Conversion by Proof
Matteo Ricci’s Scientific Approach to Evangelization

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Abstract
The Jesuit missions in China, Korea and Japan developed subtle and sophisticated strategies in order to realize their goal of bringing souls to Christ. In China, where the Jesuit mission was most successful, the strategy of accommodation employed by Father Matteo Ricci secured the foundations of the Catholic enterprise. As a strategy, accommodation included the adoption of Chinese culture and dress, adherence to Chinese political customs, the use and mastery of the Chinese language, and the advantageous use of European novelties. This paper focuses on one aspect of accommodation: the use of European mathematics for the benefit of the Catholic mission. Through teaching mathematics, Father Ricci and the Jesuit mission attempted to change the way Chinese people thought in order to prepare their minds for the acceptance of Christian doctrine. The historian Jacques Gernet, in his study of the Jesuit mission in China, called the sciences a “lure.” However, his analysis was too superficial. Much more than a lure, the sciences were a tool used to inculcate in the minds of the Chinese a scientific thought process—the same thought process that was used to show the rational supremacy of Catholic doctrines and the logical necessity of conversion.

Historia: the Alpha Rho Papers
When European missionaries began to arrive in East Asia during the sixteenth-century, they encountered a situation much different than they had in the Americas. Unlike in the Americas, the vast civilizations of the Chinese, the Japanese and the Koreans were immune to the pathological passengers aboard European ships. Their societies were not therefore decimated by epidemics of fatal disease. Additionally (and perhaps consequently), the political structures that organized East Asian societies were well entrenched both militarily and with centuries of legitimacy. In the Americas, the quick military conquest of Amerindian polities paved the way for Catholic missionaries to convert the disoriented and disarmed population. In East Asia, where the sword could not so easily prevail, the cross could not proceed as confidently. Indeed, the Christian missions in China, Korea and Japan were forced to develop strategies vastly more subtle and sophisticated in order to realize their goal of bringing souls to Christ. In China, where the Christian mission was most successful, albeit for only a time, the strategy of accommodation employed by the Jesuit Father Matteo Ricci secured the foundations of the Catholic enterprise for what would subsequently be called “China’s Jesuit Century.”

Accommodation was a strategy that governed the interactions between the Jesuit missionaries and the Chinese people. These included the adoption of Chinese culture and dress, the adherence to Chinese political customs, the use and mastery of the Chinese language and writing, the creative linguistic manipulation of Chinese philosophic and religious terminology, and the advantageous use of European novelties to both intrigue and inspire respect for things European. This paper focuses on one aspect of accommodation: the use of European mathematics for the benefit of the Catholic mission. European science in general was perhaps the most important Western novelty employed to attract the attention and gain the respect of the Chinese literati. It was not, however, the attractive quality of European scientific knowledge that the Jesuits used to facilitate conversion, but the European method of scientific learning. Through teaching mathematical and logical methods, Father Ricci and the Jesuit mission attempted to change the way Chinese people thought in order to prepare their minds for the acceptance of Christian doctrine. The historian Jacques Gernet, in his study of the Jesuit mission in China, called the sciences a “lure.” However, his analysis of sciences’ role in the Jesuit

strategy of accommodation was too superficial. Much more than a lure, the sciences, especially mathematics, were a tool used to inculcate in the minds of the Chinese a scientific thought process—the same thought process that would be used to show the rational supremacy of Christian doctrines and the logical necessity of conversion.

The Jesuit strategy of accommodation was based on assumptions of a Chinese hierarchical society. The Chinese empire, much like European kingdoms, was ruled over by a sovereign with the aid of various ministers and bureaucrats. The Ming dynasty, which ruled China during the life of Matteo Ricci, was characterized by extreme isolationism. Though the late Ming saw an increase in commerce with Japan and the development of a vibrant domestic economy, its policies often restricted the movement of its own people. These policies severely inhibited the progress of the Jesuit mission. For this reason it was decided that Jesuit missionaries would first attempt to gain prestige in the sight of China’s ruling elite—this with the aim of securing the freedom to move about the country. Additionally, the Jesuits hoped that if the Emperor himself were to convert the empire would follow suit. This strategy was reinforced by a long history of confessionalization in Europe and by events in Japan, where the conversion of a provincial daimyo resulted in the conversion of his entire clan. In Europe, the reformation and counterreformation resulted in particular churches, or confessions of faith, consolidating themselves under the influence of particular states. The Peace of Augsburg of 1555 established the principle which formed the underlying assumption of the Jesuit strategy of accommodation: *cuius regio, eius religio*, “whose territory, his religion.” The hierarchical society of China, then, presented the Jesuits with an opportunity to implement a strategy already tested in the religious inferno of Europe and tried in the land of the rising sun.

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3 Charles Holcombe, *A History of East Asia: From the Origins of Civilization to the Twenty-First Century* (Cambridge, UK: Cambridge University Press, 2011), 161. “Under the first Ming emperor, a special document was required to travel more than thirty miles from home.”


In May 1595, Matteo Ricci first appeared in the costume of a Chinese Mandarin, the literary elite of the empire. He immediately began to fashion himself a philosopher, learning Chinese and writing commentaries about the Chinese classics. In addition to this, Ricci engaged himself in understanding Chinese sciences. It quickly became evident that astronomy occupied an important place in Chinese society. The Chinese Emperor was known as the Vicar of Heaven on earth. As such, he was responsible for regulating the order of celestial events; most importantly drawing up the calendar to accurately predict astronomical phenomenon. This duty was by no means a trivial one. If the emperor was unsuccessful, he would simultaneously fail in his obligations toward the people and sin in the sight of heaven. This would endanger his divine authority—his Mandate from heaven—and cast doubt on the legitimacy of his dynasty.

The scientific matter of determining the calendar and predicting astronomical phenomenon was much more political than scientific. The Emperor, though, was not expected to perform the astronomical calculations himself. Instead, a host of ministers and court mathematicians were responsible for this duty. If the Emperor’s ministers incorrectly predicted an astronomical event or otherwise failed to draw up the calendar correctly, both the Emperor and his ministers would be held responsible for any consequences to the dynasty. According to Father Nicola Trigault, the translator and abridger of Ricci’s journals, “At all times, we see that the most effective political pretext which an emperor could use to crush a too-powerful minister is to accuse him of having neglected the calendar.” The reverse, though, was also true. If a minister was successful in accurately predicting a celestial phenomenon, honor was his reward. Consequently, one of the short-term goals of accommodation became the modification of the calendar. As Ricci investigated the quality of Chinese astronomy he found that his contributions would greatly improve the accuracy with which the Chinese calendar was made and would, therefore, greatly improve the reputation of the Jesuit mission in China.

In the sixteenth and seventeenth centuries, the Chinese were very interested in mathematics. This was evident to the first Jesuits that began the mission at Macao. Ricci’s training in mathematics and his reputation

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7 Gernet, *China and the Christian Impact*, 16.
as a mathematician preceded him to China. Upon his arrival in August 1582, Father Michele Ruggieri put him to work because there was a need for men who were “capable of writing in Chinese…on certain mathematical questions of which that nation was very fond.”

Many times the Jesuits would engage the literati of the Chinese court in theological questions. These, though, were rarely effective in capturing their interest. In one instance, the High Chancellor of the royal court was presented with a catechism written in Chinese by Ricci. Ricci recorded in his journal that “Father Alfonso thought he had noticed in him [the Chancellor] a certain disdain for religion, and a dislike to talk about eternal salvation, and so, he interested him in something much more to his liking, namely, mathematics.”

The Jesuit missionaries thus understood that the goal of their accommodation strategy could be realized through the teaching of mathematics. However, the teaching of mathematics would become more than a means to increase the prestige of the Jesuit mission. The teaching of mathematics would become the tool with which the Jesuits facilitated the Chinese’s acceptance of Catholic doctrine.

Despite their interest in mathematics, the Chinese did not attribute to it enough prestige for it to be an attractive discipline for future scholars. In China, moral philosophy, or in other words ethics, was the envied scholarly discipline. Ricci wrote, “It is evident to everyone here that no one will labor to attain proficiency in mathematics…who has any hope of becoming prominent in the field of philosophy. The result is that scarcely anyone devotes himself to these studies.” As a result of this neglect, the state of mathematics in China was very poor. The Chinese emperor kept two separate schools of mathematics during the late sixteenth-century. Ricci was able to learn that the schools were bound by antiquated methods. “One of these schools follows the method of the Chinese who claim to possess the knowledge of determining the calendars and the eclipses. The other follows the system of the Saracens, reducing the same facts to the tables which have been introduced from abroad.”

Without innovation, there was no progress in the mathematical sciences. Ricci commented that the college of mathematicians in Peking was “more distinguished for the proportions of its buildings than for the learning of its astronomers, for they have little knowledge and less science. They do

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scarcely anything more than revise their calendars for feast days, and make a daily reckoning according to their ancient method of calculating.”

From what Ricci was able to observe, he concluded that “some knowledge of the science of mathematics was given to the Chinese by the Saracens who penetrated into their country from the West, but very little of this knowledge was based upon definite mathematical proofs.” It was not the lack of knowledge that distressed him, but the lack of method. Without a system of thought by which to organize the pursuit of mathematics, progress was nearly impossible. Method was not only lacking in the mathematical sciences, the deficiency Ricci identified also extended to the crown jewel of Chinese scholarship. Ricci wrote,

The only one of the higher philosophical sciences with which the Chinese have become acquainted is that of moral philosophy, and in this they seem to have obscured matters…rather than enlightened them. They have no conception of the rules of logic, and consequently treat the precepts of the science of ethics without any regard to the intrinsic co-ordination of the various divisions of this subject.

Father Ricci succinctly concluded, “The Chinese do not possess any sciences.” All their knowledge was hopelessly rooted in tradition. For science as well as ethics, the Chinese had “no other foundation for their belief than antiquity.”

One example of the Chinese’s lack of method and preference for tradition is shown in Ricci’s attempt to teach the Chinese world geography. He recorded in his journal that the Chinese “have had practically no contact whatever, with outside nations, and consequently they are grossly ignorant of what the world in general is like.” Ricci’s inquiries elucidated that the Chinese believed that the heavens were round and the earth a flat square. Furthermore, other nations that they had heard of were miniscule in comparison to China, which the Chinese called Thienhia, “everything under the heavens.” Accordingly, China was located in the center of the earth. Ricci recorded appropriately, “Their entire universe was limited to

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16 Gallagher, *Journals of Matthew Ricci*, 30 my emphasis.
their own fifteen provinces.”

When the Governor of Sciauquin petitioned Ricci for a map of the world, the Jesuit Father ran up against the problem of convincing the Chinese that what he represented on the chart corresponded to reality. Because the Chinese did not understand the logic of proofs, “they could not comprehend the demonstrations proving that the earth is a globe.” Ricci was therefore “obliged to change his design,” putting China in the center of the world map and leaving room to label, in Chinese characters, the nations that they were familiar with. Ricci recorded that the Chinese, “after reading of the customs of so many different people, and seeing the names of many places in perfect accord with those given by their own ancient writers, they admitted that the chart really did represent the size and figure of the world.” Thus it was by an appeal to authority—the authority of ancient Chinese scholars—that Father Ricci was able to convince the Chinese that the world was round, not by demonstration or logical proof.

The Chinese too were able to recognize the deficiencies of their sciences. As Ricci’s mathematical fame spread across China, he began to attract many pupils. Some of these were the sons of influential court officials. In his journals, Ricci records the arrival of a student of “a distinguished philosopher of the faculty of the Royal College of Pekin.” This philosopher, called Hanlin, had spent a considerable amount of time studying Chinese mathematics. However, “he failed to find anything like a definite system of Chinese mathematics, and having tried in vain to establish one as a methodical science, he finally gave up the effort.” Despairing, “he sent on his pupil, with a letter of recommendation to Father Ricci, requesting him to accept the boy, instead of himself, for instruction.” In this way the sciences, at least initially, were used just as Gernet thought—as a lure for potential converts. Father Ricci and the Jesuits, though, were not teaching mathematical method simply for the sake of attracting potential converts or even for the sake of systematizing Chinese mathematics. Rather, Ricci and the Jesuits were preparing a mental avenue for the victory of Christianity’s rational justification.

Ricci and the other Jesuits were surprised at the moral sensibilities of the Chinese people. They believed that the Chinese had learned the moral

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truths so precious to Christianity through what Ricci called “the light of reason.” In a letter written in 1609, Ricci expressed his admiration for the Chinese moral tradition. An important assumption, though, is manifested in his words:

In ancient times, they followed a natural law as faithfully as in our own countries. For 1,500 years, this people practiced the cult of idols hardly at all, and those that they did worship were not so despicable as those of our Egyptians, Greeks and Romans. In fact, in the most ancient books of the men of letters...they worship only heaven and earth and the master of both. When we examine these books closely, we discover in them very few things which are contrary to the light of reason and many which are in conformity with it.  

Ricci believed that the moral norms of Christianity were deducible from the first principles of logic. Thus, despite the Chinese being devoid of Christianity, they were able to articulate Christian truths based on the universal natural law or “light of reason” available to all rational beings. If the Chinese had fallen into idol worship, it was only because their reasoning had become clouded and confused. When doctrinal controversies flared about the creation of the world, the missionaries attempted to win over the Chinese with the strength of their logical demonstrations. In a doctrinal publication entitled The True Meaning of the Master of Heaven, Ricci attempted to prove the existence of a creator god by using the Aristotelian arguments of efficient and final causes. Ricci wrote, “Houses do not build themselves, they are constructed by builders. So Heaven and Earth cannot have made themselves spontaneously.” In this way, the missionaries trusted in the universality of Western reasoning, which would have anchored the existence of a creator god on an irrefutable argument. The task became, then, to help the Chinese argue correctly. It was this necessity that made the teaching of mathematics so crucial for the Jesuit mission.

Euclid was the key to the Jesuits’ strategy of reforming the mental processes of the Chinese. The methodical approach of Euclidian geometry was seen as a way that the strangeness of European religion could be supported with demonstrable proofs. Doctor Ciu Paul (Hsü Kuang-ch’i), a convert of Ricci who was initially attracted by mathematics, recommended that in addition to publishing volumes on faith, the Jesuit

26 Gernet, China and the Christian Impact, 25 my emphasis.
27 Ricci in Gernet, China and the Christian Impact, 209.
Fathers “should now print something on European sciences, as an introduction to further study, in which novelty should vie with proof.”

The Jesuits followed Ciu Paul’s advice. Of the scientific volumes that were published, though, the Elements of Euclid were given priority. The first book of the Elements of Euclid, which was the first volume translated and published in Chinese, presents a series of 36 definitions, four postulates and 20 axioms. On top of these it develops 48 propositions composed of 34 theorems and 14 problems. All these are “rigorously linked the one to the other, without any intermediary being neglected.”

Ricci explained the importance of translating and printing the Elements of Euclid as follows:

>This perhaps was due to the fact that no people esteem mathematics as highly as the Chinese, despite their method of teaching, in which they propose all kinds of propositions but without demonstrations. The result of such a system is that anyone is free to exercise his wildest imagination relative to mathematics, without offering a definite proof of anything. In Euclid, on the contrary, they recognized something different, namely, propositions presented in order and so definitely proven that even the most obstinate could not deny them.

Having recognized the importance and value of proofs in mathematics, the Chinese would be primed to accept the proofs of Christian doctrine. For no one was this more evident than for Chiutaiso.

Chiutaiso was the son of a Chinese magistrate who had “acquired a great reputation for his intellectual attainments.” Of the family, Chiutaiso was considered the genius. Ricci noted that he would have likely attained the highest honors on the Chinese civil service examination, but “instead, he turned out to be an ingenuous black sheep. He shook off the yoke of parental obedience in his youth and…keeping evil company [ran] headlong into all kinds of vice.” After his father died, Chiutaiso travelled to Xaucea to visit his father’s relatives and acquaintances. It was there that he first heard of the Jesuit missionaries and their scientific fame. He immediately requested that Ricci take him as a pupil, hoping to learn the secrets of alchemy that the Jesuits were rumored to know. However, after a short time studying with Ricci, “he gave up the evil practice [of alchemy]
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and applied his genius to more serious and more elevated science.” Ricci quickly divested him of his abacus and taught him the European approach to arithmetic, which “is simpler and more methodical than with the Chinese.” Chiutaiso proved himself by rapidly mastering the European method. Seeing this, Ricci advanced his studies further. “He [Chiutaiso] next took up the study of the globe of Christopher Clavius and the elements, or the first book, of Euclid.” Its highly systematic approach changed the way Chiutaiso thought, not only about mathematics, but also about the theological arguments he was presented with. After studying mathematics with the Jesuits, Chiutaiso was:

…surprisingly exact and methodical in the manner in which he noted down objections to Christian teaching that occurred to him during discussions. He would leave vacant spaces in his notes to fill in the answers and explanations, and he was so exact about all this that Father Matthew [Matteo Ricci] was very rightly astonished, especially during religious discussions which touched upon difficult theological questions.

At his baptism, Chiutaiso indicates how influential the European method of thinking was to his conversion. He wrote,

I did not see God’s holy law and having ears I would not listen to His holy name. On the contrary, I preferred to follow the sect of Scchia [the chief idol of China], though I was fully aware of the fact that it was repugnant to reason and truth...I shall wholly eradicate from my mind every vestige of belief in false gods, and in the unreasonable doctrine that centers about them....I shall endeavor manfully to rekindle the light of reason which God has given me.

For Chiutaiso, the strategy of Matteo Ricci worked: he first learned the method of logical proofs through the study of mathematics (particularly Euclidian geometry). This then allowed him to accept a justification of Christianity’s claims that were based on the same logical method he learned while studying Euclid.

Father Trigault, in his translation and abridgement of Ricci’s journals, mentioned that the convert Ciu Paul (mentioned above) specifically

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33 Gallagher, Journals of Matthew Ricci, 231.
34 Gallagher, Journals of Matthew Ricci, 231.
35 Gallagher, Journals of Matthew Ricci, 232.
36 Gallagher, Journals of Matthew Ricci, 470 my emphasis.
commented on the important religious advantage the proofs of Euclid would have.

He [Ciu Paul] decided with Father Ricci to translate one of our scientific books to show the scholars of this kingdom with what diligence ours carry on their researches and on what solid foundations they establish their proofs; through that, they come to understand that in matters of sacred religion, it was not lightly that we had decided to take the side we did. After having spoken of several books, Paul Hsü and the Father concluded that, for the time being, it would be best to translate the books of the elements of Euclid: in fact, however much mathematics were esteemed in China, everything in them was stated without proof and, on the other hand, just when we wish to teach some thing or part in a scientific manner [including ‘matters of sacred religion’], we can do nothing without this book, especially in view of the great clarity of its demonstrations. \(3^7\)

Thus the Jesuits not only used mathematics to interest the literati of Chinese society in western learning, but consciously sought to change the way they thought in order to facilitate their acceptance of Christian dogma.

The Jesuit missionaries under the leadership of Matteo Ricci attempted to teach the Chinese people a religious philosophy entirely foreign to their way of thought. Furthermore, the justification that the European missionaries gave for the superiority of their religion was based on the authority of a method of reasoning that the Chinese did not initially understand. At the outset, the Chinese were uninterested in the religious justifications that the Jesuits offered. However, because of the esteem with which the Chinese held mathematics, the Jesuits were able to introduce to them a system of thought in which logical proofs were valued over traditional appeals. Once accepted as authoritative through its application to mathematics, the European logical method was used to legitimate the doctrines of the Catholic Church. Thus, through teaching mathematics—especially the Elements of Euclid—the Jesuit missionaries subtly taught the Chinese how to accept Christianity.

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Bibliography


