cost of having Jesuits allowed to reside and preach their religion in the empire.<sup>30</sup>

Historians of science have also paid closer attention to what Yang had to say on the technicalities of astronomy. Thus Hashimoto Keizō has systematically analysed the technical aspects of the “ten innovations” in astronomy introduced by Schall at

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<sup>25</sup> Roman Malek ed., *Western Learning and Christianity in China: the Contribution and Impact of Johann Adam Schall von Bell, S.J. (1592-1666)*, 2 vols. (Nettetal: Steyler Verlag, 1998).

<sup>26</sup> See also Harriet T. Zurndorfer, “‘One Adam Having Driven Us out of Paradise, Another Has Driven Us out of China’: Yang Kuang-hsien’s Challenge of Adam Schall von Bell,” in Leonard Blussé and Harriet T. Zurndorfer eds., *Conflict and Accommodation in Early Modern China: Essays in Honour of Erik Zürcher* (Leiden: Brill, 1993), 141-168.

<sup>27</sup> Grete Moortgat, “Substance Versus Function (*ti* vs. *yong*): The Humanistic Relevance of Yang Guangxian’s Objection to Western Astronomy,” in Federico Masini ed., *Western Humanistic Culture Presented to China by Jesuit Missionaries (17th-18th Centuries)* (Rome: Institutum Historicum S.I., 1996), 259-277.

<sup>28</sup> Eugenio Menegon, “Yang Guangxian’s Opposition to Johann Adam Schall: Christianity and Western Science in His Work *Budeyi*,” in Malek ed., *Western Learning and Christianity in China* (cit. n. 25), vol. 1, 311-338.

<sup>29</sup> Jami, *The Emperor’s New Mathematics* (cit. n. 4), 222.

<sup>30</sup> Menegon, “Yang Guangxian’s Opposition.”

the Astronomical Bureau, as discussed by Yang.<sup>31</sup> This analysis shows that Yang, although not a professional specialist in astronomy, had a level of understanding of it that was very likely superior to that of the various officials who were involved in deciding the case, but also to most of the historians who have studied the affair. This concurs with Needham's characterisation of Yang as "an amateur astronomer."

Last but not least, Chu Pingyi, approaching Yang Guangxian as a member of what has been called "the Wannan 皖南 school," has constructed a nuanced narrative of the Calendar Case, emphasising its political dimension.<sup>32</sup> He has pointed out that Schall's appointment to the Astronomical Bureau, his impeachment and Verbiest's appointment to it were part of processes of political transition. When analysing the tests that were set up to decide who, out of Verbiest and Wu Mingxuan, was a better astronomer, Chu takes up H. M. Collins's argument about the difficulty of assessing the replication of an experiment,<sup>33</sup> and concludes that Verbiest's victory in fact lay in his gaining the emperor's agreement to the tests Verbiest himself had proposed. Chu's conclusion is that "ultimately, the dispute between the Jesuits and Yang Kuang-hsien was perhaps less about who was in the proper position to organize knowledge than about who was in a proper position to organize the social order."<sup>34</sup>

One might wonder, however, whether H. M. Collins's argument can be transposed in the way suggested by Chu. According to Verbiest, the tests he proposed were a response to the emperor's request: the latter asked whether there was "any apparent sign by which it could be proven before [his] eyes whether the calendar calculation does or does not correspond with the Heavens."<sup>35</sup> What the emperor required was a means of checking the validity of the expertise in a technical field of which he understood nothing. Unlike the usual situation in which replication is used as a test of validity, here the eyes that were to witness the test were not those of peers, but rather those of the emperor and of his officials: as Kangxi later deplored, none of them understood astronomy at the time. Clearly a change of interpretive framework is required here.

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<sup>31</sup> Hashimoto Keizō 橋本敬造, "Seihō hihan no naka no ten'gaku: Kōki shonen no 'rekigoku' wo chūshin ni shite" 西法批判のなかの天学: 康熙初年の曆獄を中心に、*Kansai daigaku tōzai gaku jutsu kenkyūjo kiyō* 関西大学東西学術研究所紀要 40 (2007), 21-38.

<sup>32</sup> Chu, "Scientific Dispute" (cit. n. 14); Chu Ping-yi, "Technical Knowledge, Cultural Practices, and Social Boundaries: Wan-nan Scholars and the Recasting of Jesuit Astronomy, 1600-1800" (Ph.D. diss., UCLA, 1994), 50-128. .

<sup>33</sup> H. M. Collins, *Changing Order: Replication and Induction in Scientific Practice* (London: Sage, 1985).

<sup>34</sup> Chu, "Scientific Dispute" (cit. n. 14), 31.

<sup>35</sup> Noël Golvers, *The Astronomia Europaea of Ferdinand Verbiest, S.J. (Dillingen, 1687): Text, Translation, Notes, and Commentaries* (Nettetal: Steyler Verlag, 1993), 60.

Despite this reservation, Chu's work has one great merit: it fully brings out the political dimension of the Calendar Case. Also, by focusing on the second part of the affair, that is, the rehabilitation of Jesuit astronomy, it draws attention to the fact that the "happy end" of the story for the Jesuits was by no means a simple story of scientific truth overcoming superstition and conservatism. No less interesting is Chu's work on accounts of the Calendar Case by eighteenth and nineteenth century Chinese scholars. There he argues that, while recognising and lamenting Yang's incompetence in calendrical matters, these scholars fully shared the values that he upheld in his attacks on the Jesuits.<sup>36</sup>

At this point, the Calendar Case has been transformed from a heroic episode in mission history into an episode in Chinese history in which many groups of actors were involved, but also into an event pertaining to political history, rather than solely to the history of knowledge.

## Latin and Manchu Sources

Until the 1990s, accounts of the Calendar Case tended to rely on secondary sources or on selected primary sources in either Chinese or Latin, rather than on both at the same time. This situation changed after the publication of Noël Golvers's richly annotated English translation of the *Astronomia Europaea*, a short book by Verbiest printed in Dilligen (Bavaria) in 1687. Verbiest devoted the first eighteen pages of his book to recounting how European astronomy was "called back from the dark into the light" in 1668-9.<sup>37</sup> A major source on the affair then became available to historians of China, few of whom can read Latin easily.

But another set of sources remains little studied: in the late 1980s, around the time when Huang Yi-Long began investigating the Calendar Case, a large number of memorials in Manchu recording interrogations conducted during Schall's trial, totalling more than 1,000 pages, were discovered in the First Historical Archive in Beijing.<sup>38</sup> Using these as well as Chinese sources, An Shuangcheng has published an account of the affair, which lists fifteen main points of dispute between Yang Guangxian and Schall: here the Manchu materials give more information than the

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<sup>36</sup> Chu, "Numerology and Calendrical Learning" (cit. n. 3).

<sup>37</sup> Golvers, *Ferdinand Verbiest's Astronomia Europaea*, 51.

<sup>38</sup> Shu-Jyuan Deiwiks, "The Secret Manchu Documents on the Trial of Jesuit Missionary Johann Adam Schall (1592-1666) before the Supreme Court of Beijing," *Monumenta Serica* 51 (2003), 641-648, on 641-642.

Chinese sources. An goes on to give a concise chronological account of the trial.<sup>39</sup> He has also translated these memorials into modern Chinese, but to the best of my knowledge his translation has not been published.<sup>40</sup> Shu-Jyuan Deiwiks has also undertaken the systematic study of these materials, drawing attention to the complexity of the proceedings that they revealed—several ministries were involved—and to the feeling that dominated among those interrogated: fear. She sees the controversial matters investigated as falling under three subjects: mathematical astronomy, divination, and the Christian religion.<sup>41</sup>

Thus, An Shuangcheng and Deiwiks, as historians exploring an archive must do, have striven to bring out the main issues at stake in the affair. In contrast, since 1990 historians of science, by showing that science, divination, and religion were inextricably linked in the affair, have blurred the borders between modern academic disciplines.<sup>42</sup> Earlier narratives, such as those of Needham and Dunne, did not address the complexity that has now been made visible.

It is also worth noting that the Calendar Case is one among many historical events of the Qing dynasty for which Manchu language sources are only beginning to be exploited. It is likely that such documents can shed further light on this complex story.

## Rereading the Affair as Part of the History of Christianity in China

Liam Brockey's book, *Journey to the East*, is an example of a narrative focusing on religion that recounts the Calendar Case. In keeping with the general tone of the book, the account is given in a neutral tone. Contrary to what was the case with

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<sup>39</sup> An Shuangcheng 安雙成, "Tang Ruowang an shimo" 湯若望案始末, *Lishi dang'an* 歷史檔案 (1992.3), 79–87; see also idem., "Tang Ruowang zai hua chuanjiao zhi de yu shi" 湯若望在華傳教之得與失, *Lishi dang'an* 歷史檔案 (1996.3), 72–82.

<sup>40</sup> His translation is mentioned in Huang Yi-Long and Chang Chih-ch'eng, "The Evolution and Decline of the Ancient Chinese Practice of Watching for the Ethers," *Chinese Science* 13 (1996), 82–106, on 82, 91, 94.

<sup>41</sup> Deiwiks, "The Secret Manchu Documents"; Shu-Jyuan Deiwiks, "Some Cultural and Psychological Aspects of the Trial of Johann Adam Schall before the Supreme Court of Peking—According to the Secret Manchu Documents," in Shu-Jyuan Deiwiks, Bernhard Führer, and Therese Geulen eds., *Europe Meets China. China Meets Europe. The Beginnings of European-Chinese Scientific Exchange in the Seventeenth Century* (Sankt Augustin: Steyler Verlag, 2014), 155–176.

<sup>42</sup> Chu Pingyi is pursuing further research on mantic arts; Chu Pingyi, "Against Prognostication: Ferdinand Verbiest's Criticisms of Chinese Mantic Arts," (forthcoming) (revised version of a lecture given at the Ecole Française d'Extrême-Orient, Paris, on 14 September 2014).

Dunne, or even with Robert Oxnam's account,<sup>43</sup> Brockey states at the onset that "if Schall was a controversial figure within the Society, he was even more so outside it."<sup>44</sup> However, his sometimes uncritical reliance on Western language primary and secondary sources leads him to integrate natural phenomena a little recklessly into his narrative when he mentions the sentence against the Jesuits and the officials of the Bureau:

...[J]ust as the authorities prepared this pronouncement [of the sentence], Heaven apparently showed its displeasure in the form of a comet. Then, shortly after the verdict came out, an earthquake struck the capital, splitting one of the walls of the imperial palace. These coincidences led to the issuance of a general pardon [...]<sup>45</sup>

Although one can hardly suspect the author of these words of believing in providence, his paraphrase of the received Christian narrative leads him to adhere to it, insofar as it treats natural phenomena as providential. One might wonder whether the comet, which had in fact been visible for more than four months at the time the sentence was issued, might equally well have incited the regents to be severe, rather than lenient. Of course, the comet did serve political purposes: for example, some officials took this opportunity to call for a restoration of earlier practice in the imperial examinations.<sup>46</sup> Similarly, it could have been interpreted as supporting Yang's plea for a return to the methods used before the Jesuits took over the Astronomical Bureau; after all, the calendar used at the time of the trial had been calculated using Schall's methods. The point here is that an event such as a comet or an earthquake did call for some response from the emperor or from those who ruled in his name; but it did not dictate the response. In that sense, Brockey, by following the Christian narrative, tends to make the regents more subservient to "superstition" than they might have been. Qing history abounds in stories of officials who are punished for some offence they have committed. It was common for them to get a severe sentence from those in charge of judging them, and then for the sentence to be commuted to a more lenient one by the emperor. This could happen to officials who made mistakes in their work: as mentioned above, it was the case with those who had mistranslated the prescribed timing of Prince Rong's

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<sup>43</sup> Robert B. Oxnam, *Ruling from Horseback: Manchu Politics in the Oboi Regency, 1661-1669* (Chicago: The University of Chicago Press, 1975), 146-151, refers to the affair as a "persecution," a term carefully avoided in Standaert ed., *Handbook of Christianity* (cit. n. 2).

<sup>44</sup> Liam Matthew Brockey, *Journey to the East: The Jesuit Mission to China, 1579-1724* (Cambridge, MA: Harvard University Press, 2007), 127.

<sup>45</sup> Brockey, *Journey to the East*, 129.

<sup>46</sup> Lynn A. Struve, "Ruling from Sedan Chair: Wei Yijie (1616-1686) and the Examination Reform of the 'Oboi' Regency," *Late Imperial China* 25:2 (2004), 1-32, on 20-21.

funeral from Chinese into Manchu in 1658. One suspects that this process may have been part of a routine; such a routine would have had the obvious political function of enhancing the emperors' image as a benevolent ruler. If this proved to be the case, there would be no need to bring natural phenomena into the story to account for the softening of the sentence against Schall and his collaborators: the timing simply made it quite spectacular. As historians, we do not need the earthquake that split the wall of the Forbidden City to explain why Schall was spared; indeed we should know better than to adhere to the Jesuits' account of the beliefs and motivations of the Qing court.

Brockey's interest in the affair is mainly motivated by the disastrous consequences that it had for the Catholic mission in China. Indeed, the Calendar Case is important in the history of Christianity in China not only because it revealed the ambivalence of Jesuit service at the Astronomical Bureau, but also, and perhaps mainly, because it gave rise to the first empire-wide measures against the Catholic religion, as Pierre-Emmanuel Roux has pointed out in his dissertation.<sup>47</sup> The affair, evidently, is also relevant to the social and political history of Christianity in China.

## The Kangxi Emperor's Role

Like Brockey and Roux, I have given an account of the Calendar Case as part of writing up my research into a book. My own purpose in recounting this affair was to show how it set the stage for the mathematical sciences during the Kangxi reign, and in particular for the strong imperial interventionism in this field that lasted throughout the reign. I also sought an alternative to the representation of Kangxi as an enlightened monarch that has prevailed in European literature since the eighteenth century.<sup>48</sup> The emperor made sure that his subjects and the generations to come would know that imperial fiat was key to the whole story, bringing out the motivation that prompted him to step into a field that his predecessors had left to professional experts:

Seeing with Our own eyes [that no one at Court understood the calendar], We felt sick at heart. During the little leisure time left to Us by the many affairs [of the State], We have devoted Ourselves to astronomy for more than twenty years,

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<sup>47</sup> Pierre-Emmanuel Roux, "La Trinité anti-chrétienne: Essai sur la proscription du christianisme en Chine, en Corée et au Japon (XVII<sup>e</sup>-XVIII<sup>e</sup> siècles)" (Ph.D. diss., EHESS, Paris, 2013), 53-54.

<sup>48</sup> Catherine Jami, "L'empereur Kangxi et les sciences: réflexion sur l'histoire comparée," *Études chinoises* 25 (2006), 14-40.



so that We have taken a view of its broad outlines and will not come to be confused about it.<sup>49</sup>

The emperor's reminiscence strongly suggests that his interest in astronomy was part of his endeavour to personally control important matters, rather than the satisfaction of mere curiosity on his part.<sup>50</sup>

When surveying the secondary literature to prepare the present paper, I have found that two elements were missing from the picture. The first one, which still awaits investigation, is a satisfactory account of exactly where the Manchus stood in the whole affair, which has been construed mainly as a case of cultural incompatibility between Christian and Han Chinese beliefs and practices. There is an apparent paradox in the fact that the regents, who were supposed to be on the whole hostile to Han Chinese literati culture, sentenced Schall following accusations that made sense within Han culture. As regards Yang's accusation concerning Prince Rong's funeral, it has to be explained why the Manchus, who were aware of the risk of smallpox in China, chose to treat those particular deaths as being due to the violation of Han Chinese burial rituals. The regents were certainly aware that smallpox was the cause of the death of the infant prince, his mother, and his father; as is well known, Kangxi was chosen among Shunzhi's sons to succeed him because he had survived this disease. The Manchus were much more susceptible to smallpox than the Han Chinese. Their response combined quarantine measures and the worship of a smallpox goddess.<sup>51</sup> One therefore needs to consider the regents' stake in the Calendar Case. It has been suggested that belief in Shamanism and in the power to cast spells predisposed them to take Yang's accusations seriously.<sup>52</sup> It has also been argued that in several respects they accommodated to Chinese institutions and cultural imperatives.<sup>53</sup> One of their motivations may simply have been the wish to get rid of an official who had been in favour with the late Shunzhi emperor, and to replace him by someone who had obligations towards them—this would explain Yang's appointment as Director of the Astronomical Bureau. Further research on Manchu sources may shed more light on this issue.

It should be pointed out that these sources could also fruitfully be used for a

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<sup>49</sup> Kangxi, "Yuzhi sanjiaoxing tuisuan falun" 御製三角形推算法, in *Yinyin Wenyuan ge Siku quanshu* 影印文淵閣四庫全書, 1,500 vols. (Taipei: Taibei shangwu yinshuguan, 1986), vol. 1,299, 156; The translation is from Jami, *The Emperor's New Mathematics*, 75.

<sup>50</sup> See Catherine Jami, "Western Learning and Imperial Control: The Kangxi Emperor's (r. 1662-1722) Performance," *Late Imperial China* 23:1 (2002), 28-49.

<sup>51</sup> Chang Chia-feng, "Disease and Its Impact on Politics, Diplomacy, and the Military: The Case of Smallpox and the Manchus (1613-1795)," *Journal of the History of Medicine and Allied Sciences* 57:2 (2002), 177-197.

<sup>52</sup> Fang, "Yang Kuang-hsien" (cit. n. 2), 891.

<sup>53</sup> Struve, "Ruling from Sedan Chair."

more thorough investigation of all the individuals and institutions involved in the Calendar Case. As to the latter, Deiwiks lists five institutions involved in the trial. These included three Ministries [of Rites (*Libu* 禮部), of Civil Appointments (*Libu* 吏部), and of Justice (*Xingbu* 刑部)], but also what she calls “the Supreme Court”; this must be the Deliberative Council of Princes and High Officials (*Yizheng wang dachen huiyi* 議政王大臣會議), a specifically Manchu institution which had great importance at the time.<sup>54</sup> From the point of view of the history of science, such a study would shed further light on where astronomical knowledge stood at this particular juncture.

Another element that needs reconsidering is the role of celestial phenomena in the Affair. As mentioned above, the 1664 comet could have been understood as a sign that the human realm was out of step with the heavens, or in other words, that the calendar needed to be placed in different hands. On the other hand, one point is worthy of attention: it was very likely another celestial phenomenon that prompted the reopening of the case in 1668. In March of that year, when a “white light” was seen in the South western part of the Beijing sky, Verbiest was consulted by some officials on this novel phenomenon. He provided them with a short essay, in which he included a detailed description of what he had observed, with illustrations, and what he called a “prophecy” (*vaticinium*) in his correspondence. As Golvers has shown recently, this was in fact the 1668 comet, whose shape was quite unusual for a comet.<sup>55</sup> Verbiest took this phenomenon to be related to the unusually mild weather of that winter, during which various epidemics had plagued the capital. It is no coincidence that Kangxi’s first measure in relation to astronomy, namely to recruit new staff, was taken at the end of the same month.<sup>56</sup> In June of the same year, Kangxi had evidence that the Astronomical Bureau did not work as it should: after an earthquake hit Beijing, he rebuked the Bureau officials for failing to submit astrological interpretations of the natural phenomena on which they had earlier reported. So the reopening of the case came after phenomena similar to those which had occurred during the case; and, more significantly, it came following imperial dissatisfaction with the way the Bureau had performed in relation with these phenomena. Although the Director of the Bureau was responsible for all its tasks, in this case it was effectively the Section of Heavenly Signs (*Tianwen ke* 天文科) whose work was found wanting. It was only six months later, when doubt was cast on the work of the Calendar Section (*Like* 曆科) by Wu Mingxuan’s own

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<sup>54</sup> Lawrence D. Kessler, *K'ang-hsi and the Consolidation of Ch'ing Rule, 1661-1684* (Chicago: University of Chicago Press, 1976), 60-63.

<sup>55</sup> Noël Golvers, “Ferdinand Verbiest’s 1668 Observation of an Unidentified Celestial Phenomenon in Peking, Its Lost Chinese Description and Some Parallel Observations, Especially in Korea,” *Almagest* 5:1 (2014), 33-51.

<sup>56</sup> Jami, *The Emperor’s New Mathematics* (cit. n. 4), 58-59.

report, that the young emperor turned to the Jesuits.

This brings us back to what has been my main concern when constructing my narrative of the Calendar Case: how could one best account for Kangxi's intervention and decisions? Rather than taking for granted that he had been converted, if not to European religion, at least to European science, my aim was to find a rationale for his motivations within early Qing history. One is struck by the importance of sight in the events recounted above. Kangxi first intervened when the sky's appearance called for imperial action because everyone in the capital could see it and it therefore became a matter of public, rather than specialist, concern. Similarly, the tests proposed by Verbiest indeed gave the Jesuit the means of gaining victory over his opponent; but they also provided the emperor with predictions that were verifiable by anyone with an informed, but not necessarily professionally trained, gaze. Control was what Kangxi sought at the time; Jesuit science, or, as he called it, Western learning (*xixue* 西學), provided him with the means to exert this control, both at this crucial juncture and throughout his reign.

But this is just one among many possible approaches to the Calendar Case. Altogether, the research done during the last three decades has made it clear that the whole spectrum of tasks entrusted to the Astronomical Bureau needs to be taken into account in order to understand the Calendar Case. Conversely, this affair provides a splendid illustration of the fact that this Bureau was in fact concerned with much more than astronomy: all the Bureau's activities were involved in the affair. The Chinese name of the Bureau reminds us that it was never simply a scientific institution. As Magalhães pointed out, this name (*Qintianjian* 欽天監) is best translated as "College for the Veneration of Heaven."<sup>57</sup> From the standpoint of the history of religion, not only Christianity, but also beliefs and practices pertaining to East Asian religion were at the heart of the Calendar Case. Similarly, from the standpoint of the history of science, it is necessary to understand the plurality of knowledge and practices that the Jesuits' opponents were defending. Thus the affair now appears as much more complex than it did fifty years ago: it can be reduced neither to a scientific controversy, nor to a religious persecution. Quite the reverse: it is a uniquely documented example of the ways in which knowledge, belief, and power were entangled in the early modern world.

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<sup>57</sup> Magalhães's Latin translation is "*Collegium coelum venerans*"; Romano, "Observer, vénérer, servir" (cit. n. 6), 747.

## Abstract

The Calendar Case (*liyu* 曆獄) is well known to historians of Chinese astronomy and to historians of the Jesuit mission to China; during the last sixty years, it has attracted increasing attention from both groups. The Jesuit missionary Johann Adam Schall von Bell (1592-1666) was in charge of the affairs of the Astronomical Bureau (*Qintianjian* 欽天監) from 1644, when Beijing fell to the Manchus. In 1664, under the rule of the four regents who governed in the name of the young Kangxi emperor (b. 1654, r. 1662-1722), Schall was impeached and tried, following accusations made by Yang Guangxian 楊光先 (1597-1669), a literatus who held no official position. Four years later, the emperor had the verdict reversed and appointed another Jesuit, Ferdinand Verbiest (1623-1688), as official astronomer. The present article provides a review of the secondary literature on this affair, showing how the narratives and analyses given by different authors reflect not only their personal research agendas, but also the wider evolution of historiography in both fields, from missiology to a China-centred history of Christianity in China, and from positivism to multifaceted narratives of controversies in the history of science.

**Keywords:** astronomy, China, Jesuits, historiography, Qing dynasty