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Transliteration of Place Names, Cartographic Tracing, Interdisciplinary Cooperation. Michele Ruggieri's Methodology for his Atlas of China (late 16th-early 17th century)

Abstract

After summarising data and events relating to the figure of the Jesuit Michele Ruggieri (1543-1607), a pioneer of the period of encounter between East and West in the Modern Age, and his project, which remained at the manuscript stage, to publish the first Western atlas of China, the article analyses in detail, on the basis of the materials that now exist at the State Archives in Rome, the missionary's working methodology, based on Chinese cartographic sources, their enlargement and transliteration of the toponyms contained therein, and cartographic tracing. Following these operations, a further phase would have seen a professional cartographer succeed Ruggieri in the processing of the maps, which, thus finished, would finally be passed on to the engraver for the copperplate engraving (the latter phase was never completed due to Ruggieri's death). Further topics addressed are an estimate of Ruggieri's materials connected to the atlas that were originally intended to be present among the working materials, but which are now destroyed or missing, some epistemological reflections on the nature of the cartography of the atlas, and, finally, some notes on what graphic layout and impact Ruggieri's atlas would have had if published.

Keywords: Michele Ruggieri, Michele Ruggieri's Atlas of China, Michele Ruggieri's Methodology for the Atlas of China, History of Cartography, Jesuits and Cartography.

Michele Ruggieri, a Neglected Pioneer of the 'Generation of Giants'

Although much less well known, both in Italy and in international literature, than his confrere Matteo Ricci, Michele Ruggieri (real name: Pompilio Ruggieri) (1543-1607) rightly occupies a prominent place in the context of the history of Sino-European relations, as it was the Jesuit who inaugurated the period of cultural encounter between the Chinese and Western worlds in the Modern Age.

Until the late 16th century, the Middle Kingdom and Europe had in fact known sporadic and intermittent contacts, limited during the Middle Ages to merchants (above all, Marco Polo) and missionaries (almost exclusively Franciscans of Italian origin) who travelled along the Silk Road.

Starting from the phase opened by Ruggieri, exchanges became instead more effective and the periods of stay of Westerners in the Far East longer (often, indeed, definitive until death), allowing a real and lasting mutual acquaintance between the two sides: the Apulian Jesuit was, in short, the first of what George H. Dunne (1962), with an effective definition, sketched as 'a generation of giants', capable of bringing Western knowledge (and religion) to East Asia and, symmetrically, of conveying in Europe a real knowledge, and not mythical like the one divulged by the work of Polo, of the Celestial Empire.

In particular, Ruggieri was the first westerner to try learning the Chinese language in those years: although the results he achieved were not excellent (the level achieved shortly afterwards by Ricci was much higher), he is to be considered the founder of sinology (Masini, 2014).

In 1579, Ruggieri, predestined by the Jesuit hierarchies to preach in China, was sent to Macao, then a Portuguese colonial possession, to begin learning Chinese from a low-profile local scholar. He then initiated contacts with imperial representatives in Guangdong to obtain permission to settle in that province, as residence in Chinese territory was usually denied to all foreigners at this stage. Meanwhile, in 1582, he was joined in Macao by his confrere Matteo Ricci. Finally, in 1583, Ruggieri and Ricci obtained permission to settle in Zhaoqing in Guangdong.

Ruggieri seemed launched to play, in the context of the relations between West and East, the role that was later effectively occupied by Ricci, but history took a different direction: in 1587 he was publicly accused of adultery by the Chinese; he then had discussions with Alessandro Valignano, Visitor General of the East India Missions. The latter, in 1588, sent Ruggieri back to Rome to the Pope: officially, in order to support the cause of the Oriental missions to the Holy See; but the Apulian Jesuit was actually the unwitting bearer of a letter by Valignano himself, addressed to the Jesuit superior in Rome, in which the work of the founder of sinology was denigrated (Masini, 2014, p. 27).

Ruggieri's reputation was irreparably damaged and he never returned to China, retiring in Nola (Naples). Symmetrically, Ricci took up his legacy in China and became the *de facto* the Jesuit leader in the Ming Empire, penetrating deeply into Chinese culture and eventually settling at the imperial court in Beijing, where he died in 1610.

Michele Ruggieri's Atlas of China: the Aims and the Outcomes of the Project; the History of Studies

Ruggieri was aware, on the one hand, of the fabulous and anachronistic character, of medieval ancestry, of the information that, still in the 16th century, was circulating in Europe about China; on the other hand, he recognised a remarkable effectiveness of cartographic language in the function of territorial knowledge.

On the basis of the above convictions, perhaps as early as his years in Guangdong, he conceived, purely theoretically, the hypothesis of publishing the first 'Western' atlas of China, in order to spread a 'scientific' knowledge of the entire Middle Kingdom in the West.

In addition to dissemination purposes, the publishing of an atlas of China in Europe would also have been connected to issues of missionary policy in the East: the cartographic display of the enormous surface of the Chinese Empire would have made readers aware about the aims and challenges of Jesuit missionary work in the Celestial Empire, imposing its urgency and funding on Western political and religious authorities.

Again, on a more strictly cultural level, it is well known the great importance attributed, over the centuries and in different geographical contexts, by the Jesuit order to cartography, a scientific language that allowed the description of God's Creation on a geometric basis, using mnemonic and rhetorical techniques and conventions similar to those of prayer (Piastra, 2021a, pp. 22-23).

It was, however, probably during the last twenty years or so of his life, once he had settled permanently in Italy, that Ruggieri concretely worked on the project, never completed, to publish the first Western atlas of China, conceived as consisting of text and cartography on a Chinese provincial scale.

The technique adopted for the printing of the maps would have been the copperplate engraving.

The fact that the paper support for all of Ruggieri's manuscript materials in the atlas, which is homogeneous for the entire *corpus*, is of Italian production (Lo Sardo, 1993, p. 12), points to an elaboration in Italy, and not one already begun in China. On the other hand, it is difficult to imagine that Ruggieri had brought numerous Italian-made sheets to China with him since 1579, had already started working on the atlas in the Far East, and then brought all these preparatory materials back to Italy once he had returned, and continued to work on them for the next twenty years ca., without having to resort to further sheets: as mentioned, the paper support used is in fact homogeneous within the entire *corpus*.

A further indirect confirmation in this sense, in the direction of the period of elaboration of the atlas only once he had returned to Italy, is represented by the date 1606, the only date present in the manuscript, only one year before the author's death (Lo Sardo, 1993, p. 11): this is an argument in favour of the fact that Ruggieri worked on his work until the very end, interrupting it due to his death.

Ruggieri's work appears today as a manuscript draft, unfinished and unrevised, drawn up in different orientations between the front and back of the sheets and marked by both textual passages and cartographic plates, which overlap one another, within which the final version for printing was never reached, nor were provisional versions expunged or destroyed.

The text is largely in Latin, but some sections are in Italian (Lo Sardo, 1993, pp. 68-69). Perhaps Ruggieri was initially undecided about the language of the atlas, but then turned to Latin in the progress of the work in order to allow a greater circulation (a choice adopted a few decades later by Martino Martini with his *Novus Atlas Sinensis*, 1655), without however adapting the entire text and eliminating the parts that had become

incongruous in the meantime. The same situation is repeated in the maps, which focus on the provinces of the Chinese Empire: annotations, cardinal points or place names are generally in Latin, but rarely also in Italian (Piastra, 2017, pp. 199-200).

The romanization of Chinese place names (attempted here for the first time in history) is not fully codified and is based on Italian and Portuguese orthographies (Raini, 2022, p. 150); the same place name is frequently mentioned with different spellings in the various textual sections or maps.

For a long time it was believed that, after Ruggieri's death, the preparatory manuscript materials apparently had no circulation, only to reach, after a few passages, the State Archives in Rome, where they were half-forgotten. Here they were rediscovered, attributed to Ruggieri (the manuscript is, in fact, formally anonymous), discussed and edited only at the end of the 20th century by Eugenio Lo Sardo (1993).

Filippo Mignini (2005, pp. 6-7), former Director of the Matteo Ricci Institute for Relations with the East based in Macerata (Ricci's hometown), has put forward the hypothesis that the cartography in the atlas is not attributable to Ruggieri, but to Matteo Ricci: the latter is said to have given it to Ruggieri as part of their mutual cultural collaboration in Zhaoqing for a future publication, and the Apulian Jesuit took the maps with him on his return to Italy in 1588. Following Ruggieri's failure to return to China, these materials would have remained with him, incorporated into the work he was drafting and then passed into the State Archives in Rome until Lo Sardo's rediscovery. Mignini's hypothesis, in our view, shows, however, few arguments against an attribution to Ruggieri of, at least, a large part of the maps, even though the possibility that single pieces of the *corpus* may have been elaborated by others is plausible (see below the hypothesis about the work of a cartographer, perhaps Matteo Neroni). The fact that we have informations of Ricci's drafting of chorographic maps of China, and the consideration of the Apulian Jesuit's lack of cartographic training, arguments put forward by Mignini, do not appear to be diriment factors: in the first case, these Ricci maps could have been lost or still be preserved in China or Italy waiting to be found, without necessarily having to identify them with those preserved in the State Archives in Rome; Ruggieri also had a basic knowledge of math and geometry, but probably sufficient for the project he undertook, especially in the context of the working method he adopted, which involved enlargements, tracings and cooperation, in a final phase, with professional cartographers.

More recently, the atlas was digitised by the State Archives in Rome (<https://imagoarchiviodistatoroma.cultura.gov.it/ruggieri/ruggieri.html>).

Finally, an exhibition on the Ruggieri atlas was organised in Macao between 2012 and 2013 (Lo Sardo et al., 2013), accompanied by a multilingual translation of the work (Jin Guoping, 2013).

In recent years, however, the idea of an immediate and total oblivion of the Ruggieri's manuscript has been challenged by Lin Hong (2022, p. 133), according to whom at least the Polish Jesuit Michael Boym (1612-1659) and his Chinese assistant Andreas Chin, who accompanied him, studied and reused Ruggieri's materials in Rome, adding new manuscript notes to it, in the mid-17th century.

Indeed, since several years the good calligraphy of the Chinese characters of the place names in the maps of Sichuan (Lo Sardo, 1993, T.49), Chuquam (Lo Sardo, 1993, T.69) or Shaanxi (Lo Sardo, 1993, T.34) of Ruggieri's manuscript has been underlined by the scholars. Song Liming (2013, p. 151) traced these characters back to their writing by an unidentifiable Chinese scholar, and not by the first Westerner who attempted, with mixed results, to learn Mandarin. In this direction would go the detail, reported by Ruggieri himself in one of his manuscript notes, about being accompanied to an audience with Philip II of Spain and later to a Papal audience, after his return to Italy, by '*il suo indiano*' ('his Indian') (Song Liming, 2013, p. 151; Lo Sardo, 2016, p. 78), interpreting in this case the term 'Indian' as actually Chinese, and not as Indian in the strict sense. If confirmed, he would be the very first Chinese from the Celestial Empire to have come to Italy during the Jesuit period.

Recently, Lin Hong (2022, p. 133) has instead identified, on the basis of calligraphy, these Chinese characters on some maps of the Ruggieri's manuscript as belonging to Andreas Chin, comparing them with other Chinese characters certainly by Chin on the sheets of another atlas of China, which also remained at the manuscript stage, drawn up by Boym a few decades after the Ruggieri's death. In other words, Boym and Chin, during their stay in Rome in the mid-seventeenth century, saw and added details to Ruggieri's manuscript, and then moved on to a new atlas of their own, which also remained unpublished (Szcześniak, 1953; Lin Hong, 2022). To summarise, it seems that the almost complete removal from the history of the studies of Ruggieri's cartographic project can be linked to the 1655 edition of Martini's *Novus Atlas Sinensis*: only after this date,

the wide circulation, the quality of the maps (the engraving and the printing of which was entrusted to a famous Dutch printing house, Blaeu) and the numerous translations of Martini's work into European languages caused the loss of usefulness and interest for a handwritten and obsolete draft of an atlas, with China that had meanwhile passed from the Ming to the Qing Dynasty.

In relation to the Chinese cartographic sources, which Ruggieri had evidently brought with him on his return to Italy and which he used in the context of his atlas project, scholars had long questioned their nature.

On his return to Europe, we have generic informations that the Apulian Jesuit gave his superiors or referents Chinese maps he had acquired during his stay in the Celestial Empire: in 1589, on his way to Italy, he made a similar gift to a Cardinal based in Lisbon and then, once in Spain, repeated it with King Philip II; on reaching his destination in Italy, he reserved the same gift for other Roman interlocutors and finally, in December 1590, he gave a 'Chinese atlas' to Pope Gregory XIV, who received him in audience (Song Liming, 2013, p. 149).

In the vagueness of the mention, however, it is not clear which Chinese maps were involved.

A few decades later, the official historian of the Society of Jesus, Daniello Bartoli (1608-1685), mentioned in his *Cina, Terza parte dell'Asia (China, Third Part of Asia)* (1663, p. 89), that

Portollecì di colà [from China] il P. Michel Ruggieri, fin dall'anno 1589, e le habbiamo qui [in Rome] tuttavia, nell'uno, e l'altro carattere, Cinese, e nostrale; quelle [Chinese] stampate, e queste [Ruggieri's atlas] a mano: colle distanze a misura: e tutto interissimo l'ordine, la disposizione, i nomi; e le qualità de gli innumerevoli luoghi di quell'Imperio suggettisi l'uno all'altro in ciascuna Provincia, (...).

(En. translation: Since the year 1589, father Michele Ruggieri brought [Chinese cartography] from there [China], e we still have these maps here [in Rome], both in Chinese and Western characters; the first are printed, and the others handwritten: with distances indicated: and the order, the disposition, the place names; and the features of the various places of that Empire, Province by Province ...).

Once again, however, Bartoli's quotation did not give more accurate indications about the Chinese maps brought to Italy by Ruggieri.

More precise analyses in this regard started from the only Chinese printed map still preserved within Ruggieri's *corpus* in the State Archives in Rome, and probably used by Ruggieri in the context of his work: a map of Liaodong Province (Lo Sardo, 1993, T.79) (fig. 1).

Initially, Ruggieri's Chinese cartographic source was identified with a 16th century version of the *Guangyu Tu* (Song Liming, Giorgi, 1993, p. 121).

Thanks to the studies by Wang Qianjin (2013), later confirmed by Lin Hong (2022, p. 125), we are now sure that the Liaodong map within Ruggieri's *corpus* in Rome is taken precisely from the *Da Ming Guanzhi* in its 1586 edition (published just some years before Ruggieri's return to Italy): a source of an administrative nature of the Ming Empire, subject of several editions over time, consisting of text and maps which, for the aforementioned 1586 edition, were copied precisely from the *Guangyu Tu* in its 1566 edition. In other words, the role played by *Guangyu Tu* on Ruggieri's atlas was indirect and mediated through *Da Ming Guanzhi*.

Within the materials of the atlas, the Italian or Latin texts and most of the manuscript maps are undoubtedly by Ruggieri's hand; however, it seems probable, on the maps, that also other collaborators of the Jesuit gave a contribution: this seems to be the case of a map of the Fujian province (Lo Sardo, 1993, T.23), perhaps attributable, as it is ready for copperplate engraving (a unique case within the atlas), to a professional cartographer, for whom an identification with Matteo Neroni has been proposed (Song Liming, 2013, p. 151). We will return to the importance of this map in the context of the reconstruction of Ruggieri's working method in the following paragraphs.

The manuscript atlas of China was, until a few years ago, the only known cartographic work attributed to Michele Ruggieri.

The recent discovery, discussed by Marco Caboara (2020), of a printed, small-scale map of China, in Latin, attributable to the Apulian missionary and previously unknown, now poses new interpretative questions in relation to his cartographic work and the phases in which it developed.

The map, a copperplate engraving, is entitled *Sinarum Regni alioru[m]q[ue] regnoru[m] et insularu[m] illi adiacentium descriptio*, and is currently only known through two identical copies, one conserved at the Hong Kong University of Science and Technology (HKUST) Library and purchased on the antiquarian market (fig. 2);

the other at the *Archivum Romanum Societatis Iesu* (ARSI) in Rome (fig. 3). In the bibliography, it was erroneously assumed for some years that these were two separate copies, one printed and the other handwritten.

The map is formally anonymous, but the manuscript materials at ARSI to which it is attached and the internal references that these documents make to the map lead to an attribution to Ruggieri.

It also does not bear the date of printing, but for various reasons it can be dated around 1590.

As the *Sinarum Regni (...) descriptio* is probably dated around 1590, it was therefore printed before than the elaboration period of Michele Ruggieri's atlas of China, whose processing stage stretched over decades until the author's death (1607).

Comparing the *Sinarum Regni (...) descriptio* with the many maps, almost never definitive, of the atlas, persistences and changes emerge (Piastra, Caboara, 2023).

Among the elements of continuity, it is worth highlighting the mention of the Gobi Desert, with the toponym '*Desertum arenosum*' in both works (in the atlas, its location is within the general map published in Lo Sardo, 1993, T.1). In the Pearl River estuary, both works also mention Shangchuan Island ('Sanchoão' in the *descriptio*, 'san juan' in the atlas: Piastra, 2017, pp. 203, 208, 212, fig. 1), where Francis Xavier died in his pioneering attempt to introduce Christianity to China. The island became a symbolic place for the Jesuit mission (Piastra, 2021b). At least one more minor island is mentioned with the Portuguese toponym 'y. branco' / 'Isola Branco' (Piastra, 2017, pp. 203, 212, fig. 1).

Furthermore, with clear self-celebratory aims for Ruggieri's missionary activity in China, concluded a few years earlier, both the *descriptio* and the atlas intentionally emphasize the first Catholic mission established in China in Zhaoqing. The *descriptio* reports an '*ecclesia patrum societatis*' with the symbol of a church, while the atlas, in the maps of Guangdong, has, with a shortened caption, a '*prima ecclesia patrum Societatis Iesu*' with similar symbolism (Piastra, 2017, pp. 207, 213, fig. 4). It is also worth noting the anachronism in both Ruggieri's works in this regard. At the time of the *descriptio* (around 1590) and even more so during the processing of the atlas (at the turn of the 16th and 17th centuries), Zhaoqing was no longer the only Catholic residence in China. In fact, Matteo Ricci had founded a second one in Shaozhou since 1589. However, Ruggieri's maps celebrate only the mission in Zhaoqing, which he co-founded, ignoring the fact that Ricci's missionary activity in the Celestial Empire continued successfully after his return to Italy. It appears that, following Ruggieri's disagreements with Alessandro Valignano and his departure from China, Ricci and Ruggieri did not stay in contact with each other. There is no evidence of letters sent to Ruggieri in Italy in Ricci's correspondence (Ricci, 2001).

One of the most significant discontinuities between the *descriptio* and the atlas is the absence of Macao in the former, while the latter provides specific information, including Christian symbolism regarding its presence (Piastra, 2017, pp. 207, 213, fig. 3). This omission could be interpreted based on the fact that Macao was a European colony in East Asia, already Christianized at the time, while the focus of the *descriptio* was on representing the Chinese Empire, the conversion of which was the goal of the Society of Jesus' mission. Later, Ruggieri would realize the importance of locating Macao for a European readership less familiar with the geography of East Asia, and therefore included it in the maps of the atlas.

Reconstructing Ruggieri's Working Methodology in the Atlas

Lin Hong (2022, pp. 126-127) has focused on methodological issues underlying Ruggieri's atlas.

The author has distinguished among three typologies of maps in the manuscript materials: 'translated maps', 'adapted maps', and 'interim maps'.

The 'translated maps' account for only 2 out of the total *corpus* in the State Archives of Rome (the maps of Nanchin [Nanzhili] and Liaodong: Lo Sardo, 1993, T.63 and T.77) (figs. 4-5). Their graphic layout is very similar. According to Lin, these are essentially mere replicas and transliteration of the Chinese toponyms from the *Da Ming Guanzhi* maps.

To Lin, the 'adapted maps' currently amount to 25 maps within Ruggieri's materials. In these maps, Ruggieri did not slavishly replicate his Chinese cartographic source, but introduced modifications, such as different georeferencing of some cities.

The 'interim maps' are identified, by Lin, as 3 maps only (Lo Sardo, 1993, T.4, T.39, and T.68).

Building on Lin Hong's studies, we undertook a comprehensive analysis on Ruggieri's cartographic working method within the atlas, within the broader context of the issues, work phases, and specializations of the European cartographic tradition, from preliminary development to cartographic design, copperplate engraving and printing.

All the maps in the Ruggieri atlas (preliminary, advanced, definitive) have been examined.

Concerning the cartographic design, we have compared different versions of the maps of Chinese provinces, highlighting similarities and differences.

On the toponymy level, we have focused on maps of specific provinces in which, across various editions, both Chinese character toponyms and toponyms in the Latin alphabet are found.

These are the phases of Ruggieri's working methodology that we identified:

- 1) The starting point was having access to printed Chinese cartography at a provincial scale, in our case the *Da Ming Guanzhi* (1586). This was a very significant factor, without which the Jesuit's work would not have even started: the copy of the *Da Ming Guanzhi* that Ruggieri brought to Italy was one of the first Chinese books to reach Europe during this period and one of the first Chinese geographical works to achieve such a circulation.

Before Ruggieri, it seems that, in Europe, only Portuguese scholar João de Barros (1496-1570) was in possession, in the early '60s of the 16th century, of a Chinese atlas (Maccocci, 2016, p. 71); a 16th century copy of *Guangyu Kao* arrived in Florence, thanks to Italian merchant Francesco Carletti, in 1606 (Carletti, 1989, p. 134), so after Ruggieri's definitive return to Italy.

However, Ruggieri's publishing project aimed at creating an atlas of considerable dimensions. The original *Da Ming Guanzhi* maps had a format too small for a direct tracing, translation into Latin, and adaptation at a 1:1 scale. Therefore, manual enlargement on a new sheet was necessary, probably using the geometrical grid method known in Italian as 'quadrettatura'. The traditional grid system of Chinese cartography, in use since the 12th century AD e.g. in *Yu Ji Tu* (Yee, 1994, p. 47), was used by Ruggieri as a mere geometric tool to analytically transfer various cartographic details from the original grid to the larger-scale grid on the new sheet. Ruggieri's enlargement to the desired scale and sheet size was achieved through a sort of 'mosaic' process, enlarging the details of every 'square' of the grid of the *Da Ming Guanzhi* maps, square by square (in Italian, 'quadrato'). The grid used for the enlargement was initially retained (always in red) on the new sheet, and the original Chinese toponyms were romanized by Ruggieri (the first Westerner capable of doing so, at least rudimentarily, as he was effectively the first sinologist of the Jesuit era), possibly with the assistance of his unknown Chinese collaborator who had come to Italy with him (the 'Indian' discussed earlier). Complete evidence of this initial phase exists in only two maps within the materials from the Ruggieri atlas: the Liaodong map of the *Da Ming Guanzhi* (fig. 1) and its enlarged version with romanized toponyms (fig. 4). The Nanchin map (Lo Sardo, 1993, T.63) (fig. 5) also belongs to this phase, but the Chinese original from *Da Ming Guanzhi* is missing.

- 2) This enlargement operation required refinement and reworking, especially concerning the cartographic design of the new enlarged map and the script of the romanized toponyms. A new handwritten version of the same map was then created on the same sheet format as the one just obtained: the physical (rivers, mountains) and political (internal borders) elements and topography were traced from the previous map, likely through the system of overlaying two sheets in backlight, with the original underneath and the new copy on the top.

The grid derived from the enlargement of the *Da Ming Guanzhi* maps was now usually deleted.

Regarding the georeferencing of urban areas, sometimes, when it appeared imprecise in the original, the author made corrective adjustments on the traced map (Lin Hong, 2022, p. 126).

At this stage, sometimes Ruggieri added some further geographical features derived not from Chinese cartographical sources, but from other Western sources (Portuguese and Italian in particular): this is the case of the 'Pescaria di perle' (in Italian)/'*margaritarum piscatio*' (in Latin) ('Place of pearl fishing'), located on the maps of the atlas close to Hainan island (Piastra, 2018).

Examples of this phase within the Ruggieri atlas are given by two consecutive maps of Shaanxi (Lo Sardo, 1993, T.34 and T35) (figs. 6-7).

The aforementioned maps allow us to discuss more deeply a topic worthy of further exploration within the studies of the atlas.

The presence of place names in Chinese characters on Ruggieri's maps, such as a map of Shaanxi (Lo Sardo, 1993, T.34), might initially suggest an intermediate stage between what we have indicated as phases 1 and 2. It could be hypothesized that, in the new enlarged version through the 'quadrettatura' of the original *Da Ming Guanzhi* map, the Chinese toponyms were initially retained in Chinese characters, and only later romanized into a subsequent map traced from the previous one. In other words, there would have been an additional step between stages 1 and 2, producing an extra map with Chinese toponyms. Such an operation could be justified in the context of the collaboration between Ruggieri and the unknown Chinese collaborator who accompanied him to Italy, as discussed earlier: the characters appear to be written by a Chinese scholar, and they are quite different in style from the Italian or Latin script of the Jesuit; we also know that Ruggieri's knowledge of Chinese never reached deep levels, and his understanding of written Chinese might have been better than his oral comprehension. It could appear, at a first sight, plausible that the Chinese collaborator drafted the intermediate map in Chinese, and Ruggieri then traced it later, transliterating the Chinese toponyms that he needed to read in written form on the map and, most important perhaps, handwritten in a clear form (the woodblock printing system of *Da Ming Guanzhi* had produced, instead, frequently unclear characters), to better understand them and apply his experimental transliteration method. Up to this point, the assumption was to think of a working stage with an initial map, created by Ruggieri's 'Indian' with Chinese toponyms, enlarged through the 'grid' ('quadrettatura') from the original *Da Ming Guanzhi* map, and then retraced and transliterated by Ruggieri.

However, Lin Hong (2022, p. 133) has proposed a different interpretation, mentioned earlier. The author has identified, based on calligraphy, the Chinese characters found on some maps within the Ruggieri's *corpus* as belonging to Andreas Chin (real name: Zheng), a junior military officer and a collaborator of the Polish Jesuit Michael Boym, who traveled to Rome and presumably worked on Ruggieri's manuscript there, around the mid-17th century.

At this point, it seems that the maps in the atlas that contain Chinese characters would have been reworked by multiple hands. In particular, the Chinese toponyms would have been added by Chin, *ex-post* Ruggieri's work, when the Apulian Jesuit was already dead and his materials were left unfinished in the archives in Rome, rather than being the remnants of a phase by Ruggieri's anonymous Chinese collaborator, *ex-ante* the cartographic tracing by Ruggieri.

Indeed, upon close examination, but without chemical evidences, the ink used for the Chinese toponyms (black) appears significantly different from that undoubtedly used by Ruggieri for the romanized toponyms (brown-reddish).

However, supporting old theories, this difference could be still attributed to the fact that during the elaboration phase, Ruggieri and his 'Indian' collaborator used different inks.

Aside from the calligraphic identification with Andreas Chin suggested by Lin Hong, an external piece of evidence for the placement of Chinese toponyms on the atlas maps *ex-post*, rather than *ex-ante* Ruggieri's work, is visible on a map of Sichuan (Lo Sardo, 1993, T.49). Here, a 'label' with the place name 'Xuchuanfu' (叙川府), in Chinese characters, is pasted on the map, covering (and possibly correcting) the romanized toponym, which is now invisible beneath the label (fig. 8). Again, the inks for the romanized toponym below, which is no longer readable at this point, likely of Ruggieri's hand, and the Chinese toponym above, likely of Chin's hand, are very different from each other.

The Chinese label pasted above the romanized toponym appears to be a new material evidence, in addition to calligraphy, to support the interpretation given by Lin Hong.

A direct reuse of Ruggieri's manuscript by Boym and Chin in the mid-17th century, with their new handwritten notes directly on the pages of the Apulian Jesuit, should not be surprising. Ruggieri was dead at that time, and his working materials were probably considered mere drafts by the institution that held them. Probably, the attempt by Boym (eventually also unsuccessful) to publish his own Chinese atlas based on Ruggieri's project was seen as something to encourage by the religious authorities to complete an unfinished and practically unusable work.

Lastly, Andreas Chin had probably a medium (or medium-low) Chinese education and cultural background: the aforementioned place name 'Xuchuanfu' (叙川府), added on the 'label', is

incorrect; the right version should be 'Xuzhoufu' (叙州府) (personal communication of Duan Wei, Fudan University, Shanghai, Institute of Historical Geography; October 2023).

If the points mentioned above are confirmed, only the two stages analyzed up to this point (enlargement and transliteration of toponyms; tracing, refinement of mapping and script of toponyms and usual deletion of the 'grid'/'quadrettatura') remain valid within Ruggieri's working method.

- 2a) It is not necessarily a distinct phase of work always present. However, it could happen that the process of tracing by Ruggieri, using a glass for backlighting, overlaying the enlarged map obtained from phase 1 with the blank sheet where the refined version (phase 2) was desired, did not match the qualitative standard expected. Transliteration errors or imperfect alignment between the two sheets under backlight could lead to an unsatisfactory cartographic version. Consequently, Ruggieri would make evident corrections and erasures on the 'unsuccessful' map, in order to create an improved version through a new cartographic tracing on a new sheet. The 'unsuccessful' map would then be discarded in favor of the 'successful' one. An example of a traced map with erasures and corrected errors depicts the Province of Fujian (Lo Sardo, 1993, T.17) (fig. 9).

The process of phase 2a might be repeated again if the second traced version was still unsatisfactory. This is why we often find various repeated, provisional, or sometimes just outlined and never completed maps within the Ruggieri atlas for the same Chinese province.

- 3) Up to this point, the cartographic work for the atlas was carried out by Ruggieri alone. Even though he had obtained a traced map of good quality, it still did not meet the acceptable quality standards or be ready for copperplate engraving and final printing. Ruggieri possessed only basic rudiments of cartography, and during the elaboration of the atlas, he seems to have moved forward through trial and error, essentially being a self-taught cartographer. In that period, printed cartographic production reached one of its qualitative peaks in Italy, and a reputable printing house would never have accepted maps not drawn by a professional cartographer to be passed to the engraver.

Thus, a new phase within the Ruggieri approach had to consist of, map by map of the atlas, a new handwritten version of the maps. This time, however, it was entrusted to a cartographer, whose role would coincide with conforming to standard cartographic conventions and refining what had been done by Ruggieri in a rather rough manner in the previous phases (toponymy, symbolism, graphic scale, titles of the various provincial maps to be graphically standardized, etc.). During the long (and unfinished) elaboration phase of the atlas, Ruggieri likely worked on various maps in a non-linear manner. Some maps were probably better off following the previous phases, reaching an advanced or almost finished state. Others required additional steps, and Ruggieri spent more time on them. We can identify only one map within the Ruggieri atlas that reached phase 3 (the most advanced of all), made not by Ruggieri, but rather by a professional cartographer whom was involved for a definitive version of the maps, later to be passed on to the publisher for copperplate engraving and, ultimately, printing. This map is the Province of Fujian (Lo Sardo, 1993, T.23) (fig. 10), which, at this point, is the only Chinese province in the atlas for which we have all the various draft maps up to the final one made by the cartographer. In fact, the handwriting, symbols, and graphic detail all seem to refer to someone other than Ruggieri, whose style is, vice versa, identifiable homogeneously in the other maps in the atlas. The qualitative level of fig. 10 is significantly higher than the other traced maps in the atlas by Ruggieri.

Unfortunately, the map does not bear any explicit attribution regarding its author.

Song Liming (2013, p. 151) has proposed that the cartographer who authored the final Fujian map (Lo Sardo, 1993, T.23) is Matteo Neroni (1550 ca.-1634), a collaborator of the Roman headquarters of the Society of Jesus (Conti, 2013, p. 75).

In the past, it was thought that Matteo Neroni (a not very famous cartographer even in Italy and on whom international authors had not found documentary evidence for a long time) should be identified with Matteo Ricci, hidden under a pseudonym or reported with an incorrect surname (Szcześniak, 1954; Szcześniak, 1956, p. 120; Mungello, 1989, p. 120, note 32). Such a hypothesis appears entirely erroneous and baseless today. In support of the identification hypothesis proposed

by Song Liming, which we share, is the information given by the French cartographer Nicolas Sanson in the caption of his 1656 map entitled *La Chine Royaume*, where he stated that his work was based on Neroni's maps, in turn influenced by the information and books from China brought by Ruggieri to Italy (Caboara, 2022, pp. 287-288). In particular, the North-East section of Sanson's map seems to be directly derived from maps of Ruggieri's atlas (Caboara, 2022, pp. 288-289, figs. 47b, 47d). In other words, a direct connection and explicit collaboration between the two authors are fully confirmed. It seems unlikely to claim that, originally, there were other definitive Neroni maps ready for engraving, and that they were then lost after Ruggieri's death: the evidence that only in the case of the Fujian map published by Lo Sardo, 1993, T.23 there is, within the materials in the State Archives in Rome, also a semi-definitive version by the same cartographer (Lo Sardo, 1993, T.21) (see below, phase 3a), leads one to think that it was the only one made at the time (vice versa, it seems probable that at least other semi-definitive maps of other Chinese provinces should have survived). Again, if Neroni had really prepared several definitive maps for engraving, it seems likely that he would have at least attempted a posthumous edition of Ruggieri's work, something of which we have no documentary evidence. On the other hand, it seems likely that Neroni did not even envisage such an operation precisely because Ruggieri's project was still far from completion, with only one map ready for engraving (see a specific paragraph below). Lastly, the processes of deletion of maps within Ruggieri's materials seem to have concerned, in progress, the initial preliminary maps (those of phase 1), as they become obsolete (see below): thus not the final maps ready for engraving.

3a) Alongside the final map of Fujian, probably created by Neroni and completed for engraving, another map of the same province is depicted in a semi-final version (Lo Sardo, 1993, T.21) (fig. 11). Again, the handwriting and design are much better than those of the Ruggieri's maps in the atlas, and very similar to those of the final Fujian map (Lo Sardo, 1993, T.23). The differences between the two Fujianese maps are reflected in the somewhat less clean trace of the map in Lo Sardo, 1993, T.21, the presence of some handwritten notes by Ruggieri (additions and corrections to the semi-definitive Neroni's map?), and the lack of some formal and graphic elements instead present in the Lo Sardo, 1993, T.23 map (lack of a frame around the map, lack of the general title of the map, lack of the neighboring provincial names, lack of the indication of the East China Sea, lack of the symbols regarding mountains and forests, graphic scale in the form of a draft).

In other words, in the context of the making of the atlas, symmetrically to what we have seen above about the tracing (phases 2-2a), also the cartographic elaboration by Neroni for the engraving may not have achieved the expected results at the first attempt.

The map of Fujian edited in Lo Sardo, 1993, T.21 thus seems to be the first version by Neroni commissioned by Ruggieri, subsequently emended by the latter. It was later reprocessed, incorporating the Jesuit's corrections, by the cartographer in its final form, ready for engraving (Lo Sardo, 1993, T.23).

4) (A stage that never became operational within Ruggieri's China atlas project). The various definitive maps created by the cartographer, reworking Ruggieri's preparatory materials of the previous phases, were supposed to be passed on to the engraver of the cartographic workshop responsible for printing the atlas.

However, as mentioned, the Ruggieri's atlas never reached this stage, stalling at the manuscript stage in archives.

As mentioned earlier, only in the late 20th century, almost four centuries later, the manuscript materials were rediscovered, attributed to Ruggieri, discussed, and edited by Eugenio Lo Sardo (1993).

After the failing of Ruggieri's editorial project, the distinction of being the primary reference cartographic work through which the West came to know China went to Martino Martini's *Novus Atlas Sinensis* (1655) (Mungello, 1989, pp. 116-124).

The various phases of Ruggieri's working method underlying his editorial project for the atlas of China, which we have detailed here, allow for some final general considerations.

On one hand, the extended elaboration period required for this pioneering work in the early days of Sinology becomes evident. In fact, Ruggieri worked on his atlas for approximately two decades, without reaching its completion. The Apulian Jesuit seems to have pursued his project with autonomy and persistence, without significant support or resources, except for those of his Chinese collaborator and Neroni, the last presumably only in the final phase and in relation to a single map. In the background of this story is his retirement to Nola in the latter part of his life, becoming increasingly isolated from the Roman headquarters of the Society of Jesus and from his fellow Jesuits who were still in China (like Ricci). The lack of support for Ruggieri could also have been partly caused by the extremely short pontificates of the Popes who succeeded each other upon the immediate return of the Jesuit to Italy: in approximately a year and a half (August 1590-February 1592), five Popes followed one another (Sixtus V, Urban VII, Gregory XIV, Innocent IX, Clement VIII). The failure to publish the atlas can be seen as primarily due to a lack of financial support, which was evidently not provided by the Society of Jesus.

Lastly, by contrast, the failure of Ruggieri's editorial project for his atlas allowed us, almost four centuries later, to analytically reconstruct the method and the phases of his work. Since it never reached publication, the preparatory materials, from the most preliminary to the intermediary and the few final versions, were preserved. If Ruggieri's atlas had been published, on the one hand, the history of cartography would be different today (the first European atlas of China would have been Ruggieri's, with Ming Dynasty China, rather than Martino Martini's *Novus Atlas Sinensis* (1655) portraying Qing Dynasty China). But, on the other hand, a printed edition of Ruggieri's atlas would have likely led to the destruction of various manuscript preparatory materials in their preliminary or final versions, as they would have been deemed unnecessary and replaced by printed final materials, much like what happened with the *Novus Atlas Sinensis*.

In summary, the non-publication of Ruggieri's atlas provides a rare opportunity to observe the internal, in-progress aspects of the elaboration and publication processes of a 17th century atlas, within the context of the Sino-European encounter in the Modern Age.

Ruggieri's Methodology and the Survived Working Materials: Which and How Many Pieces should have been Destroyed or Lost?

As mentioned above, it is likely that, upon Ruggieri's death, the preparatory manuscript materials for the atlas that were in his possession were archived and conserved until today.

However, based on the working methodology of Ruggieri that we reconstructed in the previous paragraph, it is evident that a significant number of maps (original Chinese maps and Ruggieri's working drafts), that originally existed, were destroyed or lost and have not survived. Today, we can hypothesize about the various stages of the work based only on the few surviving maps (two maps only for the whole phase 1; figs. 1, 4), while, in reality, the whole process we reconstructed would have applied to any map in the atlas. It is plausible that many of these materials were destroyed or dispersed, possibly during Ruggieri's lifetime, as the atlas advanced towards final or more refined forms.

The destruction of these working materials would serve several purposes. First, it was economic as it involved the reuse of paper, which was a valuable resource. Second, it aimed to maintain order within the work process by deleting outdated sections of the manuscript, ensuring that only the final materials would be delivered to the printing without errors and duplicates. It also prevented intellectual theft of the work before publication. Moreover, the absence of leaks before the publication, thanks to the destruction of the preparatory materials, was instrumental to make the atlas, once published, more marketable and prestigious. If the destruction of many Ruggieri's working materials was indeed voluntary and authorized by the author, the dispersion of the *Da Ming Guanzhi* (1586), the Chinese cartographic source Ruggieri based his work on, might have followed a different path. Lin Hong (2022, p. 133) has argued that during the time of Boym's stay in Rome (mid-17th century), the copy of *Da Ming Guanzhi* owned by Ruggieri was still in the archive and that the Polish Jesuit used it as well. If this is confirmed, this copy of *Da Ming Guanzhi* would have been destroyed or dispersed several decades after Ruggieri's death, possibly due to its collectible value and exotic

appearance. Only a single map from *Da Ming Guanzhi* (Liaodong province) has survived in the archives in Rome, while the other printed maps from the same document were removed from the archive by other individuals on one or more occasions, and we know nothing about their ultimate fate.

To make a qualitative and quantitative estimate of Ruggieri's materials that were originally supposed to be present within the working *corpus*, but were subsequently suppressed or lost on several occasions, here is a preliminary assessment:

- all the original maps from *Da Ming Guanzhi*, except for one (Liaodong province), are missing today (Lo Sardo, 1993, T.79);
- since there were 16 provincial maps in Ruggieri's atlas, probably 14 maps from phase 1 (enlargement through 'quadrettatura' and romanization of toponyms) are missing today. Liaodong (Lo Sardo, 1993, T.77) (fig. 4) and Nanchin [Nanzhili] (fig. 5) maps (Lo Sardo, 1993, T.63) are the only two that has survived within the Ruggieri's materials for this phase;
- the maps from phases 2 and 2a (tracing and refinement; usual deletion of 'quadrettatura') are consistently documented within the surviving Ruggieri working materials. Some more roughly traced maps (phase 2a) may have been destroyed, but it is impossible to quantify how many, if any, were lost.

Which Epistemological Interpretation of Ruggieri's Atlas of China: just Mediation and Re-elaboration of the Chinese Sources, or, in some cases, also Real Cartographical Production?

Based on the previously discussed working methodology, we have seen how Ruggieri's cartographic work involved enlargements, romanization of toponyms, and tracing. In the final stage, a professional cartographer (probably, Matteo Neroni) would take over to refine and enhance what the Jesuit had done.

With a basic knowledge of geometry and cartography, his role as the first Western sinologist (able to read Chinese) and his stay in the Celestial Empire (where he acquired Chinese maps unknown in Europe at the time), Ruggieri should be considered more as a 'mediator' and 'reworker' of Chinese maps, rather than a cartography producer.

Nevertheless, a few themes and aspects indicate that Ruggieri's role should not be reduced entirely to mediation.

As noted by Lin Hong (2022, pp. 126-127), Ruggieri made some actual cartographic corrections, especially regarding the georeferencing of urban areas.

New data emerge regarding the representation of the Pearl River Estuary in some maps attributed to phases 2 and 2a (Piastra, 2017, pp. 208-209, 213, fig. 3).

The most refined (but not final) map in the atlas related to Guangdong (Lo Sardo, 1993, T.11) shows the inner part of the Pearl River Estuary and the area near its mouth into the South China Sea, marked entirely with dots and accompanied by the Latin caption (grammatically approximate) '*Aque dulces*' ('freshwater') (fig. 12). Ruggieri, who lived in Guangdong for several years during his stay in China and therefore had direct knowledge of these places, demonstrates his awareness of the significant freshwater discharge of the Pearl River. He understood that this leads to the creation of a vast area of freshwater at sea, especially during low tides, which is georeferenced on the map by the dotted area, extending for kilometers into salty seawater (Piastra, 2017, pp. 208-209).

These impressive phenomena must have left a strong impression on Ruggieri, who was accustomed to the small water flows of Mediterranean rivers and the weak tides of the Mediterranean basin.

The same process may also have been mapped in three other maps. These are the maps published in Lo Sardo, 1993, T.4 (where the note initially appears closer to the coastline and then is corrected below) (fig. 13), T.13 (fig. 14), and T.15 (fig. 15), where a dotted line parallel to the coastline, but located in seawater, or a short linear segment, is explained as '*litus maris*' ('sea shore'): in this case, not the shoreline in strict sense, but a theoretical line of separation, within the sea, between freshwater and salty water.

Moreover, also the representation in the maps of Macao, in particular in the Guangdong map of fig. 12, is significant and realistic (Piastra, 2017, p. 208). In fact, the island is represented as made up of two main parts

connected through a narrow isthmus: the Northern part, under Chinese control (evidenced by the symbol of a Chinese building); the Southern part, under Portuguese control (evidenced by the symbol of a Christian church); the *Porta do Cerco* (关闸), the first gateway to China, was located on that isthmus, and perhaps a thin line through the isthmus, visible on the same map, should represent the original wall, dividing the Celestial Empire and the Portuguese colony, in which the *Porta do Cerco* was situated. In the Guangdong map of fig. 14, the same configuration of Macao island is represented 'geometrically': the Northern part of the island, under Chinese control, is represented as a rectangle, while the Southern part, under Portuguese control, as a circle.

If creating cartography also involves transferring first-hand knowledge of places onto maps, in these cases Ruggieri can be fully considered a cartographer.

Moreover, he may be one of the very first Westerners (perhaps the first of all) to have grasped the mechanisms concerning the presence of freshwater in the large estuaries of the Far East.

An Atlas almost Ready for Printing or not? Which Layout, if printed, for Ruggieri's Atlas?

As discussed above, Ruggieri's death interrupted his work on the atlas before it could be printed.

Two research questions that have received little or no consideration so far are if the atlas was in an advanced stage regarding its publication and, if it had been printed, what graphic layout would have been.

From the analysis of Ruggieri's methodology, as evidenced by his manuscript materials conserved still today, we know that only one map had been prepared definitively for copperplate engraving by a cartographer, possibly identified as Matteo Neroni (phase 3 as discussed above). This is the previously mentioned map of Fujian (Lo Sardo, 1993, T.23) (fig. 10).

Therefore, at the time of Ruggieri's death, the atlas was still far from being ready for printing: there were still 15 provincial maps and the general map of the Chinese Empire to be produced in a definitive form by the cartographer; all the 16 provincial maps and the general map had to be engraved; the stages of proofreading and actual printing were not even planned. Moreover, apart from the maps, several textual sections were still provisional, with some passages in Italian, and not standardized in Latin as most of the text; the parts already in Latin still needed a final revision.

Another confirmation of the distance between Ruggieri and the completion of his project at the time of his death is the absolute lack of documentary evidence for a contract or even contacts with a printing house. This is not a minor issue, considering the high cost of an atlas (composed of text and maps) and an apparent lack of interest from the Jesuit order in financing the publication: precisely the absence of Jesuit support and funding for Ruggieri's work appears to be the main reason for the failure of the publishing project.

As a proof of the difficulties and costs associated with such an ambitious work, probably intended, according to the author's intentions, for European dissemination, there is a parallel with the events of Martino Martini's *Novus Atlas Sinensis*: as shown by some recently published letters by Martini (Martini, 2020, pp. 143-148), even in 1654 (just one year before actual printing), the author complained to Dutch orientalist Jacob Golius (1596-1667) about the very limited collaboration and the few pieces of information he had received from the Dutch publisher Blaeu. He feared that his cartographic project was in danger of failing and asked Golius to contact Blaeu to support the printing.

In short, today we know that not only did Ruggieri and Boym's atlases not materialize, but Martini's edition was also not far from failing: because of the costs, the access of a large editorial project to printing was difficult in general; the access of an editorial project made up of text, maps and large size was even more difficult.

Regarding the graphic appearance of Ruggieri's atlas if it had been printed, it seems plausible that it would have been published in a large format, comparable to what happened with the *Atlas* by Martini.

On the cartographic side, Neroni, whom we believe to be the cartographer who collaborated with Ruggieri, was an experienced technician. We know significant manuscript cartographic *corpora* made by him (fig. 16) (Lamberini, 2013): the definitive map of Fujian, the only ready for copperplate engraving, meets these high-quality standards.

In terms of engraving, Italy (Venice and Rome), along with the Netherlands, was a country that offered the best guarantees for copperplate engraving at the time (Woodward, 1996). Both of these considerations point to a publication that would have been of excellent quality, likely advancing and replacing, if printed, Martino Martini's *Novus Atlas Sinensis* of 1655 in the history of Western cartography.

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Fig. 1 – State Archives in Rome, Michele Ruggieri’s Atlas, Liaodong map from *Da Ming Guanzhi* (1586) (from Lo Sardo, 1993, T.79).



Fig. 2 – Hong Kong University of Science and Technology (HKUST), [Michele Ruggieri], *Sinarum Regni alioru[m]q[ue] regnorum et insularu[m] illi adiacentium descriptio*, 1590 ca. (from Caboara, 2022).

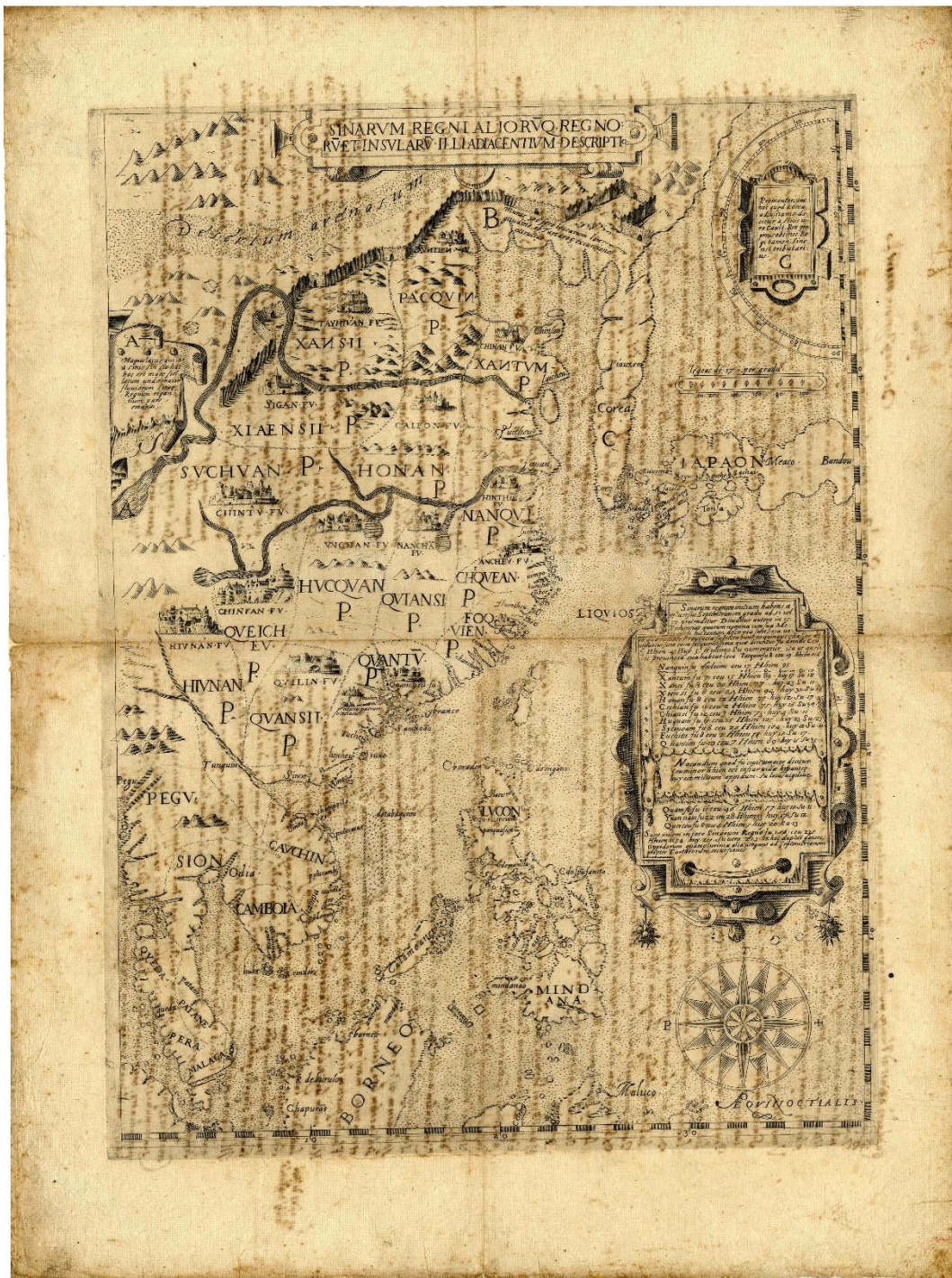


Fig. 3 – Archivum Romanum Societatis Iesu (ARSI), Rome, [Michele Ruggieri], *Sinarum Regni alioru[m]q[ue] regnoru[m] et insularu[m] illi adiacentiu[m] descriptio*, 1590 ca. (from Caboara, 2022).

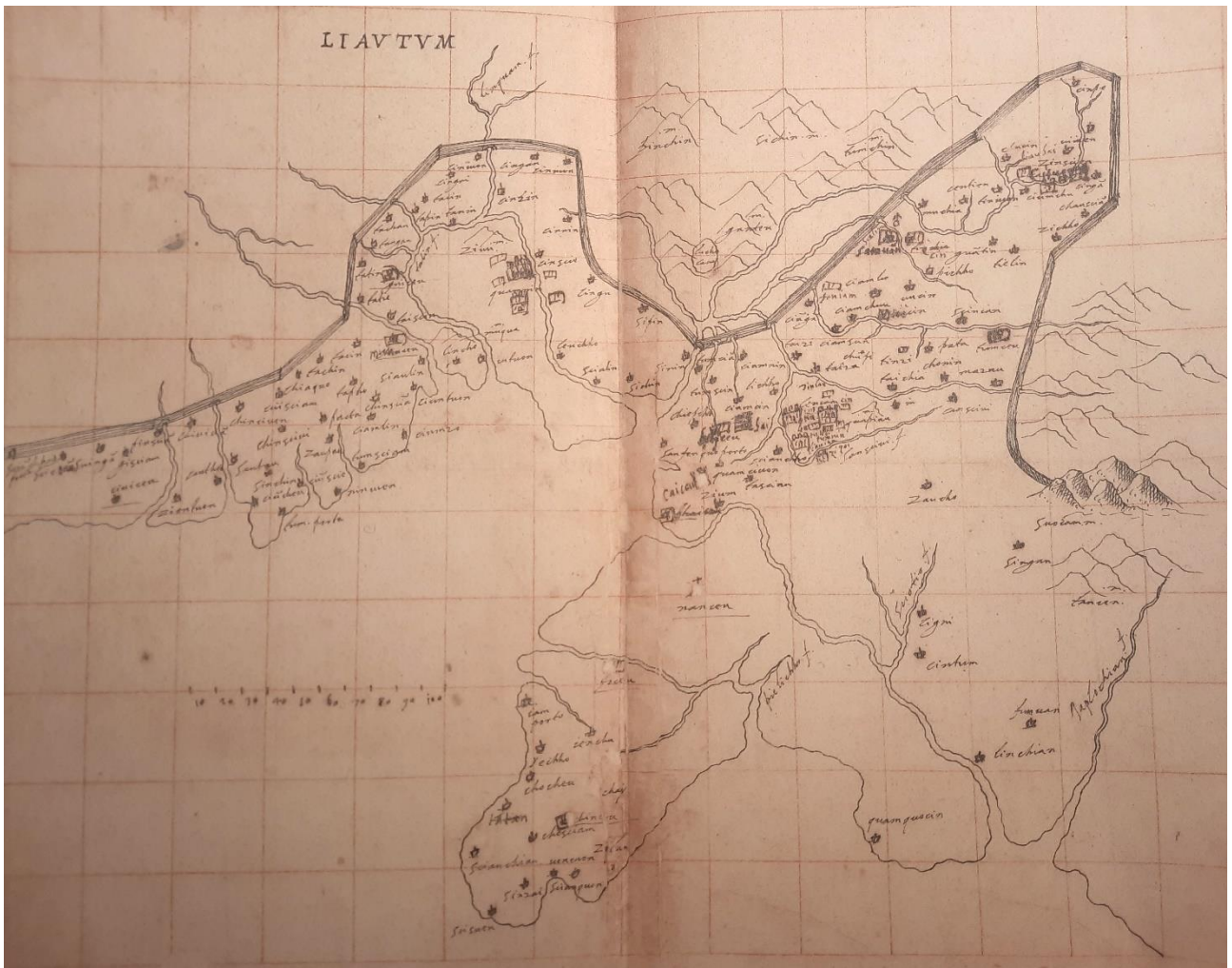


Fig. 4 – State Archives in Rome, Michele Ruggieri’s Atlas, Liadong map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.77).



Fig. 5 – State Archives in Rome, Michele Ruggieri’s Atlas, Nanchin map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.63).



Fig. 6 – State Archives in Rome, Michele Ruggieri’s Atlas, Shaanxi map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.34). Chinese characters are in black ink; romanizations of the place names and other captions or annotation in Latin are in brown-reddish ink.

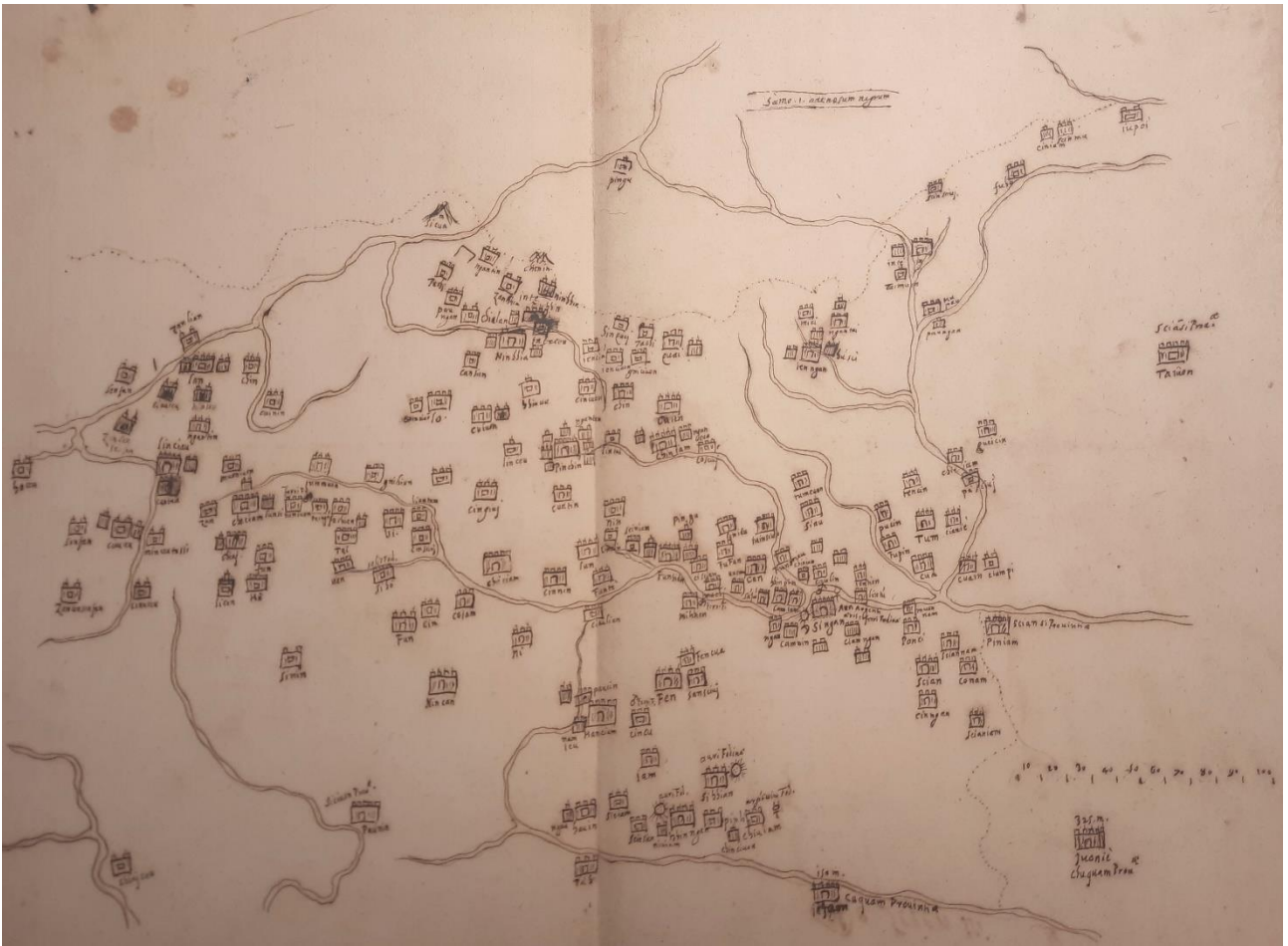


Fig. 7 – State Archives in Rome, Michele Ruggieri’s Atlas, Shaanxi map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.35).



Fig. 8 – State Archives in Rome, Michele Ruggieri's Atlas, Sichuan map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.49). A 'label' (circled in red), with a toponym in Chinese, perhaps by Andreas Chin (Michael Boym's assistant), is pasted on the map, covering (and possibly correcting) the romanized toponym, which is now invisible beneath the label.



Fig. 9 – State Archives in Rome, Michele Ruggieri's Atlas, Fujian map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.17).

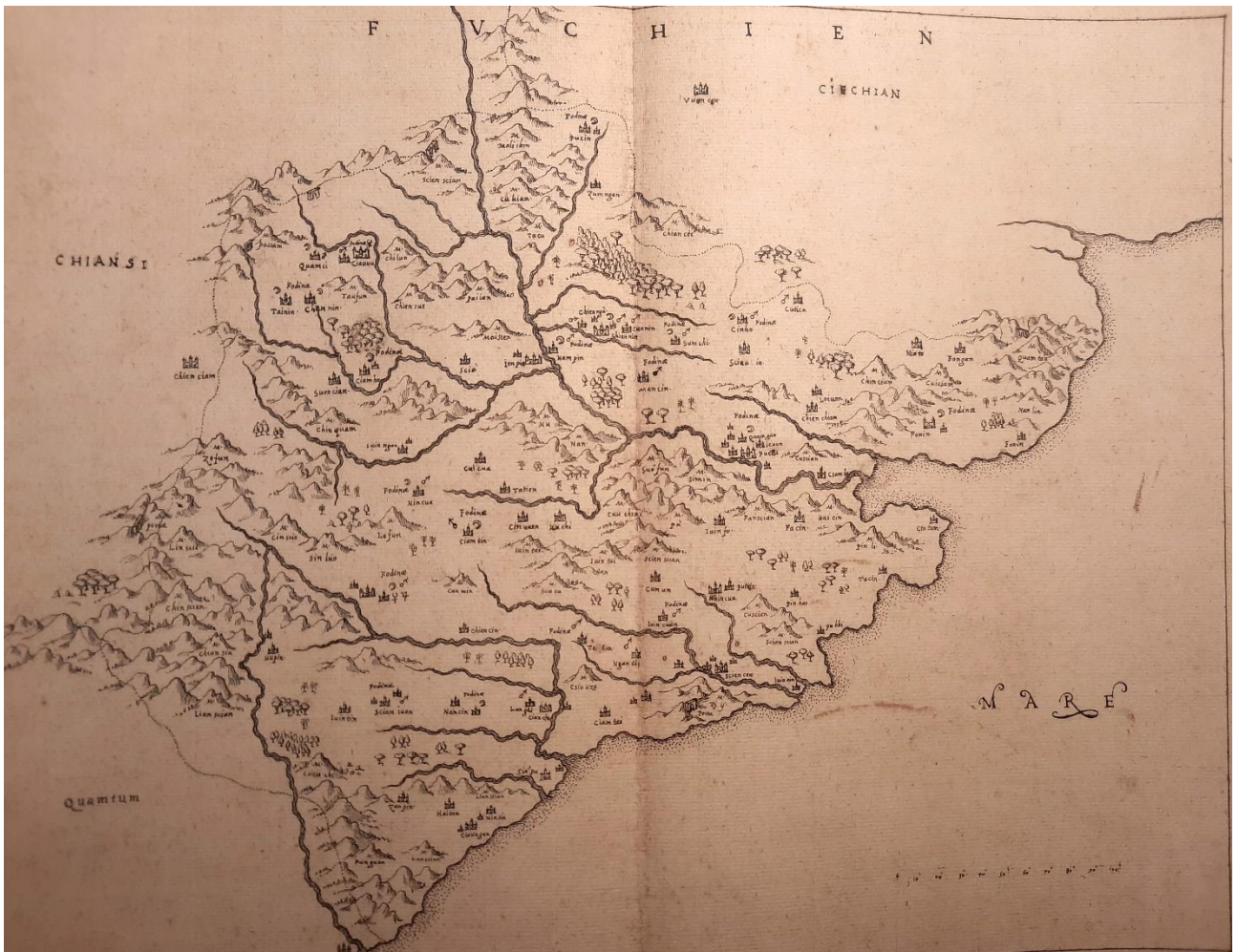


Fig. 10 – State Archives in Rome, Michele Ruggieri’s Atlas, Fujian map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.23). Probably, it is the only definitive map within Ruggieri’s atlas, ready for engraving, made by Italian cartographer Matteo Neroni.

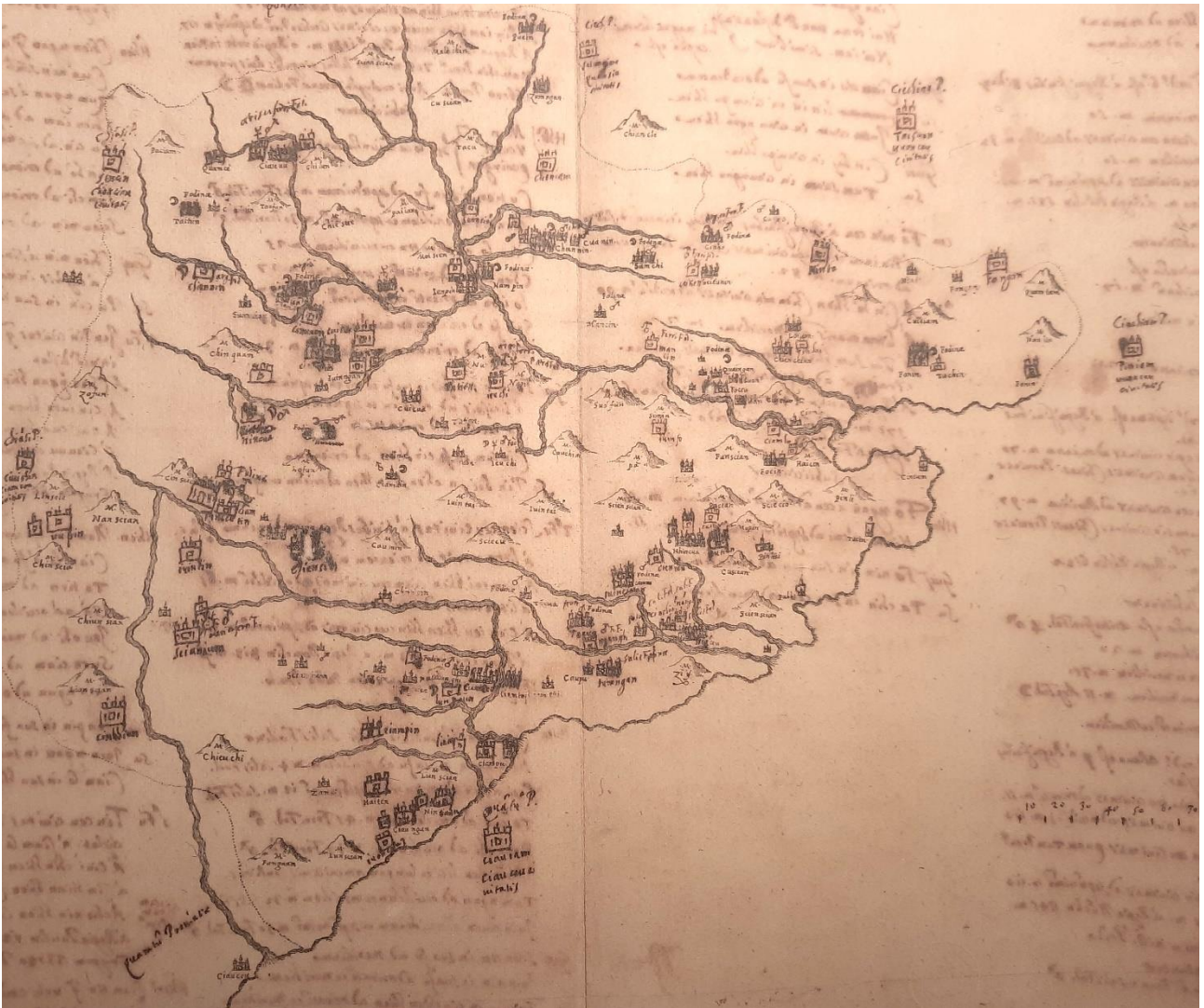


Fig. 11 – State Archives in Rome, Michele Ruggieri's Atlas, Fujian map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.21). Semi-definitive map, probably made by Matteo Neroni.

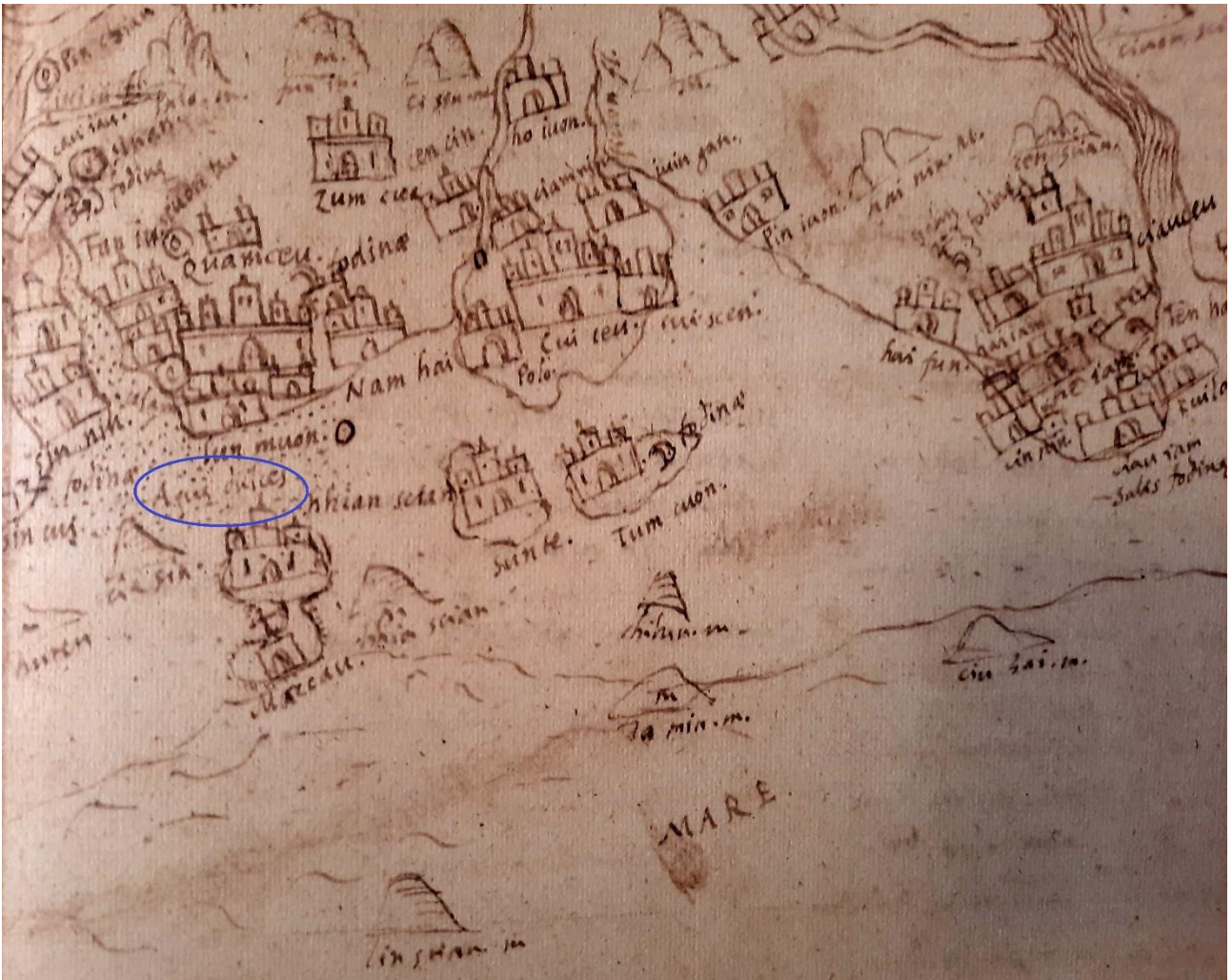


Fig. 12 – State Archives in Rome, Michele Ruggieri’s Atlas, Guangdong map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.11). The Latin caption (grammatically approximate) ‘*Aque dulces*’ (‘fresh water’) outlines a vast area of freshwater at sea, linked to the Pearl River discharge. The island of Macao is represented as made up of two main parts connected through a narrow isthmus: the Northern part, under Chinese control (evidenced by the symbol of a Chinese building); the Southern part, under Portuguese control (evidenced by the symbol of a Christian church); the *Porta do Cerco* (关闸), the first gateway to China, was located on that isthmus.

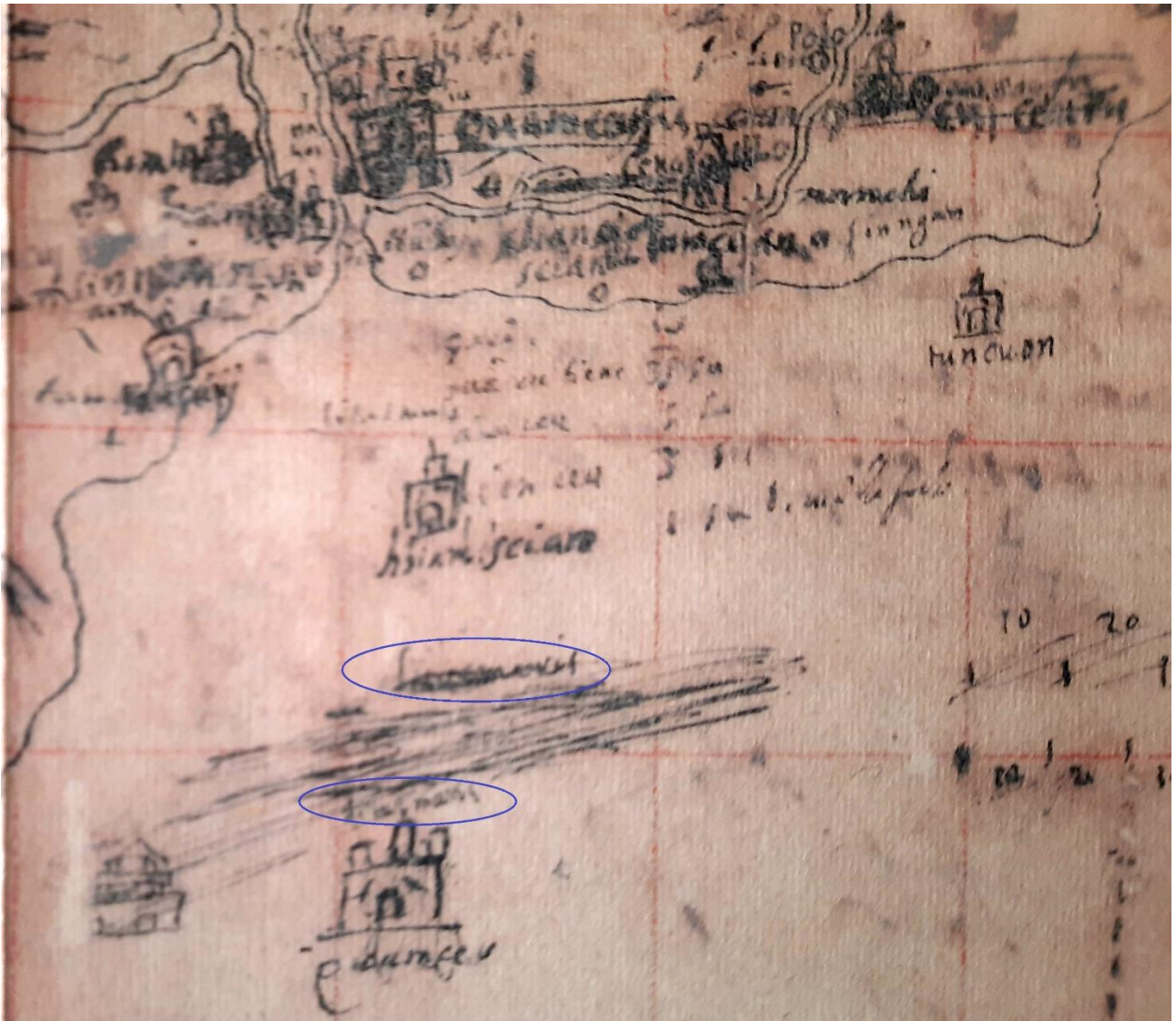


Fig. 13 – State Archives in Rome, Michele Ruggieri's Atlas, Guangdong map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.4). A line, South of Macao and parallel to the coastline, but located in seawater, explained as '*litus maris*' ('sea shore'), later erased and re-written: the theoretical line of separation, within the sea in the Pearl River estuary, between freshwater and salty water?

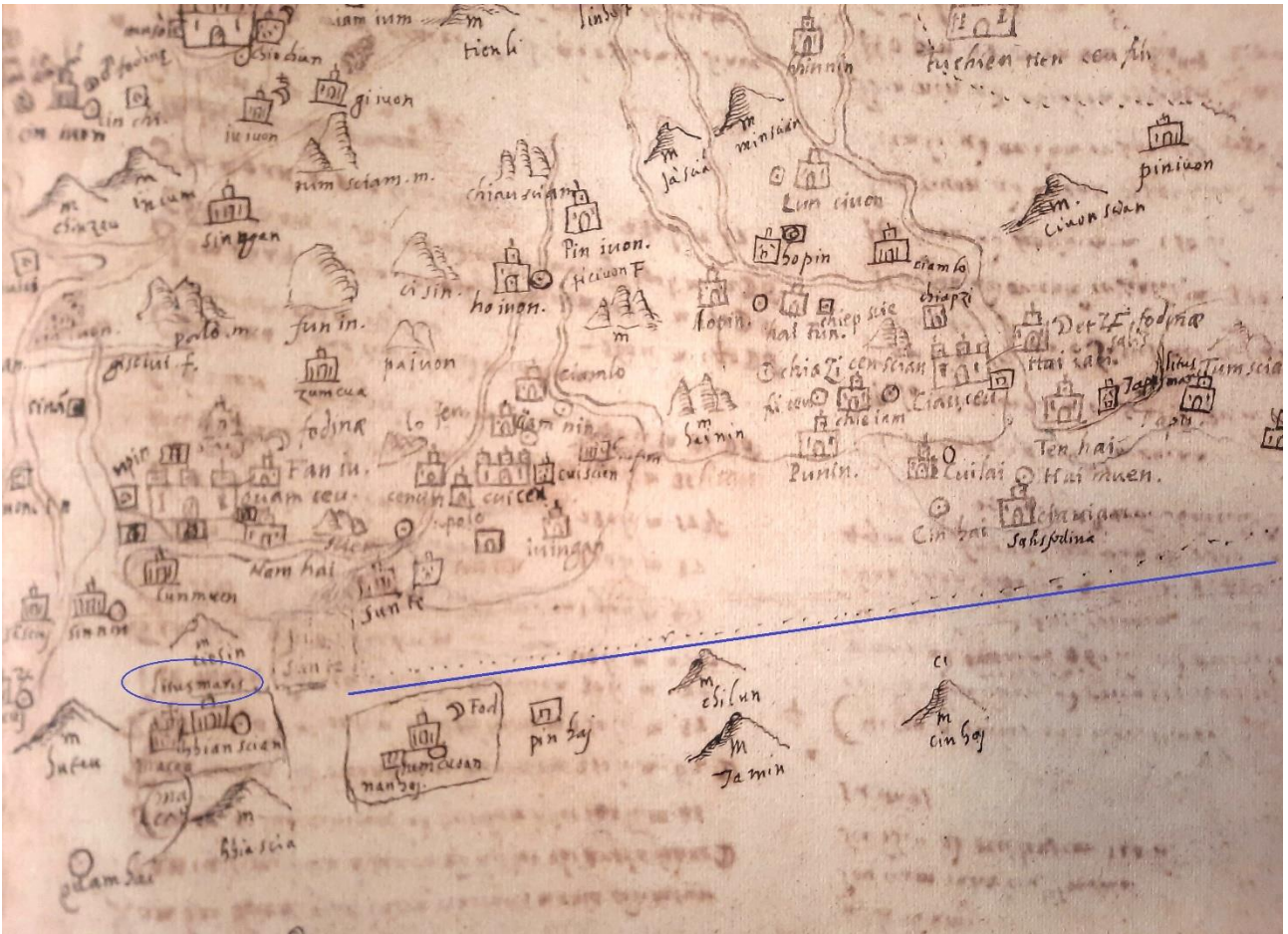


Fig. 14 – State Archives in Rome, Michele Ruggieri’s Atlas, Guangdong map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.13). A dotted line, East of Macao and parallel to the coastline, but located in seawater, and a caption ‘litus maris’: the theoretical line of separation, within the sea in the Pearl River estuary, between freshwater and salty water? The political configuration of Macao island is represented ‘geometrically’: the Northern part of the island, under Chinese control, is represented as a rectangle, while the Southern part, under Portuguese control, as a circle.

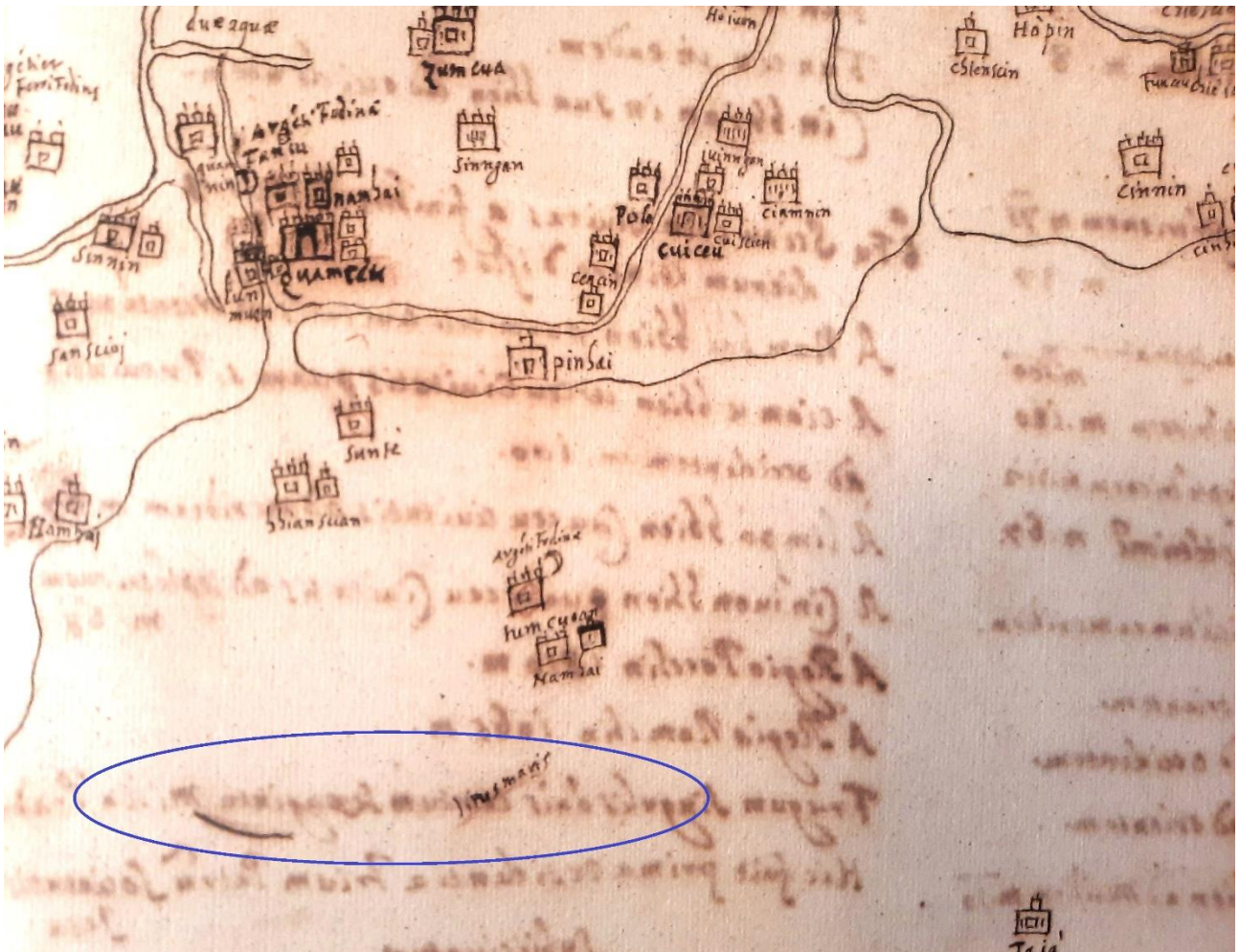


Fig. 15 – State Archives in Rome, Michele Ruggieri’s Atlas, Guangdong map (end of the 16th-early 17th centuries) (from Lo Sardo, 1993, T.15). A short linear segment, parallel to the coastline, explained as ‘*litus maris*’ (‘sea shore’): in this case, not the shoreline in strict sense, but a theoretical line of separation, within the sea in the Pearl River estuary, between freshwater and salty water?

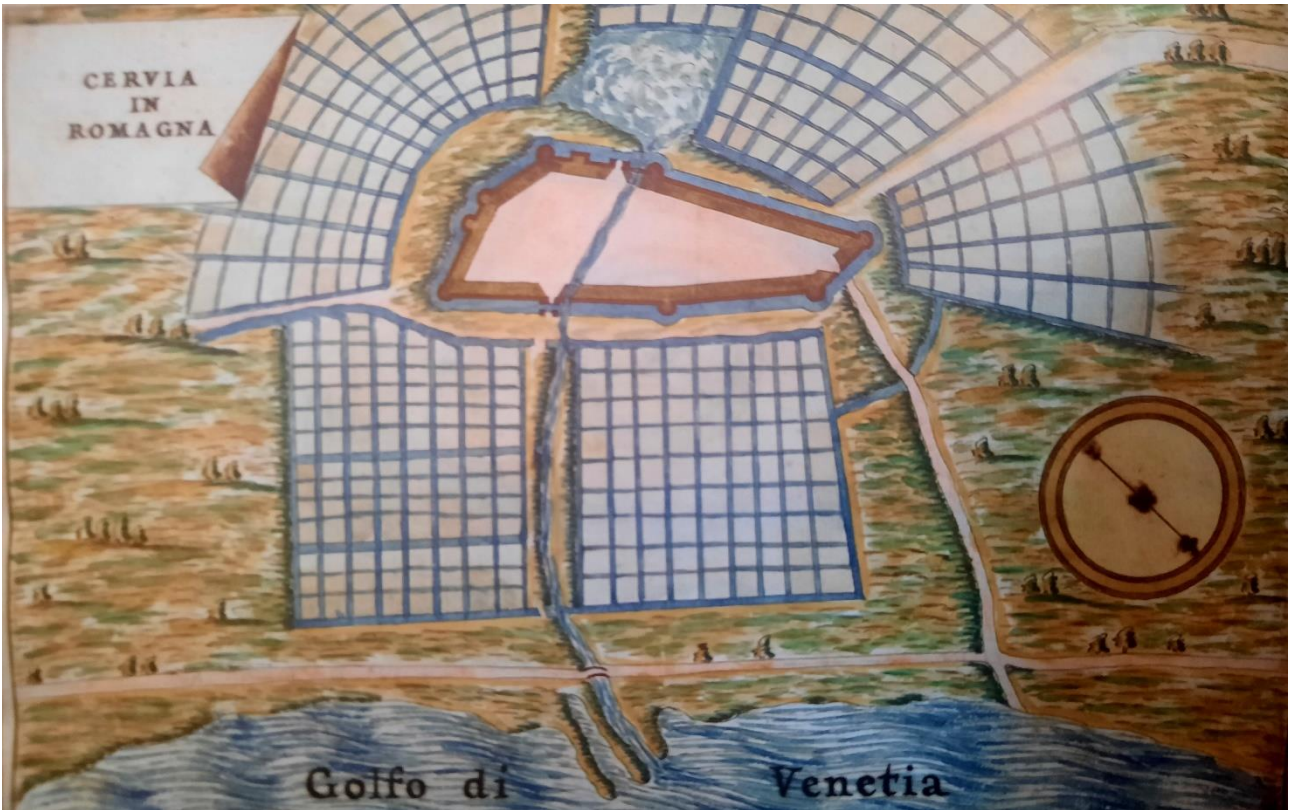


Fig. 16 – Florence National Library. Matteo Neroni, *Cervia in Romagna* [Papal States, Italy]. Handwritten map. The city, facing the Adriatic Sea, is surrounded by salt-pans. Early 17th century (from Lamberini, 2013).