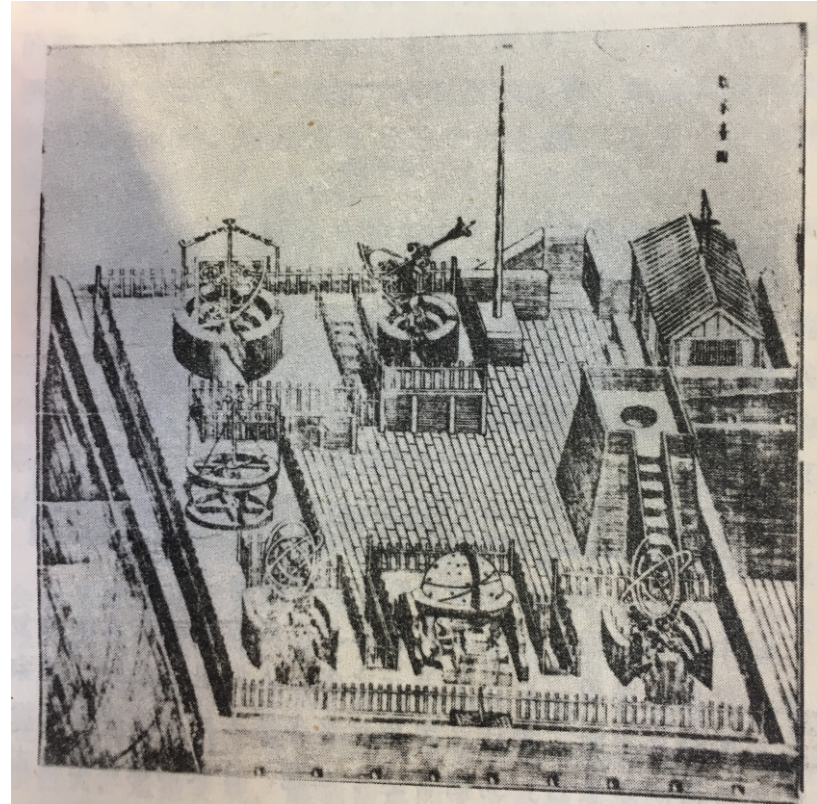


## 四十六

We ate food from McDonalds  
near Tian An Men Square  
bicycled through hutongs  
climbed Drum Tower stairs  
saw celestial globes  
found by Jesuit priests  
for the Emperor Kangxi's  
astronomical feasts



## Chapter 46 – Cutting Edge Astrophysics circa 1600

In today's world, it's difficult to imagine Catholic Jesuit priests introducing scientific principles and laws that would merge with China's mathematics and engineering to transform Chinese understanding of astronomy. But Jesuits in China did just that! At the beginning of the 17<sup>th</sup> century, Matteo Ricci and other priests who followed in his footsteps were convinced that science would open wide the doors to Christianity in China.

The Board of Astronomy became an official part of the Chinese government during the Han Dynasty (right around the time of Christ.) Even before that, there are records of Chinese noting celestial phenomena like solar and lunar eclipses and comets. But 1400 years later at the end of the Ming Dynasty, the study of astronomy was definitely on the decline in China. Enter the Jesuits.

Matteo Ricci was not only a priest, he was also a professor of mathematics whose own professor had been held in high esteem by Galileo. In 1601, upon arriving in Beijing, Ricci was granted an audience with the Emperor Wan Li and he offered his services to the Emperor. During a trip to Nanjing, he had discovered several large antique bronze astronomical instruments which nobody really understood, that had been created by the Chinese astronomer, mathematician, inventor, and engineer, 郭守敬 Guō Shǒu Jìng, during the reign of Kublai Kahn in the Yuan Dynasty (13<sup>th</sup> century.) The cool thing is that these instruments can still be found on the top of a small square building in 东城区 Dōngchéng qū on 建外大街 Jiànwài Dàjiē in Beijing. It's called the Beijing Ancient Observatory (北京古观象台 Běijīng Gǔ Guānxiàngtái.) Among them, armillary spheres which represent the heavens, a stardial, a moondial, instruments which can be used for solar eclipses, a huge sextant, a celestial globe, and a theodolite. Although I've been there a number of times, I still don't understand how any of those instruments work. The good news is that Maggie Masetti from NASA does. If you want to know more check out her article called "Beijing's Ancient Observatory" from NASA Blueshift – Astrophysics Science Division.

Not far from the observatory, there used to be hundreds of hutongs (胡同 hùtòng). It's said that the term, "hutong," actually comes from a Mongolian word meaning "water well." The hutongs in Beijing are narrow alleys that have flowed through neighborhoods in Beijing since the Yuan Dynasty (13<sup>th</sup> century.) Most people who live in hutong's live where their parents lived and their parents before them. They had their own kitchens and gardens but hutong residents had to rely on public toilets and baths. Like so much of China, what was once a normal way of life has turned quaint neighborhoods into areas where tourists can rent hutong Airbnb's. All the homes and shops are low-rise in the hutong neighborhoods. The houses have courtyards where families sit on stools and lounge

on chairs made out of bamboo slats. Birds sleep in wooden cages covered to keep them dark and crickets chirp in tiny bamboo cages being fed and trained for cricket fighting. From around 3000 hutongs in 1949, there were fewer than 1000 in 2016 when China put a halt on their destruction.

Not far from the hutongs is the Forbidden City, across the street from Tiananmen Square, and only a few blocks from Beijing's first ever McDonalds. It was not the first McDonalds in China. That was in Shenzhen. Through a contact in Hong Kong, a former student of mine from Australia managed to get an "internship" slinging burgers and running a cash register at what was once touted as the "biggest McDonalds in the world." It could seat over 700 people. I wish I could have witnessed this tall white kid joking with his customers there in Mandarin. By the end of the summer, the Putonghua he needed to use to communicate with his customers and his co-workers was better than mine. In 1996, this piece of Wangfujing real estate was determined to be too valuable for McDonalds and was torn down and replaced by the 5-star Oriental Plaza Beijing Hotel.

[Beijing's Ancient Observatory](https://asd.gsfc.nasa.gov/blueshift/index.php/2010/08/20/maggies-blog-beijings-ancient-observatory/)

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