



<https://theses.gla.ac.uk/>

Theses Digitisation:

<https://www.gla.ac.uk/myglasgow/research/enlighten/theses/digitisation/>

This is a digitised version of the original print thesis.

Copyright and moral rights for this work are retained by the author

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge

This work cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given

Enlighten: Theses

<https://theses.gla.ac.uk/>  
[research-enlighten@glasgow.ac.uk](mailto:research-enlighten@glasgow.ac.uk)

**-Mapping the World for the Emperor of China-  
A copy of Father Ferdinand Verbiest's *Kunyu Quantu*, 1674, in  
the Hunterian Museum, the University of Glasgow.**

**Natasha Trainor**

Submitted in partial fulfilment of the requirements  
for the degree of Master of Letters.

Department of History of Art,  
University of Glasgow. October 2008

**-Mapping the World for the Emperor of China-**  
**A copy of Father Ferdinand Verbiest's *Kunyu Quantu*, 1674, in**  
**the Hunterian Museum, the University of Glasgow.**

**NATASHA TRAINOR**

ProQuest Number: 10395804

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 10395804

Published by ProQuest LLC (2017). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code  
Microform Edition © ProQuest LLC.

ProQuest LLC.  
789 East Eisenhower Parkway  
P.O. Box 1346  
Ann Arbor, MI 48106 – 1346





### Acknowledgements

Research for this thesis began under the guidance of my supervisor Professor Nick Pearce. With his enthusiasm for Chinese art, culture and history and science, I have had the opportunity to engage in this study of Father Ferdinand Verbiest's *Kunyu Quantu*, 1674 at the University of Glasgow. My most sincere thanks go to Professor Pearce for his unrivalled support and patience. He helped in a number of most important ways. He encouraged me to research his significant identification of the map in 1998. His enthusiasm for learning has been a constant source of inspiration and encouragement. My research has been enhanced by his knowledge of Verbiest's *Kunyu Quantu*, 1674. The constructive criticism that I have received from him in terms of methodology and analysis has been invaluable.

My gratitude goes to Liz Hancock for her patience and willingness to guide me towards possible solutions, when I have faced challenges within my subject. I greatly admire her sharp and astute academic reasoning.

Special thanks must also go to Jason Steuber. His phenomenal grasp of Chinese history and art has been freely shared with me. The very great depth of his knowledge has given encouragement to my research. I must thank him especially for accessing the *Kunyu Quantu*, which belongs to the Library of Congress collection, Washington D.C. This proved to be a vital key as to how the Map of the University of Glasgow should have been seen. He also has to be thanked for his discovery of the cut out insert that is visible on the top left hand section of the Africa's Hemisphere of the map that allows accurate dating between the 1674 edition and later versions of the *Kunyu Quantu*.

I am also grateful to Helen Creasy, conservator based at the Scottish Conservation Studio, Hopetoun House and Harry Metcalf who have been involved in the successful conservation process of the Map. The conservation work done on the Map has allowed a deeper understanding of its physical attributes.

Further thanks and appreciation go to the following people: Graham Hutt, Peter Barber and Dr. Frances Wood, the Oriental Collection of the British Library; David Weston Keeper of Special Collections, Glasgow University Library, University of Glasgow; Geoff Hancock, University of Glasgow; Peter Barber, Map Library; Dr Sally-Anne Coupar, John Faithfull and Geoff Hancock, Hunterian Museum; Mr. Thomas Marr, for his translations from Latin to English.

My sincere thanks also go to the staff of all the institutions, museums and libraries from whom I have obtained invaluable information and advice.

I would also like to give a very special word of thanks to Francesca and Anushka Trainor who supplied me with constant good will and encouragement throughout my studies, as did all my family and friends.

Finally, this thesis is dedicated to my father Hugh Trainor, who has always been a constant source of encouragement. I would especially like to thank him for his never-ending support and kindness. His belief in me has given me tremendous strength.

### Abstract

This thesis analyses both the process that was involved in creating Father Ferdinand Verbiest's *Kunyu Quantu*, 1674, and the finished product. The process is examined through looking into a myriad of differing aspects linked to this map. Major themes are the history of mapping in China, the Jesuits and Verbiest. The iconographic significance and provenance of the Map are explored, in addition to contemporary geographical and religious issues and ideas of the natural world.

Chapter one examines how China and the West influenced the creation of Father Ferdinand Verbiest's *Kunyu Quantu*, of 1674 and provides an examination of why maps in general were created. Chapter two explores Father Ferdinand Verbiest and the Jesuits. Chapter Three discusses the various factors concerned with Verbiest's role in importing geographical science to China. The comparison between what was taking place during the Renaissance in Europe and what was happening in China especially during the seventeenth century is examined. Chapter four analyses the *Kunyu Quanta*'s physical description and its precursors. Chapter five examines the source for the majority of the images that can be found within the confines of Verbiest's *Kunyu Quantu* and how it came to arrive within the collection of Dr. William Hunter.

## Contents

Acknowledgements

Abstract

List of Plates	1
Introduction	7
Chapter One	Mapping in China. 12
Chapter Two	Father Ferdinand Verbiest and the Jesuits. 27
Chapter Three	Verbiest's role in importing Geographical Science to China. 47
Chapter Four	<i>Kunyu Quantu</i> , 1674. 57
Chapter Five	The Images within Verbiest's <i>Kunyu Quantu</i> . 74
Chapter Six	The Journey of Verbiest's <i>Kunyu Quantu</i> . 123
Conclusion	142
Bibliography	145
Appendices	157
Plates Section	171

## List of Plates

No.	Description
1.	Ferdinand Verbiest with his Celestial Globe. Ferdinand Verbiest, is shown dressed as a Chinese official in this mid-nineteenth century Japanese print. Also shown are his sexton and celestial globe. British Museum, London.
2.	Father Ferdinand Verbiest's <i>Kunyu Quantu</i> , 1674. Detail of paper sheet size Africa Hemisphere. Image taken by Harry Metcalf, Conservator.
3.	Father Ferdinand Verbiest's <i>Kunyu Quantu</i> , 1674. Detail of paper sheet size Americas Hemisphere. Image taken by Harry Metcalf, Conservator.
4.	Father Ferdinand Verbiest's <i>Kunyu Quantu</i> , 1674. Detail of woodblock size Africa Hemisphere. Image taken by Harry Metcalf, Conservator.
5.	Father Ferdinand Verbiest's <i>Kunyu Quantu</i> , 1674. Detail of woodblock size Americas Hemisphere. Image taken by Harry Metcalf, Conservator.
6.	Father Ferdinand Verbiest's <i>Kunyu Quantu</i> , 1674. Detail of two additional scrolls that have been mounted together. There are a further four cartouches on each and which would have hung on either side of each hemisphere. All eight cartouches provide further descriptions of natural phenomena of the world.
7.	Father Ferdinand Verbiest's <i>Kunyu Quantu</i> , 1674. Detail of 3rd Scroll.

8. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of 6th Scroll.
9. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of complete top left cartouche on Africa Hemisphere.
10. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of complete bottom left cartouche on Africa Hemisphere.
11. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of uncompleted top right cartouche on Africa Hemisphere.
12. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of uncompleted bottom right cartouche on Africa Hemisphere.
13. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of completed top right cartouche on America Hemisphere.
14. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of completed bottom right cartouche on America Hemisphere.
15. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of uncompleted top left cartouche on America Hemisphere.
16. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.

Detail of uncompleted bottom left cartouche on America Hemisphere.

17. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of a fleet of three barques on the South Seas.
18. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of a fleet of three barques on the South Seas.
19. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of a fleet of three barques on the South Seas.
20. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of an isolated ship sailing out of the east coast of North America on its way back towards Europe.
21. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of cartouche describing a Lunar Eclipse.
22. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of cartouche describing earthquakes.
23. Albrecht Dürer's Rhinoceros, 1515. Woodcut.
24. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Overall detail of animals on the Africa Hemisphere.  
Excluding the giraffe.
25. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Overall detail of animals on the Africa Hemisphere.  
Excluding the unicorn.
26. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.



Detail of the Unicorn including its Chinese inscription.

27. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Gulo including its Chinese inscription.
28. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Lion including its Chinese inscription.
29. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Hyena including its Chinese inscription.
30. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Rhinoceros including its Chinese inscription.
31. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Spider including its Chinese inscription.
32. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Crocodile including its Chinese inscription.
33. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Mermaids.
34. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Giraffe including its Chinese inscription.
35. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Overall detail of animals from Americas Hemisphere.
36. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Su including its Chinese inscription.

37. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Chameleon including its Chinese inscription.
38. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Beaver including its Chinese inscription.
39. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Turkey including its Chinese inscription.
40. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Mountain Goat including its Chinese inscription.
41. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Salamander including its Chinese inscription.
42. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Whale including its Chinese inscription.
43. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Toucan including its Chinese inscription.
44. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the American Ostrich including its Chinese inscription.
45. Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of a snake killing a deer including its Chinese inscription.

46. Nestorian Steele. University of Glasgow.
47. Library of Congress Washington D.C. scrolls.
48. Conservation Images from Hopetoun House.
49. Verbiest's Kunyu Quantu, 1674 on display at the Hunterian Museum, Glasgow.

## Introduction

Research on Father Ferdinand Verbiest's *Kunyu Quantu*, 1674 was initiated as a result of the realisation of the importance of the object. This research has led to its subsequent inclusion in the Dr. William Hunter Bicentenary exhibition at the Hunterian Museum and Art Gallery in Glasgow.

This Map was printed from woodblock using a stereoscopic projection. It was one of a series of maps produced by the Jesuits at the Court in Peking, beginning with Matteo Ricci's two woodcut maps of 1584 and 1602.

Both Hemispheres contain cartouches with information on the size, climate, and landforms, customs and history of various parts of the world and details of natural phenomena such as eclipses and earthquakes. Columbus' discovery of America is also discussed. Images of ships, real and mythical animals and sea creatures pepper both hemispheres, creating a visually stunning as well as historically important object. The copy of Verbiest's Map sent to T.S. Bayer at the St Petersburg Academy of Science and acquired by Dr. William Hunter was one of the earliest examples to come to Europe and even today, surviving copies of the 1674 printing are rare. In the United Kingdom, only the British Library has a copy of one hemisphere and only a handful of copies survive worldwide. This is the first time this map has ever been researched or displayed.

In order for comprehensive analyses to be compiled it is extremely important to access as many sources as is physically possible. As a result of this *Kunyu Quantu* having never been written on, it was of the utmost importance to rely on works by eminent cartographic scholars such as Walravens, Witek, Lundbæk, Hunter and Ricci's contribution.<sup>1</sup> Through looking at these works it is hoped that a clear insight can be achieved into the subject of the University of Glasgow's example of this map.

In order for this thesis to flow smoothly and logically it is important to acknowledge the methods needed to achieve a complete examination of this map. Art history, history, cartography, conservation and religious studies are but a few disciplines required. The history of cartography in China is a significant element of this thesis, as it is through such a history

---

<sup>1</sup> Walravens, von Hartmut, *Gesnerus Jahrgang/Vol.30 1973 Heft/Fasc. ¾ Konrad Gessner in chinesischem Gewand, Darstellungen fremder Tiere im K'un-yü t' u-shuo des P. Verbiest (1623-1688)*.

-Father Verbiest's Chinese World Map (1674), *Imago Mundi*, Vol 43, 1991.

Witek, John. W., Ferdinand Verbiest (1623-1688) *Jesuit Missionary, Scientist, Engineer and Diplomat*, jointly published by Institut Monumenta Serica, Sankt Augustin and Ferdinand Verbiest Foundation, Leuven, Steyler Verlag, Nettetal, 1994

Verlag, Insel. *Europa und die Kaiser von China*, Berliner Festspiele, 1985. 389s: kus Eine Ausstellung der Berliner.

Lundbæk, Knud. *T.S. Bayer (1694-1738), Pioneer Sinologist*, Curzon Press, London and Malmö, 1986.

Ricci, Matteo. *Tianzhu Shiye (The true meaning of the Lord of Heaven)*, Peking, 1603.

Rudbeck, Olaus sen. *Atland eller Manheim*. Uppsala, 1675.

that one can see who and what inspired Verbiest as a cartographer.<sup>2</sup> This will be done through the holistic approach of examining examples from a physical and iconographic point of view as well as from a material one.

The purpose of this thesis is to examine the context of Verbiest's Map in general and the Bayer/Hunter copy in particular. This thesis has been divided into six separate chapters in order to give the reader an opportunity to absorb the information in a logical way. This process starts by examining how earlier maps in the West and in China influenced the creation of Verbiest's map. This will be achieved through questioning why maps were needed or made. This can be answered through the analysis of aspects such as assertion of power both political and territorial, exploration trade and scientific discovery.

The purpose of chapter two is to look at Father Ferdinand Verbiest and see how through his influence with the Emperor Kangxi he was able to increase the acceptance of the Jesuits in China and as a result, the spread of the Gospel more than any of the other missionaries who preached it in the provinces. This will be achieved through looking at Father Ferdinand Verbiest and the Jesuits of the China mission and their scientific work. The main objective of this chapter is to reveal the myriad of men that were involved in the creation of such an art historical and geographically significant work. In order for this goal to come to fruition the Jesuits and their involvement in Chinese cartography will also be examined.

---

<sup>2</sup>Please see Appendix 1: Conservation Report.

Chapter three provides the reader with an initial physical description of the *Kunyu Quantu*, (1674) in order that the map can be physically understood. This leads in a detailed account of how the Map has been compiled along with the various geographical discoveries that appear within this seventeenth century equivalent of the Herefordshire Mappamundi where Peking is seen as being centrally placed within a global setting.

Chapter four will look at the important factor that emerges every time Verbiest's *Kunyu Quantu* is discussed. This relates to how the visions of two very separate and very different schools of thought came together: 'China' and the 'West', and the important comparison between what was taking place during the Renaissance in Europe and what was happening in China especially during the '17<sup>th</sup> century'. It was the equivalent to two different worlds. However, the Jesuits successfully managed to merge both schools of thought. Verbiest's contributions are of paramount importance when cartography during the Kangxi period is discussed. This is not only specifically for his contribution to mapping and more specifically the '*Kunyu Quantu*' of 1674 but also in bringing to the court of Kangxi new techniques and astronomical equipment, and the knowledge of how these astronomical pieces of equipment were constructed.

The purpose of chapter five is to discuss the iconography of *Kunyu Quantu*. The sources for each of the mythical and real creatures will be examined in addition to an analysis of how Verbiest used the resources of various earlier cartographers and artists to create the work.

Finally chapter six will provide the reader with a detailed account of this map's provenance and how it arrived in the collection of Dr William Hunter. It will be traced from the court of Kangxi through to the hands of Bayer, then Gerdes and finally Hunter. This is probably the most significant discovery of the entire thesis as it acts as a historical record to an extremely important work by Father Ferdinand Verbiest.

Certain limitations have hindered research; this is as a result of information on the subject of Verbiest's *Kunyu Quantu* not being particularly extensive. This thesis's initial purpose was to attempt to trace back each individual image found within the Map to its original source. Unfortunately, the lion and turkey have not been traced. However, this allows for future research to be carried out on the subject.



## **Chapter one: Mapping in China.**

This chapter aims to examine how earlier mapping in China and the West influenced the creation of Father Ferdinand Verbiest's *Kunyu Quantu*, of 1674. One must first examine why maps in general were created. At this time, maps were produced for a plethora of reasons: assertion of power both political and territorial, exploration, trade and scientific development.

In Europe, although the physical representation of a map has evolved over time and in different cultural contexts, the basic concept remains the same. A map is ultimately defined as a representation of the world's surface. Maps are usually prepared on either a flat surface or globe, representing areas, such as the heavens and earth. Explorers who mapped the earth and astronomers who mapped the heavens are of great significance when examining the question 'what is a map and why maps were created?'. When looking at a map from a cartographic stance it is important to remember the specific purpose and area covered by an individual map. That purpose usually dictates many things that the mapmaker wants us to see, for example, roads, cities, and lakes. Maps above all else aid us to display spatial relationships. Maps are important in providing a scale context for spatial relationships that cannot be seen with the naked eye. Maps can show various phenomena in terms of people and places. Political encounters throughout time have naturally affected the way in which the world has taken shape. Other factors include development of cartographic instrumentation, exploration and navigation.

A map is traditionally produced on paper, but this is not what makes it a map. A map is still regarded as a map no matter what material it has been produced on. The main concept is that it represents an area, and can help people understand the relationships between spatial phenomena. Some maps take on unusual forms. Certain archaeologists believe that some petroglyphs that are images incised into rock surfaces, and pictographs, which are images painted on rock surfaces, may be maps because they show information about places, such as hunting areas, water holes, and routes of travel. People think in terms of where things are in relationship to where other things are. When the tradition of Chinese cartography is discussed it is difficult to have a concept of when and where this tradition came about. The first known map in China appears on the outside of a three legged ritual cooking vessel or *ding* dating from around 2100BC.<sup>3</sup> We should realise that many maps are never produced in flat form at all but are only in our minds; these are called 'mental maps'. Cartographers allow the mental map to become a visual representation. When a map is produced by hand and only one copy is made, it is considered a 'manuscript map'. A series of maps for example using a woodblock printing technique, it would be regarded as 'printed maps'. Cartography can be viewed as the art and science of map making. Although we may be prone to associate maps with particular periods in world history, such as the age of European exploration, it is safe to say that all peoples make and use maps of some type.

---

<sup>3</sup> Harley, J.B and David Woodward, editors *The History of Cartography, Volume 2, Book 2: Cartography in the Traditional East and Southeast Asian Societies*, Chapter Six-Yee, Cordell. *Chinese Cartography among the Arts: Objects, Subjectivity, Representation*. The University of Chicago Press. Chicago & London, 1994. p. 131.

Maps are used to communicate graphic information about places to others. Maps have been used for many purposes throughout history. Two major uses for maps were firstly to help people navigate from place to place, and secondly to indicate areas where certain resources could be found.

The map is a second language of geography. Map making is not only an expression of mankind's geographical knowledge but also a necessary means of broadening geographical visions as well as for utilizing and transforming nature. It is impossible not to be overwhelmingly impressed by the cartographic achievements made by early Chinese cartographers. China's position in the history of world surveying and mapping was of great importance. China ranks first in the world in terms of mapping history and the large number of existing ancient maps. Maps such as the Topographic Map, the Garrison Map and the City Map, examples of all three of which have been discovered in 1971 in a Han Dynasty tomb at Mawangdui near Changsha, date back more than 2,100 years.<sup>4</sup>

Zhang Heng of the 1<sup>st</sup> century AD was as famous for his work in astronomy and seismology as he was as a scholar. Zhang was closely followed by Pei Xiu (AD 224-271), who elaborated and perfected the use of the grid, and described his methods in a way which made him well worthy of comparison with Ptolemy.<sup>5</sup> When discussing developments in mapping in China, it is necessary to reflect on earlier cartographic achievements. In the West the height of scientific

<sup>4</sup> Ibid. Yee, Cordell D.K, Chapter Three: 'Reinterpreting Traditional Chinese Geographical Maps'. pp. 40-46.

<sup>5</sup> Ibid. Yee, Cordell D, K, Chapter Six: 'Chinese Cartography among the Arts: Objects, Subjectivity and Representation'. The University of Chicago Press. Chicago & London. 1994 p.125.

cartography in the ancient world was achieved in the works of the Hellenic mathematician Ptolemy (ca.90-168AD). His guide to geography, (ca.150AD), known to later centuries as the "Geographia" or "Cosmographia", laid down mathematical principles for the construction of maps based on measured distances, uniform projections, and observed latitudes and longitudes. Places were located by a system of geographical co-ordinates.<sup>6</sup> There are a variety of theories as to the source of Zhang's idea. Perhaps the most attractive is the story that a young girl was employed to embroider one of his maps on silk, and that the intersecting lines of warp and weft inspired Zhang Heng to adopt a net-like system of co-ordinates.<sup>7</sup> They are the earliest existing maps in the world, and their accuracy is particularly striking. Secondly, in his 'Six principles of Map Making' (*Zhi Tu Liu Fa*) Pei Xiu (AD 224-271) laid a theoretical foundation for mapmaking in ancient China. His principles have influenced world mapping history.<sup>8</sup>

These facts show that traditional cartography and the development of mapping theories in Chinese history have striking characteristics and have added to the principles of surveying and mapping pursuits. History illustrates the Chinese people's skill at absorbing foreign inventions in the fields of developing science and technology; this is no less true of surveying and

---

<sup>6</sup> Ibid.

<sup>7</sup> Wallis, Helen. British Library, *Chinese and Japanese Maps*. An exhibition organised by the British Library at the British Museum 1 February- 31 December 1974.

<sup>8</sup> Ibid. Yee, Cordell D.K, Chapter Six: 'Chinese Cartography among the Arts: Objects, Subjectivity and Representation'. *History of Cartography*. The University of Chicago Press. Chicago & London. 1994. p. 110-113.

mapping. An example is the ‘*Huangyu Quanlan Tu*’ Confidential Maps of the Qing Empire<sup>9</sup> a sketch completed in 1718 with the help of Western missionaries following the introduction to China in the late Ming period of Western mapping techniques by Matteo Ricci (1552-1610), an Italian missionary.

The ancient Chinese made the world’s first maps and they once led the world in mapping theory and technique. The Italian Jesuit missionary Matteo Ricci prepared the *Kunyu Wanguo Quantu* map in 1602.<sup>10</sup> The main part of the map features the oval shaped earth, with China in the centre. In the four corners are the Southern Hemisphere, the Northern Hemisphere, the nine divisions of the Celestial Sphere, and Celestial Globe. Celestial globes were used to represent the stars and constellations of the night sky and record their positions with respect to each other and a co-ordinate system.<sup>11</sup> The earth is represented on an isometric projection, with straight parallels and symmetrically curved meridians on both sides of longitude 170 degrees East. “An isometric projection is a mechanical drawing system in which a three dimensional object is shown two-dimensionally; starting with the nearest vertical edge, the horizontal edges of the object are drawn at a thirty-degree angle and all verticals are projected perpendicularly from a horizontal base”.<sup>12</sup> An original explanatory note by Matteo Ricci says,

---

<sup>9</sup>Zhonghua gu di tu zhen pin xuan ji. English, *China in Ancient and Modern Maps compiled by the Ancient Map Research Team of Chinese Academy of Surveying and Mapping*. Translate by Chen Gengtao and Wang Pingxing Sotheby’s Publication, London, 1998. p.119

<sup>10</sup> [http://geog.hkbu.edu.hk/GEOG1150/chinese/catalog\\_main\\_11.htm](http://geog.hkbu.edu.hk/GEOG1150/chinese/catalog_main_11.htm).

<sup>11</sup> Walters, Alice. ‘Globe’ in Robert Bud and Deborah Jean Warner, *Instruments of Science: A Historical Encyclopaedia* New York and London, 1998. p.120

<sup>12</sup> Website: <http://www.khsd.k12.ca.us/bhs/Perry/art%20vocabulary.htm#I>

‘The continents are rendered in five colours for readers’ convenience.’<sup>13</sup> In this reproduction, however, only three colours are used – brown- yellow for Asia, light pink for the Americas and Antarctica, and a near white colour for Europe and Africa. Other colours used on the map include: blue- green for the mountain pictographs, dark green for wavy lines symbolising the oceans, red for the names of the continents, and black for the names of the countries and other place names. Painted in the oceans are sailboats and aquatic animals such as whales, a shark and a sea lion, and on Antarctica, terrestrial animals such as the rhinoceros, elephant, lion and ostrich. In the blank spaces on the Map are commentaries written by Chinese officials and scholars and, with an article by Matteo Ricci on scientific knowledge about the earth and Western mapping skills, Chinese cartography entered a new period of development.

The map titled *Shanhai Yudi Quantu* compiled by Wang Qi and printed in 1609 was copied from a world map prepared by Feng Yingjing in 1602, which was again derived from a world map made by previously discussed Matteo Ricci. The map shows the spherical earth with six continents: Asia, Europe, Africa, North America, South America and Antarctica. China is named the Great Empire of Ming (1368-1644). The seas off the east coast of China are marked as the Ming Seas. Also marked on the map are some astronomical and geographical terms and ancient place names of the world. The content of the map is a reflection of the basic knowledge of world geography at the time. The map is not particularly accurate especially in the contours of the continents but their comparative locations are roughly correct. In the four corners of the map are explanatory notes discussing the universe, earth, and latitude. Judging

---

<sup>13</sup> Ibid.

from these notes, parallels and meridians must have been used in preparing this map however presumably they have failed to show in the engraving for technical reasons. Prepared by a Chinese scholar with both Chinese and Western mapping skills, this generalised map of the world was a result of cultural exchanges between China and the West in the late Ming Period (1368-1644). Though simple in content and inaccurate, the map has reference value for studying the history of cultural exchanges between China and the West.

In China, Matteo Ricci was the first cartographer to show the world in two hemispheres – he translated and prepared such a map in 1599,<sup>14</sup> with five continents and three oceans accommodated in two hemispheres.<sup>15</sup> Such a new style of map attracted the attention of Chinese scholars, and some of them reproduced the map and included it in their own works, making it known to the public. Feng Yingjing produced the first reproduction in 1604, later included in '*Fanyu Shenglu*' A Concise Geography by its compilers in 1610. The map shows the Eastern and Western Hemispheres. Locations of the continents are similar to those on contemporary world maps. The place names are almost identical with those on Matteo Ricci's map, except for some errors made in engraving. This map played a positive role in extending the knowledge of world geography in that period.<sup>16</sup>

---

<sup>14</sup> This specific map is now lost.

<sup>15</sup> Clien, Gengtao and Wang Pingxing *China in Ancient and Modern Maps compiled by the Ancient Map Research Team of Chinese Academy of Surveying and Mapping*. Sotheby's Publication, London, 1998. p.120.

<sup>16</sup> Ping, Yan. *China in Ancient and Modern Maps*, (Sotheby's Publications 1998) Page. 143. 94 Map of the World in two Hemispheres (Wanli, 1573 – 1620) From A Concise Geography (*Fangyu Shenglu*), compiled by Cheng Bai'er et al. and printed in black from engraved plates in 1610. This is the earliest existing Chinese map of the world in two hemispheres reproduced by Feng Yingjing after Matteo Ricci's map of 1599, diameter of each hemisphere 26cm. Beijing University Library.

Incidentally, information has come to light this year concerning a new potential candidate for the discovery America.<sup>17</sup> The historically significant cartographer at the centre of this row is Zheng He (1371-1433). He was a Chinese mariner, explorer, diplomat and fleet admiral, who made the voyages collectively referred to as the travels of 'Zheng He to the Western Ocean' from 1405 to 1433. When mapping is being analysed it is necessary to look at navigational expeditions. It is due to the inquisitive minds of men such as Zheng that mapping has been able to progress.<sup>18</sup>

He was born in 1371 to a Hui family in Yunnan Province in South West China. Hui implies that Zheng was a Chinese Muslim. He spoke both Chinese and Arabic. Both his father and grandfather had made the pilgrim journey overland to Mecca. This pilgrimage was a major foundation in not only his spiritual growth but also academic progression. He was made aware of cultures and traditions out with his own, this created an inner curiosity for travel, especially what was beyond China.<sup>19</sup> Whilst Zheng He is regarded as one of the founding fathers of Chinese navigational progression, his life's journey was not without hardship. In 1381 at the age of ten he was taken captive by the Ming army when it invaded and conquered Yunnan. He

---

<sup>17</sup> In January 2006, BBC News and *The Economist* both published news regarding the exhibition of a Chinese sailing map claimed to be dated 1763, which was stated to be a copy of another map purportedly made in 1418. Geoff Wade of the Asia Research Institute at the National University of Singapore who is an authority on Chinese history have questioned the authenticity of the map. Some point to the use of the Mercator-style projection, its accurate reckoning of longitude and its North – based orientation, None of these features were used in the best maps made in either Asia or Europe during this period, for example, the Kangnido map (1410) and the Fra Mauro (1459) map. Also mentioned is the depiction of the erroneous Island of California, a mistake commonly repeated in European maps from the sixteenth to eighteenth centuries. On the map the American continent is labelled phonetically 'A-me-ri-ca', also a clear borrowing from the West.

<sup>18</sup> Lovgren, Stefan. National Geographic "*Chinese Columbus*" Map Likely Fake, Experts Say. January 23, 2006.

<sup>19</sup> Chang, Kuei-sheng. *Dictionary of Ming Biography* edited by L. Carrington Goodrich and Chaoying Fang. Columbia University Press, New York and London, 1976. pp. 194-200



was taken into the imperial court to serve and as a result was castrated. The Yongle emperor named him Zheng He for war merit in the Yongle rebellion against the Jianwen Emperor. Zheng He was a systematic and technologically able admiral. It is important to know that Zheng was not a merchant; this is evident because hardly any trading happened as a result of his nautical voyages. 1424 was a significant year for Zheng He as the Emperor Yongle died and the Emperor Hongxi<sup>20</sup> (1424-25) decided to limit the influence at court. Zheng He made one more voyage under the Xuande Emperor (1426-35). Zheng He made seven successful voyages and managed to relocate extensive numbers of Chinese Muslims to Malacca, Palembang, Surabaya and other places and converted the natives to Islam. Pre-Portuguese invasion Malacca became the centre of Islamic learning and also a longer Islamic trade centre of the southern seas. Zheng He led a further seven expeditions to what the Chinese called the 'Western Ocean', which is in fact what we know today as the Indian Ocean. The places in Asia and Africa he visited are: Southeast Asia, Sumatra, Malacca, Java, Ceylon, India, Persia, The Persian Gulf, Arabia, The Red Sea as far north as Egypt, Africa as far south as the Mozambique Channel and Taiwan seven times.<sup>21</sup>

---

<sup>20</sup> Otherwise known as Emperor Zhao. Hongxi is credited with reforms that made lasting improvements, and his liberal policies were carried on by his son, Emperor Xuande.

<sup>21</sup> Menzies, Gavin. *1421: The Year China Discovered the World*. Bartam Press, London, 2002. p. 129. Gavin Menzies is a British Historian who has recently made claims that Zheng He circumnavigated the earth and reached both Australia and North America. For a historically accurate account of the life of Zheng He refer to Chang, Kuei-sheng. *Dictionary of Ming Biography* edited by L. Carrington Goodrich and Chaoying Fang. Columbia University Press, New York and London, 1976. pp. 194-200 or alternatively Levathes, L. *When China ruled the sea: The Treasure Fleet of the Dragon Throne 1405-1433*. Oxford University Press, 1994.

There are indications that some of Zheng's ships might have journeyed further than the Cape of Good Hope. The Venetian monk and cartographer Fra Mauro describes in his 1457 map the travels of a huge junk from India 2000 miles into the Atlantic Ocean in 1420.

The main effects of Zheng He's voyages were increased prestige of the Ming in countries all around the shores of the Indian Ocean, and greater Chinese knowledge of the larger world, Chinese officialdom in particular gained improved knowledge of the major sea-lanes through which China's trading wealth came.

After the death of Zheng He (1433) it is arguable that China's navigational, thus cartographic advances were not so abundant. However, it should not be thought that advances stopped altogether. It is well documented that Chinese ships continued to control Southeast Asian trade until the 1800s and that active Chinese trading with India and East Africa continued long after death of Zheng. The fact that state sponsored Ming naval efforts declined dramatically after Zheng's voyages did not curtail sea exploration altogether. The traditional forces of insularity gained the upper hand in Chinese politics, which they have held with only a few breaks down to our own time.

The brave seamen whose great voyages of exploration opened up the world are iconic figures in European history. Columbus in 1492; Dias in 1488; and Magellan in 1519. *The Economist* points out that "there is one difficulty with this confident assertion of European mastery: it

may not be true".<sup>22 23</sup> According to *The Economist* it seems more likely that the world and all its continents were discovered by Zheng He. His exploits, which are well documented in Chinese historical records, were written about in a book which appeared in China around 1418 called "*The Marvelous Visions of the Star Raft*".<sup>24</sup>

Geoff Wade of the Asia Research Institute at the National University of Singapore contests the article Robert Cribb wrote for *The Economist*.<sup>25</sup> Wade rightfully feels that the idea of the earth being round may date back further than is generally believed.<sup>26</sup> The roundness of the world was already accepted by the ancient Greeks at the time of Aristotle (4<sup>th</sup> century BC). Erastosthenes calculated the circumference of the Earth in the 3<sup>rd</sup> century BC and Crates of Mallos made a terrestrial globe (2<sup>nd</sup> century BC). Longitude was already used by Ptolemy, 2<sup>nd</sup> century A.D.

Chinese navigational technology was focused directly on river and canal craft until the 8<sup>th</sup> century. Between the 5<sup>th</sup> and 8<sup>th</sup> century AD Arab, Persian and Singhalese merchants came to southern China to trade.<sup>27</sup> This meant that the Chinese were able to trace the progress of their ships and then begin to develop their own navigational force. At the time of the Ming Indian

<sup>22</sup> 'China beat Columbus to it, perhaps' *The Economist*, 12<sup>th</sup> January 2006

<sup>23</sup> [http://www.economist.com/books/displaystory.cfm?story\\_id=5381851](http://www.economist.com/books/displaystory.cfm?story_id=5381851)

<sup>24</sup> Snow, Philip. *The Star Raft China's Encounter with Africa*, Weidenfeld & Nicolson, New York, 1988 pp.20-22.

<sup>25</sup> <http://mailman.geo.uu.nl/pipermail/maphist/2006-January/006369.html>

<sup>26</sup> This idea is discussed further in Jeffrey B. Russell. *Inventing the Flat Earth: Columbus and Modern Historians*. New ed. New York: Praeger, 1997, and later editions.

<sup>27</sup> Joseph, Needham. *Science and Civilization in China, Volume 4 (Physics and Physical Technology) Part III (Mechanical Engineering and Nautics)*. Cambridge University Press, London, England and New York 1971. pp. 451-454.

Ocean voyages, Chinese nautical technology was superior to the European, except in terms of navigation. China had larger ships by far; Zheng He's ship was five hundred feet long. Bias always has to be taken into consideration, and the sizes of fleets were no exception. In 1962 a rudder post from one of Zheng's treasure ships was discovered at the site of one of the Ming shipyards near Nanjing. The timber was 36.2 feet long, and when reverse engineered to typical proportions, this yields a ship length of 480 to 536 feet, depending upon different assumptions about the draught.<sup>28</sup> In comparison, the well-traveled European ships of this period were considerably smaller, usually around 100 feet long. The Chinese have been using multi-masted ships for several centuries before the Portuguese.

When links between European and Chinese cartographic processes are being discussed, expeditions and navigational development is of vital importance. The reason is that through merchant trading, information was able to be transferred thus allowing more geographic information to become available. This amalgamation of style and information came about during the Qing dynasty (1644-1911). Chinese culture was exposed to foreign influence mainly due to two factors: conquest by the Manchus and contact with Europeans through Jesuit missionary and later merchants efforts. The influence of the Jesuit missionaries was a continuation from the late Ming and then through the expansion of trading with Europeans. Cartographic history during the Qing can be viewed in general terms as a double layered phenomenon: mapping at the top of the political hierarchy influenced by foreign cartographic

---

<sup>28</sup> Ibid. p. 481.

practice, and an indigenous layer below that was resistant to foreign influence until late in the nineteenth century.

A vital element for analysis is whether the world was mapped by a Western or Chinese cartographer. Pre-nineteenth century Chinese mapmakers tended to be broadly trained scholars and artists rather than specialised technicians. They were expected to map-make in the same way they created striking landscape scenes or produced spectacular calligraphic works for official use. In the West the primary concern in relation to the production of maps was science whereas China's intellectual echelon also concerned themselves with astronomy, geography, philosophy, art, literature and religion. When the tradition of Chinese cartography is discussed it is difficult to have a concept of when and where this tradition came about. There are so many differing opinions surrounding the tradition of Chinese and European cartographic styles. During the Middle Ages it is possible to point out the development of mathematical techniques in China that could serve as a foundation for adoption of Ptolemaic cartography into Asia, Chinese mapmakers had produced maps impressive for their mathematical accuracy.

The result of this convergent history is an approach to a worldwide practice of cartography that was specialized in two senses: executed by practitioners with training in techniques specific to mapmaking, and reflecting a sharper division between maps and other forms of representing space graphically. It makes less sense to speak of cultural or national styles of mapmaking today than to speak of such styles with regard to painting and calligraphy. Map

readers of different cultural backgrounds can, without difficulty, recognise maps made today regardless of the country of origin.

One major comparison in China as well as in Europe was that a map not only helped store geographic information, but also encouraged aesthetic and religious responses. In China for example, there survive texts of poems inscribed on maps that record the emotions of map readers when confronted by a cartographic image.

An example of differences in European and Chinese cartographic styles is how Western cartographers concerned themselves with perspective and scale whilst the Chinese map maker chose not to. It was not thought to be of great importance. It was not unusual for mountains to be drawn in elevation while rivers would appear flat. Geographical perspective and actual dimensions varied drastically depending on the purpose of the maps, for example, a section of a map of the Grand Canal linking Beijing with Hangzhou from the eighteenth century. This map represents the thousand-mile length of the canal represented on a scroll. While the waterway is drawn in plan, mountains are presented in elevation and cities and towns from a bird's-eye view.<sup>29</sup> In relation to perspective two other maps that should be looked at are a Planimetric Hydrologic Map, which represents a portion of a map of the Huanghe, or Yellow River taken from Pan Jiixun, *Hefang yilan* (General view of river control, 1590), 1748 edition taken from Chapter one. This copy was reproduced courtesy of the Harvard-Yenching Library,

---

<sup>29</sup> Harley, J.B and David Woodward, editors *The History of Cartography, Volume 2, Book 2: Cartography in the Traditional East and Southeast Asian Societies*, Chapter Six-Yee, Cordell. 'Chinese Cartography among the Arts: Objects, Subjectivity, Representation.' The University of Chicago Press. Chicago & London. 1994. p.110-113.

Harvard University, Cambridge.<sup>30</sup> The second map to look at for further evidence or varying perspective is a portion of a map of the Yellow River taken from Jin Fu *Zhihe fanglüe* (Summary of river-control methods).<sup>31</sup> These maps were however heavily annotated to compensate for the lack of graphic images of scale. The bias that lay behind each map was not however specific to Chinese mapmakers as this trait can be viewed as universal.

Research on the subject of what a map is and how earlier mapping in China and the West led to the creation of maps that were inspired by the format of Father Ferdinand Verbiest's *Kunyu Quantu*, 1674 has brought up many differing opinions. The fact that so many views exist means that it is a subject of great interest. Whenever mapping in China is discussed discrepancies will always arise. However this leaves room for new thoughts to be created and examined.

---

<sup>30</sup> Ibid. pp.98-99.

<sup>31</sup> Jin Fu, *Zhihe fanglüe* (Summary of river-control methods), ed. Cui Yingjie (1767; photo-reprinted Taipei: Guangwen Shuju, 1969), pp38-39.

## **Chapter Two: Father Ferdinand Verbiest and the Jesuits**

### **Who were the Jesuits?**

Father Ferdinand Verbiest was a member of the Jesuit order, founded by Saint Ignatius Loyola. Born in 1491, of a noble family in Biscay, Loyola trained to the military profession; in 1521 he received two severe wounds in the leg while defending Pampeluna against the French. During his slow recovery Loyola called for books to amuse him. Various books were given to him, however Loyola was inspired by volumes of Lives of the Saints. As a result Loyola broke away from his family and welcomed a life of poverty and devotion and became a Benedictine of Monserrat.<sup>32</sup>

With unfailing patience he worked to obtain the necessary knowledge. After being driven from two Spanish universities, because his efforts to influence the students caused him to be seen as a mischievous fanatic, he went to the University of Paris, and there completed his studies.

Here it was that he made the acquaintance of a number of remarkable men, chiefly Spaniards, with whom he connected in heart and spirit, understanding that it was possible to carry out the project which he had long cherished. He conducted them

---

<sup>32</sup> Herbermann, Charles, G. *The Catholic Encyclopedia: an international work of reference on the constitution, doctrine, discipline, and history of the Catholic Church*. London Caxton, 1907. See Ignatius Loyola.



first through the "Spiritual Exercises," which he had composed at Manresa. On the feast of the Assumption, in 1534, in the church of Montmartre at Paris, Ignatius and his companions after they had all received communion from Peter Faber, who was then the only priest among them, pronounced the vow which constituted the order.<sup>33</sup> Its theme was, "to renounce the world to go to preach the gospel in Palestine, or if they could not go thither within a year after they had finished their studies, to offer themselves to his Holiness to be employed in the service of God in what manner he should judge best."<sup>34</sup> Ignatius Loyola did not provide his order with a particular habit. He wanted the Jesuit order to be not separated by clothing, his mission was to create an order that would allow them to mix freely within society:

"The postulate must renounce his own will, his family, and all that men hold most dear on earth. The vows could not be taken before the age of thirty-three. A Jesuit must canvass for no office, and take no ecclesiastical dignity unless constrained by the Pope on pain of mortal sin. Six grades of membership are described: (1) novices, (2) formed temporal coadjutors, (3) approved scholastics, (4) formed spiritual coadjutors, (5) the professed of the four vows."<sup>35</sup>

The Jesuit missionary St. Francis Xavier desired to preach the Gospel in China, but his wish was not fulfilled, and he died at the age of forty-five (A.D.1552) in the little island of Sancian, close to the great empire. In the sixteenth century Western missionaries operating under

---

<sup>33</sup>Addis, William E. and Thomas Arnold, M.A., *The Catholic Dictionary*, p. 520 Their names were: Francis Xavier, James Laynez, Alphonsus Salmeron, Nicholas Bobadilla- Spaniards; Simon Rodriguez, a Portugese; and Peter Faber, a Savoyard.

<sup>34</sup> Ibid. Alban Butler, July 31.

<sup>35</sup> Ibid. p. 521

Portuguese patronage arrived in the open port of Macao, but it was not until 1583 that the Ming dynasty reversed its long-standing ban on foreign clergy, allowing some Jesuits to enter the country. The leader of the mission, the humanist and scientist Matteo Ricci (1552-1610) was born in the Papal State, and joined the Jesuits in 1571. In 1582 he studied Chinese language and culture, which he mastered to an extent previously unheard of by a foreigner. He entered China in 1583 along with Michele Ruggieri (1543-1607). Ricci attracted converts using Western science. Arriving at the imperial court in 1601, Ricci became a favourite of the Emperor and an important scientific and literary figure.<sup>36</sup> He established himself in Beijing in 1601. The policies Ricci established for his fellow Jesuits allowed new converts to continue practicing certain Confucian and ancestral rites that permeated the major sectors of Chinese society; the family the schools, and the government. Matteo Ricci accepted ritual and reverence. Ricci believed it legitimate to use the terms of Chinese sacred writings, Tian (heaven) and Shangdi (Supreme Lord), to convey the Christian concept of God.<sup>37</sup> By the time Matteo Ricci arrived in China in 1583 no traces were left of the early Franciscan mission and, to the end of his life, Ricci was not aware that Peking, only two and a half centuries earlier, had been the see of a Catholic Archbishop<sup>38</sup>. Father Ricci's mathematical knowledge secured the favour of the Imperial Court. He devoted himself to the mission for twenty-seven years (1582- 1610), and left behind 300 churches, one of which was in the capital Peking. Adam Schall, who came in 1622, was also a distinguished mathematician. Shortly afterwards a great change took place in the fortune of the Chinese mission. It had been left entirely in Jesuit

---

<sup>36</sup> McBrien, Richard. *Encyclopaedia of Catholicism*, 1995. p. 1115

<sup>37</sup> Ibid.

<sup>38</sup> De Rachemiltz, I. *Papal Envoys to the Great Khans*, Stanford University Press. Stanford.1971. p.203

hands; indeed, Gregory XIII had in 1585 forbidden the members of other orders to enter China. But this restriction was removed, and in 1631 the first Dominican Missionaries appeared, who were followed in 1633 by another Dominican, Morales, and by Franciscans. The new missionaries, and especially Morales<sup>39</sup>, accused the Jesuits of gaining so-called converts by a shameful compliance with Chinese adoration and superstition and this is where the dispute surrounding Chinese rites began.

In 1643 Dominicans sent Morales to Rome, and he submitted to the Congregation of Propaganda 17 propositions on the Chinese usages tolerated by the Jesuits. These practices, after discussion with theologians and the Roman Inquisition, were prohibited by Innocent X (1611-1689), till the Vatican City should otherwise determine. Innocent X was pope from 1679 to 1689. Meanwhile, the Jesuit Father Martin Martinis tried to convince the authorities at Rome that the customs under scrutiny had nothing to do with religion, and that the success of the Catholic Church in China depended on their being permitted. He obtained from the Inquisition a decree, confirmed in 1656 by Alexander VII. This decree allowed the practice of the Chinese rites, provided they had a purely civic character. The complaints were renewed by three Lazarists whom Alexander VII had made vicars-apostolic, and Clement IX in 1669 renewed the decrees of 1645 and 1656, with a significant addition in which the regulars were

---

<sup>39</sup> St. Francis de Morale - Dominican martyr of Japan. A native of Madrid, Spain, he served in the Dominican mission in Satsuma, Japan, for two decades. In 1608, he went to Fushima and in 1614 to Nagasaki. He was burned alive with Blessed Charles Spinola and companions. Francis was beatified in 1867.

ordered to obey the vicars-apostolic. Lazarists, also called Vincentians, were an order founded by Saint Vincent de Paul (1625) of diocesan priests devoted to preaching missions to the poor, foreign, training clergy, and Catholic education.<sup>40</sup> While these disputes were dividing the missionaries into two hostile camps, the Jesuits were rising in the favour of the court, and in 1692, as has already been discussed, the Emperor Kangxi publicly announced that the Jesuits had full leave to preach, and his own subjects to embrace Christianity. Still the opposition of the other missionaries lasted.<sup>41</sup>

When both sides concerning Chinese rites and usages are being discussed, it is important to remember that many of these traditions come from the Confucian way of thinking. Confucianism is a humanistic and religious value system, which is based on the teachings of "Confucius" (Kongzi: 551-479BCE). It stresses the moral responsibilities of the individual as a member of society<sup>42</sup>. Confucius lived six hundred years before Christ. He was not a religious teacher or even a philosopher:

He laid down rules of life based on utility, inculcated great respect for order and for public authority, and great reverence for ancestors, for ancient custom, for all, in short, which represented the traditions of Chinese civilisation. For the rest, he was content to let religion alone; and the ruling classes then, as now, were mostly atheistic, however, being perfectly compatible with belief in fate, and in a quasi-immortality of the soul, so

---

<sup>40</sup> De Rachemiltz, I. Ibid. p. 95

<sup>41</sup> Addis and Arnold, *A Catholic Dictionary*, p.164.

<sup>42</sup> Yao Xinzong, *An Introduction to Confucianism*. Cambridge University Press, 2000. p. 124

far as this, that the forces which constitute man's life were supposed to endure after death mingled with other powers of nature, and with a boundless toleration of popular superstition as a means of restraint suitable to the multitude.<sup>43</sup>

### **The Jesuits and Cartography in China.**

If Chinese cartography had still not joined with European cartography during the Ming, some might argue that it did so during the Qing dynasty. Chinese culture was exposed to foreign influence primarily from two sources: conquest by the Manchu and contact with Europeans first through Jesuit missionary efforts (continued from the late Ming) and then through merchant expansion by European trading nations. This point in Chinese history is seen as being politically extremely unsettled as a result of the Ming Dynasty being overthrown by the Manchu, a Tungusic speaking people in 1644<sup>44</sup> from the northeast whose mounted bannermen captured the capital and established the Qing dynasty. In the ensuing chaos, many Chinese officials left the capital and refused to serve their new, alien overlords. This left the Jesuits at court in a delicate position. As in Manchu against the Dutch, the Jesuits had supported Ming resistance to the end, including supervising the casting cannon and artillery to defend the capitol. But the resistance failed, and the Manchus gained control of China. Europeans first learned about the Manchu conquest from the book, *De Bello Tartarico*, by the Jesuit Martin

---

<sup>43</sup>P.J. Ivanhoe, *Ethics in Confucian Tradition: The Thoughts of Mencius and Wang Yang-Ming*. Atlanta: Scholars Press, 1990 pp. 87-95

<sup>44</sup> Tungusic was the dialect of Eastern Siberia and Manchuria.

Martini,<sup>45</sup> who was based in Beijing. The new Manchu rulers did not seek retaliation against Schall or the Jesuits, quite the opposite, as they sought legitimacy with the Chinese people, they elected to receive these new astronomical and calendrical techniques as an indication of their intention to maintain traditional Confucian rites as accurately as possible. It is during the Qing dynasty of the Manchus that the Jesuits appear at court in an official capacity.<sup>46</sup> Some changes were wrought by these foreign contacts, especially by the merchant expansion, but the effect on cartography was hardly profound.

The Manchus were outnumbered about fifty to one by the conquered population, and they ultimately controlled an empire roughly twenty times the size of their original power base. The Manchus had studied Chinese history and were well aware that foreign dynasties had tended to be short-lived. They were determined not to repeat the mistakes made by their predecessors: a loss of tribal military prowess and division between those belonging to China and foreign aristocracy. The system that evolved under the Qing has been described as a Manchu-Chinese diarchy, intended to minimize the distinctions between conquerors and conquered.<sup>47</sup> The Manchu rulers also adopted the Chinese language, promoted Chinese culture, and commissioned projects to preserve Chinese cultural artefacts. By such projects, they sought not only to win favour among Chinese intellectuals, but also to control public opinion. By

---

<sup>45</sup> Father Martin Martini also published *Novus Atlas Sinensis* (Amsterdam) 1655.

<sup>46</sup> [http://www.usfca.edu/ricci/exhibits/dragon\\_skies/index.htm](http://www.usfca.edu/ricci/exhibits/dragon_skies/index.htm)

<sup>47</sup> This system has been described in Fredric Wakeman, Jr., *The Great Enterprise : The Manchu Reconstruction of Imperial Order in Seventeenth – Century China* , 2 vols. (Berkeley and Los Angeles: University of California Press, 1985); and Robert B. Oxnam, *Ruling from Horseback: Manchu Politics in the Oboi Regency, 1661-1669* (Chicago: University of Chicago Press, 1975)

overseeing editing projects, for example, they could ensure that texts expressing anti-foreign or anti-Manchu sentiments were censored.

Expansion and maintenance of political control required reliable geographic information was necessary. Whether the Manchu had their own cartographic tradition is unknown. After their conquest of China, they relied on geographic information from Chinese sources, as they had before the conquest, and also obtained information from comprehensive, empire wide surveys carried out by the Jesuits. The Jesuit surveys and the resulting maps are probably the most familiar aspects of Qing cartography. Less well known is the comprehensive survey attempted at the beginning of the Qing by the Manchu government. Unlike the Jesuit surveys, this survey did not have as its end the production of maps; it was a tool for consolidating political authority. As a means of securing popular support, the early Manchu government proclaimed that taxes would be “collected entirely according to the original quota recorded in the accounts of the former dynasty.”<sup>48</sup> The Ming tax and land records, however, were hopelessly outdated, the most recent being at least twenty-five years old. On 9 June 1646, Dorgon, the prince regent, decided to rectify this situation. He ordered his grand secretary to find out how much land was being cultivated throughout the empire and to audit the tax collection procedures of local governments. As a result, the first empire wide cadastral survey since the 1580s was ordered: “Investigate thoroughly and examine in detail. Decide on comprehensive registers of taxes and service. Present to us for our personal review. Promulgate them throughout the

---

<sup>48</sup> *Da Qing Shizu Zhang (Shunzhi) huangdi shilu* (Veritable records of Shizu, emperor Zhang [Shunzhi], of the Great Qing, compiled ca. 1672) (1937; reprinted Taipei: Hualian Chubanshe, 1964), 17.16b; cited hereafter as *Shizu shilu*. The translation is that of Wakeman, *Great Enterprise*, 1:463(note 21)

empire.”<sup>49</sup> As far as Wakeman is concerned, “the determination of taxes and service really amounted to a re-evaluation of quotas rather than a thorough national land survey.”<sup>50</sup> The Manchu rulers’ experience with Ming records helped make them receptive to the Jesuits’ offer to make better maps of China than those available at that time. When the Jesuits suggested to the Kangxi emperor in 1698 that they should undertake a survey of the empire, both sides knew that the Jesuits had already established the superior power of their astronomical methods in comparison with traditional Chinese. On 29 July 1644, Johann Adam Schall von Bell (1592-1666), had petitioned the throne, offering to rebuild astronomical instruments destroyed by bandits before the Manchu took power and presented “the prediction of a solar eclipse on the first day of the eighth month of this year [1 September 1644], calculated according to new Western methods: In some provinces the eclipse will appear earlier, in others later. The various data are listed here for examination. I humbly beg a decree to the [board of rites] to test the measurements publicly at the proper time.”<sup>51</sup> Schall’s request was granted in a decree that said: “For many years the old calendar has been inaccurate whereas the new methods from the West have often been accurate. We knew this.”<sup>52</sup> The test confirmed what the imperial court had already known: “As for the hour, minute, and second, the position, and other details regarding the start of the eclipse, the total eclipse, and the sun’s recovery, only the new methods from the West coincided point for point. The Datong [the

---

<sup>49</sup> Shizu shilu, 25.24b. The translation is based on that in Wakeman, 1:464 n.119 p.178 *The History of Cartography*

<sup>50</sup> Wakeman, *Great Enterprise*, 1:464n. 119 (note 14)

<sup>51</sup> Shizu shilu, 5.24a (note 15)

<sup>52</sup> Ibid.



official Ming method] and the Islamic methods were both erroneous as to the time.”<sup>53</sup> On 19 October 1644 the Western calendar was officially adopted, and on 31<sup>st</sup> October Schall was named director of the Imperial Board of Astronomy.

During the Kangxi period (1662-1722), the Jesuits were given an opportunity to demonstrate the virtues of their cartographic techniques. They accompanied the emperor on northern expeditions, and they had taught him how to take astronomical measurements and to measure elevations and distances. The Kangxi emperor had a deep interest in mathematics, and he also wanted to increase his knowledge of geography:

Our territory is complicated, broad and vast, extending ten thousand li...Climatic conditions vary, and the people's customs differ. These have not been compiled. How is one to know them completely? We observe that writers on geography have been fairly numerous since the Han dynasty. But their accounts vary in their amount of detail, and reports produced then vary in their amount of detail, and reports produced then and now differ. We therefore order that a bureau be set up to collect all kinds of documents, verify the gazetteers, and compile a book.<sup>54</sup>

---

<sup>53</sup> Ibid. 7.1b (note 15).

<sup>54</sup> *Da Qing Shengzu Ren (Kangxi) huangdi shilu* (Veritable records of Shengzu, emperor Ren [Kangxi], of the Great Qing, compiled ca. 1739) (1937; reprinted Taipei: Hualian Chubanshe, 1964), 126.15b-16a.

This book was to be titled *Da Qing yitong zhi* (Comprehensive gazetter of the Great Qing realm, completed 1746), and its editors were asked to report on strategic passes, mountains, streams and customs as well as to draw maps.

Chinese cartographers at provincial and local levels seem on the whole to have been untouched by the cartographic innovations introduced at court. Contact with the Jesuits was limited mainly to the imperial court, and after the dissolution of the Society of Jesus in China in 1773, opportunities for Chinese intellectuals to interact with foreign scholars became even more limited for a time. The openness of the Manchu court to foreign ideas began to lessen in the latter part of the Qianlong (1736- 95) emperor's reign as the emphasis in scholarship turned increasingly inward -- to the preservation of Chinese culture.

Although the Jesuit atlases produced during the Kangxi and Qianlong periods underwent various printings it is not clear how many Chinese had access to them. According to the *Qing shi gao*, the Kangxi atlas was stored in the office of the palace treasury, where it would have been under direct palace control.<sup>55</sup> The cartographic records suggest that the influence of Western cartography was on the whole not felt among Chinese mapmakers. As a result, traditional Chinese cartographic practices continued unaltered.

---

<sup>55</sup> *Qing shi gao jiaozhu* (Edited and annotated draft history of the Qing, original draft completed 1927), 15 vols. (Taipei: Guoshiguan 1986-), chap. 290 (11.8773-74). See also *Qing shi* (History of the Qing), 8 vols. (Taipei: Guofang Yanjiuyuan, 1961), chap.284 (5:4010)

Chinese cosmographical thought of pre-modern times was not as concerned as its counterparts in Western civilizations with the overall shape of the world or structure of the cosmos.<sup>56</sup> “There is no pre-seventeenth century Chinese equivalent of the medieval European Mappamundi or of Western representations of the earth showing its various cosmographical divisions or climatic zones. The widely held conception that China comprised ‘all under Heaven’ (tianxia), as well as the geographical isolation of Chinese civilization, may have contributed to Chinese cosmographers’ lack of interest in outlining, either realistically or schematically, the form of the world as a whole.”<sup>57</sup>

The cultures in and around China’s sphere of influence did develop their own distinctive map styles and genres, and they responded to Western cartography in different ways. In other cultures, for example, the relation between text and image has developed at a different pace for example, more quickly in Japan than in China, and less quickly in Korea. Even though cultures in those places developed their own cartographic traditions, there is no denying the power and influence of Chinese mapping practice. It is hard to reconcile this evidence with judgments of “backwardness” and failures of accuracy.<sup>58</sup>

---

<sup>56</sup> Yee, Cordell. *History of Cartography*, ‘Chinese Cartography among the Arts: Objects, Subjectivity, Representation.’ The University of Chicago Press. Chicago & London. 1994. p. 203.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid. p. 230.

### **Father Ferdinand Verbiest (Plate. 1)**

Father Ferdinand Verbiest was a missionary and astronomer, born in Pitthem near Coutrai, Belgium, on 9 October, 1623 and died in Peking on 28 January, 1688. He entered the Society of Jesus on 2 September 1641, and studied theology at Seville, where he defended public theses in 1655. Verbiest went to China, like Matteo Ricci (1552-1610) and Adam Schall (1591-1666) before him, carrying the wisdom of the West as a means to advance the salvation of the East.<sup>59</sup>

A clearer insight into Verbiest the man can be obtained when the history of his family is examined. In 1885 a booklet was published relating to the life of the Verbiest family. This was an important document for as Emperor Kangxi had discussed, one can gain a better understanding of Verbiest's outstanding mind through looking at his parents and where he had come from. Facts that are unquestioned are that his father was named Judocus (Just) Verbiest and his mother was named Ann Van Hecke. The records of baptism feature several times within records that exist in his home town of Tielt in West Flanders. Ironically Verbiest created confusion over his family tree personally. In his work *Astronomia Europaea* which was published in 1687 by Philippe Couplet, he incorporated a copy of the titles of honour, issued in 1678 by the Kangxi emperor praising Verbiest's achievements including his parents and his grandparents. The names that appear in place of his grandparents are in fact those belonging to his great grandparents. It is unclear as to why such a mistake arose since Verbiest

---

<sup>59</sup>Charles G. Herbermann, *The Catholic Encyclopedia: an international work of reference on the constitution, doctrine, discipline, and history of the Catholic Church*. London Caxton 1907. See Verbiest, Ferdinand. p.136

knew his grandmother in Bruges. It was here that all the genealogical errors concerning Verbiest started.<sup>60</sup>

Verbiest's great grandparents were Peter Verbiest and Paschasia Dewolf, known only by the titles of honour from 1678. His paternal grandfather was Paschasius Verbiest who married Judoca Van der Straete in 1592 and had three children: Judocus Verbiest who was Ferdinand Verbiest's father, Peter who was born in 1595 and a girl was born in 1598 named Paschasia. He died in 1603.

There is a particular interest in the life of Verbiest due to the fact that he contributed so widely to cartographic and scientific development within Kangxi China. Verbiest's family was not one of affluent means. As has been discussed, the oldest known ancestors are Ferdinand Verbiest's great grandparents. The intellectual background of Verbiest is the famous Bogaarden school in Bruges, closely related with the Franciscan monastery. His academic tendencies can be traced back to his father Just Verbiest who obtained a Master of Arts from the University of Douai, and was successively teacher in Latin, sexton, bailiff, judge, notary, free-alderman and tax-collector. For his time and country, he was a learned and important man. Father Ferdinand Verbiest was born into an intellectual family, having as background the world of Bruges, the University, the church, and the administrative and juridical experience of

---

<sup>60</sup> Witek, John. W., *Ferdinand Verbiest (1623-1688) Jesuit Missionary, Scientist, Engineer and Diplomat*, jointly published by Institut Monumenta Serica, Sankt Augustin and Ferdinand Verbiest Foundation, Leuven, Steyler Verlag, Netteral, 1994. p.24.

Master Just Verbiest. His mother also had connections in these circles in Bruges. When Verbiest went to the secondary school in Bruges in 1635, he was not a mere peasant. He knew what a book and a map were, he had seen Bruges, and he had heard about distant countries.

This knowledge of foreign lands would have been supplied to Verbiest through his mothers' brother John Van der Straete. John became a Franciscan priest, and eventually the prior of the monastery in Bruges. Her other brother died as governor of the house of the archbishop of Reggio. John had visited Jerusalem and Mount Sinai. Ferdinand frequently heard from his father, Just, telling about the life and travels of these two uncles. Another fact in that background is the close relation between the Franciscan monastery in Bruges and the Bogaardenschool: many of the pupils of this school became Franciscans.<sup>61</sup>

In 1658 with thirty-five new missionaries Verbiest accompanied Father Martin Martini (1614-1661) on his return to China after having secured at Rome the Decree of Alexander VII for the toleration of the Chinese rites. Verbiest reached Macao in 1659, and was exercising his ministry in Shaanxi when in 1660 he was called to Peking to assist Schall (1591-1666) with the reform of the Chinese calendar and eventually to replace Schall in his astronomical works. He was among those imprisoned during the persecution of 1664.<sup>62</sup> Father Schall was

---

<sup>61</sup> Ibid, pp 25-27.

<sup>62</sup> Pratt, K., *Visitors to China*, MacMillan St Martin Press, 1968, p. 67.

prosecuted despite Verbiest's efforts to defend him. "Schall died in prison, but after I had learned something about astronomy I pardoned his friend Verbiest in 1669 and gave him an official position, promoting him in 1682."<sup>63</sup> Verbiest managed to recover greater peace and security than had existed prior to the persecution. In 1669 the young emperor commanded a public test, which allowed the priest to prove beyond argument the qualities of European astronomy compared with the ancient astronomy of China. Father Verbiest and Yang Guangxian, the mandarin who had instigated the persecution and who had taken Father Schall's place as president of the Bureau of Mathematics, were asked to predict exact time of a lunar eclipse, the length of the shadow of a gnomon at noon of a certain day, and the positions of the heavenly bodies at a particular time. The results of the test, which the emperor, ministers, and nobles established in person, were a great achievement for the missionaries. Father Verbiest was immediately placed at the head of the Bureau of Mathematics, and, out of respect for his success, his exiled brethren were allowed to return to their missions. Verbiest continued to work thereafter on a variety of projects, for example, Jesuits were asked to make new bronze astronomical instruments for the Imperial Observatory at Beijing. Verbiest directed Chinese craftsmen in making these instruments based on the designs of the Danish astronomer, Tycho Brahe. Block prints of the construction survived in Verbiest's texts *Lingtai yixiangzhi* and *Astronomia Europaea sub Imperatore Tartarico Sinico Cam Hy*<sup>64</sup>. His influence was such that the Jesuits were permitted to go back to their preaching and the Church thrived. The decision to use Brahe's model was opportune for several reasons. Brahe's

<sup>63</sup>Spence, Jonathan. D. *Emperor Of China, Self – Portrait of Kang-Hsi*, Vintage books, 1975, p. 16.

<sup>64</sup> [http://www.manresa-sj.org/stamps/1\\_Verbiest.htm](http://www.manresa-sj.org/stamps/1_Verbiest.htm)

exceptionally accurate data represents a major achievement in astronomical science, and on the basis of his observations Kelper determined the laws of planetary motion and from these laws Newton derived the law of gravity. It was not until telescopic technology developed further that it became possible to get more accurate readings. The Beijing Observatory still holds Verbiest's two armillary spheres, an instrument for measurement, which traces its origins to the Islamic methods of Ptolemy's *Almagest*.

From this point on Kangxi benevolence towards Father Verbiest and the Christian religion increased steadily. The emperor requested the priest to construct instruments like those of Europe, and in May, 1674, Verbiest was able to present him with six, made under his direction: a quadrant, six feet in radius; an azimuth compass, six feet in diameter; a sextant, eight feet in radius; a celestial globe, six feet in diameter; and two armillary spheres, zodiacal and equinoctial, each six feet in diameter. These instruments and the *Kunyu Quantu* were part of a larger astronomical/cartographic scheme. These large instruments, all of brass and with decorations which made them notable works of art, were, despite their weight, very easy to manipulate, and a credit to Verbiest's mechanical skill as well as to his knowledge of astronomy and mathematics. They are still in a perfect state of preservation, and at the time of the expedition against the Boxers (1900) the international troops admired them on the platform of a tower of the imperial palace where Father Verbiest installed them more than two centuries and a half ago.



At the same time the missionary had to write in Chinese a collection of works explaining the construction of the instruments, their object, and the manner of using them.<sup>65</sup> The emperor also desired him to compile astronomical tables indicating the movements of the planets and the solar and lunar eclipses for 2000 years to come; moreover, he had him give on certain days a course in mathematics and astronomy, at which many of the great mandarins as well as the one hundred and sixty students of the Bureau of Mathematics assisted. In his desire to acquire the European sciences, Kangxi himself became a pupil of the missionary; for five whole months he summoned him almost daily to his presence, setting aside on his behalf all the laws of Chinese etiquette and detaining him for whole days, while Father Verbiest explained the astronomical books compiled in Chinese by himself and his fellow scientists, and finally studying like a school boy under his direction arithmetic, rectilinear and spherical geometry, geodesy and topography.<sup>66</sup> When examining the Jesuit influence in China it is extremely important to remember that Verbiest was a confidential advisor to the Emperor during a time when few ministers saw the Emperor.<sup>67</sup> Verbiest's influences on Emperor Kangxi have been documented in Jonathan D. Spence's book *Emperor of China, Self-Portrait of Kang-hsi*. An insight is given into Emperor Kangxi's interest in Science. An anecdote is given describing his interest in wind direction and the sun's shadows in relation to tell the time:

I have sat out on a clear night and told the time from the star charts that Verbiest had prepared for me. Many of the officials could not even recognize the basic twenty- eight

<sup>65</sup> Witek, John. W., Ibid p.66.

<sup>66</sup> Yee, Cordell, 1994. Ibid. p.574.

<sup>67</sup> Pratt, K., *Visitors to China*, MacMillan St Martin Press, London. 1968, p. 67.

constellations, and I showed them such things as the way the constellations Ts'an and Tsui paired together in Orion and how the principles of astronomy and geography meshed. So we could see how China's mountain ranges sprang out from the K'un-lun ranges and also how general principles regulated the rivers, those south of the forty-fifth degree of latitude flowing to the south and east while those north of this line flowed to the north.<sup>68</sup>

Through his influence with the emperor, Father Verbiest did more for the spread of the Gospel than any of the missionaries who preached it in the provinces; nevertheless he found time for the direct exercise of the apostolate, especially in the composition of short works in Chinese on the principles of the Christian religion. As he says in one of his letters, books which the Chinese always welcomed as gifts, and which were especially esteemed coming from his pen, were a means of conveying the truth to persons to whom the missionaries would otherwise not have access. Kangxi recognized the services of the missionary by conferring on him successively the highest degrees of the mandarinat. The liberty to preach, the only reward Father Verbiest looked for, was almost the sole benefit he derived from his dignities.

It would seem that the study the human sciences, which had played such a key part in the foundation of the Chinese mission, and permitted Father Verbiest to save it, would henceforth be useless. It was a missionary from China who considered it his duty to carry to Rome, and

---

<sup>68</sup> Spence, Jonathan.1974. Ibid. p. 16.

by means of his writings to spread throughout the world, impassioned accusations against the methods of the Jesuit missionaries.<sup>69</sup>

In 1677 Father Verbiest was appointed vice provincial.<sup>70</sup> This nomination was a stimulus to seek new means of developing the work confided to his direction, in August 1678 he wrote a circular to other Jesuits in Europe.<sup>71</sup> While seeking assistants in Europe he also tried in China itself. The question of a native clergy had arisen at the beginning of the mission. Although many Chinese entered the society, no Chinese members entered into priesthood. The persecution of 1664, which for nearly five years deprived the Christians of their European missionaries, emphasised more urgently the need for Chinese priests.

---

<sup>69</sup> Ibid. Yee, Cordell, 1994. Ibid. pp184-185.

<sup>70</sup> Superior of all the Jesuit missions in China.

<sup>71</sup> Spence, Jonahan, *D.Emperor Of China, Self-Portrait of Kang-Hsi*, Vintage Books, 1995. pp 24-26 In it he set forth the hopes which more than ever were held out to the Faith in China, together with the impossibility for the missionaries taken in the field, with the fewness of their number and the inadequacy of their resources, to gather in all the harvest. He then urged his brethren in Europe by most touching arguments to come in as great numbers as possible to reinforce this body of overworked labourers, and also to procure for the mission the material resources necessary for founding new Christian communities, supporting catechists, establishing schools, etc.

### **Chapter Three:**

#### **Verbiest's role in importing Geographical Science to China.**

When Father Ferdinand Verbiest is being discussed the important factor that emerges is how the visions of two very separate and very different schools of thought came together: 'China' and the 'West'. The comparison between what was taking place during the Renaissance in Europe and what was happening in China especially during the seventeenth century, was the equivalent to two different worlds. However, the Jesuits successfully managed to merge both schools of thought. Verbiest's contributions are of paramount importance where cartography during the Kangxi period is concerned, not only for his contribution to mapping and more specifically the '*Kunyu Quantu*' of 1674 but also how he brought to the court of Kangxi new techniques and astronomical equipment and the knowledge of how these astronomical pieces of equipment were constructed. Naturally there are conflicting opinions on how and why certain theories were disregarded whilst others were openly embraced. The Jesuits as a society have been both ridiculed and praised for the way in which they contributed to the school of cartography within China before, during and post the production of Ferdinand Verbiest's *Kunyu Quantu*, 1674. One criticism of Verbiest is that he apparently never spoke of the pioneering work of Nicholas Copernicus, Galileo Galilei, Johann Kepler and Isaac Newton,

but kept siding with the ideas of Aristotle and Ptolemy.<sup>72</sup> The Jesuits have been regarded as “enemies of modern science” who “led the battle against science and its practioners”<sup>73</sup>. In Duyvendak’s writings he has even said that “the import of such outdated scientific knowledge has contributed to the arrears of Chinese culture”<sup>74</sup>. It is clear why Verbiest chose to follow the teachings of Aristotle and Ptolemy. Galileo (1564-1642) was the first astronomer to make full use of the telescope, observing the craters of the moon and the satellites of Jupiter. His open advocacy of Copernican cosmology led, however, to a clash with the Catholic Counter Reformation, and he spent his final years under house arrest.<sup>75</sup> “The Copernican principle is

<sup>72</sup> The well-known Dutch sinologist Prof. Dr. J.J.L. Duyvendak (d. 1954) published a review of Galileo in China, by the Italian Jesuit Professor. Duyvendak wrote: “The impossibility for the Jesuits, the mediators of western science in China, to accept Galileo’s heliocentric theory, is a matter of immense cultural significance. It meant that China, when it received western science, received it in a form that, in principle, was adopted by a number of other historians” cf. R.A. Blondeau, *Ferdinand Verbiest S.J. als wetenschapsmens, 1688-1988* (Roesbrugge, 1987), p.99.

<sup>73</sup> Bai Shouyi, *An Outline History of China* (Beijing, 1982), p.427: “Naturally, the society of Jesus would stand on the front line against science and scientists...”

<sup>74</sup> J.J.L. Duyvendak, “De Ming-dynastie”, p. 159 in *Wereldgeschiedenis, De Haan Zeist* (Antwerp, 1963).

<sup>75</sup> <http://www.hps.cam.ac.uk/starry/galileo.html> “One morning in 1613, at breakfast, Cosimo de’ Medici and his mother, the Grand Duchess Christina began discussing the truth of Jupiter’s satellites. Benedetto Castelli, Galileo’s student, who was present, asked Galileo to comment on the central point of that conversation.....the conflict between the Bible and the heliocentric doctrine. The reply was the famous ‘Letter to Grand Duchess Christina’ which circulated widely in manuscript form at the time. In it, Galileo famously declared that the Bible teaches how to go to heaven, not how the heavens go. Galileo’s belief in the truth of the Copernican hypothesis alarmed Dominicans such as Tommaso Caccini and Niccolo Lorini, and the Inquisition examined Galileo’s letter to Christina. Thus Began Galileo’s trouble with the Catholic Church.

Galileo’s run-in with the Church is famous to this day, though often over romanticised or misunderstood. For instance, his declaration in the wake of the condemnation: ‘And yet the earth still moves!’ is apocryphal. It is therefore important to appreciate the precise nature of the affair.

There were two occasions (1616 and 1632) when Galileo was called to Rome over the truth of Copernicus’ theory. As a result of inspecting Galileo’s letter, in February 1616, it was agreed by the Inquisition that 1. the immobility of the Sun at the centre of the universe was absurd in philosophy and formally heretical, and that 2. the mobility of Earth was absurd in philosophy and at least erroneous in theology.

At the order of the Pope, Galileo was then summoned (February 1616) by Robert Bellarmine to be cautioned against speaking out on behalf of the Copernican CLAIM. Rumours, however, quickly began to circulate that Galileo had been condemned and prosecuted. In defence, Galileo secured from Bellarmine a letter stating that this was not the case but that he had had been notified of the Papal decision to censor Copernicus’ *De Revolutionibus* because a heliostatic claim was contrary to the literal meaning of Scripture.

Galileo duly kept away from writing on cosmological matters, concentrating instead, on applying his discovery of Jupiter’s satellites for determining longitude at sea. In 1623 he wrote the *Assayer*, published by the Academy of the



the philosophical statement that no 'special' observers should be proposed. The term refers to the paradigm shift away from the Ptolemaic model of the heavens, which placed Earth at the center of the Solar system. Nicolaus Copernicus demonstrated that the motion of the heavens can be explained without the Earth (or anything else) being in the geometric center of the system, so the assumption that we are observing from a special position can be dispensed with.<sup>76</sup>

The philosopher Immanuel Kant used the expression "Copernican revolution"<sup>77</sup> to describe the effect that his critical method would have on contemporary epistemological thinking. The conditions and qualities he ascribed to the subject of knowledge placed man at the centre of all conceptual and empirical experience, and overcame the rationalism-empiricism impasse, characteristic of the 17th and 18th centuries.

---

Philosophy is written in this grand book- the universe – which stands continuously open to our gaze. But the book cannot be understood unless one first learns to comprehend the language and interpret the characters in which it is written. It is written in the language of mathematics, and its characters are triangles, circles, and other geometrical figures, without which it is humanly impossible to understand a single word of it; without these one is wandering about in a dark labyrinth. (As quoted by Machamer in *The Cambridge Companion to Galileo*, pp.64f.)

His sympathiser and patron Barberini had just been elected Pope, as Urban VIII. In 1624 Galileo had an audience with the Pope, who favourably received the Assayer. In the meeting he had with the Pope, Galileo believed he was encouraged to discuss the Copernican theory so long as it was treated as an hypothesis and began to compose the *Dialogue on the Two Chief World Systems*, which was published in 1632 and dedicated to the Grand Duke. The work caused a furore because Galileo seemed to have gone against the injunction not to advocate the physical truth of Copernicus' claim. The sale of the book was suspended six months after its publication. In September 1632, Galileo was summoned to Rome, where he arrived in January 1633. First the inquisitors tried to get Galileo to admit that he had earlier been officially banned from teaching Copernicus' theory as true, but Galileo produced Bellarmine's letter to contradict this. By then, both Bellarmine (1621) and Cesi (1630) were dead, and Galileo had few powerful patrons left to defend him. A plea bargain to plead guilty to a lesser charge was scuppered, however, when Urban VII decided in June that Galileo should be imprisoned for life. Galileo was then interrogated under threat of torture, and made to abjure the 'vehement suspicion of heresy'. He was sentenced to life imprisonment. Galileo spent the rest of his life at his home at Arcetri, under house arrest with the archbishop of Siena. Pleas for medical treatment were refused.

<sup>76</sup> Yee, Cordell, 1994. *Ibid.* p.575.

<sup>77</sup> Tongyang. Lin, *Verbiest and Chinese Geography*. p.149.

The Copernican principle is applied in cosmology, as the acknowledgement that the Universe is generally homogeneous and isotropic over large scales. These principles are accepted not merely as a philosophical statement but as an acknowledgement that a significant, large-scale deviation from homogeneity and isotropy would be statistically unlikely, and that this acknowledgement has been found to be correct in different contexts in prior observations. The concept of the Copernican principle did not fit in with the doctrine of the Roman Catholic Church at this time. Verbiest would have been a close follower of the Terracentric dogma of the church. It is a hard concept to grasp in today's modern world; however it is important to place one's self in the mind set of those of the seventeenth century. The earth was seen as being the centre of everything with heaven and hell being above and below. "The thesis of a spinning earth could never agree, in their view, with the stability of buildings. Moreover, a bird in the sky, detached from the spinning earth and flying in the sense of the earth's rotation, would not be able to advance – it would, in fact, move backwards – because the turning speed would exceed the bird's flying speed... and more such arguments."<sup>78</sup> Tycho Brahe (1546-1601), alleged to be the best observer of his days, rejected Copernicus's system. He felt that the heavy, material earth could not possibly be a fast – moving heavenly body. The sun and the planets, however, being regarded at the time as practically weightless luminous phenomena, were much more likely to perform such a role.

---

<sup>78</sup> Wildiers, N. Max, *Wereldbeeld en theologie van de Middeleeuwen tot Vandaag* (Antwerp and Amsterdam, 1973), p.164.

Academies of the time were not prepared to accept the heliocentric position due to a lack of scientific evidence. Christopher Clavius, for example “would not only rage against the physical absurdities of Copernicus’s system, but also against the fact that the system conflicted with several passages of the Bible.”<sup>79</sup> The question of whether or not Verbiest was responsible for the Jesuits importing outdated science to China is an important one. Verbiest or his predecessors cannot be held responsible for propagating Copernicus’s theories in China when they did not believe or support his hypothesis.<sup>80</sup> Galileo had built the first telescope in 1609 and had been able to view the relief make up of the moon’s surface and also some nebulae and the Milky Way. In March 1610 he made his findings public in his *Sidereus nuncius*. Not long after this he discovered that Saturnus had strange additions, and that Venus showed different phases<sup>81</sup>. “In this connection, we have no mention that neither the telescope, nor Galileo’s discoveries have remained unknown to China, exactly thanks to the Jesuits!”<sup>82</sup> The Portuguese Jesuit Manuel Dias, Jr. made reference to the discoveries that Galileo had made with his telescope in his booklet *Tianwen lue* (On the Firmament), and in 1621 the German Father Johann Terrenz Schreck brought the first telescope from Europe to China, while his fellow Jesuit Father Johann Adam Schall von Bell in 1626 wrote a Chinese treatise, *Yuanjing shuo* (On Telescope-Optics), which included the first Chinese picture of a telescope. Father Schall

---

<sup>79</sup> Wittek, John. W., *Ferdinand Verbiest (1623-1688) Jesuit Missionary, Scientist, Engineer and Diplomat*, jointly published by Institut Monumenta Serica, Sankt Augustin and Ferdinand Verbiest Foundation, Leuven, Steyler Verlag, Nettetal, 1994., Blondeau, Rodger. “Jesuits and Outdated Science”, p. 49

<sup>80</sup> Ibid. p. 50.

<sup>81</sup> Ibid.

<sup>82</sup> Ibid.



also projected, on September 1, 1644, a solar eclipse on a sheet of paper, using a telescope in behalf of two Chinese mandarins, and the solar eclipse of April 29, 1660 was observed by the emperor through a telescope the fathers had put at his disposal<sup>83</sup>.

Verbiest cannot be blamed for not communicating specific theories to the Kangxi court, especially when Kepler (1571-1630) had published his theorems on the movements of the planets as early as 1609 and 1619. Despite the fact that both men were in frequent contact up until the point of Galileo's death in 1642 he had not even incorporated Kepler's law. They had, for example, communicated their own findings on the 1613 comet. "Kepler had sent Galileo a copy of his *Astronomia nova* (on its appearance in 1609) containing his first two laws concerning the movements of the planets. But even then, Galileo wrote in his 1633 *Discorsi* (Conversations), that the actual shape of the planetary orbits was as yet unknown!"<sup>84</sup> Kepler's laws were still not common knowledge even by his death in 1712. It is thought that his work took so long to compile as a result of his writings being saturated with mythical thought. Blondeau writes: "His 'laws' did not have, at first, the straight formulation which, at present, is to be found in every booklet dealing with cosmology: they were buried under an abundance of calculations and argumentations aimed at the construction of a harmonious universe on a geometrical basis. Only his practical work, his tables of astronomy issued in 1627, enjoyed an immediate success."<sup>85</sup>

<sup>83</sup> J. Needham, "Astronomy" in *Science and Civilisation in China* (Cambridge, 1972), 3:444.

<sup>84</sup> N. Max Wildiers, *Wereldbeeld & Theologie van de Middeleeuwen tot Vandaag* (Antwerp and Amsterdam, 1973), p.198.

<sup>85</sup> J. Needham, *Ibid*, p.51.

Over fifty years after Kepler had demonstrated how the planets moved, Newton began researching why they were moving in this way. It took many years for Newton's theory of gravity to finally be transformed into mathematical forms.

As a result it is fair to say that Verbiest and the Jesuits were not guilty of importing outdated science into China. If scholars such as Galileo and Kepler could be in direct contact with each other and not have fully known all about the other's work it is feasible that Verbiest did not know? It has been said that the instruments that Verbiest had built for the Beijing Imperial Observatory between 1670 and 1673 were based on a prototype described by Brahe in his *Astronomia instauratae mechanica* (1598), "...they were not equipped with sights or micrometers, although these aids had already been developed in Europe at that time.<sup>86</sup>" When something has been invented and described, it does not usually mean that it is immediately taken into general use. A good example of how Verbiest was fully aware of recent developments globally is the fact that in 1672 when the Obsevatorie de Paris directed by Casini had no instruments, Verbiest's were already in place<sup>87</sup>. "The five foot radius sighted quadrant was put into use in 1683."<sup>88</sup> "In 1676, in Greenwich, there was a sextant with two sights, each with a hair cross, but the real instruments were still of the Tycho-type and made – just like in China – by craftsmen, albeit that they attested to a finer mechanical engineering

---

<sup>86</sup> Ibid. p. 53.

<sup>87</sup> Ibid.

<sup>88</sup> Wildiers, N. Max, *Wereldbeeld en theologie van de Middeleeuwen tot Vandaag* (Antwerp and Amsterdam, 1973) pp.230-231

and a more precise graduation. We should not forget that even in Europe, professional astronomy originated only in the last quarter of the seventeenth century. It is, of course, not Verbiest's fault that, when Europeans later managed to improve their instruments, the Chinese did not.<sup>89</sup>

Verbiest was a pioneer of Chinese mapping. It is clear to see how Verbiest drew his *Kunyu Quantu*, 1674 using the most recent cartographic works published in the Netherlands. The Jesuits in Beijing had an extensive library filled with books on the latest scientific developments which included the newest scientific acquisitions of the seventeenth century.<sup>90</sup>

The late sixteenth century is considered to be the golden age of Chinese cartography and new geographical findings. Matteo Ricci's first edition of the Chinese world map was engraved in 1584. This cartographic development led to Verbiest's drawing of *Kunyu Quantu*, 1674. Verbiest is regarded as a fundamental part in the progress made in cartography in China during the seventeenth and eighteenth centuries, due to the numerous maps that were produced under his guidance<sup>91</sup>. This is another important argument against the notion the Jesuits purposefully brought false information to China.

---

<sup>89</sup> Ibid p.54.

<sup>90</sup> A partial list of the works that were available is to be found in Blondeau, *Mandarjin en Astronoom*, pp.494 - 501.

<sup>91</sup> Lin Tongyang, *Ferdinand Verbiest's contribution to Chinese Geography and Cartography*. Steyler Verlag, Nettetal. 1994, p.135.

Two works by Verbiest that clearly show his dedication to spreading geographical knowledge through China by way of cartography is evident in his *Yulan xifang yaoji*, 1669 and *Kunyu Quantu*. The *Yulan xifang yaoji* took the form of a little book based around a plethora of issues such as social and cultural life along with a general geography of Europe. This book was a joint work by Verbiest, Gabriel de Magalhães and Ludovico Buglio<sup>92</sup>. It was a difficult work to date, due to the fact that earlier copies<sup>93</sup> did not provide key information to help the dating process<sup>94</sup>. Tongyang is convinced that the date is 1669, because of Adrien Grelon (1618-1696) reported, that this book was gifted to the Kangxi Emperor on May 7-8, 1669 so that his curiosity was satisfied<sup>95</sup>. *Yulan xifang yaoji* was later translated into Manchu<sup>96</sup> and was apparently based on Guilo Aleni's *Xifang dawen*<sup>97</sup> (Questions and Answers regarding the West). The majority of the text except the last two final sections (*jiaofa* and *xishi*) is taken from the first *juan* of Aleni's work mentioned above. As to the editions of the *Xifang yaoji*, at least three exist: the Zhaodai (1697), the Xuehai (1831) and the Qingzhaotang<sup>98</sup>.

---

<sup>92</sup> *ibid.*

<sup>93</sup> Lin Tongyang speaks of two other editions Zhaodai, ed. and Xuehai, ed.) *Ibid.*

<sup>94</sup> *Ibid.* p.136. In 1982, Lin Tongyang tentatively fixed the date between 1669 and 1672, see Lin Tongyang, *Etudes sur l'introduction de méthodes et de connaissances géographiques européennes en Chine (1583-1718)* (These de l'Université de Paris-Sorbonne, 1982), 2:407, n.6.

<sup>95</sup> *Ibid.* Henri Bosmans, "Documents relatifs à Ferdinand Verbiest: les lettres annuelles de la Vic-Province de la Compagnie de Jésus en Chine Année 1669 par Adrien Grelon", *Annales de la Société d'Emulation*, n. 2 (1912), 41-42.

<sup>96</sup> Louis Pfister, *Notices biographiques et bibliographiques sur les Jésuites de l'ancienne mission de Chine 1552-1773* (Shanghai, 1932-1934), 1:242; Henri Bernard, "Les adaptations chinoises d'ouvrages européens. Bibliographie chronologique depuis la venue des Portugais à Canton jusqu'à la mission française de Pékin 1514-1688", *Monumenta Serica*, 10 (1945), 370.

<sup>97</sup> This book is divided into two *juan* and was published at the Catholic Church of Fujian in 1637. John L. Mish has provided a facsimile reproduction of his book in his study entitled: "Creating an Image of Europe for China: Aleni's His-Fang Ta-wen", *Monumenta Serica*, 23 (1964), 4-30.

<sup>98</sup> Lin Tongyang, *Ibid.* p. 136.

Verbiest's *Kunyu Quantu*, 1674 is a perfect demonstration of how Verbiest incorporated tried and tested European cartographic techniques. When Verbiest drew his World Map in 1674 it was the stereographic projection that he chose to use. The term 'stereographic projection' was given by Jesuit Francois d'Aguillon in 1613, however the projection was invented by the Greek Hipparchos (around 180 B.C), and had prevailed in Europe among makers of maps for geographical purposes from the last quarter of the sixteenth century<sup>99</sup>. Verbiest was following a tradition of great cartographers, such as Rumold Mercator, son of the great cartographer Gerardus Mercator (1512-1594), who drew his world map in 1587 (*Orbis terrae compendiosa description*).<sup>100</sup>

It was difficult for Verbiest along with the other Jesuits based in China to convert the Chinese to western beliefs. The uses of maps were not only a means of relating geographical knowledge to the Chinese, but also to impress them with European civilisation. Through doing this the Jesuits were gaining prestige for their religion and teachings.

---

<sup>99</sup> Johannes Keuning, "The History of Geographical Map Projections until 1600", *Imago Mundi*, 12 (1955), 7.

<sup>100</sup> The world map of Rumold Mercator consists of two Hemispheres, both having a diameter of about 25cm. See Gerard Mercator, *Atlas sive cosmographicae meditationes de fabrica mundi et fabricati figura*, 4<sup>th</sup> ed. (Amsterdam, 1619), p. 29.

## Chapter Four: Kunyu Quantu, 1674.

### Physical Description<sup>101</sup>

The Map is in two parts, showing the two hemispheres of the globe. Both hemispheres contain cartouches with information on the size, climate, land forms, customs and history of various parts of the world and details of natural phenomena such as eclipses and earthquakes. Columbus' discovery of America is also discussed. Images of ships, real and imaginary animals and sea creatures pepper both hemispheres. It is engraved on wood-blocks and divided into eight scrolls; each woodblock measures are around 57.5cm x 51cm and with both hemispheres together it is approximately 3.04m x 3.04m. The image is wood block printed onto lightweight Chinese paper, which is in turn lined onto a linen backing. The two parts of the map are each over 1.5 metres square. The design of a split cartouche indicates that there was an original intention that the two parts should have been joined together. The paper is made up of sheets joined by small overlaps, the linen widths by stitching. The linen and paper are well adhered, with the paper showing the texture of the linen weave. The image is printed in black ink. The two parts of the map were printed with about eighteen woodblocks each, placed across the paper to build up the image (**Plate. 2, 3**). The registration of the blocks is not perfect, with some areas over-printed, and others having gap between blocks. On closer inspection of both hemispheres it has been revealed that each hemisphere was made up of

---

<sup>101</sup> See **Appendix 1**. Paper Conservation Condition Report and Treatment Proposal. Museum: Hunterian Museum. Administrcing Body/Authority: University of Glasgow. Contact: Dr Sally-Anne Coupar, Curator of Archaeology. *Kunyu Quantu* (A Map of the Whole World) by Ferdinand Verbiest, 1674.

three scrolls. The length of each vertically joined scroll was made up three varying sizes of paper although the width of each is relatively standard (**Plate. 4, 5**). The reason for three single scroll sheets being used would have been because paper sheets of this size could not be produced. It was easier to join the sheets of paper and then print directly on to each individual scroll. Some of the joins are more obvious than others, both in relation to the paper joins and the woodblock joins. In the upper section of the America hemisphere we can see where a mistake has occurred and the text appears to have slipped down quite noticeably. Two further scrolls made up of four cartouches each and which would have hung on either side of each hemisphere provide further descriptions of natural phenomena of the world (**Plate. 6**). Throughout this chapter connections will be made between Matteo Ricci's Map and Father Ferdinand Verbiest's. Verbiest was greatly influenced by his Jesuit predecessor. Lin Tongyang even makes reference to both maps' physical similarities.<sup>102</sup>

The Chinese title of the Verbiest map appears at the top of the third (**Plate. 7**) and sixth scrolls (**Plate. 8**), and at the bottom of the second and seventh scrolls, the date (*Kangxi Jiayin*, 1674) and the author's name, with the indication of his official rank (*zhili lifa*, administrator of calendar making), are clearly given. This World Map was primarily designed for the imperial palace and Emperor Kangxi.

<sup>102</sup> See Tongyang, Lin, *Verbiest and Chinese Geography*: Each scroll of Ricci's map of 1602 measures 179cm. by 69cm. See J.F. Baddeley, "Father Matteo Ricci's Chinese World Maps 1584-1608", *The Geographical Journal*, 1:4 (October, 1917), 264, n. 1; Pasquale M. d'Elia, *Il Mappamondo cinese del P. Matteo Ricci*, S.I. (Citta del Vaticano. Bibliotecca Apostolica, Vaticana, 1938), p. 109 and "Recent Discoveries and New Studies (1938-1960) on the World Map in Chinese of Father Matteo Ricci S.J." *Monumenta Serica*, 20 (1961), 84.

Johannes Blaeu is regarded as being a major cartographic influence on Verbiest's *Kunyu Quantu*. This has been written on extensively, particularly by Christine Vertente making reference to Blaeu's *Nova totius terrarum orbis tabula*, Amsterdam, 1648<sup>103</sup>. A world Map of the standard of the *Kunyu Quantu* cannot be achieved without Verbiest having consulted the works of the Ricci, Aleni, Niccolò Longobardo, Sabatino de Ursis and Alfonso Vagnoni.

The Map can be divided into four sections all of which will be discussed throughout this chapter. In the first section from right to left the first section are the four cartouches explaining natural and meteorological phenomena, such as the four elements, the poles, the earth, the spherical shape of the earth, rain clouds, wind, the movements of the air, the effect of the tides, the current of the sea waters, earthquakes, human beings, rivers and mountains. The second section is the five continents (Asia, Europe, Libya, America, and Magellanica) which make up the main area of the Map. The third section is the toponyms with accompanying notes and descriptions. The fourth and final section is related to the illustrations of ships, sea creatures and animal both mythical and real. The animal illustrations will be dealt with in chapter five.

Verbiest mapped both hemispheres and included six major cartouches with information on the size, climate, land forms, customs and the history of various parts of the world and details of natural phenomena such as eclipses and earthquakes (**Plates. 9-16**). Mapping as a concept is of importance as it allows the tracking of a specific region throughout different periods of time.

---

<sup>103</sup> Vertente, Christine. *Nan Huai ren's Maps of the World, in Conference Papers of the International Conference in Honor of Ferdinand Verbiest Commemoration of 300<sup>th</sup> Anniversary of his Death (1688-1988)* (Taipei, December 17-18, 1987), pp. 226-227



Verbiest created these maps and can be regarded as significant in his role of presenting western mapping techniques to the Chinese court. Verbiest continued where Matteo Ricci left off. Ricci was able to see that geography could be used as an influential tool in generating Chinese interest not only in world geography but 'Western thinking'. He mapped the world initially in 1584 and due to the overwhelming interest in his work a following three maps were created, each where done on a grander more detailed scale. The third edition titled *Kunyu Wanguo Quantu*, 1602 was published with detailed translations by Father Pasquale M.d'Elia in 1938.<sup>104</sup> As with the copies of Verbiest's map, Matteo Ricci's *Kunyu Wanguo Quantu* are also very rare. Hartmut Walravens mentions that the last known copy in a private collection was sold at Sotheby's in 1988.<sup>105</sup> The fourth edition of the Ricci map was titled *Liangyi Xuna Lantu* and copies of this are extremely rare. Walravens also discusses in detail *Zhifang waiji*, a text book of world geography that Father Giulio Aleni (1582-1649) mapped.<sup>106</sup>

The *Kunyu Tushuo* was the overall geographical work compiled by Verbiest including an illustrated explanation of the entire world, 1674 a whole series of such pictures derived from German, Flemish, and Dutch engravings: the Seven wonders of the world, exotic animals, a

<sup>104</sup> *Il Mappamondo Cinese del P. Matteo Ricci S.I. (terza edizione, Pechino 1602)*. Citta del Vaticano 1938. Large folio

<sup>105</sup> Sotheby's, The library of Philip Robinson. Part II. The Chinese collection. London. Auction on Nov. 22<sup>nd</sup>, 1988. No.86. Walravens, Hartmut, *Father Verbiest's Chinese World Map (1674)*, *Imago Mundi*: Vol. 43, 1991 (1991), pp. 31-47.

<sup>106</sup> *Zhifang waiji*, published at Hang-zhou in 1623. Giuseppe Caraci, Marcello Muccioli: *Il Mappamondo Cinese del P. Giulio Aleni, S.J. Bollettino della R. Societa Geografica Italiana*. Ser.VII, t.3. 1938. 385-426. The *Zhifang waiji* is based on a work by Fathers Diego de Pantoja and Sabatino de Ursis, done by order of the Wan-li emperor (1573-1620) to serve as a commentary to Ricci's world map. On this work cf. Bernard Hunkay Luk: *A study of Giulio Aleni's Zhifang waiji*. *Bulletin of the School of Oriental and African Studies*. 40. 1977

European galleon and the Roman Colosseum.<sup>107</sup> In the preface to Verbiest's *Kunyu Tushuo* he discussed interesting aspects of the world including topography, earthquakes, mountains, tides, movement of the sea currents, rivers and streams, peoples, customs and a plethora of products. Verbiest was able to compile vital information from the works of men such as Ricci, Aleni, Alfonso Vagnoni, and Sabatino De Ursis. Verbiest added to the already available information.<sup>108</sup> An important reason for the *Kunyu Quantu* being published was to complement the *Kunyu tushou*.<sup>109</sup> Between 1584 and 1674 no less than seven geographical works in Chinese were produced by the Jesuits.<sup>110</sup>

A world map composed by the Jesuit Father Francesco Sanbiase in 1648 was designed as a simplified version of the large maps produced by Ricci. His *Complete Map of the Earth's Mountains and Seas* (*Yudi shanhai quantu*), for instance, was printed in 1584. A flattened sphere projection with parallel latitudes and curving longitudes, Ricci's world map went through eight editions between 1584 and 1608. The third edition was entitled *Complete Map of Myriad Countries on the Earth* (*Kunyu Wanguo Quantu*) and was printed in 1602 with the help of Li Zhizao (1565-1630). Li studied European mathematics and astronomy, in addition to geography, after meeting Ricci in Peking in 1601.<sup>111</sup> Sanbiase's map was also drawn as an oval projection, with China at the center. Later, Michael Piotyr Boym, a Polish Jesuit who had

<sup>107</sup> <http://riccilibrary.usfca.edu/view.aspx?catalogID=704>

<sup>108</sup> *Kunyu Tushuo in the Congshu jicheng*, p. 5.

<sup>109</sup> Zhu Shi, in Fang Hao, *Zhongguo Yianzhujiaoshi rewuzhuan*, II, 2:178. pp. 120-125.

<sup>110</sup> Wittek, John. W., *Ferdinand Verbiest (1623-1688) Jesuit Missionary, Scientist, Engineer and Diplomat*, Jointly published by Institut Monumenta Serica, Sankt Augustin and Ferdinand Verbiest Foundation, Leuven, Steyler Verlag, Nettetal, 1994. Minshu Chen, "Verbiest and Geographical Works" p.127.

<sup>111</sup> Ricci's world map is reproduced in *Science and Civilisation in China*, vol. 3, pp582-583 A 1608 version is included in *Symbols of Power: Masterpieces from the Nanjing*, Anaheim, CA: Bowers Museum, 2002.

served the embattled Southern Ming in the 1650s, produced the Map of the Middle Kingdom (*Zhongguo tu*), circa 1652, which he brought back to Rome in 1656. The original manuscript was compiled to convey Jesuit knowledge of China to Europe. This version was superseded by Martin Martini's *Novus Atlas Sinensis* which was published in an Amsterdam atlas series in 1655.<sup>112</sup>

In the early Qing, Ferdinand Verbiest, with the help of others produced two works that dealt with world geography. The *Kunyu Quantu* was based on Aleni's (*Zhifang Waiji*) *Account of Countries Not Listed in the Records Office*. Similarly, Verbiest's (*Xifang yaoji*) *Main Records about the West* drew on the topical organization in Aleni's 1637 (*Xifang dawen*) *Answers about the West*, which compared China to Europe in light of geographical lore. During the Qianlong reign (1736-1795), the compilers of the Imperial Library considered these works important enough to be copied into the collection in the 1780s.<sup>113</sup>

Verbiest's is a clear example of a map that combines both pictorial and textual information. From the beginning map making served the various purposes of tax gathering, water conservancy, river transport, and defence against human enemies and natural calamities. As the Chinese Empire expanded and its intellectual and cultural contacts with India and the West

<sup>112</sup> The Library of Philip Robinson, pt. 2, 83, 85-86, 89, 95. Martini had been in China from 1643 to 1646. See also Boleslaw Szczesniak, *The Seventeenth-Century Maps of China: An Inquiry into the Compilations of European Cartographers, Imago Mundi 13* (1956): pp.116-136.

<sup>113</sup> Luk, A Study of Giulio Aleni's *Zhifang waiji*, pp.76-77. See also Chen Minsun, Ferdinand Verbiest and the Geographical Works by Jesuits in Chinese 1584-1674, pp.123-64, and Lin Tongyang, *Ferdinand Verbiest's Contribution to Chinese Geography and Cartography*, pp.135-164, both in *Ferdinand Verbiest S.J. (1623-1688): Jesuit Missionary, Scientist, Engineer, and Diplomat*, edited by S.J. John Witek (Nettetal: Steyler Verlag, 1994)

increased, so curiosity was fed by the reports of China's always energetic travellers, and became an added incentive to the cartographer. China has a long tradition of map making. Maps became symbolic tokens of exchange in China's domestic and foreign relations, and were even used to depict a perceived link between the realms of Heaven and Earth.<sup>114</sup>

Verbiest's *Kunyu Quantu* was produced as a result of the Emperor Kangxi's interest and the Manchu officials wanting knowledge about the geographical placement of Europe. They saw territorial information as equating to power. However, the purpose of Verbiest's *Kunyu Quantu*, was purely geographical, Verbiest did not feel the need to highlight China's global importance unlike Ricci who described China in his 1602 map as "most famous for her culture and products"<sup>115</sup> or Aleni's *Zhifang waiji*<sup>116</sup> where he praised China for continuously creating great emperors and wise men<sup>117</sup>. However, the *Zhifang waiji* improved on Ricci's map by becoming more geographically refined. Aleni's work included a complete map of the world and separate maps for Asia, Europe, Africa, and North and South America. It incorporated a brief account of the countries in each continent and a general account of the four seas.<sup>118</sup> One of the most notable aspects regarding the creation of each Jesuit map was that the cartographer

<sup>114</sup> Smith, Richard. *Chinese Maps, Images of All under Heaven*, Oxford Press, 1996. p. 27

<sup>115</sup> Chen, K., *Matteo Ricci's Contribution*, p. 335

<sup>116</sup> In 1623, a five *juan* work written in Chinese on the geography of the World- the *Zhifang waiji*, after Ricci made his maps, Diego de Pantoja (1571-1618) was requested to translate a western printed map. On the basis of his own observations and knowledge, Pantoja completed some Notes. Fearful of the disappearance of that work, Aleni revised and enlarged Pantoja's manuscript into a book and called it the *Zhifang waiji* – an account of the countries that are not included in the Chinese official records. See Bernard Hung-Kay Luk, "A study of Guilio Aleni's *Chihfang wai-chi*", *Bulletin of the School of Oriental and African Studies*, 40 (1977), 60-61.

<sup>117</sup> Ibid. Minsun Chen, p. 127.

<sup>118</sup> Ibid. p. 125 The *Zhifang waiji*, which was reprinted in the various collections published in later centuries, contained varying arrangements of the maps. Early editions put one of the maps at the beginning of each *juan*. Late editions grouped all five maps at the beginning of the book.

never took full credit for his work. Verbiest openly cited Aleni's books specifically *Xifang yao ji* and especially from Alfonso Vagnoni's *Kongji gezhi* (Treatise on the Material Composition of the Universe) and Sabatino De Ursis's *Biaodu shou* (On the Compass). The *Xifang yao ji* and the *Kunyu tushuo* are both significant examples of works where Verbiest is regarded as the main compiler not the author. This notion of shared authorship successfully pertains to the concept that the Jesuits are and were regarded as a united cartographic body. "Verbiest's contributions, thus, involved only the preservation and expansion of the geographical works produced previously by his fellow Jesuits. It is a contribution which, though less important in Verbiest's colourful life and manifold career, should nevertheless deserve our recognition."<sup>119</sup>

### **The Kunyu Quantu and its precursors**

"As the territory of China is so vast and immense, how can you place her on the world map in such a strict way?"<sup>120</sup>

The above quote is important because it underlines Verbiest's agreement with Emperor Kangxi's outlook for China. He appreciated the fact that the Chinese intelligentsia would question how their nation could be seen in a globally mapped setting. This is why Verbiest opted to provide a brief discussion explaining the mapping methods used within the *Kunyu Quantu*. He examined the theories of longitude and latitude and the links between longitude

---

<sup>119</sup> Ibid p.128.

<sup>120</sup> *Kunyu tushuo*, 1674 ed., juan 1, p. 5a bis – the page prior to p.6.

and latitude and the celestial body. It must be remembered that this concept was extremely relevant as the application of survey methods to cartography in China lacked astronomical and mathematical foundations.<sup>121</sup>

Clearly it would have been a difficult task trying to convert Chinese beliefs into those of the West. However this is where Verbiest relied heavily on the concept that the European civilization was of great importance. Verbiest used the *Xifang yaoji* to accentuate the value of religious doctrine and the thoughts of western scholars. Lin Tongyang explains how through Verbiest's own explanation Catholicism had dominated Europe for over sixteen hundred years in a commendable way where peace and political stability governed<sup>122</sup>.

Aleni and Ricci both opted for an oval projection and include features that are found in maps that belong to the Flemish school. Characteristics of the Flemish school were that the Arctic regions were filled by four large islands separated by narrow passages; the presentation of the southern continent, unknown, and not yet discovered; the gulf running from the north to the middle of North America, and then forming smoothly as a great river to be connected with an inland lake. The difference, however, between Verbiest's *Kunyu Quantu* and Ricci's 1602 map is that Verbiest followed the cartographic principles of Rumold Mercator<sup>123</sup> (1587) and

<sup>121</sup> Tongyang. Lin, *Verbiest and Chinese Geography*, p. 143 – see also Joseph Needham, *Science and Civilisation in China* (Cambridge, 1959), 3:438, note a, 543-552, 576.

<sup>122</sup> Tongyang. Lin, *Verbiest and Chinese Geography*, p.144.

<sup>123</sup> Using the stereographic projection, Rumold Mercator, son of the great Renaissance cartographer Gerardus Mercator (1512-1594), drew his world map of 1587 (*Orbis terrae compendiosa descriptio*). The world map of Rumold Mercator consists of two hemispheres, each having a diameter of about 25cm. See Gerard Mercator, *Atlas sive cosmographicae meditationes de fabrica mundi et fabricate figura*, 4<sup>th</sup> ed.

Ricci chose to follow the work of Ortelius's planisphere of 1570 (*Theatrum orbis terrarum*)<sup>124</sup>. Within the Arctic regions of both maps four large islands are divided by narrow passages. On both Asian hemispheres of the maps there are two notes attached to the large Arctic islands. One of them states that, owing to the rapidity of the tidal current, the water does not freeze in winter. Verbiest's description comes from Ricci's 1602 map.<sup>125</sup> Mercator and Verbiest's map both show the *Nova Zemlia* explored by the Dutch navigator Willem Barentz (1550-1597) in 1596 and this is presented similarly in the Arctic Circle<sup>126</sup>.

Verbiest had to come up with another cartographic formula to place Beijing at the centre of the map. He could not follow Ricci in this instance as Ricci had had to move the prime meridian of the Canary Islands from the centre of the traditional European planispheres to the extreme left. This meant that on Ricci's map the centre passed east of New Guinea. Since Verbiest was using a different projection he had to make the prime meridian run through Beijing as opposed to the Canary Islands.

"If certain resemblances exist between both maps of Ricci and Verbiest, it would be chiefly the absence of geographical knowledge relating to the regions in the vicinity of North China. In 1602 Ricci and Verbiest, extracted and utilised Ma Duanlin's *Wenxian tongkao* (1322) as

<sup>124</sup> This world map of Ortelius, *Theatrum orbis terrarum*. Photolithographic Edition according to the original preserved at the University Library of Leiden (Lausanne, 1964), p.1. see *ibid*

<sup>125</sup> *Ibid.*

<sup>126</sup> Mercator, *Atlas sive cosmographicae meditationes...*, pp. 41-42; Jean Amsler, *Histoire universelle des explorations* (Paris, 1955), 2:378-385.

the main source for their account of seven notices, which have been discussed by Kenneth Chen.”<sup>127</sup>

The defining features of these maps are not only their different cartographic approaches but also the attribute of possession. Pasquale M. D’Elia points out that within the confines of Ricci’s 1602 map, seals belonging to the Society of Jesus can be found as well as his own personal signature which was *Ouluobaren Li Madou* or Matteo Ricci and *Yesuhui zhonggren Li Madou* translated as Matteo Ricci of the Society of Jesus.<sup>128</sup> In these last years another authentic copy of the third edition of Ricci’s World Map has come to light. It is in the astronomical observatory of the University of Bologna. However, this is not a complete copy, but only two of the six panels which made up Ricci’s work, the first and the sixth. These two are altogether identical with the same panels in the full copies, both that of the Vatican and that of Mr. Robinson.<sup>129</sup> The characteristic seals of the Society of Jesus are to be seen on them, the oval twice and the square once, with which Ricci was to authenticate his Chinese works. Panels II, III, IV, and V are missing, probably because they have been lost. It would appear that these relics originated with the former Jesuits of Bologna, perhaps with Father Giovanni Battista Riccioli (1598 – 1671), author of *Almagestum Novum*, Bologna 1651, where he speaks

<sup>127</sup> Tongyang, Lin, *Verbiest and Chinese Geography*, Page 145 see Chen. Kenneth, A Possible Source for Ricci’s Notices on Regions near China”, *T’oung Pao*, 34:3 (1938) pp.182, 190.

<sup>128</sup> Tongyang, Lin, *Ibid*, p.148

<sup>129</sup> Take from D’Elia. Pasquale, Recent Discoveries and New Studies (1938-1960) f/n 88 In his letter Mr. Robinson wrote: “It contains not only the Ricci 1602 map, in immaculate condition, in the original sections, but also what I understand from Mr. Mills is an unique Chinese World Map of date about 1591. It also contains a manuscript map of China which is likely to be the lost original of Michael Boym’s famous map of China... The bundle also contained some interesting printed and manuscript maps of Chinese provinces and also some of the scientific publication of Schall von Bell”.



of Ricci and of his World Map.<sup>130 131</sup> Verbiest, however only marked the title of his rank and his Chinese name *Nan Huai ren* which can be found on the bottom of the exterior circle of his Asian hemisphere. Verbiest's map has a notably more bureaucratic presentation in comparison to that of Ricci's. This may be because of the fact that according to Lin Tongyang all the various editions of Ricci's maps were published under the direction of Wang Pan, Wu Zuohai, Li Zhizao, Li Yingshi. These men bore individually the cost of each publication, and wrote separately their prefaces to Ricci's maps, Wang Pan was the only one that did not write his preface. Unlike Verbiest's European predecessors, because he worked for the Bureau of Astronomy and participated in other imperial services and was at the beck and call of Emperor Kangxi, Verbiest did not reap the benefits of mixing in the upper echelon of society. A reason that has been put forward for Verbiest's geographical work not having been awarded the same level of praise in comparison to Matteo Ricci's is the fact that his geographical/scientific work had nothing to do with the High Society of the Kangxi court. This is the view of Lin Tongyang, however, Verbiest would have mixed within the upper echelon of Kangxi society due to the respect Emperor Kangxi had for him. This has been given as a reason as to why specific aspects of a World Map of this period are missing. An example would be his lack of knowledge about East Asia, despite the fact that his Chinese contemporaries would have been aware of this area. Verbiest relied on the cartographic work of Blaeu for help with the transliterating place names from Japanese into English.

<sup>130</sup> D'Elia, Pasquale, *Frammenti di due antiche Carte cinesi press l'Osservatorio astronomico di Bologna*, in *Coelum XXVI*, Bologna 1938, pp.41-42, 50.

<sup>131</sup> D'Elia, Pasquale, *Recent Discoveries and New Studies (1938-1960)* pp.113-1114.

Verbiest's *Kunyu Quantu*, is a beautiful combination of geographical design and artistry. Both hemispheres are perfectly balanced with artistic detail. Along with the images of both mythical and real creatures fourteen perfectly formed cartouches can be seen. This map acts as a fusion of both European and Chinese design. The seascape is peppered with sea creature and ships. On closer inspection of the *Kunyu Quantu* a fleet of three barques on the South Seas (**Plates. 17, 18,19**), and an isolated ship sailing out of the east coast of North America (**Plate. 20**) on its way back towards Europe can be found.<sup>132</sup> The Spanish sailing ships are representative of the two or more important trade-routes of the seventeenth century, known as the galleon trade between Acapulco and Manila<sup>133</sup>, and the shipping route between Europe and the east coast of North America (the Dutch, English and French colonies)<sup>134</sup>. Verbiest entered into discussions regarding the vessels, specifically dealing with ship building along with the preparation for such voyages and also navigation methods. Verbiest's explanation of nautical travel is translated within Lin Tongyang's writings "The astronomers occupy themselves with observing the celestial phenomena. They calculate the sun by day and the stars by night. Making use of the sea-chart, they determine the exact degrees in order to see the dangers and the distances."<sup>135</sup>

<sup>132</sup> Tongyang, Lin, *Verbiest and Chinese Geography* p.149.

<sup>133</sup> Chaunu, Pierre, "Les Philippines et le Pacifique des Ibériques (XVIe, XVIIe, XVIIIe siècle)", *Introduction méthodologique et indices d'activité* (Paris, 1960), 241-269; "Le galion de Manille. Grandeur et décadence d'une route de la soie", *Annales E.S.C.*, 4 (October-December, 1951), pp.447-462.

<sup>134</sup> Mauro, Frédéric, *L'Expansion européenne (1600-1870)* (Paris, 1967), pp. 147, 153, 156-159; Amiral de Brossard, *Histoire maritime du monde* (Paris, 1974) 2:66-79

<sup>135</sup> Tongyang, Lin, *Verbiest and Chinese Geography* p. 150

An area where Verbiest did in fact make a significant difference was with the introduction of natural geography, through his fourteen cartouches. He used these spaces to explain natural phenomena such as tidal movement in relation to the moon which moves around the sun, the earth being round, what clouds were made up of, the formation of the winds and monsoons that would naturally have an effect on naval navigation, the movement of air, the formation of the mountains, and the regional diversities of cultures determined by the weather. It is astonishing that Verbiest dismissed the Chinese culture of superstition, especially relating to natural phenomena. There are three cartouches that stand out that ignore folklore belief. In one he includes a diagram of the lunar eclipse (**Plate. 21**). As can be imagined, a myriad of legend surrounded this phenomenon. Earthquakes were seen to be caused by huge sea turtles or earth dragons ripping through land and sea (**Plate. 22**). Verbiest attempted to explain what an earthquake was: "Due to the effect of the air condensed and squeezed in the interior of the earth, violent movements of this inner force take place in the earth and, as a result, earthquakes happen normally."<sup>136</sup>

The curved shape of East Asia in the *Kunyu Quantu* is more accurate than that of Matteo Ricci's 1602 map. The configuration of New Guinea on Verbiest's map has been copied from a map of Asia by cartographer Nicolas Sanson d'Abbeville in 1654 in *L'Asie en plusieurs cartes*.<sup>137</sup> Here New Guinea was called *Terre des Papous*. The Sundao islands and Malajiska have also been taken from Sanson's map. The fact that the west coast of New Holland or

---

<sup>136</sup> Ibid.

<sup>137</sup> Ahlenius, K, *En Kinesisk Världskarta Kongl. Humanistiska Vetenskaps-Samfundet, I, UPPSALA BAND VIII* (Uppsala 1902-1904) p.18

*Hollandia Nova*, was discovered by the Dutch captain Willem Janszoon in 1605, has been properly shown on the oriental hemisphere of the Verbiest map, we still see the supposed Great Southern Continent (Terra Australis), which provoked a large number of discussions, especially during the epoch of the great trans-Pacific voyages (1550-1800)<sup>138</sup>. Verbiest, like most of his contemporary cartographers, linked New Holland with New Guinea. He added a notice saying "This country is called New Guinea in Africa. Europeans have only recently arrived in this country; hence, it is not yet known for certain whether it is a piece of the continent or an island"<sup>139</sup>. According to Helen Wallis and E.D. Grinstead it came as a surprise that Verbiest was not fully familiar with the fact of the constrained character of New Guinea, as revealed by his senior Aleni early in 1623<sup>140</sup> "To our surprise, Aleni located this equatorial island in its exact position from 1° to 10° S., and from 165° to 190° longitude east of the Canary Islands on his world map of 1623 (*the Wanguo quantu*). It was between March 31 and May 28, 1623 in Beijing, that Longobardo (1559-1654) and Manuel Dias Jr. (1574-1659) completed the construction of the so-called David globe in the form of a wooden ball, on which these two Jesuits primarily revealed the striking discovery of Torres Strait by the Spanish navigator Luis Vaez de Torres in 1606."<sup>141</sup> It was not until 1762 that the backward character of New Guinea was openly seen. It was at this point that the English attacked and seized Manila, where the nautical and geographical documents written by Torres himself were

<sup>138</sup> Rainaud Armand, *Le Continent Austral. Hypothèse et decouvertes* (Paris, Armand Colin and Cie, 1893) Reprint Amst., 1965.p 409 and Tongyang, Lin, *Verbiest and Chinese Geography* p.152.

<sup>139</sup> This translation is cited by Lionel Giles, "Translations from the Chinese World Map of Father Ricci", *The Geographical Journal*, 53:1 (January, 1919), p.22.

<sup>140</sup> Giulio Aleni, *Zhifang waiji*, in *Tianxue chuhan*, photolithographic edition, 3:1468; Lin Tongyang pp.106-107.

<sup>141</sup> Wallis and Grinstead, *A Chinese Terrestrial Globe A.D.1623*, British Museum Quarterly, 25 (June, 1962), p.87.

conserved. It is clear that Verbiest did not appreciate the significance of this discovery. On the occidental hemisphere of Verbiest's map, we notice the presence of New Zealand (Xin selandiya, Zeelandia Nova), found by the Dutch mariner Abel Tasman (1603-1659) in 1642. In a word, the Flemish Jesuit Verbiest was the first to introduce the discovery of New Zealand and Australia to China.

For East Asia and China, Verbiest used his own observations along with older Chinese maps. The Gulf of Bohai as well as the Liaodong and Shangdong Peninsulas, are well presented and correspond to geographical reality. In Ricci's map, the Liaodong Peninsula appears as a tiny promontory attached to southern Manchuria, and the oblong figure of the peninsula of Korea is very close to the waters down near the mouth of the Yangzi River. This map was based on a map of China by Luo Hongxian entitled *Yudi zongtu* which measures 26 cm. by 20cm.,<sup>142</sup> and this map could be found in the four volume edition of the *Guang yutu* of 1579. In the *Kunyu Quantu* it is difficult to make a distinction between Verbiest's map and the maps of Aleni (the *Wanguo quantu* and the map of Asia) as far as the outline of the East China coast is concerned. We assume that Verbiest might have profited from his ease in consulting the details of these maps of Aleni. What is important to notice is the Chinese Great Wall north of Liaodong Shangdong province and extending all the way to Korea.<sup>143</sup> This line of the wall is a common mistake of the time that was corrected on the larger Chinese map of 1718, however

<sup>142</sup> Luo Hongxian, *Guang yutu* (Qindai ed.) juan I p.3a-3b

<sup>143</sup> Ahlenius.K, *En Kinesisk Världskarta Kongl. Humanistiska Vetenskaps-Samfundet*, I, UPPSALA BAND VIII (Uppsala 1902-1904) p.19

on many other Chinese maps before Verbiest's time the Wall can be seen going all the way to Korea.

Verbiest used Father Martin Martinis's 1649 map *Atlas novus sinensis* for Korea. Information on Japan was taken from the first specialized Japanese map of 1599 *Navigatio ac Itinerarium Johannis Hugonis Linschotanis in Orientalem sive Lusitanorum Indiam*. This was based on information from Linschoten's visit to Goa in 1583 to 1589 when he was working for the archbishop Vicentius Fonseca.<sup>144</sup> It took ten years after he left Goa to compile this map of Japan. This map was the official map of Japan for many years and can be seen in Verbiest's map of 1674.

---

<sup>144</sup> Nordenskiöld, A.E., *Periplus*, Norstedt: Stockholm, 1897, p.194.

## **Chapter Five: The Images within Verbiest's *Kunyu Quantu*.**

Within this chapter the aim is to examine the source for the majority of the images that can be found within the confines of Verbiest's *Kunyu Quantu*, 1674. Of the identifiable images, Verbiest's sources are: Konrad Gesner<sup>145</sup>, Edward Topsell<sup>146</sup> and Olfert Dapper<sup>147</sup> and Albrecht Dürer (Plate. 23).<sup>148</sup> The Map is populated by a myriad of monsters and animals of every type: bird of paradise, unicorn, rhinoceros, chameleon, mountain goat, salamander, lion, giraffe, hyena, beaver, turkey, ostrich, whale and spider.

Konrad Gesner (1516-65) is of significance when looking at notable scholars of this time. He was a respected physician, philologist and bibliographer. Gesner studied the principles of a myriad of subjects. He was born in Zurich, studied medicine, science and the classics at Basle, Paris and Montpellier, returning eventually to his birthplace to become its Chief Town Physician.<sup>149</sup>

---

<sup>145</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671.

<sup>146</sup> Gesner, Konrad. *Curious Woodcuts of Fanciful and Real Beasts. A Selection of 10 sixteenth century woodcuts from Gesner's and Topsell's natural histories*. Dover Publications, inc. New York, 1971.

<sup>147</sup> Dapper, Olfert. *Naukeurige beschryving der eilanden, in de archipel der Middelanische zee, en ontrent dezelve, gelegen: waer onder de voornaemsti Cyprus, Rhodus, Kandien, Samos, Scio, Negroponte, Lemnos, Paros, Delos, Patmos, en andrer...*, Amsterdam: voor Wolfgang, Waesbergen (et al.), 1688.

Dapper, Olfert. *Asia, oder Genaue and gründliche Beschreibung des gantzen Syrien und Palestins, oder Gelobten Landes...aus verschieden alten und neuen Scribenten so wol, als dem Bericht warhafftiger Augeszeugen und Untersucher zusammen getragen von..O.Dapper, Nürnberg: In Verlegung Johann Hofmanns, Buch- und Künsthändlers. Gedruckt daselbst bey Christian Sigmund Froberg, 1688-89.*

<sup>148</sup> Bartrum, Giulia., *The British Museum Dürer*, The British Museum Press, London. 2007.

<sup>149</sup> Desmond, R., *Wonders of Creation Natural History Drawings in the British Library*. The British Library, London, 1986. p.4.

By his death in 1565 Konrad Gesner had produced and published an abundant amount of work and established himself as the first modern bibliographer as well as the father of zoology. His first of five volumes was published in 1551. This first edition contained over 1100 pages and was illustrated with numerous woodcuts. The three animal volumes which followed were of a smaller size. This may have been due to the fact that the first one had not sold particularly well owing to it being rather costly as a result of its size.

Aristotle and other ancients had first written about the animal kingdom and were followed by medieval authors who created bestiaries with Christian lessons embedded in each animal's behavior, but Gesner's work culminated this heritage with many original reports from such locales as distant as Moscow and the Americas.

Gesner, who was a brilliant linguist, had first published a "universal bibliography" listing all the authors (and their titles) who had written in Greek, Hebrew and Latin, from ancient texts to the most current publications. He was a man who was a famed physician, linguist and zoologist and was also an important figure in the history of botany. This work led to his honorific title of *Plinius germanicus*, the German Pliny. He abandoned work on Book 20 of his bibliography to publish his *Historie Animalium*, a zoological encyclopedia beginning with "live-bearing quadrupeds" or mammals (as coined in 1758 by the classifier Linnaeus). His plan was to move to the egg-layers, then aquatic beasts, the serpents and finally, plants.



Gesner's *History of Quadrupeds* was important to science and medicine because of its comprehensiveness and that it afforded a springboard for future comparative anatomy texts. Naturalists began considering shared characteristics and cladistic relationships among organisms. As a window into the scientific mind of a Renaissance thinker it is notable to see woodcuts of tigers and goats uncritically followed by images of unicorns and satyrs. Many animals represented on the map, which were initially thought to be mythical, were found to be genuine. A perfect example is the gulo, which is today known as the wolverine, and the cameleopard, that we know as our giraffe.

The publication of the great work *Historia Animalium* (1551-58), which attempted a comprehensive survey of the current state of knowledge in the animal kingdom, can be viewed as the beginning of modern zoology.

A total of four volumes were published during and after Gesner's lifetime. Aristotle and Pliny were clear guides as to the way this work was compiled. Konrad Gesner followed Aristotle's classification and copied Pliny's way of compiling information on habitat, physiology, disease, and diet in his account of each animal. Father Ferdinand Verbiest has taken this model and applied it within his *Kunyū Quantu* map, 1674. Gesner worked on the basic principle that inclusion favoured exclusion. He has been credited with the production of the majority of images seen within his four volumes. The reason for this is the fact that images that were used from other books and manuscripts were thoroughly acknowledged. An excellent example of

scrupulous referencing can be noted in relation to Albrecht Dürer's (1471-1528) rhinoceros woodcut<sup>150</sup>. Some of the pictures were drawn or painted especially for the book and then redrawn and cut on to the blocks. The only artist acknowledged within *Historia animalium* was Lucas Schan of Strasbourg, who did most of the birds. Other animals may have been drawn by Jos Murer, Hans Asper of Zurich and perhaps Gesner himself. A fair number were based on other published works by Pierre Belon (d.1565) and Guillaume Rondelet (1507-1556), the founders of ichthyology; Olaus Magns (Olof Månsson, 1490-1557) archbishop of Uppsala, who wrote about the Scandinavian lands and seas; and the physician and naturalist Pierandrea Mattioli (1500-1577). Some pictures were submitted by Gesner's more widely travelled correspondents; even the newly conquered Peru was represented by the llama<sup>151</sup>. The rhinoceros was based on Dürer's famous woodcut. An artist with the monogram FO<sup>152</sup> was responsible for much of the cutting of the wood blocks and probably for some of the pen drawings of the illustrations on the blocks.

The sixteenth century was an artistically advanced time for German woodcutters especially Albrecht Dürer and Hans Burgkmair at the beginning of the century and Virgil Solis, Jost Amman and Tobias Stimmer later in the century.<sup>153</sup> Because of this plethora of sources, the quality of the woodcuts varies considerably; one can see the difference in detail when looking at the gulo (wolverine) and the unicorn. When the compiled works of Gesner and Verbiest are

<sup>150</sup> Desmond, R. 1986. *Ibid.* p.45.

<sup>151</sup> Gesner, Konrad. *Curious Woodcuts of Fanciful and Real Beasts. A Selection of 10 sixteenth century woodcuts from Gesner's and Topsell's natural histories.* Dover Publications, inc. New York, 1971. p.33.

<sup>152</sup> Possibly Franz Oberrieter of Strasbourg.

<sup>153</sup> *Ibid* taken from the publishers notes.

examined, it is clear to see that both men approached a project in the same way. Neither man looked for full credit to be placed at their feet but instead acknowledged the original source of the material and developed on the knowledge of others.

Ulisse Aldrovandi (1522-1607) who lived between the lifetimes of Leonardo Da Vinci (1452-1519) and Galileo (1564-1642), was rooted in both classical and religious sensibilities. Considering himself a latter day Aristotle, Aldrovandi was also a cousin of Pope Gregory VIII. Aldrovandi was not led by money, but instead by a desire to establish natural history as a legitimate field of study<sup>154</sup>. His plan was to create a compendium of all living things; however, only four of the fourteen planned volumes came out during his lifetime. The title of these volumes was *Storia Naturale* (1591-1688).

The link between Gesner and Aldrovandi was that they both called on the works of Greek, Latin and Oriental writers. Ray Desmond asserts that Aldrovando was less critical, perhaps more credulous than Gesner, he included the fabled fantasies of the bestiaries. He took endless trouble over his printed illustrations, which, on the whole, are better than Gesner's.<sup>155</sup> The two French taxonomic zoologists Guillaume Rondelet (1507-56), author of *De Piscibus Marinis* (1550), and Pierre Belon (1517-64) also contributed to Gesner's work.

---

<sup>154</sup> Findlen, Paula, *Possessing Nature, Museums, Collecting and Scientific Culture in Early Modern Italy*. Berkley, CA 1994. p.345-389

<sup>155</sup> Desmond, R., London. 1986 p. 60

Despite mythical creatures being given detailed treatment, specifically the Unicorn, mantichore and hydra, zoological research lagged behind botany for much of the seventeenth century. Edward Topsell's *The Historie of foure-footed beasts* (1607) gave detailed description of such aforementioned creatures. Topsell relied heavily on the precise descriptions and analytical eye of Gesner, for Topsell was not a keen naturalist or even an informal onlooker of Nature, as his information was extracted from literary writings. "...he translated and freely adapted the first two volumes of Gesner's *Historia animalium*...His woodcuts are reasonably faithful but cruder copies of Gesner's illustrations."<sup>156</sup> John Rowland reprinted Topsell's *History of Foure-Footed Beasts* in 1658.

In 1658 this second edition of *Foure-Footed Beastes* was published and included a translation of Thomas Moffet's (1553-1604) '*Theatrum Insectorum*', which had an intricate publishing history. It originally began as an unpublished manuscript of Konrad Gesner (1516-1565), upon whose death it was sold to Moffet's friend, Thomas Penny (d.1589). Penny used Gesner's work as well as Edward Wotton's (1492-1555) and, in addition, he added his own information and illustrations to the manuscript. When Penny died before the book was published, Moffet took over the publication and added his own entomological observations. When Moffet tried to publish the work, he could not get an English printer interested in taking the financial risk of printing and it was not until after Moffet's death, when it was sold to Thomas Mayerne (1573-1655), that it was published in 1634. It was shortly thereafter translated into English and issued as Volume 3 of Edward Topsell's *History of Foure-Footed Beasts and Serpents* in

---

<sup>156</sup> Ibid.

1658. The illustrations throughout the text are woodcuts and include one elaborately engraved frontispiece<sup>157</sup>.

Accuracy was not always of prime importance. An example is the 1550s map by Pierre Descelier's. Here Albrecht Dürer's rhinoceros was not used but instead a shaggy rhinoceros.<sup>158</sup> However, most cartographers preferred the precision of Dürer's woodcut. Around 1552, almost sixty years after Christopher Columbus reached Cuba in 1493<sup>159</sup>, Francisco Lopez de Gómara (1511-66)<sup>160</sup> confidently announced the discovery of the West Indies to be "the greatest since the creation of the world."<sup>161</sup>

Verbiest's map has a multitude of animals on the American hemisphere. There are: a chameleon, beaver, turkey, mountain goat (American goat), Su and an iguana. Present on the African hemisphere there are: a unicorn, rhinoceros, lion, spider, wolverine, giraffe, crocodile, hyena and what could be a pharaoh rat. Within Verbiest's map whales, boats and sea creatures can be found. The map is interspersed with cartouches containing Chinese characters and it is

<sup>157</sup> <http://www.lib.ncsu.edu/exhibits/tippmann/prelinn.html>

<sup>158</sup> No other artist in Northern Europe pre-dating Dürer had applied the principles of science to art.

<sup>159</sup> It was at this point that Pope Alexander VI divided this unknown territory between Catholic Spain and Portugal. "Alexander's famous division of the world in his Bull *Inter Caetera* was not an empty gesture nor yet was it just arbitration; it reflected to some extent a recovery of politico-religious prestige by the Renaissance Papacy and gave the Pope a stake in the religious aspects of the Age of Discovery." H. Vanderlinden, 'Alexander VI and the demarcation of the maritime and colonial domains of Spain and Portugal', *American historical Review*, xxii, 1917; L. Weckmann, *Las bulas alejandrinas de 1493 y la teoría política del papado medieval* (Mexico City, 1949); M. Battllori, *Alejandro VI y la Real Casa de Aragón* (Madrid, 1958), pp.24-5.

<sup>160</sup> Francisco Lopez de Gómara, *Historia de las Indias 1552*, dedication to Charles V.

<sup>161</sup> Desmond, Ray. *Wonders and Creations*, p. 97.

Verbiest's geographical opinion that Matteo Ricci gave him much knowledge.<sup>162</sup> Matteo Ricci's mappamundi entitled *Complete Map of the Earth's Mountains and Seas* (*Yudi shanhai quantu*) went through eight editions between 1584 and 1608. The third edition was printed in 1602 with the help of Li Zhizao (1565-1630) and was entitled *Complete Map of the Myriad Countries of the Earth* (*Kunyu wan'guo quantu*).<sup>163</sup> This map like Verbiest's *Kunyu Quantu* incorporates animals into the body of the Map. The purpose of the Map was to act as a display of real and mythical animals from the West.

The 1602 *Complete Map of the Myriad Countries on the Earth* corresponded to one of the first issues of Ricci's third world map and is the earliest version that survives. This 1602 edition followed the *Typus Orbis Terrarum*, which was produced by the Flemish scholar and geographer Abraham Ortelius (1527-98) and was first published in a 1570 European atlas called the *Theatrum Orbis Terrarum*, itself based on Gerard Mercator's (1512-94) prominent 1569 world map. The chief alteration for the Chinese version was that Ming China was placed at the centre of the map to appeal to Chinese dynastic sensibilities. The New World was located on the eastern borders. A fourth edition of the map was prepared in 1604.<sup>164</sup>

<sup>162</sup> Tongyang. Lin, *Verbiest and Chinese Geography*. p.137.

<sup>163</sup> [http://geog.hkbu.edu.hk/GEOG1150/Chinese/Catalog\\_main\\_11.htm](http://geog.hkbu.edu.hk/GEOG1150/Chinese/Catalog_main_11.htm).

<sup>164</sup> *The Library of Philips Robinson*, pt.2, 79-80. See also Lionel Giles, "Translation from the World Map of Father Ricci," *Geographical Journal* 52, 6 (1918): pp.367-85; and *ibid.*, 53, 1 (1919):pp.19-30.

### The Animals of the Kunyu Quantu, 1674.

The following section of this chapter aims to discuss each animal and look at an assortment of translations that each contribute to a deeper understanding of how the map came to be. To present this discussion in a clear and consistent manner the animals will be numbered. Within each numbered section the various elements discussed will be lettered. Firstly, come the English translations (A) of the Chinese text found beside each specific animal on the map. Secondly, come the foreign language descriptive texts (B) from original sources such as, Konrad Gesner, Albrecht Dürer, Edward Topsell and Dapper Olfert. Within this section is included an indented modern translation into English. Through looking at each translation both old and new it can be seen how mistakes or discrepancies can occur as a result of errors in interpretation. Lastly, comes an exploration of historical analysis (C) of each creature. Evidence will be seen of this in Chapter Six when, through a minor mistranslation of information, various different thought processes arise.<sup>165</sup> The animals will be discussed as they are seen from left to right across both hemispheres of Verbiest's *Kunyu Quantu*.

<sup>165</sup> Chapter Six when Bayer records the map as being on two sheets rather than specifying two hemispheres.

## The Africa Hemisphere

The following section will look at various translations of the animals found within this hemisphere of Verbiest's *Kunyu Quantu*: the unicorn, gulo, lion, hyena, rhinoceros, spider, crocodile, mermaids and giraffe (**Plate. 24, 25**).

### 1. The Unicorn – for illustration and original text see Plate 26.

**A.** The unicorn (Plate 26) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*Asia: Unicorn. With four to five meter horn that can be used as medicine (antibody). Unicorn can attack the lion because it is seen as the enemy.*

**B.** The following descriptions in German and Latin are taken from Gesner's *Historia Animalium*, 1671:

"28. *Quadrup. Ferorum.*

*Latin Monoceros, uel Unicornis*<sup>166</sup>"

<< [2.] Asien Indien ~(Yin-tu) : [ Dort] lebt ein Einhorn (tu-chüeh), das von Gesalt so groß ist wie ein Pferd; aber es ist äußerst leicht und schnell. Die Farbe seines Fells ist gelb; auf

<sup>166</sup> Gesner, Konrad. *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 28.



*Kopf hat es ein Horn von vier bis fünf Fuß. Länge und heller Farbe. Man verarbeitet es zu Trinkgefäßen, die Gift neutralisieren können. Das Horn ist so spitz, daß es einen großen Löwe seinerseits. >><sup>167</sup>*

Asia India – (Yin-tu): A unicorn lives there whose form is as big as a horse  
But is light and quick. The colour of its coat is yellow; on its head is a horn  
which is four to five feet long. The horn is a light colour and can be used in  
a drinking vessel to neutralise poison. So sharp that it could kill a large lion.

*Monoceros apud Indos reperitur...*

*Animal est atrocissimum, cornu e media fronte protenditur, splendore mirifico, ad longitudinem pedum quatuor, ita acutum, ut quibusdam tribuitur: ...*

*Hostis est leonis, quare leo conspecta hac fera ad arborem aliquando tamen contra accidit, Aethiopiae rex in epistola Hebraica ad pontificem Romanum. Cornu unicornis, praecipue ex nouis insukis allatum, tritum et in aqua potum, mire facit contra venena<sup>168</sup>.*

A Monoceros was discovered in India...

It is a very fierce animal, a horn projects from the middle of the forehead. Wonderfully made four feet in length. So sharp that if it attacked anything it would pierce it easily with its blow. It is seen to be different so much in colour. Whereas an Indian Ass

<sup>167</sup> Ibid.

<sup>168</sup> Gesner, K. *Historia animalium*, Froschauer, Tiguri 1551, fol. 781 ff.

would be white for the rest of its body but its head would be dark red. The unicorn is tawny which colour is bestowed on each of them.

It is an enemy of the lion on which account the lion seen by this beast retreats to some tree and refuses to rush against it. She sticks her horn transfixed to the tree and is killed by the lion. The King of Ethopia writes in Hebrew to the Pope of Rome. Unicorn horn crushed in water works well against poison.

**The following translation of Verbiest's Chinese into Italian was taken from Carletti's *Studi In Onore Di Lionello Lanciotti*, Istituto Universitario Orientale, 1996, Vol:2:**

*Asia. India. Animale quadrupede unicoro. È grande come un cavallo, leggerissimo e veloce. Il suo manto è dorato. Sulla fronte ha un corno di 4 piedi e mezzo di lunghezza [1 piede = m 0,3581] di colore brillante. [Con il corno] ci si fabbrica delle coppe e può annullare gli effetti del veleno [come antidoto]; la punta è aguzza. È ingrado di attaccare leoni di grossa taglia; al suo cospetto I leoni si ritirano e si nascondono dietro gli alberi; per impeder loro di nascondersi, [l'unicorno] colpisce il tronco degli alberi; una volt uche il leone è caduto, se lo mangia.* <sup>169</sup>

Asia. India. Four legged creature large as a horse. It is light and fast. Its coat is gold and its face has a horn that is four feet long and its colour is brilliant. You can make an

---

<sup>169</sup> Carletti, S M, *Studi In Onore Di Lionello Lanciotti*, Istituto Universitario Orientale, 1996, Vol:2, pp.739-764  
Lo Zoo Dei Gesuiti: La Trasmissione Scientifica del Bestiario Rinascimentale Europeo Alla Cina Dei Qing In  
Kunyu Tushuo Di Ferdinand Verbiest (1674).

antidote to cure poison. The point is so sharp it can stick into a big lion. Then it can run and hide behind a tree then unicorn stands up and strike from behind the tree. Once the lion has fallen it gets eaten.

### C.

Historians of the Renaissance devoted much space and ingenious argument to the bizarre belief in this animal.

“We are come,” wrote Topsell in 1607, “to the history of a beast whercof divers people in every age of the worlde have made great question, because of the rare vertues thereof ; therefore it behooveth us to use some diligence in companing together the several testimonies that are spoken of this beast, for the better satisfaction of such as are new alive, and clearing of the point for them that shall be borne hereafter, whether there be a Unicorne; for them that shall be borne hereafter, whether there be a Unicorne; for that is the maine question to be resolved.<sup>170</sup>”

“I leave the reader to the freedome of his owne judgment to believe or refuse this relation; neither is it fit that I should omit it, seeing that all writers’ since the time of Tzetzes does most constantly believe it.<sup>171</sup>”

---

<sup>170</sup> Colin Clair, *Unnatural History: An illustrated Bestiary*. Abelard-Schumann. New York, 1967. P.76

<sup>171</sup> Ibid.

Topsell's account differs from that of Philippe de Thaun in as much as the latter makes no mention of a man dressed in woman's clothing, but tells us the lure to catch the unicorns was in the shape of a young virgin with breast exposed, which the unicorn kissed before going to sleep.<sup>172</sup> Presumably that was too immoral for the Reverend Edward Topsell<sup>173</sup>. In *Physiologus* the same story is told quite simply "men lead a virgin to the place where he most resorts, and leave her there alone. As soon as he sees this virgin he runs and lays his head in her lap. She caresses him and he falls asleep. The hunters then approach and capture him."<sup>174</sup>

Topsell wrote extensively on the unicorn: "These Beasts," he writes, are very swift, and their legges have no Artieles [joints]. They keep for the most part in the deserts, and live solitary in the tops of the Mountaines. There was nothing more horrible than the voice of braying of it, for the voice is strained above measure. It fighteth both with the mouth and with the heeles kicking like a Horse.<sup>175</sup>

Konrad Gesner wrote: "This horn is useful and beneficial against epilepsy, pestilential fever, rabies, proliferation and infection of other animals and vermin, and against worms within the body from which children faint. Ancient physicians used their Alicorn remedies against such ailments by making drinking mugs from the horn and letting their patients drink from them. Nowadays such drinking vessels are unobtainable and the horn itself must be administered (as

---

<sup>172</sup> <http://www.sacred-texts.com/etc/lou/lou04.htm>

<sup>173</sup> Colin, Clair., 1967. Ibid. p. 79

<sup>174</sup> Ibid.

<sup>175</sup> Ibid.

a powder) either alone or mixed with some other drug...Genuine Alicorn is good against all poison; especially, so some say, the anyone having taken poison and becoming distended thereby, recovered good health on immediately taking a little Unicorn horn.”<sup>176</sup> The fact that links Ctesias of Cnidus<sup>177</sup>, who was a Greek physician who stayed at the court of the Persian King Artaxerxes II Mnemon, and Konrad Gesner is as a result of the Unicorn having always been seen as an animal that possessed magical qualities. “Those who drink out of these horns, made into drinking vessels, are not subject, they say, to convulsions or to the holy disease<sup>178</sup>. Indeed, they are immune to poisons if, either before or after swallowing such, they drink wine, water, or anything else from their beakers.”<sup>179</sup>

It is important to be conscious of the various descriptions that surround the Unicorn. Through the above translations one can get an insight into the mystery and legend that surrounded this mythical animal. As has been mentioned in chapter three Verbiest did not favour folklore, however he was aware that this map was to be seen by a Chinese audience and therefore detail such as the inclusion of such an animal would have been intriguing. When initially looking at the unicorn it appeared to belong to the hand of Dürer. However, through further research it has come to pass that he is not in fact its creator. The Unicorn definitely came from Gesner: *Iconis Animalium* 1551- 87.

---

<sup>176</sup> Konrad Gesner, <http://www.unicornlady.net/treasures.html>

<sup>177</sup> <http://www.livius.org/ct-cz/ctcsias/ctcsias.htm>

<sup>178</sup> “holy disease” was thought to be epilepsy.

<sup>179</sup> Ctesias, *Indica* c. 400BC

Within the map a myriad of animals both mythical and real are depicted. However, the unicorn is by far the most interesting. The main reason is due to the fact that people would have been curious about this creature which represents both beauty and strength. In China as in Europe the unicorn was a mythical creature known for a long time.

## **2. The Gulo – for illustration and original text see Plate 27.**

**A.** The gulo (Plate 27) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*The gulo is fierce large like a wolf. It eats carcasses and empties its stomach when full. Its coat is black.*

**B.** The following descriptions in German and Latin are taken from Gesner's *Historia animalium*. 1671:

“31. Latine *Lupus Scythicus*, Dicitur poffe uidetur. *Gulo*”<sup>180</sup>

<<[8] Nordosteuropa. In Litauen (Li-tu-wa-ni-ya) lebt ein Tier namens *Gulo* (hu-lo). Sein Körper ist so groß wie der eines Wolfs. Sein Haar ist Schwarz; die glänzenden Felle sind die kostbarsten. Von Natur liebt es Aas; es frisst gierig, ohne Abscheu zu empfinden. Wenn es satt

---

<sup>180</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 31.

ist, läuft es in ein dichtes Gehölz und preßt seinen Bauch ein, um ihn zu entleeren. Dann sucht es wieder nach anderer Nahrung.<sup>181</sup>>>

In Lithuania there lives an animal called Gulo (image under tree) its body is as big as a wolf its hair is black the most shiny furs are of the most value. It loves carcasses. It eats fast and ferociously without feeling disgust. When it is full it runs in to woodland and presses in its stomach to empty it. After it looks for more food.

### C.

The drawing of the Gulo Gesner took from Olaus Magnus(1490-1558)<sup>182</sup> the description goes back to Maciej z Miechowa<sup>183</sup> and Magnus: *Gulonis nomen de Septentrionali quadam uoracissima fera etsi nouum est, et ab Olao Magno, ut puto, ad imitationem Germanice uocis primum conflictum, placuit tamen retinere, et hoc in loco collocare, cum veteribus ignota indictae videatur... In Lithuania et Moscouia...animal uoracissimum et inutile, quod alibi non comparet, rossomaka nominatum, magnitudine canis, facie culti, corpore et cauda uulpinis, colore nigro: cadaueribus uescitur. Inuento cadauere tantum uorat, ut extendatur et*

<sup>181</sup> Gesnerus Jahrgang/Vol.30 1973 Heft/Fasc. ¾ Konrad Gessner in chinesischem Gewand, Darstellungen fremder Tiere im K'un-yü t' u-shuo des P. Verbiest (1623-1688), Von Hartmut Walravens. p. 95.

<sup>182</sup> Olaus Magnus war Kanonikus in Uppsala und Linköping. Nach dem Sieg der Reformation in Sweden ging er nach Rom und wurde dort Titular-Erzbischof von Uppsala. Sein Ruhm gründet sich auf die *Historia de gentibus septentrionalibus* (1555)cf. Svensk Uppslagsbok, Malmö 1965, Band 21, S. 945-946. –Die Beschreibung des Vielfraßes befindet sich in der deutschen Ausgabe der Historien der Mitnächtigen Länder, Fickler, Basel 1567, fol. 478-480.

<sup>183</sup> Maciej was Professor at the Academy of Krakow; sein *Tractatus de duabus Sarmatiis* erschien zuerst in Krakow in 1517, cf. *Illustrowana Encyklopedia Trazaski*, Everta I Michalskiego, Warsaw 1927, Band 3, S. 265.- Die Beschreibung des Vielfraßes befindet sich in der deutschen Ausgabe der *Historia, Historien der Mitnächtigen Länder*, Fickler, Basel 1567, fol. 478-480

*infletur tympani instar: itaque angustiam aliquam inter arbores ingreditur, et per uim se ipsum intrudit, ac uentrem premens stringensque exonerat, ut uiolenter ingesta uiolentis egerat: sic extenuatum rursus ad cadauer properat et rursus impletur, ita ut uicissim de cadauere quantum potest deuoret et excernat, donec totum absumpserit. Et forsitan natura tam insatiabile animal in illis regionibus producit, ut hominess simili uoracitate laborantes redarguat<sup>184</sup>.*

The Gulo is represented in a way that is more in line with the explanations of the mythical creatures found within the Map. However, the Gulo is in fact an animal that goes by the name wolverine. The animal is one of the largest mustelids. They have brownish black hair with strips of light brown along their side. Their fur is long and dense and does not retain much water. This makes it very resistant to frost in the cold environments that they inhabit. They have large claws and pads on the feet that help them move over deep snow. They are shaped vaguely like a large marten and have a heavy build with a large head, small ears, a short tail, and very large, powerful limbs. Wolverines are very strong for their size and have been known to drive bears, cougars, and packs of wolves from their kills. They are generally known as the strongest mammal for the size. As is correctly mentioned within the passage that accompanies the image of the Gulo within the Map the diet of this animal consists of anything from eggs, rodents and other small animals to full size deer and sheep. They can bring down prey that is five times its size.

---

<sup>184</sup> Gessner, *Historia animalium*, Froschauer, Tiguri 1551, fol. 623-624.



“This beast was not known by the ancients, but hath bin since discovered in the Northern parts of the world. (Germany and the Netherlands)...When it hath found a dead carcass he eateth thereof so violently that his belly standeth out like a bell; then he seeketh for some narrow passage betwixt two trees, and there draweth through his body, by pressing whereof he driveth out the meat which he had eaten; and being so emptied returneth and devoureth as much as he did before.”<sup>185</sup>

The Gulo is not in fact found in Lithuania but in Northern Europe, Siberia, and northern North America. They live in forests, mountains, plains, and brush land. One can never treat such passages as verbatim accounts.

### **3. The Lion - for illustration and original text see Plate. 28**

**A.** The Lion (Plate.28) inscription taken from the *Kunyu Quantu*, 1674 can be translated as:

*Asia: Wild Dog. Looks like a big wolf. The colour of its eyes change with the time of day. At night it makes the sound of humans. The sound it makes is alluring but frightening.*

---

<sup>185</sup> Gulo entry, English translation by Edward Topsell (1607)

Unfortunately the original source for this Lion has been unable to be traced. It is most likely to be a Libyan Lion and originate from an Asian source.

#### **4. The Hyena – for illustration and original text see Plate 29**

**B.** The following description in Latin is taken from Gesner's *Historia animalium*, 1671:

*31. Latine Hyena, uel Belbus, culus haecimago est*

*Qualem*

#### **5. The Rhinoceros- for illustration and original text see Plate 30**

**A.** The rhinoceros (Plate 30) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*Asia: Skin is like scales.*

**B.** The following description in Latin is taken from Gesner's *Historia Animalium*, 1671:

*30. Quadrup. ferorum*

*Latine Rhinoceros, uel Taurus Aethiopicus Panfaniae. Rhinocerotis nomen Graecum in Illinguis alij plerifqs feruatur. Latine dicipoffet. Naricornis. German*

*QVADRVPELVV VIVIPARORVM FERQ.*

*RORVM ORDO SECVNDVS, COMPLECTENS.*

*Feras non cornutas maiores.*<sup>186</sup>

### C.

It is remarkable that these images are so anatomically correct and do in fact truly look like their living counterparts<sup>187</sup>. This is not only evident in Gesner's depictions of animals such as the camel, rhinoceros, goat, beaver, chameleon, crocodile, whale, but also in the writings of the likes of Photius (c.815-897) the Byzantine scholar who discusses animals such as the rhinoceros:

"(45) In India there are wild asses (Rhinoceroses) as large as horses, or even larger. Their body is white, their head dark red, their eyes bluish, and they have a horn in their forehead about a cubit in length. The lower part of the horn, for about two palms distance from the forehead, is quite white, the middle is black, the upper part, which terminates in a point, is a very flaming red. Those who drink out of cups made from it are proof against convulsions, epilepsy, and even poison, provided that before or after having taken it they drink some wine or water or other liquid out of these cups. The domestic and wild asses of other countries and all other solid-hoofed animals have neither huckle-bone nor gall-bladder, whereas the Indian asses have both. Their huckle-bones is the most beautiful that I have seen, like that of the ox in

<sup>186</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 30.

<sup>187</sup> <http://archive.nlm.nih.gov/proj/ttp/Gesnergallery.htm>

size and appearance; it is as heavy as lead and of the colour of cinnabar all through. These animals are very strong and swift: neither the horse nor any other animal can over take them. At first they run slowly, but the longer they run their pace increases wonderfully, and becomes faster and faster. There is only one way of catching them. When they take their young to feed, if they are surrounded by a large number of horsemen, being unwilling to abandon their foals, they show fight, but with their horns, kick, fight, and kill many men and horses. They are last taken, after they have been pierced with arrows and spears; for it is impossible to capture them alive. Their flesh is bitter to eat and they are only hunted for the sack of the horns and huckle-bones.”<sup>188</sup>

Dürer's Rhinoceros shows his dual artistic formations, the German Gothic and the Italian Renaissance. The rhinoceros for example is illustrated in the same place as The siege of fortress, 1 and 2 from Durer's treatise on fortification<sup>189</sup>. At this point in Dürer's works he not only represents the rhinoceros in a powerful form but portrays both male and female figures in a muscularly powerful way.

Dürer's Rhinoceros reads: “On 1 May 1513 (1515) was brought from India to the great and powerful king Emanuel of Portugal at Lisbon a live animal called a rhinoceros. His form is here represented. It has the colour of a speckled tortoise and it is covered with thick scales. It is like an elephant in size, but lower on its legs and almost invulnerable. It has a strong sharp

<sup>188</sup> Photius' excerpt of Ctesias' *Indica* '45'

<sup>189</sup> Unterricht zur Befestigung der Städte Scwosser und Flecken, published in 1527; B137

horn on its nose which it sharpens on stones. The stupid animal is the elephant's deadliest enemy. The elephant is very frightened of it as, when they meet, it runs with its head down between its front legs and gores the stomach of the elephant and throttles it, and the elephant cannot fend it off. Because the animal is so well armed, there is nothing that the elephant can do and throttles it, and the elephant cannot fend it off. It is also said that the rhinoceros is fast, lively and cunning."<sup>190</sup>

Dürer's print of a rhinoceros caused a sensation. Several thousand impressions were produced during his lifetime and its popularity has endured over the centuries through the production of countless copies in a variety of media. The woodcut records the first appearance of a rhinoceros in Europe since the third century AD. The creature was presented as a gift from Sultan Muzafar II of Gujrat to the governor of Portuguese India, Alfonso d' Albuquerque, who sent it on to King Manuel I in Lisbon. After a few months it was despatched to Rome as a gift to the Pope, but died at sea after the ship transporting it to Italy capsized. Dürer never saw the animal himself. His preparatory drawing for wood cut is an imaginative design of the rhinoceros based on a description and sketches sent from Lisbon to Nuremberg brought there from India in 1515.

---

<sup>190</sup> Bartrum, Giulia., *The British Museum Dürer*, The British Museum Press, London. 2007. p. 72.

## **6. The Spider – for illustration and original text see Plate 31**

**A.** The spider (Plate 31) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*Italy It is a poisonous creature and it moves as if it is dancing.*

### **C.**

This description is accurate, as this spider has been identified as being a tarantula. The fact that the Chinese description refers to it originating from Italy is true. The name tarantula comes from the town of Taranto in Italy and was originally used for an unrelated species of European spider.<sup>191</sup> Unlike the majority of the images found within the *Kunyu Quantu* this woodcut can be found in Olfert Dapper's *Naukeurige beschryving der eilanden, in de archipel der Middellantsche zee, en ontrent dezelve, gelegen: waer onder de voornaemsti Cyprus, Rhodus, Kandien, Samos, Scio, Negroponte, Lemnos, Paros, Delos, Patmos, en andere....* Amsterdam: voor Wolfgang, Waesbergen (et al.), 1688. The image of the spider however is not an exact replica because the left leg of Dapper's spider's leg point inwards as opposed to outwards like the one found in Verbiest's *Kunyu Quantu*. The reason for this is most likely to have been as a result of an error made during the woodblock printing process.

---

<sup>191</sup> <http://www.thebts.co.uk/>

## **7. The Crocodile – for illustration and original text see Plate 32**

**A.**The crocodile (Plate 32) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*It is three meters long. It has scales, sharp teeth and is aggressive. It will eat humans when he is not eating his mouth is open for breathing.*

**B.**This is an extract taken from Gesner's *Historia animalium*, 1671.

*54. Dequadrup. Ouiparius.*

*Animalium quadrupedum ovi*

*parorum icones*

*Latine crocodillis*

*Italice crocodila*

*Gallice crocodile*

*German crocodyl oder crocodil*<sup>192</sup>

The image of the crocodile is by Guillaume Rondelet, a contemporary who wrote a noted work on fish. Gesner questioned the traditional belief that crocodiles attracted their prey by pretending to cry (as in “crocodile tears”).

---

<sup>192</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 54.

## **8. The Mermaids - for illustration and original text see Plate 33**

**A.** I have been unable to trace the source for the Mermaids (Plate 33). However, the inscription taken from the *Kunyu Quantu*, 1674 can be translated as:

*They have bodies like humans and tails like fish. Male and female's tails and bones can be used to stop bleeding. Female's bones and tails work better.*

## **9. The Giraffe – for illustration and original text see Plate 34**

**A.**The giraffe (Plate 34) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*This animal is from Africa. Its front legs are longer than its back legs. It has short hair...*

**B.**The following text is taken from Carletti, S M, *Studi In Onore Di Lionello Lanciotti*, Istituto Universitario Orientale, 1996 which is an Italian translation from the original Chinese Character inscript found within the *Kunyu Quantu*.<sup>193</sup>

---

<sup>193</sup> Carletti, S M, *Studi In Onore Di Lionello Lanciotti*, Istituto Universitario Orientale, 1996, Vol:2, p.764 Lo Zoo Dei Gesuiti: La Trasmissione Scientifica del Bestiario Rinascimentale Europeo Alla Cina Dei Qing In Kunyu Tushuo Di Ferdinand Verbiest (1674).



“Questo animale vive in Africa Occidentale, al centro del confine inferiore del Paese. Il suo nome è onager. La testa ha la forma simile a [quella di] un cavallo; le zampe anteriori sono lunghe come [quelle di] un grande cavallo; le zampe posteriori sono corte; il collo è alla testa è alta più di 2 *zhang* e 5 *chi*; la peluria del suo manto è multicolore. Quando la si osserva, si osserva, si gira con tutta tranquillità per mostrare il suo aspetto variegato.”

West Africa: In Abyssinia there lives an animal called Orasius. Its head is similar to that of a horse. Its front legs are as long as those of a large horse. The hind legs are short. It has a long neck and measured from the front hoofs up to the head is more than 2 *zhang* 5 feet. Its fur and hair are multicoloured. When looked at by people in the stables it turns and moves in a way that it would like to show the spectators its precious appearance.

#### **Latin Description from Gesner's *Historia animalium*, 1620:**

*“...Apud Hesperios Aethiopes tum aliae ferae tum camelopardales gignuntur...In iis locis (inquit, circa mare rubrum puto) Camelopardales nascuntur, nullam cum pardali similitudinem habentes...Orasius anteriori parte altus, valde eminet, ita ut extensor capite viginti cubitorum altitudinem posset attingere. In posteriori vero parte demissus instar cerui. Collum habet extensum, caput equinum, licet minus: pedes et caudam ut ceruus: pellem vero*

*sic omni colorum genere disuersimode variatam, ut homo frusra tentet artificio naturalem eius pulchritudinem imitari. Hoc animal nostris temporib. à Soldano Babyloniorum transmissum est Imperatori Friderico Romanorum augusto, Haec Isidorus: ex quo Albert. Magn. descripsit: sed addit praeterea, quod licet multis colorib. Insignis sit oraflus (sic legitur) album tamen et rubeum frequentiores habeat: et cum se spectantib. Admirationi esse intelligit, huc illuc se vertere, et vndiquaque inspicendum praebere...<sup>194</sup>”*

## C.

Gesner remarks that the image comes from Melchior Lorch from Flensburg a northern town in Germany. He saw this animal in Constantinople where a giraffe was presented to the Turkish sultan. His image of a giraffe was first printed in 1559 in Nuremberg and was included by Gesner in the second edition of the *Icones animalium quadrup.* (1560) aufgenommen (fol.125)<sup>195</sup>

In China the first giraffe to be presented to the Emperor as a tribute gift was the one from Bengal in 1414. When it arrived under the name of *qilin*<sup>196</sup>, it caused a stir, and the Board of

<sup>194</sup> Gessner, *Historia Animalium*, T.1, H.Laurentius, Francoforti 1620, fol. 148-149

<sup>195</sup> <<...a wild animal called tsu-la (d.i. zurāfa, the Arabic Name for the Giraffe) which resembles a camel in shape, an ox in size, and is yellow of colour. Its fore legs are five feet long, while its hind feet were only three feet in length. Its head is high and looks upward. Its skin is an inch thick >> (F.Hirth and W.W. Rockhill, Chau Ju-kua, his work on the Chinese and Arab trade in the 12<sup>th</sup> and 13<sup>th</sup> centuries, St. Petersburg 1911, S128). Berthold Laufer, *The giraffe in history and art*, Field Museum of Natural History, Chicago 1928.

<sup>196</sup> Note taken from Duyvendak, J. J. L., The true Dates of the Chinese Maritime Expeditions in the early fifteenth Century. With 3 plates and 1 fac-simile, T'oung pao, 34 (1938) Extracted from PCI Full text, published by Pro Quest information and learning Company. Page 399 “The resemblance of the name K’i-lin with the Somali name of the giraffe may be partly responsible for the identification of the two. Cf. G.Ferrand, *Le nom de la giraffe dans le Ying Yai Cheng Lan*, J.A1918, pp. 155-158. Recent studies on the development of the Ch’i-lin worship in

Rites asked to be allowed to present a Memorial of Congratulation. The Emperor declined, saying: "Let the Ministers but early and late exert themselves in assisting the government for the welfare of the world. If the world is at peace, even without *qilin*'s there is nothing that hinders good government. Let congratulations be omitted"<sup>197</sup>.

When in the following year a giraffe from Melinda arrived, a similar request was made, and, although the Emperor again declined, he went out to the Feng-t'ien Gate to receive the animal in great state. A similar request was made in 1433, when a giraffe from Mecca was presented<sup>198</sup>.

An image of this giraffe can be seen in a picture from Bengal., sent by King Saifu-'d-Din and arriving on September 20<sup>th</sup> 1414, according to a note in the *Shi-lu*<sup>199</sup>.

Duyvendak discovered in New York at Brentano's a picture of this giraffe, which he purchased in order that he could publish the image. Duyvendak acknowledges Dr. Thomas LaFargue for having first spoken to him about this said picture. Laufer, in his *The Giraffe in*

---

China are: *Huo Pai-lin chieh* by Tung Tso-pin in *An-yang fa-ch'ieh pao-kao* n° 2 (1930), pp. 287 – 335, and A study of the Origin of the Ch'i-lin and the *Feng-huang* by Yoshihiko Izushi in *Memoirs of the Research Department of the Tōyō Bunkai (The Oriental Library)* n°9, 1937, pp. 79- 109. On the prehistoric Giraffe in China cf. Birger Bohlén, *Die Familie Giraffidae mit besonderer Berücksichtigung der fossilen Formen aus China, Palaeontologia Sinica*, IV (1926), fascicle 1.

<sup>197</sup> *Shu-yü Chou-tzū-lu* ch.11, p.2a-b; also ch.9, p.7a.

<sup>198</sup> Cf. on the cases on which giraffes were presented T.P. 1933, 298, 315-316, AND 1935, 297. The Giraffe of 1433 was celebrated by Wang Yi-ning (*ming*: T'ang, but known by his *tzü*, a *chin-shih* of the Yung-lo period; cf. C.K. J. M. T. T. 75); the piece is reproduced in the *T'u-shu Chi-ch'eng*, division of Birds and Reptiles, ch. 57, section on *ch'i-lin, yi-wen* II, P.2.

<sup>199</sup> Cf. surpa p.380 and A.C. Moule, Some foreign Bird and Beasts in Chinese Books, J. R. A.S. 1925, 258.

*History and Art* (Field Museum Leaflets No. 27, 1928) reproduced two Chinese pictures of giraffes: one owned by the Field Museum, and one the property of Mr. A. W. Bahr of London. The former has a stanza of four lines inscribed on it, and the date corresponding to 1485; the latter has no inscription whatsoever. Both paintings are very much inferior in execution to the one reproduced here. The picture in the *Yiyü Qin shou Tu*<sup>200</sup> published by Professor Moule in his article just cited is also of inferior style<sup>201</sup>. Laufer, op. cit. p.46 quoted the Wu-tsa-tsu by Hsieh Chao-chieh (chin-shih of 1592), written in 1610 (censored by Qianlong, cf. *L. C. Goodrich, The Literary Inquisition of Ch'ien-lung*, 153) as saying that in the Yung lie period "a painter was directed to make a sketch of a kilin that was captured; the artist's picture showed the animal's body shaped like that of a deer, but its neck was very long, conveying the impression that it was three to four feet in length". It is obvious that the giraffe here reproduced is painted from life, and the inscription proves that it was indeed the specimen from Bengal.

The painting, which is on paper, mounted on white silk (size 14 ½" x 24 ½", mounted 17" x 29"), is by Shen Tu (tzūMin-tsê) a Han-lin calligrapher who flourished in the Yung lie period (C.K.J.M.T.T.T. 492)<sup>202</sup>. He also composed the complimentary text with it, dated the 9<sup>th</sup> month of the 12<sup>th</sup> year of Yung lie. The present painting is a copy by Chen Tinglie (zi: Yün-fan), who has not been traced either in Ming or in Qing times. The seals on it are as follows.

<sup>200</sup> For this work cf. also Moule in T.P. 1930, 179-188: "An Introduction to the *I yü T'u chih*".

<sup>201</sup> This is obviously derived from Duyvendak's painting. Mr. Bahr's giraffe has two guides instead of one, but the tortoise-shell treatment of the skin also connects it with ours.

<sup>202</sup> One painting (a landscape) by him is mentioned in Ferguson's *Li-tai Chu-lu-hua-mu* (1934), p.161b.

To the left of the text *Yün fan*, and under it, reading from right to left *T'ing-pi*. In the left hand corner, at the bottom: *Yün-fan Shu-hua* "Autographs and paintings of Yün-fan". In the right hand corner the first seal seems to read (reading in a circle, beginning at the right hand top): *Jung Huang-t'ing yin* "Seal of Jung Huan-t'ing"<sup>203</sup>. Under it: Tzū-sun yung-pao "to be eternally preserved by sons and grandsons".

All the creatures that spell good fortune arrive. In the 9<sup>th</sup> month of the year *jia-wu* of the Yongle period (1414) a *Qilin* (giraffe) came from the country of Bengal and was formally presented as tribute to the Court. The ministers and the people all gathered to gaze at it and their joy knows no end. I, Your servant, have heard that, when a Sage possesses the virtue of the utmost benevolence so that he illuminates the darkest places, then a *ch'i-lin* appears. This shows that Your Majesty's virtue equals that of Heaven; its merciful blessings have spread far and wide so that its harmonious vapours have emanated a *ch'i-lin*, as an endless bliss to the state for a myriad myriad years. I, Your servant, joining the throng, beheld respectfully this omen of good fortune and kneeling down a hundred times and knocking my head on the ground I present a hymn of praise as follows:

Oh how glorious is the Sacred Emperor who excels both in literary  
and military virtues,

Who has succeeded to the Precious Throne and has accomplished

<sup>203</sup> Duyvendak, J.J.L., The true Dates of the Chinese Maritime Expeditions in the early fifteenth Century. With 3 plates and 1 fac-simile, T'oung pao, 34 (1938).

Perfect Order and imitated the Ancients!

The myriad countries are thoroughly at rest and the Three Luminaries  
follow their due course,

Rain and heat are seasonable and rice and millet are yearly harvested.

The people in their customs are joyful and there is no hindrance or  
rift between them,

Consequently auspicious signs have abundantly descended to the world.

A Tsou-yü has truly appeared, and Savoury Springs and Sweet Dew  
have come forth,

Wonderful Ears are found in plenty and the River has become Clear <sup>204</sup>.

When all the happiness gather, truly it betokens Heavens help,

Truly it betokens Heaven's help, and proclaims Heaven's favour!

Now in the twelfth year of which the cyclical position is *chia-wu*,

In a corner of the western seas, in the stagnant waters of a greay  
morass,

Truly was produced a *ch'i-lin*, whose shape was high 15 feet,

With the body of a deer and the tail of an ox, and a fleshy boneless  
horn,

With luminous spots like a red cloud or a purple mist.

Its hoofs do not tread on (living) beings and its wanderings it  
carefully selects its ground,

---

<sup>204</sup> All these phenomena are classical favourable portents, presaging a Sacred Ruler.

It walks in stately fashion and in its every motion it observes a  
rhythm,

Its harmonious voice<sup>205</sup> sounds like a bell or a musical tube.

Gentle is this animal, that in all antiquity has been sent but  
once,

The manifestation of its divine spirit rises up to Heaven's abode.

Ministers and people gathering to behold it vie in being first to see the  
joyful spectacle,

As when the Phoenix of Ch'i<sup>206</sup> sang in Chou or the Chart from the  
River was presented to Yü.

The hundred myriads this year are united and observe the same rules  
of conduct.

Your servant on duty in the Forest of Letters, cherishing the presumptuous  
Ambition to record this,

Has intoned this poem in order to present a hymn of praise to the  
Sacred Ruler.

Composed by your servant, Shen Tu, Shih-chiang-hsüeh-shih,  
Feng-hsün-ta-fu of the Han-lin-yüan.

---

<sup>205</sup> This phrase really refers to the fabulous ch'i-lin; the giraffe is mute.

<sup>206</sup> The name of the mountain where the descendants of Hou Chi, the ancestor of the Chou dynasty, lived.

“The “camelopardal” is a giraffe, an animal known in 16<sup>th</sup> Century Europe only from travelers’ reports. The name implies that its feature combine that of a camel and a leopard. This can be found in *Sancai tu Hui*.

Another image of the Giraffe can be found at the Philadelphia Muscum of Art, title Tribute Giraffe with Attendant. This painting was made in China during the Yongle Period (1403-1424), 1414. The artist’s name is unknown and it was painted in ink in colour on silk and was mounted and hung on a scroll.<sup>207</sup>

---

<sup>207</sup> Ibid.



## The Americas Hemisphere

The following section will look at various translations of the animals found within this hemisphere of Verbiest's *Kunyu Quantu*: the su, salamander, beaver, turkey, goat, chameleon, toucan and ostrich with snake (Plate. 35).

### 10. The Su – for illustration and original text see Plate 36

**A.** The su (Plate 36) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*It is a creature with suckling young from America. It has a big tail as big as its body. If the hunters are threatening it will put its children on its back and use its tail to protect them. It makes a very loud noise to scare its enemy.*

**B.** The following description is taken from Gesner's *Historia animalium*, 1671:

42. *Quadrup. Ferorum Latine Simi uulpa appellari potest. German fuchpaff.*

*Hac quidem in Tabulis Geographicis depingifollet: fed scriptores caudam Cereopitheci ei tribuunt non quails hic pingiti* <sup>208</sup>

---

<sup>208</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 42.

In Chile there lives an animal named Su. Its tail is as long and thick as the body. Every time it is pursued by it carries its litter on its back and covers it with its tail. When under pressure it cries with a loud voice making people tremble with fear.

### C.

Topsell discusses the Su in his chapter dealing with fearsome animals. There is a region in the new found world...called Gigantes, and the inhabitants therefore are called Patagones." The discovery of Patagonia was recent and was said to have been inhabited by giants. "This cruel, untamable, impatient, violent, ravening, and bloody beast, perceiving that her natural strength cannot deliver her from the wit and policy of men, her hunters (for being inclosed she can never get out againe) the hunters being at hand to watch her downfall, and worke her overthrowe, first of all to save her young ones from taking and taming, she destroyeth them all with her own teeth; for there was never any of them taken alive, and when she seeth the hunters come about her, she roareth, cryeth, howleth, brayeth, and uttereth such a fearefull, noisome, and terrible clamor, that the men which watch to kill her are not thereby a little amazed; but at last, being animated, because there can be no resistance, they approach, and with their darts and speares wound her to death, and then take off her skin, and I leave the carcassee in the earth. And this is all I find recorded of this most strange beast."<sup>209</sup>

---

<sup>209</sup> Clair, Colin, *Unnatural History. An illustrated bestiary*, London 1968.

## **11. The Chameleon- for illustration and original text see Plate 37**

**A.** The chameleon (Plate 37) insert taken from the *Kunyu Quantu* can be translated as:

*The skin can change colour. It can hide in rocks and the ground. The colour of the skin will blend with its surroundings.*

**B.** Descriptions taken from Gesner's *Historia animalium*, 1671:

55. De quadruped. Ouiparis Latine. Chamelaeleo. German: Chameleo

*Animal est peregrinum ex Africa: quamobrem nomen in alijs linguis non habet.*<sup>210</sup>

*“Chamaeleon et Africa gignit, quanquam frequentiore India, Plinius. Per omnem Asiam chamaelon plurimus, Solinus... Color est albus ei, ... Motus (incessus) ei piger admodum, ut testudinis, est, Arisotot. Plin. Solinus. Audio eum per arborum ramos lentu gradu raptare. Color varius et in momento mutabilis, ita ut cuicunque rei se coniunxerit, concolor ei fiat: ... Non uno colore spectator, sed sese fuetim subducit, et videntium oculos veluti perstringit: ...”*<sup>211</sup>

Pliny says that the chameleon comes from Africa although frequently from India.

Solinus said that it is most numerous in Asia. Its colour is white. According to

<sup>210</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 55.

<sup>211</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, fol. 4 ff

Aristotle, Pliny and Solinus its movement (gait) is quite sloth full like a tortoise. I hear that it hastens away through the branches of the trees with a slow step. Its colour differs changing in a movement so that whenever it joins itself with anything it becomes the same colour as it. It is not seen in one colour but withdraws itself secretly even as it dazzles the eyes of its on looker.

**Description in German taken from Walraven's *Konrad Gessner in chinesischem Gewand*, 1973:**

<<4 Asien

*In Judäa (Ju-te-ya) lebt ein Tier namens Chamäleon (chia-mo-liang). Seine Haut ist so hell wie Wasserdampf. Entsprechend den (umgebenden) Dingen ändert es sein Aussehen. Von Natur aus ist es in seinen Bewegungen sehr langsam. Es verbirgt sich zwischen Gräsern und Bäumen, Erde und Steinen, so daß die Menschen es (von der Umberbung) schwer unterscheiden können.<sup>212</sup>>>*

Asia. Lives in Judea it is called the Chamelcon (chia-mo-liang). His skin is as clear as steam. According to surrounding it changes its appearance. His movement are slow. It hides between grass, trees, earth and stones so that people can hardly distinguish it from its surroundings.

---

<sup>212</sup> Gesnerus, Jahrgang/Vol. 30 1973 Heft/ Fasc. ¼, Konrad Gessner in chinesischem Gewand, Darstellungen fremder Tiere im K'un-yü t'u-shuo des P. Verbiest (1623-1688), Von Hartmut Walravens, p.93

Translation taken from Carletti's, *Studi in onore Di Lionello Lanciotti*:

*“Asia. Guidea. Animale quadrupede, selvatico, denominato jiamoliang (camaleonte). La sua pelle acquisisce lucentezza in presenza di umidità. Muta di colore a seconda dell'ambiente circostante. È molto diffuse. Si nasconde in mezzo alla vegetazione ed alle rocce, cosicché gli uomini faticano a distinguerlo.”<sup>213</sup>*

Asia, Judea. Wild four legged animal called chameleon “jiamoliang”. It coat changes colour with humidity. The colour changes with atmospheric circumstances. It is very prevalent. It can be found on rocks and vegetation.

## C.

Gesner rejects the old notion that the chameleon lives on a diet of air alone. He quotes the personal observations of a friend who kept a chameleon in captivity and observed it eating insects with its long, sticky tongue.

---

<sup>213</sup> Carletti, S M., 1996. p.757. Ibid.

## **12.The Beaver –for illustration and original text see Plate 38**

**A.**The beaver (Plate 38) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*There is a mouth river in Italy it can dive into the water and at night sleep on the ground. The colour of the hair varies. The black coloured beaver is the rarest. The teeth are very sharp it can eat trees.*

**B.**The following description is taken from Gesner's *Historia Animalium*, 1671:

*37. Beaver Orbis teritus, Latine Castor, Italice Biuaro, uel Beurera  
Gallice Bieure<sup>214</sup>*

**Translation taken from Carletti, 1996:**

*Europa. Italia. Si trova nei corsi d'acqua. È denominato baduo (castoro). Entra nel mare dalla foce dei fiumi e genera. Appartiene ad un certo ceppo dei canidi. Di giorno si nasconde nell'acqua. Di notte si riposa sulla terra asciutta. Il colore del manto è vario, il più pregiato è nero. Addenta rami d'albero ed i denti sono affilati come un coltello.<sup>215</sup>*

---

<sup>214</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 37

<sup>215</sup> <sup>215</sup> Carletti, S M, 1996. British Library. Ibid p.759.

<sup>215</sup> Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 12.

Europe. Italy. It is found in running water and is called Beaver. It is found at the mouths of rivers by the sea. During the day it can dive into the water and at night sleeps on the ground. The colour of the hair varies. The black coloured beaver is the rarest. The teeth are very sharp it can eat trees. Gesner comments upon the beaver's habit of building a "cave" or nest out of wood on a stream, he claims that their teeth were stronger than those of almost any other animal.

### C.

The beaver is very true to form. It is an excellent representation of what a beaver is regarded as being today. The problem with the representation of the likes of a unicorn or other mythical creatures is that they are "mythical".

The beaver is discussed for two pages 342-344 in Gesner's, *Historia animalium*, lib. II published by Laurentius Francoforti in 1671. The Beaver is also found in Edward Topsell's, *Historie of Foure-footed Beastes* in 1607. Topsell writes how the tail of the beaver was regarded as a delicacy:

"This taile he useth for a sterne when he swimmeth after fish to catch them. There hath beene taken of them whose tayles have waied foure pound waight, and they are accounted a very delicate dish, for being dressed they eat like Barbles; they are used by the *Lotharingians* and

*Savoyens* for meat allowed to be eaten on fishe-daies, although the body that beareth them be flesh and uncleane for food. The manner of their dressing is, first roasting, and afterwards scething in an open pot, so that the evill vapour may go away, and some in pottage made with Saffron; other with Ginger, and many with Brine: it is certaine that the tayle and forefeet tast very sweet, from whence came the Proverbe, That sweet is that fish which is not fish at all.<sup>216</sup>

### **13.The Turkey- for illustration and original text see Plate 39**

**A**.I have been unable to trace the source for the turkey. However, the insert (Plate 39) taken from the *Kunyu Quantu*, 1674 can be translated as:

*From North America. Like a huge chicken. It has a big beak. The nose can contract the nose is between white, blue and grey. When the turkey gets angry the nose turns red. When its angry the tail feathers open like a peacock the feathers are black, white and striped. After it gives birth it does not care for its young.*

---

<sup>216</sup> Clair, Colin, *Unnatural History*. An illustrated hestuary. London 1968. P. 34.



#### **14. Mountain Goat – for illustration and original text see Plate 40**

**A.**The mountain goat (Plate 40) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*South India. It has two large breasts and its milk can be drunk.*

**B.**The following description is taken from Gesner's *Historia Animalium*, 1671:

*12. Quadrup manfuet Ram*

*Latine Capra Indica, aduiuum depictat*

*Italice Capra de la India.*

*Gallice Cheure d'India*<sup>217</sup>

**Translation taken from Walraven's, *Konrad Gessner in chinesischem Gewand*, 1973:**

<<[5.] Asien

*In Südindien lebt ein Bergschaf (shan-yang). Am Nacken wachsen ihm zwei Euter die herabhängen. Die Milch ist äußerst fett. Seine Augen [blicken] klug.*<sup>218</sup>>>

<sup>217</sup> Gessner, Konrad. *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671, plate 12.

<sup>218</sup> Walravens. 1973 Ibid. p. 95.

In South India lives a Mountain Sheep (shang-yang). On its neck it has two udders hanging down the milk is extremely fat. Its eyes have an intelligent look.

**Gesner' s description :**

*Aures habet oblongas et pendulas. Libyci his animalibus pectoris uice utuntur: quorum lacte maximam casei et butyric copiam conficiunt...*<sup>219</sup>

In Libya they use these animals in place of cattle. With whose milk they make a vast quantity of cheese and butter.

**C.**

As the neck udders are not mentioned in Gesner this seems to be a misinterpretation of the illustration. In the Latin Gesner refers to the mountain Sheep's long hanging ears. According to Topsell<sup>220</sup>, this illustration goes back to Antonio Musa Brasavola (1490-1554)<sup>221</sup> who was the doctor to the Duke Ercole d' Este from Ferrara, and shows a goat that was brought to Ferrara.

---

<sup>219</sup> Gessner, *Icones animal. quadrup.*, ed. Sec., Tiguri 1560, fol.18

<sup>220</sup> *The historie of Foure-footed beastes*, Jaggard London 1670, fol.235

<sup>221</sup> Brasavola cf. Ernst Meyer, *Geschichte der Botanik*, Königsberg 1857, Band 4, S. 237 ff.  
Antonio Musa Brasavola 1490-1554.

**15.The Salamander- for illustration and original text see Plate 41**

**A.** The salamander (Plate 41) insert taken from the *Kunyu Quantu*, 1674 can be translated as:

*From Europe (Eastern Europe). This creature lives in a cold wet area so it has very thick skin. Black and yellow in colour. The spine is black until the tail. The hair is black and yellow (not skin).*

**B.** The following description is taken from Gesner's *Historia Animalium*, 1670:

*57. America. Salamdre.*

*Latin: Salamandra*

*Italice: Salamandres*

## **16. The Whale- for Illustration and original text see Plate 42**

### **B.**

Gesner has surprisingly little to say about the whale, though it is clearly well-known. Rather than translate their names into Latin, he gives over 20 names for whales in German, his native language.<sup>222</sup>

### **C.**

The following quote is particularly interesting as Mestrius Plutarch (46-127A.D),<sup>223</sup> better known in English as Plutarch,<sup>224</sup> was referring to map making a way that is reminiscent of Verbiest's map with mythical animals peppering both Hemispheres and descriptions being found within the confines of the map. Geographic knowledge may have advanced over time, however the concept of how a map should look remained the same up until the late nineteenth century if not later.<sup>225</sup>

<sup>222</sup> <http://archive.nlm.nih.gov/proj/ftp/flash/gesner/gesner.html>

<sup>223</sup> Plutarch's date of birth probably occurred during the reign of the Roman Emperor Claudius and between 45AD and 50AD, though the exact date is debated. Aubrey Stewart, George Long. "Life of Plutarch", Plutarch's Lives, Volume 1.

<sup>224</sup> A Greek historian, biographer, essayist, and Middle Platonist. Plutarch was born to a prominent family in Chaeronea, Boeotia (Greece), a town approximately twenty miles east of Delphi. "Plutarch". Oxford Dictionary of Philosophy.

<sup>225</sup> Evidence can be seen when looking at the later edition of Verbiest's Kunyu Quantu.

"You know, Sosius Senecio,<sup>226</sup> how geographers, when they come to deal with those parts of the earth which they know nothing about, crowd them into the margins of their maps with the explanation, 'Beyond this lie sandy, waterless deserts full of wild beasts', or 'track-less swamps', or 'Scythian snows', or 'ice-locked sea'. Now that in writing my *Parallel Lives* I have reached the end of those periods in which theories can be tested by argument or where history can find a solid foundation in fact, I might very well follow their example and say of those remoter ages, 'All that lies beyond are prodigies and fables, the province of poets and romancers, where nothing is certain or credible.'"<sup>227</sup>

#### **Conclusion to animals of the Kunyu Quantu, 1674:**

All these animals were unknown in China. Verbiest placed these various animals both mythical and real on the big continental surface around the South Pole. The paradise bird can be found in the inner part of New Holland<sup>228</sup>. The inner part of South America reveals images of toucan and the American ostrich and a snake killing a deer (**Plates. 43, 44, 45**). A strange animal found on the South Pole area on the American hemisphere is the well known legend

---

<sup>226</sup> One of the most influential of Plutarch's Roman friends. He was four times consul between A.D. 98 and 107, a scholar and a correspondent of Pliny. Plutarch also addresses him at the beginning of the *Lives of Demosthenes and Dion*.

<sup>227</sup> Plutarch, *The Rise and Fall of Athens: Nine Greek Lives*. Penguin books, Page. 13

<sup>228</sup> Holland is a historic name for the island continent of Australia. The name was first applied to Australia. The name was first applied to Australia in 1644 by the Dutch seafarer Abel Tasman, and remained in use for over one hundred and fifty years.

After the establishment of a settlement at New South Wales in 1788, which encompassed the eastern part of the continent, the term New Holland was more often used to refer only to that part of the continent that had not yet been annexed to New South Wales; thus it referred to the area of land that is now Western Australia.

that is an animal with a shiny coat next to him are some remains of a meal (bones) this can be found in Anton Wied's map of Russia dated 1555 in the forest west of Dwina<sup>229</sup>. Olaus Magnus was born October 1490 and died August 1558. His most famous work is *Historia de Gentibus Septentrionalibus*<sup>230</sup>, printed in Rome 1555, a patriotic work of folklore and history which long remained for the rest of Europe the authority on Swedish matters. This text on dark winters, violent currents and beasts of the sea rightly amazed the rest of Europe, who did not know Sweden had sea monsters. It was translated into Italian (1565), German (1567), English (1658) and Dutch (1665), but never into Swedish. Abridgements of the work appeared also at Antwerp (1558 and 1562), Paris (1561), Amsterdam (1586), Frankfort (1618) and Leiden (1652). It is still today a valuable repertory of much curious information in regard to Scandinavian customs and folklore. A translation of the Latin title page goes: "Olaus Magnus Gothus', the Uppsula Archbishops', history of Nordic people's different manners and camps, also about the wonderful differences in customs, holy practices, superstitions, bodily exercises, government and food keeping; further on war, buildings and wonderful aids; further on metals and different kinds of animals, that live in these neighbourhoods...". Following the death of his brother, he published historical works that his brother had written. Olaus had already earlier written *Carta marina et description septemtrionalium terrarum ac mirabilium rerum in eis contentarum, diligentissime elaborate Anno Domini 1539 Veneciis liberalitate Reverendissimi Domini Ieronimi Quirini*, which translates as "A Marine map and Description of the Northern Lands and of their Marvels, most carefully drawn up at Venice in the year

<sup>229</sup> Michow, Die ältesten Karten von Russland, Hamburg 1884, s. 37 ff.

<sup>230</sup> History of the Northern People.

1539 through the generous assistance of the Most Honourable Lord and Patriarch Hieronymo Quirino”<sup>231</sup>. The Italian title translates to “A little book, which more closely explains a map of the Nordic cold, beyond the Germanic sea located country, which presents its extremely peculiar, priory known neither to Greek or Latins, wonders of nature.”

Before this map Olaus Magni’s Nordi Map (Carta Marina-Map of the Sea) of 1539 on the southern part of the Lule<sup>232</sup> marsh<sup>233</sup>. Both of these drawings are based on the naturalist historian Matthais of Miechow<sup>234</sup>. He worked on *De Sarmatia Asiana atque Europoea Cracovioe* 1517<sup>235</sup>. Verbiest gained a vast amount of inspiration from Olaus Magnus’s “*Historia de gentibus septentrionalibus* (Lib. 18, cap.7)”<sup>236</sup>. Verbiest consulted many sources in order for this map to come together. Unfortunately, animals such as the lion and the turkey cannot be traced.

---

<sup>231</sup> Lynam 1949, 3

<sup>232</sup> [http://www.statkart.no/IPS/filestore/Profil/Stedsnavn/ToponymGuide\[Norw-2005-04-25\].pdf](http://www.statkart.no/IPS/filestore/Profil/Stedsnavn/ToponymGuide[Norw-2005-04-25].pdf) “Toponymic Guidelines for Cartography – Norway”

<sup>233</sup> K. Ahlenius, *En Kinesisk Världskarte*, p. 16.

<sup>234</sup> Miechow a town in Poland

<sup>235</sup> Grynaeus, *Novus Orbis Regionum*.

<sup>236</sup> Kongl. Humanistiska Vetenskaps-Samfundet, I Uppsala Band VII, K. Ahlenius, *En Kinesisk Världskarta*, p. 17

### **Chapter Six: The Journey of Verbiest's *Kunyu Quantu*.**

The University of Glasgow's copy of Verbiest's *Kunyu Quantu*, 1674, was first discovered by Professor Nick Pearce in 1998. Part of the Hunterian Museum Collection, its provenance had been lost over the Museum's two hundred year history.

This specific map was gifted by Father Dominique Parrenin (1665-1741), a Jesuit of the French house in Peking, to Theophilus (Gottlieb) Siegfried Bayer (1694-1738), Professor of Greek and Roman Antiquities,<sup>237</sup> at the St. Petersburg Academy of Sciences, in 1732.<sup>238</sup> It was then purchased along with the entire Bayer Collection of letters, books and manuscripts, from Bayer's widow by Heinrich Walter Gerdes (1690-1742). Gerdes was a Lutheran Pastor and Fellow of the Royal Society in London, between 1738 and 1742. Finally it was bought by Dr William Hunter from Gerdes' widow between 1765 and 1779.

Gottlieb Siegfried Bayer came from a German Protestant family, settled in Hungary in the 16<sup>th</sup> century.<sup>239</sup> His grandfather on his fathers' side was named Johannes Bayer (1635-74), he was an educated man who served as assistant headmaster at the *Gymnasium* in the town called Eperjes. His father, Johann Friedrich Bayer (1670-after 1738) moved to East Prussia; initially

---

<sup>237</sup> After 1735 became Professor of Oriental Antiquities

<sup>238</sup> Bayer arrived in St Petersburg in 1734

<sup>239</sup> Lundbæk, Knud. T.S. Bayer (1604-1738) Pioneer Sinologist, Curzon Press, London. 1986 p. 12 see f.n. 1



to Dantzig and then to Königsberg, where he lived the rest of his life as a poor and pious painter married to a painter's daughter, Anna Kathrina, who was born in Porraath.

Gottlieb Siegfried was born in 1694. At school he showed great aptitude for study, learning Latin and Greek without difficulty and going to the University of Königsberg at the age of sixteen. There he studied theology and philosophy and read Hebrew. As he discusses so clearly in the Preface to his *Museum Sinicum*, it was at the age of nineteen that he suddenly conceived the idea of studying Chinese. After a period of illness, during which he stayed with his grand-uncle Johannes Satorius, who was professor of Rhetoric in Dantzig, he returned to Königsberg and defended his doctoral thesis there in 1716.<sup>240</sup> After being given a scholarship from the Königsberg city council he went on a study tour to other German university towns. He stayed for several months in Berlin where he met many important scholars.

After graduating from university he stayed for some months in Berlin, where he probably occupied most of his time with Chinese studies. Back in Königsberg in 1718 he published his first sinological work, a small book which contained a sketch of a Chinese grammar. It was when he came to St Petersburg in 1726 that he began seriously to consider writing a book about the Chinese language and Chinese literature.

---

<sup>240</sup> *Vindiciae Verborum Christi...* (1716). It deals with Christ's last words on the cross: 'Eli, Eli, lama sabaktini' - at the very moment when darkness descended over Golgatha. We are going to hear much about that darkness in the following.

There is much debate surrounding *Museum Sinicum*, as to whether or not it can be regarded as a Chinese language textbook. Lundbæk discusses this argument:

There are two things that need to be said: it was not possible to learn to speak or read Chinese from Bayer's book; secondly, Bayer was perfectly and painfully aware of that fact and states it many times in the book. Why then publish it? Bayer felt, and he was supported in this feeling by his old friend the great Lacroze in Berlin, as well as by his new friend Theophanes, the learned Archbishop of Novgorod, that it was his duty to do so. There were no books about the Chinese language on the market. He had had access to information about that language because he had happened to study in the Royal Library in Berlin, where some handwritten material about the Chinese language was kept. It was not very much and in spite of all his endeavours, Bayer certainly did not come to 'know Chinese'. But he felt that he simply had to arrange the information he had gathered together, to collect his thoughts and sit down and write a text that could be printed and published, thus making it possible for others to go on with his work.<sup>241</sup>

Bayer was an antiquarian, a historian, a philologist and a linguist, but he never interested himself in the world of theology and philosophy. He also showed an interest in the history of the Roman Catholic Church but did not entertain the notion of dogma.

---

<sup>241</sup> Lundbæk, 1986. *Ibid.* p.5.

The journey of this map adds to its overall interest. In 1731 Theophilus Siegfried Bayer (1694-1738) was copying the immense Chinese-Latin dictionary, which he had borrowed from Count Sawa Raguzinskij-Vladislavich. Between the years 1731 and 1738 Bayer was writing to the Jesuit missionaries in Peking and as early as 1730 sent them a copy of his Chinese-Latin dictionary together with a copy of his *Museum Sinicum*.

This specific letter was not preserved in Glasgow University Library. We know, however from the answers he received that it was dated 12 September 1731, and that it was addressed to the Jesuits in Peking, without names, probably because Bayer did not know them<sup>242</sup>. From the answers we can also guess some of the things Bayer had been writing to them about. For example, he had had a longstanding problem regarding the Paschal Eclipse in the 'Chinese Annals', and the new one that had bemused him while he was writing the *Museum Sinicum*, involved the system of the Chinese characters. Bayer had requested certain Chinese books, including one with the text of the Nestorian Stele (**Plate.46**).<sup>243</sup>

<sup>242</sup> Lundbæk, 1986. Ibid.

<sup>243</sup> Ibid. pp.55-56. The Nestorian Stele is the modern name for the *Monumentum Sinicum*, discussed and commented on again and again in the seventeenth and eighteenth centuries. The 2 ½ metre high tablet with its inscription in Chinese and a few lines in Syriac is still to be seen in the fine Forest of Steles Museum in Xian. The long Chinese text, written in high literary style, tells about the Trinity, the Creator God and the Messiah (without mentioning the crucifixion and death of Christ), about the Nestorians coming from Da Quin (Syria or the Roman Empire) and their monasteries in China. It praises the Tang emperors, who protected the Christian religion. On many points this difficult text was above the capacity of seventeenth and eighteenth sinologists. In his correspondence with the Peking Jesuits we shall find Bayer asking again and again for a 'Chinese edition' of the Nestorian Stele text ref. to A.C.Moule: *Christians in China before the year 1550* (1950). There are several editions of the Chinese text in the Bibliothèque nationale in Paris (Courant 1185-92). One of them has a note by a certain Liang-an, dated 1625.

In Peking it must have been decided that he should be answered by Antoine Gaubil and Dominique Parrenin of the French house, and by Ignatius Koegler, André Pereira, and Karl Slaviček of the Portuguese house. They wrote three letters to him late in the summer of 1732. However, he did not receive them until one year later.<sup>244</sup>

The correspondence from these letters can be found in The University of Glasgow's library. The letters to Bayer are recorded as A1-9, 12-15, 17-18 and the letters from Bayer are recorded as B 1-14. A selection of the letters were published under the title 'T.S. Bayer Commmercium Sinicum' in the *Miscellanea Berolinensia*, vol 5, pp. 185-192, 1737. Parts of Gaubil's letters are to be found as Nos. 117-19, 144, 155, 175-6 and 182 in Renée Simon (Ed.): *Le P. Antoine Gaubil, S.J.: Correspondence de Peking, 1722-59*, Geneve, 1970. This collection also contains several letters to Delisle, one of which includes a complete list of the Peking Jesuits, those of the Portuguese house as well as those of the French House. Bayer took a copy of it, this is recorded within the University of Glasgow library collections as Glasgow Bayeriana C2.

Antoine Gaubil (1689-1759), French Jesuit missionary, in China 1722-59 and erudite mathematician and astronomer wrote many works in French about the history of Chinese astronomy, and on the history of the Mongol dynasty, and translated several of the Chinese Classics, for example *the Book of History*, *the Book of Changes*, sending many of them to France to be published there. Some of his astronomical studies were published by Souciet in

---

<sup>244</sup> Ibid. p. 154.

his *Observations mathématiques, astronomiques...I-III* (1729-32). His translation of the Book of History (Le Chou-King) was published in Paris after his death, in 1770. In Europe he was probably the best known among the China Jesuits, both for his published works and for his vast correspondence with a plethora of scientists from Europe and various other learned men. He was also an honorary member of the Imperial Academy of Sciences of St. Petersburg. Dominique Parrenin (1665-1741), who was a French Jesuit missionary and active at the court in Peking from 1698 till his death was an excellent linguist and was equally well versed in Chinese and Manchu. During his 40 years in Peking he acted as interpreter for missionaries, ambassadors and merchants. He was highly esteemed by Emperor Kangxi and also Emperor Yong Zheng. He was the Principal of the Imperial College of Interpreters in Peking. He also baptised several members of the Sunu (Sourniama) family, Manchus of the imperial clan.<sup>245</sup> Ignatius Kogler (1680-1746), was a German Jesuit missionary, in Peking 1716-1746 and acted as president of the Tribunal of Mathematics. He published numerous works on mathematics and astronomy in Chinese, among them two large astronomical ones and a Celestial Map, it was this one he sent a copy of to Bayer. André Pereira or otherwise known as Andrew Jackson (1689 or 1690-1743), was from the Portuguese Jesuit missionary of English descent, in China 1716-43. Pereira was Vice-President of the Tribunal of Mathematics in Peking from 1727. Finally, Karl Slaviček (1678-1735), was a Bohemian Jesuit missionary, in

---

<sup>245</sup> Auguste Demoment: 'Un savant missionnaire: Le Père Dominique Parrenin', in *Mémoires de l'Académie des Sciences, Belles lettres et Arts d Besançon*, Tome 175, 1962-3, pp. 225-43.

China 1716-35, spending most of the time at the court in Peking. He was an astronomer, musician and a fine Latinist. He is said to have been of a melancholy temperament.<sup>246</sup>

Gaubill's initial letter included comments on Bayer's *Museum Sinicum* 'admired by all of us for the great labour it must have cost him, and for its usefulness.'<sup>247</sup> The main priority of Gaubill's writings to Bayer was in fact to make him aware of the sheer amount of purposeful works in China sent to Paris through the French Jesuits: *Prémare's Notitia Linguae Sinicae*, sent from Canton to Fourmont, de Mailla's huge China History, Gaubil's own works on Chinese astronomy, and his history of the Mongol dynasty. "Parrenin and others, he says, are preparing a Latin – Chinese music...if only people in France would have all these things printed..."<sup>248</sup>

Parrenin openly gave credit to Bayer in his A2 letter.<sup>249</sup> He was amazed that a scholar outside China could discuss the language on such a detailed scale. "I can say, however, that I never expected a scholar outside China – however learned – to be able to write so much about the Chinese language, demonstrating such insight, such profound study and such diligence for public utility."<sup>250</sup>

---

<sup>246</sup> Lundbæk, Knud. 1986. p.155

<sup>247</sup> A1. Renée Simon (Ed.): *Le P. Antoine Gaubil, S.J.: Correspondance de Peking, 1722-59*, Geneve, 1970.

<sup>248</sup> Lundbæk, Knud. T.S. Bayer (1604-1738) *Pioneer Sinologist*, Curzon Press, 1986. p.155.

<sup>249</sup> A2. Renée Simon (Ed.): *Le P. Antoine Gaubil, S.J.: Correspondance de Peking, 1722-59*, Geneve, 1970

<sup>250</sup> Lundbæk, Knud. 1986. p.155.

Parrenin was very happy that Bayer had received the Latin-Chinese dictionary along with the two examples used to analyse any Greek or Latin word, to tell the reader what form it took, for example, "swam" as past tense of "swim". That was his purpose in borrowing the *Hai Pian* and the *Zhi Hui*, from Count Sawa Raguzinskij-Vladislavich. Within this letter Bayer is said to have requested an edition of the Five Classics as well as a picture of the mythological Qilin and a discussion of how this creature was represented in many various forms by different artists. Qilin was a mythical hooved Chinese chimerical creature known throughout East Asia, and was said to appear in conjunction with the arrival of a sage. It is a good omen that brought *rui*, which can be translated as representing affluence and peace. It was often depicted with what looks like fire all over its body. The earliest references to the Qilin are in the 5<sup>th</sup> Century book *Zuo Zhuan*.<sup>251</sup> The Qilin made appearances in a variety of subsequent Chinese works of history and fiction. Over time, however, it came to be identified with the giraffe.

Later, the Qilin became a stylised representation of the giraffe. It is known that on Zheng He's voyage to East Africa (landing, among other places, in modern-day Kenya), the fleet brought back two giraffes to Beijing. It is also known that these two giraffes were referred to as "Qilins". The Emperor proclaimed the giraffe magical creatures, whose capture signalled the greatness of his power.

The connection between Parrenin and Bayer was a significant one. Not only was Bayer benefiting out of this learned friendship, but vice versa. As they both exchanged

---

<sup>251</sup> <http://www.chinaknowledge.de/literature/classics/chunqiuazuozhuan.html>.

complimentary correspondence with each other both parties were also gaining knowledge of progression in China and Paris. Lundbæk writes on the contents of these letters in great detail. He speaks of how Bayer had asked if they were interested in the St Petersburg Academy *Commentarii*. We are informed that Parrenin openly accepted this gift for the Jesuit's library at Court and that this text was to be placed alongside those from the Académie Française. As Gaubil had done before him, he explained how he had been informed that de Mailla's History of China was being printed in Paris at the time.<sup>252</sup>

The letter sent from Koegler, Pereira and Slavicěk<sup>253</sup> in 1733 explained to Bayer how the Chinese written language was a challenging one especially if he was educating himself without the input of a native tongue. "The construction and analysis of the Chinese characters, their meaning and harmony, the combinations and the uses from which the laconism and the force of the language derive, are worthy of study, not only by the Chinese, but also by European scholars. However, it is like an ocean, it cannot be transmitted through the rivulets and channels of a correspondence..."<sup>254</sup> This was in response to Bayer's request for distant tutorage. However, he was sent with this letter a copy of the little religious book by Father Ferdinand Verbiest. This book by Verbiest was sent to Bayer in order to aid his study of the Chinese language. This book was used to help "to engage in unknown matters, among so

<sup>252</sup> Lundbæk, Knud 1986. Ibid. p. 156.

<sup>253</sup> A3 Renée Simon (Ed.): *Le P. Antoine Gaubil, S.J.: Correspondance de Peking, 1722-59*, Genève, 1970

<sup>254</sup> Lundbæk, Knud. 1986. Ibid. p. 156



many homonyms and without a teacher, is not only a waste of one's time but even dangerous."<sup>255</sup>

Soon after the being sent Verbiest's book, Bayer wrote back airing his opinion on the problems concerning the missionary techniques. Bayer referred to *Navarrete's Tratados historicos, politicos, y, religiosos de la Monarchia de China...* Madrid, 1676, criticising Ricci's methods. Bayer defended it with many examples from history of the Christian church.

The letters between Bayer and Parrenin are so extensive that very detailed information can be sourced through using them as points of reference. In the letter catalogued as B12 where Bayer thanks him for the gifts that had been so kindly sent to St Petersburg, Verbiest's *Kunyu Quantu* of 1674 is referred to. This is a highly significant detail as it marks the first known reference to how this map began its journey into the collection of William Hunter. Along with the Map, various drawings of a Mandarin with his daughter and concubines were sent.

In 1736 Bayer again made contact with Parrenin, by this time receipt of the *Kunyu Quantu* has been acknowledged. Bayer included a translation of an insert relating to Judea, the Holy Land. Here, however, Bayer mistranslated one Chinese character for another which naturally alters how the insert should have been read. In a letter dated December 1736, Parrenin helpfully corrected Bayer's mistake, but unfortunately this mistake was not rectified. The original

---

<sup>255</sup> Ibid. p.157.

mistake can be seen in the Verbiest article in the *Miscellanea Berolinensia* when it was printed in 1740 which was two years after Bayer's death.<sup>256</sup>

The *Miscellanea Berolinensia* of the Berlin Academy of Science contains two contributions that Bayer made to this work. The first was an article about Chinese coins: 'De Re Numaria Sinorum', the other was a sample of his Peking correspondence: "Commercium Sinicum". Shortly afterwards Bayer must have sent the editors a third article, dealing with a famous China Jesuit of the 1600s 'Verdinandi Verbiestii S.J. Scriptis, praecipue vero de ejus Globo Terrestri Sinico'.

The article that discusses Verbiest's *Kunyu Quantu*, 1674 was published in 1740 three years after the death of Bayer. It begins with a list of twelve of Verbiest's Chinese works about astronomy and about the Christian faith. On the three engraved plates Bayer showed the characters of their titles; he took them from the Chinese edition of Philippe Couplet's *Catalogue S.J. qui post obitum Sti. Francisci Xaverii...im Imperio Sinarum Jesu Christi fidem propagarunt...* Paris, 1686, he received this work from Peking and added to it his own transliterations and translations.<sup>257</sup> These characters are much better than those of his St

---

<sup>256</sup> 'De Ferdinandi Verbistii S.J. scriptis, praecipue vero de ejus Globo Terestri Sinoco', in *Miscellanea Berolinensia*, Vol. VI, 1740, pp. 180-92.

<sup>257</sup> Lundbæk, Knud., 1986. p. 186

Petersburg works and, except for the exclusion of two small clauses, the transliteration and translations are correct.<sup>258</sup>

The rest of the publication deals with one of Verbiest's works, the *Kunyu Quantu*, 1674. The way in which this Kunyu Quantu would have originally been made and then subsequently mounted has been a mystery up until now. This mystery came about as a result of the way in which it is lined with linen, why it was not mounted on eight individual scrolls, the reason it now appears on two large sheets and in what state it would have originally come over from China to Europe. After seeing the Library of Congress example where each of the eight individual sections are mounted on silk, albeit a silk that post dates the Kangxi period, this gave an insight into how this was the most likely way in which a map of this size would have been kept (**Plate. 47**). The display of Works of Art in Kangxi China was a seasonally changing occurrence. This is another reason why this display method would have been the most likely option. The number eight kept cropping up in the records of Gerde's and the Walraven's articles. However, in Lunbæk's *Pioneer Sinologist* "a map of the world on two huge sheets"<sup>259</sup> is mentioned this could have suggested that although originally this map was in the form of eight scrolls Bayer may have mounted the three scrolls of each hemisphere on to two separate sheets and kept the two Scrolls that contained the various cartouches in European and Chinese styles that would have hung on either side of each hemisphere separate. This would have explained why this particular map was found in this form as opposed to the one that is held at

<sup>258</sup> See Pfister, Louis. *Notices biographiques et bibliographiques sur les Jésuites de l'ancienne mission de Chine 1552-1773*. Shanghai, 1932. p.355.

<sup>259</sup> Lunbæk, Knud. 1986. p. 186

the library of Congress in Washington D.C. Through reading the records made by Gerde's wife we can see that when it arrived with Gerdes it was still in its original eight unmounted scroll state. The confusion arose when Lundbæk referred to it as the world on two huge sheets, as this implied that the Map had been mounted much earlier than was originally believed. When one reads T.S. Bayer's *Miscellanea Berolinensia* the reference to this specific map is concerned with a description of two hemispheres and not two sheets.<sup>260</sup> Bayer discussed how Verbiest included a myriad of animals that were not known in China prior to the creation of this Map. The fact that Peking had been placed centrally within the map also perplexed Bayer. It was in this article that Bayer gave the Chinese names with characters, of various European countries and cities noted on the map, for example; "Gelmanyia" (Germany), 'Pomelaniya' (Pomerania), etc. Along with the names, Bayer translated the small insert about Judea: 'God (*Tianzhu*) was incarnated here, therefore it is called the Holy Land', and it was here that he made his 'little error' by misreading the character for *gu*, 'therefore'.<sup>261</sup> Bayer discussed how as a result of how characters were placed together in the Chinese language this meant that when a word in English was transferred into Chinese it did not necessarily have a particularly flattering meaning. "The name France (Francia) on the map seems to suggest an expression of contempt, consciously or unconsciously introduced, for '*Fae lam cy ya*', means 'girlish and cringing opposition to men and masters, afterwards followed by compulsory respect'. This

<sup>260</sup> 'De Ferdindandi Verbiestii S.J. scriptis, praeipue vero de eius globo terrestri sinico,' in *Miscellanea Berolinensia*, VI, 1740, pp.180-192

<sup>261</sup> *Ibid.* see p. 166

offended the French missionaries who changed it to '*Fa lam ci ya*', which may be read as 'Laws and rules of men, with majesty and gravity'.<sup>262</sup>

The Special Collections Department at the University of Glasgow Library holds a vast and significant collection of manuscripts and letters, as well as Chinese books that were owned by Bayer. It includes more than one hundred items from initial attempts to construct a Chinese vocabulary when he was 19 years old to the final years of his life and copies of letters he wrote few days before he died. This collection was brought after Bayer's death from his widow by Heinrich Walter Gerdes (1690-1742)<sup>263</sup>. Gerdes was born in Hamburg on the 24<sup>th</sup> August 1690, where he later went on to study theology.

In 1734 in a letter between Gaubill and Bayer, Gerdes is discussed. Bayer informed Gaubill that he was helping H.W. Gerdes with a new edition of Chamberlayne's multilingual *Lord's Prayer*.<sup>264</sup> Gerdes was born on the 24<sup>th</sup> August, 1690 at Hamburg, where he later studied theology. By 1716 he had become preacher at the Schlosskirche in Darmstadt, and, the following year transferred to the position of Court librarian there. He apparently held this position until, in 1721 we find him writing a letter to the learned Swedish bishop Erik

---

<sup>262</sup> Ibid p.187.

<sup>263</sup> Gerdes was a Lutheran pastor in Trinity Lane in London who corresponded with Bayer.

<sup>264</sup> Please see Appendix David J. Weston, Heinrich Gerdes, William Hunter and the Bayer Papers, (unpublished paper, 1982)

Benzelius from Stockholm, dated 3<sup>rd</sup> June. In 1722 he was pastor of the Lutheran church in Trinity Lane in London, where he was to remain until his death in 1742<sup>265</sup>.

He made a fellow of the Royal Society in 1726 and in 1727 he delivered, on behalf of the Lutheran clergy of London, an address before King George II, congratulating him on his accession to the throne. Reporting on the event, the London Gazette for 29<sup>th</sup> July, 1727 styled him Pastor Henry Walther Gerdes of the Swedich church in Trinity Lane.

We know that Gerdes was in correspondence with Bayer from a reference to him in a letter from Bayer to Benzelius dated 5<sup>th</sup> October, 1732: 'Scripsi hodie D. Gerdes qui Londini Eccles. Evangelocae Presb. Est de hoc meo desiderio...' but as yet none of these letters which traveled between London and St Petersburg have been located.

Gerdes was succeeded after his death in 1742 by his wife, who lived to the age of eighty-five, dying on 8<sup>th</sup> July, 1787.

From this chronology of Gerdes' life, it emerges that he must have purchased Bayer's collection shortly after the latter's untimely death in 1738, very probably from his widow, who unexpectedly found herself faced with considerable financial problems. Certainly it was in London before 1742.

---

<sup>265</sup> Register of Fellows of Royal Society 1660-1733(3PL) Ms. Fol 42R gives date of decease as 1741

Dr William Hunter, the noted anatomist and obstetrician arrived in London in 1740 joining his mentor James Douglas in 1741, and for a time lived in his house. But, it was not until the mid – 1750's that Hunter was sufficiently established to start collecting on a large scale. From about 1765 Hunter began to conceive the idea of forming a museum, and it is very likely that he acquired Bayer's collection after this date, from Gerdes' widow. It would appear from a note in Hunter's own hand, inscribed on a ms. catalogue of the Bayer collection, preserved amongst the Hunter papers at Glasgow University (H203(1)), that Hunter had been attempting for some time to acquire this collection; the title of the catalogue runs:

*'A Catalogue of a curious Collection of rare Books, in the Chinese and other Indian Languages; collected by the late learned Theoph. Siegfr. Bayer, Professor of St Petersburg, and now in the Possession of Mrs Gerdes, Widow of the late Learned Dr Gerdes.'*<sup>266</sup>

To which is appended the exasperated note: 'At last in Dr Hunter's Library'. This note is not dated, neither is it easily datable. However, there may be some help in establishing a terminus ante quem in one of the Hunterian Museum records, viz. the 1779 catalogue of the books (MR/2). In this catalogue, begun in 1779, mention is made of Bayer's Museum Sinicum, one of the books acquired from Mrs Gerdes. In conclusion, then, it is possible to say with some degree of confidence, that Hunter acquired the Bayer collection sometime in between the 1765 and 1780.<sup>267</sup>

<sup>266</sup> Please see Appendix.2:A catalogue of a curious collection.

<sup>267</sup> Weston, David.J., *Heinrich Walter Gerdes, William Hunter and the Bayer Papers*, (unpublished paper, 1982).

Hunter the collector had interests that lay in a plethora of fields. For example: in medicine, numismatics, ethnology, zoology, geology and art. His life as an influential medical and scientific figure in Georgian London has been studied by many, and his achievements in these spheres valued highly. In the past fifty years, the direction of interest has moved from Hunter the man to Hunter the collector. The main body of work that has been documented and compiled has been done so by Dr C. Helen Brock. In recent years, Helen Brock has gathered further extensive material relating to Hunter's life, notably her unpublished *Correspondence of Dr William Hunter, 1740-1783*, 1993 (typescript deposited in Glasgow University Library) and *Iconography of Dr William Hunter 1718-1783*, 1998. Dr Lawrence Keppie has recently published a complete list of sources in his introduction to *William Hunter and the Hunterian Museum in Glasgow 1807-2007*, Edinburgh University Press, 2007.

Hunter grew up in East Kilbride and was the seventh of ten children. William Hunter was the son of John Hunter (1663-1741) and Agnes Paul (1686-1751), who was the daughter of a Glasgow magistrate. She was a well-educated woman able to teach her children the cultivated manners essential to eighteenth-century society; she also shared with them her love of theatre and literature. John Hunter was a member of the local gentry, was anxious for his two eldest sons, James and William, to go to university and to take up careers in the law and



the Church. S.F. Simmons's Account tells us that after attending the parish school William was sent to nearby Hamilton Grammar School.<sup>268</sup>

When Hunter was thirteen he was sent to the Old College of Glasgow to prepare for the ministry. His mother's family came from Glasgow, so he may have lodged with them, or perhaps with his eldest sister Janet, who had married Mr Buchanan, a Glasgow wood merchant. If not, there was always the College, described by Hunter's later friend, the surgeon turned novelist Tobias Smollett (1721-1771), as "a respectable pile of building, with all manner of accommodation for the Professors and students, including an elegant library, and an observatory well provided with scientific instruments".<sup>269</sup> Hunter was registered as a student from 1731 to 1736. This period was an exciting time for Hunter as Glasgow was in the midst of the Enlightenment and the Old College, one of the four old Scottish Universities, was leading the way under a group of charismatic teachers. Among them were Andrew Rosse, a supporter of modern ideas, and Alexander Dunlop (1684-1747), an inspiring scholar who did much to generate interest in the culture and arts of ancient Greece. Francis Hutcheson (1694-1747) was a student of Dunlop and was the most influential scholar during this period. According to William Leechman (1706-1785), who was the University's Principle, Hutcheson had an extraordinary ability to awaken in students an interest in literature, fine art and all that was ornamental and useful in human life.<sup>270</sup> Hutcheson stressed the importance of visual evidence to back up the written word. This fundamental principle of the first phase of the

<sup>268</sup> Simmons, S.F., *An Account of the life and writings of the Late William Hunter, M.D (1783)*

<sup>269</sup> Smollett, Tobias., *Travels through France and Italy*, London Penguin English Library edition 1967, p. 283

<sup>270</sup> Brock, C. Helen, *The Happiness of Riches*, in Bynum and Porter, Glasgow. 1985. p. 36 note 6.

Scottish Enlightenment was to become the landmark on which Hunter would build both his medical career and his interests into other disciplines, from science to literature and art.

“By his bequest of 1783, William Hunter became Glasgow University’s greatest cultural benefactor. His museum opened at the Old College in 1807 – the earliest in Britain after the Ashmolean and the British Museum.”<sup>271</sup> Hunter’s collection has many interesting objects, Verbiest’s *Kunyu Quantu*, however definitely was a hidden treasure that can now be seen in it almost complete state.

---

<sup>271</sup> Black, P., “*My Highest Pleasures*” *William Hunter's Art Collection*”, The Hunterian, University of Glasgow in association with Paul Holberton publishing 2007. p. 7

## Conclusion

In conclusion, it is important to consider whether the aims of this thesis have been achieved. The first vital step to understanding Father Ferdinand Verbiest's *Kunyu Quantu*, 1674 was to look at the history of mapping in China as it was crucial to understand the state of cartography during this period. It is important for one to be able to make a connection between what was cartographically going on in China during this period since this enables one to get a deeper understanding of the Map.

In this chapter a plethora of aspects surrounding the map as a general object were examined. What was realised as a result of analysis was that a map could in fact be made out of any material. A common feature of all maps is that an area is represented and it helps people understand the relationship between spatial phenomena. This concept led into a discussion of Matteo Ricci and how his influences were vital to the development of cartography in China. A major question that existed within this chapter was who mapped the world "the West" or the "East". One thing that becomes clear is how Western cartographers concerned themselves with perspective and scale whilst the Chinese mapmaker chose not to.

The aim of Chapter two was to give an enlightened view of Father Ferdinand Verbiest and the Jesuits. The importance that Jesuit missionaries placed on collaboration is evident within this chapter specifically as we can see how even when it came to the preparation and creation of the *Kunyu Quantu* Verbiest never took full credit for this impressive work. Exploration of

mapping practice has shown the relationship between text and image does not seem to have been adopted more quickly in Japan than in China, and less quickly in Korea. Even though cultures in those places developed their own cartographic traditions, there is no denying the power and influence of Chinese mapping practice. It is hard to reconcile this evidence with judgments of “backwardness” and failures of accuracy. This chapter highlights how important it is to recognise not only the obvious religious efforts of the Jesuits during Emperor Kangxi’s reign but the dynastic periods that preceded.

Chapter three dealt with Verbiest’s role in importing Geographical Science to China. The aim of this chapter was to show that Verbiest had undoubtedly made contributions of paramount importance where cartography during the Kangxi period is concerned, not only for his contribution to mapping and more specifically the *Kunyu Quantu* of 1674 but also the full significance of his introduction of new techniques and astronomical equipment to the court of Kangxi.

In chapter four the *Kunyu Quantu* has been shown to be a testament to the quality of map making achieved during the Kangxi dynasty. Through the collaborative nature of this research conservation evidence has been used to prove how the connection between the woodblock printing process and the making of the Map (**Plates. 48, 49**).

Chapter five was probably the most challenging to research and write. Here the outcome was a comprehensive description of each illustration with accompanying sources and translations.

Finally, chapter six traced the provenance of the University of Glasgow's *Kunyu Quantu*, all the way back to 1674. Attention was drawn to the role of Father Dominique Parrenin, Siegfried Bayer, Heinrich Walter Gerdes and most importantly Dr. William Hunter. The full history of the University of Glasgow's copy of Verbiest's *Kunyu Quantu*, 1674, first identified by Professor Nick Pearce in 1998 has thus been re-established.

This thesis has allowed deep study into the Hunterian Museum's copy of Father Ferdinand Verbiest's *Kunyu Quantu*, 1674. This copy of the map has never been researched or displayed before. It is an important cartographic and art historical work that is an extraordinary testament to the achievement of Verbiest for Emperor Kangxi.

## Bibliography

### Archival Sources:

Glasgow University Archives.

### List of Unpublished Sources:

Weston, David. J., *Heinrich Gerdes, William Hunter and the Bayer Papers*, (unpublished paper, 1982).

### List of Primary Sources:

Aleni, Guilo. *Tianzhu Jiangsheng Chuxiang Jinjie* ('Historia evangelica'). Nanking, 1637.

Anon, Chinese Zihangzhou xinggong you xihu daoli tushuo(imperial route maps) c.1750

Aymon, Jean. 'Observatio circa scientiam universalem Sinensium, in libro Confucii...', in *Acta Eruditorum*, 1713, pp.46-48.

Babinger, Franz. Gottlieb Siegfried Bayer (1694-1738). *Ein Beitrag zur Geschichte der morgenländischen Studien im 18. Jarhundert*. Munich, 1915.

Bayer, Theophilus Sigefridus. 'De Confucii libro Ch'un cieu', in *Commentarii Academiae Scientiarum Imperialis Petropolitanae*, VII, 1740, pp.362-426.

- *De Eclipsi Sinica liber singularis ... accedunt praeceptionum de lingua sinica duo libri...*Königsberg, 1718.
- 'De Ferdinandi Verbistii S.J. scriptis, praecipue vero de ejus Globo Terrestri sinico', in *Miscellanea Berolinensia*, VI, 1740, pp.180-92.
- *De Horis Sinicis et Cyclo horaria...* St Petersburg, 1735.
- 'De lexico Sinico Cu gvey', in *Commentarii*, VI, 1738, pp.339-64.
- 'De Re Numaria Sinorum', in *Miscellanea Berolinensia*, V, 1737, pp.175-84.
- *Museum Sinicum in quo Sinicae Linguae et Litteraturae ratio explicatur...* St Petersburg, 1730.

Blaeu, Jan. *Le grand atlas, ou cosmographie Blaviane, en laqvelle est exactement descritte la terre, la mer et le ciel*, Amsterdam, 1667.

Bouvert, Joachim. *Portrait historique de l'Empereur de la Chine*. Paris, 1697.

Bugli, Louis, Magelhães, Gabriel de, and Verbiest, Ferdinand. *Imocentia Victrix*, Guangzhou, 1671.

Couplet, Philippe. *Catalogue S.J. qui post obitum Sti. Francisci Xaverii... im Imperio Sinarum Jesu Christi fidem propagarunt...* Paris, 1686.

Ctesias, *Indica* c. 400BC

Dapper, Olfert. *Naukeurige beschryving der eilanden, in de archipel der Middellantsche zee, en ontrent dezelve, gelegen: waer onder de voornaemsti Cyprus, Rhodus, Kandien, Samos, Scio, Negroponte, Lemnos, Paros, Delos, Patmos, en andrer...*, Amsterdam: voor Wolfgang, Waesbergen (et al.), 1688.

Dapper, Olfert. *Asia, oder Genaue and gründliche Beschreibung des gantzen Syrien und Palestins, oder Gelobten Landes...aus verschiednen alten und neuen Scribenten so wol, als dem Bericht warhafftiger Augenzeugen und Untersucher zusammen getragen von..O.Dapper, Nürnberg: In Verlegung Johann Hofmanns, Buch – und Künsthändlers. Gedruckt daselbst bey Christian Sigmund Froberg, 1688-89.*

Demomont, Auguste. 'Le Père Dominique Parrenin', in *Mémoires de l'Académie des Sciences, Belles-Lettres et Arts de Besançon*, 175(1962-3): 225-43.

Des-Vignoles, Adolphe. *Chronologie de l'histoire sainte et des histories étrangères...* Berlin, 1738.

*Die Beschreibung des Veilfraßes befindet sich in der deutschen Ausgabe der Historia, Ilhistorien der Mittnächtigen Länder*, Fickler, Basel 1567

Gessner, *Historia Animalium*, T.I, H.Laurentius, Francoforti 1620

Gessner, *Historia animalium*, lib. II, H. Laurentius, Francoforti 1671

Gessner, *Icones animal.quadrup.*, ed. Scce., Tiguri 1560.

Gessner, *Historia animalium*, Froschauer, Tiguri 1551

*Il mappamondo cinese del P. Matteo Ricci S.I. (terza edizione, Pechino 1602)*. Citta del Vaticano 1938

Martini, Martino. *De Bello tartarico Historia*. Antwerp, 1654.

-*Novus Atlas Sinensis*. Amsterdam, 1655.

-*Sinicae Historiae Decas prima*. Munich, 1658.

Mercator, Gerard. *Atlas sive cosmographicae meditationes de fabrica mundi et fabricati figura*, 4<sup>th</sup> ed. Amsterdam, 1619.

Medici Tigurini *Historiae Animalium* Lib. De Quadrupedibus

'*Mémoires concernant l'Histoire, les Sciences, les Arts, les Moeurs, les Usages etc. des Chinois*. Paris 1776-1814.

Pfeiffer, August. *Introductio ad Orientem...* Wittenberg, 1671.

Ricci, Matteo. *Tianzhu Shiye* (The true meaning of the Lord of Heaven). Peking, 1603.

Rudbeck, Olaus sen. *Atlant eller Manheim*. Uppsala, 1675.

Rudbeck, Olaus jun. *Specimen usus linguae gothicae...* Uppsala, 1717

-*Theasurus linguarum Asiae et Europae harmonicus...* Uppsala, 1716.

Topsell, E. *The historie of Foure-footed beastes*, Jaggard London 1670

Topsell, E. *Historie of foure footed beastes*, 1607

*Unterricht zur Befestigung der Städte Sewasser und Flecken*, published in 1527.

Waldeck, G.F. 'Le P. Philippe Couplet, Malinois, S.J.' in *Analectes pour servir à l'histoire ecclastique de la Belgique*, Vol.IX, 1872, pp.5-31.

Zaluziansky A Zaluzia, Adami. *Methodi herbariae*. Libri tres 1592. Edited by C. Pajlml. Vol 1.

Zhonghua gu di tu zhen pin xuan ji. English. *China in Ancient and Modern Maps complied by the Ancient Map Research Team of Chinese Academy of Surveying and Mapping*. Translate by Chen Gengtao and Wang Pingxing Sotheby's Publication, London, 1998.



### Other Published Sources:

Addis, William E. and Thomas Arnold, M.A., *The Catholic Dictionary*, London, 1905.

Ahlenius, K., *En Kinesisk Världskarta Kongl. Humanistiska Vetenskaps-Samfundet*, I, UPPSALA BAND VIII. Uppsala 1902-1904.

Amsler, Jean. Mercator, *Atlas sive cosmographicae meditationes, Histoire universelle des explorations*. Paris, 1955.

Armand, Rainaud. *Continent Austral. Hypothèse et decouvertes* (Paris, 1893).

Battilori, M. Alejandro VI y la Real Casa de Aragon (Madrid, 1958)

Bernard, Henri. "Les adaptations chinoises d'ouvrages europeens. Bibliographie chronologique depuis la venue des Portugais a Canton jusqu' a la mission francaise de Pekin 1514-1688", *Monumenta Serica*, 10 (1945),

Berthold Laufer, *The giraffe in history and art*, *Field Museum of Natural History*, Chicago 1928.

Black, Jeremy. *Map and Politics*, Reaktion Books 1997.

Black, P., "My Highest Pleasures" *William Hunter's Art Collection*", The Hunterian, University of Glasgow in association with Paul Holberton publishing 2007.

Blaeu, Jan, 1596-1673. The third century edition of Johan Blaeu Le grand atlas Volumes 1-9. Amsterdam: *Theatrum Orbis Terrarum*, 1967-1968.

Blackburn, Simon. *Oxford Dictionary of Philosophy*. Cambridge University Press, Cambridge, 2<sup>nd</sup> edition 2005.

Blondeau, R.A. *Ferdinand Verbiest (1623 -1688). Also Oost en West elkaar ontmoeten*, Tiel: Lannoo, 1983.

Birger Bohlin, *Die Familie Giraffidae mit besonderer Berücksichtigung der fossilen Formen aus China*, *Palaeontologia Sinica*, IV (1926), fascicle 1.

Birger Bohlin, *Die Familie Giraffidae mit besonderer Berücksichtigung der fossilen Formen aus China, Palaeontologia Sinica*, IV (1926)

Bosmans, Henri. "Documents relatifs a Ferdinand Verbiest: les lettreannuelles de la Vic-Province de la Compagnie de Jesus en Chine Anne 1669 par Adrien Grelon", *Annales de la Societe d'Emulation*, n. 2 (1912),

Bricker, Charles. *History of Cartography 250 years of Maps and Mapmakers*. Thames&Hudson, London 1996.

Brock, C. Helen, *The Happiness of Riches, in Bynum and Porter, William Hunter*. Glasgow. 1985.

Brown, L.A. *The Story of Maps*, Dover Publications, New York. 1979.

Caraci, Giuseppe, Muccioli, Marcello, Chih-fang wai-chi, published at Hang-chou in 1623. *Mappamondo cinese del P. Giulio Aleni, S.J. Bollettino della R. Societa Geografica Italiana*. Ser.VII, t.3. 1938, 385-426

Carletti, S M, Studi In Onore Di Lionello Lanciotti, Istituto Universitario Orientale, 1996

Chan, Wing-tsit. *A Source Book in Chinese Philosophy*. Princeton, New Jersey, 1963.

Chang, Kuei-sheng, *Dictionary of Ming Biography*, edited L.Carrington, Goodrich and Chaoying Fang, New York and London: Columbia University Press, 1976

Chaunu, Pierre, "Les Philippines et le Pacifique des Ibériques (XVIe, XVIIe, XVIIIe siècle)", *Introduction méthodologique et indices d'activité* (Paris, 1960)

Chavannes, Edouard. "les deux plus anciens specimens de la cartographie chinoise," bulletin de l'ecole française d'extreme orient (1903).

Chen. K., *Matteo Ricci's Contribution to, and Influence on, Geographical Knowledge in China*, Journal of the American Oriental Society, Vol. 59, No3 (Sept., 1939).

WCohen, Paul A. *China and Christianity: The Missionary Movement and the growth of Chinese Antiforeignism, 1860-1870*. Harvard University Press, Cambridge, Massachusetts, 1963.

Colin Clair, *Unnatural History: An illustrated Bestiary*. Abelard-Schumann. New York, 1967.

Collani, Claudia von. 'Chinese Figurists in the Eyes of European Contemporaries', in *China Mission Studies* (1550-1800) Bulletin, IV, (1982):12-23.

Crone, G.R. *Maps and their Makers*. 5<sup>th</sup> ed. Folkestone: Dawson. 1978.

*Da Qing Shizu Zhang (Shunzhi) huangdi shilu* (Veritable records of Shizu, emperor Zhang [Shunzhi], of the Great Qing, compiled ca. 1672) 1937; reprinted Taipei: Hualian Chubanshe, 1964.

Dawson, Raymond. *The Analects: Confucius*, Oxford University Press, 2000

D'Elia, Pasquale, *Recent Discoveries and New Studies* (1938-1960)

D'Elia, Pasquale, 'Frammenti di due antiche Carte cinesi press l'Osservatorio astronomico di Bologna', in *Coelum XXVI*, Bologna 1938

De Rachewiltz, I. *Papal Envoys to the Great Khans, Great Travellers*. Faber and Faber, London, 1971.

Desmond, Ray. *Wonders of Creation: Natural History Drawings in the British Library*, The British Library, London. 1986.

Duyvendak, J. J. L., The true Dates of the Chinese Maritime Expeditions in the early fifteenth Century. With 3 plates and 1 fac-simile, T'oung pao, 34 (1938)

- *Holland's Contribution to Chinese Studies*, London, 1950.

Edgren, Sören. *Chinese Rare Books in American Collections*, China House Gallery China Institute in America, 1984.

Ferrand, g *Le nom de la giraffe dans le Ying Yai Cheng Lan* , J.A1918

Gernet, Jacques. *Chine et chistianisme. Action et reaction*. Paris, 1982.

George, W. *Animals and Maps*, Secker and Warburg, London 1969.

Harley/Woodward, *History of Cartography, Cartography in the Traditional East and Southeast Asian Societies*.vol 2 The University of Chicago Press. Chicago & London. 1994.

Harvey, P.D.A, *Mappamundi, The Hereford World Map*, The British Library, 1996 Bernard Hunkay Luk: A study of Giulio Aleni's Chih-fang wai – chi. Bulletin of the School of Oriental and African Studies. 40. 1977.

-*Mappa Mundi The Herefordshire world map.*, Hereford Cathedral and The British Library. London 1996.

Herbermann, Charles. G. *The Catholic encyclopaedia: an international work of reference on the constitution, doctrine, discipline, and history of the Catholic Church.* London Caxton 1907.

Ferrand, G. *Le nom de la giraffe dans le Ying Yai Cheng Lan*, J.A1918

Findlen, Paula, *Possessing Nature, Museum, Collecting in Early Modern Italy.* Published 1994.

Gesner, Konrad. *Curious Woodcuts of Fanciful and Real Beasts. A Selection of 10 sixteenth century woodcuts from Gesner's and Topsell's natural histories.* Dover Publications, inc. New York, 1971.

*Il mappamondo cinese del P. Matteo Ricci S.I. (terza edizione, Pechino 1602).* Citta del Vaticano 1938

Ivanhoe, P.J, *Ethics in the Confucian Tradition: The Thought of Mencius and Wang Yang-ming.* Atlanta: Scholars press, 1990

Izushi, Yoshihiko, A study of the Origin of the Ch'i-lin and the Feng- huang in Memoirs of the Research Department of the Tōyō Bunko (The Oriental Library) n°9, 1937

Jin Fu, *Zhihe fanglüe* (Summary of river-control methods), ed. Cui Yingjie (1767; photo-reprinted Taipei: Guangwen Shuju, 1969),

Keuning, Johannes. "The History of Geographical Map Projections until 1600", *Imago Mundi*, 12 (1955)

Lafargue, Thomas. *China's first hundred*, Washington State Uni Press. 1942.

Lau, D.C. Mencius, New York: Penguin Books, 1970.

Levathes, Louise. *When China ruled the sea: The Treasure Fleet of the Dragon Throne 1405-1433*, Oxford University Press, 1994

Lovgren, Stefan. *The National Geographic News*, "Chinese Columbus" January 23, 2006

Luk, Bernard Hung-Kay, "A study of Guilio Aleni's *Chihfang wai-chi*", *Bulletin of the School of Oriental and African Studies*, 40 (1977),

Lundbaek, Knud. *T.S. Bayer (1694-1738), Pioneer Sinologist*, Curzon Press, London and Malmö, 1986.

McBrien, Richard. *Encyclopaedia of Catholicism*, Harper Collins, 1995.

Mauro, Frédéric, *L'Expansion européenne (1600-1870)* (Paris, 1967) Amiral de Brossard, Histoire maritime du monde. Paris, 1974.

Menzies, Gavin. *1421: The Year China Discovered the World*. Bartam Press, London. 2002.

Meyer, Ernst. *Geschichte der Botanik*, Königsberg 1857.

Minamki, George. *The Chinese Rites Controversy: from Its Beginnings to Modern Times*, Illinois: Loyola University Press, 1985.

Moule, A.C. *An Introduction to the I yü T'u chih. Some foreign Bird and Beasts in Chinese Books*, J. R. A.S. 1925

-*Christians in China before the year 1550*. London 1950.

Murray, Hugh . *A Historic and Descriptive Account of China (3Vols)*. Oliver and Boyd. Edinburgh, 1836.

Needham, Joseph. *Science and Civilization in China*, Vol. I-V (10 volumes), Cambridge, 1954-83.

- *Science and Civilization in China, Volume 4 (Physics and Physical Technology) Part III (Mechanical Engineering and Nautics)*. Cambridge University Press, London , England and New York 1971.

Needham, Joseph and Lu Gwei-djen. *Celestial Lancets. A History and Rationale of Acupuncture and Moxa*. Cambridge, 1980.

Neill, S. *A History of Christian Missions*, Harmondsworth: Penguin Books, 1964.

Nivison, D.S. *The Ways of Confucianism*, La Salle, IL: Open Court Press, 1996

Oxnam, Robert.B. *Ruling from Horseback: Manchu Politics in the Oboi Regency, 1661-1669*, Chicago: University of Chicago Press, 1975.

Pannekoek, op. cit., p. 181; N. Max Wildiers, *Wereldbeeld & Theologie van de Middeleeuwen tot Vandaag*. Antwerp and Amsterdam, 1973.

Pfister, Louis. *Notices biographiques et bibliographiques sur les Jésuites de l'ancienne mission de Chine 1552-1773*. Shanghai, 1932.

Ping, Yan. *China in Ancient and Modern Maps*, Sotheby's Publications 1998. London: Philip Wilson.

Plutarch, *The Rise and Fall of Athens: Nine Greek Lives*. Penguin books London, 1960.

Pratt, K. *Visitors to China*, Macmillan, St Martin's press, 1968.

Ray, Desmond, *Wonders and Creations Natural History Drawings in the British Library*, London, The British Library, 1986

Russell, Jeffrey. *Inventing the Flat Earth: Columbus and Modern Historians*. New ed. New York : Praeger, 1997.

Shirley, Rodney. *Maps in the Atlases in the British Library*, British Library, 1984.  
-*The Mapping of the World: Early printed World Maps. 1472 -1700*, 3<sup>RD</sup> Edition New Holland, London, 1993.

Shun, Kwong-loi, *Mencius and Early Chinese Thoughts*, Stanford, University Stanford Press, 1997.

Simmons, S.F. *An Account of the life and writings of the Late William Hunter, M.D.*, 1783.

Smith, Richard. *Chinese Maps, Images of All under Heaven*, Oxford Press, 1996.

Smith, Richard. *Mapping China's World: Cultural cartography in Late Imperial Times*. Oxford Press, 1994

Smith, Richard. *China's Cultural Heritage*, Oxford Press, 1992.

Snow, Philip., *The Star Raft China's Encounter with Africa*, Weidenfeld & Nicolson, New York, 1988.

Smollett, Tobias., *Travels through France and Italy*, London Penguin English Library edition 1967.

Spence, Jonathan. D. *Emperor Of China, Self – Portrait of Kang-Hsi*, Vintage books, 1975.

Stewart, Aubrey. George Long. "Life of Plutarch", Plutarch's Lives, Volume 1.

The library of Philip Robinson. Part II. The Chinese collection. London. Auction on Nov. 22<sup>nd</sup>, 1988. No.86.

Tongyang, Lin, *Ferdinand Verbiest's contribution to Chinese Geography and Cartography*. Steyler Verlag. Nettetal. 1994.

Tso-pin, Tung. *Huo Pai-lin chieh*, in *An-yang fa-chieh pao-kao* n° 2 (1930).

Vanderlinden, H. 'Alexander VI and the demarcation of the maritime and colonial domains of Spain and Portugal', *American historical Review*, xxii, 1917.

Vertente, Christine. *Nan Huaijen's Maps of the World*, in Conference Papers of the International Conference in Honor of Ferdinand Verbiest Commemoration of 300<sup>th</sup> Anniversary of his Death (1688-1988). Taipei, December 17-18, 1987.

Wakeman, Fredric Jr., *The Great Enterprise : The Manchu Reconstruction of Imperial Order in Seventeenth - Century China*, 2 vols. (Berkeley and Los Angeles: University of California Press, 1985.

Wallis, Helen, *Europa und die Kaiser von China*, Berliner Festspiele, Berlin, 1985.

Wallis, Helen. British Library, *Chinese and Japanese Maps*. An exhibition organised by the British Library at the British Museum 1 February- 31 December 1974.

Wallis and Grinsstead, "A Chinese Terrestrial Globe A.D.1623", *British Museum Quarterly*, 25 June, 1962.

Walravens, von Hartmut, *Gesnerus Jahrgang/Vol.30 1973 Heft/Pasc. ¾ Konrad Gessner in chinesischem Gewand, Darstellungen fremder Tiere im K'un-yü t' u-shuo des P. Verbiest (1623-1688)*.

- Father Verbiest's Chinese World Map (1674), *Imago Mundi*, Vol 43, 1991.

Walters, Alice. 'Globe' in Robert Bud and Deborah Jean Warner, *Instruments of Science: A Historical Encyclopaedia* New York and London, 1998.

Wang Yi-ning (*ming*: T'ang, but known by his *tzū*, a *chin-shih* of the Yung-lo period; cf. C.K. J. M. T. T. 75); the piece is reproduced in the *T'u-shu Chi-ch'eng*, division of Birds and Reptiles.

Weckmann, L, *Las bulas alejandrinas de 1493 y la teoria politica del papado medieval* (Mexico City, 1949).

Whitehead, J.D. , Shaw, Yu-ming, Girardot, N.J. editors. *China and Christianity Historical and Future Encounters*. The Center for Pastoral and Social Ministry, The University of Notre Dame. 1979.

Wilders, N.Max. *Wereldbeeld en teologie. Van de Middeleeuwen tot vandaag*. Antwerpen 1973

Wiseman, T.P., "Julius Ccesar and The Mappa Mundi", *Talking To Virgil: A Miscellany*, Exeter, 1992.

Witek, John. W., *Ferdinand Verbiest (1623-1688) Jesuit Missionary, Scientist, Engineer and Diplomat*, Jointly published by Institut Monumenta Serica, Sankt Augustin and Ferdinand Verbiest Foundation, Leuven, Steyler Verlag. Nettetal, 1994  
Verlag, Insel. *Europa und die Kaiser von China*, Berliner Festspiele, 1985. 389s: kus Eine Ausstellung der Berliner.

Xiaocong, Li. *A Descriptive Catalogue of pre-1900 Chinese maps seen in Europe*, 1996.

Yearly, Lee, H, *Mencius and Aquinas: Theories of virtue and Conceptions of Courage*, Albany: State University of New York Press, 1990.

Zungui. Zhen, *Zhongguo gudai tianwenxue jianshi* (Shanghai, 1955).

#### Websites:

<http://www.khsd.k12.ca.us/bhs/Perry/art%20vocabulary.htm#1>; accessed October 2006.

[http://www.economist.com/opinion/displaystory.cfm?story\\_id=4174199](http://www.economist.com/opinion/displaystory.cfm?story_id=4174199); accessed October 2006.

[http://www.manresa-sj.org/stamps/1\\_Verbiest.htm](http://www.manresa-sj.org/stamps/1_Verbiest.htm); accessed December 2006.



[http://www.economist.com/books/displaystory.cfm?story\\_id=5381851](http://www.economist.com/books/displaystory.cfm?story_id=5381851); accessed January 2007.

<http://www.hps.cam.ac.uk/starry/galileo.html>; accessed March 2007.

<http://www.lib.ncsu.edu/exhibits/tippmann/prelinn.html>; accessed March 2007.

<http://archive.nlm.nih.gov/proj/ttp/Gesnergallery.htm>; accessed April 2007.

<http://www.unicomlady.net/treasures.html>; accessed April 2007.

<http://www.livius.org/ct-cz/ctesias/ctesias.htm>; accessed April 2007

<http://archive.nlm.nih.gov/proj/flash/gesner/gesner.html>; accessed May 2007

Article- Smith, Richard. *Mapping China's World: Cultural cartography in Late Imperial Times*

<http://www.ruf.rice.edu/~asia/CartographyPaper.html>; accessed February 2006.

#### **Articles:**

Lovgren, Stefan. National Geographic "*Chinese Columbus*" Map Likely Fake, Experts Say. January 23, 2006.

The Economist Jul 14<sup>th</sup> 2005. *The admiral of what might have been*

The Economist, 12<sup>th</sup> January 2006 China beat Columbus to it, perhaps.

## Appendix 1: Conservation Report.

## Paper Conservation

### Condition Report and Treatment Proposal

**Museum:** Hunterian Museum

**Administering Body/Authority:** University of Glasgow

**Contact:** Dr Sally-Anne Coupar, Curator of Archaeology

#### Object name/title:

**Kunyu Quantu (A Map of the Whole World)  
by Ferdinand Verbiest, 1674**

**Museum Number:** E 289

#### Brief description:

**Type of work:** Map in two parts, showing the two hemispheres of the globe.  
**Support:** Joined sheets of Chinese paper, adhered overall to joined pieces of linen. The 'Americas' section has three joined lengths of paper, and the 'Africa' section has four. The widths of linen that are sewn together to form the backing supports are all 51cm wide.  
**Medium:** Black woodblock printing ink  
**Framed:** No. Presently stored rolled.  
**Dimensions:** One section of the map is approx. 1m 67cm H, x 1m 52cm wide, and the other approx. 1m 68 H x 1m 55cm wide. Neither section of the map is quite square, and the edges are not entirely straight. The two sections are quite creased, and after treatment to flatten them the dimensions may be slightly greater than those given here.

#### Introduction

This rare and important Chinese map appears not to have been previously displayed, and to have never received conservation treatment in the past. The map is required as an important element in a major redisplay at the Hunterian Museum in the autumn of 2006. The map is not displayable in its present condition, partly due to its damaged condition, and partly due to the need for a mounting method to be developed.

#### Present storage

The two parts of the map are presently stored rolled on a large diameter tube covered in silver foil. The tube is too short to fully support the length of the map sheets. This was pointed out to the curator at the time of the conservator's visit, and an undertaking was made to immediately acquire another longer tube to roll the map sections on before they were put back into storage.

#### Condition

Considering the age of the map, and the fact that it has been folded many times, and stored without wrappings, the condition of the two parts is quite good. The paper is on the whole only lightly discoloured and physical damages are quite limited, but there is considerable soiling. *Dark. sooty.*

- **Folding:** The two parts of the map have both been folded at least four times, giving a dimension of about 40x40cm for the folded sheets. Because the map was folded for many years the sheets do not now lie flat. The paper tends to be quite degraded and



broken along the folds that were outer-most, and where the paper was exposed to atmospheric pollutants and light. These areas have suffered a number of small losses.

- **Soiling:** Both sections of the map are badly soiled. The linen backings are the worst affected, with very heavy sooty soiling over half of one, and over a quarter of the other, and on the perimeter. On the front the paper is lightly soiled overall, and there is heavy soiling on some edges and folds. The soiling appears to be primarily from airborne soot, and is likely to be quite acidic in nature. The soot is not only chemically damaging to the object, but also very unsightly. At present there is a danger of the sooty soiling being transferred to other areas of the map when the object is handled.
- **Discolouration and foxing:** There is light overall discolouration of the paper. There are some small areas where the discolouration is more pronounced, and the paper is quite degraded. These tend to be where the paper has been exposed to light and atmospheric pollutants, and are on the perimeter, and some fold lines. Some of these areas are also characterised by foxing.
- **Tears, losses, and delamination:** Physical damage is quite limited, and tends to be in the degraded areas mentioned above. On the whole the paper is very well adhered to the linen backing. However in some places, often, but not exclusively so, along the fold lines, there is a degree of delamination. Where the paper is degraded and delaminated it is flaking off the linen support, and is very vulnerable to further loss.
- **Stains:** There are two very pronounced water stains on the 'Africa' section, and smaller lighter water stains on the 'Americas' section. The water stains have been formed by water that has fallen on the map washing the discolouration from the area affected, and carrying the discolouration to the edge of the wetted area, creating a tide line.
- **Fabric backing:** The condition of the fabric backing appears very good, apart from the heavy soiling, and it provides a strong physical support for the paper that the map is printed on.

## Tests

The soiling can be reduced using latex sponges. Even areas on the front of the map that are only lightly soiled look remarkably brighter after test cleaning with this method. The paper is too soft to be cleaned with any other type of eraser, as a rubbing action with even the softest textured eraser would damage the surface.

## Proposed mounting and display method

The two sections of the map were originally designed to be trimmed, and adhered together. There are writing-filled half oval cartouches at the top and bottom of both sections (on the right side of the 'Africa' section, and the left side of the 'Americas' section) that were designed to be joined to make full ovals in the centre of the top and bottom of the joined sections. For this reason it is imperative to hang the two sections side by side, with the half-ovals opposite each other.

After discussion with the Curator, and with Nick Pearce, lecturer in Chinese Art at the Art History Department of the University, it was agreed that the best mounting method would be to attach undyed and unbleached linen pole sleeves to the back of the top and bottom of both sections of the map. It was thought that a single long pole at the top and bottom would be preferred, rather than shorter poles, so that the two sections can be hung very close together. It was agreed that the conservator would make and adhere the pole sleeves to the fabric backing, and that the University technicians or designers would provide the poles. The poles do not need to be made of a particularly inert material, as they will not be in direct contact with the map. The poles may be secured to the wall with



either brackets of some sort, or hanging wires. The ends of the poles that protrude from the pole sleeves can be painted, or covered with fabric to match the wall colour. As the map sections will be hanging directly against the wall it is recommended that they are protected by placing an inert barrier material, such as Melinex, on the wall behind them.

The Curator expects the map will be displayed for a number of years. For this reason it is extremely important that the conditions of display are carefully controlled and monitored, to limit the risk of damage that could be sustained. It is recommended that the map is displayed in a show case, so that visitors cannot touch it, and so that atmospheric pollutants are excluded as far as possible. Light levels need to be kept at a low level. The black printing ink on the map is very stable, and not at risk of fading in light, but the paper will degrade in light over time, and as a result will become discoloured. The lower the light levels, and the shorter the exposure times, the less damage will be sustained. For this reason it is recommended that light levels should be kept to 50 lux (intensity), and that the ultra violet element should be below 10 microwatts per lumen of ultraviolet radiation. The map should be in darkness out of visitor hours.

### Treatment proposal

	Days
1. <b>Photographic documentation:</b> Photograph the front and back of both of the two sections with 35mm colour slides before and after conservation treatment.	.5
2. <b>Soiling reduction:</b> Reduce soiling on the front of the map using latex sponges, and on the back using brushes and vacuum suction, and latex sponges.	6
3. <b>Discolouration and staining reduction:</b> Reduce discolouration, foxing and water stains using local, and very controlled, aqueous treatment on the vacuum suction table. This treatment will have to be limited so that the paper is not over-cleaned in these areas compared to areas that are not treated in this way. Filtered deionised water will be used, with the pH raised slightly with calcium hydroxide or ammonia.	2
4. <b>Re-adhere paper fragments:</b> Delaminating and flaking areas of paper will be re-adhered to the linen backing using wheat starch paste delivered on very fine brushes.	1
5. <b>Pressing:</b> The areas of the map that do not lie flat will be humidified, and pressed between blotters under weights to return them to plane. Depending on the success of this treatment there may be some further need to humidify the areas of undulation after the pole sleeves have been attached and the map sections can be hung.	2
6. <b>Pole sleeves:</b> An appropriate unbleached, undyed linen fabric will be sourced, and pole sleeves sewn for the top and bottom of both sections of the map. These will be attached to the fabric backing of the map sections using Beva, which is a fully reversible conservation grade adhesive commonly used in painting conservation, and which is activated by heating the strips of adhesive placed between the two substrates to be joined. The pole sleeves will be made and attached in a way that allows the half-oval cartouches to hang directly opposite each other.	2
7. <b>Packing:</b> Pack the map sections for transit and temporary storage by interleaving them with acid free tissue, rolling them on the original storage pole, and wrapping them in Tyvek. The pole sleeves will not be thick enough to cause any problem in storing the map sections in this way.	
8. <b>Documentation:</b> Complete a written treatment report to document the treatment of the map.	
<b>Total:</b>	<b>14</b>

**Costs:** Estimated treatment time: 14 days @ 6.5 hours per day = 91 hours  
 91 hours @ £35.00 per hour = £3,185+ VAT  
**Materials:** 12 x 35mm colour slides, linen, smoke sponges, Beva, blotting paper, and various sundries: £120

Recommended storage conditions	Recommended display conditions
<ul style="list-style-type: none"> <li>• Rolled on a large diameter tube. The tube should first be wrapped in an isolating material, such as silver foil or Melinex. The sections of the map should be interleaved with acid free tissue, and the whole wrapped in a Tyvek covering layer. The tube should be clearly labelled with it's contents, and handling / display information.</li> <li>• Relative humidity: unfluctuating level between 45 and 65%.</li> <li>• Temperature: unfluctuating level between 16 and 20°C.</li> </ul>	<ul style="list-style-type: none"> <li>• Hang from poles, against a barrier protection on the wall, and in a showcase.</li> <li>• Limit display periods, for example to 12 months every 5 years.</li> <li>• Protect from light out of visitor hours.</li> <li>• Limit light levels to the region of 50 lux (Intensity) and 10 microwatts per lumen of ultraviolet radiation.</li> <li>• Relative humidity: unfluctuating level between 45 and 65%.</li> <li>• Temperature: unfluctuating level between 16 and 20°C.</li> </ul>

**Conservation Officer:** Helen Creasy

**Date:** September 2004

## Appendix 2: A Catalogue of a Curious Collection.



Red circle underlines found in  
Bayer MS ES catalogue

~~Printed 7-10~~

H2.63(1)

29-16

①

① Catalogue of a curious collection  
of rare Books, in the Chinese and other  
Indian Languages; collected by the late  
Learned Theoph. Siegf. Bayer, Prof.  
for of St. Petersburg, and now in the  
possession of M<sup>rs</sup> Gerdes, Widow of the  
late Learned Dr. Gerdes. At last in  
D<sup>r</sup> Hunter's Library.



1 Chinese Books.

405

✓ ① Bayeri Museum Sinitum, continens Rationes Linguae  
Ee2.1,2 Sinesium, cum Grammatica et Lexico, Sinice et Latine.  
2. Volumes 8.

2. Grammatica Sinica, in MS.

3. Bayori Miscellanea Sinica, cum figuris variis Sinicis.

4. Estii Astronomia Sinica, Sinice.

5 Alphabetum Siniticum. MS.

✓ 6 Zodiacus Sinicus.

7 Manuscriptum Siniticum.

✓ Hunter 1 ? ⑧ Ephemerides Planetarum, Sinice ab anno 1724 ad  
annum 1733. in XV Tomis.

9. Aliud Manuscriptum Siniticum.

Hunter 1 ? ⑩ Probationes Religionis Christianae missionariorum  
c/49 a Xaviero ad Thom. Peirier, cum Catalogo operum  
istius missionis, Sinice scriptus Liber.

✓ Hunter 42 ⑪ Tractatus Mathematicus Sinice scriptus cum variis fige

✓ 12. Confucius, eius doctrina, et moralium Liber.

Hunter 12 ⑫ Dictionarium Siniticum Manuscriptum, Perum 34

14. Delineatio Vocalium & per Totum Alphabetum.  
Sinice. NB. This is on a single Sheet.



15. Tabula Chronologica Historiae Sinicae.

Hudvms 10 (16) Globus Coelestis Sinicus aeri incisus cum Interpretatione. <sup>Bayr</sup> <sup>hand</sup>

17 Descriptio Ecclypsos Solaris, quae fuit anno Christi 1669, Sinice.

Hudvms (18) Parenini Lexicon Sinico-Latinum MS.

19 De Muris Imperii Sinici, Sinice et Latine. MS.

20 Liber Astrologicus Sinensis, aeri incisus valde Elegans.

21 Murus Imperium Sinicum separans a Tartaria magna.

22 Chronologia Sinensium, Liber MS.

1063 Hudvms (23) Danetii Lexicon Sinica conversum, Sinice et Latine.

Bayr E 991 (24) Lexicon Russico-Sinico-Manguaricum. 2 Vol.

25. Astronomia Sinensium.

26. Miscellanea Sinica MS.

27 Coegleri Liber Sinicus. Hudvms?

28. Grammatica Sinica.

29 Mezeri Manuscripta Sinica.

Ac 55 1078 (30) Bayerus de Ecclypsi Sinica ad tempus Crucifixionis Christi. Ms. There are 19 Copies in Quires.

31. Status Imperii Sinensis, nomina magistratum, Provin-  
ciarum, urbium, reddituum, Censuum &c. Sinice. 3. Vol.

32. Classica Sinica

1. Classis de Ceremoniis, continens Libros X. Sinice.

31. — 2 Classis Vetusstarum Historiarum, continens Libros IV.

(32) — 3 Classis carminum Vetusstarum.

33 — 4 Classis, continens Libros Sinicos XIV.

34 — 5 Classis, continens Libros V.

35 — 6 Classis, continens Libros VI.

36 — 7 Classis, continens Libros V.

37 — 8 Classis, continens Libros VI.

38 — 9 Classis, continens Libros V.

39 — 10 Classis, continens Libros VIII.

40 — 11. Classis, continens Libros VI.

41 — 12. Classis, continens Libros II.

42 — 13 Classis, continens Libros VII.



- 6 ✓(38.) Lutheri Enchiridion, Arabice. Negri's translation (MS?) (5)
39. Alphabetum Samogeticum. &c.
40. Officium Jacobitarum Sacrae Hebdomadis.
- 10 41. Gasparis de Mabas Rudimenta Linguae Syriacae.
42. Manuscriptum continens Aegyptiaca, Scythica, Indica, Sinica. Latine.
43. Manuscriptum Turcicum.
- rest of 305 ✓(44.) Waltheri Doctrina Temporum Indica. U. 6. 23
45. Oratio Dominica in variis scripturis et linguis Indicis.
46. Manuscriptum Turcicum. A single Sheet.
5. 47. Manuscriptum Sinicum. A single Sheet.
48. Catechismus in Lingua Hemdostrica. Half a Sheet.
- MS ✓(49.) Coptica quadam a Lectionibus Maturini Vysesioe MS.
50. Mezeri Ordo baptizandi &c. Rituum Chaldaeorum. A single Sheet
51. Severi Patriarchae Ordo Baptismatis sancti. Syriacae.
52. Iohannis Grammatici Gazaei Mundani Tabula, Antiochia Descriptionem continens. Lugd. 1618.
53. Collectio Liturgiae, aliorumque Opusculorum, in Lingua Chamchesue, cum Grammatica et Lexico.
- ✓(54.) Liber in Lingua Wendica. (Eb 2. 1?)
55. Liber Formularum Epistolarum elegantium scribendarum Turcice.
56. MS. Bayeri Libri ejusdem Samoetici.
57. Historia Tartarica: Manuscriptum Germanicum ex Lingua Tartarica translatum.

### III. Alia Curiosa.

- ✓(1.) A Collection of Several Manuscripts upon Palm-Leaves, made up in Tally-Boards.
2. Velferi Tabula Itineraria, upon Roll, several Yards long.
3. Tabula Russica. Several Yards long.
4. 17 Large Maps, Chinese. Eighth Sheets each.
5. 11 Parcels of Chinese Beads.
6. A Map, containing the Provincial Names of China.
7. XII. Heads of ancient Romans, in Copper, curiously made, and very neat.



- fo 33 11. Homiliae Papae Clementis in Dominica Resurrectionis. (4)  
 12. Malabarica descripta, 1717.  
 13. Liber Scripturae Balabandi in Charta Indica.  
 14. Damasceni Nota Musica Russica.  
 15. Commentationes De Cinnis Veterum.
- fo 44 16. Stumpfii Compendium Actorum de annis 1715-16-17.  
 17. Tabula exhibens Linguarum Variarum Affinitatem.
- ✓ 18. Oratio Dominica, in Linguis variis Indicis. ✓ S. 8. 7  
 19. Ruchenismus in Nuce.
- fo 48 20. Epistola Pauli ad Galathas, et Sex primaria Capita  
 Christianae Religionis, cum Compendio Grammaticae, MS.
- fo 51 21. Bayerus, De Litteratura Malabarica. MS.  
 22. Abulghafii Bahadori Genealogia. Turc. & Lat.  
 23. LIV. Dynastia Sinica.  
 24. Alphabetum Brachmannica  
 25. Historia Sclavonia MS.  
 26. Historia Ecclesiastica Orientis.  
 27. Commercium Epistolicum. Lat. MS.  
 28. Genealogia Dalmatana  
 28. Alphabetum Chiremdam &c.  
 29. Geographia Orbis Terrarum.  
 30. Schulzii Versio Librorum Missionariorum Danorum  
 Madrasiae 1726.
- ✓ 31. Nomina varia Chronologica ad Doctrinam Temporum  
 Indicam pertinentia, Lingua & Scriptura Gerundica  
 Chiremdam. (Palm leaf book)  
 32. Alphabetum Brachmannicum, Tangutanum,  
 Mongolicum &c.  
 33. Idem, sine Titulo.  
 34. Miscellanea Tangutana & Mongolica.  
 35. MS. Turcicum, sine Vocalibus, de variis Cerimoniis.  
 36. Liberalius Turcicum.  
 37. Liber Tangutanus. ? P.L. 2



H20 (2)

(3)

42. *Formae variae scribendi Linguam Sinicam.*
- Hunter 108 (43) *Sanctae Legis Preces quotidianae. Sinice 3. Vol.*
- Hunter 12 (44) *Brankati Catechismus in Lingua Sinica.*
- ✓ (45) *Riccus, de Dei operatione et excellenti Potentia. Sin. 2 Vol.*
- (46) *Liber Sinicus contra Sectas Idololatrias.*
- ✓ (47) *P. Verbius, Catechismus Sinicus de Necessariis Legis. 2 Vol.*
- ✓ (48) *Buglii Liber Precum Sinesium. Vol. 3.*
- ✓ (49) *Catalogus Patrum, qui in Imperio Sinarum Christi fidem propagarunt. Sinice.*
50. *Discursus Miscellanei a Confucio et ejus Discipulis. Sinice.*
51. *Descriptio Ecclesiarum Lunarium et unius Solaris, nempe*
- |    |  |          |
|----|--|----------|
| 52 | 1. Lunaris, quae accidit Jan. XIII. anno Christi 1721. | } Sinice |
| 53 | 2. ——— Apr. XVI. ——— 1726                              |          |
| 54 | 3. ——— Dec. XIII. ——— 1731.                            |          |
| 55 | 4. Solaris, ——— Dec. XXIX ——— 1731.                    |          |
| 56 | 5. Lunaris, ——— Jan. IX. ——— 1732.                     |          |
56. *Psalmorum Davidis Versio Arabica in Litteris Sinicis* <sup>Tharsum / Syriacis</sup>
57. *De Variis Provinciis Sinesibus MS.*
58. *Idolum Sinicum, coloribus depictum. (Thibetum)*
59. *Petrus Figelius Alan, De Existentia Dei. Sinice.*
- 60-81. XXII. *other Chinese Volumes.*
82. *Another Single Sheet in Chinese.*



## II Other rare Books and Manuscripts.

1. *Alphabetum Kirendomis Gireben.*
2. *Sacra Scriptura, Lingua Haeco - Brachmannica.*
3. *Sacra Geographia Orbis Terrarum & Sacra Chronographia.*
- 2.1 Hunter ✓ (4) *Novum Testamentum in Lingua Dumulica, Tiegenbalgi.*
- 62.2 (5) *Historia Ecclesiastica, Tamulice. Franquebarae 1735.*
- 4 V. 8. 18 (6) *Alcoranus, MS. Arabicum.*
7. *Manuscriptum Graecum Antiquum.*
8. *Miscellanea Arabico - Turcica*
- 16 1. ✓ (9) *Officium Sanctae Hebdomadis Jacobitarum, MS. Syriacum*
10. XII. *Tabulae, in quibus omnes Litterae et Syllabae Scripturae Mandarenfium continentur. MS.*

### Appendix 3: The Location of Verbiest's Maps.

## **The Location Of Verbiest's Maps**

**The *Kunyu Quantu*, 1674**

### **Australia**

**The National Library of Australia, complete copy.  
Painted wood block on silk.**

### **Britain**

**The British Library, London, Maps 183.p.41.: Map of the Eastern Hemisphere from Complete Map of the World. [*Kunyu Quantu*].**

**The Hunterian Museum, the University of Glasgow: Map of Eastern and Western Hemisphere along with addition eight cartouches.**

### **China**

**Nanjing Museum, Nanjing. Complete copy.**

**Palace Museum, Beijing. Complete copy.**

### **France**

**Bibliothèque nationale, Paris. Complete Copy.**

### **Italy**

**The Vatican City Library. Complete copy.**

**Biblioteca Marciana, Venice. Complete copy.**

**University of Bologna. Uncomplete copy.**

### **Japan**

**The National Museum, Tokyo, Japan. Complete copy.**

**Sweden**

**The University of Uppsala, Sweden. Complete work.**

**Taiwan**

**The National Palace Museum of Taipei, n°06-462:8 scrolls.  
Complete work.**

**United States of America**

**The Library of Congress, Washington D.C.: complete work.**

**Plates Section**



Plate 1

Ferdinand Verbiest with his Celestial Globe.

Ferdinand Verbiest, is shown dressed as a Chinese official in this mid-nineteenth century Japanese print. Also shown are his sexton and celestial globe. British Museum, London.

關水帝傳嘉賓人並圖

智多星吳用

東溪村の人

号して字は吳學究道

号を加流先生といふ

陣法は孔明太公望より

不劣陰謀死生

亦も勝るなり

梁山泊乃

軍師なり

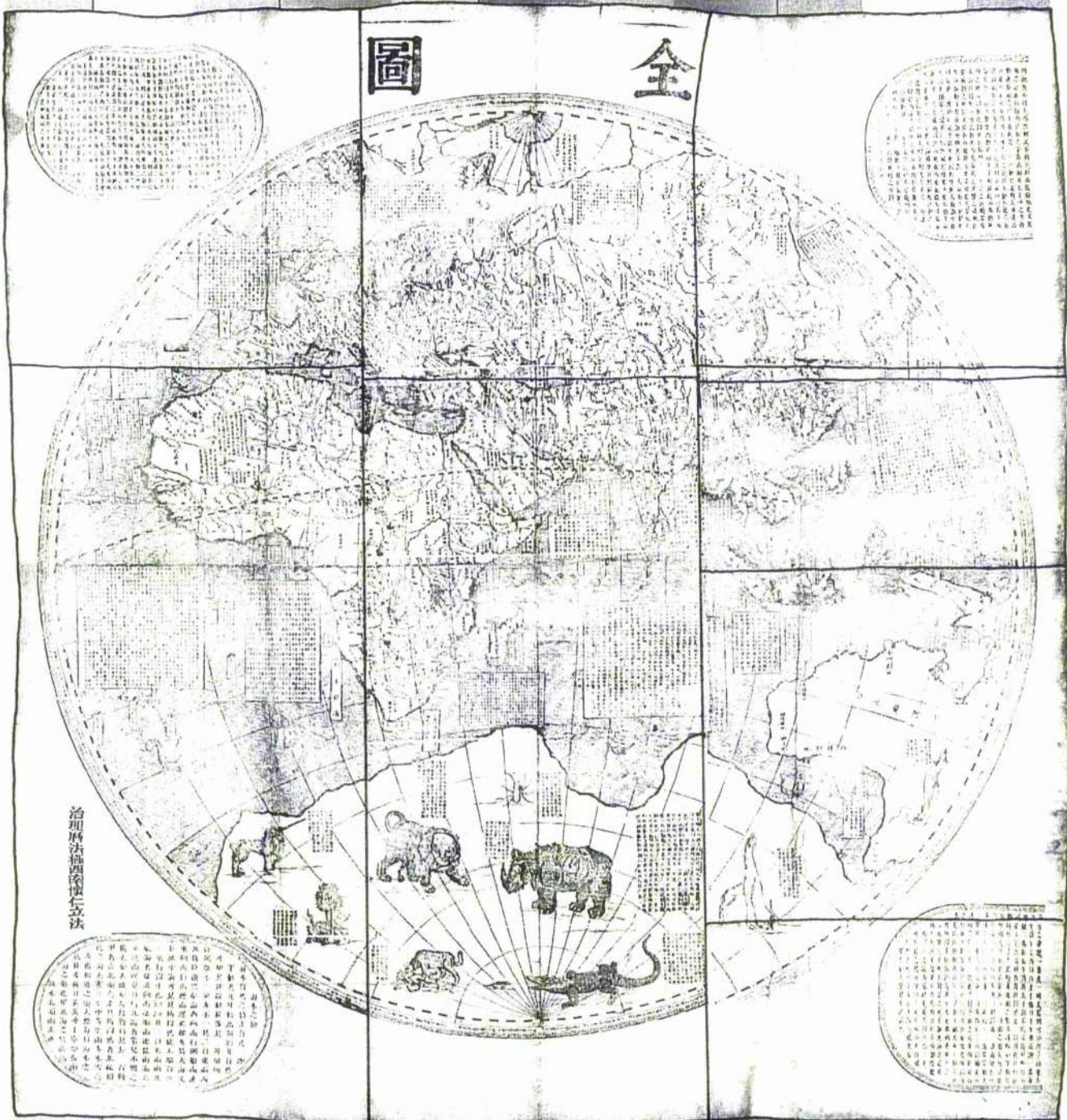
一勇斎  
國芳

Plate 2

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of paper sheet size Africa Hemisphere.  
Image taken by Harry Metcalf, Conservator.



# 全圖



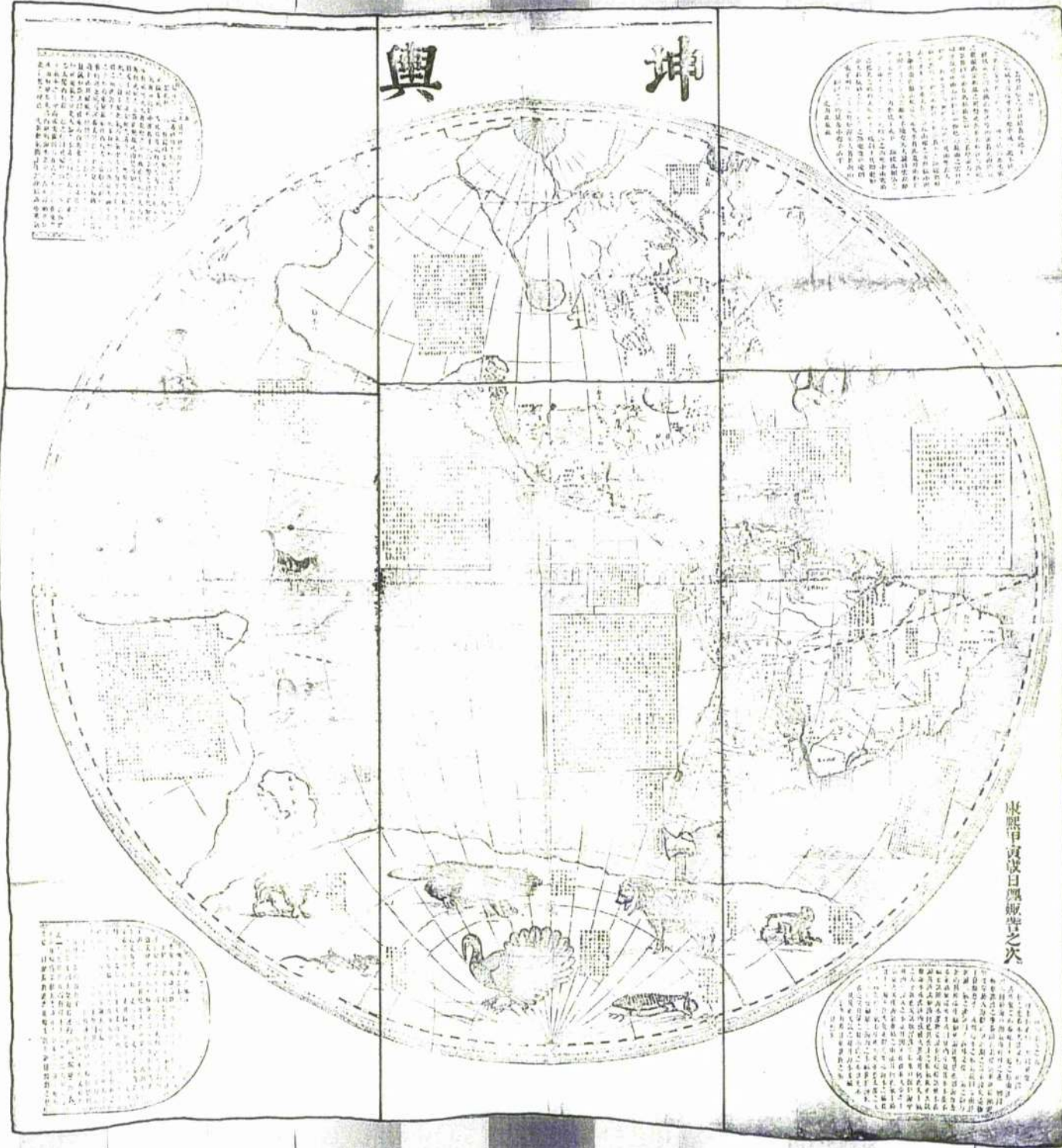
治理海法

Plate 3

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of paper sheet size Americas Hemisphere.  
Image taken by Harry Metcalf, Conservator.



# 坤輿



康熙甲寅歲日御覽之天

Plate 4

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of woodblock size Africa Hemisphere.  
Image taken by Harry Metcalf, Conservator.



全圖

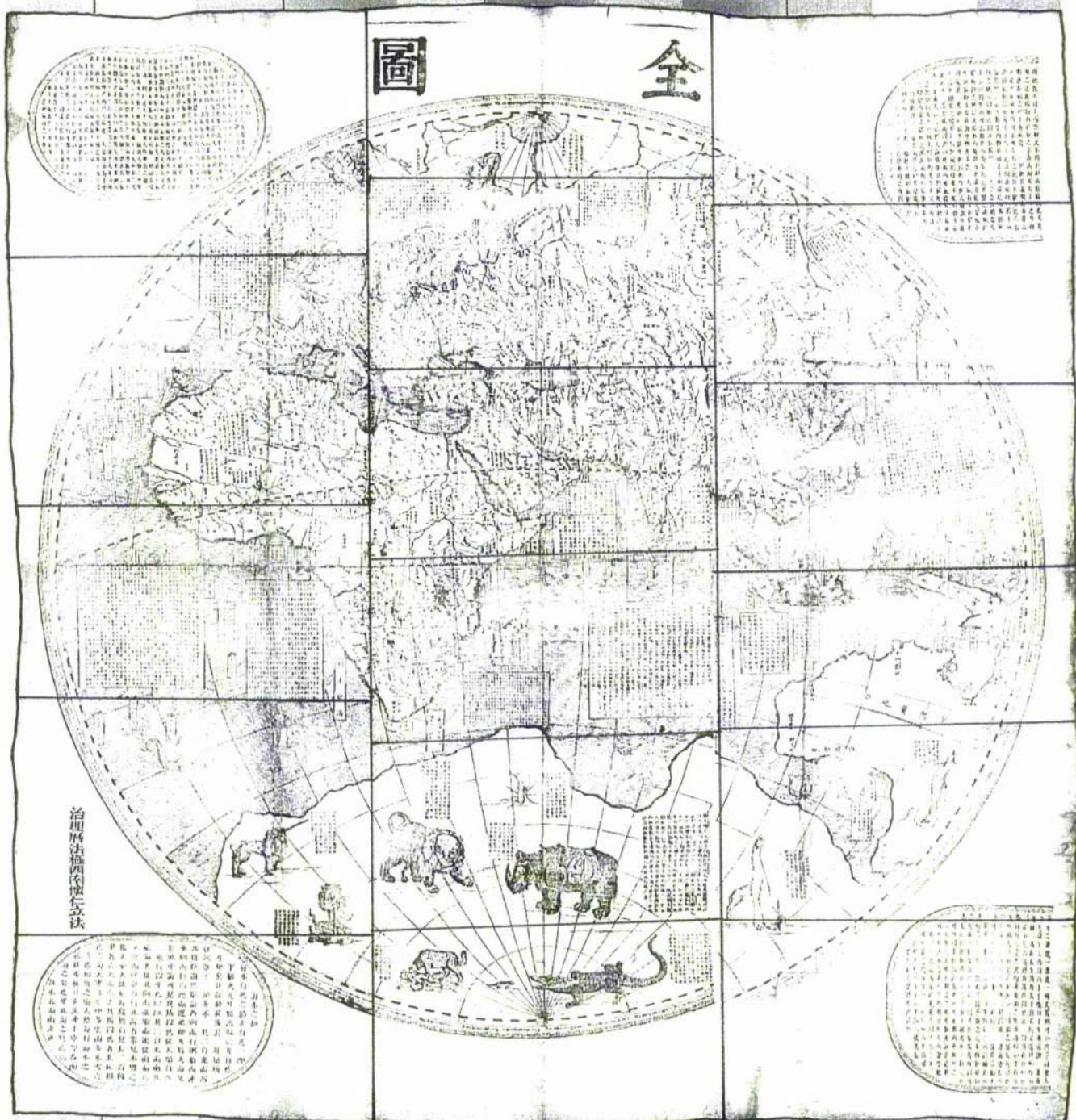




Plate 5

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of woodblock size Americas Hemisphere.  
Image taken by Harry Metcalf, Conservator.



Plate 6

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of two additional scrolls that have been mounted together. There are a further four cartouches on each and which would have hung on either side of each hemisphere. All eight cartouches provide further descriptions of natural phenomena of the world.



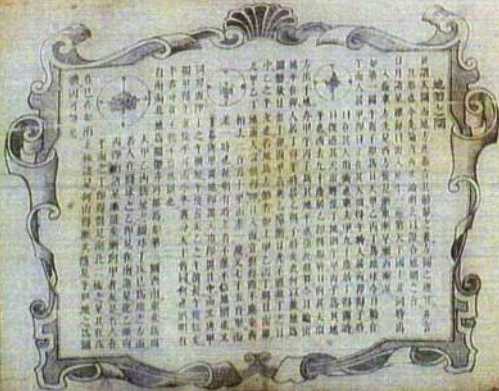
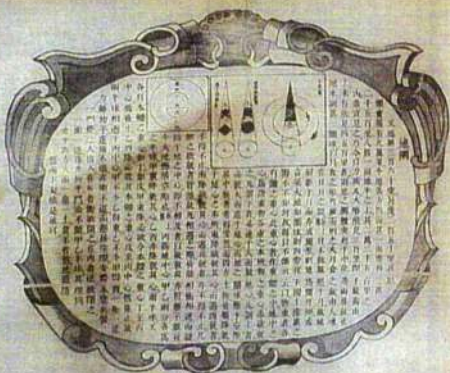
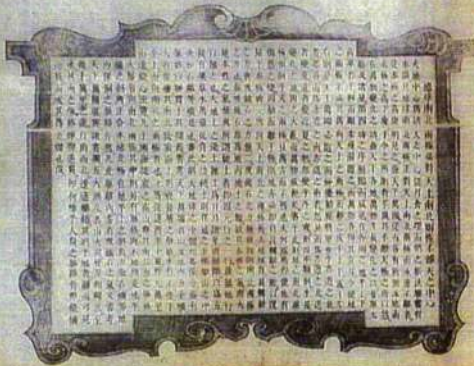
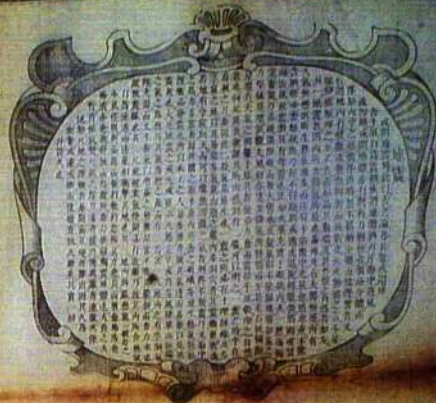
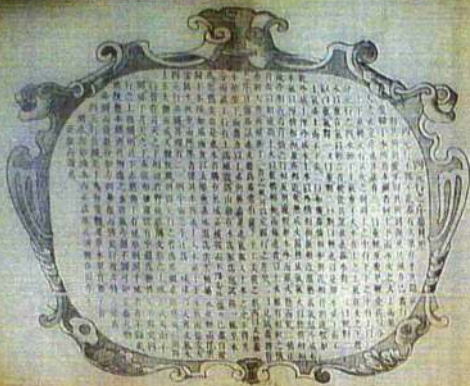


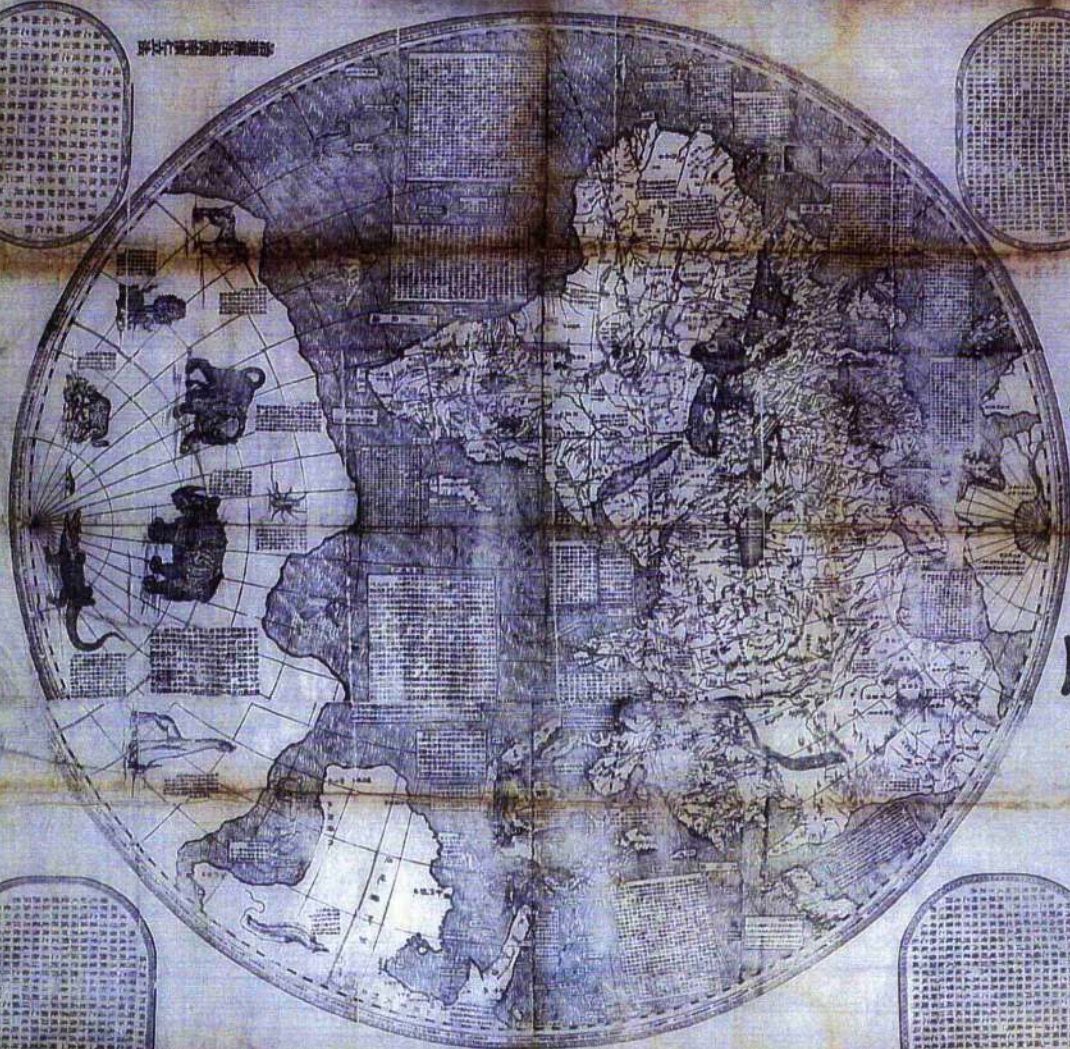
Plate 7

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of 3rd Scroll.



圖

全



海國圖志卷之五

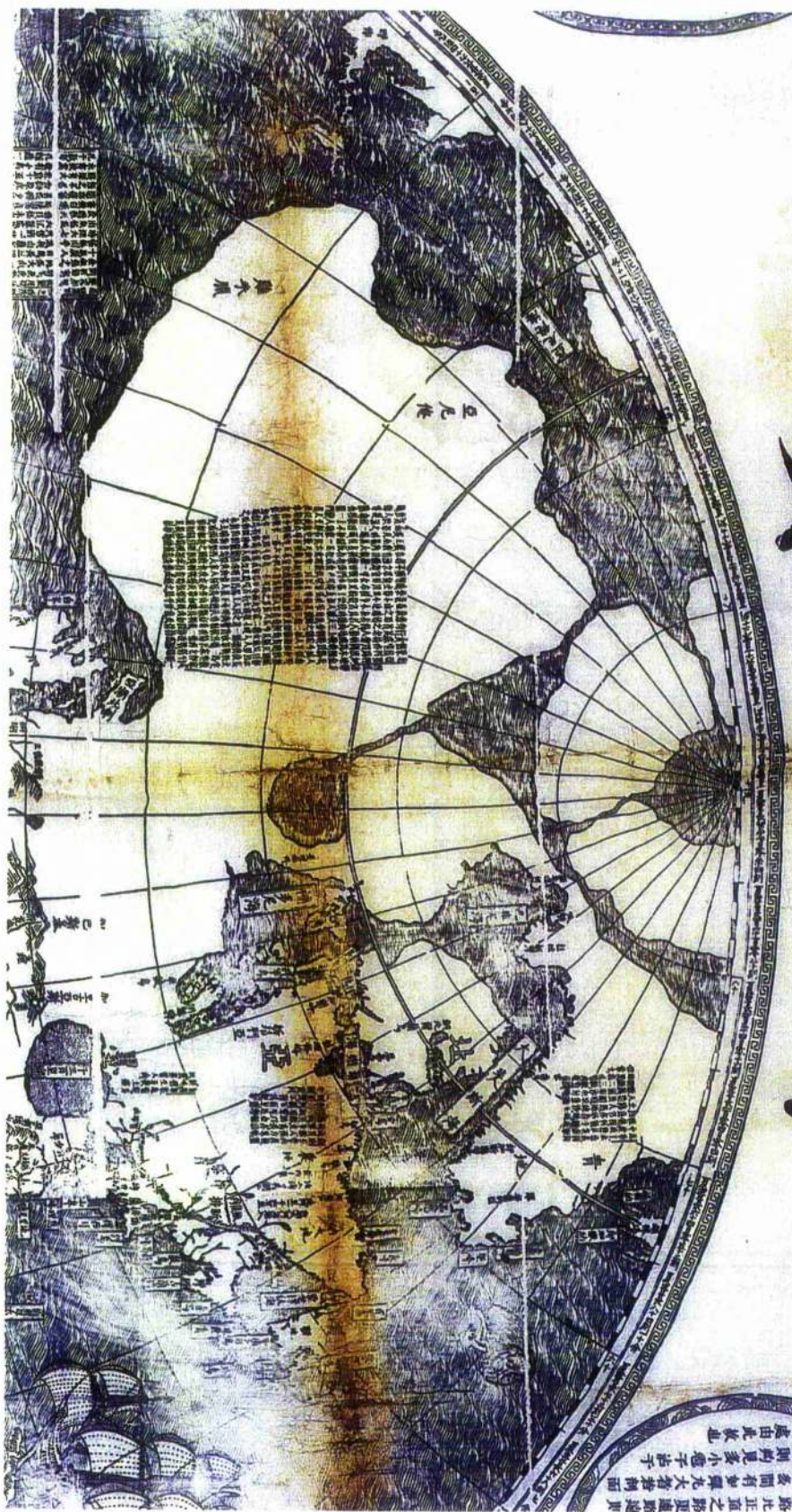
Plate 8

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of 6th Scroll.



興

坤



重大基模斜之路正直之路東通西通  
經子細沙之多間有少與大者相兩面  
細觀之則約見多小電子站于  
一處由此故也



Plate 9

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of complete top left cartouche on Africa  
Hemisphere.

古或以氣無色不屬五行疑爲無有此說大謬可証者有曰無氣則天內空矣地何以懸居於中萬物何以得生日月星蓋得外光或以隱德養育萬生乎蓋避世得相濟相保空虛是所大忌避禽鳥無所賴則不能飛翔者以翼御水而得浮也三日風寂時人以翼趨御水而有物觸之者然是非氣而何四曰人轆定有聲響凡彈射皆然夫聲從二物若空中相對開閉此一門則彼一門亦若空中非有氣必無他物以生聲矣五轆定有聲響凡彈射皆然夫聲從二物若空中相對開閉此一門則彼一門亦若空中非有氣必無他物以生聲矣六曰室中急行其窓之窓及諸係懸之轆物物氣而何六曰室中寂靜無風見隙影內上下所謂野馬者何也必氣使之然矣証有氣乎至其變幻莫測則因小大應耳非難明也氣惟實有而萬不可無一息之功一則以運天光物像及人物聲形物所發之係諸體所出之聲無所懸於所寄至而實存其所包含內物之體無色體可見遂謂之無則彼風聲臭味物之魂諸不屬人目者悉當謂之無乎不及者有理之內目可及也夫氣厚下三城上城近火近火常熱下城近水太陽所射足以發煖故氣亦煖中城風雨所不至氣甚清居下爲中城雨雪所結自此以下爲第其寒煖之分處又有厚薄不北二極之下因遠太陽則上下煖處厚若赤道之下因近太則上下煖處厚中寒處薄以是知氣城之不齊也

曰無氣則天內空矣地何以懸空而  
居於中萬物何以得生日月星辰何  
以運行外光或以隱德養育萬生乎蓋物惟  
庶得相濟相保空虛是所大忌避也二聯  
鳥無所類則不能飛飛者以翼節氣如人用  
水而得浮也三曰風寂時人急趨走則前面  
物觸之者然是非氣而何四曰人向空中揮  
有聲響凡彈射皆然夫聲從二物相擊而生  
中非有氣必無他物以生聲矣五曰室之  
門相對開閉此一門則蔽一門亦動又人在  
急行其室之紙及諸條風懸之轆物亦動非由  
何六曰室中寂靜無風見墮影內塵埃滾比  
所謂野馬者何也必氣使之然矣數端不足  
氣乎至其變幻莫測則因小大應感之不一  
難明也氣惟實有而萬不可無一則以資宿  
功一則以運天光物像及人物聲音之跡一  
存火水等類之性蓋氣一缺則人物之呼吸  
而內心火及其生機并滅又上天所射之光  
所發之條諸體所出之聲無所憑據無由至  
當至而實存其所包含內物之體也若言氣  
體可見迷謂之無則彼風聲臭味及鬼神人  
魂諸不屬人目者悉當謂之無乎夫外目所  
者有理之內目可及也夫氣厚分有上中下  
城上城近火近火常熱下城近水土土常  
陽所射足以發煖故氣亦煖中城上遠於天  
達於地則寒各城之界由何而分以絕高山  
界上為上城風雨所不至氣甚清人物難  
下為中城雨雪所結自此以下為下城矣  
第其寒煖之分處又有厚薄不等若南  
北二極之下因遠太陽則上下煖處薄以  
中寒處厚若赤道之下因近太陽

設分十六道學使四萬餘戶地方  
有兵共學使四萬餘戶地方  
晉王主之每王與自金院摩  
有都人共五十五處則東財  
道是豐州則建州一萬五千里  
一十一處乃王主六處則大  
身巧乃王主六處則大

Plate 10

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of complete bottom left cartouche on Africa  
Hemisphere.



# 法

## 海木之動

海木自然之動止有其一卽下動也凡外動爲強則非自然可知矣其強動甚多其外風所發風旣不一動亦不一其二自東而西凡從歐邏巴航海西向而行則順而速東向而行則逆而遲此動非特大海又於地中海可見其所以然從太陽自西而東行以生焉飄颻其三自北而南凡航海者從北向南必順而速從南而北必逆而遲夏月行北海者常見水塊之廣大如大城如海島曾有見長三百餘里者從北而南流其所以然者北極相近之海大寒比季中多雲雨多冰雪與赤道相近之海大熱每日海水之氣甚多被日薰蒸冲上空際蓋南海之勢處卑北海之勢處高故水北而南流也

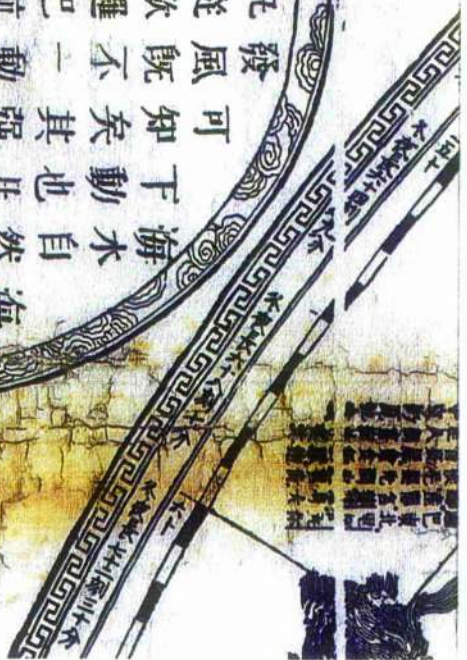


Plate 11

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of uncompleted top right cartouche on Africa  
Hemisphere.



所抵既不得上。而性輕又不得下。則必致橫飛也。又其  
飛之速遲強弱。由於氣之聚寡清濁。及其上冲之力與  
勢也。蓋氣之冲上者疾急。一俯即扼其退飛亦必速迅。  
由是可知風飛時。其前後左右之氣。無不動而隨之者。  
是以氣動爲風者。亦必有故也。或問旋風何。若上所  
論乾熱之氣。入數雲內。復各爆出。遂相撞結。因各隨所  
向之地。互相推逐。以成旋輪。譬之川水。其急流時。忽值  
山石阻遏。無由可出。卽圓而爲旋窩也。又譬之諸風。凡  
從廣潤之地。歸入隘巷而無路可出。必回旋矣。是風在  
平地。值物多起。在海中。值舟多沉。夫風有多利。姑舉  
四端。其一。拂動近氣。令就平和。以利呼吸。人與諸生。緣  
此以免閉塞之傷。蓋近氣無風。則積聚不散。自傷生命。  
故也。其二。帶雲成雨。以滋內地。蓋內地氣微。旋生旋滅。  
力不足成雲雨之功。惟大海廣受日照。猛起淫熱之氣。  
乃蓬蓬勃勃。升至中域。太陽返照。光力不及之際。遂  
變熱而涼。先結成雲。漸散成雨。然使無風帶入  
內地。則淫氣所成雲雨。復歸初升原處。何緣  
利內地之人乎。其三。燥地所餘潮氣。旋生。動  
物。速熟。諸果。其四。助舟楫之力。以  
通貨財。以利天下是也。



Plate 12

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of uncompleted bottom right cartouche on  
Africa Hemisphere.



基月之帶。一晝夜一周。天其間可分四外。自東方至午。留午至酉。自酉至子。復自子至東。而潮一晝夜。發二次。卯長午消。酉長子消。若隨處隨時。略有不。同。是不足為論。則有其所以然也。二日月與日相會。對有近遠之異勢。亦使潮之勢或殊。假如望時。月漸大。月漸虧。而潮漸小。三日。潮之發長。每日連。刻必由於月。每日多用四刻。以成一週。而返原所。月之本動。從西而東。一日約行十三度。從宗動天。之帶動自東而西。必欲一日零四刻。方可以補其所。逆行之路。而全一週也。四日。冬時之月。多強於夏時。月。故冬潮掣裂於夏潮。五日。凡物屬陰者。微以月為主。則海潮既由溫氣之甚。無不聽月所主持矣。即月所以主持海潮者。非惟光也。蓋潮會時。月之下面無光。至與吾對足之地。亦無光。海當足時。猶然發潮不息。則知月尚有他能力。所謂隱德者。乃可通遠而成功矣。是月以所借之光。或所具之德。致使潮長也。如磁石招鐵。玻璃珀招芥。然或生多氣于海內。使其發潮也。如火使鼎水沸溢然。



Plate 13

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of completed top right cartouche on America  
Hemisphere.

雨雲

雲乃濕氣之密且結者也地水

之氣被日曝暖冲至空際中域一遇本域

之寒即棄所帶之熱而反元冷之情因漸奏密

終結成雲則或薄而稀或厚而密者又由於氣

之乾濕清濁相勝之異勢也薄者輕浮易爲風所

散散難以成雨是爲枯瘠無益之雲若厚密者多含

潤澤故易化雨而益物則雨無他乃施雨之雲耳凡

初雨之時必濃濛而細漸而近地則其雨點愈大矣

蓋雨落時多細微雨點彼此相沾若下之路遠則相

沾之更多而加重大故山頂比山根之雨點微小因

雲離山頂近離山根遠故也又冬月比夏月雨點微

小因冬月天冷時雲離地不遠夏天大暑日雲高離

地更遠然雲遠則雨點從上而下一路彼此相沾之

多而加重大雲近則路短而相沾之雨點小雨電時

亦然若當時有大風電子而橫斜下其體更加

重大橫斜之路比正直之路更遠路遠則

電子相沾之多間有如彈丸大者若剖而

細視之則灼見多小電子沾于

一處由此故也



Plate 14

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of completed bottom right cartouche on  
America Hemisphere.



# 之天

或問潮汐之爲

理者何也曰一則以免腐

朽之患蓋水久注必朽一則以

清外聚之所蓋地上不惡之積由江

河而歸於海乃潮長復發吐之也一則以

輔航漂渡之事蓋潮長則從海易就岸潮退

則從岸易入海觀此知海潮之益不淺矣造物

主豈無意乎

或問海水之鹹曷故曰多由於

乾濕二氣之滲註曰凡滋味必從二氣之滲乃

乾而甚燥必生鹹如灰潮汗等是也則海既含

多氣或風從外至或曰從內生故其水不能不

鹹也試用海水濯物必溫和乾燥較諸他水爲

濁其沾濡如油何也其含土之乾氣故也又試

觀海水或流沙內或被火蒸必甘何也失土氣

之大分故也又試取浮薄空器塞口沉於海中

其內所浸入之水必甘因水從微孔入少帶土

氣故也又從海氣聚結之雨必甘何也氣上時

其土之潤多墜失故也觀此多端海水之鹹從

土極乾燥之氣而生也明矣雖然太陽之立

炎亦能致鹹驗之海面之水鹹甚於海底

者近受日暈之射而底之水日光不

及故也又試之夏月海水多鹹

形冬月益日輒甚近之所

使然矣

不鮮  
中其  
下其

Plate 15

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of uncompleted top left cartouche on  
America Hemisphere.



風

夫風之本質乃地所發乾熱之氣有多  
端可証一試春秋時多風何也是時空際多  
聚乾熱之氣二曉晨時多風何也日出而升  
必攝多氣三雪化時多風何也雪內多有乾氣是  
氣將分別於冷溼故生風四空際忽見火色知後  
必有風何也火者乾熱之氣所致也五風愈大而物愈  
燥何也風之元質乾熱故也由是可知空際之氣雖動  
時或生風亦能如風之清涼人物然其實與風不同則  
風之元質多屬乾氣而乾氣中或亦有溼氣參之故春  
時之風與海上之風多致物朽可以為驗大海中黃道  
之下恒有東風故船往西行者必宜順風則行而疾如  
東行則逆風而遲蓋太陽從冬至迄夏至輪轉恒行黃  
道下而其爆燠不絕照於空際正對之氣今之冲上然  
其故恒隨太陽從東而西則東邊之風氣必後隨之而  
恒補前氣之缺矣大海之水亦然恒隨太陽從東而西  
蓋太陽西行無一息之停以其爆熱恒照而吸西海之  
水氣今之上冲而成雲霧因而在西之水面比在東之  
水面恒卑蓋東高西卑則海水從東而西流以補其缺  
此自然之理也夫乾熱氣騰上至於山域為冷寒氣

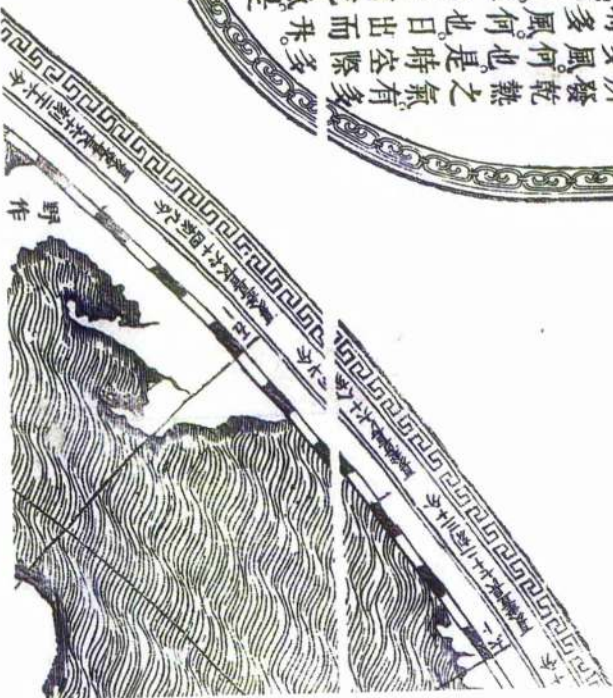
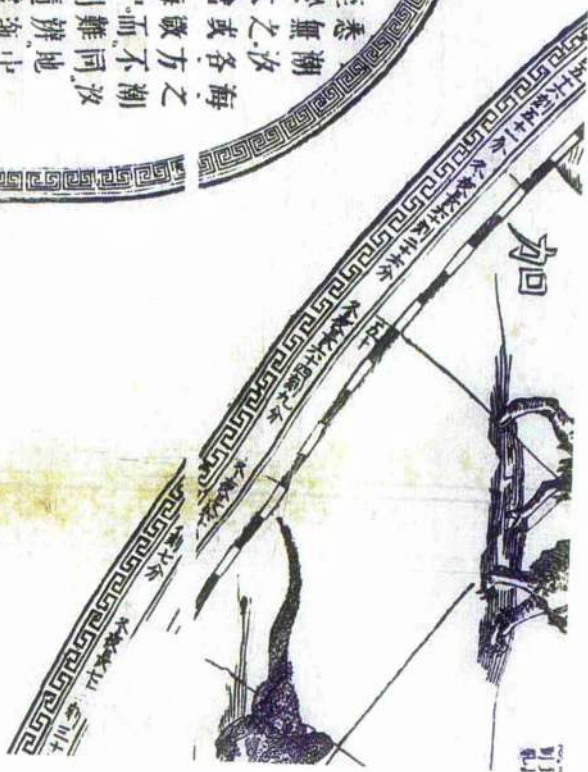


Plate 16

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of uncompleted bottom left cartouche on  
America Hemisphere.





海之湖汝各方不同地中海連北連西或  
 悉無之或難辨連南連東則有大  
 至於大濬海中則隨處皆可見也第大  
 連長短各處不同近岸見大離岸愈遠潮愈  
 微矣地中海潮水極微又呂宋國莫路加等處  
 不過長二三尺若其他如大西拂蘭第亞國湖水長  
 至乙丈五尺亦有一丈八尺至二丈之處安理亞國  
 隆第諾府現長三丈其國之他處長至五六丈阿  
 利亞國近滿直府長至七丈近聖瑪諾府間長至九  
 丈此各方海潮不同之故由海濱地有崇卑而曲之  
 勢海底海內之洞有多寡大小故也况月之照海各  
 方不同叫上所成功亦不能同其長退之度或每以  
 三候或長以四候或具長極速即騎馳猶難猝脫則  
 一候倏施覆四百餘里而又一候倏歸本所又始起  
 長之時亦不同大槩每日連約四刻朔望一  
 更入管推其故而有得于古昔之所謂者則以海  
 潮山月輪隨宗動天之運也古今多宗之其正驗有  
 多端一日潮長與退之異勢多隨月顯隱盈虧之勢



Plate 17

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of a fleet of three barques on the South Seas.

亦然。奠數月小石子，亦精敏。復飾重寶，夜中光照一室。其國都達萬餘里，一更三日夜可達二千。里人悟良善，任意可取，故無竊盜。貪吝，但德理義，往時惡俗，如殺人祭魔，驅人殉葬，解者，其間有最醜惡地，上產有最毒蛇，人犯必死，不敢下之。外，凡天下方言，過十里，必鐵府，不立文字。一切政教號誦兵士，不過數言，無不感激。流涕，願效。

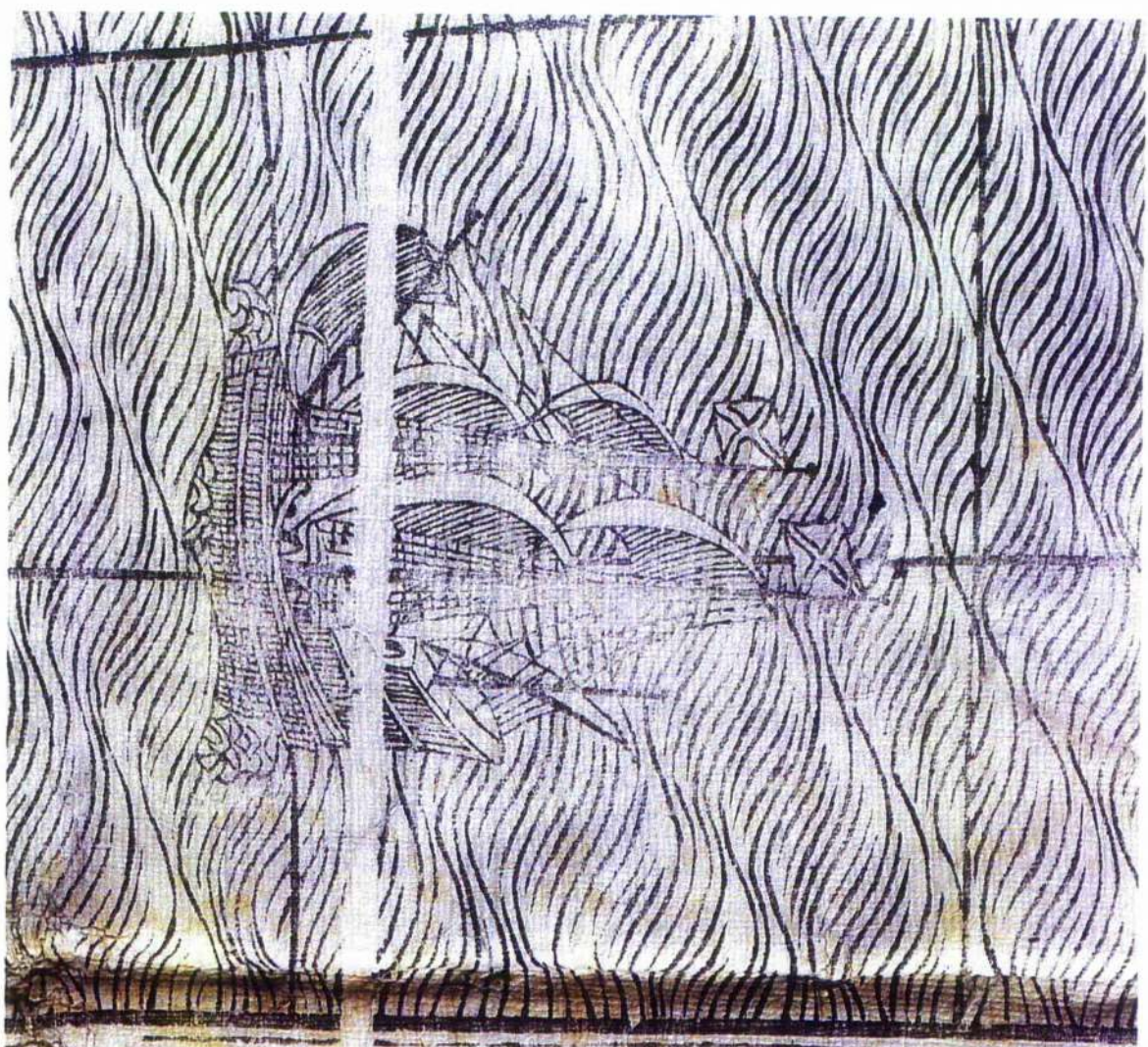


Plate 18

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of a fleet of three barques on the South  
Seas







Plate 19

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of a fleet of three barques on the South  
Seas



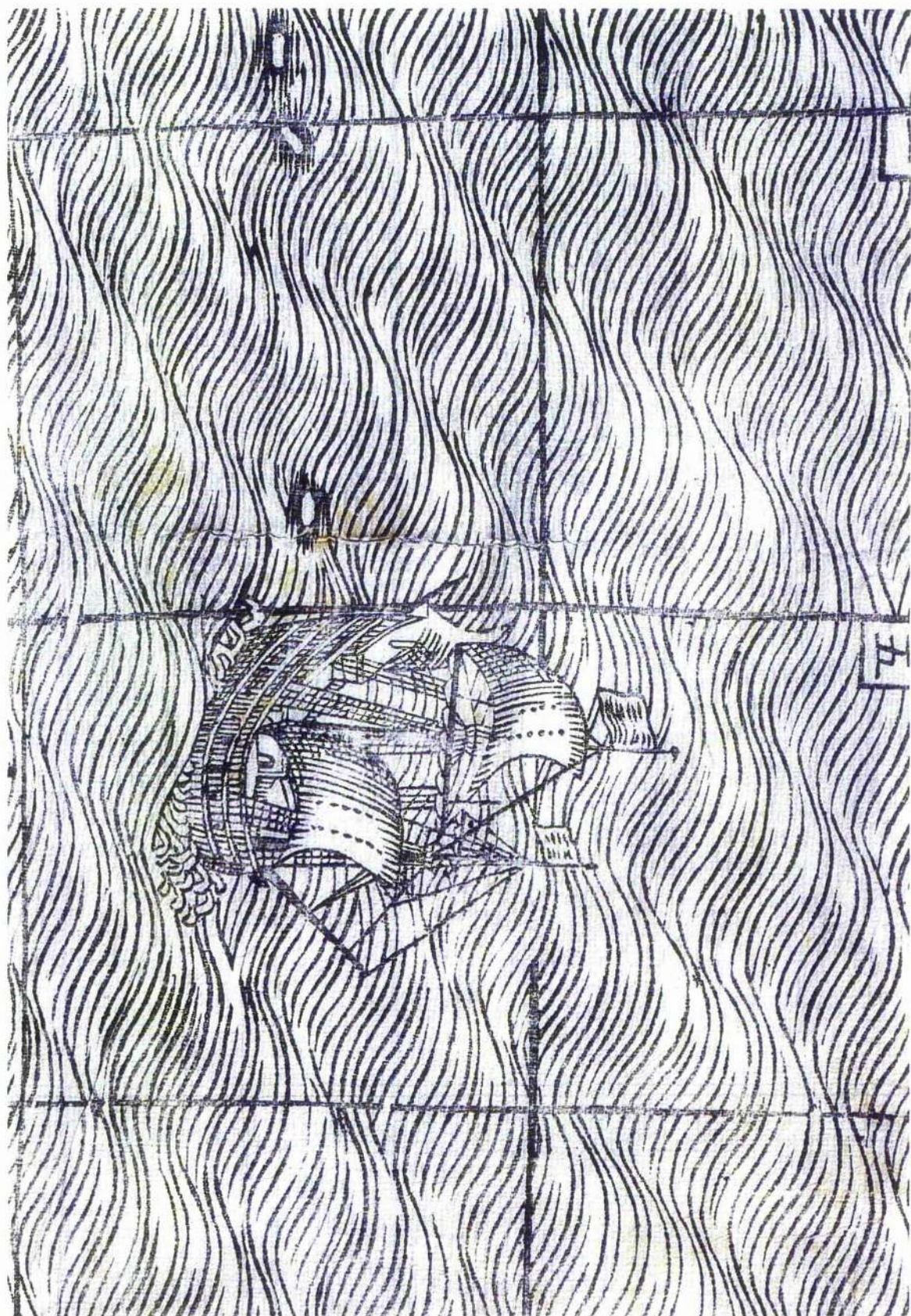




Plate 20

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of an isolated ship sailing out of the east  
coast of North America on its way back towards  
Europe.





Plate 21

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of cartouche describing a Lunar Eclipse.

地圖

又地闊三百六十度。每度一百五十里。其間  
圖實獨有九萬里。今地為方四面。其一而應得二  
二千五百里。人居一面地平之上。其二萬二千五  
內。並宜見之。乃今目力所及。大略能見三百里。即  
上。未有能見四五百里者。則地之圓體突起于中。能遮兩界故也。  
地水同為一圓球。以月食之形可推而明之。夫月食之故。由大地  
在日月之間。動上日不能施照于月。故地  
射影于月面。亦成圓形。則地為圓可知。或  
言果大地如圓球。則四旁在下。土土窪處之  
有水。不知何故。每以不傾云云。曰。物重者。各  
有離之重心。此重心者在重體之中。地中之  
心。為諸重物各重之本所。物之重心悉欲就  
之。凡謂下者。必達于天。而致地心。凡謂上者。  
必就天而遠于地心。而地之圓球。懸于空際。  
居中無著。常得安然。而四方土物皆願降就  
于地心之本所。東降欲就其心。而遇西就者。  
不得不止。南降欲就其心。而遇北就者。亦不  
物之欲就者。皆然。故凡相遇之際。皆能相  
結于地之中心。即不相及者。以欲就故。亦  
今大地懸居空際也。上丙為地中心。甲乙兩分。各為  
之半。球甲東降就其心。乙西亦降就其心。兩半球又  
各有本體之重心。如下。如戊甲東降。必欲令本體之重心。丁至丙  
中心。然後止。乙西降。必欲其本體之重心。戊至丙中心。然後止。故  
兩半球相遇于丙中心。甲不令乙得東。乙不令甲得西。一新一道。  
力勢均平。遂兩不進。亦兩不退。而懸居空際。安然永受表譬  
一門。蓋二人出入。在外者。欲開之。在內者。欲閉之。  
一斷。一逆。為力均平。門必不動。甲乙半球。其理同。  
也。主四方八面。一塵一土。莫不皆然。地道隨  
然而下。旋職是故耳。

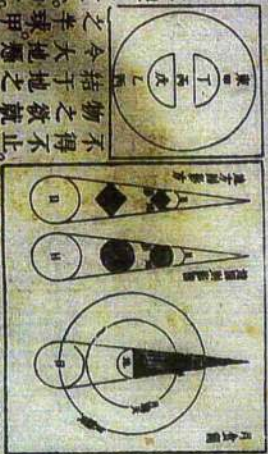


Plate 22

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of cartouche describing earthquakes.



世謂天圓而地方。此蓋言其動靜之義。方圓之理耳。非言其形也。今先論其西。或論南北以証合地圓之旨。非言日月諸星。雖每日出入地平。一過第天下國土。非同時出入。蓋東方先見。西方後見。漸東漸早。漸西漸遲。

如第一國午。而子卯為日天。甲乙丙丁為地。今日輪在午。而人居甲。即日正在其天頂。而得午時。人居丙。即得子時。日在其天頂。而將沒于地。則午甲丙子為其地。日既過其天頂。而將沒于地。則午甲丙子為其地。平也。西去九十度。居乙。即得卯時。日向其天頂方出于地。亦甲午丙子為其地。平也。依此推算。今日輪出地平。在卯。人居丁。得午時。居乙。得子時。此何以故。地為圓體。故日出于卯。因甲高與乙卑。隔日光不照。故丁之日中乙之半度也。若地為方體。者如上甲乙丙丁。則日出身。西



差一也。故明有時差者。不能不信地圓也。又丁乙與甲異地。即異天頂。即異日中。而又與甲同卯面。即丁之午前短。午後長矣。乙之午前長。午後短矣。獨甲得午前平耳。而今半畫分。天下皆同何地。則明有手畫分者。不能不信地圓也。



自南而北。地為圓體。亦可推焉。如第三圖。而南東北為天。甲乙丙為地之圖。球丁戊己為地之方面。若人在圖球之乙。即見在南諸星。從乙漸向丙。即南諸星。漸隱矣。漸向甲者。反是。若人在平而之丁。即得俱見南北二極之星。其在戊在己。亦如南北極諸星。何由得漸次隱見乎。則地之為圓體。固可証矣。



在己。亦如南北極諸星。何由得漸次隱見乎。則地之為圓體。固可証矣。

Plate 23

Albrecht Dürer's Rhinoceros, 1515. Woodcut.



Erach d'pfeiffene geyert. 1573. Jar. Abi. i. 171ay. 5et man dem grofsmechtigen Kauning von Portugal dem annall gen Lysiane panch auf Tindie; ein sollich lebendig Epher. Das nennen sie  
 Mbynoerns. Das ist byr mit aller seiner geseit. Also beren fand mit ein geseit. So d'bedro e. Und ist so d'ber den Schalen wobergast ist. Und ist in der grof als der Soelande  
 Aber my d'berd'ber von paynny und ist sech auffing. Das beren ist auff den nasen. Das Bergeydes alleß zu wegen wo es by flamen ist. Das d'berg Epher ist des Soel-  
 fangs so d'berd'ber funde es sech sech. Dann so es in antenne so laufft. Zum das Epher mit so dem Kopf zwölben die sothen paynny und ist den Soelander vber am panch auff  
 by antenng. Th' d'oe mag er sich mit anten. Dann das Epher ist also geseit. Das ist in der Soelander nicht so kan thun. Sie singen auch das der Mbynoerns d'berd'ber. J'berd'ber und Lysing sy.

1515

# RHINOGERYS

看

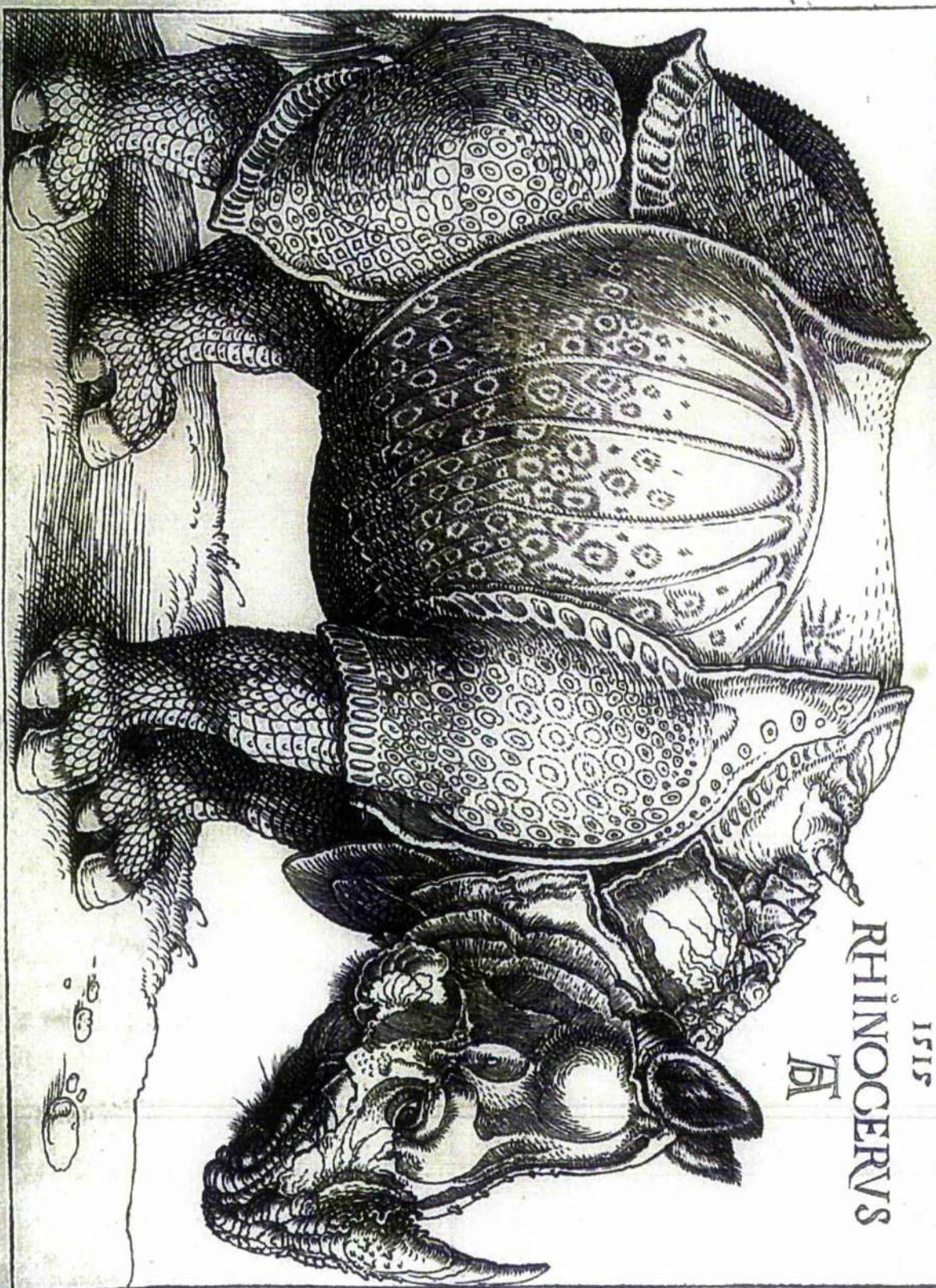


Plate 24

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Overall detail of animals on the Africa  
Hemisphere. Excluding the giraffe.



# 治理層法極西南懷仁立法

游水之動  
 游水自然之動止有其一  
 下動也凡身動為風則非自然  
 可知矣其風動多其外風所  
 致風既不一動亦不一其二自東而西  
 凡從歌連巴羅海西向而行則順而達  
 東向而行則逆而達此動非特大游又  
 於地中游行可見其所以然從太陽自西  
 而東行以生焉觀其自北而南凡  
 幾海者從北向南必順而達從南向北  
 必逆而達夏月行北海者常見其水塊之  
 廣大如大城如海島備有見長三百餘  
 里者從北而南流其所以然者北極相  
 近之游大寒比寒中多雲雨多水沙異  
 氣壯多被日蒸熱中上空氣蒸而南  
 游之勢處早北海之勢處晚  
 故水北而南流也

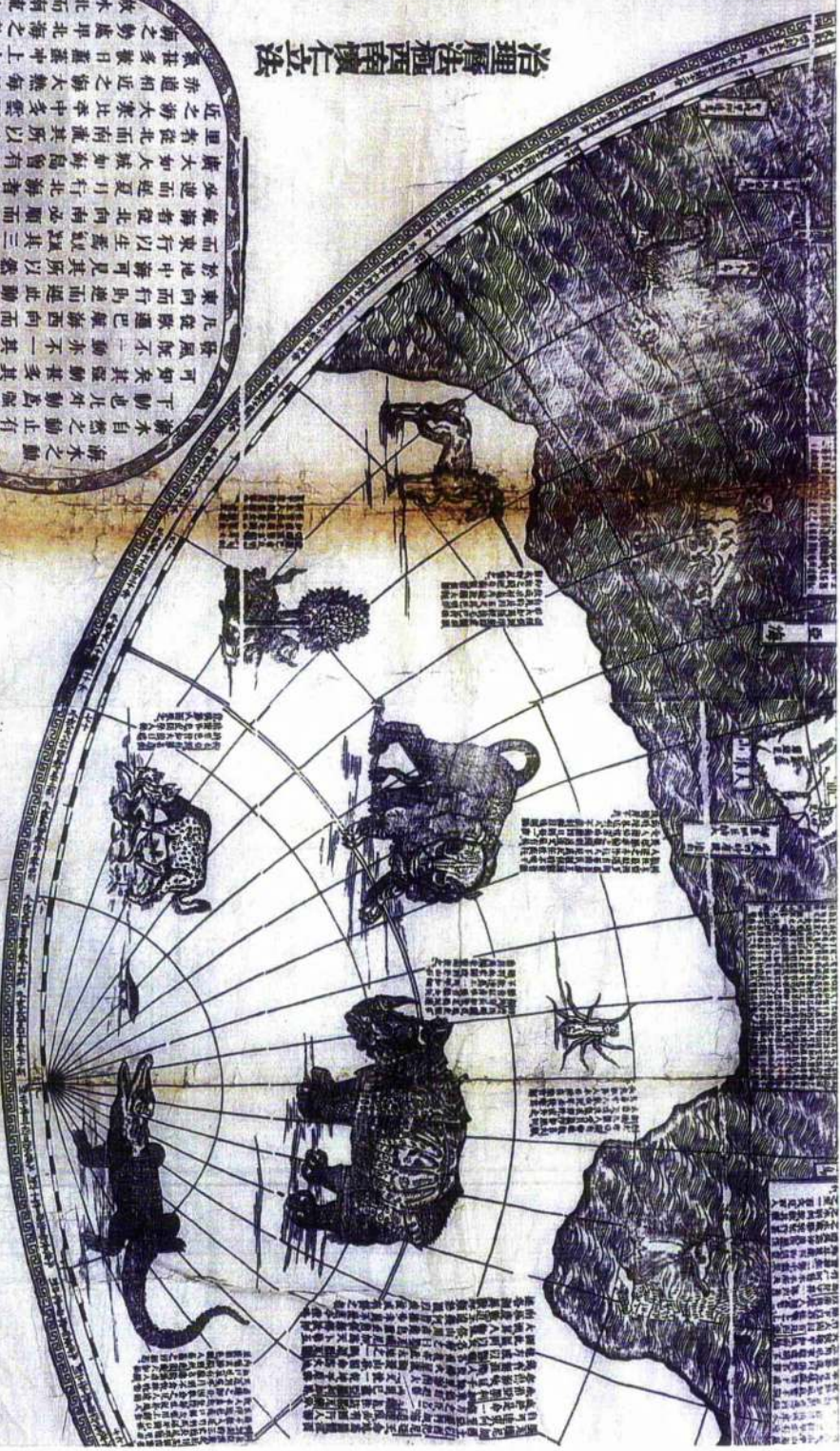
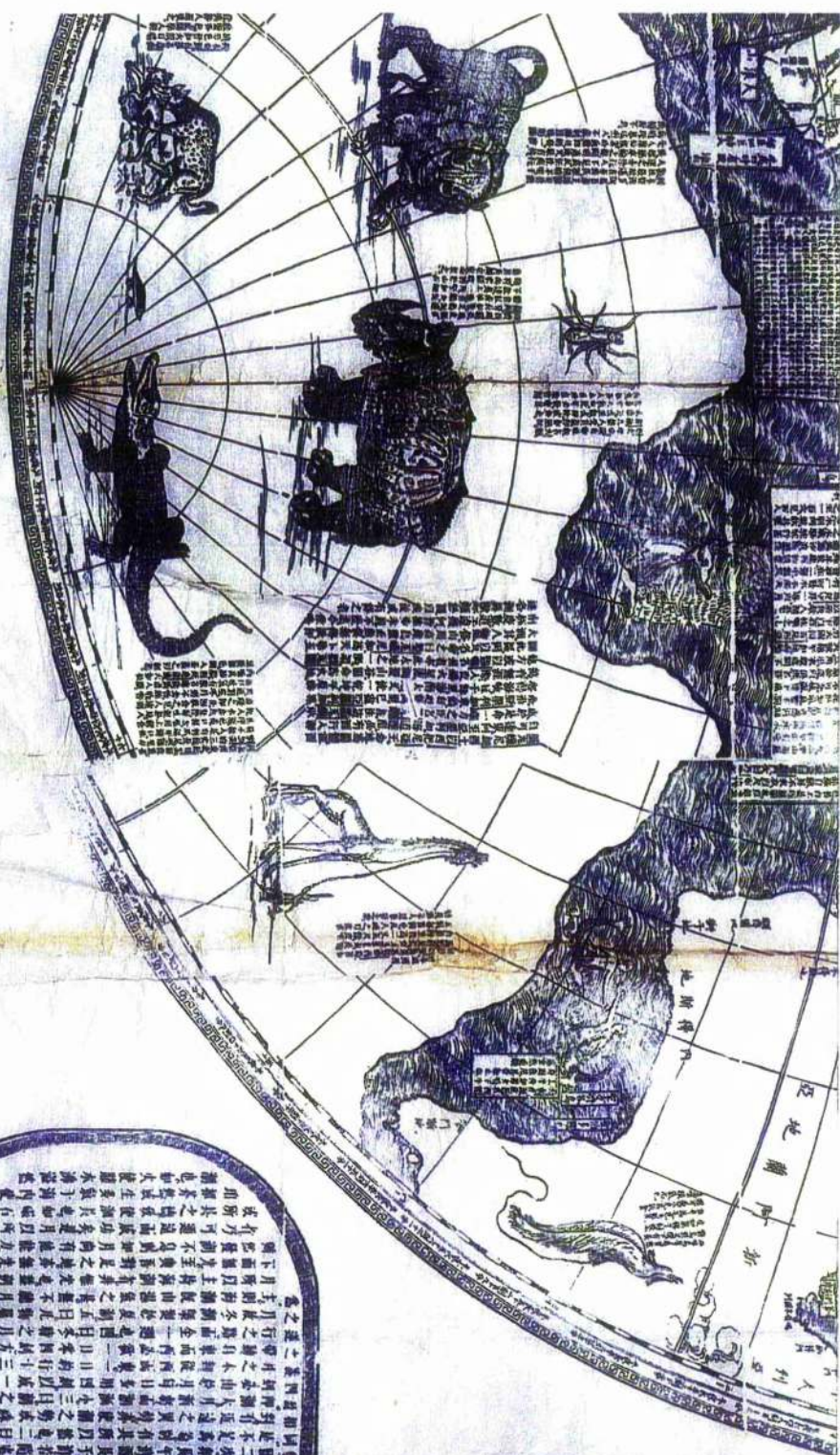


Plate 25

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Overall detail of animals on the Africa  
Hemisphere. Excluding the unicorn.





東亞圖  
此圖之製，乃由西人利瑪竇所創，其法以地球為圓，而分其經緯，以定其方隅。此圖之製，乃由西人利瑪竇所創，其法以地球為圓，而分其經緯，以定其方隅。此圖之製，乃由西人利瑪竇所創，其法以地球為圓，而分其經緯，以定其方隅。

Plate 26

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674  
Detail of the Unicorn including its Chinese  
Inscription.



亞細亞洲印度國產獨角獸  
形大如馬，極輕快，毛色黃頭  
有角，約長四五尺，其色明作  
飲器，能解毒，角銳能觸大師  
制輿之闕，避身樹後若候驅  
齒木，獅反嚙之。

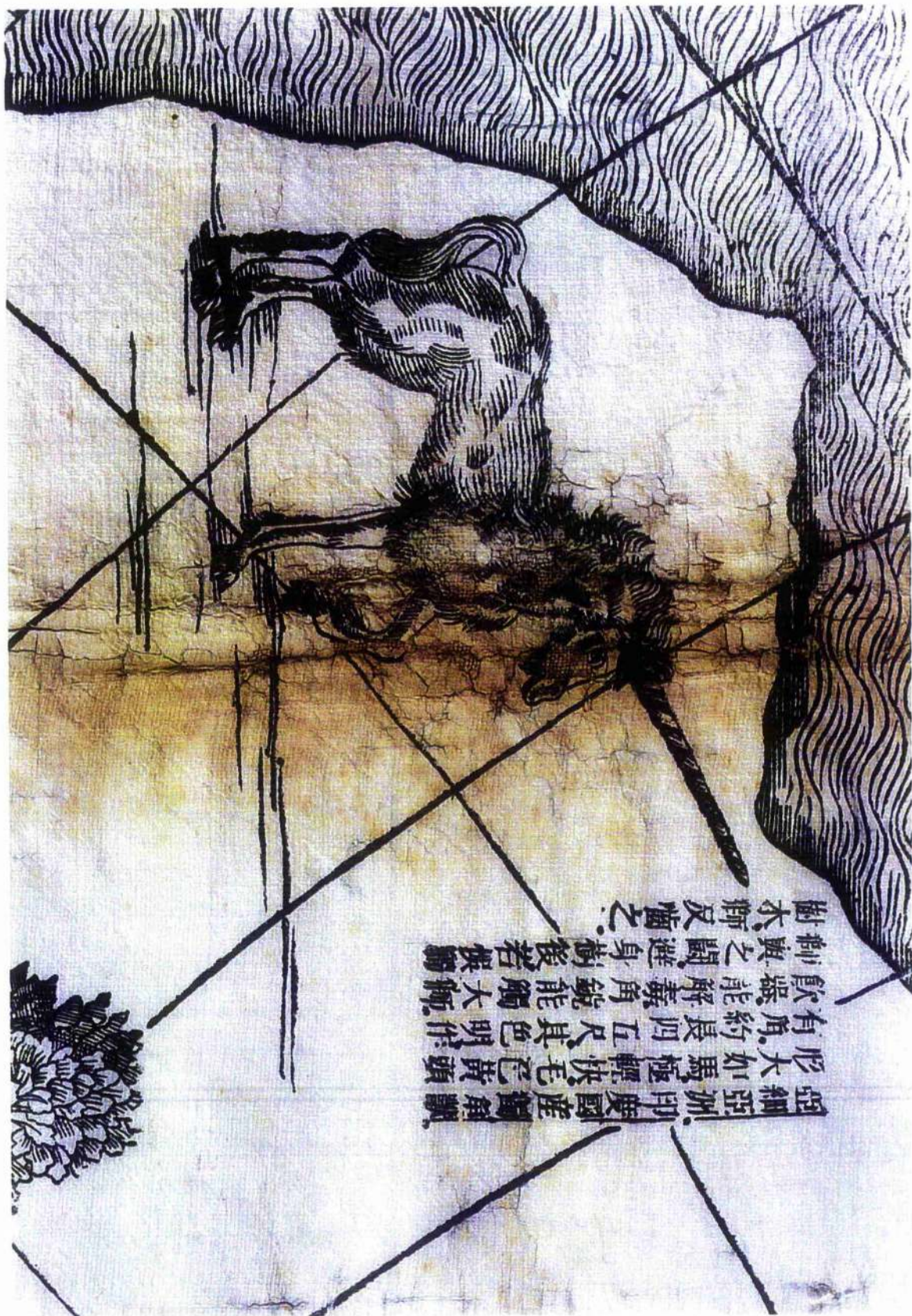


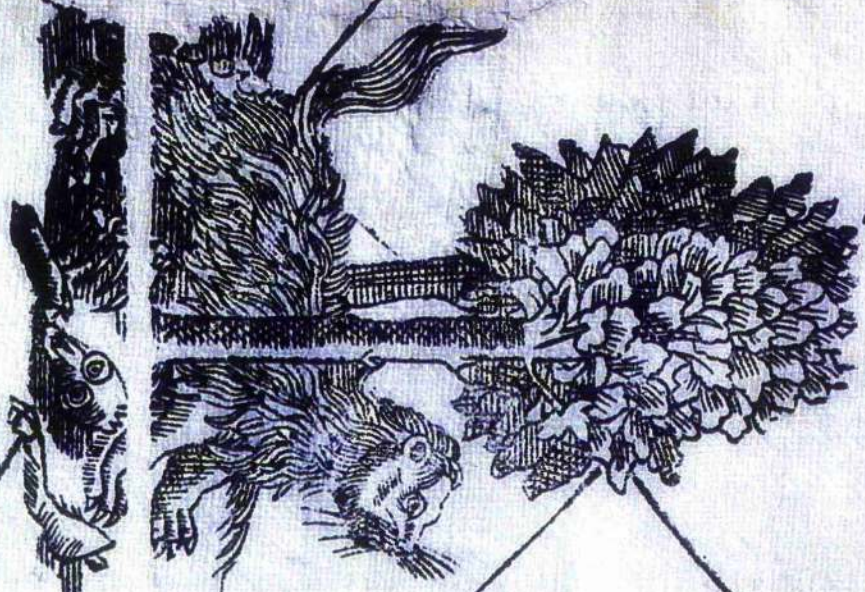
Plate 27

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Gulo including its Chinese insert



能變各色  
育喚誘人

歐邏巴東北里以  
聖國產期宮猶  
如浪毛髮花調  
在皆逐屋食金  
則生人調養樹  
異令變形風地



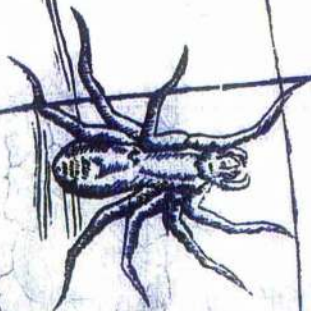
水  
映  
山  
林  
石



Plate 28

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Lion including its Chinese insert

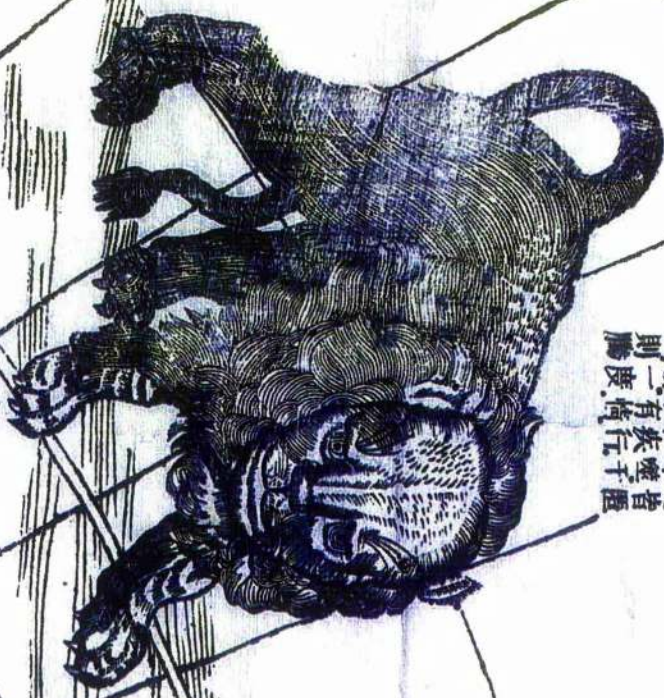
族者，欲各人本性所喜樂者爾



印度國喇嘛亞地產獸名  
犀角身長如象足稍短通  
體皆紅黃斑點有麟介矢  
不能透鼻上一角堅如銅  
鐵將與家闔貯於山石  
磨其角觸象腹而斃之



周未亞洲多獅為百獸王諸獸見皆膽  
駭性最敏遇者垂頭伏雖餓時不噬于  
人逐之亦徐行人不見處反任性疾行  
受雄難車輪之聲聞則遠遁又最有情  
受人總必報常時病瘕四日則發一度  
病吐酸暴猛烈人不能制擲以毯則騰  
跳轉弄不怠



亞細亞洲印度國產獅類  
形大如馬極輕快毛色黃頭  
有角約長四正尺其色明作  
灰黑能將犀角斃能觸大獅



Plate 29

Father Ferdinand Verbiest's *Kunyu Quantu* 1674.  
Detail of the Hyena including its Chinese insert



利未亞洲有獸名意夜  
 納形色皆如大狼目睛  
 能變各色夜間學人聲  
 竟喚誘人而噬之



今此大國家

十

十

Plate 30

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Rhinoceros including its Chinese  
inscription.



迹各洲異獸所類於圖以俟後或有詳之者

印度國喇蘭亞地產獸名  
 鼻角身長如象足稍短適  
 體皆紅黃斑點有鱗介矢  
 不能透是一角堅如鋼  
 鐵將與象鬣時則於山石  
 磨其角觸象腹而斃之

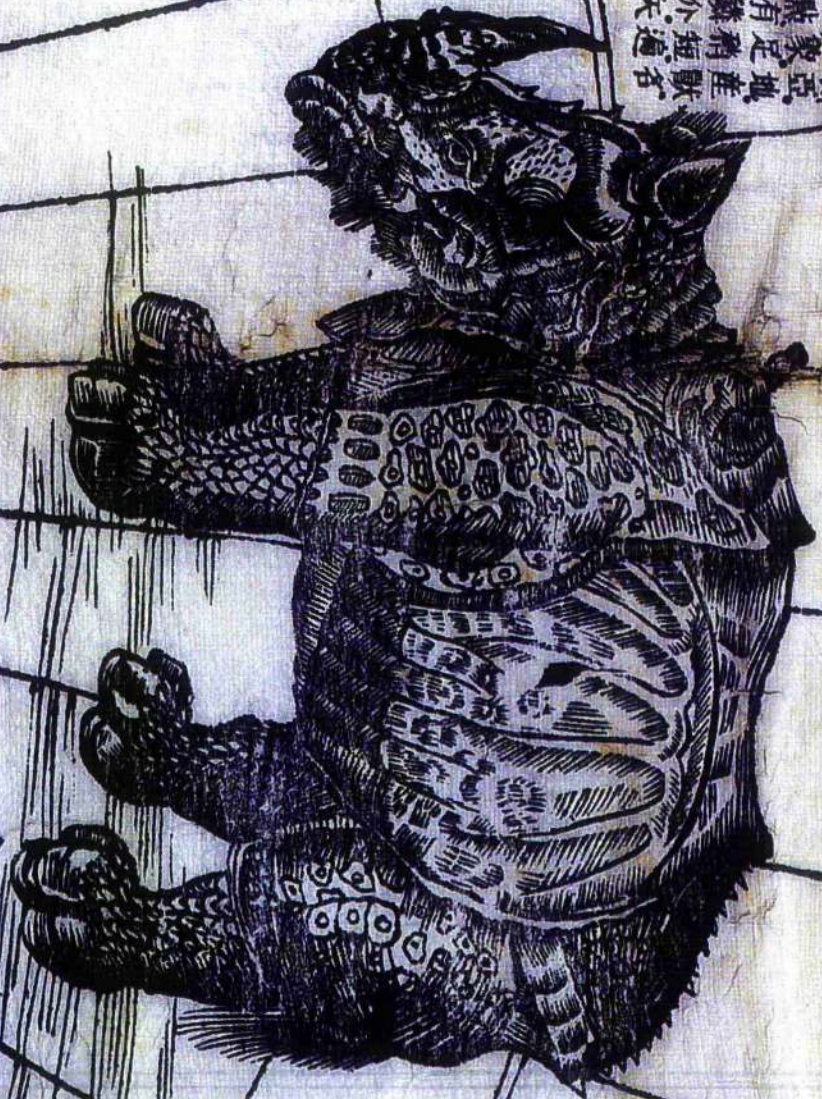
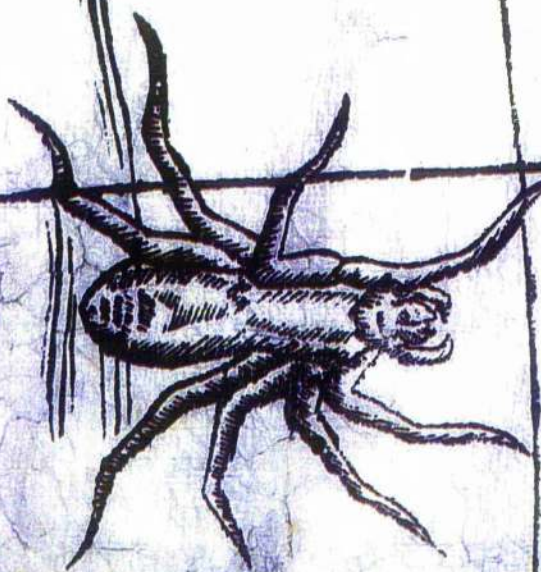




Plate 31

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Spider including its Chinese insert

意大埤亞國有蜘蛛類名大懶  
 毒辣凡螫人受其毒即如風狂  
 或嬉笑或跳舞或仰卧或奔走  
 其毒中人氣血比年必發癢其  
 疾者依各人本性所喜樂音解



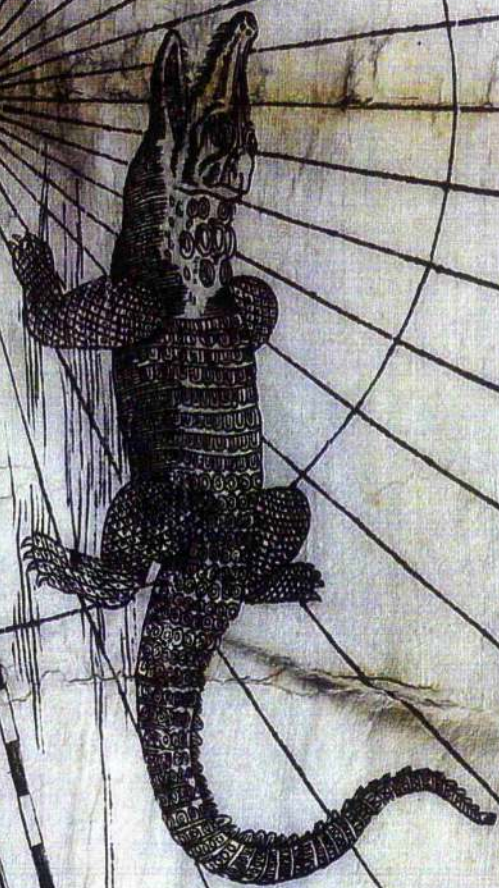
印度國  
 鼻角身呈  
 體皆紅些  
 不能透  
 鐵將與  
 磨其角

Plate 32

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Crocodile including its Chinese  
inscription.



時之者  
才慢述今佳略  
不照俱無傳說卽  
爲天下第五  
一偶謂豎亥闢  
谷因命爲火地  
一乾坤平原濤  
區亞墨利加界  
往訪墨瓦爾京  
必有西行人游  
地爲國體征西



文正西曆十六刻 冬夜長三具土曆二十刻

卷之十

卷之十一

Plate 33

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Mermaids.





聖伯多羅島

聖方濟各島

大東洋海產魚名  
上半身如男女性  
身則魚尾其骨能  
病女魚更効



Plate 34

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Giraffe including its Chinese insert

加利西士以西把尼亞王。念地爲圖體徂西  
 向至亞墨利加。海道遂阻。必有西行人海  
 一強力之臣名。乳蘭者。往訪墨瓦蘭承  
 利加東偏斜廻。萬里已盡亞墨利加界。

利未  
 刺未  
 刺加  
 刺不  
 刺能  
 刺人  
 刺上  
 刺下



利未亞州西  
 國產其名惡那西約育  
 馬形而足長頸上短長頸  
 自前蹄至首高二丈五尺餘皮毛  
 丘形易畜園中凡人視之則從容  
 轉見若示人以華形之狀

利未  
 刺未  
 刺加  
 刺不  
 刺能  
 刺人  
 刺上  
 刺下

Plate 35

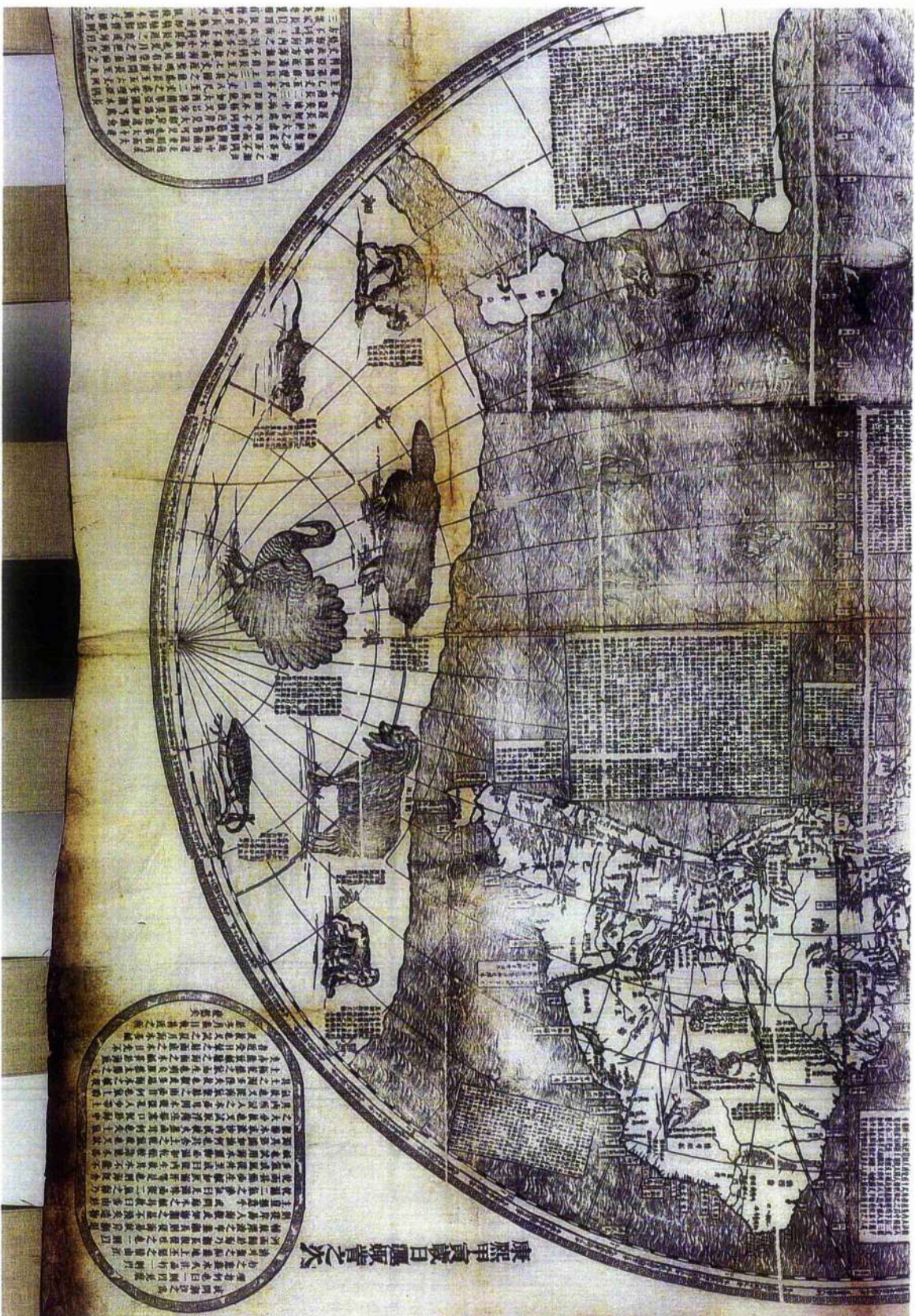
Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Overall detail of animals from Americas  
Hemisphere



康熙甲寅歲日曆板書之天

此圖乃康熙甲寅歲日曆板書之天  
圖中繪有各種奇禽異獸  
如麒麟、鳳凰、白象、青牛等  
以及各種珍禽異獸  
如孔雀、鸚鵡、犀角、象鼻等  
此圖乃康熙甲寅歲日曆板書之天  
圖中繪有各種奇禽異獸  
如麒麟、鳳凰、白象、青牛等  
以及各種珍禽異獸  
如孔雀、鸚鵡、犀角、象鼻等

此圖乃康熙甲寅歲日曆板書之天  
圖中繪有各種奇禽異獸  
如麒麟、鳳凰、白象、青牛等  
以及各種珍禽異獸  
如孔雀、鸚鵡、犀角、象鼻等  
此圖乃康熙甲寅歲日曆板書之天  
圖中繪有各種奇禽異獸  
如麒麟、鳳凰、白象、青牛等  
以及各種珍禽異獸  
如孔雀、鸚鵡、犀角、象鼻等



Platc 36

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Su including its Chinese inscription.



南亞墨利加州，習物國產  
與駝名齧其尾長大與身  
相等凡獵人逐之則負其  
子于背以尾蔽之急則吼  
聲洪大令人震恐

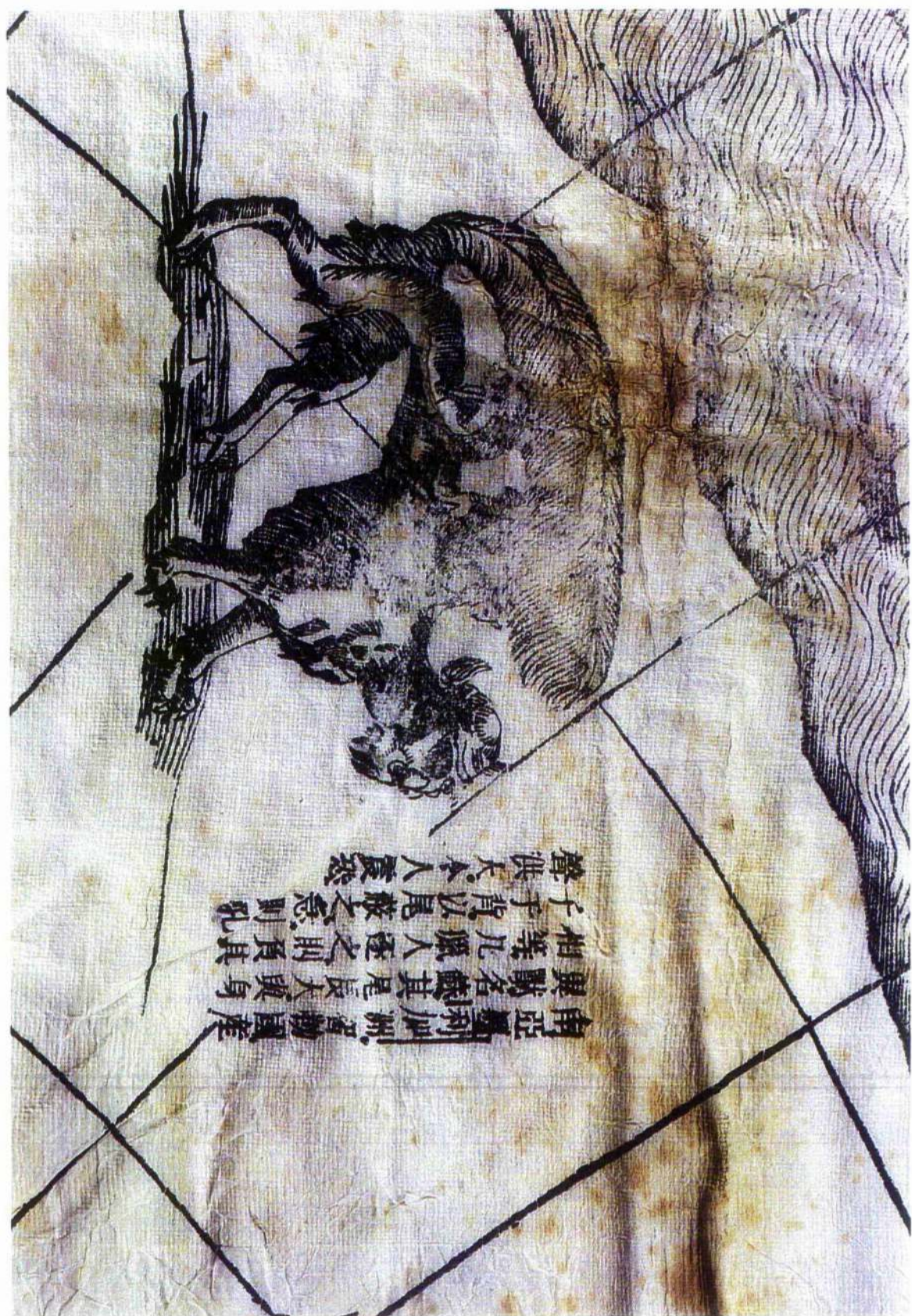




Plate 37

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Chameleon including its Chinese  
inscription.

利加洲百獸圖  
 獸倍頭較長生有肉鼻  
 能伸鼻色有稍白有灰色  
 月色不等惱怒則血聚于  
 突紅色其時開屏如孔雀



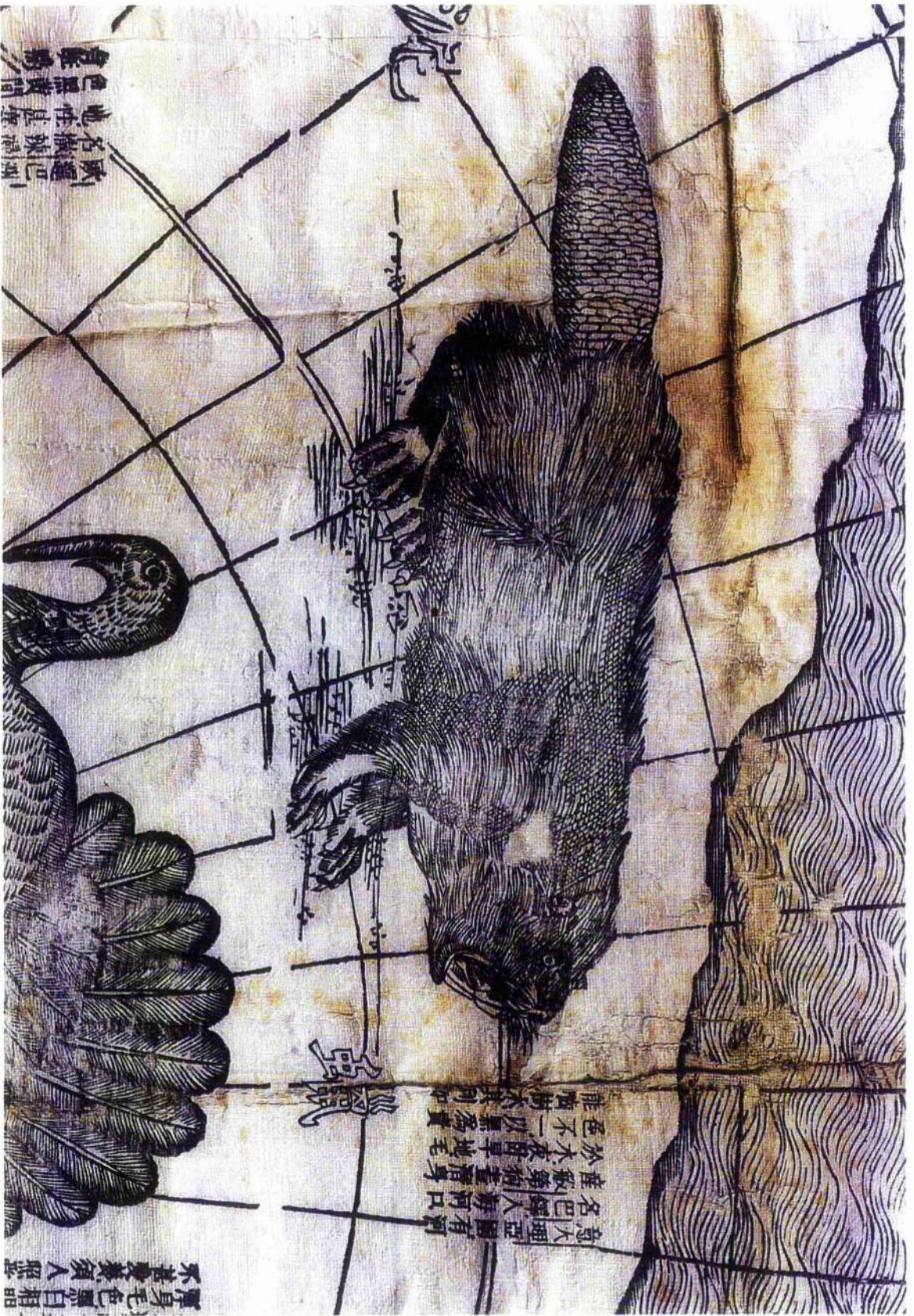
人難以別識  
 藏于土石間  
 明虎加黑皮如水氣  
 變色性行景  
 產細亞細亞  
 知德亞國產

十代  
 十代  
 十代

Plate 38

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Beaver including its Chinese insert.





意大哩亞國有河  
 名巴輝人海河口  
 產駝刺查盾身  
 於木皮舟旱地毛  
 色不一以黑為貴  
 能酒樹木其利如

貳貳

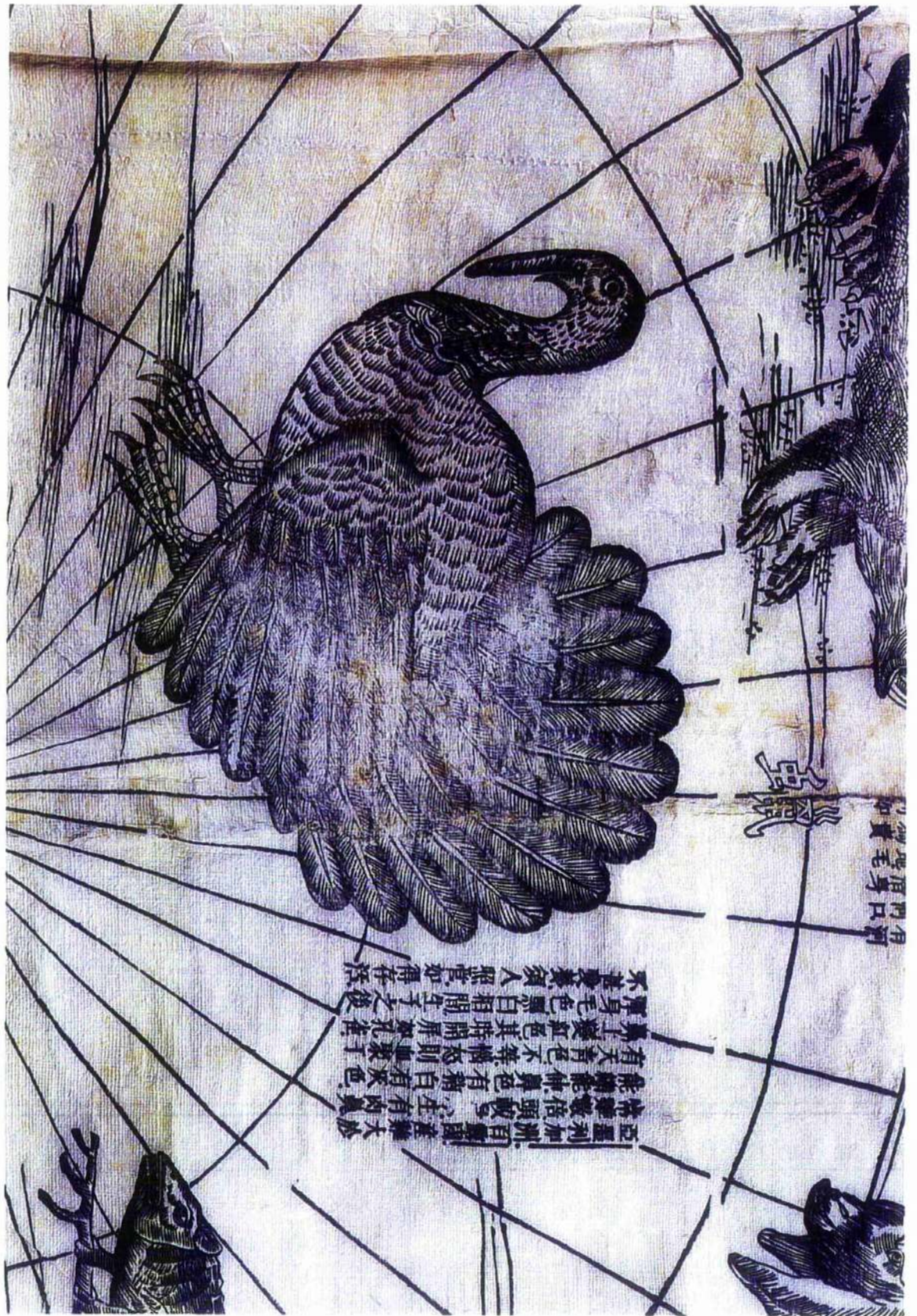
雁身毛色黑白相  
 不甚變異須人照

貳貳鳥  
 色黑黃間  
 地性居  
 名撒巴  
 歐運巴

Plate 39

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Turkey including its Chinese insert





# 鵞

鵞身口河  
如實毛身

亞歷利加洲，自歐羅巴洲，  
皆能倍頭較，生有肉鼻，  
能辨能伸鼻，色有稍白，有灰色，  
有天青色，不帶褐色，則地聚，  
鼻上變紅色，其時開屏，即孔往，  
渾身毛色黑白相間，生子之後，  
不甚變，須人照管，如得存活，

Plate 40

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Mountain Goat including its  
Chinese inscription.



此地多有鸚鵡  
之鳥故因名地

地龍

望加錫亞泥、南印度國產  
山羊頂生兩乳下垂乳、  
極肥壯、聚甚寶明。

卷

虎豹加細  
明獸各需  
人藏于腹  
以難辨別

亞墨利加洲百靈國產藥大於  
特製數倍頭故也。生有凶鼻  
能縮能伸。鼻色有稍白有灰色  
有天青色。不準。恠怒則血聚于  
鼻上凝紅色其時開屏如孔雀  
其身毛色黑白相間生于之後  
不甚變養須人照管如得存活

Plate 41

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Salamander including its Chinese  
inscription.



歐羅巴洲熱爾橋尼亞國獸  
名撒辣漫大城產于本橋之  
地性甚寒皮厚力能滅火毛  
色黑黃間雜背脊黑長至尾

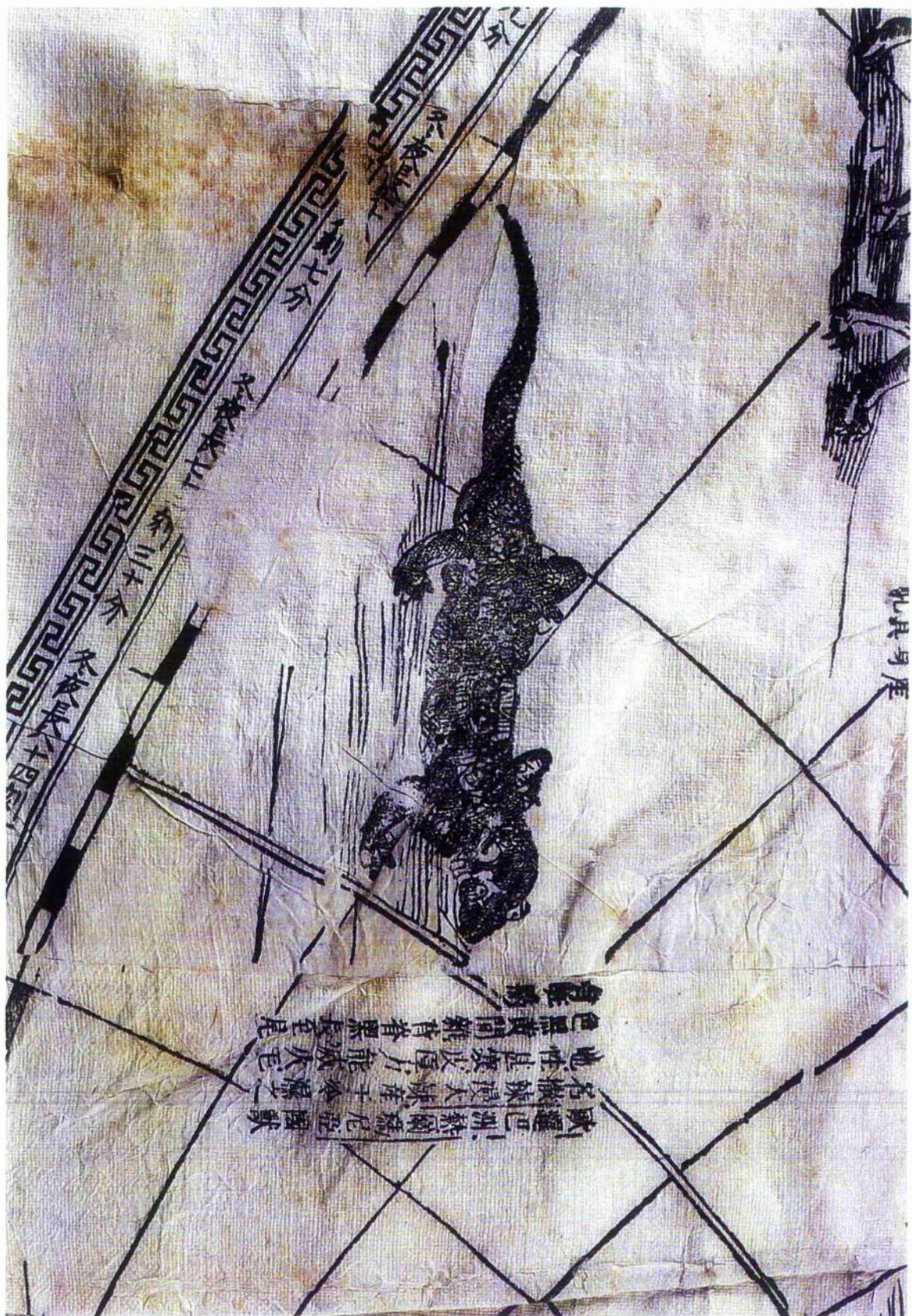




Plate 42

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Whale including its Chinese insert



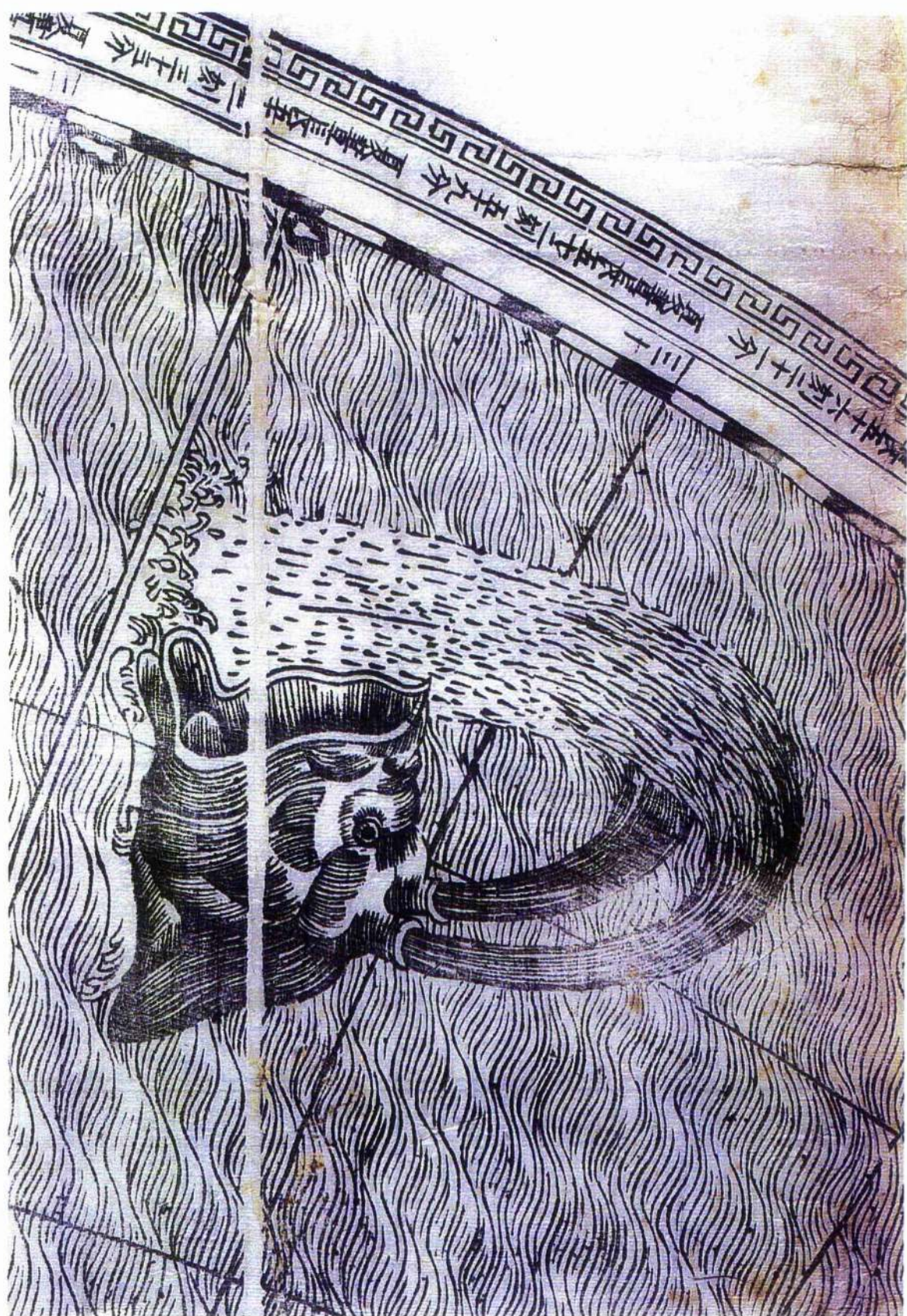




Plate 43

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the Toucan including its Chinese insert

便羅便

目船旋橋上几獸經過  
即緊縛之樹間而食



巴西爾喜助長而輕與身  
相等約長寸空明薄如紙

懷母助斯

塘伯亞波亞

斯亞步大

斯亞加爾瑪

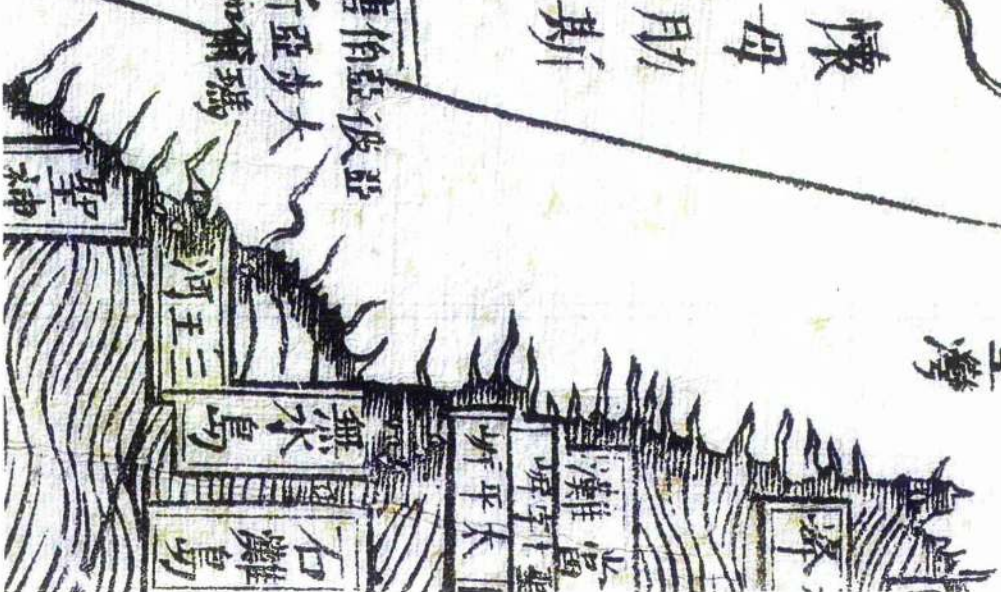
其奈落巴圖

王寶的

多武班

蜜辣母做

諸聖灣



山當聖

嶺字

斯平太

無水島

石灘島

河王三

聖神

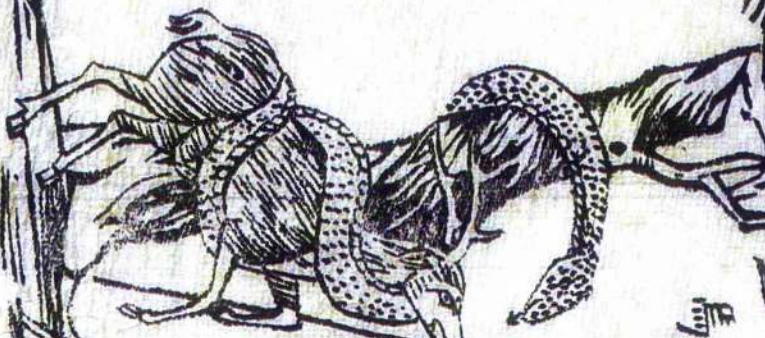
Plate 44

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of the American Ostrich including its  
Chinese inscription.



此地蛇大無目觸族稱上凡獸經過其旁聞氣即緊縛之至樹間而食

馬



駱駝鳥諸禽中之最大者形如雞而其首高如乘鳥之人走時張翼狀如翅其行之疾如馬或謂其腹其熱能化生銀



Plate 45

Father Ferdinand Verbiest's *Kunyu Quantu*, 1674.  
Detail of a snake killing a deer including its  
Chinese inscription.



# 懷母助斯

巴西爾喜助斯而輕與身  
相等約長寸空明薄如紙

此處人母無床焉但  
所親為網旁高中窪  
膠頭以木構樹之樞  
門與中行即屬轆

此地蛇大無目備旋科上凡獸經過  
其旁聞氣即緊縛之十樹間而食

馬



駱駝鳥諸禽中之最  
大者形如雞其首高  
如乘馬之人走時張翼  
狀如翅其行之疾如馬  
或謂其腹其熱能化生鐵



金會  
百三十  
野海  
甜水其  
百三十  
風俗

Plate 46

Nestorian Steele. University of Glasgow.



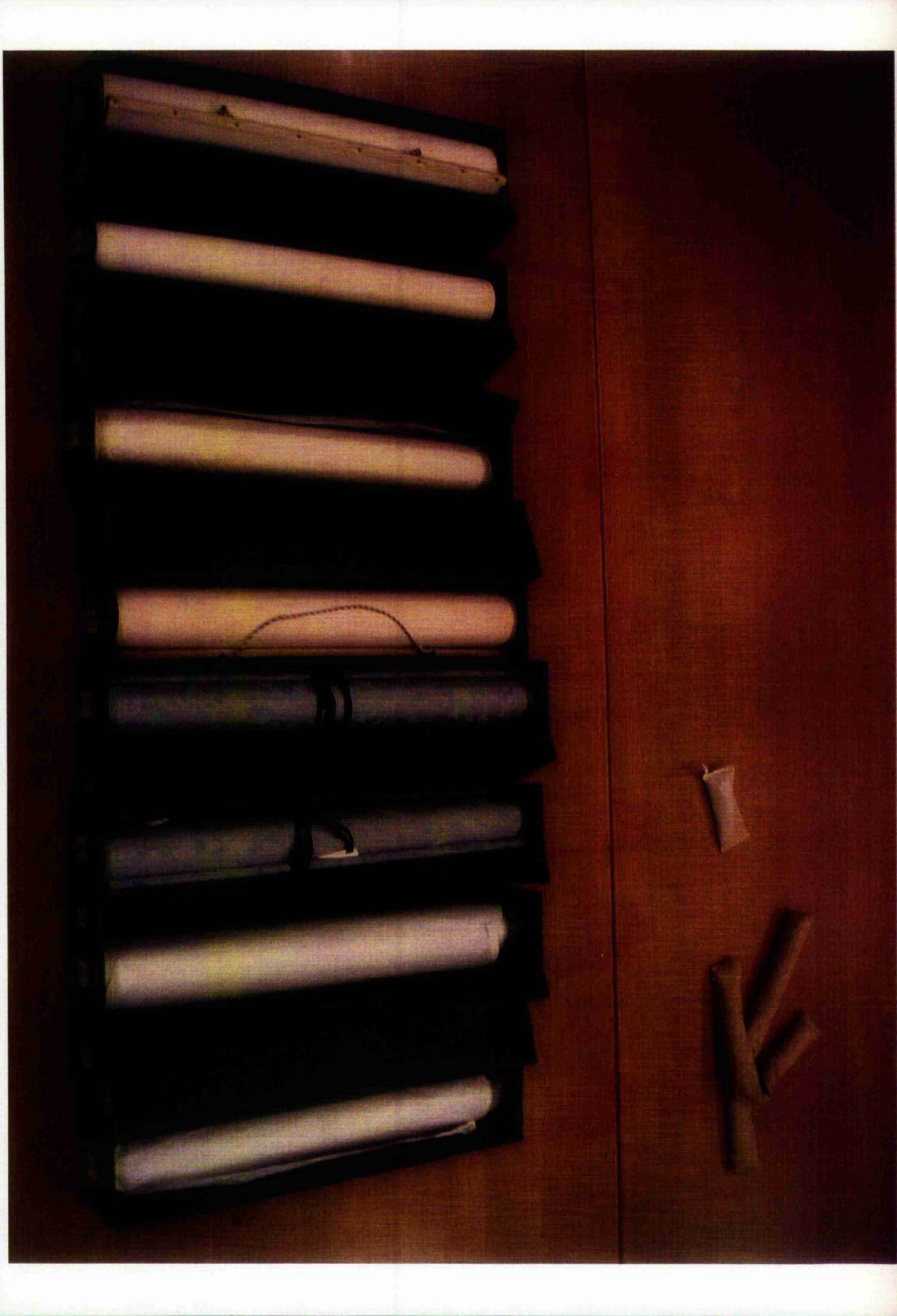
大秦景  
教流行  
中國碑

[illegible]



Plate 47

Library of Congress Washington D.C. scrolls.



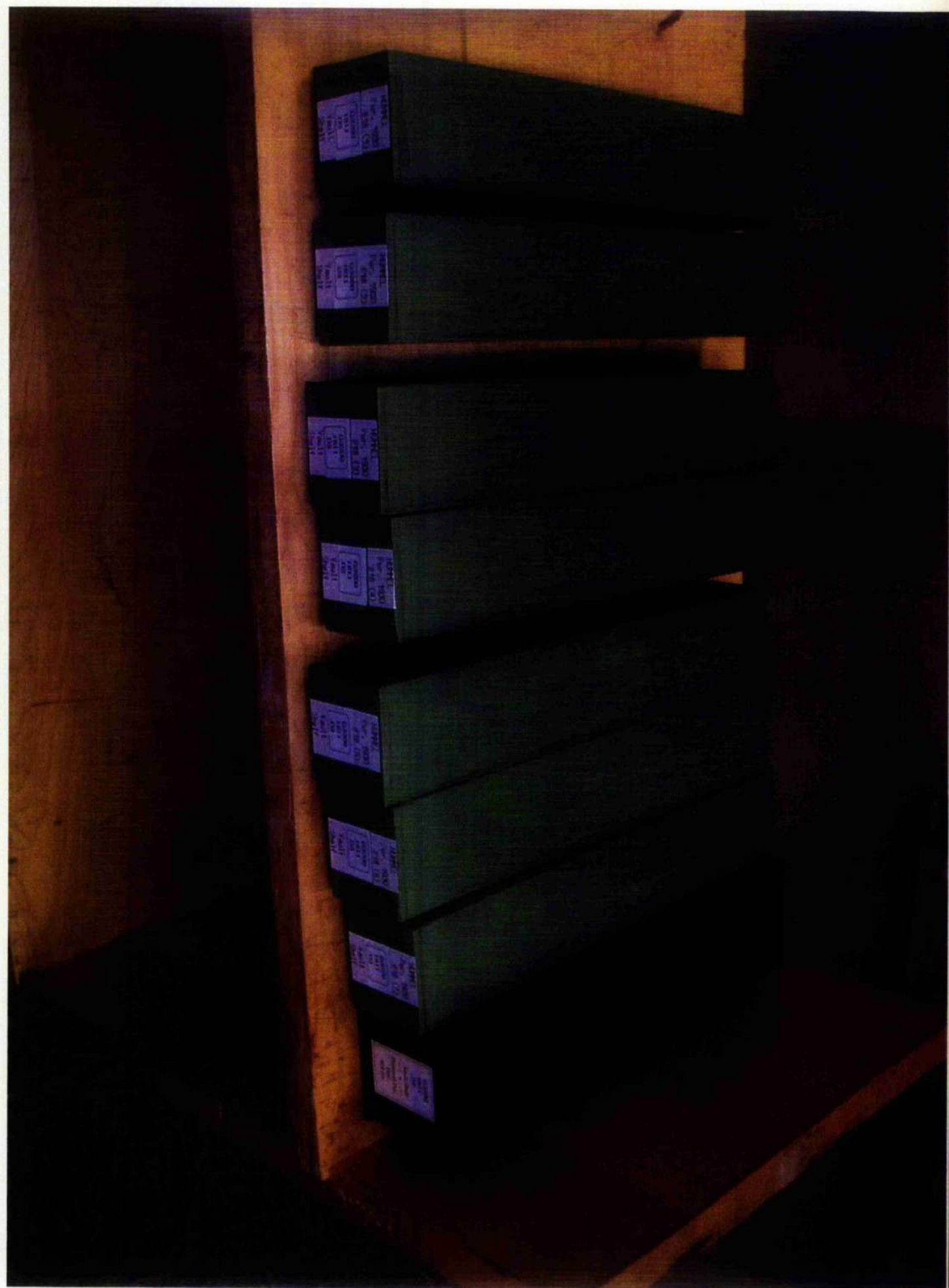


Plate 48

Conservation Images from Hopetoun House.



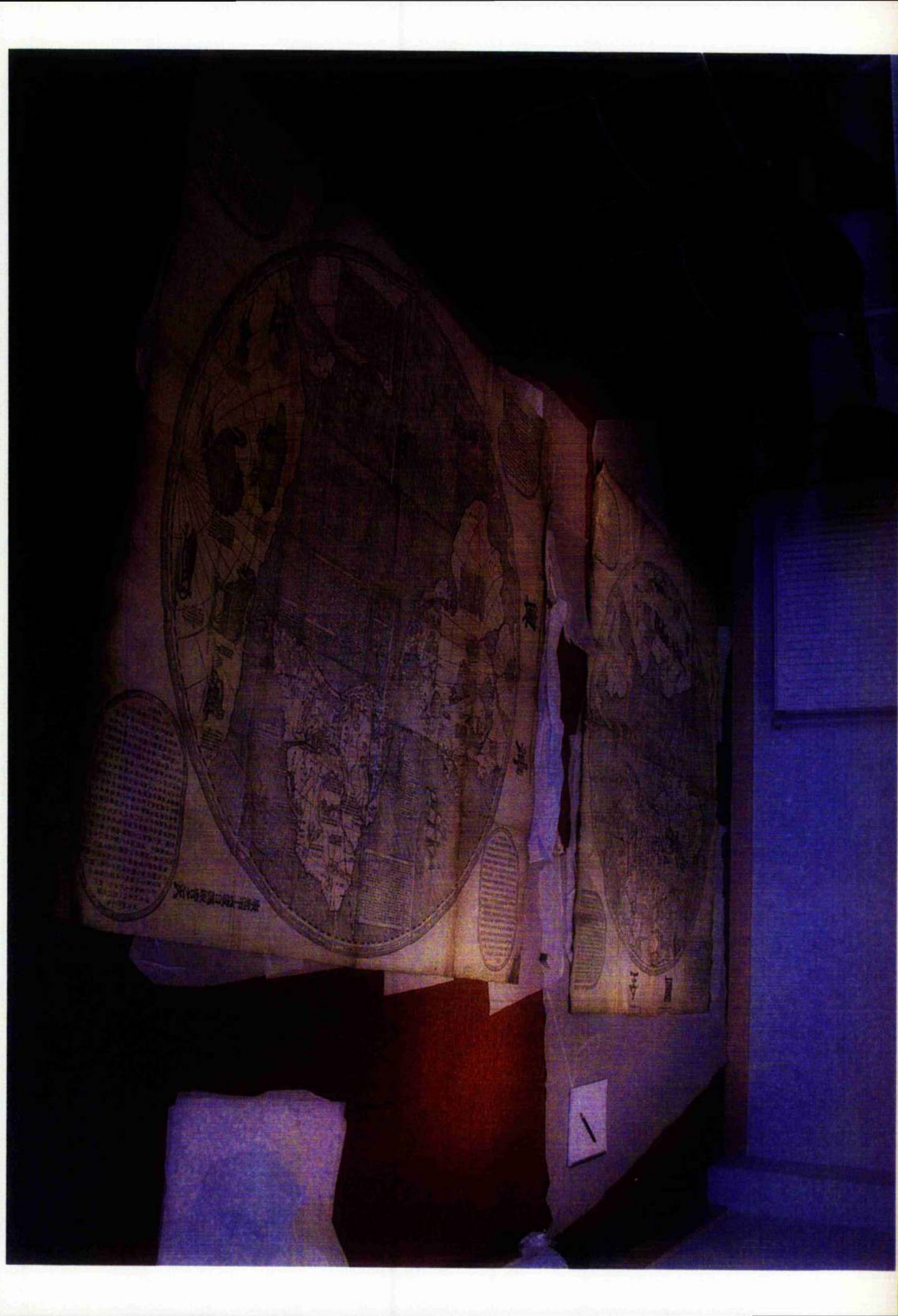
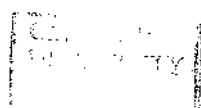




Plate 49

Verbiest's Kunyu Quantu, 1674 on display at  
the Hunterian Museum, Glasgow.



全圖



興坤

