



MRI FORUM 10

Pipe Organ Building and the Jesuits in China

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January 25, 2005

Before I begin this discussion of the pipe organ building activities largely run by the Jesuits in China from the beginning of the 17th through the early 19th centuries, I'd like to mention how I came to start and to administer the Pipe Organ In China Project.

When I first arrived in Hong Kong in the Fall of 1989, I had been here only a few weeks when a colleague from the Department of Religion and Philosophy stopped by my office to introduce himself and to ask me if I knew anything about a bamboo organ in Shanghai.

I told him I knew of the bamboo organ in the Philippines, at Las Piñas, outside of Metro-Manila, but that I had never heard of a similar instrument in China. The challenge - which I naturally accepted - of finding something out about this instrument, was too great to be refused. And so, I began in 1989 to catalog, to the extent possible, the historical organs of China, all, alas, now destroyed. At that time there had been only one new - that is post-1949 - installation, a three-manual Rieger-Kloss in the Beijing Concert Hall. In the early 1990s I felt that as openness and the economy grew on the Mainland, more instruments would be installed in conservatories and concert halls on the Mainland. Today, 14 years after I began to get interested in this topic, there are two pipe organs in Guangzhou, one is under construction in Shanghai, and there are at least three new installations in Beijing. This is a modest beginning, but it is certainly a radical change from a dozen years ago.

The Pipe Organ in China Project has been three-fold in its intentions and its methodology. The first part of the project has been a census of historical instruments. Most of this was done in my first three years in Hong

Kong, and a series of articles on the results of this search appeared in the journal, *The American Organist*, in 1993.

In 1997, I updated my research with information on newly discovered or newly identified instruments in a paper I gave in Honolulu to the annual conference of the American Guild of Organists.

The second prong of the project has been delving a little deeper into the history and cultural history of the organs and the builders of these instruments themselves. This is complicated by the lamentable fact that none of these instruments survives. Nevertheless, I have been making progress in this area, and it is to some extent on this aspect of the project that I'm talking tonight.

The third area of concern for me has been, as mentioned, the new instruments for and in China.

Of the various missionary groups which established beachheads in China in the sixteenth, seventeenth, eighteenth and nineteenth centuries, none had the initial impact of the members of the Society of Jesus. The technological and musical accomplishments in China of Jesuit missionaries have been documented for several centuries. Today, many historians tend to see these accomplishments as the most significant of their achievements. There was a time – and I mention this with some diffidence to this audience – when the evangelization of China was perhaps seen as more successful and more lasting than many scholars will admit today. George Harold Dunne's 1962 study, *Generation of Giants: The Story of the Jesuits in China in the last generation of the Ming dynasty*, is typical of this older point of view. But today it seems no longer accepted that the spiritual enterprise was entirely successful. The favor of kings is lightly given. Praise and the giving of honors was routinely followed by intrigue and persecution, and in 1773 the Jesuit Order itself was suppressed, although word of the suppression did not actually reach Beijing until 1775.

Concurrent with the ups and downs of court life, many missionaries throughout the seventeenth and eighteenth centuries complained that so much of their time was absorbed with requests and demands for manufacturing everything from clocks to cannons, that there was little time left over for spiritual activities. What is left the esteem shown towards the Jesuits, among others, for achievements in the sciences? This esteem was shown by a succession of rulers, but most famously by the Kangxi Emperor. Anyone familiar with the basic facts of the life of Matteo Ricci will recognize immediately what I mean by this.

As a result, it has been the by-products of a diplomatic, technology-centered approach to mission work which have become the subject of genre-specific studies in the past decade, and these have included: Noel Golvers' work on Jesuit astronomy and what I might call the "hard" sciences: Gauvin Alexander Bailey's study of the fine arts on and in the Jesuit missions world-wide; and Catherine Pagani's recent study of horology and clock-making by the Jesuits and later comers, such as the Vicentians.

The musical accomplishments of Jesuits in China have been often mentioned, but to the best of my knowledge are generally documented either in only cursory detail, sometimes quite inaccurately. I have not seen a study on the sorts mentioned by Golvers, Bailey, or Pagani, that deals with their musical history and their musical culture. I except here the work done in the past decade by Jean-Christophe Frisch, although even he get some of his details wrong, for example placing a mid-17th century pipe organ in the Bei Tang, when in fact it was in the Nan Tang. One obvious reason for this is the apparent lack of surviving instruments constructed in China by the Jesuits in the seventeenth through nineteenth centuries. This has meant that a *material culture* study has proven impossible, and has effectively hampered research in this area. May I take a moment to explain what a material culture study is.

Material Culture is "the totality of artifacts of a culture, the vast universe of objects used by humankind to cope with the physical world, to facilitate social intercourse, to delight our fancy, and to create symbols of meaning." (Thomas J Sclereth, 1982).

The term, *material culture*, was used as early as 1875, and occasionally the term material history is used. The *material culture* approach studies objects within their social and cultural context in conjunction with the written word. Sometimes

"man-made objects are more securely anchored in time and place than text or ideas or values. They are concrete and time-bounded: they were made at a particular time, by identifiable (or unidentifiable) people, with ascertainable materials...The processes which accompany the life of the artifact... can be traced. All these expressions and bits of empirical data, these minutiae of everyday life are levers which help pry open a specific historical universe." (Ann Gorman Condon, 1991)

Alas, a material culture study of Jesuit-made musical instruments seems impossible. Moth, rust, the sword and fire have claimed these known instruments, although I must confess to living in the hope that, someday, a crate will be pulled from a warehouse in Nanjing, or from a cave in Xian,

marked "Pipe Organ. This way up."

What we are left with, then, are a few primary sources, such as the letters, reports, and publications of the Jesuit missionaries themselves, and many more secondary and tertiary sources, such as Du Halde's well-known *Description de l'Empire de la Chine* of 1736 which, regrettably, are often unreliable, at least in this area. Other important sources for an understanding of early Jesuit musical activities in China, such as the 1650 *Musurgia Universalis* of Athanasius Kircher, and the *Astromomia Europaea* (1687) of Ferdinand Verbiest, have been largely ignored up to this date.

For example, we are fortunate to know from Ricci himself about the first Western pipe organ constructed in China. This was a portative or positive manufactured here in Macao in 1600 or 1601, which was intended as a gift for the Wanli Emperor on Ricci's first journey to Beijing.

Portative organs are, as the name suggests, portable and intended to be played by one player: usually the left hand pumps the bellows, and the right hand plays on a limited, diatonic keyboard. Here is a slide of a small portative which I am presently building in Hong Kong, though I hasten to add that this is not a replica of what I think Ricci's instrument looked like.

Sometimes these instruments were constructed on a different plan, as in this early 18th century portative made in England:

Positive organs are larger than portatives, utilizing one or two bellows, and have a larger keyboard, played with both hands as in this famous engraving von Meckenem:

And here we see a sixteenth century gentleman playing the portative with his wife obligingly pumping the bellows and the dog probably wining at the sound, which is coming out of it.

Unfortunately, whatever Ricci had built here in Macau, it arrived at the entrepôt of Nanjing too late to be included in the gifts forwarded to the Emperor later that year. What might this instrument have been like? Ricci does not describe it. Given the conditions in Macau at that time, I would be surprised if it had been more sophisticated than the positive shown in the engraving: that is, a hand-blown table-sized portative with a single rank of pipes, or at most two, and a keyboard of perhaps two more-or-less chromatic octaves or slightly greater, beginning probably at B below tenor C. The pipes were probably wooden pipes, as the casting of pipe metal is a very tricky operation, and I have uncovered no mention of metal organ pipes in China until 1680.

Here I would like to just stop my historical survey for a moment and explain a little about what is involved in the construction of any pipe organ: [*ad lib. description*].

This is a positive with two bellows requiring a “calcant”. That is a word for scrabble; “calcant” is the formal term for the organ blower or the person who pumps the wind into an organ. At two and a half to three octave range, two ranks of pipes, which means that there are two different sounds that could be produced on this organ by two different rows of pipes. But in fact you could actually get four sounds out of this organ because, if you notice, there are four sliders here and each one of those will only operate half the keyboard; so it would be possible to play a duetto with yourself by drawing one, which would operate on the left hand only the lower left hand side of pipes, and the other sound would be operated and played on the right hand; so you could kind of to play a duetto with yourself.

The pipes in Ricci’s portative or positive were probably wooden pipes as they are in this instrument. I think the casting of pipe metal is a very tricky operation, including involving specialized equipment. I have uncovered no mention of metal pipes in organs in China until 1680, so almost a century later.

Talking about some of the technical details of how a pipe organ works, perhaps it would be helpful to show you a schematic, and explain what is involved in doing this.

Every pipe organ involves three fundamental things, which I marked in this diagram A, B & C. Starting with C, an organ requires wind, it doesn’t matter what the source of the wind is, it simply requires wind, which then passes up into a kind of reservoir here. The second thing an organ needs is pipes which are stuck into a box and into which the wind is to go. But you don’t want the wind to go in before you are ready and you don’t want the wind to go into all the pipes at once. So, a mechanism has to be arranged, so that the wind only goes into certain pipes for certain length of time and that is what the keyboard is for. If you follow the design by pressing down the key, you draw down this wire which causes this to rotate in that direction that pulls the tracker forward; pulling the tracker forward causes the roller to go in this direction, which in turn pulls this tracker down. And this tracker is attached to a hinged piece of wood which opens a hole under a particular pipe. You have noticed that there is a

spring between the base of the power box and the power itself, and the string is strong enough, so that when you release the key back down here, it sends the palate up flush with the top of the power box, therefore closing off the wind's supply and stopping the note from sounding. And no matter whether you are building the little portative in my kitchen or whether you are building a large cathedral organ, the principle is the same for all instruments.

Of course newer methods have been devised to handle the relay of the pressing the key to opening the pipe. But certainly this would have been the schematic that Ricci or any of the organ builders who came after him would have been familiar with. Just to give you an idea of how it works.

In truth, Ricci's instrument for the Wanli emperor might have been constructed as little more than a toy, an amusement. It was, after all, not intended for actual use as a pipe organ within a liturgical context, but rather as a gift, a sample of technology, an instrument in the *scientific* rather than the musical sense, although as I will discuss later, music at this date, and music within the Jesuit educational traditional, cannot be divorced from science.

Within a decade of Macau positive, however, we find a report of a pipe organ, apparently built in Beijing by the Jesuits, being used within a liturgical context, and this is perhaps the most significant moment in the history of the pipe organ in China. The event in question, which occasioned the report of this instrument, was nothing less than the funeral of Matteo Ricci at the Zhalan compound in the Western suburbs of Beijing on All Saint's Day (that is, 1 November) 1611. The source of this information is the 1643 *Histoire Universelle de la Chine* by Alvarez Semedo. According to him, "Mass, the first at Zhalan, was celebrated on All Saint's Day with the sounds of organ and other musical instruments." The compound at Zhalan had been the villa of a powerful eunuch, surnamed Yang. For some crime he had been imprisoned and his property confiscated. At the urgings of the Jesuits in Beijing, who after 10 years in Beijing needed a place to bury their dead, the Emperor had given them his property, consisting of an elaborate and well-made Chinese house dating to 1582, and a garden. Altogether this consisted on 20 *mu* of land, and the house had approximately 38 rooms.

On the diagram, the room numbered 13 was selected for a chapel, and the renovations which began in October 1610 were completed in September or October 1611. We can hypothesize that the organ was built for this space during the same months. If the diagram, from Nicolas Trigault's *De Christiana*

Expeditione of 1615 (that is, published only four years after the funeral of Ricci) is correct or even vaguely to scale, the room was not particularly large. A positive organ with a single manual and two or three ranks, containing, perhaps sixty to hundred or so wooden pipes, and a simple medieval block chest, meaning that all the ranks sounded all the time, would have been acceptable musically.

There is always the possibility – this is actually an assumption on the part of some other writers – that this instrument for the Zhalan chapel might have been imported from Europe. Requests for large numbers of Western paintings, books, clocks, watches, religious and devotional objects such as rosaries, medallions, votive images, toys, and other items fill the Jesuit correspondence of these years. I think, however, that had an organ been imported, it would have figured large in these letters. I can find no report of an imported pipe organ for liturgical use in China until 1856 – that is, until the steam age made transport fast(er) and more reliable. As such an instrument is never mentioned in surviving Jesuit records, my own point of view is that the Zhalan chapel instrument marks the beginning of the pipe organ workshops in China, at least until some proof to the contrary is found. The construction of the Zhalan organ represented a considerable feat of ingenuity, as none of the missionaries in Beijing at the time are known to have had specific skills in organ-building.

This is perhaps a good point to mention the role of music in Jesuit education of the time. I mentioned earlier that music in the Society was still a part of the “sciences”. Beyond some rudimentary vocal and singing study for church use, music was not typically a part of the Jesuit educational plan, although depending on traditions and local administrative support, this plan could vary from country to country. Extra-curricular music lessons were generally available to students who were willing to pay for them individually. When music was specified in the *curricula* of the Jesuit colleges of the 16th and 17th centuries, it usually meant music in the old *quadrivium* sense – acoustics, really – and as such a branch of mathematics. It is for this reason that the next account of organ building by the Jesuits in Beijing comes from the unlikely source of the 1687 *Astronomia Europaea* of Ferdinand Verbiest, a kind of historical report on the successes of Western scientific applications during Verbiest’s long service in China the mid-seventeenth century.

Verbiest was, along with Ricci, and Adam Schall von Bell, part of the great triumvirate of Jesuit missionary leaders in early 17th century China. He succeeded Bell as director of the Imperial Board of Astronomy, and was well regarded by both the Shunzhi and Kangxi emperors. Among other things, he seems to have invented the first self-propelled motor vehicle. Of his many writings and publications, the *Astronomia Europaea* holds the greatest interests

for musicians, because it is not only the earliest complete account of organ building in China, but served as the source for many later accounts, including Du Halde's.

Verbiest had published what seems to be the first account of the western pipe organ in Chinese at an earlier date, in his *Yu lan xi fang yao chi*, or "Notes on the Western Territories", of 1669, where he remarked that

"There are small organs of some ten[s of] pipes [here, he refers to portatives], medium ones of hundreds of pipes [probably meaning positives], and large ones of thousands of pipes. Each pipe produces its own tone. The method of playing the organ is more or less the same as playing the harpsichord, but the organ has a series of stops that can be played either separately or together. All of the sounds imitated by the organ, such as wind, rain, birds, and other animals, sound exactly the same as in reality. The organ accompanies vocal music more beautifully [than the harpsichord.]"

I might mention here that this description raises several interesting points. The first is the questions of the depth of Verbiest's knowledge of pipe organs. The second is the reference to "wind, rain, birds, [and] animals" and these references to sound effect stops on organs. This hints at the fact that it was just these accessories that later caused such a sensation when the first pipe organs were publicly played in Beijing. The third point is Verbiest's aesthetic position on the organ, that it was better suited to the accompaniment of vocal music. This suggests that some sort of organ building had been going on in the years between the Zhalan chapel organ of 1611, and Verbiest's book of 1669. The lack of specifics may be explained by the repression of the missionaries in the mid-1600s after their initial successes. For example, between 1618 and 1625 the non-native Jesuits were exiled from Beijing and sent to Guangzhou. The 1640s to 60s, the period of time when the Manchu dynasty was established, were years of strife, imprisonment, and disorder. It was not until 1669 that the Kangxi emperor rehabilitated the Jesuits.

The next report of an organ in Beijing then follows quickly on this act of munificence: it is an instrument presented about 1671 to the Kangxi emperor by Claudio Grimaldi. Like the original portative, this instrument seems to have been made in either Macau or Guangzhou, and was probably quite small, given the distance it had to travel.

Verbiest's *Astronomia* is part panegyric and part journalism. The 25th and 26th chapters of this work deal with music and with horology (clockmaking). The sequence of these two topics is explained by the fact that a

number of the pipe organs built in the last third of the seventeenth century in Beijing were attached to clock mechanisms, or had sound effect accessories of the kind Verbiest mentioned in 1669. Chapter 25 discusses at length the work of Tomás Pereira, a Portuguese Jesuit who had arrived in China after studies in Goa and Macau in 1672, and reached Beijing the following year.

Pereira built both organs and carillons with elaborate mechanisms during his thirty years in China. In 1679, he built a somewhat larger instrument than the 1671 portative for the emperor. Grimaldi wrote that:

“...it has two ranks, that is, one of open pipes, and one of stopped pipes, with a total number of 90 pipes”

This suggests a positive with a keyboard of approximately four octaves, if one assumes a short octave in the bass. Such an instrument would have been very close in range to the numerous harpsichords and spinets which had been sent to Beijing over the years, and which are outside both the scope of this talk and the Pipe Organ in China Project.

The organ for the Kangxi emperor was probably a practice piece for Pereira, as in the Fall of 1679 he began to build a somewhat larger instrument for the Nan Tang (at the time called the Xi Tang) residence. The instrument was completed in 1680 and installed with great solemnity. Grimaldi described it as follows:

“It contains four ranks, the first is a rank of open pipes, the next rank is stopped, the third is a *vox humana*, and the fourth imitates the sounds of animals and birds. The total number of pipes is two hundred, equivalent to the majority of organs in European regions.”

This also suggests an instrument of a single manual of about four octaves, with a short octave in the bass. The birdsong stop may well have involved more than one pipe to each key, and probably only operated on the upper two octaves of the keyboard. The nature of the “*vox humana*” can only be guessed at. Properly this is a reed stop with a metal resonator, and such pipes would have been very tricky to make in Beijing at this time. I have some sense this may have been the Italian-style *voce umana*, which is a celeste-type stop, tuned slightly sharp with a similar rank of pipes to give an undulating effect. In one of his letters from 1680, Verbiest mentions that the pipes of at least one rank were made of tin, which indicates that a very sophisticated approach to organ building was now possible.

Pereira's description of the 1680 instrument tells us that the longest pipe was about 2.2 meters long, and while it is impossible to determine exact pitch from this description, it is enough to tell us that the organ was pitched to accompany voices and play literature at the written registers.

Pereira is known to have built three other organs, or clock-carillons with organ divisions, after the 1680 Nan Tang [Xi Tang] instrument. Although the records are quite confused, it seems that two of these were either re-buildings, or enlargements of the instrument in the Nan Tang Church. The first, in 1681, was an organ attached to a clock-carillon. This was the instrument of some notoriety, attached as it was to a barrel mechanism which caused both the organ and the carillon to play Chinese melodies automatically. Although a very large contraption - Pereira stated that it was about 4 and half meters high - it was apparently moveable, and was even used to accompany scenes of some comic plays, though he doesn't say where these took place. All this activity led Pereira to reflect in 1682 on his mission, saying once that "the Portuguese will be very surprised to see me among all this pipe-work, but I believe that the Lord can be praised through music and my only wish is to accomplish my mission on Earth and be rewarded in Heaven."

When he took over the rebuilding of the Nan Tang property in 1700, Pereira built a new clock-carillon for the church. Although Verbiest mentions a third organ, also built in 1681, in his correspondence, I am still trying to figure out where this putative instrument was installed.

According to Verbiest, in 1684 the Kangxi emperor visited the Nan Tang [Xi Tang] and inspected this organ and the clock-carillon. Also in the 1680s, Grimaldi, probably assisted by Pereira, built a hydraulic organ which operated in conjunction with a windmill, in one of the courtyards of the Imperial Palace in Beijing.

Here we might well stop and ask, where did Pereira, let alone Grimaldi and the less-well musically trained missionaries, get their skills in organ building, and from where did they get their ideas? And what did these instruments look like? I puzzled over this for many years, until I began to get interested in the library of the Jesuits in Beijing. The Jesuit library was catalogued in the 1930s and 40s on a grant from the Rockefeller Foundation, and the finished catalogue was published in January 1949. When I began looking through this catalog, I found that in 1661 - that is, shortly before this burst of organ-building activity - the Jesuits had acquired a copy of Athanasius Kircher's *Musurgia Universalis*, published in Rome in 1650. The *Musurgia* is a fascinating compendium of encyclopedic proportions which attempted nothing less than the compilation of all musical knowledge of the early Baroque era. And a good part of the book is given over to mechanical musical

instruments, for which there was a craze throughout the sixteenth century. For example, Verbiest described the first clock-carillon, in the Nan Tang (called Xi Tang) church, as follows:

“A big crowd flocks to see our church. However, what amazes them most is the musical prelude which precedes the striking of the hours...since Father Pereira was well-versed in music, he had many bells cast according to musical [acoustic: again note the influence of the *quadrivium*] proportions and had them finished on the lathe. He hung them in the highest part of the clock-tower, in the open air, and close to each of them he mounted hammers suspended from iron wires in the European manner to strike the bells harmoniously. In an area inside the clock-tower he placed a big cylindrical drum, on which he arranged some Chinese tunes, plugging into it at harmonious intervals small pins for the notes. When the hour was about to be struck by a stroke of the big bell, the drum unlocked itself and, being rotated by the weights hanging from it, it caught the iron wires attached to the hammers with its little pins, and perfectly performed a Chinese tune, the small bells tinkling their melodious sound.”

Now compare this with the following plates from the *Musurgia*:

And for Grimaldi's hydraulic organ of the mid-1680s, Kircher gives the following as a model:

I would also note here the multiple pipes being employed for the bird-song stop.

In addition to the *Musurgia*, of which 12 additional copies eventually reached China [in 1658 or 59,] the Jesuits in Beijing also had a copy of Heinrich Zeising and Henning Grosse's *Theatri machinarum* of 1612, which in turn was largely based on Agostino Ramelli's *Le diverse et artificiose machine* of 1588. The Zeising and Grosse volume also provided a source of inspiration and instruction, although this work was not principally concerned with musical instruments but with windmills and other engineering-related devices.

The following plate from Kircher suggests that Pereira and the others were using the *Musurgia* as a kind of reference book, then they were engaged in building small, slider chest instruments of four octaves, with a short octave extending below C.

In a letter of 1681, Verbiest describes a later organ – or at least, *an* organ built by Pereira, for the Nan Tang. I am unsure at this stage if it refers to

the instrument of 1680, or the instrument of 1681, which was probably slightly larger again, or if these are references to the same instrument.

“From the very first, this organ, to which all eyes and ears were opened, drew a large crowd of people. For the first sixteen days our church and the good-sized courtyard outside were both filled at all hours, as newcomers continually took the places of those who left, not like the waves of the sea, but with pushing and shoving, as those who were standing had nowhere to which to move.”

This description shows that nothing has changed in regard to new property development in China in 300 years.

Pereira died in 1702, and Grimaldi in 1712. The next organ builder in China was Teodorico Pedrini, a Vincentian, who arrived in 1711. Apparently a trained musician, he is best remembered musically for his collection of sonatas for violin, Opus 3, which Jean-Christophe Frisch has now recorded. Before his death in 1746, he built an organ for the Nan Tang, probably to replace Pereira’s 1680/1681 instrument, and the surviving account of it tells us that it had “four registers (that is, ranks of pipes) which is sufficient for any church in Beijing, but it is more beautiful than those of Europe, because all the pipes at the front are decorated with gold flowers [and] it [the case] is coated with black lacquer and it is portable...it is eight feet high...”

[I suspect that the translation may be in error here: an eight-foot high organ would be very hard to move about, and this probably indicated that one or all of the ranks were at eight-foot (that is, concert) pitch.]

There is then a lull in organ building activity for few years until the arrival of Karel Slavíček, who arrived in Beijing in 1717. Slavíček was a Moravian Jesuit, born near Prague in 1678. He was one of the first missionaries to write extensively and seriously about Chinese music. He was reported to be a fine guitarist, played other instruments well, and was constantly in demand at the Imperial Palace. But Slavíček’s interest to me lies in the reports that he repaired Pereira’s organs and carillons, as well as at least one new instrument imported from England. For this reason, Slavíček is usually described in modern Chinese writings as “a repairer of organs”. One of his letters to his provincial Superior, written in Beijing and dated 28 November 1727, gives a glimpse of the activities in his workshop.

“On the 26 of February [Hornung] 1726 an English clock-organ was sent to my house by a distinguished mandarin [Lord of the Court] with the urgent request of the same to, wherever possible, assist [in repairing it] as it had been so badly damaged in transit. It

cost me much time and worry to get its mechanism and sounding parts back into working order. It played not less than twelve pleasant tunes, and not continuously but rather at specific hours, namely at three, six, nine and twelve [o'clock.] In addition, by pulling a certain cord, you could also get it to play the tune again, like a repeating watch. The sounding mechanism was driven by a barrel-cylinder stuck with many pins which opened the valves in place of having a keyboard, as Your Excellency will no doubt have observed in the barrel organ .

“The best thing about this English invention is that instead of operating with weights it is driven by a spring mechanism; and so instead of being [in the form of] a pointed tower, it can be made in the shape of a square chest or box. In this way it can be placed on any table or other piece of furniture. As distasteful as the start of such a tiresome project was to me, so much more of a consolation was it in the end. In truth, I attribute this to the foresight of Almighty God, that through the dismantling of the first of the Imperial clocks he was pleased to prepare me to soon afterwards take on another broken-down piece of the Emperor’s property, and the better to deal with it. A clock-organ like this might be sold by the English at Canton [Guangzhou] for between three and five thousand guilders.”

The “first of the imperial clocks” mentioned here is very likely to be identified either with Pereira’s clock-carillon in the Nan Tang, or perhaps with a clock built by the Jesuit Gabriel de Magalhães (1609-1677), a Portuguese priest who first came to China in 1640. De Magalhães built a clock in 1670 for the young Kangxi emperor which marked each of the hours by playing a different tune, followed by the firing of a round of muskets. It may have been this elaborate mechanism which the English clock-carillon repaired by Slavíček replaced.

My research into Slavíček’s life is continuing. A considerable amount of work on his letters and writings has been done in the Czech Republic, where he is now something of a national hero. But hardly anything has appeared in English. Slavicek died in 1735, and was buried at Zhalan, where his memorial stele may still be seen. Another lull in organ building descends on Beijing for the next half-century.

The next organ builder in Beijing was not a Jesuit. The Order, as mentioned earlier, was suppressed in 1773, and their places were initially taken over by four Vicentians. Charles Paris was a Vicentian who was born in France in 1738. In literature relating to China, he is something referred to as Brother Joseph, but his given name seems to have been Charles. He studied mechanical arts,

and arrived in Beijing in 1785. Two years later he was appointed “mechanician” to the Court of the Qianlong emperor. According to an inventory of his accomplishments made after his death in 1804, he made “one large and one small organ” in addition to clocks, two clock-carillons, a clock that could run for three months without winding, and an automaton, five feet high, that could write lines in praise of the emperor in Chinese, Tartar and Mongol. The two organs are, of course, what interests me in his life. Where were these organs located?

Paris’ years in Beijing coincide with the handover to the Vicentians of the church known as the “Old” Bei Tang. There had been a church on the site, within the limits of the Imperial palace, since the Kangxi emperor had given the site to the Jesuits in 1693. The history of the building is stormy. Kangxi’s successor, the Yongzheng emperor, confiscated the church, and turned it into a hospital for plague patients. His successor, the Qianlong emperor, was more tolerant. But in 1775, the Jesuits learned of their suppression, and after they were forced to leave Beijing the church was handed over to their successors, the Vicentians. In 1826, the Daoguang emperor ordered the building sold to a Prince, surnamed Yu, who allowed it to fall into semi-ruin.

In 1860, in the aftermath of the Anglo-Chinese War, the Jesuits were finally able to return and take possession of their old church. They found the iron grille, a present of Louis XV, since hanging on its hinges at the entrance gate. These circumstantial facts all suggest to me that Paris constructed his two organs for the Old Bei Tang in the late 1780s or 90s. A French church would typically have required a *grand orgue* in the gallery, and an *orgue de chœur* in the chancel. This accords with the description of “one large and one small organ”. Paris’ arrival in Beijing also coincides with Vicentian control of the Old Bei Tang property. And the discovery of the semi-ruined, but intact building in 1860 suggests that the instruments may well have been just ignored.

Nevertheless, there is some doubt about whether these organs, which I attribute to Father Paris, survived until 1860. Alphonse Favier, the Bishop of Beijing and one of the great chroniclers of the Catholic presence in the city, maintained that in fact the Old Bei Tang fell into complete ruin between 1827 and 1860. We do know that in 1865-66 an entirely new building, the Second Bei Tang, was constructed. Were Father Paris’ organs, if they survived, removed and put in the new building? I am left with the problem of where the “beautiful, large organ” mentioned in a mid-19th century account of the Second Bei Tang came from. Is it one of the instruments built by Paris, or by someone else? And there is even more to confuse the issue.

In 1885, the Empress Dowager Cixi moved her residence to the present

Zhongnanhai area, to the west of the Imperial Palace. The proximity of the old Bei Tang disturbed her, and was obviously a source of bad *feng shui*. Accordingly, negotiations followed by which the Church was persuaded to accept a new and larger site to the northwest, the site of the present Bei Tang. In exchange for the land, and a large sum of money, and all the building materials, the contract included two unusual features: the Church was to make a gift to the Emperor (Guangxu, but in effect his mother, Cixi), the contents of the natural history museum (really a collection of stuffed animals) which had accumulated over the years, and the pipe organs within the church, or as Article V of the contract states: “Suivait une disposition annexe par laquelle le gouvernement chinois demande pour l’impératrice, *les orgues* et le musée d’histoire naturelle.”

Whether the organs were actually removed from the building in the mid-1880s is still yet another question. In the event, the Second (Old) Bei Tang was not pulled down until 1909, and therefore survived (among other things) the Boxer Rebellion in the summer of 1900. As Juliet Bredon put it in her famous book on Beijing, published in the 1930s, “foreigners often remarked on the strange anomaly of a Christian church in the precincts of an Oriental potentate.” But, despite the confusion, everything suggests to me that these two organs were the work of Charles Paris in the last decade of the 18th century. But I would be happy to be proven wrong, and to discover that the “beautiful, large organ” of the Second Bei Tang was in fact an instrument not yet noted in my census of China’s pipe organs.

Up to this point, I have focused on Beijing, but there is one installation I have skipped, and that is the organ which started me on this project 16 years ago: the bamboo organ of Shanghai.

Again, it is the Jesuits who come into the picture, and in this case we have the advantage of a considerable amount of literature about the instrument. In 1847, a Jesuit community was established in Shanghai at Xujiahui, pronounced Zikawei in the Shanghai dialect. This included the usual nexus of schools, workshops, an observatory, and church buildings. In 1849 the cornerstone of a Jesuit church was laid at Dongjiadu, on the Western side of the French Concession in Shanghai. Between 1856 and 57, the workshops at Zikawei were used to design and build an organ with bamboo pipes for this church, which in older literature is called the Cathedral of Tungkadoo.

A major question is: to what extent, if any, were the Jesuits at Zikawei aware of the bamboo organ built by Father Cera in the Phillipines 30 years earlier? Certainly the press in Shanghai was not aware of it, and when the organ was finished and consecrated on the Fête de Napoleon, 15 August 1857, a lengthy account of the event was published in the *North-China Herald*:

“It was wholly uncertain,” wrote their reporter, “whether the bamboo would produce a tone suitable for the organ...an experiment was tried with a set of four-feet [that is a four-foot rank] of pipes...When four sets of stops had been completed, they were mounted on a small sounding board and produced so good an effect that the result of the experiment was beyond a doubt. Work proceeded slowly but satisfactorily during [the next] twelve months. [the organ] was removed to the Cathedral and placed at the end of the nave, where an organ loft had been built for its reception.

“The organ contains nine complete stops, a trumpet stop of two octaves and half, and a 16 foot Bourdon of rather more than two octaves. The sounding board is arranged as to permit the use of either the upper or the lower half of most of the stops, so that each may be played as a solo. The Bourdon can be played on the keyboard or with the feet. The keyboard is coupled to the pedals. There is no swell action, but it is intended hereafter to add a small swell organ, the bellows being amply powerful for the addition of either this or a choir organ.

“The full power of the instrument is very great, while the softer stops which answer to out clarinet, flute and *wald-flöte* are exceedingly mellow and delicate. From the preponderance of eight-foot stops, the bass possesses great depth and richness. The 16-foot Bourdon is a fine stop, but wants a little more power; the difficulty of getting bamboos of large diameter is the cause of this. The tone of the trumpet is between that of a Cremona and a Hautboy, resembling most the Cor Anglais of French organs.”

I suggest the following as a tentative stop list for this instrument:

In the light of this detailed report, whether the Jesuits at Zikawei were aware at the time of Father Diego Cera’s bamboo organ at Las Pinas, built between 1817 and 1824, is uncertain but I think unlikely. Even in 1928, guidebooks to Shanghai still mentioned the organ as a *unica*:

“An organ, constructed by the French Fathers, which is unique, as the pipes are made of bamboo, and, as far as we know, is the only one of its kind in the world.”

In 1990, I was told by the sexton of Dongjiadu Cathedral that the organ had been used for his wedding in 1940. He then began to sing the Bridal Procession from “Lohengrin” for me on solfège syllables. When I asked him

what had become of it, he would not say anything. Obviously, it did not survive the year 1966.

It is of course, tragic, that none of these instruments seem to have survived. How interesting it would be to hear one! The closest I can come is to make some comparisons between my putative stop list for the Dongjiadu instrument and the still-intact and restored Cera instrument in the Philippines.

Cera, of course, was Spanish, and designed a retro-18th-century Iberian-style instrument for the church at Las Pinas. The Jesuits at Zikawei were more up-to-date, and French. What little we know of the stop-list reflects their taste and background, their education and technological know-how, and the aesthetic changes of almost a century. But perhaps Father Serra's bamboo organ is the closest we can get to the Dongjiadu organ today, so I would like to conclude by listening to it for a minute. It speaks for all organ builders who struggled with the almost impossible, which was to build a pipe organ and sing their songs in a strange land.

