Macao and East Asia Military Architecture: Context, Networks and Influences

Francisco Vizeu Pinheiro*

ABSTRACT: For several centuries, Chinese fortifications influenced military constructions in Asia. During the sixteenth century, the Portuguese and Spaniards arrived in Southeast Asia. Bringing military technology, like cannons and firearms, they influenced the warfare and historical-political outcomes in China, Japan and Korea. Macao served as a Portuguese base, and a platform for educated Jesuits such as Luís Fróis, who introduced Western technological and scientific concepts to the elites of Japan. The warlord Oda Nobunaga, a daimyo feudal lord from a small province in central Japan, rapidly achieved military supremacy by successfully using Western technology and tactics in the art of war in his pursuit of the unification of Japan. With the construction of Azuchi castle-palace, he also revolutionised the construction of castles in Japan, adopting many elements from European castles, with innovations that revoked the old Japanese models. There is a strong possibility that these innovations were possible through Portuguese and Jesuit influence. Portuguese forces from Macao also helped the last remains of the Ming dynasty to fight the invading Qing forces. Through several centuries, Macao played an important role in the struggle against pirates in the region. The consolidation of the Tokugawa Shogunate (1615) in Japan and the Qing dynasty (1644) in China initiated a long period of peace. Military architecture evolution practically stagnated during this period. Today, the surviving fortresses have been adapted or restored as important educational assets for cultural tourism, particularly in Japan. Several seventeenth-century Japanese castles were rebuilt in the twentieth century.
The objective of this paper is to analyse the influence of Macao in East Asian military actions and architecture history, as well as to help to understand the historical settings that make possible these influences to occur. The conclusion of this paper shows the important role of Macao in military actions, and the influence from missionaries and traders on the evolution of Japanese military architecture, taking into account the case of Azuchi, the first feudal tower, keep, place of residence, and administration, that served as inspiration for hundreds of new castles and castle towns. Finally in Kaiping, the neighbourhood region to the west of Macao, there is a resurgence of European-style keeps, known as *diaolou*, which are part of the World Heritage.

KEYWORDS: Military architecture interchanges; East Asia fortresses; China; Japan; Macao; Azuchi.

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Fig. 1: Shooting instructions in *Thirty-Two Firing Positions*, a manual from Inatomi Shooting School (1595).

INTRODUCTION

Military constructions are a significant part of architectural history. Their evolution is the result of many variables. Often, the acquired experiences are crystallised in rules published in manuals in Europe and in fighting techniques in Asia like in Japan from Inatomi school or the Chinese *Wubei Zhi* (《武備志》) (Fig. 1 and 2). In the past, military construction was typically the most expensive infrastructure in a city or region. Walls and defence networks surrounded most cities. Changes in military architecture were rarely undertaken unless they were considered absolutely necessary. The need for political change depends on the social, cultural and technological background of each community, which is reflected in its political and military organisation. During the sixteenth century, we may observe the phenomenon of construction of 'parallel' military architecture apparent in China, India, Japan, the Malay Archipelago, and the Philippines, which influences other kingdoms that shared trade and almost constant contact along different parts of the Silk Road on land and sea. As a consequence of these contacts, mutual influences and interchanges happened at different social and cultural levels. New architectural models were either directly rejected or imposed with restrictions. They were adapted to the local reality through cultural filters often determined by old traditions, skills, and

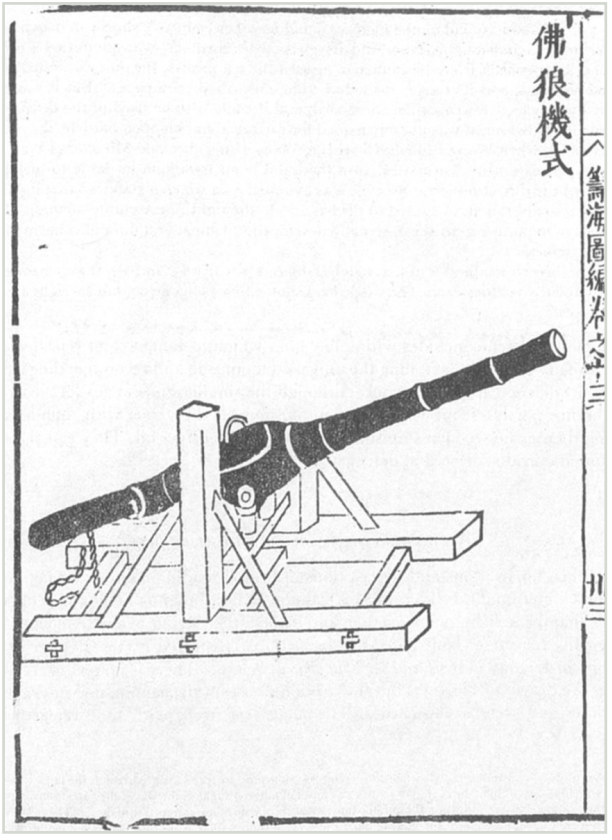

Fig. 2: Portuguese gun (Folangji cannon) in *Wubei Zhi*. Source: https://en.wikipedia.org/wiki/Wubei_Zhi

construction practices. The existing differences in design were also motivated by differences in defence–attack philosophies. Each culture created or followed a model that answered to the command and control of their army or to the survival needs of cities. This paper analyses the actions and trends of military architecture in the Far East in the sixteenth century. Case studies of fortresses and towers shown in images brought by the Jesuits will show the European influence in Japan, like in Azuchi or Osaka. Macao and Canton exemplify different designs in military architecture, the former following the European style while the latter the Chinese tradition. These structures, now useless for defence purposes, are an important part of the cultural legacy of each country, and some of them were classified by UNESCO as part of the World Heritage, such as Himeji Castle in Japan (classified as World Heritage in 1993), Gusuku Castle on Ryukyu Islands (2000), the Agra (1983) and Red Fort (2007) in India, Monte Fortress in Macao (2005), Pingyao (1997) in China, Hwaseong Fortress (1997) in Korea and Malacca (2008) in Malaysia. These structures represent an important part of the formation of each country, as well as its struggles and the definition of its national boundaries. Macao, although a small peninsula in the South China Sea, played an important role in military actions in Asia as well as in the architecture history of Japan.

IBERIAN SETTLEMENTS AND INTERNATIONAL EXCHANGE

In 1415, Portugal started the overseas expansion policy, first to Africa[1], then to India, South America and Southeast Asia. Repercussions of this overseas expansion were on a global scale, starting a discovery race with Spain and other European countries. In 1492, looking for a western route to India, Columbus reached America instead. In 1497, Admiral Vasco da Gama discovered the real sea route to India, and in 1521, Ferdinand Magellan, a Portuguese veteran at the service of the King of Spain, discovered the narrow water gate linking the Atlantic and the Pacific. Magellan opened the way for Spaniards to settle in Manila in 1571. The Chinese junks from Amoy arrived Manila. From Manila the galleons departed to Acapulco, Mexico, crossing the Atlantic to reach Seville. Asia, America and Europe were linked by sea from the Atlantic and the Pacific routes. This represents the first full scale process of globalisation, not only of a few representatives, but of entire communities that settled in Asia as was the case of Malacca, Macao, Goa, Manila, Nagasaki, etc. In 1543, the Portuguese arrived in Tanegashima, Japan, and started the trade between Japan and China mostly through Macao, and exported from

this city to Europe not only commercial products but artist and religious artifacts[2]. Before settling in Macao, the Portuguese had tried different ports such as Ningbo, Amoy, and the island of Lampacau (浪白竄). Around 1557, Portuguese traders settled in Macao, which was at the time mentioned by Portuguese explorer Fernão Mendes Pinto as an empty peninsula[3], where the Portuguese ultimately built the first Western city in East Asia, a key position on the maritime Silk Road. Portuguese soldiers of fortune and traders spread over Asia, with the only safe port in Macao. Leonor Seabra mentions the background of Thai culture and history and how, in 1518, the Portuguese traded mostly via Macao and made a settlement in Siam (Thailand), and the Siamese in Malacca[4]. In 1628, in Ayutthaya (then capital of Thailand) the King's security included 120 Portuguese and also a corps of samurais. The Portuguese in Ayutthaya built an 11-km wall covered by brinks with bastions and gun-towers by order of the Thai King that helped to defend the city against the Burmese attack in 1569[5]. The Burmese King was impressed by the new fortification design and copied them in their capital — Pegu. Puga mentions the Japanese living in Macao, connected by trade or faith, both with some relation with the Jesuits, particularly with St. Paul's College[6]. The presence of Japanese in Macao, for living, working, or studying in St. Paul's College, shows the cultural interchange of ideas between Portuguese and Japanese, which may include military concepts. St. Paul's College was itself attached to the Monte Fortress, which was built by initiative of the Jesuits[7].

Portuguese soldiers of fortune and traders, spread from Ethiopia to Arabia, India, Indochina, Spice Islands, China and Japan, were working in the most unexpected alliance. The Spaniards, after failing to settle in the Spice Islands, in El Piñal (to the north of Macao) and in Taiwan, where they built two forts, consolidated their base in Manila[8]. Detailed survey reveals 208 Spanish and local communities' fortification structures in the Philippines had survived until the late twentieth century. The ability to survive in Asia for centuries is primarily attributed to the construction of fortifications in these settlements that survived or fell prey to rivalry and division of European nations divided between Catholics and Protestants. The abundance of Western-style fortifications in Asia would not pass unnoticed by the attentive Chinese and Japanese traders. The Portuguese built several fortifications in Asia, like Calicut, Melaka, Goa, and Ormuz. In Macao, the first fortifications were built for defending against the attacks of pirates[9] as well as European enemies, like the Dutch or British, who intended to occupy Macao and take its position as a privileged trading port with China. In Macao, we may observe the entire social structure of a foreign community. In the Portuguese community coming to Asia, we can identify the nobility-ruling elite, the traders, the soldiers, the religious and the commoners. These foreign overseas communities contributed their own cultural background in the East–West interchange.

COMPATIBILITY OF PRINCIPLES

Macao as a Portuguese settlement was not conquered by military force inspired in a crusade spirit and search for profit like most of them in the overseas empire, but was a consequence of the authorisation of the Chinese government in Beijing, which sought benefits from a partnership with the Portuguese[10]. Macao's initial development happened primarily under the Spanish King's domination (1580–1640). The Spaniards founded new cities like Manila and Vigan by following the Renaissance theories by the book. These theories favoured the square grid, an influence of the ancient rules that laid down in Hippodamus from Mileto in the fifth century B.C., and the Roman military colonies, surrounded by defensive walls. The Portuguese, on

the contrary, did not build settlements that followed contemporary theories, like building in a grid format on a flat land, but followed a few principles for the fortified settlements. These principles can be summarised as follows:

1. Strategic geographic position on islands or peninsulas to support the sea trade with the network of other allied cities, stretching from Brazil to places as far as Macao and Nagasaki;
2. Availability of shelter bays with drinkable water and food supplies: these places could accommodate the needs of ship maintenance, repair, refuelling and protection during the winter and monsoon periods;
3. Occupation of places with hills: high ground always proved to be a better position for defence purposes and an inspiring location for religious and military buildings.

Main Portuguese cities like Lisbon, Porto or Coimbra were built on hilltops near rivers and the sea. The Portuguese, during their initial overseas expansion in the sixteenth century, continued with medieval architectural traditions of adapting to the topographic conditions of the land where they settled. The Portuguese traditional preference for high ground was considered bad luck by the Chinese, or inauspicious, because it went against feng shui principles. However, in Macao, the Inner Harbour flat land with a hill behind was an auspicious location that soon became busy with activity, a place where temples and Chinese settlements, or 'Chinatowns', sprawled in the areas neighbouring the western Christian city. The Outer Harbour, which faces south, was even better in terms of feng shui, but was exposed to typhoons and pirate attacks. The Chinese and Portuguese principles complemented each other and contributed to the occupation of the available hill and flat lands. These complementary activities economically favoured both communities. This formula of mutual benefit was a principle for a stable relationship that lasted for centuries. The two harbours of Macao — the Inner Harbour (Chinese Town) and the westernised Outer Harbour — had separate developments and different characteristics, forming the prominent Western and Chinese faces of Macao, much like the god Janus that has only one body but two faces.

CHINA'S FORTS

Chinese strategies and tactics often relied on the well-known book *The Art of War* (《孫子兵法》) by Sun Tzu (estimated to be written in the fifth century B.C.). The Roman Empire relied more on the power of its legions than on the strength of its walls. Romans conquered practically all cities they sieged. Fortresses in China did not have the same strategic value as the European walled cities. In China, the strategic defensive line was the Great Wall. Walled cities were a millenary urban tradition in China. Imperial cities were built mostly in flatlands irrigated by rivers that supplied drinking water and filled up the moat surrounding the city walls. The city was organised in a grid matrix layout, like a chess board, where wards allocated entire compounds, like the palace city, the inner city, residential areas as well as open spaces, markets, and gardens (these patterns are apparent in Beijing, Luoyang, Chang'an — Xi'an, and Suzhou). According to the *Book of Crafts* (《考工記》*Kao Gong Ji*, written in the fifth century B.C.), the imperial palace should be in the middle of a square city with three gates in each wall and three lanes for each gate. However, for feng shui reasons, also for improving privacy, the imperial palace was moved to the north district of the city.

Wide roads were designed for fast movement of cavalry units. The large wards were broken down in residential compounds, networks of streets and

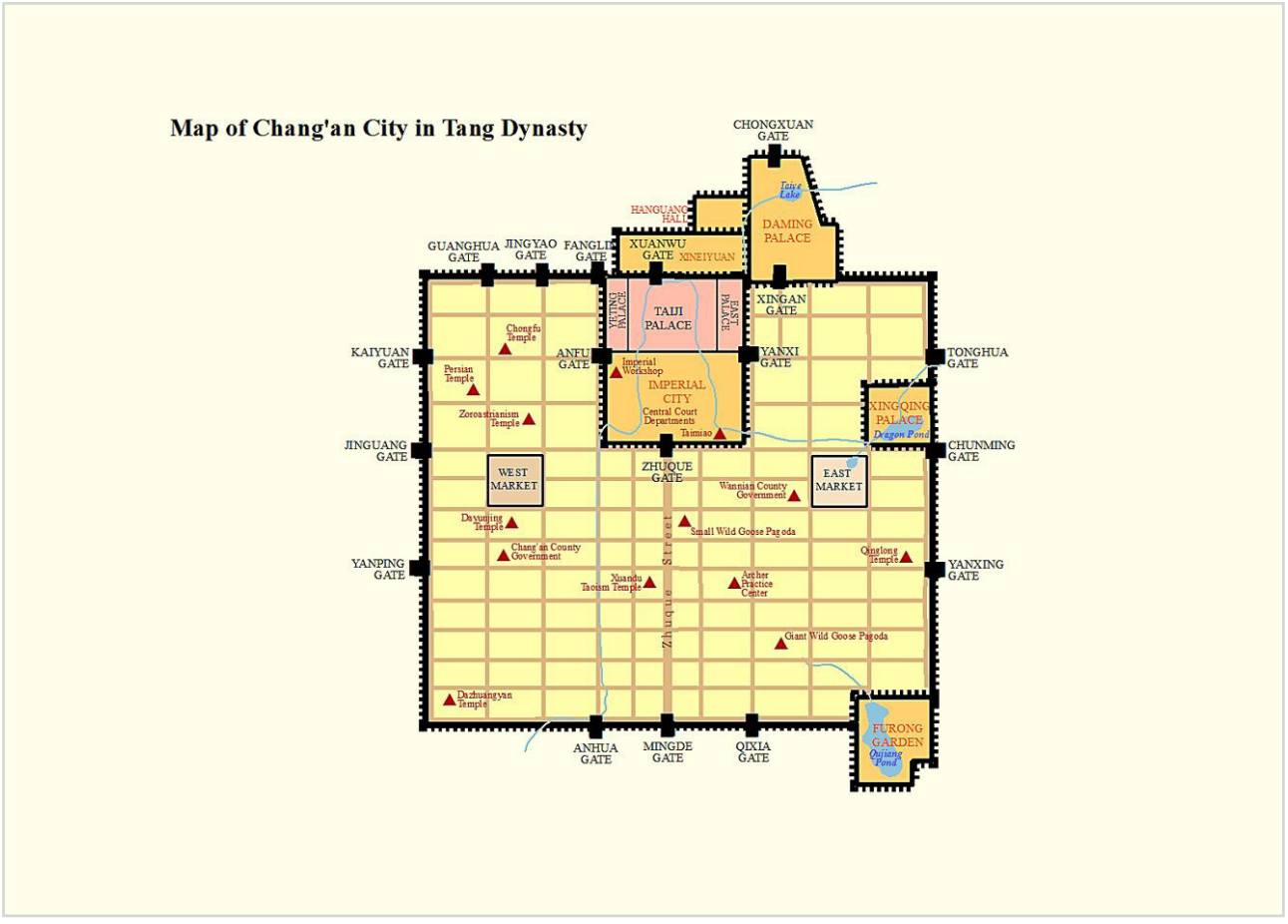

Fig. 3: Map of Chang'an in the Tang dynasty. Source: https://en.wikipedia.org/wiki/File:Chang%27an_of_Tang.jpg

alleys. This grid module, particularly during the Tang dynasty (A.D. 618–907), was adapted for building the imperial capitals in Japan during the Heian and Nara periods.

For administrative and military control, large Chinese cities during the Tang dynasty, like Chang'an and Luoyang, were divided into two or three intramural areas: the Palace, the Imperial (administrative) city and the commoner's city. The walls were made of packed earth and the city was hierarchically divided in administrative, commercial and living quarters[11]. The imperial palace and the city were separated by 10-metre-high walls. At the core was the inner city, with one or two layers that were the Imperial City and the Palace City[12] in the north, with practically no commoner neighbours. During the Tang dynasty, administrative, bureaucratic, commercial and residential areas were clearly separated in walled compounds forming quadrangular enclosed wards (Fig. 3) protected by 3-metre-high walls. These ward walls were not strong or high enough for defensive purposes, but served instead for administrative separation. Each ward had four control gates and a ward manager. Large avenues facilitated fast deployment for chariots and cavalry units leading to fortified gates. During the Ming and Qing dynasties, Chang'an, nowadays Xi'an, lost its importance. The walled city during the Qing period was less than one-third the size of that during the Tang period.

These defensive patterns were also apparent during the Song dynasty (A.D. 960–1279), in cities like Kaifeng, and in the Ming's (A.D. 1368–1644) Imperial City in Beijing. Chinese fortifications were upgraded during the struggle with the Mongols. Using traditional nomadic and cavalry forces, the Mongol armies were unable to conquer some fortified settlements, therefore they enlisted Muslim and Persian mercenaries with knowledge of siege weapons like trebuchets[13] necessary to launching projectiles to break the walled Chinese cities, which collapsed one by one, permitting the establishment of the Yuan dynasty controlled by the Mongols. To face the Mongol invasion, military architecture during the Song dynasty evolved by focusing on the reinforcement of defences of key areas like the gates, with towers and surrounding gate walls forming 'killing' courtyards that were only accessed by double or triple layer offset gates. Primitive cannons and grenades were also used by both sides. The fortification of many southern Chinese cities came in the mid-sixteenth century after suffering devastating attacks by the Wako or Wokou pirates[14] that ransacked the coastlines of China and Korea. The north of China had the Great Wall and many fortified cities, but the south was more exposed to piracy or foreign attacks.

IBERIAN MILITARY INFLUENCE

The change of dynasties from Ming to Qing (1644–1911), and the struggle with the Sun Army, witnessed the intensification of the use of firearms. A graphic example is the battle of Liaoyang in 1621, with the use of guns copied from the Portuguese against the Manchu cavalry (Fig. 4). Some of them were copies of the Portuguese retro-charged (breech-loading) guns known in general as 'Folangji' (Fig. 5), which served for the defence of strategic fortification as well as the use of Western tactics like firing volleys in synchronised sequence.

Around 1550, the Ming government in Beijing changed the policy from confrontation to alliance with the 'Folangji', the Portuguese who were authorised to settle in Macao. In this way the Ming government removed the threat in the south of Portuguese co-operation with Wako and

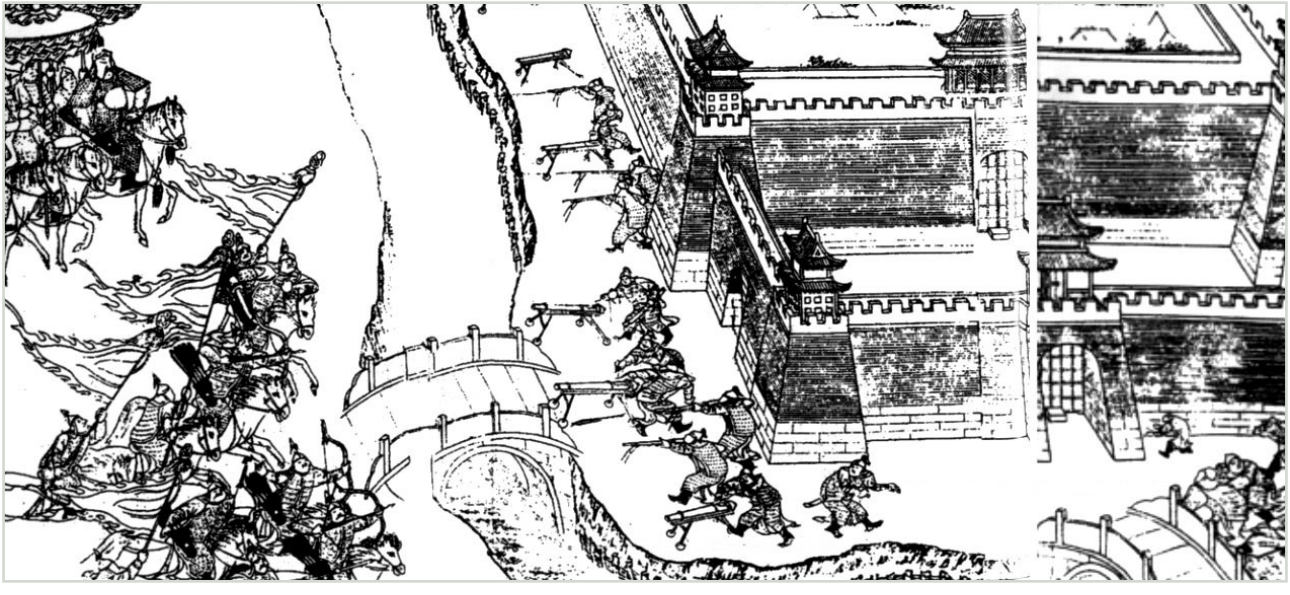

Fig. 4: An illustration of Nurhaci's biography depicting the Battle of Liaoyang (1621). The Ming forces use breech-loading guns against a Manchu cavalry charge. Source: https://en.wikipedia.org/wiki/File:Battle_of_Liaoyang1621.jpg

Fig. 5: The most common Folangji gun was the Portuguese *berço*, a breech-loading swivel gun. Source: https://commons.wikimedia.org/wiki/File:Oda_Nobunaga_swivel_breech_loading_gun.jpg

Chinese pirates, benefitting from the trade and military technology necessary to fight the Mongols and Manchus in the north, thus saving money for reinforcing an army in the north. On 1 October 1550, Altan Khan's armies broke through the Great Wall to pillage the suburbs of Beijing.

Westerners from Macao were invited with their artillery to defend Beijing and the Great Wall[15]. In 1626, the Ming garrison in Ningyuan (Liaoning Province) led by Yuan Chonghuan, and supported by Western guns and artillery crew from Macao, held and defeated the Manchu tide led by the Jurchen Nurhaci (努爾哈赤). This was Nurhaci's first defeat after several victories. He died of cannon shrapnel wounds in 1626. However, like their Mongol predecessors in invading China, Nurhaci's sought to obtain and produce their own guns to upgrade his army from traditional cavalry weaponry (swords, spears and arrows) to the modern use of fire guns.

From Chinese manual *Illustrations of Military Weapons* (《軍器圖說》*Junqi Tushuo*, c. 1639) by Bi Maokang (畢懋康) (Fig. 6), we can observe Chinese soldiers using a European technique of firing sequence.

After the Ningyuan success of a few Ming troops against a large number in Manchu's army (estimated 60,000 to 100,000) there was a shift of Ming strategy, focusing on defending strategic strongholds of Jinzhou and Ningyuan, which were not conquered, but were abandoned by its garrison in order to defend Beijing from the threat posed by the Sun rebel army. Jesuit scholars based in Macao played an important role in the military help to China. Adam Schall von Bell was pressed in 1642 by Chinese authorities[16] to cast several cannons (20-to-40-pound shells, 3-metre-long saker type cannon).

Ming's military intervention also reached Korea, helping the Koreans fight the Japanese in 1592–1598 invasions, planned by Toyotomi Hideyoshi, the Japanese warlord, whose ultimate target was the conquest of Beijing and then China. However, the Koreans had stronger ships and superior navy artillery firepower, both based on Chinese technology, against the Japanese

Fig. 6: Harquebusiers firing sequence (charging, lighting the matchlock and firing), a European tactic also used in Japan by Oda Nobunaga. Source: https://commons.wikimedia.org/wiki/File:1639_Ming_musketry_volley_formation.jpg

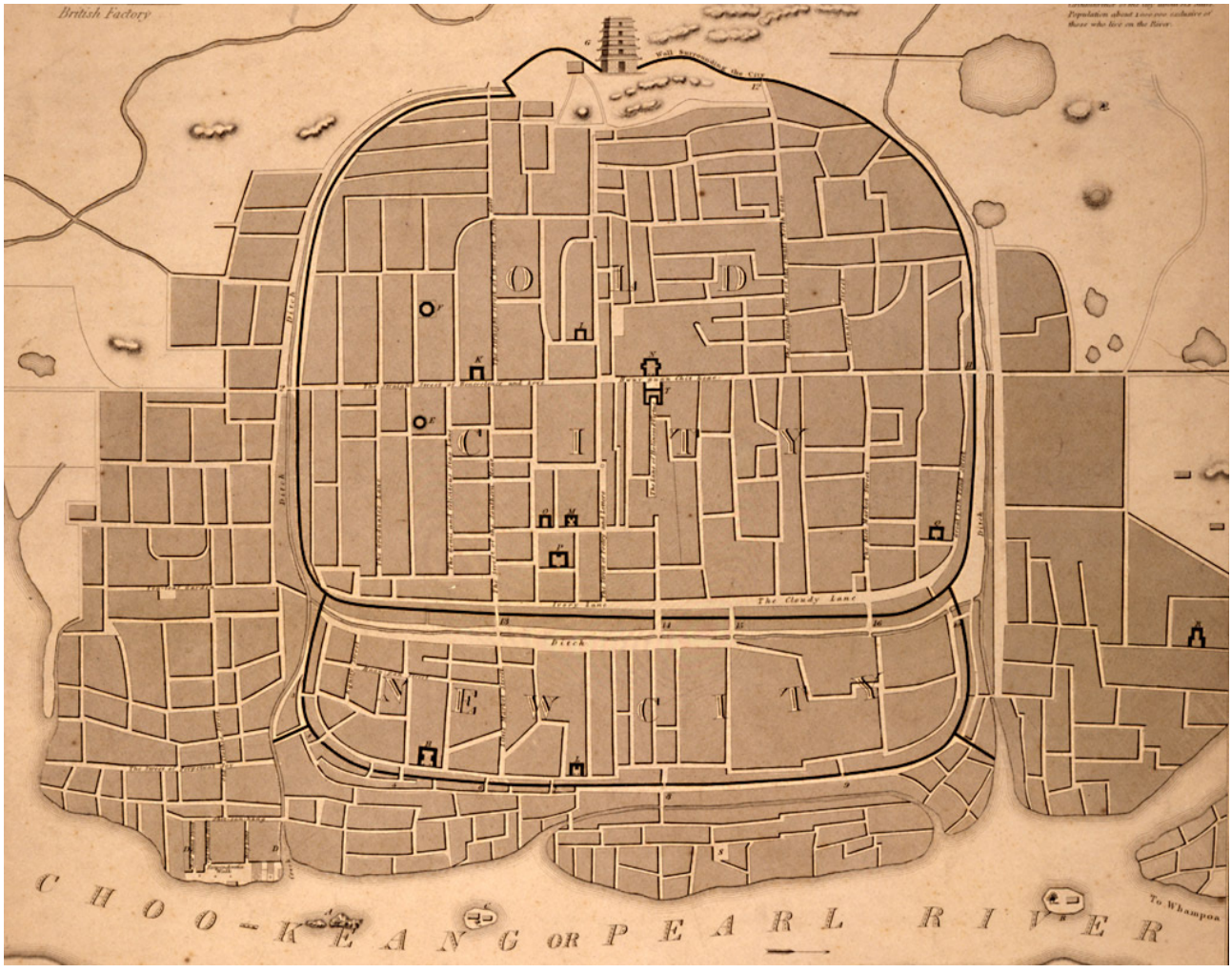

Fig. 7: An English map of Canton in 1840. The old city and the southern new city are walled. Source: https://commons.wikimedia.org/wiki/File:City_of_Canton,_1840.jpg

navy that was defeated. This made it impossible to supply the otherwise invincible Japanese army on the land. Chinese, Japanese and Koreans used weapons copied from the Portuguese, in some cases Japanese weapons surpassed their European model[17], ranging from cannons captured from the Portuguese in the 1520s[18] to firearms copied by the Japanese, making it possible to convert a large number of peasants into soldiers.

There is evidence of Portuguese influence not only in the hardware but also in the software, in the organisation of Asian armies, some of them adopting European methods and tactics. Military manuals with drawings facilitated the learning process of huge numbers of soldiers.

Portuguese influence is seen not only indirectly through technology but also directly through co-operation, for example with the Chinese navy helping to defeat the pirate scourge in the Canton region[19], a fact that helped the approval of the fixation of the Portuguese in Macao[20]. But piracy continued as a way of living for many former fishermen and traders[21] because of the ban on maritime trade as well as the fact that some considered Ming patriots, like Koxinga (國姓爺) — Zheng Chenggong (鄭成功), fought against the Qing dynasty. Piracy

declined after Koxinga surrendered and the Qing court removed the sea bans, making maritime trade prosper. In the Battle of Bocca Tigris (1809–1810), six Macao ships fought several battles against a pirate fleet of Cheung Po Tsai (張保仔), with more than 300 ships[22], and in 1910 on Coloane Island[23]. The Christian Japanese daimyos (feudal lords) also learnt Western siege tactics from the Portuguese or Jesuits. The similarities are too many to be a coincidence.

Macao played an important role in this process. It was not just a sea silk route and chinaware port, but also a place for weapons trade between China and Japan. Ma demonstrated the role of Macao in the trade of arms between China and Japan[24]. Evidence points to the 'Portuguese connection' in Macao as the city was for decades the only official port of trade between China and Japan.

This Macao connection explains the sixteenth-century enigma of separate development of military history of Japan, China and Korea, historic developments that completely changed the history of these countries. The fear of Christian ideology was so different from the violent Bushido (code of the samurai's warriors) as the fear of a European invasion that led to the prohibition of Christianity and the closing of Japan to the outside world.

FENG SHUI INFLUENCE IN THE DESIGN

In China, feng shui, Confucianism and Buddhism influenced the location and layout of cities and forts. In the World Heritage city of Pingyao in the Chinese Shanxi Province, the defensive wall had 3,000 battlements and 72 sheds on the platforms[25]. These numbers symbolised the 3,000 disciples and 72 sages of Confucius. Feng shui (literally means 'wind and water') was the predominant influence in choosing the proper place to build new settlements. High places were avoided due to their negative feng shui because fortune and luck ran from the peak to flat land bottom.

An auspicious feng shui requirement is '*bui san min hoi*' (背山面海) in Cantonese dialect, meaning 'mountain in the back (normally facing north direction) and water in front (normally facing south)'. This is the case of many cities in Guangdong Province, like Canton (Fig. 7).

The city water gates were located in the south. The second layer of the city was located in the north, known as the Tartar or old city. Ditches and walls separated the old city from the new city, also known as Chinese city. This separation reflects military, bureaucratic and social stratification of Qing China, in continuity with the Mongol as well as similarities with Tang urban organisation. Feng shui was so important for an auspicious location of the capital, which had moved for several times, both in China and Japan, as happened with Chang'an (modern Xi'an), in the Qin, Han and Tang periods. In Japan, the Heijo capital during the Nara period moved to Nagaoka and then to Heian.

THE ROLE OF FORTIFICATION IN THE SOCIETY AND ARMY

Studies of civil or military architectural evolution in Japan, like the ones elaborated by Turnbull, Coaldrake, Nishi Kazuo and Hozumi Kazuo[26], focused mainly on internal causes and the influence of the Asian neighbours' references, particularly China. However, these authors neglect the deep Western influences brought as a consequence of direct contact between Asian and Iberian people in Japan or at their fortified colonies in Asia. Architectural evolution is part of the social, cultural and technological interchange and evolution of a community and cannot be studied as an isolated reality. The military issues were not only discussed with foreigners, but were felt in daily life as a consequence of the ongoing power struggles.

There were abundant contemporary reports by Iberians as well by the British, for example in Lord Mackartney embassy visit (1793), about the arms, fortification and military virtues or defects of Asian communities and their settlements. Defence and survival were top priorities in the sixteenth and seventeenth centuries, both in Europe and Asian territories, like Japan, China and Korea. To improve military capability, Chinese and Japanese[27] soon copied Portugal's weapons, starting a mass production of firearms, but why not also the Portuguese military architecture?

Change for modernisation is easy to implement in smaller armies or in navies with greater autonomy in the battlefield. This update and local capacity of decision making was the key to the success of the British sea empire. In China, the very centralised hierarchical chain of decision making was slowed down by the rigid bureaucratic apparatus, and the large extension of the country, making it difficult for modernisation to happen. On the contrary, in sixteenth-century Japan, decentralisation favoured modernisation and innovation for better performance in the field. Technological modernisation in sixteenth-century China was practically limited to firearms weaponry, but not applied to ships and fortifications technology. Few oval batteries and square forts for garrisons were built for strengthening coastal defence during the late Ming and Qing dynasties. Many were built in the mid-nineteenth century[28], but they were too few and small to contain the manoeuvrability and fire power of modern European navies. One important reason for China's failure to change fortress design was a confidence in the future based on a history of successive victories over foreign enemies, like the Wokou pirates, Portuguese adventurers and Dutch VOC (Dutch East India Company) armies. In 1548, a Chinese surprise attack defeated the Portuguese adventurers and traders in Liampó (寧波 Ningbo) in Zhejiang. The attack on the Portuguese was justified as they were seen as pirates, particularly after the conquest of Malacca, a suzerain polity dependent on China. Another case of Chinese military superiority over European fortifications was in 1662 in Taiwan, known also by the Portuguese name of Formosa, which was the Dutch stronghold base for legal and illegal trade (piracy) in the China Sea. Taiwan was chosen by the Dutch as a base of operation in the China Sea after the 1622 failure to conquer Macao and Spanish Manila in 1646, as well a consequence of the failure to resist Qing forces and maintain a base for operations in Makung, Penghu (澎湖群島 Pescadores Islands), that lasted for only two years (1622–1624) in Dutch hands. At Taoyuan Harbour in Taiwan the Dutch built the castle of Zeelandia, which was conquered by Zheng Chenggong, one of the last Ming loyalists known in Western sources as Koxinga. According to H. Weiss and B. J. Weiss, Koxinga used modern techniques against the VOC settlement, proving that a large Chinese force could overtake a well-protected Western-style fortification[29]. Borao Mateo mentions the lack of professional soldiers for garrisoning two Spanish far-away fortified outposts (in Taiwan), and the difficulty of supply, affected deeply the morale of the defenders in these inhospitable places[30]. Based mostly on Dutch and Spanish sources, which describe the fate of two Spanish fortresses (Santísima Trinidad or San Salvador in Keelung, and San Domingo in Tamsui, garrisoned by Spaniards and Filipinos) that were taken by the Dutch[31], Koxinga's conquest of Taiwan from the Dutch brought definitively this island into the Chinese sphere of political and military influence, a positive outcome of the parallel Ming–Qing and Portuguese–Dutch conflicts.

OUTSIDE INFLUENCES AND INSIDE CO-OPERATION

Military architecture advanced more rapidly during war than during peace periods. This happened during the Renascence wars in Italy and in the Portuguese overseas expansion in Africa and India. Portugal had 5,000 years' worth of military

constructions evolution influenced by invasion or colonisation from different cultures like Celts, Greeks, Phoenicians, Romans, Visigoths, Arabs, and French, which left their marks on the Iberian culture, particularly the long feudal period of the Middle Ages, of five centuries of struggles between Christian and Muslim forces that lead to a dominance of castles and castle towns in the Portuguese and Spanish landscape. The Portuguese were open to new technologies and tactics, innovations, and process of modernisation.

The general tendency in Asia was to preserve solid military doctrine crystallised in Sun Tzu's *The Art of War*. Stratagems, tactics, use of terrain and manoeuvring skill of large armies were the core of the art of war practice. Strongholds and cities were not considered the ultimate seat of consolidated military power, but rather powerful armies with great mobility that can defend the country. The capital, when necessary, could be moved in a large country like China, making it difficult to conquer the nation. In the case of Europe, if the capital falls, then the kingdom or empire falls, as was the case of Rome and Byzantium. In China or Japan, the capital could 'easily' be moved to a better or safer location. Architecture was not considered the most important art and science in ancient China. Primacy is taken by cultural knowledge proven in examination, skills shown in calligraphy and in the depiction of nature, the rituals, and the Confucian concepts of the upright man, relationships, and cosmos. This is a reason why for centuries there was little change in Chinese and Japanese vernacular architecture and urbanism.

Chinese military construction, apart from the Great Wall, was mostly walled cities with some fortified gate towers. In Japan, the constructions of walls for houses and fences[32] were made of wood that framed the walls that enclosed a lattice of bamboo and straws mixed with mud. Similar methods were used in defensive walls, some of the walls, particularly from A.D. 250 to 1540. Ditches and massive watchtowers[33] were important structures in Japanese military settlements. The weaponry was mostly arrows, spears and swords. This is the main reason for explaining the few design changes and evolution in Chinese military architecture during the Qing period (1644–1910) and in Japan previous to the Azuchi–Momoyama period (1574–1600).

However, the Portuguese and Jesuits would be catalysers for dramatic changes in Japanese army tactics and military architecture. Only after identifying the Iberian–Asian links will it be possible to provide answers to enigmas in the evolution of military architecture in Asia, particularly in Japan, the Asian country most open to foreign technology. One of these enigmas was the reason behind the radical changes of castle design in Japan during the Azuchi–Momoyama period after the arrival of the Portuguese in Japan, opening the country to Western ideas. New designs of castles in Japan were implemented first in Azuchi, followed by Osaka, repeated in Himeji, and in many other places all over Japan.

PORTUGUESE INFLUENCE IN JAPAN

A brief chronological analysis of Asian and European sources provides evidence of the Iberian and Jesuit influence in Japan[34].

Around 1542, the Portuguese arrived in Tanegashima, Japan. In 1566, Mendonça, captain of Macao's large black ship (*kurofone*), helped the daimyo Ōmura Sumitada, known by his Christian name of Dom Bartolomeu, with ammunitions to resist his rebel anti-Christian vassal and his struggle with the Shimazu clan. Boxer mentions that in 1567, Ōtomo Yoshishige, Daimyo of Bungo, wrote to Macao seeking help in his struggle against the Mōri clan[35]. In 1573, a ship from Macao sank, bringing a Portuguese *espera* (middle-sized cannon for wall demolition or against

ships) to Ōtomo Yoshishige. Costa mentions the contribution of Portuguese military advisers and weapons in battles[36]. In the 1584 Battle of Okitanawate in Kyushu, the Portuguese hidden artillery helped decide the victory of a small group over the large army of Ryuzoji[37]. The Portuguese cross that decorates the sails of Portuguese galleons was adopted by Konishi Yukinaga, the daring Kyushu daimyo who conquered Busan, Seoul and Pyongyang in the invasion of Korea. The timber stockade (*tranqueira* in Portuguese), represented in the Lizuarte de Abreu book of the 1531 fleet had striking similarities with the ones used by Oda in 1575 in Nagashino. This is presented on a Japanese screen (Fig. 8), where he used tree lines of harquebusiers, corresponding to the three phases of charging the weapon, lighting the fuse, and aiming and firing. On this large eighteenth-century screen is also seen the Castle of Nagashino, a walled compound of mostly one-storey buildings.

This type of stockade partially protected the harquebusiers and field artillery, and blocked the advance of cavalry. Turnbull mentions that in 1578, Oda Nobunaga built a *barco acourazado* (armoured ship), a European concept[38]. Oda had steel body armour and a helmet copied or acquired from the Portuguese designated as *Momonari Kabuto* (peach-shaped helmet) similar with the Portuguese Morion. Learnt missionaries like Rodrigues and Luís Fróis[39] that spent 31 years in Japan[40] had the opportunity to chat for hours with top military leaders like Oda Nobunaga, Toyotomi Hideyoshi and Tokugawa Ieyasu. Evangelisation was the main intent, which did not exclude the promotion of modern medicine, arts, sciences, and new technologies. Western design and construction techniques were used for peaceful functions. Several churches were built in Japan, like the two Jesuits seminaries in Azuchi and Arima. The Azuchi seminary was drawn by Marco Antonio Ciappi[41]. Western influence was wide in other fields such as

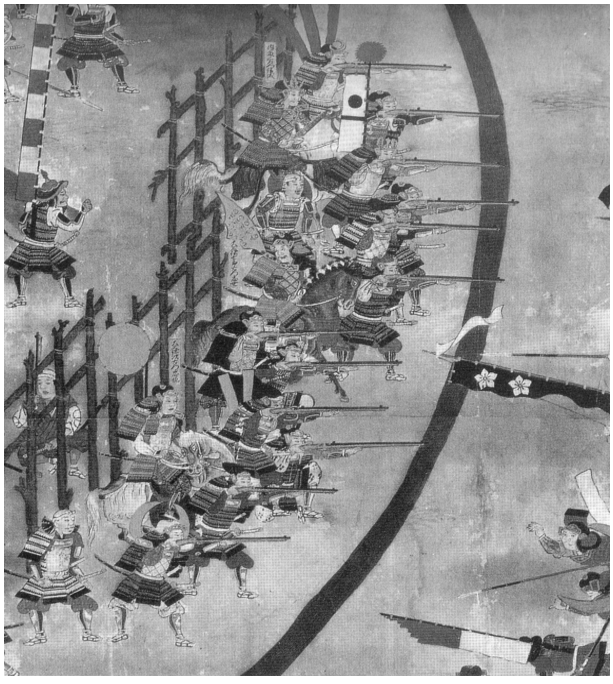

Fig. 8: Detail of the stockade in the Battle of Nagashino (1575) with arquebusiers firing volleys in a sequential order. Tokugawa Art Museum, Nagoya. Source: https://upload.wikimedia.org/wikipedia/commons/7/79/Battle-of-Nagashino-Map-Folding-Screen-1575.png

the printing press, science, medicine, philosophy, painting and music[42]. The *Nanban-jin* (literally 'southern barbarian', referring to the Portuguese) culture was a key factor that made possible the fast unification of Japan.

The Tokugawa regime, after the unification of Japan under the shogun (military governor), forbade castle construction in 1638, after almost 100 castles were built by daimyos, therefore demonstrating the important role they play on the military chessboard. Many of these castles collapsed or were destroyed during the Meiji Era. The reason was that large castles were considered a danger to the state, a concept that is present in the *Buke Shohatto*, a collection of edicts by the shogun about the governing responsibilities of daimyos and samurais. Castles were residence of the daimyos, the seat of administrative and military authority that attracted the construction of towns in the surroundings, a phenomenon similar to what happened in Europe in the Middle Ages. However,

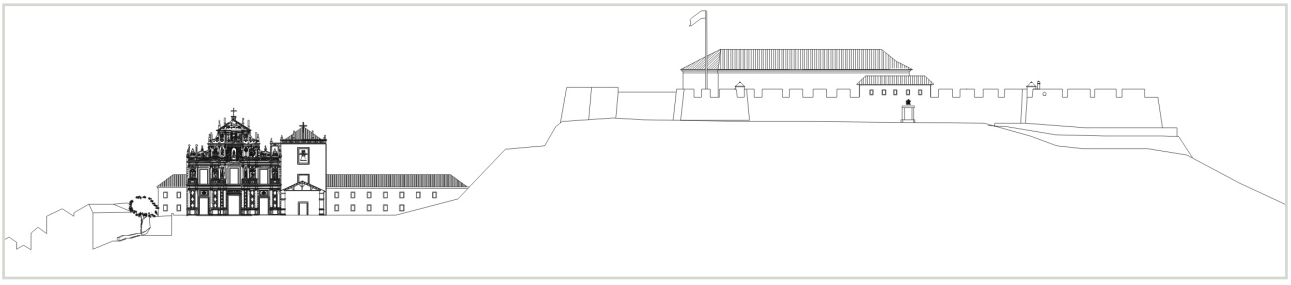

Fig. 9: The city extends around St. Paul's College downhill towards the two harbours. The Monte Fortress at the hilltop was the hinge of Macao's defence system (drawing by the author in 2004).

in Japan architecture is a manifestation of the power of the ruler[43], importing urban and architectural models from China as a main reference, for example, Nara city being a copy from Chang'an (Xi'an). Later the Portuguese influence would be seen with the introduction of stones for the fortifications, the concept of a keep as a residence, fortress and administrative centres, as well as other Portuguese elements of military technology.

MACAO'S CITADEL AND THE JESUIT ST. PAUL'S COLLEGE

The missionaries and the Portuguese base in the Southeast Asia region was Macao. In the geographic centre of the peninsula on Monte Hill, the Jesuits built Mater Dei Church, the Convent of St. Paul's and the Order's headquarters. In times of danger, like possible pirates' attacks or the arrival of the Dutch in 1601, this refuge that served as a stronghold was part of the walls and bulwarks built by Captain Tristão Vaz da Veiga in 1568, who after an attack of pirates built a compact earth wall and four-square bulwarks[44]. Inside the perimeter of the fortress[45], according to Graça, was found the remains of a three-floor tower[46], which was demolished and substituted with lower constructions. From the beginning, St. Paul's College had contributed to the urban organisation of Macao. As the religious and cultural centre of the city, it was strategically located on high ground and in the centre of the peninsula, the key position for the defence of the city (Fig. 9). The first walls of the fortress were built in 1617[47] in compact earth known as *chunambo*, later new walls were built in stone. In previous years, a fence was built around St. Paul's College in 1606. The construction of the fortress was concluded in 1626. However, the fort was taken from Jesuit control to military by the first governor (1623–1626), Captain General Dom Francisco Mascarenhas[48].

This fortress played a key role for the survival of Macau, which was evident on the critical date of 24 June 1622, when VOC attacked Macao with a force superior to the few Portuguese defenders. During the invasion, the Jesuit Father Jeronimo Rho fired an accurate cannon shot from the fort of Monte Hill (Fig. 9 and 10) towards the Macao valley and hit one of the ammunitions wagons of the advancing

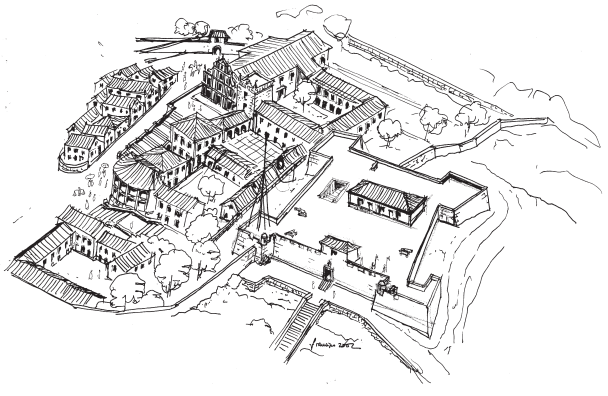

Fig. 10: Conjectural reconstruction (eighteenth century) of the Monte Fortress and Jesuit St. Paul's College (drawing by the author in 2002).

invaders, causing casualties and panic in the Dutch army and disorganising the initial plan. Then, a determined Portuguese counterattack forced them to retreat to their boats. This episode proves that many missionaries were learnt scholars, not only in Philosophy and Theology, but also in Geometry, Mathematics and Military Sciences, knowledge that would have great influence on Japan.

RELIGIOUS JESUITS AND SAMURAIS

During the arrival of the Portuguese in Japan (in 1543), the country was divided and ruled by a feudal military society in constant wars, with no central power[49]. Portuguese traders and Jesuit influence led to many conversions of Japanese to Christianity[50]. In 1580, daimyo Ōmura Sumitada conceded Nagasaki to the Jesuits. This was nothing new in Japan because Buddhist monks also retained large amounts of land. Monk warriors, the *sōhei*, were a powerful military force[51]. Costa narrates the long and deep influence of the Jesuits in Japan, not only in missionary work but also in politics since they were dealing with different feudal lords in a period of civil war[52]. They were welcome by some daimyos but hated by others[53] who saw Christian values and obedience to priests a challenge to the Bushido war ethic. Valignano, *Visitador* (the Superior) of the Jesuits, mentions in 1582 that there were more than 150,000 Catholics in Japan, as well as 2 seminaries and 200 churches. According to Boxer, Jesuits had a part in the profits from the silk trade[54]. The economic income was necessary in building apostolic initiatives like seminaries, schools, churches, etc. The missionary approach of the Jesuits was to try to convert the elite, which would facilitate the conversion of the country. In China, the elite were the Mandarins, who had little or no military ambition. In Japan, the ruling elite were the samurai, military men at war, and from the ultimate balance of war depended on the fate of their religious missions. Pinto's book about the perception of the Jesuits about Japanese Aristocracy is based on the letters sent by the Jesuits in Japan to Portugal, that are archived in the Portuguese city of Évora[55]. These letters revealed their perceptions and expectations from their political situation in Japan. The military leader Oda Nobunaga was seen as a new Constantine Emperor. This Roman Emperor, with divine help, defeated the 'evil' forces (that persecuted Christianity) represented by the army of the pagan Maxentius, who ruled in Rome. On his deathbed, Constantine converted to Christianity. For the missionaries in Japan, the 'evil' forces were identified with pagan warlords and corrupted Buddhist sects. Missionaries favoured Oda and Christian daimyos, like Takayama Ukon (1552–1615). He helped in the negotiation to surrender Ibaragi's castle, held by Nakagawa, enemy to Oda. Takayama was rewarded by the construction of new castles. Later, under the direct command of Toyotomi Hideyoshi at the service, Oda used a Portuguese mining technique to blow up a bastion in the castle walls as mentioned by Pinto[56]. The same technique was used in the Siege of Odawara in 1590. Turnbull mentions the 1561 support of the Ōtomo forces by three Portuguese ships in the attack of the Moji Castle under control of the Mōri forces[57]. The attack, a favour to Ōtomo Yoshishige (Sōrin), broke the defence structures and surprised the defenders; however, Ōtomo failed to use this surprise advantage by organising a massive attack. The fortress resisted and was reinforced by sea to refresh Mōri's troops. The Portuguese ships were only armed for self-defence, not for a prolonged campaign on Japanese soil, which was against the economic and religious policies. If the Jesuits' religious monopoly had less influence in Japan, there probably would have been more Portuguese interventions in the region, as happened in Siam and at the Molucas.

THE ODA NOBUNAGA'S AZUCHI CASTLE INNOVATION: THE MOTHER OF ALL CASTLES IN JAPAN

The construction of Azuchi castle began in 1576, taking three years to finish. The new castle concept departed from the flat and light lower timber and earthwork walls of the previous castles, the *yamajiro* (mountain castles), from the fortified temples of the *sōhei*, monk warriors, and even from Chinese influenced fortifications in Okinawa, like Shurijo (near Naha city), residence of Chūzan King, ruler of the Ryukyu Kingdom, recognised by the Ming Emperor[58]. Chinese influence is apparent in the walls as well as in the Shureimon gate.

Azuchi castle construction implicated a large concentration of artisans. The two images by the author (Fig. 11 and 12) were based on models present at the Azuchi Museum as well as those in the book of Yasuaki Tuji[59] where 3D models were elaborated to be presented in a documentary by NHK network[60].

Although the castle was destroyed, Coaldrake considers that 'there is a considerable body of evidence available from which to reconstruct its physical form and symbolic meaning'[61]. A detailed model of the Azuchi castle with a section view of the interior was produced in a work by Akira Naito in 1976 which was revised and published by Takayanagi[62]. Akira Naito was a professor of Architecture who conducted research on Azuchi tower, based on archives of the document *Tenshu sashizu* (meaning 'specifications of *Tenshu*'), in which structural drawings match the archaeological remains of Azuchi tower, a 46-metre-tall structure. Several updated interpretations were made by later researchers; particularly relevant is the one by Miyakami Shigetaka[63] that challenges the previous interpretation of Akira or the one designed by Gentaro Kagawa in 1994[64]. A new 3D version of the castle is available to the public by Trimble[65] (Fig. 13), and there is version on YouTube '3D-VR Azuchi castle trailer'[66].

Fig. 11: The main tower at Azuchi castle with the *Tenshu* at the top (drawing by the author in 2007).

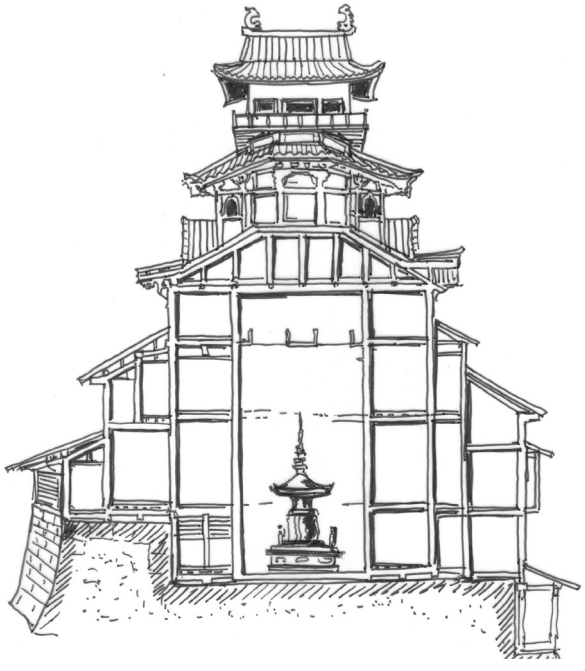

Fig. 12: A section of the *Tenshu*. This unusual inner hall has great religious significance (drawing by the author in 2007).

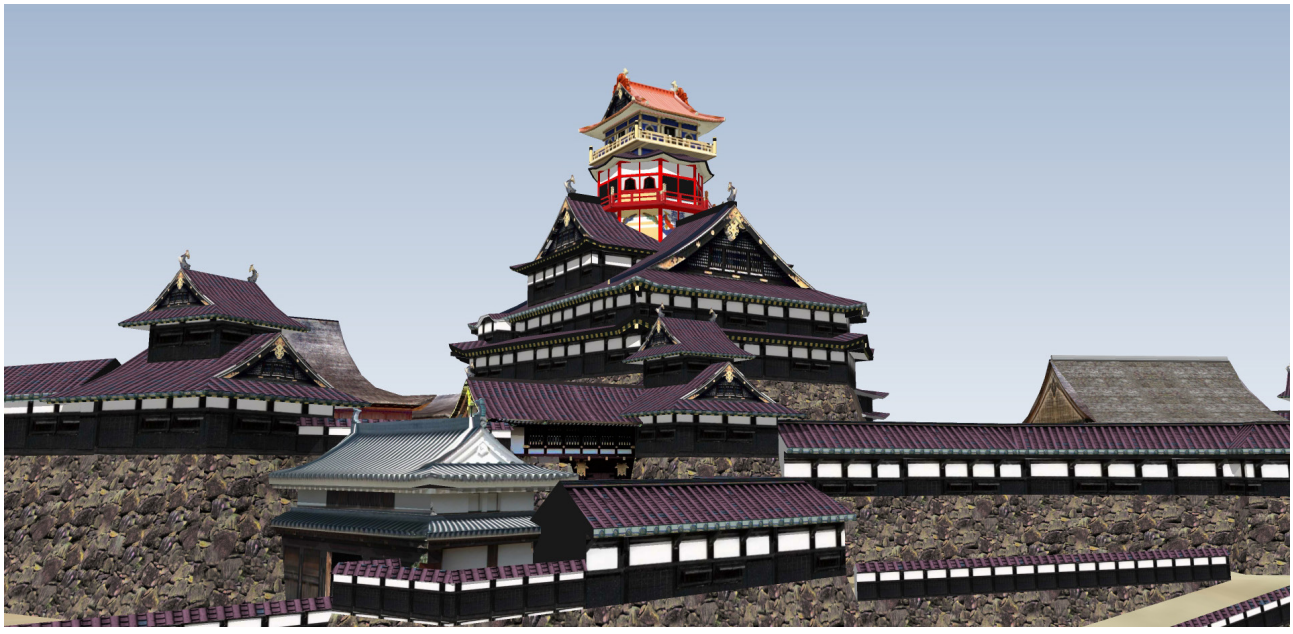

Fig. 13: Azuchi castle (1576–1579). Conjectural reconstruction by Trimble, based on Akira and other authors' references (3D perspective view manipulated by the author in 2022). Source: https://3dwarehouse.sketchup.com/model/8529453e-7844-43d5-9b43-a8e937fe3363/Resurrection-Azuchi-Castle?hl=en

In his Ph.D. dissertation elaborated in 2016, Mark Karl Erdmann collects different interpretations of Azuchi tower, and all of them show a larger base of the first floors as a palace with a tower that is crowned by the octagonal 'Buddhist' floor supporting a quadrangular top room with a balcony.

Before building Azuchi, Oda Nobunaga built a castle tower in Gifu, a place that he conquered in 1567, living there for ten years until the completion of Azuchi in 1579. Fróis, invited by Oda Nobunaga, visited the castle and praised its beauty.

So, in Gifu we can see the adaptation of the keep's concept not only as a watchtower but as a place for residence and administration of a warlord. Gifu castle was destroyed in 1600 during a battle. In 1576, it was assumed that a small tower makes the Maruoka a 'castle' (like a small corner tower), but there are doubts about its real construction date when referring to the age of the wood structure that is mostly from the 1620s[67]. It is interesting that the Jesuits had their own 'towers' (Fig. 15) where they built a church on the ground floor in 1575, the Church of Our Lady of Assumption, and they built two additional floors for residence above the church that was innovative as well as controversial[68]. This Church of Our Lady of Assumption in Kyoto, represented on a fan named *Miyako no Nanban-dera* (meaning Nanban Temple in Kyoto) at the Kobe City Museum. Fig. 15 is a tracing image of the painting of the above-mentioned fan, showing the tower structure in the centre. The buildings were made of wood because they were safer than stone structures. Neighbours opposed the Jesuit building high structures in the area, because from the tower, one could see the neighbour's wives, which therefore constrained them from going outside the house. Curiously, in Azuchi castle the ground floor was like a temple, and it had a Buddhist stupa.

Oda Nobunaga created Azuchi castle to be his seat of power and authority[69], on a well-defended hill in a strategic location to control Kyoto, the imperial capital. He also created the first castle

town, Jōkamachi, in Japan, attracting artisans and merchants by giving financial incentives. There was a main north–south road and different zones for different artisans' professions. However, the dream of Oda Nobunaga to be a new emperor of Japan, as it was designated by some Jesuits[70], ended when he was betrayed and killed by Akechi Mitsuhide. However, the model of the castle tower spread like fire to different domains, like Osaka, Matsue (Fig. 14), etc.

The castles before the appearance of the Azuchi tower and town castles were like fortified palaces or mansions,[71] such as the Azakura fortified mansion (Fig. 16), or high-ranking samurai's fortified mansions (*yakata*), or fortified hilltops. The Azakura daimyo was defeated by Oda Nobunaga and the place was burnt in 1573. The mansion was surrounded by earth walls, a moat on three sides and a hill in the back. Turrets were located in the corners. Inside were the mansion and cover corridors.

Fig. 14: Matsue castle, Japan (photo by the author in 2004).

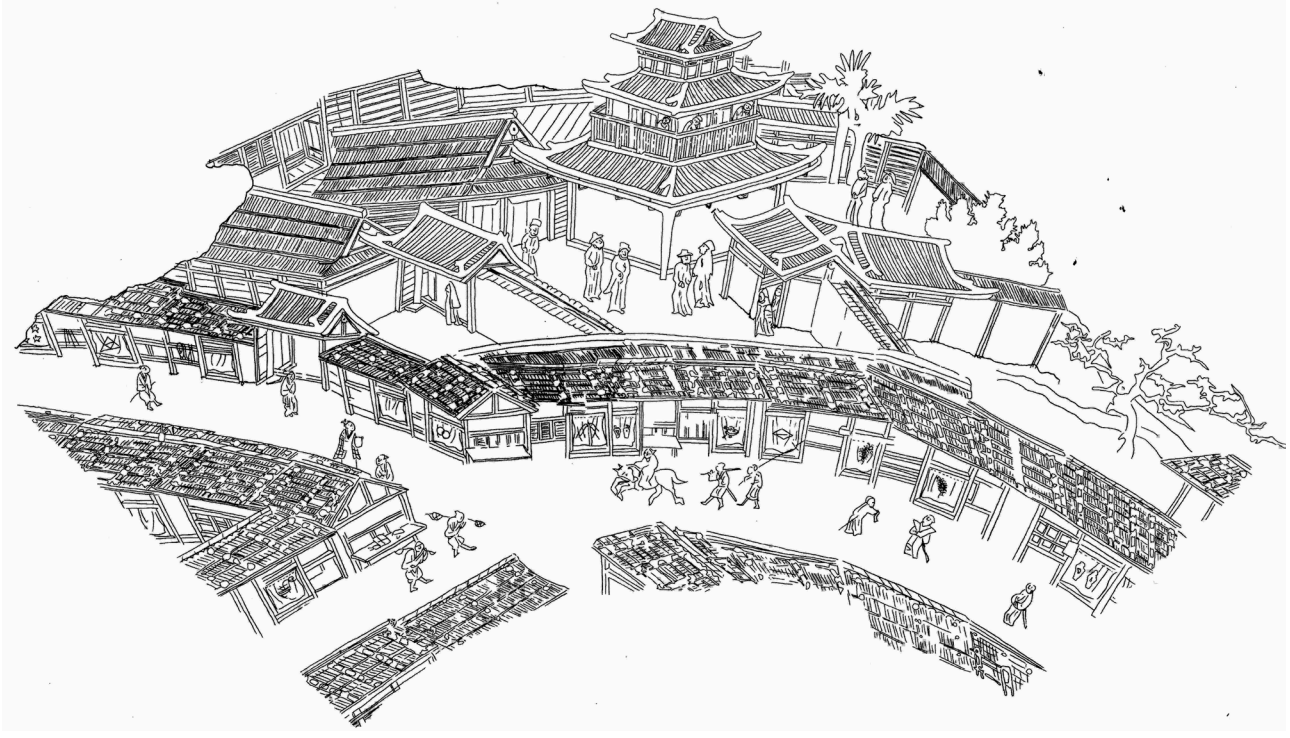

Fig. 15: Jesuit compound in Japan. At the centre is the tower, with the Church of Our Lady of Assumption on the ground floor and the Jesuit residence on the upper floors. A sixteenth-century drawing on a fan by Kano Motohide (reproduced by the author in 2022).

ARQUITECTURA

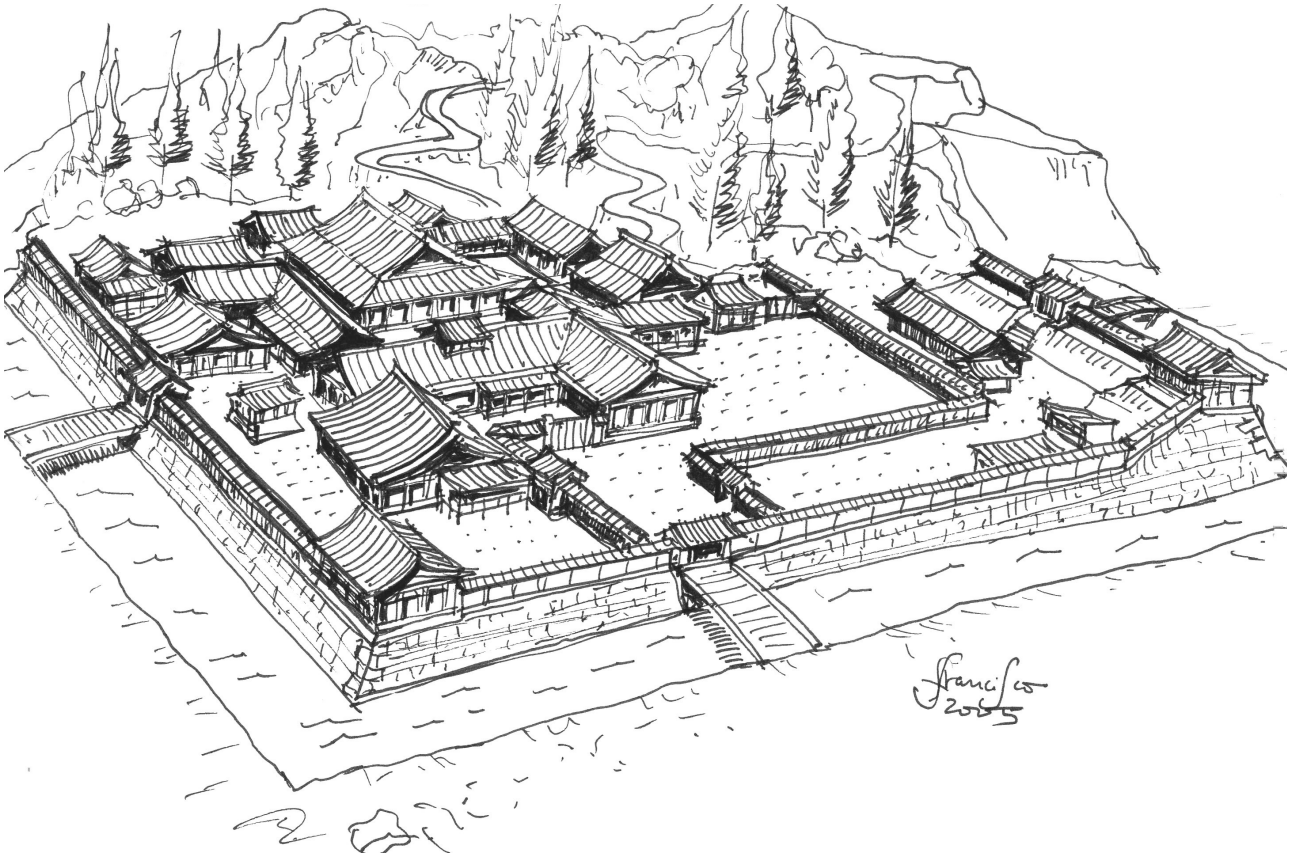

Fig. 16: The conjectural layout of the fortified Azakura Mansion (drawing by the author in 2007).

Fig. 17: City of Madrid in a *byōbu* at Kobe City Museum with churches and castles dominating the hilltops (drawing by the author in 2022).

THE JESUIT INFLUENCE THROUGH ART

It is difficult to attribute to a single man, the dominating warlord Oda Nobunaga, the genius behind the new castle concept. Without the co-operation of a national local leader it was not possible to introduce innovations. The man who effectively implemented the new concept was daimyo Oda Nobunaga. He had the determination to unify Japan, the desire to learn about other countries' traditions, and the ambition to make famous his name overseas. This was clearly documented by sixteenth-century letters[72]. He had great interest in cities introduced by Portuguese interlocutors. Maps were made to represent important European cities[73], like Madrid, Lisbon, and surprisingly, even Istanbul, as they are represented on a *byōbu* (Japanese folding screen) at Kobe Museum.

Curiously, in all representations of foreign cities on this *byōbu*, large, tall towers appear at the centre, like in the case representing Madrid (Fig. 17). Although in this case a high tower in the centre did not exist in reality, but it was exaggerated in order to associate with the medieval concept of keep — tall towers with the concept of military and administrative power. Could these images of Western cities be inspiring references for Azuchi castle? The cultural influence emerged not only through images of European cities, but also through the conversation about architecture and military topics that happened often in the interchanging dialogues between the samurais and the Jesuits and the Portuguese. The Jesuits probably mentioned not only Lisbon and Madrid (represented on Japanese folding screens) but also other castle cities like Évora, that had high ground residence for the Portuguese kings (Fig. 18), with keep, palaces and temples located on the hilltops, and the city at the foot of the hills, forming a compound surrounded by walls that may be called a 'castle town' in Japanese terminology.

Fig. 18: Layout of the medieval Portuguese city of Évora (c. 1503) (drawing by the author in 2022, after the frontpage illustration of *Foral de Évora*).

The Azuchi castle was clearly a palace and temple where Oda Nobunaga showed his glory as ruler and god. The city deeply impressed the missionaries. Fróis was invited to visit it, and made a unique description of Azuchi castle:

> ***On top of the hill in the middle of the city, [Oda] Nobunaga built his palace and castle, which as regards architecture, strength, wealth and grandeur may well be compared with the greatest buildings of Europe…And in the middle there is a sort of tower which they called*** **Tenshu** ***and it indeed has a far more noble and splendid appearance than our towers. It consists of seven floors, all of which, both inside and out, have been fashioned to a wonderful architectural design…The fact that the castle is constructed entirely of wood is not at all apparent either from within or from without, for it looks as if it is built of strong stone and mortar.***[74]

The text above is an excerpt from the letters that the Jesuit brothers wrote in Japan and China, and was published in Évora in 1598.

Jansen mentions the prestigious Jesuit brother Almeida's impression of Azuchi:

> *[…] I am sure that in the whole world it would be impossible to find anything more splendid and attractive than this fortress.*[75]

However, all the expectations of Oda Nobunaga's conversion to Christianity faded after he built a temple where he was worshipped as the main deity[76]. In the main castle tower, the octagonal Zen-Buddhist-inspired[77] structure had on top a quadrangular upper floor covered in gold[78] that had Confucian principles and reference deities[79], and Chinese sages and probably Taoist deities were viewed by the *Nanban-jin* as an influence for esoteric religions, legitimating Oda Nobunaga as a Buddhist deity as well as legitimation of Chinese concept of the 'Mandate of Heaven' because, when referring to his tower creation, Oda Nobunaga used the characters 'Protector of Heaven' and 'Lord of Heaven'[80]. For Erdmann, these two floors, rectangular and octagonal, resemble the *Mingtang* (明堂, Bright Hall[81]), that was the imperial central hall for audiences and rituals, ceremonies and entertainment in ancient China, the rituals in this hall were linked with the concept of the Mandate of Heaven[82].

In 1582, Fróis compared Oda Nobunaga with the tyrant Nabuchodonosor[83]. The name *Tenshu* is itself controversial because of the similarity with the Catholic Chinese word for God — *Tienju* (天主, Lord of Heavens). In a poem about Azuchi ordered by Oda Nobunaga to Nange Genko, a Zen monk, it is mentioned that this palace is 'loftier than Shih Huang's mansion', making reference to the first Chinese Emperor. Also, in the same poem[84] it is mentioned that 'Indra and Braham are here on earth'. In Hindu mythology, Indra is the god of Heaven and war and Brahma the creator. In the centre of the tower (*donjon* in Japanese), in its basement, a stupa is located. The stupa is a reference to Buddhism, signifying the tomb of Prabhutaratna (Buddha of the past) that was raised from the underground and share his seat in Heaven with Shakyamuni (the historical Buddha). This stupa was symbolising, according to Naira, the unification of Japan's past and present. In this way, in this palace and tower Oda Nobunaga made the building like a cathedral to a living god and political and military ruler, himself, utilising concepts from different religions as well as Chinese history and Confucian heroes.

Erdmann provides a detailed description of the castle layout[85], and we presume that the *Tenshu* had seven levels, including a basement and six floors. On the lower floors were several rooms for residence and meetings, as well as places for preparing meals. From the second to the fourth levels were rooms. The fifth level was an octagonal shape with vermillion pillars, dedicated to Buddhist teachings, with dragons represented in the columns. The sixth and the top floors were square, covered in gold, and surrounded by a balcony balustrade. The interior contained much gold in its decorative programme as well as paintings of the Three Sovereigns and Five Emperors, the Ten Accomplished Disciples of Confucius.

The height of the building was reinforced by its location on top of a hill. Such vertical expansion was only previously seen in religious buildings like pagodas. The resemblance of a pine tree may not be pure coincidence due to its meaning of eternity and its significance as a symbol of the emperor. Pine trees painted over a golden gild background decorated the interior walls.

Erdmann provides a graphic layout of different interpretations of the Azuchi[86].

The stone building techniques were new in Japan, for the construction of the new castles, masons, plasters and some of the best artists like Kano Eitoku were selected. In Azuchi, different rooms

were painted with different themes creating a new style of strong colours and abundant use of gold[87].

We can conclude that there was Western influence in the concept of the castle keep as residence, as well as the influence of Chinese and Japanese religious symbolism. This also occurred in European feudal cities, where churches and castles share the space on the hilltops.

COMMON PATTERNS WITH EUROPEAN FEUDAL CASTLES

Azuchi castle not only departed from the flat and light lower walls of the previous castles, like Asakura, but also incorporated elements existing in Portuguese castles that we can establish through comparison of several architectural patterns:

1. *Tenshu — Torre de Menagem*. Often the residence of the feudal lord, vassals of the King.
2. *Nawabari* ('stretching rope'). King Manuel I of Portugal ordered the use of rope *por cordel* for the definition of the site planning of the castle, the walls' alignment and perimeter.
3. *Masugata* ('square'), parallel concept to the Portuguese *barbacã*. This is a courtyard surrounded by a lower-wall perimeter that controlled the entrance to the main gate.
4. *Ishiotoshi*, the machicolation opening. This is the Portuguese *mata-cães* (literally 'kill-dogs'), it is an opening in the walls or protruding structures, designed for throwing objects or hot liquids poured through timber or stone salience at the corner of towers or door entrances.
5. Protruding corner towers, the Portuguese *cubelos*.
6. *Sama*, loopholes and arrow ports in walls, designated by *seteiras* and *troneiras*.
7. Intricate composite doors supported by hinges.

Azuchi castle compound was designed to easily stand artillery attacks. The estimated garrison was 10,000 soldiers. Nishi Kazuo and Hozumi Kazuo concluded that the Azuchi revolutionary castle concept not only departed completely from the tradition, but also started a new urban phenomenon of castle towns all over Japan, like Himeji (Fig. 19), one of the original castle structures that are well maintained[88].

Fig. 19: Himeji Castle (1609) is a surviving heir of the Azuchi–Osaka castle legacy (drawing by the author in 2007).

OSAKA, THE CONTINUITY FOR THE AZUCHI MODEL

After the death of Oda Nobunaga and the destruction of Azuchi, the successor, Toyotomi Hideyoshi, moved the government capital to Osaka. Toyotomi started building the castle in 1583 to be a palace and fortress, but this time it was located in a marsh flatland. Toyotomi required military help through the missionary connection. According to Carroll, in May 1586, Toyotomi called the Jesuits Gaspar Coelho and Luís Fróis to Osaka Castle, asking them to provide two Portuguese carracks for the invasion of Korea[89].

Castelo mentions that missionary João Rodrigues Tçuzzu spent several afternoons talking to Toyotomi Hideyoshi[90]. His successor, Tokugawa Ieyasu, destroyed the Osaka Castle in

1615, headquarters of his main enemy, with the help of a large quantity of European designed artillery, and again moved the *bakufu*[91] capital to Edo, modern Tokyo, where new palaces and residence horizontal complexes with mansion were built, as well in Kyoto as a show of power and authority[92].

There is strong evidence that Fróis's ideas about fortifications influenced Oda Nobunaga and Toyotomi Hideyoshi. Azuchi was the model for other Japanese castles like the ones located in Osaka and Himeji. During the Japanese invasion of Korea (1592–1598), or Imjin War, the Ming forces confronted the new Japanese Army, whose modern European equipment proved invincible on land, but weak in the logistic organisation and naval operations. In Korea, the remains of Japanese castles in earlier stages of construction (like the ones in Suncheon and Ulsan) and Chinese–Korean forts were found. Both sites used Portuguese technology in firearms, but curiously neither of them used Western naval technology, a key to Western expansion and a science that can ensure dominance in maritime trade, a lesson that the British mastered in the eighteenth century.

The Imjin War was an important laboratory for a comparative analysis of the military organisation of the Ming and Japanese armies. China's traditional bureaucratic organisation and monolithic administrative practices made it difficult to adapt the foreign innovations that can be seen in the modern fortifications in Macao, particularly the Monte Fortress. In Japan, the warfare situation and the military organisation of the society made it easier to adapt and adopt military innovations like firearms and castles. The Korea campaign dissuaded the new shogun from plans to invade China and may have contributed, together with the Shimabara revolt, to cancel the invasion of the Philippines.

PORTUGUESE EVOLUTION FROM MEDIEVAL TO RENAISSANCE AND MODERN FORMS

Despite the outside similarities, castles and forts had different strategic values for each of these communities. For the Iberians, retaining fortresses, mostly with medieval keeps, meant the guarantee of their presence in Asia, like the structures in Calcutta (Fig. 20), Malacca (Fig. 21), or Goa in a universe of approximately 40 settlements in the Indian and Pacific Ocean. Losing one of these forts, as in the defeat of Malacca in 1641 at Dutch hands, meant the end of the Portuguese trade in the region. The castles were not enough for protection, they were supposed to be supported by a fleet of ships with powerful artillery[93]. These Portuguese fleets were what made possible the construction of overseas Portuguese forts and guaranteed trade routes.

In Japan, castles were important in power struggles. They were the residences of warlords and urban symbols of power. Losing a castle means losing ground in the defensive network and if it is the family headquarters, then this often means the

Fig. 20: *Lendas da Índia* depicts a Portuguese fortress and trade post in Calcutta, India, with a predominant medieval keep and abundant artillery. Source: https://commons.wikimedia.org/wiki/File:Portuguese_fort_at_Calicut.jpg

extermination by performing the seppuku ritual. In China, fortresses were part of a very large defence network spread through an immense territory. Fortresses in China had much less strategic value than their Japanese or Iberian counterparts, partly because of the large population of China and the capacity to rebuild new cities.

Portuguese fortifications also suffered deep modification in design. These ranged from medieval models like Évora or Bragança, with the castle and fortified palace on the hilltop and the city developed on the slopes; to the consolidated Italian design based on triangular bastions like those built in Macao (Fig. 10 and 22); or to the complete walling of the

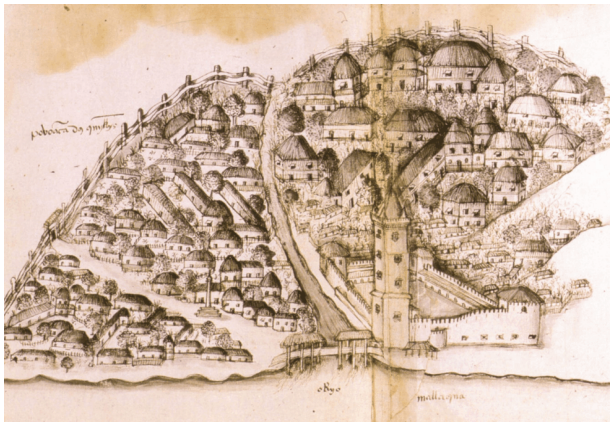

Fig. 21: *Lendas da Índia* shows a map of Malacca in the mid-sixteenth century. The Portuguese tower is at the centre as a medieval stone concept in a predominant timber Malay culture. The original work is archived in the National Archives of Portugal, Torre do Tombo, Lisbon. Source: https://commons.wikimedia.org/wiki/File:Malacca_in_1550-1563.png

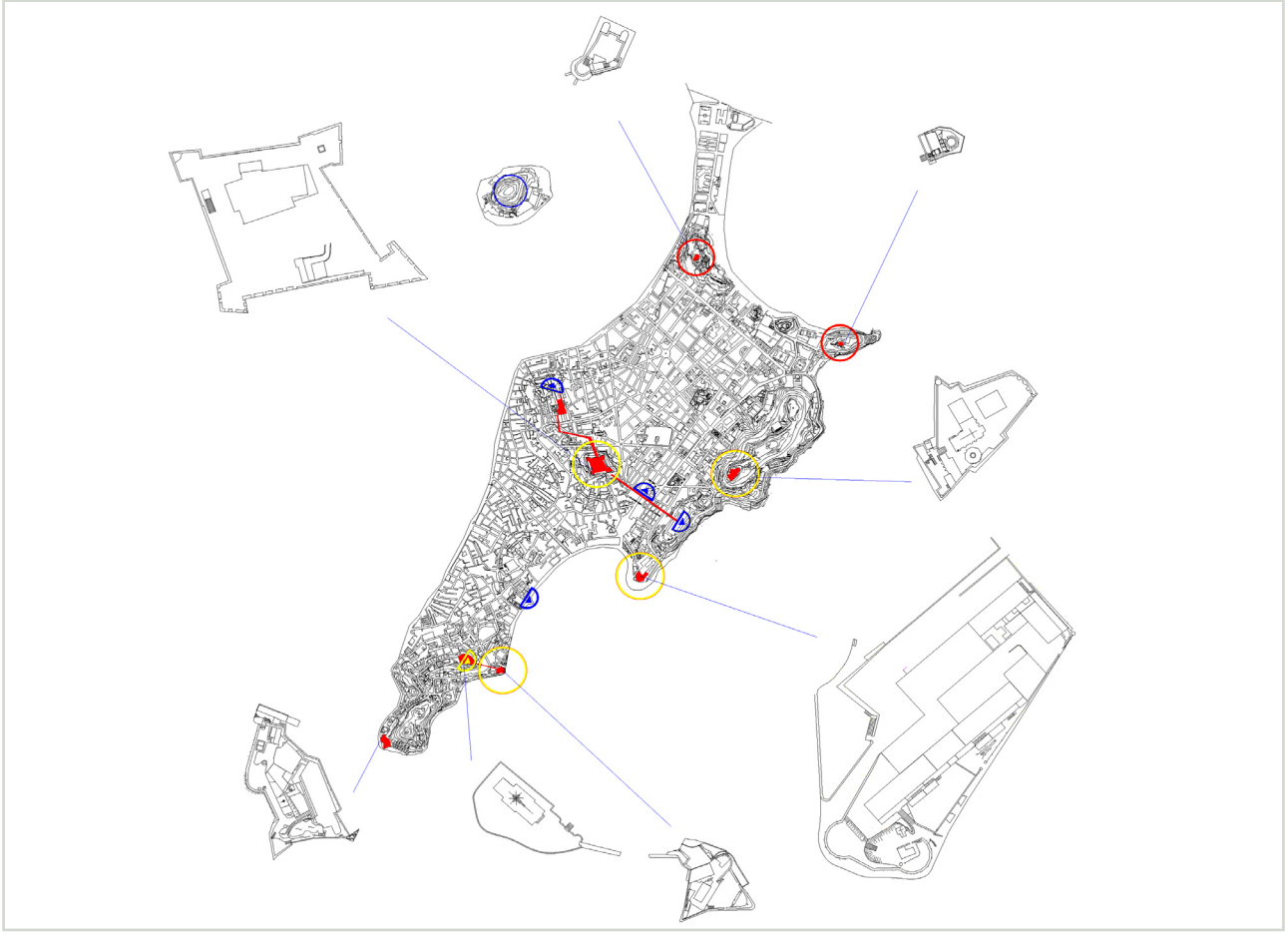

Fig. 22: Map of fortresses in Macao Peninsula, illustrating designs from medieval layout to modern bastion shade corners. At the centre of the Peninsula in a hill top is the Monte Fortress, in a dominant position. Some of the small forts have a medieval layout (drawing by the author in 2004).

cities like Vienna (Austria), which resisted the 1529 and 1683 sieges of the Turks, The Turks in previous sieges, were successful in conquering Constantinople in 1453 due to the use of artillery in ancient walls.

The efficacy of the modern fortress design, also mentioned as Italian design with low but large wall and corner bastions, is evident in the failure of the British army to take South America from the Spanish, with the apogee in 1741 that led to the largest historical defeat of the British fleet (186 ships) against a smaller force defending Cartagena de India's port city[94]. According to Moreira, the design evolution of Portuguese fortifications was a learning process. From 1415, the beginning of the Portuguese overseas expansion, to the seventeenth century, there was a clear evolution in Portuguese architecture[95]. The King himself (Manuel I and João II) promoted the council of architects and generals to find the best fort design. The first 'models' implemented in North Africa were in the middle way between the medieval castles and the lower 'Italian' fortifications[96]. These new models proved to be inefficient against the attacks from Turks' artillery which struck the Portuguese in North Africa.

By the order of King Manuel I, 56 peninsular Portuguese medieval castles (some with cities) in the periphery border with Castille (Spain) were drawn between 1509 and 1510 and are represented in the book *Livro das Fortalezas*, edited by Duarte de Armas[97], which was reprinted several times[98]. Another medieval book, *Lendas da Índia* (c. 1555), in which overseas fortresses or settlements were drawn by Gaspar Correia, was also reprinted several times[99]. In this book, 11 views of Portuguese settlements, medieval models from Ormuz to Malacca were represented[100]. Many of these medieval towers in the fortresses were abandoned in favour of the 'Italian' models of lower but strong walls with bastions in the corners, allowing crossfire situations for protection of main walls. Years later, in the 1630s, António Bocarro elaborated a book with drawings, showing several of the Portuguese settlements and fortresses in Asia where it is noticeable the change of design of fortresses, with less tall towers and more bastions. This book, reprinted several times[101] with design and description of each Portuguese settlement, was destined to inform the monarch about overseas fortresses. The Portuguese initial adaptation of cannons for defence and attack of fortresses led to the rejection of tall tower design as the key element of defence, making a complete change of fortress layout when compared with the drawings in Armas's and Correia's books. The Belém Tower in the middle of the Tagus River was a daring evolution of the medieval castle. This tower was built to substitute a large ship in the middle of the river. In Macao, the first fortresses were ships. The second step was the establishment of a stockade to define a safe perimeter. The third step was the construction of an earthwork or stone fort and a three-storey tower with artillery, with the residence of the captain-governor, which archeological remains were later destroyed[102] when the place was adapted to museum.

By the mid-seventeenth century, as shown in Resende's map[103] of Macao in 1635 (Fig. 23), the city had its defence networks well established in hilltops or at the sea level in places where rocky formations protruded from the river. These forts and batteries provided crossfire and fast support to their neighbours. A surrounding wall comprehended the entire city within (*intramuros*).

Progressively, the small Macao settlement was transformed into a strategic city along the maritime silk route, replacing Venice and its Middle East allies. Macao, a Western city, was known as a 'Christian city'. Fortifications were improved and extended until the end of the twentieth century. Now they are an important part of China's unique military heritage and a great cultural tourism asset.

Fig. 23: Map of Macao (1635) in *O Livro das Plantas de Todas as Fortalezas, Cidades e Povoações do Estado da Índia Oriental.*

EUROPEAN-STYLE KEEPS IN CHINA

Although the Portuguese port trading network in Asia had many towers, or keeps, for defence, living and storage, that model was never copied by the Chinese traders or officials who visited those cities, like Malacca. However, the European model of keeps, known as *diaolou* (Fig. 24), meaning 'gun loophole', flourished in a place named Kaiping, less than 100 km to the northwest of Macao. They were built in the mid-nineteenth century, the period of the Opium Wars, followed by the Red Turban Rebellion (1854–1856) and the Taiping Rebellion (1850–1864), to the later 1930s, a few years after the end of the Warlord Era in China (1916–1928). There are approximately 1,800 of these structures. They were built in areas where there was little government control and rivalries between residents of the area and the Hakka migrants, which often included kidnappings of bandits. Accordingly, there were water born bandits (*haikou*), open country bandits (*tukou*) and mobile gangs from neighbouring areas (*liukou*)[104]. The area is crisscrossed with rivers and many waterways, making it easy to mount fast attacks and escape in the maze-like landscape of the place. These towers can be considered as military structures, like the European keeps. They were a place for safe residence as well as being designed with battlements and holes in the fortified top corners for firearms, and the most modern ones were built in reinforced concrete cement (mostly during 1910s–1930s). The tallest were composed of four or more floors, and constituted the majority of *diaolous* that survived to our day. Some older *diaolous* were made of rammed earth while others were made of bricks; these two categories

are smaller, of two to three floors, than the ones made of concrete. They were owned by the head of the clan, who comes from a lineage of landowners, or built with community funds. Villages developed in front of waterways and the *diaolous* usually in a higher ground on the back of the village, making them strong point to rally in case of attack or residences for the wealthier families[105]. Many of these structures were funded by money earned from overseas during the gold rush or coolie trade period. They did not follow a plan made by an architect, but their external design was influenced by postcards or publications from overseas or Hong Kong[106]. There are some postcards of Portuguese towers, like the Belém Tower, in a museum near some *diaolous*. These postcards were references for construction of the *diaolous*, therefore showing a possible link to Macao and Portugal. *Diaolous* had a great variety of eclectic design (particularly the cement ones) with styles crowning the top floors ranging from baroque, renaissance, Islamic or Byzantine. The top floors are fortified and known locally as 'swallow nests'. Most *diaolous* have Chinese text and symbols related to prosperity,

Fig. 24: Three examples of the keeps in Kaiping fortified residences, illustrating the upper floors in European eclectic style (drawing by the author in 2002).

phoenix, or dragons, creating a mixture of Western design and Chinese culture. The *diaolous* represent an original concept of self-defence structure that can be anachronistic when compared with the European keeps, closing the cycle of the first keep, the three-storey tower built in Macao in the Fortress of St. Paul in the sixteenth century (now demolished).

In 2007, *diaolous* and their villages were included in the World Heritage list, helping to enrich the large collection of heritage structures in the Greater Bay Area of southern China.

CONCLUSION

In China, military constructions received practically no influence from the West, mainly because of attachment to the traditions of walled cities and fortified gates. There was also a heavy bureaucratic machine that slowed down the acceptance of new concepts of fortress, that is more resistant to artillery fire, like the Monte Fortress in Macao with lower (than medieval models) thick walls and corner bastions. However, China was influenced by Western cannon technology that helped in some victories of the Ming over the Qing armies, as well as against the Japanese in Korea. The Chinese army's strategy was more concerned with tactical movements and battles rather than occupation of fortresses. From approximately 1842 to 1937, tower keeps with strong influence of European design were built by private/group owners in the region of Kaiping, northwest to Macao.

For Japan, a mountainous country with several military rulers, fortresses were an important part of the war chessboard. For the Iberians in Asia, like the Portuguese in Macao and Spaniards in the Philippines, fortresses were successful elements in their defence and survival for centuries. The Portuguese, and particularly the Jesuits, in Japan brought a necessary influence, not only in trade but also in the art of war and battle techniques, as well as in the importance of castles and fortified hill cities as happened in Europe. Not only was oral description provided, but also graphic examples of European towers were shown and replicated on *byōbu*. In Japan, the castles before the arrival of the Portuguese were mainly walled fortified wooden platforms, often located on high ground, or fortified samurai mansions. After the arrival of the Portuguese, however, the castles started using the keep concept, with Azuchi considered as the mother of all tower castles in Japan. This article also points to the influence of the Jesuits on contributing war concepts mentioned in some letters, as well as the concept of towers, by showing drawings of European fortified cities, as well as in conversations with feudal lords, like Oda Nobunaga, the leader of the unification of Japan. These feudal towers and cities were on defensive positions as well as for administrative and religious purposes. Macao, a Western fortified city in China, and the central base for the Jesuit activities in Asia, played a key role in the military history and architecture history in Southeast Asia. RC

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NOTES

1 By the conquest of Ceuta in North Africa, taken in order to hold the pirate's raids from the Magreb and establish a military and trade entrepot.
2 Fernando G. Gutiérrez, "A Survey on Nanban Art," *Revista de Cultura (Edição Portuguesa)*, no. 17 (1993): 101–132.
3 Rui Manuel Loureiro, *Em Busca das Origens de Macau* (Macao: Museu Marítimo, 1997), 21–31.
4 Leonor Seabra, "Macau e o Sião: Relações nos Séculos XVII e XVIII," *Revista de Cultura (Edição Portuguesa)* no. 19 (1994): 38–60.
5 Derick Garnier, *Ayutthaya: Venice of the East* (Bangkok: River Books, 2004), 72–73.
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7 Manuel Teixeira, *Japanese in Macao* (Macao: Instituto Cultural, 1990), 7.
8 René B. Javellana, *Fortress of Empire: Spanish Colonial Fortifications of the Philippines, 1565–1898* (Makati: Bookmark, 1997), xvi–xxv.
9 Loureiro, *Em Busca das Origens*, 48.
10 Guo Ping Jin and Zhiliang Wu, *Revisar os Primórdios de Macau: Para uma nova abordagem da história* (Macao: Instituto Português do Oriente; Fundação Oriente, 2007), 217–222.
11 Mark Edward Lewis, *China's Cosmopolitan Empire: The Tang Dynasty* (Cambridge: Belknap Press, 2012), 86–101.
12 Chye Kiang Heng, *Cities of Aristocrats and Bureaucrats: The Development of Medieval Chinese Cityscapes* (Singapore: NUS Press, 1999), 5.
13 Richard A. Gabriel, *Genghis Khan's Greatest General: Subotai the Valiant* (Norman: University of Oklahoma Press, 2006), 39–41.
14 Charles O. Hucker, *Two Studies on Ming History* (Ann Arbor: University of Michigan Press, 1971), 1–24.
15 Stephen Turnbull, *Siege Weapons of the Far East (2), AD 960–1644*, illustrated by Wayne Reynolds (Oxford: Osprey Publishing, 2002), 21.
16 Turnbull, *Siege Weapons of the Far East*, 22.
17 John F. Guilmartin Jr., *Galleons and Galleys* (London: Cassell, 2002), 183.
18 Turnbull, *Siege Weapons of the Far East*, 21.
19 Loureiro, *Em Busca das Origens*, 35–38.
20 The text of Loureiro is supported by a collection of contemporary elements, like letters of merchants that help to understand the evolution of the Portuguese sea trade from erratic ways, sometimes illegal, to a legal trade after the establishment of the settlement and harbour in Macao.
21 Robert J. Antony, ed., *Elusive Pirates, Pervasive Smugglers: Violence and Clandestine Trade in the Greater China Seas* (Hong Kong: Hong Kong University Press, 2010), 7–10.
22 C. A. Montalto Jesus, *Macau Histórico* (Macao: Livros do Oriente, 1990), 167–177.
23 Eduardo Augusto de Azambuja Martins, *Coloane: Operações Militares contra Piratas, 1910, Macau* (Lisbon: Comissão de História Militar, 1951), 39–62; Richard J. Garrett, *The Defences of Macau: Forts, Ships and Weapons over 450 Years* (Hong Kong: Hong Kong University Press, 2010), 110–113.
24 Ming Da Ma, "O Comércio de Espadas e Sabres entre Macau, a China e o Japão," *Revista de Cultura (Edição Portuguesa)*, no. 19 (1994): 33.
25 Suichu Ru, ed., *The Pingyao Old City* (Beijing: China Intercontinental Press, 1999), 20–21.
26 Stephen Turnbull, *Japanese Castles 1540–1640*, illustrated by Peter Dennis (Oxford: Osprey Publishing, 2003), 8–38; William H. Coaldrake, *Architecture and Authority in Japan* (London: Routledge, 1996), 104–162; Nishi Kazuo and Hozumi Kazuo, *What is Japanese Architecture? A survey of traditional Japanese architecture, with a list of sites and a map* (Tokyo: Kodansha, 1983), 93–101.
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30 José Eugenio Borao Mateo, *Spaniards in Taiwan*, vol. II: 1642–1682 (Taipei: SMC Publishing, 2002), 372.
31 Borao Mateo, *Spaniards in Taiwan*, 482–521.
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33 Stephen Turnbull, *Japanese Castles AD 250–1540*, illustrated by Peter Dennis (Oxford: Osprey Publishing, 2008), 23.
34 João Paulo Oliveira Costa, "Oda Nobunaga e a Expansão Portuguesa," *Revista de Cultura (Edição Portuguesa)*, no. 13/14 (1991): 259–272; Carlos Alexandre Morais, *Cronologia Geral da Índia Portuguesa* (Macao: Instituto Cultural, 1993), 105–150; R. H. P. Mason and J. G. Caiger, *A History of Japan*, rev. ed. (Tokyo: Tuttle Publishing, 1997), 173, 187–188.
35 Charles Ralph Boxer, *O Grande Navio de Amacao*

(Lisbon: Fundação Oriente; Museu e Centro de Estudos Marítimos de Macau, 1989), 31.

36 João Paulo Oliveira Costa, "A introdução das armas de fogo no Japão à luz da História do Japão, de Luís Fróis," in *Estudos Orientais*, vol. III, *O Ocidente no Oriente através dos Descobrimentos Portugueses*, ed. António Augusto Tavares (Lisbon: Instituto Oriental, 1992), 126–128.

37 Stephen Turnbull, *The Samurai Sourcebook*, new ed. (London: Cassell, 2000), 234.

38 Stephen Turnbull, *The Samurai: A Military Story* (Oxford: Routledge, 1996), 152.

39 Luís Fróis arrived in Japan in 1563. He wrote a book about the history of Japan as well as several letters to Europe narrating the development of events in Japan. He met Oda Nobunaga several times, the last one in 1581.

40 Ana Fernandes Pinto, *Uma Imagem do Japão: A Aristocracia Guerreira Nipónica nas Cartas Jesuítas de Évora (1598)* (Macao: Instituto Português do Oriente, 2004), ix.

41 Costa, "Oda Nobunaga e a Expansão Portuguesa," 267.

42 One example of the European influence in local music instruments is the construction of pipe bamboo organs by using local material, bamboo, in substitution of the metal or wooden pipes used in Europe. David Waterhouse, "The Earliest Japanese Contacts with Western Music," *Review of Culture (English Edition)*, no. 26 (1996): 36–47.

43 Coaldrake, *Architecture and Authority in Japan*, 1–15.

44 There is among authors some confusion about the surname of the captain general who ordered the construction of the first defensive wall in Macao. Loureiro mentions Tristão Vaz Teixeira (Loureiro, *Em Busca das Origens*, 48), but Boxer and Pereira mention Tristão Vaz da Veiga, who was the captain general of the trip to Japan in 1567 (Boxer, *O Grande Navio de Amacao*, 30; Fernando Baptista Pereira, "The 'Acropolis' of Macau: The Religious, Cultural and Military Complex of the Society of Jesus," in *A Museum in an Historic Site: The Monte Fortress of St. Paul*, ed. Project Team of the Museum of Macao, trans. Ana Maria Catarino (Macao: Museum of Macao, 1999), 45) and could have stayed in Macau in 1568 since he received the commission of two trips. Teixeira (c. 1395–1480) was also a navigator.

45 Jorge Graça, "The Defences of Macao," in *A Museum in an Historic Site*, 74.

46 Clementino Amaro, "The College of St. Paul and the Monte Fort," in *A Museum in an Historic Site: The Monte Fortress of St. Paul*, ed. Project Team of the Museum of Macao, trans. Ana Maria Catarino (Macao: Museu de Macau, 1999), 147.

47 Amaro, "The College of St. Paul," 131.

48 Charles Ralph Boxer, *Fidalgos no Extremo Oriente* (Lisbon: Fundação Oriente; Museu e Centro de Estudos Marítimos de Macau, 1990), 106–107.

49 João Paulo Oliveira Costa, *A Descoberta da Civilização Japonesa pelos Portugueses* (Macao: Instituto Cultural; Instituto de História de Além-Mar, 1995), 59–61.

50 Costa, *A Descoberta da Civilização*, 208–212.

51 Japanese warrior monks had enough power to rule unchallenged by warlords' large counties. Famous daimyos include Uesugi Kenshin or Kenshigen, Daimyo of Takayama, a famous Sengoku Jidai general who became a Buddhist monk in 1571.

52 Costa, "Oda Nobunaga e a Expansão Portuguesa," 259–272.

53 Pinto, *Uma Imagem do Japão*, xvii–xviii.

54 Boxer, *O Grande Navio de Amacao*, 35.

55 Pinto, *Uma Imagem do Japão*, 57–136.

56 Pinto, *Uma Imagem do Japão*, 106.

57 Turnbull, *The Samurai Sourcebook*, 268.

58 In 1421, Ming Emperor gave the surname Sho to the archipelago unifier King Hashi, who adopted the Chinese court system and built Shuri Castle and Naha Harbour. They have official trade and were tributary to China since 1372. Some officers studied in Beijing. Tokugawa shogunate authorises the Shimazhu clan (Daimyo of Satsuma) to conquer the Ryukyu Kingdom (1609) under the pretext of refusing support to the conquest of China. Nevertheless, they had kept the trade and the tributary status with China until the Meiji Restoration that ended Ryukyu Kingdom's autonomy in 1875.

59 Yasuaki Tuji, *Nobunaga no yume "azuchijō" hakkutsu* (Tokyo: NHK, 2001).

60 A new documentary from NHK World Japan entitled 'SAMURAI CASTLES: Tenshu — The Tower Keep', available until June 2023, with 3D image of Azuchi castle reconstruction. "SAMURAI CASTLES: Tenshu — The Tower Keep," *Time and Tide*, directed by Tanizaki Masanori, broadcast on 4 June 2022, on NHK, https://www3.nhk.or.jp/nhkworld/en/ondemand/video/3022002/.

61 Coaldrake, *Architecture and Authority in Japan*, 108.

62 Shun'ichi Takayanagi, "The Glory That Was Azuchi," *Monumenta Nipponica* 32, no. 4 (Winter 1977): 520–521.

63 Miyakami Shigetaka, "Azuchijo no tenshu no fukugen to sono shiryo ni tsuite — Naito Akira shi 'Azuchijo no kenkyu' ni taisuru gimon," *Kokka* 999 (1977): 5–27.

64 The Azuchi castle tower is represented in 3D view at Kagawa Gallery, with drawings by Gentaro Kagawa, available on the website of Kagawa Gallery — Rekishikan. "4 Azuchijō tenshu," accessed May 4, 2022, https://rekishi.kagawa5.jp/4%E3%80%80%E5%AE%89%E5%9C%9F%E5%9F%8E%E5%A4%A9%E5%AE%88/%E6%BB%8B%E8%B3%80%E7%9C%8C/. The title reference is *Azuchi–Momoyama period proof Yasuhiro Nishigaya, Gentaro Kagawa 1994 Sekai Bunka 'Japanese castle'*.

65 Trimble is the current owner of the former Google

Sketchup software that had a large collection of iconic buildings all over the world, with enough accuracy to permit forming a general image or concept of the represented building. The one of Azuchi castle is available on the website of 3D Warehouse. "Resurrection Azuchi Castle," created by Trimble, 3D Warehouse, accessed June 16, 2022, https://3dwarehouse.sketchup.com/model/8529453e-7844-43d5-9b43-a8e937fe3363/Resurrection-Azuchi-Castle?hl=en.

66 Reconstruction view of the Azuchi castle and its surrounding is available on YouTube: Fukada Tomohiro, "VR Azuchijō shiatā daijesuto," posted on April 14, 2015, YouTube video, 1:06, https://youtu.be/QnnVxMNiZo0?t=66.

67 Wikipedia's entry on Maruoka Castle. "Maruoka Castle," Wikimedia Foundation, last modified April 22, 2022, 14:48, https://en.wikipedia.org/wiki/Maruoka_Castle.

68 Rie Arimura, "The Catholic Architecture of Early Modern Japan: Between Adaptation and Christian Identity," *Japan Review* 27 (2014): 65–66, https://www.jstor.org/stable/23849570.

69 Coaldrake, *Architecture and Authority in Japan*, 106.

70 This is mentioned by the Provincial Superior of East India of the Jesuits in 1580 and Matthew Ricci, in José Wicki, ed., *Documenta Indica*, vol. XII (1580–1583) (Rome: Institium Historicum Societatis Iesu, 1972).

71 Young and Young, *Introduction to Japanese Architecture*, 40, 55, 70; Kazuo and Kazuo, *What is Japanese Architecture?*, 64, 96.

72 This is mentioned in the Jesuit letters to Europe. Luís Fróis, "Letter from Kuchinotsu, to the Superior of the Jesuit Order on 5 November," *Cartas de Évora*, Tomo II, f. 62, Évora, 1582.

73 These seventeenth-century maps are at the Municipal Museum of Nanban Art in Kobe and in the Museum of Nanban Art in Osaka. Gutiérrez, "A Survey on Nanban Art," 101–132.

74 Michael Cooper, ed., *They Came to Japan: An Anthology of European Reports on Japan, 1543–1640* (Berkeley: Center for Japanese and Korean Studies of University of California, 1965), 134–135.

75 Marius B. Jansen, *The Making of Modern Japan* (Cambridge: Belknap Press of Harvard University Press, 2000), 25.

76 This assumption of divinity was unacceptable for Christians, but practise in Thailand that had Brahmin–Hindu roots. In Siam, since King Trailok (1448–1491), influences of the Ramayana epic poem influenced national religion. The Japanese trade and samurai network were well connected with Siam.

77 This style is apparent in octagonal shape pagodas like the one in Anrakuji, Nagano Prefecture.

78 Mark Karl Erdmann, "Azuchi Castle: Architectural Innovation and Political Legitimacy in Sixteenth-Century Japan" (PhD diss., Harvard University, 2016), 9.

79 Coaldrake, *Architecture and Authority in Japan*, 113–114.

80 Coaldrake, *Architecture and Authority in Japan*, 112.

81 The *Mingtang* was the imperial central hall for audiences and rituals, ceremonies and entertainment in ancient China. It relates with the order in the cosmos, had a rectangular first floor and a circular second floor. Information about the *Mingtang* is available at the '*Mingtang*' page of the website of ChinaKnowledge: "*Mingtang* 明堂, the Birght Hall," ChinaKnowledge, accessed March 14, 2022, http://www.chinaknowledge.de/History/Terms/mingtang.html.

82 Erdmann, "Azuchi Castle," 19.

83 Nabuchodonosor I (c. 1152–1124) is the King of Babylon (presently Iraq) as described in the Bible, in Chapter 4 of Daniel, as an idolatrous king.

84 A translation of the poem is presented in Takayanagi's review of the work of Naito Akira. Takayanagi, "The Glory That Was Azuchi," 523–524.

85 Erdmann, "Azuchi Castle," 381–395.

86 Erdmann, "Azuchi Castle," 657–670.

87 Jennifer Mitchelhill, *Castles of the Samurai, Power and Beauty* (Tokyo: Kodansha International, 2003), 89.

88 Kazuo and Kazuo, *What is Japanese Architecture?*, 93, 102.

89 Coelho agreed with Toyotomi Hideyoshi clearly disobeying the orders from Alexander Valigniano (*Visitador* of the Jesuit) to be involved in Toyotomi Hideyoshi's politics. Warren H. Carroll, *The Cleaving of Christendom*, vol. 4 of *A History of Christendom* (Front Royal: Christendom Press, 2004), 724.

90 Cláudia Orvalho Castelo, "A História do Japão Contada por João Rodrigues," *Revista de Cultura (Edição Portuguesa)*, no. 17 (1993): 133.

91 *Bakufu* is the military government that controlled Japan.

92 Coaldrake, *Architecture and Authority in Japan*, 140–162.

93 Guilmartin, *Galleons and Galleys*, 77–83.

94 The leader of the defence is considered one of the greatest Spanish admirals in history — Blas de Lezo.

95 Rafael Moreira, *História das Fortificações Portuguesas no Mundo* (Lisbon: Publicações Alfa, 1989), 91–158.

96 High towers were easily exposed to cannon fire. The new Italian design focused in large walls. This was intended to absorb ballistic energy of cannon balls, as well as to serve as a platform for gunfire reinforced in the corners by bastions that provided cross fire support. An example of this design is the Monte Fortress in Macao.

97 The first edition of Duarte de Armas's book about fortresses in Portugal was published around 1556. Moreira, *História das Fortificações Portuguesas*, 116–118.

98 Duarte de Armas, *Livros das Fortalezas* (Casal de Coimbra: Caledoscópio, 2016).

99 Gaspar Correia, *Lendas da Índia*, 4 vols. (Porto: Lello & Irmãos — Editores, 1975).

100 Moreira, *História das Fortificações Portuguesas*, 112.

101 António Bocarro, *O Livro das Plantas de todas as Fortalezas, Cidades e Povoações do Estado da Índia Oriental* (Lisbon: Imprensa Nacional — Casa da Moeda, 1992).
102 Amaro, "The College of St. Paul," 124.
103 The 'Estampa XLVII' ('printing 47') representing Macao is on the annex part of António Bocarro's book, written for the Iberian King as a report of the overseas Portuguese settlements.
104 Patricia R. S. Batto, "The Diaolou of Kaiping (1842–1937): Buildings for Dangerous Times," *China Perspectives* 66, no. 4 (July–August 2006): 4–24, https://doi.org/10.4000/chinaperspectives.1033.
105 Guoxiong Zhang and Yuxiang Li, *Lao fangzi: Kaiping diaolou yu minju* (Nanjing: Jiangsu meishu chubanshe, 2002), 5–26.
106 Some of these publications with details of architecture decoration were destroyed during the Cultural Revolution.

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