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DOI: <https://doi.org/10.1515/asia-2023-0041>

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ZORA URL: <https://doi.org/10.5167/uzh-260149>

Journal Article

Published Version

Originally published at:

De Morsier-Fritz, Claudia (2023). The recently found map of the world (Kunyutu 坤輿圖): a philological survey (Part II). *Asiatische Studien / Études Asiatiques*, 77(3-4):607-715.

DOI: <https://doi.org/10.1515/asia-2023-0041>

Research Article

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The Recently Found *Map of the World* (*Kunyutu* 坤輿圖): A Philological Survey (Part II)

<https://doi.org/10.1515/asia-2023-0041>

Received November 22, 2023; accepted November 24, 2023

Abstract: This is Part II following on from the first presentation of the Chinese *Map of the World* or *Kunyutu* 坤輿圖 published in vol. 75 of this journal. The large wall map in silk, found in a federal library in Berne, Switzerland, is anonymous and purports to represent the geopolitical situation during the period 1700–1730. After a short general, geographical overview containing cartographic remarks and findings, this article will focus on the translation of all 112 text blocks on the map, which are found in Appendix II. These text blocks contain information on the customs and products of a given place, as well as describing other curiosities associated with it. I compared these texts with other maps and textual sources, in particular with *The Complete World Map* (*Kunyu quantu* 坤輿全圖) and *The Explanations of the World Map* (*Kunyutu shuo* 坤輿圖說) by Verbiest in 1674. A Venn diagram reveals which source was used most frequently. I detected some geographical assumptions the creator of the Bernese map has drawn from previous sources or copied from earlier maps. These offer valuable pointers to the source language and enable the identification of specific misunderstandings, original creations and uncertainties or signs of ignorance. My translation of the text blocks helps to pinpoint certain anachronisms and inaccuracies, although the map essentially reflects the political situation in the years 1700–1730. These various pieces of evidence suggest that the map was in fact made much later by a copyist and is not only a cartographic composite of earlier maps, but also a fusion based on Northern and Southern Mandarin sources. I presume that the translations, drawn from French sources into Southern Mandarin – the language of the late Ming officials (*guanhua* 官話) – as well as a variety of Southern Chinese dialects, suggest the underlying influence of a Jesuit tradition.

Keywords: historical geography, cartography; Chinese world map; Ferdinand Verbiest, S. I., (Nan Huairen 南懷仁); translation; *the explanations of the world Map* (*Kunyutu shuo* 坤輿圖說); history 1700–1850

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Maps have made empires and helped to unmake them.
They have always been about conveying
a particular view of the world.

Mateusz Fafinski

1 Introduction

This second part of the investigation into the anonymous map *Kunyutu* 坤輿圖, found in 2017 in Berne, Switzerland,¹ is published on the occasion of the 400th birthday of Ferdinand Verbiest (1623–1688, S. I., Chinese name Nan Huai ren 南懷仁). We can state at the outset that Verbiest's map and texts became *the* template for subsequent maps and geographical excursus, thereby establishing, as it were, a particular 'Verbiest' style of proceeding. A comparison (Part I, see AS, vol. 75) has shown that the Bernese map is closely linked to *The Complete World Map* (*Kunyu quantu* 坤輿全圖) and to *The Explanations of the World Map* (*Kunyutu shuo* 坤輿圖說) published by Verbiest in 1674, as well as to their predecessors. Using the translations of the 1,025 place names listed in Index I, I examined the language of the foreign toponyms, and it became evident that the non-Chinese localities were not yet written in a recognisable standard of Chinese. The characters used in the various place names – although not always easy to transcribe without the assistance of a scan of the map – had to be *heard* rather than simply *read*, as suggested by the title *Aid to the Eyes and Ears of Western Literati* (Xiru ermuzi 西儒耳目資 [XREMZ]), published by the Fleming Nikolaas (Nicolas) Trigault, S. I. (1577–1628, Chinese name Jin Nige 金尼閣) in 1626, and which was used to classify them phonetically into calques, compound toponyms and blends. Using the phonological system of Trigault's syllabary allowed me to pinpoint the variety of Chinese (as the target language) to which the syllables of the toponyms belonged, and from which source language they were borrowed. It transpired that many toponyms were derived from French: this may point to an underlying world map in French, or suggest that the copyist either knew French himself or had a French man who helped him. I was able to explain other toponyms by positing a Southern Mandarin target standard, which was spoken and written by government officials throughout the country until 1850. I have not analysed all the mistakes in the toponyms in Part I: for example, I will explore

¹ The map is currently held in the map collection of the Zurich Central Library, shelf number Wak 342, and has been available electronically since July 2020 on e-manuscripta: <https://doi.org/10.7891/e-manuscripta-83669>.

wrongly situated and non-existent places in this Part II. Following a description of these aspects, I will provide a general geographical overview and several case studies of surprising identifications, and I will also try to evaluate the cartography of the map in its entirety and discuss the map's temporal affiliation as well as its place of production. In this part of the investigation, detailed analyses of the block texts on the map address the question of Verbiest's stylistic influence on the Bernese *Kunyutu*. My approach is similar to that of Part I, first providing a translation of the texts, which aims to be as accurate as possible. Appendix II presents these translations after making comparisons with Verbiest and Ricci, thus rendering it more comprehensible. I will then deal with some of the weirder 'stories' which run across the globe in all directions and explain their origin. Finally, I will consider both the description of the various peoples on the map – including their appearance, behaviour and habits – as well as the international geopolitical situation, leading to a conclusion which welcomes further responses.

2 General Geographical Overview

In summary, 99.5% of the toponyms match real locations, whether or not they include clerical errors. The exceedingly small remainder is of a historical nature, in the sense that the toponyms – including 'phantom' islands, places, lakes and a strait – are found only on previous maps and do not exist in reality.² Ephemeral

2 In addition to the six phantom islands cited below, the map depicts places and lakes of very doubtful existence which are the result of "errors in reporting, charting, and typography"; see Stommel 1984: xv. In this manner the Bernese map fills in the blank spaces with the Land of Anian (*Yani'an di* 垂泥俺地, F133), Bellouvoday (*Beiluludai* 臂露露帶, F118), Laguna del Dorado (*Jinyu hu* 金魚湖, F321), Lago de los Xarayes (*Shalaiyesi hu* 沙來葉斯湖, F394), and the Anian Strait (*Yani'an xia* 亞泥俺峽, F170). The latter is presented as one cartographic phantom among others which haunted the maps of history in Brooke-Hitching's *The Phantom Atlas* (2016: 12–17). The following six phantom islands are depicted on the Bernese map: Willoughby Island (*Weilubi dao* 未路比島, F43) is the first phantom island found on the Bernese *Kunyutu*; for further details; see Liesemer 2016: 142–144; and Morsier-Fritz 2021: 976, n. 74. The second phantom island is San Matteo (*Sheng Madou dao* 聖瑪竇島, F326) in the Atlantic Ocean, halfway between Ascension Island and the Gold Coast. It was first noted as Sanmetyos on Piri Rais's map in 1513 and has been copied ever since. Stommel comments on this, stating that it does not always appear to be true, although "it is often asserted to be wiser to leave doubtful islands upon charts than to remove them" (1984: 57). The third phantom island is 'The Bastion (against the) Waves' (*Langta* 浪塔, F292), which could be a clerical mistake, rather referring to *Bota* 波塔. The meaning is almost identical, but the pronunciation is different, and it is usually transcribed as Bight of Bony. I was unable to find any 'Langta' in this area, but Boni, the country of Ibani, can be identified as today's Bonny Bay in Cameroon. It is not possible to ascertain whether Langta is a phantom island or simply a clerical mistake. The fourth phantom island is Tasata Island

islands³ which emerge and submerge due to underwater earthquakes and volcanic activity do exist briefly or periodically, as may have been the case with Drake's Island (*Telaji dao* 特辣計島, F535).⁴ In contrast, namely geography in duplicate, can also be found on the Bernese map, which was no uncommon circumstance at the time but is definitely wrong.⁵ So I have identified persistent and significant geographical errors and likewise highlighted some factual errors.

Proceeding from China, the following considerations may cast doubt on the map-maker's Chinese affiliation. If the author was Chinese, then he should have made fewer mistakes related to his country and would have realised that 'China' is approximately 8 % bigger than he depicted it,⁶ but perhaps the map was made by a

(*Dasada dao* 達撒大島, F49); although it was considered an island on many old European maps, the Lena Delta Nature Reserve (Ust'-Lenskiy Gosudarstvennyy Prirodnyy Zapovednik) or Bulunski ulus in Russia's Sakha Republic is not an island off the coast, so it may well be the source of the phantom designation. The fifth phantom island is San Juan Island (*Sheng Ruowang dao* 聖若望島, F404), which seems to correspond to I. de Juan de Lixboa on van Keulen's 1680 map, but it disappears on later maps; see Buache 1802: 315–323. The position of San Juan Island is identical to that of the island of Dos Romeiros dos Castelhanos on A. Jaillot's geo-hydrographic 1706 map. La Roche Godon was on the island of Amsterdam, discovered by Juan Sebastián de Elcano in 1522. Amsterdam Island was associated with the lost ship *Ridderschap van Holland*, which Willem da Vlamingh searched for on the Brower route in 1696. Thus it may well be the case that San Juan is not Juan de Lixboa, as it is on van Keulen's map. On his way home, Elcano stopped on the Island of Romeyros dos Castilanes. Amsterdam Island is about 55 miles from St. Paul's Island (*Sheng Baoliü dao* 聖保綠島, F443), which Willem da Vlamingh probably sighted and visited in 1696. On the Bernese map the distance between the two islands is visually shortened by the depiction of a big ship (perhaps da Vlamingh's?). Thus San Juan Island could be Marion Island or a phantom island, as Brooke-Hitching refers to it (2016: 140). Stommel categorises this island as a mythical island, noting that it is no longer found in 19th-century cartography (1984:123). The sixth phantom island is Los Jardines (*Huayuan dao* 花園島, F307), which has been depicted in the Eastern Carolines since Saavedra (1529) and Villalobos (1543) visited, but because it was misplaced, this was probably a reference Namonuito Atoll; see Stommel 1984: 14–15. ³ I disagree with McLeod, who argues that "phantom islands do exist" in reality (2009: 129), except in the case of cartography, where they reflect the human imagination of the time. However, ephemeral islands do exist because they submerge or surface briefly.

⁴ Stommel writes: "Drake's Island refused to die at 57°20'S and approximately 78°W. It was sighted by 18th-century marine cartographers, but was generally lost by their 19th-century counterparts"; see 1984:77–78.

⁵ Pico Island (*Bige dao* 比各島), commonly known as Ilha do Pico in the Portuguese Azores, is found in both the Western Hemisphere (F216) and the Eastern Hemisphere (F181), albeit with a different spelling: *Beige dao* 北各島, cf. n. 135.

⁶ On the Bernese map, China extends over a little more than four grids (simplified for calculating the square of 20°N to 40°N and 40° in longitude), which are $2222 \times 2222 \times \cos 30^\circ$, corresponding to an area of 4,275,813 km². I compared this to four European grids (including England, Benelux, France, Spain, and Germany) with $2222 \times 2222 \times \cos 50^\circ$: they span a surface of 3,173,624 km². 'China' is 26 % larger than 'Europe'. So Ming territory is too small on the Bernese map. The provinces, as shown in the four grids (excluding Heilongjiang, Jilin, Qinghai, and Xinjiang), in reality cover an area of about 3,050,

copyist, regardless of where he was from. The glaring factual errors concerning Chinese geography include the following: *Xining* 西寧 (F193) as such is unlocatable in the real world; it should be written as the homophonic place name *Xining* 西寧 (F194; see Figure 1), which is now located in Qinghai Province and was then a military-administered Guard (*wei* 衛) with 5,600 soldiers,⁷ but the correctly spelled *Xining* is placed on the map where *Xi'an* 西安 is located in reality. Over to the west is *Suozhou* 索州 (F193), which the author confused with the *Suzhou* Guard 肅州衛, the last outpost station along the Great Wall.⁸

In spelling certain Chinese place names, some dots may be missing; others may not. Despite the missing dot in the '*da*' of *Daping* 大平 (F230), which can be overlooked, *Taiping* 太平, now *Chongzuo* 崇左 in Guangxi Province, is recognisable.

000 km², while the European area of the four grids (excluding Italy, Ireland, Denmark, and Austria) is approximately 2,480,000 km². As a result, China is 18 % larger than Europe. However, 'Europe' on the Bernese map is larger than what I consider Europe in the modern sense to be (see the countries in brackets above). It includes to the east, from north to south on the Bernese map: *Hopen Island* (*Wangge dao* 望格島, F43), *Willoughby Island* (*Weilubi dao* 未路比島, F43), the Polish-Lithuanian Commonwealth (*Lüeyi'er guo* 畧疑尔国, F114, F150), *Samara* (*Samala* 撒馬辣, F117), *Serachik* (*Seyishi* 色疑世, F153), *Gorgan* (*Ta'ergang* 塔尔岡, F153), *Persia* (*Bo'erxiya guo* 伯兒西亞国, F190), *Ghazna* (*Jiasina* 加思納, F190), and *Ormara* (*Yalaba* 亞辣巴, F226). This might rather indicate the limit of the regions known to Europeans at the time. Although I took 'smaller' Europe as my example, the discrepancy between the map and reality is 8 % 'in favour of Europe. This suggests that the Chinese map-maker(s) who made the Bernese map took a European map as their underlying cartographic source, so that Europe appears larger and more 'magnificent' than what has been marginalised and ignored. There are Chinese maps of Ming and Qing which had a Sinocentric view, just as European maps had a Eurocentric view. Both show the horizon of geographic and cartographic knowledge, and feature the most important political concerns of their time. The Japanese used the map *Dai Min kyūhen ban koku jinseki rotei zenzu* 大明九邊萬國人跡路程全圖 (*Complete Map of the Journey of Human Tracks and Roads of the Myriad Countries on the Nine Borders of the Great Ming*), which is based on the Chinese map *Tianxia jiu bian fenye ren ji lu cheng tu* 天下九邊分野人跡路程圖 (*Map of the Human Journeys on Tracks and Roads by Divisions and [Astra] Correspondences of [our Territory] under Heaven and the Nine Borders*) by Cao Junyi 曹君義 in 1644, which would have given our author a more accurate impression of how big China was compared to its neighbouring countries. It also shows that the map-maker(s) did not have access to the more recent maps made by the Qing court, e.g. *The Kangxi Imperial Atlas* (*Kangxi huangyu quanlan tu* 康熙皇輿全覽圖), 1708–1718, which would have changed his perception of space. Having made great conquests in the south, north, and west, Kangxi Emperor was 'curious' about the real spatial 'acquisition' and therefore not averse to the Jesuits' suggestion of adjusting the earthly measurements and of surveying his territory accurately for the cartographic enterprise (Needham IV, 1:54-55). In 1702, the *li* 里 and in particular the base measurement of Qing, the *chi* 尺 'foot', were restandardised, making it possible to 'remeasure' the size of their territory and adjust the geographic scope on their maps; see Figure 36 in Cams 2017: 202; cf. n. 40 in this article.

7 Hucker 1958: 59.

8 On Gansu, see n. 158.

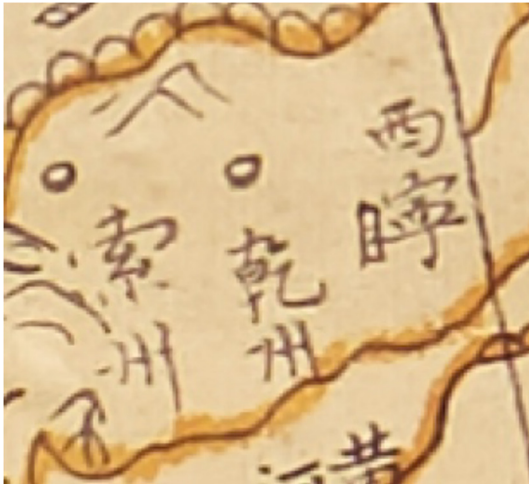


Figure 1: Ganzhou and Su(o)zhou (which form today's Gansu province) and Xining.

Taiping as a reference was very useful when looking for the position of Zhen'an 鎮安 (F230) because the latter is misplaced and should be located northwest of Taiping.⁹ A similar situation can be seen with regard to Moning 末寧 (F229) and Beisheng 北勝 (F229),¹⁰ both in Yunnan 雲南 Province (F229).¹¹ Due to Beisheng's position, it turns

⁹ Under the Ming and the Qing, Guangxi Province (F230) was divided into eleven prefectures (*fu* 府), six of which are located on the map. These are the prefectures Guilin 桂林, Pingle 平樂, Xunzhou 潯州 (the scribe wrote the wrong character for *de* 潯, which looks almost like the short character *xun* 浔), Nanning 南寧, Taiping 太平, and Zhen'an 鎮安, which is today in Debao 德保 County. Zhen'an used to be a local prefecture, which in 1658 became a military prefecture. When it gained importance, it became a civil prefecture in 1729. In 1738 it ceased to be a prefecture altogether, and Tianbao 天保 was given its position as a prefecture. Thus this could be a clue for dating the map: it renders the political situation between 1729 and 1738. Zhen'an, like Rongtui 容退 (F230), was more famous under the Yuan than under the Ming; it belonged to the subprefecture Wuzhou 梧州 and is mentioned for its importance, but without the prefecture's status. This would imply a date before 1729 or after 1738. In addition, Rongtui is written with the wrong variant A04130-025 for *tui* 退 instead of variant A03164-011 for *xian* 縣 in Rong District 容縣. On Rongxian; see Fuchs 1937: 229.

¹⁰ Today Beisheng is governed by Yongsheng 永勝 County. The Luoyi River 罗易江 flows east of Beisheng into Yongning 永寧 County. During the Yuan period Beisheng was a circuit (*lu* 路), which was reduced to a prefecture (*fu* 府) under Ming. It lost its prefecture status and was governed by Dali 大理 Prefecture from 1666. In 1692 it had once again gained in status, so Beisheng was promoted to a prefecture called Yongbei 永北 in 1698. Only one year later it merged with the regional Shunzhou 順州 Subprefecture of Heqing 鶴慶 Prefecture. Thus according to the Chinese administration, the map depicts the political situation between 1698 and 1699.

¹¹ The entire province of Yunnan had been governed by the Qing government since 1681, i.e. since the death of Wu Shifan 吳世璠 (1663–1681), the grandson of a Manchurian separatist family.

out that firstly, Moning should be written correctly as Yongning 永寧 and secondly, it should be located north of Beisheng, more towards Lugu Lake 泸沽湖. The copyist omitted the provincial borders between Sichuan and Yunnan, which should run along with the dots or spots (?) between Moning and Mahu 馬湖 (F230). Dudaο 都島 (F230), which he mistook for Duyun 都勻,¹² seems to belong to a province called Guiyang 貴陽 (F230), because the characters of Guiyang are tinted red like all the names of the Ming dynasty provinces. However, in reality it was the capital of Guizhou 貴州 Province, the name of which was officially established as the provincial name in 1413.¹³ Our copyist would have been better acquainted with the borders and the tributary regions of China if he had worked with government officials or had consulted Chinese maps. This would suggest he was in fact a copyist rather than an imperial cartographer.

Consider the case of the two names Bao and Annam: Annam is the Vietnamese pronunciation of the Chinese *Annan* 安南 (F230). Ricci clarifies on his map that old *Jiaozhi* 交趾 (F266) equals Annan.¹⁴ Both names figure on our map. From the 16th century onwards Annam was more or less divided into Tonkin in the north, ruled by the Lords of Chua Trinh 主鄭 (1545–1787), and an area in the south, where the Lords of Nguyễn 阮 (1558–1777) ruled, later called ‘Cochin China’. However, before the Trinh became predominant, the Mạc 莫 dynasty ruled in the north with the support of the Ming and Qing governments until 1677, but was increasingly forced into the mountainous region of Cao Bằng 高平 Province and its capital, thành phố Cao Bằng 城庸高平, along the border facing Taiping and Zhen’an on Chinese territory. Among Western maps, G. de l’Isle’s map mentions the Kingdom of Bao in the same place,¹⁵ while on our map we find *pao* 砲 (F230). ‘Pao’ was putatively transcribed from this

However, Guangnan 廣南 (F230) is coloured red, as if it were the name of the province. In fact, it was part of Baoning 寶寧 District in Qing times and up until 1913, when it became a regular district of Yunnan Province. On Martino Martini’s (1614–1661, S. I., Chinese name Wei Kangguo 衛匡國) *Novus Atlas Sinensis* of 1655, Quangnan (→ Guangnan) is more extensive than Quangsi (→ Guangxi); both are located in Yunnan. The details of Yunnan Province are not registered on Verbiest’s map.

12 Duyun 都勻 Prefecture was established in 1494, during the Qing dynasty; see Fuchs 1937: 227.

13 In 1413 Guizhou received the status of the 13th province (*sheng* 省) of Ming China, and Guiyang 貴陽 became a prefecture (*fu* 府) in 1569; for the names of the Ming administration; see Hucker 1958: 5, 44.

14 The capital of Jiaozhi 交趾 was Jiaozhou 交州 from Ming times until the 19th century. Sinologists do not always refer to the same geographic entity when they use the term ‘Cochin China’. The French *Grand dictionnaire Ricci* calls the latter Jiaozhi Zhina 交趾支那 and identifies Jiaozhi 交趾 as: A) a region including Tonkin 東京 (around today’s Hanoi) and the northern part of ancient Annam (Bắc Bộ 北圻 on the northern border), and B) mountain people from the high plateau in this region. However, a chicken from ‘Cochinchina’ is simply called a Jiaozhi chicken (*jiaozhi ji* 交趾雞); see I, p. 673a.

15 See the *Carte de l’Asie* by G. de l’Isle, 1700. Other maps also mention ‘Bao’ as on *Chine*; see G. de l’Isle’s 1710 map (entry 111) and Isaac Tirion’s *Nouvelle Carte de l’Empire de la Chine*, 1729 (entry 120); Caboara 2022: 442, 461.

French map without the transcriber realising that ‘phố’ was originally the Vietnamese pronunciation of the Chinese character *bu* 庸, the ‘big’ in thành phố or the ‘big city’ of Hanoi (thành phố Hà Nội 庸城河內). Be that as it may, Kecho (*kechu* 客出, literally ‘from where guests come or go out’) can be found as such on the map G. de l’Isle created in 1700.¹⁶ Kocio, Kecho, or Kacho are variants of the name of the biggest commercial and political city in Đại Việt and Tonkin until the late 18th century, where the king also had his palace, i.e. Thăng Long or modern Hanoi.¹⁷ There is not much written in Western languages about these places, perhaps because the Western companies – particularly the Dutch East India Company (Vereenigde Oostindische Compagnie, VOC), the British East India Company (EIC) and the French *Compagnie française pour le commerce des Indes orientales* – had to leave this place due to decreasing profits on silk and musk as well as to the court of Tonkin forbidding the Christian religion at the end of the 17th century.¹⁸

Another confusing situation concerns the treatment of the area around the ‘four long rivers’: the Red River, the Irrawaddy, the Salween and the Mekong. Looking at them from east to west, the source of the Red River (Hong he 紅河) seems to lie between Beisheng 北勝 and Dali 大理 (F229), which is wrong. The Lancang-Mekong (i.e. Lancang 瀾滄江-Meigong 湄公) is too short. Surprisingly, it begins too far to the east of Luang Prabang (*Lujiang* 路姜, F229), in today’s Laos. At about the same latitude, the Chao Phraya River (i.e. *Zhaopaiye* 昭拍耶 in Chinese) begins west of today’s Nakhon Sawan Province in Thailand, whereas the longer Salween (i.e. the Nujiang 怒江 in Chinese) and the Irrawaddy (Yiluowadi 伊洛瓦底, called Dajinsha 大金沙 or Lishui 麗水 during the Qing dynasty) also springs from Lake Jia 嘉湖 (F193), which lies southeast of the Samzhubze and Lhasa region (chin. Wuzang 五臟, tib. dbus-gtsang, F193).¹⁹ This location is astonishing in so far as these rivers usually spring from the mysterious ‘Stars Lodge’ Lake (*Xingxiu hu* 星宿湖, F193)²⁰ on older maps. Since the source of the Salween was discovered by the German glaciologist Dieter Ortlam only thirty years ago, one has to conclude that the map-maker did his best in geographical terms, especially if the map’s date of creation in ca. 1700 is taken as synonymous with what is depicted on it.

16 Kecho is the capital on the oriental coast of the river, which has the same name as the province and the Kingdom of Tonkin. The English and the Dutch had a *comptoir* (kontor) at Kecho, but the French did not; see Du Bois 1736: 657.

17 Hoang 2007: 37–38, and map 4.

18 Hoang 2007: 194–195; and Tran 2023: 182.

19 ‘Lake Kia’ was in ‘Kingdom Utsang’ (chin. *Wuzang* 五臟) on G. de l’Isle’s *Carte de l’Asie* map. Utsang is a plausible transliteration of the Tibetan *dbus-gtsang*, the former cultural province of ‘dbus’ or Lhasa and the adjacent province ‘gtsang’, which were then jointly administered in Samzhubze.

20 For the history and analysis of Star(s) Lodge Lake; see Vera Dorofeeva-Lichtmann 2018: 163–166.

The drawing of the rivers in Russia shows a lack of geographical perception as well as the unmeasured dimension of Russia, which reveal more about the year this map was created and its lack of understanding concerning Russian geography. After the reform of the administrative-territorial division of the Russian Empire on 15 January 1775, it was no longer possible to search for a river called Jaitsk, or even Jaick²¹ or Jaik (*Yayike he* 雅以克河, F153), since Catherine the Great (1729–1796; r. 1762–1796) changed the name of the Jaitsk River to the Ural River and the town of Jaitsk to Uralsk on that date. So this is a relic of a pre-1775 map, which records the situation at the time of Peter the Great (1672–1725; r. 1682–1725), whose dream was to open the empire to the East. Yet it was only his successor, Catherine, who achieved this by sending out research and surveying expeditions to explore the vast Russian Empire.

This may be the reason why our map shows some confusion regarding the Jennissei (*Yanici he* 亞尼此河, F86), Nizhnyaya (*Rinijiasi he* 日尼加斯河, F84) and Lena (*Lena he* 肋納河, F85) rivers. The locations of these Siberian rivers were unknown for a long time. They were copied from the map *Tartaria sive Magni Chami Imperium*, edited by Carel Allard (1648–1709) in 1705, according to Nicolaes Witsen's (1641–1717) notes. The latter was invited to visit Peter the Great and was interested in trade relations with Russia. A map representing the export products – such as bear, wolf and mink furs – was essential for knowledge concerning access to the lucrative fur trade.²² The French map-maker G. de l'Isle reported that he had consulted Dutch maps and added new toponyms on his *Carte de Tartarie*, published in 1706. The rivers of Siberia are also depicted on the Bernese map, but here they are still incorrectly located, although they likely correspond to the Ochota (*Yare he* 雅熱河, F88)²³ and Daura (*Delage he* 得辣格河, F89)²⁴ rivers. Lake Kolyma (*Gela hu* 葛辣湖, F87) and Kisilba Lake are not marked at all; I will discuss these lakes further below. In summary, the enigmatic 'Western Tingwei' River, which literally translates as 'the West has never heard of this river' (*Xitingwei he* 西聽未河, F87), should be the Lena, which is depicted on the map, but not in the right place.²⁵

21 The 'Jaick' River is found on the *Carte de Tartarie* by G. de l'Isle, 1706.

22 地產熊狼貂鼠，其皮他邦所重。(F118) "The region is prolific in bears, wolves, minks, and rats. Their fur is held in esteem by other states". The text block is brief, and the *Kunyutu shuo* (p. 759b, line 14) also explains the use of furs. The variant A03921-005 stands for *diao* 貂 (martens); in this case, it most probably refers to the European mink (*mustela lutreola*).

23 For the XREMZ transcription <jê> of *re* 熱; see Table 5 in Morsier-Fritz 2021: 972.

24 On the 1706 map by de l'Isle, the rivers Daura and Docestia are named as they are on Witsen's map. For instance, the most northerly Kalmyks, i.e. the Daors, lived there. The river's name is derived from the ethnonym of the people who lived around the rivers Amur, Zeya, and Bureyagave.

25 The river Kolima or Koloma runs to the north. It is distinct from the eastern course of the Docestia River, which comes from the Pehu, Lacus Albus, i.e. Lac Blanc on Nicolaes Witsen's map, Leiden, 1705.

In the vicinity of Tashkent, Taras (*Dalasi* 大棘斯, F154) is located northwest instead of northeast of the city.²⁶ In the same grid field as Tashkent, we find the toponym Lake Ksilba (*Jixiba hu* 几西巴湖, F155).²⁷ However, the geo-identifier LAKE (*hu* 湖) is not assigned to any body of water because the associated lake is nowhere to be seen. This raises the question of who was responsible for locating and drawing the lakes. Such an error may have occurred during the various stages of production, as described in the section “Visual Appearances and Technical Features of the Kunyutu” in Part I.²⁸

Three mountains are explicitly mentioned on the map and one is marked with the geo-identifier MOUNTAIN (*shan* 山). The ‘highest mountain(s) in the world’ on Verbiest’s map, known in Western literature since Herodotus (ca. 484–ca. 424 BCE), survived in one of the Bernese text blocks but the text was severely abridged, so that Herodotus’ original idea of mentioning the Atlas Mountains (*Yadala shan* 亞大棘山, F183) has been lost.²⁹ The other two are volcanic mountains, painted in a Chinese

The River Aldan, the main tributary of the Lena, has too many affluents on the right-hand side and a curious connection to the Docestia. Compared to G. de l’Isle’s map, the Kolima has lost its name on Witsen’s map. In addition, between Botalskoe and Mayskoe there are no more strange connections with the Maja, i.e. the upper tributary of the Aldan. The Mologeva flows into White Lake and finally ends in the Pacific. Therefore the confusion and error of locating Lena too far west and referring to the real course of Lena as the ‘Western Tingwei River’ (*Xitingwei he* 西聽未河) is probably an accidental reversal of the expected *wei ting* 未聽 as ‘has never heard’, or perhaps the influence of the dialect around Fuzhou, the Minnanhua, in which *wei* 未 at the end of a sentence resembles the modern *mei you* 沒有 (is not yet, has not yet), thus resulting in the ‘river of which the West has never heard’. Without locating Gela Lake, I propose a linguistic explanation: many lakes in this region where the Daors live and speak a kind of Mongolian, for instance the Ozhogino Sacha or the Elgygytgyn Ozero, are translated as lake or ‘göl’. On our map, ‘göl’ takes the place of *gela* and, along with *hu*, merges into one pleonastic geo-identifier, namely Lake-LAKE, so Lake.

²⁶ It does not matter whether it is today’s Taras in Kazakhstan or Talas in Kyrgyzstan which is referred to here: both are located northeast of Tashkent. What does matter, however, is which template the copyist used, because ‘Taras ou Talaz’ is located to the northwest of Tashkent (<Tas-kend>) on G. de l’Isle’s 1705 map, but ‘Taras ou Dahlan’ is clearly marked to the northeast of Tashkent (<Tachkunt>) on G. de l’Isle’s map one year later. Hence the 1705 map is relevant in this case.

²⁷ *Lac de Ksilba* or *Etrac geul* [Etrac köl, i.e. Zaysan] is marked on G. de l’Isle’s maps of 1700, 1705, and 1706. The *geul* is translated using the similar *gul* (*guo’er* 郭尔, F155) [Semei, Kazakhstan]. As Perlee comments: “In the 18th century, it [geul] went by that. Today it is Urengé or Ulengüür. In the northwest area of China”; see Kh. Perlee et al. 1985–86: 92. Ulengur Lake was and still is called Wulungu Lake 烏倫古湖 in Chinese. It is located next to Jili Lake 吉力湖, which was also called Buluntuo Sea 布倫託海, Big Sea (*Da haizi* 大海子), or Fortune Sea (*Fu hai* 福海). On the first European map created by Pieter van der Aa (Leiden, 1670), which was more precise about this region, the name of the lake was Latinised as Bilibas.

²⁸ Morsier-Fritz 2021: 954–958.

²⁹ The grammar of the following sentence is curious: 亞大棘山至商人呼爲天柱云。(F183) ‘When the Atlas Mountains are reached, merchants call: “(they are) ‘supporting heaven’”. The reason may be

style. The smaller mountain is in Iceland (*Yisilangdeya* 斯郎的亞, F73, Image F74). Its orographic name, *Heigela* 黑格辣 (F73),³⁰ stands for Hekla and literally translates the meaning of the stratovolcano as a ‘black burned grid’. In the northern part of the Korean peninsula, the quadruple mountain massif of Mount Hekla is painted and identified as Eternally White Mountain (*Changbai shan* 長白山, F160)³¹ in Chinese, equivalent to Whitehead Mountain (*Baegdu san* 백두산) in Korean. When comparing these two volcanoes, one wonders about the style and size of representation, whether it is of Chinese or European origin. Was a Korean or a Manchu at work here, someone who knew the Baegdusan as the highest mountain in the Manchurian region and the Korean peninsula? This was the ancestral birthplace of the Manchu Aisin Gioro clan of the Qing dynasty, the homeland where ‘the dragon rises’ (*long xing zhi di* 龍興之地), and therefore would have been depicted as very large to emphasise its

that the author confused Verbiest’s text with Ricci’s. Verbiest says: “Concerning the Atlas, [...] it is the highest mountain (range), [...] the people of the country call it ‘the pillar of heaven’” (*Yadala zhe* [...] *ci shan zui gao* [...] *guoren hu wei tian zhu*. 亞大辣者[...]此山最高[...]國人呼為天柱); see *Kunyutu shuo*, p. 763a, line 11. Ricci’s map states: “The locals call it the pillar of heaven. The people (there) sleep without dreams; this is extremely strange” (*turen hu wei tian zhu yun, qi ren mei, er wu meng, ci zui qi*, 土人呼為天柱云,其人寐,而無夢,此最奇). Apparently the author of the Bernese map mistook *zhu* 柱 for *zhu* 柱. Herodotus’ original text reads: ἔχεται δὲ τοῦ ἀλὸς τοῦτου ὄρος τῶ οὐνομα ἐστὶ Ἄτλας, ἐστὶ δὲ στεῖνον καὶ κυκλοτερὲς πάντη, ὑψηλὸν δὲ οὕτω δὴ τι λέγεται ὡς τὰς κορυφὰς αὐτοῦ οὐκ οἶά τε εἶναι ιδέσθαι. οὐδέποτε γὰρ αὐτὰς ἀπολείπειν νέφεα οὔτε θέρεος οὔτε χειμῶνος. τοῦτο τὸν κίονα τοῦ οὐρανοῦ λέγουσι οἱ ἐπιχώριοι εἶναι. ἐπὶ τούτου τοῦ ὄρους οἱ ἄνθρωποι οὗτοι ἐπώνυμοι ἐγένοντο· καλέονται γὰρ δὴ Ἄτλαντες. λέγονται δὲ οὔτε ἐμψυχον οὐδὲν σιτέεσθαι οὔτε ἐνούπνια ὄραν. G. C. Macaulay’s translation renders this as: “Near this salt hill is a mountain named Atlas, which is small in circuit and rounded on every side; and so exceedingly lofty is it said to be, that it is not possible to see its summits, for clouds never leave them either in the summer or in the winter. This the natives say is the pillar of the heaven. After this mountain these men got their name, for they are called Atlantians; and it is said that they neither eat anything that has life nor have any dreams”; 1890: Vol. 1, Bk 4, verse 184. The idea of Atlas supporting the heavens was adopted in cantos 510–512 of *The Theogony*, written by Hesiod (act. 750–650 BCE) between 730 and 700 BCE; see Hesiod and Voss 1817: 72; and also in Books 4 and 6 of *The Aeneid* by Vergilius (70–19 BCE); see Vergilius, Voss and Gütling 1890: 98–99 and 167.

30 Joan Blaeu (1596–1673) wrote *Hekla mons* on the map *Europae nova descriptio*, Amsterdam, 1659. Later maps depict it as *Hekli pial vel Hekla*, e.g. the *Tabula Islandiae*, Amsterdam, 1665. Ricci is said to have taken Blaeu’s map to China. Somewhat earlier, Abraham Ortelius (1527–1598) painted Hekla in the midst of an eruption on his map of Iceland; Amsterdam, 1585. He was probably very impressed by the volcano’s eruption in 1510.

31 The Koreans read the Chinese name Eternally White Mountain (*Changbai shan* 長白山) as *Jangbaeg san* but preferred the Korean name *Paektu san* or *Baegdu san*, depending on the transcription system: 백두산, i.e. Whitehead Mountain (*Baitou shan* 白頭山 in Chinese). It is evident that the name M(ont) Chanpe on G. de l’Isle’s map (Paris, 1705) was the Chinese or Sino-Korean inspired pronunciation of ‘Changbai shan’.

sacredness.³² Or was this done by a European, someone who had heard of the great Baegdusan and therefore drew it as a very big mountain? I do not know.

Africa caused more uncertainties than solutions in translation. This has to do with the fact that Africa was not surveyed until much later, beginning in the 19th century and extending into the 20th century. Verbiest's map was not very helpful either, especially since his depiction of the southern part of Africa is damaged and illegible. Ricci's map is easy to read but gives no further information. Examining the course of the Joliba, also known as the Niger River (*Hei he* 黑河, F254) running from Lake Chad westward to Timbuktu (*Tongbu* 同補, F254), the copyist may have used Ricci's map as a template. However, it was a traditional mistake to draw the Niger's course as a straight line along the 15th latitude north, from central Africa to the Senegal delta.³³ G. de l'Isle, *puer aurum*, cut the Niger into two parts on the map he made in 1722. Here the Niger flowed eastward and the Senegal flowed from Lake Maberia to the northwest. Therefore the place identified as Bérissa (*Bailisa* 白利撒, F255)³⁴ on the banks of the Niger must be moved to the south. Although today it is submerged in the reservoir of Lake Kainji, it could be identified as Bussa. Yet it is impossible to identify other place names on the map, such as Catambo (*Jiatongmo* 家童漠, F255),³⁵ the Suso River (*Susuo he* 蘇所河, F255),³⁶ the Baoulé or Brac-Oualle

32 Song 2017: 5.

33 On Piri Reis's 1525 map the Niger flows from two lakes beside Amosen and Medra in a westerly direction. In 1648 Joan Blaeu depicted the river flowing along the same path. Nicolas Sanson cut off the affluents flowing from the two lakes and located the source of the Niger east of Lake Chad, but it still flowed into the 'Senega', i.e. the Senegal River, on his 1656 map. G. de l'Isle continued Sanson's version on his 1700 *mappe-monde*, but he changed the river's course into a flat S-curve on his *Carte de la Barbarie de la Nigritie et de la Guinée* (Paris, 1707). On his 1722 map he broke the S-bend into two parts.

34 *Bailisa* 白利撒 (F255) – called Belissa, Bousra, Bowsa, Boossa, or Bussa in Western sources – is hard to locate on many maps because Mungo Park (1771–1806) explored the Niger first in the 1790s and for the last time in 1806. G. de l'Isle's maps include two different but similar names – Bérissa and Bousa – for the same place. Bousa is the 'famous' place where Mungo Park 'got lost' or 'wrecked' or 'ici périt', as noted on some maps. Bussa is hard to find, as both Mungo Park and also Bussa itself have disappeared into Lake Kainji since Nigeria built the Kainji Dam in 1968. Mungo Park's travelogue includes a companion map of the exploration made by James Rennells; see Park 2000.

35 Catambo is one of the places which can be located on older maps. At times it is also referred to as Cutambo or Cutumba, with a vowel change. It may even be rendered Tumby or Tamby, or concealed in the word 'Kumbi' in the name of today's Kumbi-Saleh.

36 The character *suo* 所 is always used to render the foreign *so* on the Bernese map; in this way, the river's name would be Suso. A toponym Sousos can be found on Joan Blaeu's map (Amsterdam, 1648), which does not explain whether this is a river. On G. de l'Isle's 1707 map, the people referred to as the 'Souso' is probably the Xoxos. The term 'Sousos' was used as early as the 16th century, and Mandinga described the people as 'also non-Muslim' in Birasu, Kabu and on the coast of Gambia. Bühnen presents a new identification of the Susu and locates the Susu Empire in Sankaran and Do, between

River (*Bao'eha'er he* 包厄_𠂇耳河, F254),³⁷ and the unusual toponym '*Muya*' 木亞 (F254),³⁸ which means 'gum Arabic'. Finally, the glaring omission of Bab el-Mandeb must be commented upon. The copyist forgot to trace it from the Red Sea (*Hong hai* 紅海, F223) to the Gulf of Aden.³⁹ Thus the subcontinent Asia (*Yasiya* 亞斯亞), written in prominent blue characters, is connected to Africa (*Liweiya* 利未亞), also written in distinctive blue characters, on both sides of the inland Red Sea. The nearby town of Yazd (*Esida* 萼斯得, F190) would be a better phonetic fit for the characters than Bost. Its location on the map, however, is much more likely to be identified with Bost, now Lashkargah, the capital of Helmand Province in Afghanistan.

Turning to the geographical errors in the Western Hemisphere, the text block placed in the 'Land of Anian' (*Yani'an di* 亞泥俺地, F133) is critical because it was not copied from previous maps. Most of the earlier maps located the Anian fretum at today's Bering Strait. The text says:

亞泥俺舟師尋得此峽,未|末往訪相通胡總灣否。如可|通此繞地,新路更便。西船以|至中国,可自四萬餘里。(F135)

The navigators of Anian search for a strait here, but they have not yet explored whether is continuous and connected to the Hudson Bay or not. If it could be reached overland, this new route would be far more convenient. Western ships could thereby reach China; it [now] measures slightly more than 40,000 *li* [about 10,000 nautical miles].⁴⁰

Manding and Senegambia; see 1994: 7, 17 and 1993: 77. The Sankarani River is located in the Sikasso region of Mali and is an affluent of the Niger. It is possible that 'Suso' referred to the Sankarani River. 37 As it is not evident which character 𠂇 is supposed to be, variants such as *yan* 兗, *ka* 喀, or *ha* 哈 are all theoretically possible. G. de l'Isle designated this place as the Kingdom 'd'Ouaille ou de Brak' with its main village, Ingurbel, on his 1707 map. The pronunciation of Baoulée, Bawol or Bolong in the Mandinka language resembles *Bao'eha'er* on our map, and its possible forms – *Bao'ehal, Bao(e)ya(n) l, or Baohwal – mean 'moving water' or 'tributary'. Perhaps this refers to the Ferlo River, which is not visible on the surface in the dry season, but is an underground tributary to Lac du Panier or Pania Fuli, which ultimately flows into the Senegal River.

38 The most appropriate translation for '*muya*' is 'gum Arabic'. *Mu* 木 means wood and *ya* 亞 is 'a', where 'a' probably stands for 'Arabic'; 'Arabic wood' is gum Arabic collected from the acacia tree, mainly from the *Senegalia Senegal*, and here we are a little further to the north. This wording has of course not been invented for this explanation, but is clearly indebted to the following sentence on G. de l'Isle's map: "Bois ou l'on cueille la gomme"; see his 1707 map.

39 Morsier-Fritz 2021: 976, n. 75.

40 The sea route indicated on the Bernese map was about 40,000 *li* 里. But which 'li' was used, and which route was taken? The *li* measurement varied among dynasties, and there was also a tailors' *li* and a *li* for geographic distances. Laws and regulations on weights and measures were promulgated many times over, and the exact length of these units and the ratios between them varied according to the dynasties and even within a dynasty. One *li* measured three hundred paces (*bu* 步), and the ratio to the base unit of Qing, the *chi* 尺 'foot', was five feet per pace. Before the *li* was definitively fixed in 1702, "some ninety years before the kilometre" (Needham 4.I,26: 55), the *chi* fluctuated between 30.

This text block clearly expresses the desire to reach China via the north-west passage (NWP), but such a passage had not yet been found. It remains unclear why the passage for western ships, i.e. European ships sailing westward instead of eastward on their way to China should be shorter and easier. The NWP would only have been more profitable for Americans on the East Coast. This is precisely what the dotted lines in F134 correspond to: they point to where the Anian Strait (*Yani'an xia* 亞泥俺峽, F170) would start and continue, using the map-maker's semiotic language.⁴¹ This desirable route indicates one of the map-maker's eager intentions. Either way, this text expresses Westerners' interest in looking for a shorter route to reach China more quickly, thus saving time and money.⁴² Why should a Chinese person think in terms of benefitting the West? Because he wanted to sell the map to a Westerner? Or perhaps the map-maker was himself a Westerner? Whatever the case may have been, everyone would benefit from shorter sea routes, in both directions. It is

80 cm and 33.52 cm. It was only then that the ratio and the *li* itself were standardised to 1 degree of latitude, equalling 195 *li* and 6 paces or 200 *li* (rounded up by order of the emperor) along a meridian. In France the famous statement for the *mètre des archives* of the French Academy was not pronounced until 1799: one ten-millionth of the Earth quadrant (North Pole to Equator) along the meridian at sea level corresponds to one metre. So the circumference of the earth was supposed to be about 40,000 km, which corresponds to 111 km per degree, which is in turn equal to the 200 *li*. Therefore 1 *li* corresponds to 0.555 km. At that time, the distance of '40,000 *li*' from the west to China in the text block would have been about 22,200 km; calculated in today's nautical miles (1 *li* 裡 = 1.852 km), it would be about 12,000 nautical miles (nm). The sea route from Europe (Rotterdam) to China (Shanghai) around the Cape of Good Hope encompasses 13,800 nm today. In 1644 Adam Schall von Bell (1591–1666, S. I., Chinese name Tang Ruowang 湯若望) stated before the Qing court that he had sailed this very sea route from the Western Atlantic, coming to the East by ship over 80,000 *li* (*da xi yang ba wan li chuan hang dong lai* 大西洋八萬里航海東來); see Huang and Han 2006: 278. However, Schall came to China during the Ming time, when one *li* measured between 451 and 479 m. Supposing we take the 'Ming *li*' as Brook does, as 480 m (2015: 109), then Schall sailed 38,300 km or 20,700 nm. Disregarding the old measurement for one *li*, this would correspond to almost twice as much. Thus 'the distance of 40,000 *li*' indicated on the Bernese map would more or less fit the Qing period measurement, depending on how straight the sea route was. After the Suez Canal opened in 1869, the travel distance was reduced to 10,557 nm. This obviously indicates that the author must have written the sentence referring to '40,000 *li*' before the Suez Canal opened. The north-east passage (NEP) along the northern Eurasian coast, which is 8,000 nm, is even shorter when the sea is navigable (see Buixadé Farré 2014: 298–324, Table 1), but "since the ships got stuck in the ice there", as text F54 mentions, this was not yet an option.

41 The fretum Anian is found at almost at the same spot on Zürner's *Planisphaerum Terrestre cum utroque coelesti Hemisphaerio* map in 1700.

42 Timothy Brook describes the situation at that time, as reflected in the commentary related to plate 21 in *A Complete Map of the Mountains and Seas of the Earth* (*Yudi shanhai quantu* 與地山海全圖), as follows: "A distinguishing trait is its depiction of a water passage across North America, a passage that northern Europeans hoped to find in order to shorten the journey to China and sidestep their Portuguese and Spanish competitors"; see Brook 2013.

therefore not *a priori* unimaginable that a Chinese copyist could have made the map to sell to a Chinese maritime and trade company, or even to a Western corporation based in East Asia.

Australia, called New Hollandia (*Xin Alandiya* 新阿蘭地亞, F413), is still ‘under construction’ on our map, and the few toponyms – such as Cape Leeuwin (*Shizi feng* 獅子峯, F446) and Wits Coast (*Weidesi an* 未得斯岸, F375), respectively ‘Landt van de Leuwin’ and ‘G. F. De Witt Land’ – located there, are taken from other maps. In short, we can say that the author was following European maps when he located Diemen’s Coast (*Diemensi an* 爹門斯岸, F377) along Carpentaria (*Jiabendaliya* 嘉本大利亞, F378).⁴³ Although Diemen’s Coast is located further west in the Northern Territory (near F376) on some maps from around 1700, and not in the Gulf of Carpentaria on the Queensland coast, it should not be confused with Diemen’s Land, which later became Tasmania.

2.1 Serendipitous Discoveries

Upon closer inspection of the map, I have accidentally and serendipitously discovered some inconsistencies of a cartographic nature.

The Bernese map depicts longitude and latitude. The lines of latitude are numbered every ten degrees on the circumference. The equator line seems to have identical units of ten degrees between each line of longitude, but in fact the minor tick marks vary (Figure 2), as do the ‘ten degrees’ of the circumference.⁴⁴ It is as if the copyist was not the sort of map-maker who worked with mathematical accuracy, but was rather an artist.⁴⁵

⁴³ New Guinea is not yet an island, but still connected to Australia by the *isthmus* of Carpentaria, as seen in the Eastern Hemisphere (F378). Considering the Western Hemisphere, however, there is a passage between Carpentaria and New Zealand (F343, 379, 415, 451, 487). The discovery of this passage, according to the labelling, is attributed to the Dutch navigator Abel Tasman (1603–1659) and is therefore called the Tasman Sea. Hence the question remains of whether Carpentaria should be placed to the north or to the south of Australia, or whether it is rather part of New Guinea on the Bernese map.

⁴⁴ The equatorial belt in the left hemisphere shows minor tick marks at 9, 7, 7, 6, 5, 5, 5, x, y, 5, 5, 5, 5, 6, 7, 8 and 9 degrees between the major tick marks of ‘ten degrees’. The equatorial belt in the right hemisphere deviates from the left hemisphere and has an irregular rhythm: 9, 8, 7, 6, 6, 6, 5, 5, x, y, 5, 5, 5, 6, 6, 7, 8 and 8.5. The minor tick marks in a field of ‘ten degrees’ on both circumferences vary between 9, 9.5, 10, 10.5 and 11. Thus we cannot find any rhythm at all. Other errors and missing characters can be detected on the extreme outer circle.

⁴⁵ For a most intriguing discussion of the role of art, poetry, calligraphy and painting in Chinese cartography; see Yee 1992.4: 29–47.



Figure 2: ‘Artistic’ ten-degree rhythm of the equatorial belt.

In determining the underlying source map for the Bernese map, it is essential to know that only one version of the Map on Old and New Square Models of the World [Showing] the Coordinates of the Myriad Countries Which Are Subordinated in Tribute to the Great Qing (*Da Qing tongshu zhigong wanguo jingwei diqiu shifang yu gujin tu* 大清統屬職貢萬國經緯地球式方輿古今圖)⁴⁶ by Zhuang Tingfu 庄廷敷 (1728–1800), namely the one dated 1800 in the Mclean Map Collection, also does not

⁴⁶ There are two different maps with the same title: Map on Old and New Square Models of the World [Showing] the Coordinates of the Myriad Countries Which Are Subordinated in Tribute to the Great Qing (*Da Qing tongshu zhigong wanguo jingwei diqiu shifang yu gujin tu* 大清統屬職貢萬國經緯地球式方輿古今圖), one of which is in the MacLean Collection and is dated 1800, and the other of which is dated 1794 and is in the Library of Congress (LC). According to Richard Pegg, the 1800 edition in the MacLean Collection is based on the 1794 map. He considers Aaron Arrowsmith’s (1750–1823) 1790 map, with the Mercator projection, to be the source map for the 1794 version, because it shows (a) Cook’s passages of world circumnavigation for the years 1765 and 1774, and (b) since it was “likely to be exchanged not in the tribute present to Emperor Kangxi from the British in 1793, but maybe a little later on”; see Pegg 2014: 35–42. I would like to add that French maps with sea routes, including Drake’s sea route, already existed in China at that time. Under the reign of Louis XIV (1638–1715; r. 1643–1715) several delegations were sent to China with gifts for Kangxi, including scientific instruments, maps, mirrors and letters. Many of these objects were exhibited in 2005 at the Palace Museum in Beijing and in 2011 at the Palace Museum in Taipei, Taiwan. On Western maps which had already found their way to the imperial household in Beijing between 1700 and 1740; see Fuchs 1935: 414. In the Far East there were a number of European maps. The inventory in the Hirado factory reveals that 199 maps of Britain were sent to Japan as early as the first quarter of the 17th century; see Brook 2013: 72 and 135.

observe a regular ten-degree rhythm along the equatorial belt. In contrast, on the 1794 map in the Library of Congress repository, there is a regular ten-degree rhythm along the equator, although some silk is missing in the Western Hemisphere where the Americas are located. The tropical lines and the polar circles are double lines.⁴⁷ As far as the position of Beijing is concerned, it is correctly placed at 40° latitude north, but it differs from other maps in terms of longitude. Since one can begin counting the degrees of longitude at any location where the width of the earth is measured, the author of the Bernese map may have wanted to number these last, or perhaps he was not even sure where to start or in which direction to proceed with the numbering, and so he did not write the longitudinal numbers at all (see Figure 3, boxes framed in red). This is also the case on both versions of the Map on Old and New Square Models of the World [Showing] the Coordinates of the Myriad Countries Which Are Subordinated in Tribute to the Great Qing.

However, the creator of the *Kunyutu* 坤輿圖 map in the First Historical Archives of China (FHAC)⁴⁸ drew the zero meridian traversing Beijing and numbered all the lines of longitude.⁴⁹

47 No mathematical annotations are made on this map, as was previously the convention. The map-maker simply drew double lines for the tropical lines of Capricorn and Cancer (*Nanbei huiguixian* 南北回歸線) and circles for the Antarctic and the Arctic (*nan bei ji quan xian* 南北極圈線).

48 This map is most similar to the Bernese map and has the same title, so I shall distinguish between them by referring to the FHAC-*Kunyutu* and the Bernese *Kunyutu*. For the FHAC-*Kunyutu*; see Zou and Huo 2000: 32–33. I would like to express my gratitude to Elke Papelitzky, who drew my attention to the FHAC-*Kunyutu* (p.c. 30.06.2019). The print in the book is barely legible. Unfortunately the archives have not published any further information about this coloured (wood?) print, and no scan or copy is available. The map measures 200 × 150 cm according to the FHAC librarian, who provided no further information about the whereabouts of the Western Hemisphere on the map. Neither the *Kunyutu* nor the Bernese map are dated, but Zou and Huo date the map to between 1698 and 1723 on the basis of its Chinese toponyms. (Cf. Fuchs 1937: 223, who recommends dating a map by means of its toponyms.) Comparing the section of the FHAC-*Kunyutu* which depicts southeast China with the Bernese map, it is evident that the handwriting is not identical and that the region around Fuzhou was not well known to the author of the Bernese map; see Figure 6, Morsier-Fritz 2021: 983.

49 The Chinese, however, preferred to use the traditional checkerboard division (*jili huafang* 計里畫方) until the end of the Ming period. Luo Hongxian's 羅洪先 (1504–1564) *Enlarged Territorial Map* (*Guang yu tu* 廣輿圖) measured 1 *cun* 寸 for 100 *li* 里. For details on 'raw' grid mapping, as Li Zhizao 李之藻 (1565–1630) called it in 1626; see Song 2019: 200; and Yan 1998: 49. In Ricci's time, the standard was that 250 *li* are equal to 1 degree of latitude. This standardisation only began after 1702, when it was redefined: 1 degree of latitude was equal to 200 *li*; see Cams 2017: 36, 63, 73. Today this distance is consistently 111 km. However, the distance between two lines of longitude varies: along the equator the distance is about 111.321 km, but along the 60th latitude it is only about 55.802 km. Under the Yuan, latitude and longitude coordinates were calculated with the influence of Persian knowledge; see Rossabi 2014: 281; and Gunn 2018: 52–54. Regarding the trigonometry, see the 'Procedure of Calculating the Circle' (*hui yuan shu* 會圓術) by Shen Kuo 沈括 (1031?–1095); Chen 2010: 37 and 71. Shen Kuo's knowledge of trigonometry, along with the Persian diagrams, probably helped Guo Shoujing 郭

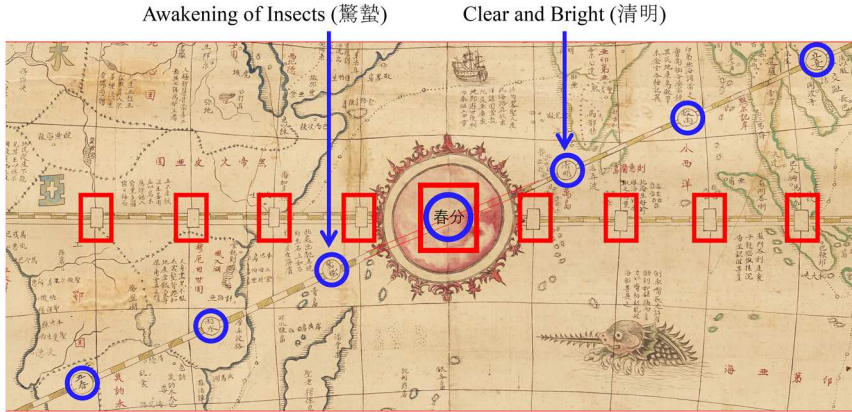


Figure 3: The Chinese seasonal calendar by decree (*Shi xian li* 時憲曆) on the ecliptic and the unlabelled longitude.

On our map, El Hierro (El Ferro of the Fortunate Isles) is covered with a cartouche, but Cabo Verde (*Lü an* 綠岸, F254, now Dakar, $17^{\circ}30'W$ Greenwich) next to the Ile de Gorée ($17^{\circ}50'W$ Greenwich) is visible. The Cabo Verde is $132^{\circ}W$ of Beijing and Ile de Gorée was calculated at $19^{\circ}30'W$ of Paris (*Balisi* 巴里斯, F147) in 1678.⁵⁰ This implies that the longitude of Beijing was at $112^{\circ}30'E$ of the Paris meridian. Adding the 2° difference between the Paris prime meridian and that of Greenwich gives us $114^{\circ}30'$, which is relatively accurate compared to Beijing's longitude today, at $116^{\circ}E$.

Verbiest's *Complete Map of the World* (1674) depicts the two hemispheres. The Western Hemisphere containing the Americas is on the right-hand side and the Eastern Hemisphere containing Asia and Africa is on the left. Thus a visual trick was used to move Beijing more to the centre between the two hemispheres and to situate China more prominently in the spotlight, which certainly pleased the Chinese emperors. Neither the Bernese map, nor Zhuang Tingfu's two maps, nor the FHAC-Kunyutu follow this 'Jesuit Chinese' tradition, but rather reflect the European perspective, although the latter draws the prime meridian through Beijing, as noted above.

On the Bernese map we also find twenty-two phenological names for the twenty-four solar terms of the Chinese rural calendar (*nongli* 農曆) on the ecliptic circle

守敬 (1231–1316) to create his own calendar (*shoushi li* 授時歷, literally 'the calendar by appointment'), which was used during the Yuan and Ming periods.

⁵⁰ Musall 2012: 16.

(see Annex I).⁵¹ The Chinese lunisolar calendar begins on the ecliptic at 0° with the Vernal Equinox (*chunfen* 春分), which is not marked with the Chinese characters (cf. Figures 2 and 3, inserted by me and circled in blue), as is also the case with the Autumnal Equinox (*qiufen* 秋分) in the Western Hemisphere, perhaps because the name would have spoiled the beautiful image of the red marbled sun in the Indian Ocean and the Pacific.

Emanating from the middle of this solar fireball every 15°, one of the twenty-four solar terms (*jieqi* 節氣) is displayed (Figure 3, marked in blue). Consequently, the next term to the east is the very famous ‘Clear and Bright’ (*qingming* 清明, F299),⁵² a time when Chinese clean the graves of their ancestors and worship them. The last term is at 345°, when the ‘Awakening of Insects’ (*jingzhe* 驚蟄, F332)⁵³ takes place. It begins at the very moment when the sun reaches 345° and ends at 360°, at the centre of the compass rose with the sixteen directional spikes in the Arabian Sea.

The representation of the rural calendar, which was based on the seasonal calendar (*Shi xian li* 時憲曆, literally ‘Seasonal Calendar by Decree’),⁵⁴ along the ecliptic was an absolute novum for the Chinese map-making world. It is only found on four other similar maps. The seasonal calendar can be found on both editions of the *Map on Old and New Square Models of the World [Showing] the Coordinates of the Myriad Countries Which Are Subordinated in Tribute to the Great Qing*, made by Zhuang Tingfu in 1794 and 1800, as well as on the FHAC-Kunyutu and the later Korean *Maps of the Front and Back [Hemispheres] of the Globe (Chigu chōnhudo 지구전후도, in Chinese 地球前後圖)*, made by Kim Chōng-ho 김정호 (Chinese name 金正浩, 1804–1866) in 1834,⁵⁵ which looks different to the latter three maps and the Bernese map. It is essential to understand why a map-maker would have an interest in copying the Chinese rural calendar onto a map. The seasonal calendar was released in 1643, after the calendar reforms undertaken by Li Tianjing 李天經 (1579–1659).

51 All the names of the twenty-four solar terms, which start with the unlettered Vernal Equinox and followed by Qingming, are listed in Annex I.

52 Qingming is around 4 and 6 April, according to the rural calendar, i.e. at 15° on the ecliptic circle.

53 Jingzhe is around 5 and 7 March, according to the rural calendar, i.e. at 345° on the ecliptic circle.

54 The *Grand dictionnaire Ricci* states: *xian* 憲 means law; decree; (Chin. cal. in particular): a calendar that indicates the activities appropriate to each season (II: 1112). *Shi xian li* is also the name of the Almanac at the end of the Ming (1644) period, based on the calendar that splits the year into twenty-four solar terms along the ecliptic, the apparent course of the sun. In fact, this calendar was established with the help of the German Jesuits Johann Schreck (1576–1630, S. I., Chinese name Deng Yuhan 鄧玉函) and Adam Schall von Bell, and previously implemented in the *Calendar Compendium of Chongzhen (Chongzhen lishu 崇禎曆書)* and dedicated to the last Emperor Chongzhen (1611–1644, r. 1627–1644 崇禎) of the Ming, who died in 1644. However, the calendar only came into effect under the first Qing emperor, Shunzhi, who ratified (*xian*) it in 1645 and of course no longer wanted a Ming imperial name in the title, so its name became the *Seasonal Calendar by Decree*.

55 This map is preserved in the Sungshin Women’s University Collection, Seoul.

According to this rural calendar, the solar terms were each 15° along the ecliptic.⁵⁶ However, they were rarely ever applied to a real map by practising map-makers.⁵⁷

Although we now know that Beijing is theoretically located at 40°N/114°E, one could nonetheless refer to the FHAC-*Kunyutu* 坤輿圖, where the prime meridian runs through Beijing. Unlike on our map, the small boxes are filled in and counted along this map's equatorial belt. The intervals of 10° longitude are regular and run clockwise in a westerly direction – unlike on the Verbiest map, where longitude is right-handed. The first box shows the Arabic number 5, the next 15 and so forth, such that the Vernal Equinox would be reflected at 55°W. No characters indicate the Vernal Equinox, and the sixteen directional spikes of the compass are depicted as they are on the Bernese map, only the solar ball is not as red. If the person who made the Bernese *Kunyutu* map knew the FHAC-*Kunyutu*, then looking at the longitude running clockwise and considering Verbiest's map, where the longitude runs counter-clockwise, he might have hesitated in his confusion and omitted labelling the numbers of longitude in the boxes (cf. Figure 2, boxes framed in red). Perhaps, knowing that longitude is not as solar-relevant as latitude in realising his goal of showcasing the seasonal calendar, he left the longitude unspecified.

On the FHAC-*Kunyutu* the seafarers' routes are marked, as is also the case on the Bernese map, where they occur as though they had been copied from G. de l'Isle's maps of 1700 and 1721. These had never been shown on Chinese maps before, nor did Verbiest indicate any sea routes.

The two maps are like twins; one became a 'mathematician', the other an 'artist'. Unfortunately the FHAC-*Kunyutu* is also undated and anonymous. However, its existing grid system could not be adopted for our purposes because it does not correspond to the reality of the Bernese *Kunyutu*. The reproduction of the FHAC-*Kunyutu* in the book *Selection of Historical Maps of Aomen (Aomen lishi ditu jingxuan 澳門歷史地圖精選)*⁵⁸ is of such poor quality that it is impossible to compare the two maps in detail. But there is no doubt that a comparison of the Bernese map with the FHAC-*Kunyutu* is an important research desideratum. We do not know whether the FHAC-*Kunyutu* has a Western Hemisphere at all. At least the Bernese map allows us to view both hemispheres. The latter may have used a template similar to the intact copy in the FHAC. Alternatively, both may have used an earlier, currently unknown

⁵⁶ If one divides the globe into twenty-four terms along the ecliptic, a new term occurs every fifteen degrees. However, the ticks on the ecliptic of the Bernese map are random rather than even, and so do not provide a regular rhythm of two or three degrees. The twenty-four terms are evenly distributed in a visual sense, beginning in the Eastern Hemisphere to the northeast of the Arabian Sea.

⁵⁷ Despite the Jesuits' help with calendar reform (1629–1634), Verbiest did not apply the rural calendar to his 1674 map.

⁵⁸ Zou and Huo 2000: 32–33.

map as a template. Both would seem to imply a target viewer who could have interpreted the Chinese rural calendar and who lived by its rhythm.

3 Sources of the Text Blocks

The map is not only replete with toponyms, it also features pictures – such as of fantastical animals and ships – as well as containing blocks of text. These text blocks comprise more than half of the Chinese characters on the entire map – more precisely 3,249 characters enclosed in 112 blocks. There are 603 lines of text recounting the specific products of various countries, the customs of the associated people and other curious facts. These are mainly located where a gaping void of unexplored territory occurs on the map, and where ‘unstructured space’⁵⁹ had to be filled in by European colonialists. The guiding principle in their adventurous minds was that the land of none (*terra nullius*) was theirs because they found it, although the land might have been sparsely populated.⁶⁰ It is all the more astonishing to find the following on the Bernese map, on the northern edge of today’s Alaska, where the author states in red: ‘land (where) to stop the meetings’. Or we could interpret this statement as follows: ‘land (where) to stop the company’ or ‘stop the company’s land’ (*zhi hui di* 止會地, F127 and F162).⁶¹ And of course, this was once again a misspelling of ‘this (is) Company’s Land’. However, the spirit of conquest had been omnipresent since Ricci wrote:

隨其楮幅之空載厥國俗土產。⁶²

Wherever a space happened to be left vacant on a leaf of mulberry paper, I inserted notes on the customs and products of the various countries.

So the land is imagined as conquered – whether for the sake of religion or gold, spirit or matter makes no difference. Verbiest presented the text blocks on the map in the same way as Ricci, but he added animals and ships. Our cartographer followed Verbiest’s example, copying either Ricci, Verbiest, or even both without acknowledgement and adding human figures of his own to the map.

59 Stolz and Warnke 2015: 116.

60 “This is the claim that Europeans made all over the globe from 1492 onwards justifying conquest”; so says Brook 2013: 9.

61 In fact, it should be written as *ci hui di* 此會地 and translated as: ‘this (is) Company’s Land’, and not as modern Chinese would translate it: ‘this (is) a meeting place’, which was used by the Dutch East India Company (*Vereenigde Oostindische Compagnie*, VOC) to designate their territories.

62 See south of the Tropic of Capricorn and west of the central meridian in Ricci’s preface to the *Kunyu wanguo quantu*, lines 12–13. For the English translation; see Giles 1918: 369.

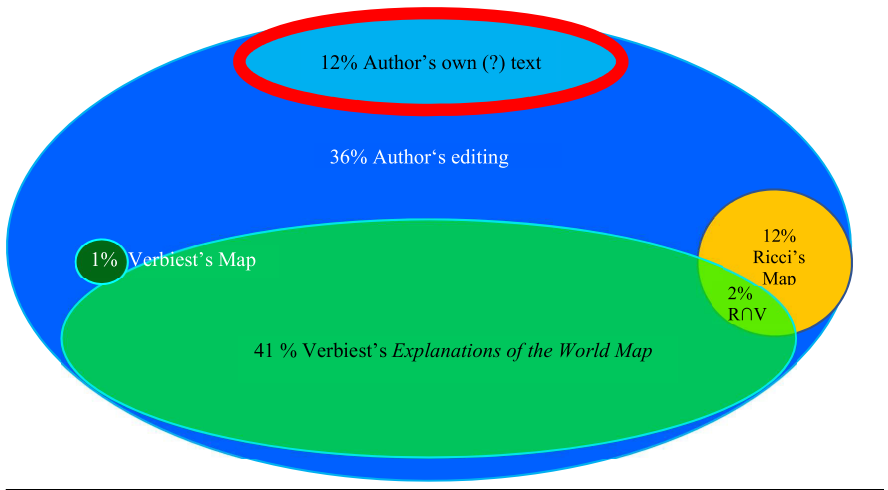
In considering who copied from whom, I found that nineteen blocks, or 12 % of the total characters, derive from Ricci's *Complete Map of the Myriad Kingdoms of the World* (1602). Eleven of the blocks were found exclusively on Ricci's map, two of which were cited almost verbatim, character by character. Verbiest had already integrated the original text from Ricci into eight other blocks (about 2 % of the total). This goes to show that the author of our map knew not only Verbiest's map or book, but also Ricci's. How else could he have copied the text that appears only on Ricci's map? Or perhaps he copied another map, one which had used Verbiest's and Ricci's maps as templates.

On the Bernese map, of the eight Ricci passages adopted by Verbiest, seven blocks are in *The Explanations of the World Map*, and only one passage is on the Verbiest map. In seven blocks the scribe has combined Ricci's text with further additions from Verbiest. Among these blocks, only one block was exactly 'half Ricci, half Verbiest', without a single new character added by the author. These 'mixed blocks' are ascribed to Ricci as the earlier author, but I have counted the characters that use Verbiest's words (2 %) as Verbiest's characters. The majority of Ricci's texts, however, were transcribed from Verbiest in seventy-four blocks. Sometimes every character was integrated, sometimes only two, but these are so characteristic that they are instantly recognisable within a text block. These copied characters make up 39 % of the total text in the blocks. Two blocks are only found on Verbiest's map and not in his *Explanations of the World Map*, and these make up 1 % of Verbiest's characters. We may surmise that the author also had access to the *Complete Map of the World* by Verbiest (1674) in order to copy these two passages. Thus there are a total of seventy-six blocks containing only characters by Verbiest, whether from his map or his *Explanations of the World Map*. This corresponds to 40 % of the total number of characters in all the blocks, along with 12 % of Ricci's – in other words, 52 % of the characters were copied.⁶³ A Venn diagram illustrates the relationship among these texts (Table 1). Note that if the characters had not been counted very strictly – i.e. disregarding (near or close) semantic synonyms such as 'vessel' (*bo* 船), 'ship' (*chuan* 船), 'boat' (*zhou* 舟) and 'junk' (*fang* 舫) – then the resulting percentage of matching text and or concepts would still be made up of approximately 54 % copied characters:

⁶³ In fact we could speak of plagiarism, because in Europe Nicolas Sanson (1600–1667) accused the Jesuit Philippe Labbe (1607–1667) in 1647 of having copied his geographical information about the itineraries of Ptolemy, Pliny, etc. without acknowledgment. And later G. de l'Isle, who was an excellent cartographer, kept a record of the information he used to draw his map. In 1700 he sued his competitor Jean Baptiste Nolin (1657–1708) for stolen data. Therefore we can say that plagiarism in map-making began with these two French cartographers.

Table 1: The Bernese map’s textual relationship to the earlier maps.

112 Text blocks: 3,248 characters in total	100 %	
<i>The complete map of the Myriad kingdoms of the world</i> (<i>Kunyu wanguo quantu</i> 坤輿萬國全圖) by Matteo Ricci	=12 %	
Verbiest copied Ricci’s map	=(-2 %)	
<i>The Explanation of the World Map</i> (<i>Kunyutu shuo</i> 坤輿圖說) by Verbiest	=41 %	
<i>The Complete World Map</i> (<i>Kunyu quantu</i> 坤輿全圖) by Verbiest	=1 %	
Ricci & Verbiest	=52 %	52 %
Author’s own (?) text blocks		12 %
Author’s own supplements and modifications		36 %
Total		100 %




3.1 Text Commonality and Unique Texts

As we saw above, the author of our map acted as a copyist, cutting and pasting existing texts. He omitted previous material, selectively incorporating texts which were still valid as well as composing additional material and thereby ultimately establishing his authority over the map. This section presents what he considered to be crucially important and what he thought needed to be supplemented, so that viewers of his map would be able to learn more about commercial or geographic knowledge of the world. Through his additions, we get a feeling for his motivation and an idea of for whom he may have made this ‘artistic’ copy. Even if nothing can be ascertained about the author, this map has at least enriched our understanding of the geopolitical situation in the 18th century. However, we cannot exclude the possibility

that it was merely the work of a diligent 19th-century counterfeiter who knew the lucrative value of antique-looking maps.

How much of the text emanates from the putative author or from another unknown source,⁶⁴ but not from Verbiest's and Ricci's prime stock, will be demonstrated in what follows. Only 20 of the 112 blocks of text are – possibly – purely original creations, and so I have selected these as critical for discussion in this section. They consist of a mere 370 characters (12 % of the total). The other 36 % were used to link, modify, interweave and embed the borrowed passages into his own texts (cf. Table 1). Therefore the author needed three times as many characters to complement the texts by Ricci and Verbiest and to create a (not always) coherent and comprehensible text block. Consider the text block about Europe, in which he inadvertently reversed Verbiest's thoughts by writing the word 'limit' (*xian* 限):

西国土勢物產|限難悉,惟以號各指之。(F146)

Since the extent (sic.: → limit) of each product grown under local conditions in Western countries is difficult to know, we simply refer to each by naming it.

This contrasts with Verbiest's statement that Northern European society enjoys prosperity due to an abundance of material goods.⁶⁵ The sentence also demonstrates that our copyist was aware that Western countries did not have provincial records as China did, or that the information about the Western products was not as easy to find as information about the Chinese ones:

中國物產詳|載省誌,不贅。(F232)

The Chinese products are detailed in provincial records, so will not be repeated (here).

Was this depiction of Chinese products intended as an attractive proposition for Westerners reading this map, who were motivated to look abroad for lucrative gains? At the same time, the author of the Bernese map may have consequently regarded his map as a prospective commodity for trading purposes. Did he also consider potential purchasers of his map? Since the map reveals a good understanding of commerce, trade and exploration, as well as of general knowledge at the time, it may have been offered to trading companies that were interested in information on those areas where good business could be done. The very first product the

⁶⁴ In writing this section, I also checked the text of the *Zhifang wai ji* 職方外紀 (*Areas Outside the Concern of the Imperial Geographer*) by Giulio Aleni (1582–1649, S. I., Chinese name Ai Rulüe 艾儒略) and Yang Tingyun 楊廷筠 (1557–1627), created in 1623, including the *Wan guo quan tu* 萬國全圖 (*The Complete Map of the Myriad Kingdoms*). There are four text passages which could be said to resemble (F74; F118; F143; F490), but they are not located in the same places.

⁶⁵ Verbiest *Kunyutu shuo*, p. 752b.


map-maker regarded as important was fish and its by-product, fertiliser. All over the world, the newly opened regions of Canada were a great resource in this respect:

此灘魚甚多。海濱|人漁之將漁頭肥|地。魚身塩乾。商船|數千往販大西諸|國賣之。(F143)

At these beaches [the Labrador Sea, Newfoundland, Labrador Province and Newfoundland] there is an abundance of fish. The coastal people catch them and prepare the fish heads for fertilising the soil. The fish body is salted and dried. Many thousands of merchant ships travel to trade with the various countries of the Great West, (where) they sell (the fish).

This type of fish preparation, entailing the removal of the head and innards, is particularly pertinent to cod, which is first salted and then air-dried. The text is a version of the passage F141 (see Appendix II), which was copied from Verbiest.⁶⁶

The following passage is not the author's own; Verbiest had already described how to use bait fishing on a ship in order to avoid starvation on a voyage:⁶⁷

大海有魚善飛，但不能高舉掠水|平，過遠至百餘丈。又有白角兒魚|能噬之，其行水中比飛魚更速，善|于窺影飛魚。|之，遠近。然能何其|影之所向，先至其所，開口待啖。舟|人嘗以白練為餌飄搖水面，給為|飛魚捕之百發百中。烹之其味甚|美。(F490)

In this Great Sea (the South Pacific), there is a fish that flies very well. It cannot soar high but can skim as far as 100 *zhang* (33 m) over the water's surface. There is also bacalao [i.e. cod] which eat them. They whizz through the water faster than the flying fish and are very good at observing where the shadow (of the flying fish) falls. The flying fish is afraid of (the cod), fleeing far away as (they) approach him. However, they can, of course, spot the direction in which the shadow [of the flying fish] goes, and reach (that place) earlier, waiting to catch their prey open-mouthed. Boatmen try to imitate (the flying fish) by using a white silk cloth as bait; they wave and flap it on the surface of the water so that they get one hundred per cent of the cod. If you fry them, they taste very nice.

The corresponding illustration at the top of the cartouche in the Western Hemisphere (F416–417, F452–453) is unique: a fisherman with a crown sitting on a canon-looking bowsprit of an invisible boat (Figure 4).

Another statement follows: not only are big fish like cod good to eat, but small ones also taste good and are easy to catch if only one knows how:

西海有魚。身雖|微，而胎于所底，|即足止，其速行。(F146)

The Western Sea [i.e. the Atlantic] has fish shoals. Although the fish are tiny, these little ones are [spread] all over the bottom. It suffices to stamp the feet to stop their quick movements.

⁶⁶ Verbiest *Kunyutu shuo*, p. 769b, lines 4–6; located in the northern part of Greenland on his map.

⁶⁷ Verbiest *Kunyutu shuo*, p. 774a, lines 13–16.

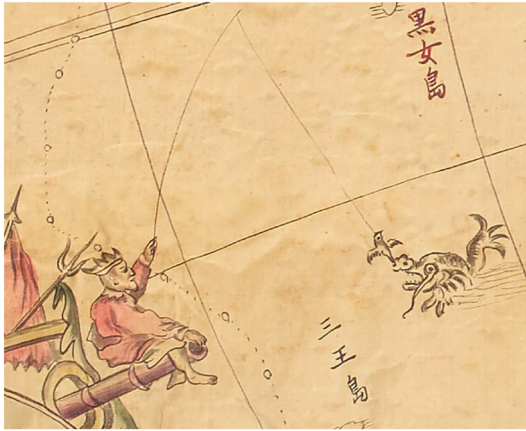


Figure 4: Fisherman sitting on a bowsprit, trying to catch cod.

Obviously this is a banality and does not necessarily indicate that the statement comes from a Western Atlantic fisherman. It is unclear whether the author was writing down his own experiences here or was simply well informed and had observed others:

海有怪魚，狀如飛魚。伏舟底兩翅左右包住。舟人欲以鎗刀刺之，或發大饒驚之，慮震動復舟。
(F240)

There is [another] strange fish in this sea. Its shape is similar to that of the flying fish. It hides alongside the boat hull, staying hidden on both sides of the bow of the ship. The sailors try to catch it with lances and knives, sometimes scaring it by making loud noise and by seesawing the boat repeatedly and dangerously.⁶⁸

Fish are also bred in the Dhofar region, but the area is better known for its frankincense:

產香樹百種，割之，有香油流出，為藥極效。又產乳香地處所魚。(F224)

Hundreds of types of resin tree grow here [Yemen]. If you cut them, the fragrant oil runs out from them. As a medicine, it is very efficient. 'Breast Perfume' also grows, and fish are bred on-site.⁶⁹

⁶⁸ This text is his own, but he may have been influenced by the picture in Thevet's *La cosmographie universelle* of 1575. No text in the *Kunyutu shuo* corresponds to this, but the caption to the picture of the flying fish might have inspired him. There it says that these fish fly directly to the guests on the boat; see *Kunyutu shuo*, p. 786b. For a picture of the flying fish and their predators by Francis Fletcher, ca. 1578; see Bawlf 2004: 92.

⁶⁹ Giles translates Ricci's text in the region of Arabia (*Ruxiang chan yu ci di, qi shu shen xiao, ta chu ze wu. you chan yi yao ming mie'er, la tu shi bu bai* 乳香產于此地，其樹甚小，他處則無。又產一藥名也尔，

The source text for this description may ultimately go back to Marco Polo (1254–1324), who had already identified the local product ‘Breast Perfume’.

As far as we know, the description and picture of a dolphin (Figures 5 and 6) had never been depicted on any other map. It must be the work of our author, but again, it seems that he had no idea what a dolphin looks like (F311 and F322–323). The idea of riding a fish is depicted in Figure 6, but not in Figure 5, which is next to the text.

In the text he writes:

得尔費諸魚性最良，喜音樂。人^拏琴可以騎之。或漁人為惡魚所困，此魚往鬪鮮魚，人之厄。故國法禁人捕之。(F310)



Figure 5: Is this dolphin (*de'erfei* 得尔費) the same as the one in Figure 6.

刺塗尸不敗) as follows: “Frankincense is produced in this country. The shrub is very small and does not occur elsewhere, it also produces a herb called ‘mo-êrh’ (myrrh) used for embalming dead bodies”; see Giles 1918: 381. So the ‘breast perfume’ (*ruxiang* 乳香) becomes frankincense (pure incense), i.e. *Boswellia serrata*, which is native to the Dhofar region and to Somalia. It is also collected as a resin obtained by incision or spontaneous exudation from the stem and branches, as the myrrh found in Somalia, Eritrea, Ethiopia, Oman, Yemen and Saudi Arabia. Scientifically, myrrh is a natural gum or resin from *commiphora myrrha* bushes (*moyaoshu* 沒藥樹) and is used as a perfume, incense and medicine. *Xiang* 香 can be translated as perfume, resin, incense, or fragrance, depending on its use. Giles transcribes myrrh (乜尔) as ‘mo-êrh’, which is closest to the phonetic transcription ‘mol’ in molmol, the myrrh (*commiphora molmol* Engler), which is a synonym of *Commiphora myrrha* (Nees). Other species which may be acceptable as sources of myrrh are *Commiphora abyssinica* (Berg) Engler and *Commiphora schimperi* (Berg) Engler; see ESCOP 2003. This species originally comes from Somalia. The pinyin transcription of 乜尔 reads *mie'er* and is closer to myrrh (*commiphora myrrha*). The author of the block text on the Bernese map is not as precise in his description of myrrh as Ricci; he simply mentions resin trees, to which he attributes general medical benefit; we are left to guess that this is myrrh, along with all its subspecies. Ricci knows that corpses are embalmed with myrrh in order to avoid decay, but Giles forgot to translate *bu bai* 不敗, meaning not to be defeated (by decay).



Figure 6: The dolphin that likes music.

The dolphin has the friendliest nature of all fish and it likes music. Therefore, people who play the violin can ride it. When a fisherman gets into trouble with a malicious fish, this fish goes for a fight with (the fish) in order to get the fisherman out of danger. That is why according to the laws of the country it is forbidden for people to catch it.⁷⁰

He ignored the fact that the dolphin is not a species of fish, and how would he know that dolphins prefer musicians? Numerous fish are painted on the map. Some are reminiscent of the original prints in Conrad Gessner's *Historia animalium*,⁷¹ while others – like the whale (*balena* 巴勒納魚, F288, Figure 8) – are inspired by the *Carta Marina* in Olaus Magnus' *Historia de Gentibus Septentrionalibus* (Figure 7). These

⁷⁰ The author uses a wrong character here, saying 'fishing the violin' (*yuqin* 漁琴) instead of 'playing the violin' (*tiqin* 提琴). The scribe did not copy but perhaps remembered Verbiest's passages, in which he described the 'all-white wolf' (*du bai lang* 都白狼) of Brazil; see *Kunyutu shuo*, p. 770a, line 3 and/or 769b, line 13, 767b, line 7. The exact name of the 'big white fish' on Verbiest's map is not legible, but it may be *nibailang* 擬白狼 [*ni/yi* 擬 (pseudo, to imitate, to intend) 'pseudo white wolf'] or or *nibailang* 擬白狼 [*ni/ai/ye/yi* 擬 (clumsy/to intend/serene, respectful appearance) 'peaceful white wolf' or 'respectful white wolf'], but it is certainly not *du* 都 'all-white wolf' (*bai lang* 白狼) or 'all-white fish', as some translations render it. The word for dolphin (*baiji* 白鯨) had been known to the Chinese since the 3rd century BCE and has existed in the middle and lower Yangtze for more than 2,000 years, but was described by Western zoologists only in 1918; see Moser 2009: 168–170.

⁷¹ It may sound ironic that some of the animals on the Bernese map that were copied from Verbiest's *Kunyutu* actually derive from the *Historia animalium lib. I de quadrupedibus viviparis* made by Conrad Gessner in 1551. Today they sit archived together, on the same shelf as the animals in Gessner's first publication by Christoph Froschauer, Zurich, in 1551. For the illustrations on the Verbiest map; see Walravens 1972.



Figure 7: Danger from whales in field K of the *Carta Marina*, as described in F288.

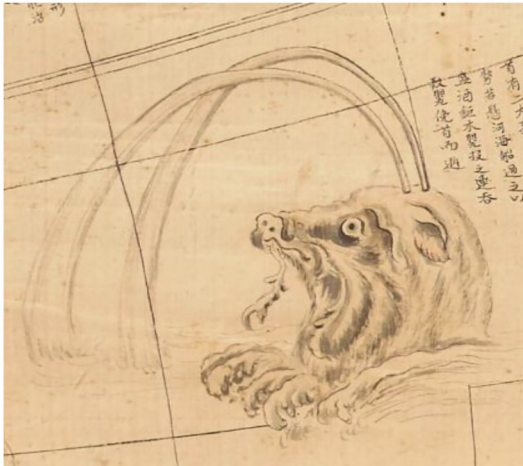


Figure 8: The whale (*balena* 巴勒納魚, F288) on the Bernese map.


colourful, artistic beasts and ships look like Western ‘Old Master’ prints, but the brushwork is less meticulous than the engraver’s burin. Generally the pictures on the map were not studied unless they were related to the theme of a text, as in the case of the narwhal⁷² (Figure 9), nor were the depictions of the massive galleons examined.

⁷² The passage reads: 海產獨魚。魚頭上有角長 ... (F522) “The sea produces a unique fish. On the head of the fish is a horn of a length ...”. In my opinion, this should be read ‘unicorn fish’ instead of ‘single fish’ by changing the first of the two syllables *yu* 魚 into the very similar looking *jiao* 角 (horn). The sentence then reads: “There is the unicorn fish [i.e. narwhal] in this sea. On its head is a horn of a length of ...” (*hai chan dujiao yu, toushang* ... 海產獨角魚, 頭上 ...), as an analogue to Verbiest’s



Figure 9: The narwhal (*dujiao yu* 獨角魚) is a unique fish (*du yu* 獨魚) on the Bernese map.

As the captain of a vessel, one not only had to look for fish, but also for bread to nourish the crew on the boat. Sailors were amazed that South Americans did not produce wheat, but used grass and roots for starch, and they reported this back home (to the cartographers). In the following text block, the manioc of the Tupi and Guarani people is equated with the yuca of the Caribs and the cassava of the Arawak people, but it is not specifically named. The starchy tubers have to be dried in the sun before being ground and processed into flatbread. This step in the processing of cassava is crucial because it allows the toxic cyanide content of the raw plant to evaporate. The grass may be a type of yam, also called tarot, which is also rich in starch and looks like a weed in the wild.⁷³ Finally, there was bread for the global seafarers:

地不產灰麥|不釀酒,用草|根  乾磨麵],作餅以當飴. (F359)

This region [Piauí, Brazil] does not produce grey wheat or brew alcohol, but instead uses grass and roots, which are sun-dried and ground into flour to make flatbread for eating.

unicorn (*dujiao shou* 獨角獸, lit. ‘unicorn beast’) in India; see *Kunyutu shuo*, p. 749a, line 4, and its picture and description on p. 777b. The narwhal does not look very like the *licorne de mer* (lat. *monodon monoceros*); see Thevet 1575: 431; it also differs from the non-aquatic one described in 1575: 128–131. For the toucan (F432); see Thevet 1558: 89. For the picture of the whales (Figure 7); see Magnus, Olaus (1490–1557) *Carta Marina*, Venice, 1539: scan 2/12.

⁷³ Pigafetta mentioned that the peoples take ‘the marrow’ [i.e. the manioc] between the trunk and the bark of a tree, yielding curd, which they leave in the sun to dry, and that they also have ‘batates’ [i.e. yams] and ‘roots’ [i.e. chapae]; see Pigafetta and Jostmann 2020: 55, 59 and 69. Vespucci explained that the peoples eat roots and make flour from them, and that the various peoples call the tuber by different names (i.e. Lucha, Ignose and Cambi); see Vespucci and Schwarz 2014: 121, 147.

In two places the author warmly recommends amber (*hubo* 琥珀) on the shores of the Baltic Sea⁷⁴ and of Madagscar:

此處出馳名琥珀生石上,如石乳,然多在海濱(sic.: → 濱). (F332)

This place produces amber, which is well known far and wide. It grows on stones like 'stone milk' [stalactites] and of course, is found prolifically on the seashore.

He apparently believed that amber grows on stones. However, he considered this same 'amber' to be a liquid, greasy paste which comes from a crevice on the ocean floor and then appears on the surface, hardens and is washed ashore; he has written this on *Carpentaria*, which was part of New Hollandia:

東海多出琥珀,乃是海底脂膏,從石隙流出。初如由(sic.: → 油),天熱浮海面,見風如凝,天寒出隙便凝,每為大風衝至海濱. (F342)

Huge quantities of amber are extracted from the Eastern Sea. This is a greasy paste which oozes out of a crack in the rocks on the seabed. Initially it floats on top of the sea like oil as it warms up naturally. When exposed to the wind it solidifies, and in cold weather it produces cracks and is washed onto the shore with every major wind.

Finally, processing methods can turn amber into medicine, as the text written on Alaska elucidates:

担用法製之,則堅凝如琥珀子,醫可有大有. (F129)

Through processing methods it is hardened into tiger amber, which is of great use in medicine.

This probably refers to ambergris (*longyanxiang* 龍涎香) rather than amber and is most likely incorrect. Amber can indeed be found where Verbiest indicated, namely in the Baltic Sea and in the Arabian Sea.⁷⁵ The knowledge of ambergris in the Arabian Sea is probably reminiscent of Marco Polo's passage on Socotra (see note 136). Whether the ambergris from Persia⁷⁶ was also meant to be 'amber' is difficult to say. But there is no denying that amber was a very coveted item in trade, as were genuine

74 海濱生琥珀(sic.: → 珀)極多. (F113) "This seashore [on the Baltic Sea] is extremely prolific in amber".

75 Verbiest said that amber (*hubo* 琥珀) is found in Poland and Madagascar; see *Kunyutu shuo*, p. 758b, line 3; 775b, line 1; and 765a, line 3. On the ambergris between Persia and the kingdoms of Black People; see *Kunyutu shuo*, p. 775b, line 2.

76 海出珍珠龍涎香. (F189) "[In this region of Persia] real pearls and the Fragrance to Extend [one's Life] Like a Dragon [sic.: → Perfume of the Dragon Saliva, i.e. ambergris] are extracted from the sea". The sea which yielded the ambergris is hard to locate on the Bernese map because the text is located on the Persian mainland.

pearls (*zhen zhu* 珍珠), which were said to come mainly from Persia⁷⁷ and Ceylon.⁷⁸ Vespucci noted that the peoples of the New World also knew how to fish for pearls and cultivate them in oysters.⁷⁹ However, our author was once again poorly informed on Scottish pearls, which are the freshwater variant, stating:

此海濱產珍珠. (F111)

This seacoast is prolific in real pearls.

Thus he was no European, or at least no expert on the matter. In many other places, such as the area around the Eastern⁸⁰ and Western⁸¹ Red Sea and the Mozambique Channel,⁸² corals and pearls are sourced locally and traded at a reasonable price. All kinds of beads and pearls⁸³ were the perfect merchandise for global trade at the time and were very much in demand at the jewellery markets patronised by European royals and wealthy people.⁸⁴ Like all previous authors, our author did not distinguish pearls from corals; almost all the authors referred to them by the generic term *shanhu* 珊瑚. Verbiest at least separated the beads into three different colours – whether red, white, or black – even if he continued to call them *shanhu*.⁸⁵ On the one hand, the term coral is found in the Mediterranean Sea as well:

77 地產金宝海出珍珠 ... (F189) “This region [Persia] is prolific in gold and treasures; there are real pearls, [...] all of which is extracted from the sea”.

78 此海生好珍珠. (F300) “This sea [Gulf of Mannar, Laccadive Sea] grows very fine real pearls”. Verbiest says: “In this sea [from the chapter on Ceylon, so he is referring to the same sea], there are a lot of real pearls”; see *Kunyutu shuo*, p. 750b, line 5. Pearl fishing in the Gulf of Mannar was already famous in the time of Pliny the Elder.

79 Vespucci and Schwarz 2014: 164 and 168.

80 此紅海多產珊瑚 ... (F172) “This [Eastern] Red Sea [British Columbia] is prolific in corals”.

81 濱產珊瑚寶石. (F223) “This coast [along the Red Sea] is prolific in coral and gems”. Indeed, the Red Sea coast is fringed by a reef prolific in coral.

82 此海有暗礁(sic.: → 礁).水洞(sic.: → 洞)礁出,悉是珊瑚,猫暗(sic.: → 睛),寶石,各處不乏. (F403) “This sea [East Africa, north of the Cape of Good Hope] has dark [i.e. deep] reefs [under] water and dry reefs out of [over water, i.e. cliffs], which are all made of gems like coral and cat’s eyes, which are in abundance everywhere”. This was also important to mention since fringing and barrier reefs, as well as atolls, consist mostly of coral and are dangerous to navigation; cf. *Kunyutu shuo*, p. 775a, last line–775b, line 1.

83 爪哇 ... 物多金良(sic.: → 銀)珠寶瑪瑙犀角象牙木香俱有. (F374) “Java [...] Among the many goods, just about everything exists: gold, silver, beads, gems, malachite, rhinoceros horn, ivory and sandalwood”.

84 For the history of pearls, see the introduction to *Sustainability and traceability in marine cultured pearl production*, Cartier 2014: 14–16.

85 “At first they are green in the water, then they turn into white beads. When people collect them with a net from the water, they become solid. There are red, black and white, the red are firm and dense, the white and black are soft and brittle”; see *Kunyutu shuo*, p. 775a, lines 13–16. The red coral is

此海之底,些珊瑚樹林也. (F184)

At the bottom of this sea, there are several forests of coral trees.

No pearls were cultivated there, and so the term ‘coral’ is therefore correct. On the other hand, the term was also applied to corals along the not-yet-defined coast from San Francisco to Vancouver. Since the text originated with Verbiest, who placed it next to the ‘Coral Islands’, the author most likely meant pearls. The text on the map explains pearl cultivation as follows:

此海湾多產珊瑚。人取之先作鉄(sic.:→織)綱沉水底。珊瑚貫中,而生長。因絞綱出之故, (F169).

This bay [British Columbia?] is very prolific in corals (i.e. pearls). Before people collect them, they sink a strong (sic.: → fine-meshed) net to the bottom of the water. Once the grain [i.e. the epithelium] of the coral has penetrated, (the pearl) grows slowly. Due to the nets getting tangled, they break through, which is the reason why it is so difficult to retrieve perfect ones.

Thus the author is referring to the pearls rather than the ‘corals’ of the ‘Coral Islands’⁸⁶ in French Polynesia and in Ceylon, which are still famous for their beauty today. So the ‘Coral Islands’ – i.e. Marquesa Island,⁸⁷ which indeed consists of coral reefs – could also have been understood as Pearl Islands.

Yet it was not only pearls and gems for wealthy nobles who could afford to buy luxurious showpieces which fetched a high price on the market. The author also knows that goods made of gold from distant lands such as Kalimantan, Selatan and Borneo are rare:

此地產捏捏,挂章,金宝. (F339)

At this place, needles, buckles and other golden treasures are produced.⁸⁸

certainly identical to fire coral. I doubt, however, that Verbiest’s reference to black coral meant the black coral typical of Hawaii, but rather black pearls. Our author adopted the first part of this passage for the ‘coral’ trees of ‘Coral Island’; see text F307, n. 86. The second part of this passage is transcribed in F403; see n. 82 above.

86 此處多珊瑚樹生|水底。色綠質軟,生|白子,以鉄岡取之。|出水即堅而紅色. (F307) “In this place many coral trees grow at the bottom of the water. Green and of a soft texture, they grow to white grains, which are collected with a fine-meshed net. Once out of the water, they become hard and red”. The Bernese author edited Verbiest’s passage, which unfortunately had the result of robbing the text of its content: white turns into red instead of enumerating the three colours.

87 For the identification of the Marquesas; see Mückler 2015: 191.

88 N.b. *niegua* 捏挂, this could be pins, clasps, buckles, or clips.

Fur was another sought-after item. That is why our author copied Verbiest's text, but changed and relocated it to the region in which the Cree Indians lived:

地產貂狐熊狼. (F175)

This region is prolific in minks, foxes, bears and wolves.

This passage provides evidence that he knew more about the wildlife and geography of his time than Verbiest did of his period. For once the author does not blindly copy the text of Verbiest,⁸⁹ who claimed that wild mammals such as lions, elephants, tigers and leopards lived in western North America,⁹⁰ although the first three of these animals have never lived in the wilds of North America.⁹¹ This may imply that our author lived much later, or that he was better informed than Verbiest. The animals he mentions were hunted for their fur not only in North America, but also in Russia and Kazakhstan, which is why he writes in his own words:

地產熊狼貂鼠,其皮他邦所重. (F118)

This region is prolific in bears, wolves, minks and rats. Their fur is held in esteem by other states.⁹²

To alert trappers and explorers, he added a warning to Verbiest's text. This was a copy of Ricci's text summarising the words of Magellan, who in 1520 nicknamed the Tehuelche 'big feeters' (*patagones*).⁹³ The scribe turned the Tehuelche or Arauca not only into carnivores, but into cannibals:

其人少,如欲散,走遇|人及鳥獸,輒殺而|食. (F500).

⁸⁹ Surprisingly the author of the Bernese map did not copy the characters of the Russian rivers from Verbiest's map. Verbiest called the Don the *Danai* 大奶 and the Dnieper the similar-sounding *Danai* 達乃, while the Don and the Dnieper have different names on the Bernese map, namely River *Danai* 達乃河 (F116) and *Nieba'er* 聶白尔 (F114).

⁹⁰ 北亞墨利加西 ... 獅,象,虎,豹等獸成群皮甚賤; see *Kunyutu shuo*, p. 770a, line 3. "In the West of North America [...] wild animals such as lions, elephants, tigers and leopards etc. live in herds and their skin is very cheap".

⁹¹ The extinct Pleistocene Alaskan lion (*panthera atrox*) is not taken into account.

⁹² The character for mink is the scribe's variant of A03921-005 for *diao* 貂, i.e. the *mustela* or *martes melampus* (see ZWDCD), and means marten, better known as mink (*mustela lutreola*) in the European and Russian areas. The map-maker did not explicitly mention the purpose for which the fur was used. In contrast, Verbiest mentioned that bear fur is very warm and is used for sleeping on; see *Kunyutu shuo*, p. 759b, line 14. The character *bang* 邦 was not mentioned in the section on taboo characters because it is not significant and was taboo only during the Han period, referring to other 'kingdoms' or 'duchies'.

⁹³ This originally meant 'big footprints'; see Vespucci and Schwarz 2014: 166.

The men of it [i.e. Patagonia] are few in number; they like to roam, and whenever they encounter men, birds, or beasts, they unceremoniously kill and eat them.

The dangerous aspect of the journey – one can end up as an arrowhead – is that Westerners ‘bring civilisation’, e.g. cooking with fire is crucial:

賊島人從未知用火。|飲食俱生。近西舶至。|彼教。以取火爲烹。地|無鉄箭。以人骨爲銳。(F270)

The inhabitants of the Thieves Islands [i.e. Mariana Islands] did not know how to use fire. Food and drink were [consumed] raw. Recently, western [people in] boats came and taught (them) how to cook with fire. There is no iron for arrows; instead, human bones are used to make arrow points.

The following text is neither from Verbiest nor from Ricci. It may have been inspired by the *Carta Marina* made by Olaus Magnus (1490–1557) in 1539. Unfortunately, the author abridged the text in such a manner that the dolomite rock⁹⁴ took on an alchemical property, and ‘silk’⁹⁵ like sand is found in Iceland:

此島生一種石。取煮之|成絲。可以織。火浣布。古|人火化人屍。以此布包|之。其骸燼灰存在布內。|不散。便貯確中。(F74)

The island produces a kind of stone that turns into silk which can be woven [after] the fabric has been boiled with fire and ‘bleached’. The people of earlier times cremated the human corpses, which were wrapped in this fabric. Their skeletons and ashes remained in the textiles and were not dispersed in order to preserve them in there.

The scribe continued to gather information from Verbiest’s map, where it says: “the Egyptian people are full of knowledge with a passion for the sciences”, probably drawing on Ricci’s statement that the people of this region are ‘refined (*qing* 精) in astronomy (*tianwen* 天文)’, he concludes:

昔此處多修隱藏之士。(F221)

⁹⁴ According to Olaus Magnus, sulphur is abundant on Iceland because of its volcanic mountains. The fiery sulphur burns continually, and those who come too close are easily suffocated by the force of its dust and burning sparks; see 1599: 37–38. On the *Carta Marina*, ‘sulphur’ is written south of Hekla Mountain; online scan 2/12. Iceland’s geology includes primarily magma and basalt.

⁹⁵ This probably reflects a confusion between flax and silk. Flax was widely grown in Northern Europe. For fibre production, the flax straw is retted in the field. The flax is ‘burned’ to degrade the pectin. Only after being threshed, broken and hackled are the fibres refined. The process of retting releases an acid, which is absorbed by adding dolomite rock to the water because dolomite contains sulphur, thus absorbing the excess CO₂. The source of this text may come from the “A, c” detail in the table on the *Carta Marina*, 1539. In the lower left-hand corner, it reads: “thanks to the peculiar nature of the fire (mixed with sulphur), it consumes the water but cannot harm the flax”; online scan 8/12.

Formerly, there were many scholars here, [i.e., Sabah, Libya,] who were well versed in occult practices.

Or should this sentence be read completely differently, namely that ‘the scholars were well versed in healing the womb (*xiu yincang* 修隱藏)? In the first case, astronomy is anything but an occult practice, and in the latter, one wonders where the author of the Bernese map got the information that medicine men in Uganda, Abyssinia and Sudan were proficient in gynaecology.⁹⁶

Considering the various text blocks, the author may have surmised that many countries seem to be stuck in immoral conditions, with the exception of Western countries, which were also ‘full of knowledge and passion for science’. His religious and, above all, missionary-centric view of the time comes to the fore in the following texts. Whenever he wrote about religion or doctrine, he called it simply the ‘true’ or ‘right teaching’ (*zheng jiao* 正教).⁹⁷ He maintained his belief by stressing that this was

96 In Africa, caesarean sections performed on the living were known in Uganda, Abyssinia and Sudan. In male-dominated societies the caesarean section, particularly making an incision in a corpse, was the domain of medicine men or cult leaders, who maintained secrecy and dominated the people, especially the women. The early Likundu thought developed by African peoples led to a medicinal culture which mixed the biological and physiological concepts of power with the later concept of power in magic; see Hofschlaeger 1953: 80, 85, 89. The transfer of gynaecological knowledge from North Africa to Europe probably took place via Avicenna and Albucasis in the 12th century; see Schäfer 1996: 292. European knowledge of the historical ‘embryotomy’ was an eminently important issue in aristocratic circles and was first documented in writing by François Mauriceau in 1682. For the manuscripts tracing back to Ethiopian and Persian sources; see Schäfer 1996: 285, n. 44.

97 In China the term ‘orthodox teaching’, ‘orthodox doctrine’, or ‘orthodoxy’ for short (*zheng jiao* 正教) is used on the one hand to denote Russian Orthodoxy, as distinct from Roman Catholicism, and on the other hand to indicate Muslims’ claims concerning Islam, that it is considered the only ‘correct religion’ of Allah (*zhengque de zongjiao* 正确的宗教); see Ren Zhiyu 1981: 268–269. These definitions are modern statements. In earlier times the term appears in the *Imperial Reader of the Taiping Era* (*Taiping yulan* 太平御覽), compiled between 977 and 983, or in later Ming fiction, and expresses ‘right teaching’ without any specific connotation of religion. Where the term was used in a religious context, it was associated with both Daoism and Buddhism. For instance, in chapter 3 of the *Journey to the West* (*Xiyou ji* 西遊記) by Wu Cheng’en 吳承恩 (1500–1582 or 1505–1580), the term *zheng jiao* 正教 was used to refer to Buddhism as the ‘right teaching’: “Push (the wrong teaching) through the side door and learn from the right teaching (*tuidao pangmen zong zheng jiao* 推倒旁門宗正教)”; see Wu Cheng’en: 1991: 619. In the late Ming and early Qing period, Wang Daiyu 王岱輿 (1584–1670), himself a Muslim, pointed out in his treatise *True Explanation of the Orthodox Doctrine* (*Zhengjiao zhen quan* 正教真詮) that “the doctrine which advances its principle (*li* 理) for a long time is called the orthodox doctrine (*tui qi li zhen jiu bu pian de zong jiao wei zheng jiao* 推其理真久不偏的宗教為正教)”, i.e. Islam. In other words, a religion which neither changes its principle nor adapts to the times is a conservative, orthodox religion. So the Jesuits called Catholicism *zhengjiao* not because it had not changed its principles for a long time, but because it presented the right (*orthós*) doctrine (*dóxa*) of the Heavenly Lord (*tianzhu zhengjiao* 天主政教) to believers.

the only ‘doctrine’ to dissuade ‘the locals’ (*ci di ren* 此地人), i.e. the Anishinaabe, from being.

... 如獸散居野合.知母不知父. (F173)

... like beasts living scattered about and wildly copulating,⁹⁸ [such that] they recognise the mother, but not the father.

He was terrified of people like the Iroquois (*Yiluogui* 依落鬼; note the translation of the name Iroquois as *gui* 鬼, for devil), who were cannibals⁹⁹ and:

... 戰鬪,好食仇心. (F211)

... fought in battles and loved to devour their enemies’ hearts.

He was also afraid of the [Aztec] people, who:

... 殺人以祭魔.祭發以綠石爲山.異(sic.:→真)人皆(sic.:→背)千(sic.:→于)上持石刀割取人心,擲(sic.:→擲)魔面,胶体,別(sic.:→則)分食之. ... (F281)

... killed people as a sacrifice to the demons. The sacrifice was made on a green rock utilised as a mountain [altar] on which the man was placed on his back. [The stone assistant] took the stone knife to cut out and to extract the man’s heart and hurled (it) at the demon’s face, while the limbs were shared out as food...

Even some foreigners lost their lives:

... 外国商士始入內地,多凶死|如此....

... When the foreign merchants and scholars [i.e. priests] first penetrated into the interior territories, they often died ominously in this way....

He rejoiced that, thanks to the ‘Right Doctrine’:

... 今棄邪魔而歸正主.

... Today, they have renounced the false demon and turned to the true Lord.

It is impossible to say with certainty whether our author took this idea directly from the book *Historia verdadera de la conquista de la Nueva España*, written in 1568 by

⁹⁸ To copulate (*yehe* 野合) is a term that has existed for a long time (see Sima Qian, 1973: 1905) and can mean procreation by means of violation or sex in the wilderness. Here it may be used to harmonise Confucian ideas with the morality of the sacrament of Christian marriage, which requires monogamy and prohibits premarital sex.

⁹⁹ Like the *patagones* (F500) mentioned above; see n. 93.

Bernal Díaz del Castillo (1495/1496–1584) and published in 1632, or whether he was influenced by the two pictures¹⁰⁰ showing this human sacrificial ceremony in Book II of the *Florentine Codex* by friar Bernardino de Sahagún (1499–1590), but we can cite Díaz's description of the human sacrificial ceremony instituted in honour of the warrior god Huitzilopochtli at the Temple Mayor (Mexico City):

We saw how they stretched them out at full length on a large stone, ripped open their breasts with flint knives, tore out the palpitating heart, and offered it to their idols. Alas! We were forced to be spectators of all this, and how they then seized hold of the dead bodies by the legs and threw them headlong down the steps of the temple.¹⁰¹

The author of the Bernese map was probably relieved that people like the Anishinaabe, who 'revered spirits in the form of the black cat',¹⁰² had converted to Catholicism and even practised the Catholic mass:

近來西士至,彼為教化所[...]漸漸習于禮義. (F173)

Recently, Western scholars, [i.e. priests] came here and converted (the locals) to their Doctrine [...] They gradually learn to practise the propriety of the rites.

Verbiest used the term 'Right Doctrine of the Heavenly Lord' (*tianzhu zhengjiao* 天主教) twice in his texts about India¹⁰³ and Abyssinia.¹⁰⁴ He once called Catholicism the 'True Doctrine of the Heavenly Lord' (*tian zhu zhen jiao* 天主真教) and abbreviated this seven times to the 'Doctrine of the Heavenly Lord' (*tian zhu jiao* 天主教). In contrast, according to *Matthew's Chinese-English Dictionary* the Mohammedans in particular regard their religion as the 'orthodox doctrine' (*zheng jiao* 正教),¹⁰⁵ a reference to Islam. But the author of the Bernese map was not thinking of Islam when he wrote on the region of Sudan:

人極智慧,昔學崇奉正教,其土號為祭主者. (F258)

The people are of extreme intelligence and wisdom. In the past, they learned to worship and believed in the 'Right Doctrine', but now, they worship the Lord with their local symbols.¹⁰⁶

100 Sahagún: folio 30v and folio 121v.

101 Díaz del Castillo [1844] II: 67.

102 ... 敬黑豹為神. (F173) "... revere the black cat, [i.e. panther] as the spirit".

103 *Kunyutu shuo*, p. 784b.

104 *Kunyutu shuo*, p. 763b.

105 *Matthew's Chinese-English Dictionary* 1976: 43, a) 5.

106 人極智慧,崇奉天主教,修道者,手持十字,或掛胸前,極敬愛西士多默聖人,為其傳道,自彼始; see *Kunyutu shuo*, p. 763b, lines 3–5. "The people are of extreme intelligence and wisdom, they worship and believe the Right Doctrine of the Heavenly Lord. The practitioners hold the cross in their

While he shortened the term ‘Right Doctrine of the Heavenly Lord’ to ‘Right Doctrine’ (*zheng jiao* 正教) without mentioning the Way of St Thomas in the Darfur region between the Blue and the White Nile in Abyssinia, he was simply abridging the original text by Verbiest, although he hardly wanted to change its intellectual content. The observation about Socotra may originally come from the Carmelite priest Vincenzo, who visited Socotra Island in 1656.¹⁰⁷

This raises the question of why the author of the Bernese map omitted Verbiest’s explanation for the behaviour of St Thomas’ followers. Is it because he only knew in general terms about the Christianisation of the Nubians of the Alodia Kingdom (6th–13th century) in South Sudan, but not that they were adherents of St Thomas? Or is it because he was already aware that the Nubians no longer believed in Christianity, that they had become Muslims and ‘worshipped the Lord with their local signs’? As monotheists the Muslims believe in a single God, i.e. Lord (Tianzhu 天主), like Christians do, and they have their particular symbols to worship him. Stating that the people in Sudan believed in a religion other than Christianity was risky, and it certainly would not have been advisable on a map destined for a wider audience.

Regardless of what the author of the Bernese map himself believed, the following statement is authoritative and demonstrates that he knew the history of the Jesuit mission and its founder, Francis Xavier, who sailed across the Arabian Sea to China. The text reads:

沙勿畧聖人度|此海路,直抵東|洋諸國宣教,|化及至廣東|地,即遊世後,利|西泰繼入中華. (F262)

When Saint Xavier passed this sea route [in 1542] to go directly to the various countries of the Eastern Ocean [Pacific] to spread the doctrine [i.e. Catholicism] and to convert (people to it), he reached the Guangdong region [in 1549]. That means, after he travelled the world, [i.e. he died in 1552] Li Xitai [i.e. Matteo Ricci] continued [the work of Xavier] and entered China [in 1583].¹⁰⁸

Most of the map is in the style of Verbiest’s *Kunyutu*,¹⁰⁹ and this unique passage – both an indirect and a literal homage to the Jesuits – may have been taken from a Carmelite missionary to Persia. At the very least, we can say that the author

hands, sometimes hang it in front of their breast. They greatly respect and love St Thomas from the West as the Way, they take his transmitting Way, which was started by him”.

107 P. Vincenzo Maria di Santa Caterina of the discalced Carmelites OCD (Ordo Fratrum Carmelitarum Discalceatorum Beatae Mariae Virginis de Monte Carmelo); see Polo 1903: II, 408–410, n 2; and Windler 2018: 429.

108 Indeed Francis Xavier (i.e. Francisco de Jasso y Azpilicueta, 1506–1552, S. I., Chinese name Fang Jige 方濟各) went on a mission to Borneo and the Moluccan Islands in 1546, and to Japan in 1549–1551, thereby navigating the Eastern Sea.

109 Although the Bernese map is closer to Zhuang Tingfu’s map, both are most likely based on the older Verbiest map.

preserved the Catholic doctrine and knew the eminent Jesuits by name. He added little new knowledge, but he consulted new foreign maps. However, this does not mean that he did not create his map with an eye to the market, whether to sell it to a guild or to a wealthy individual.

4 Going Global

The technique of filling in the spatial gaps on the map was handed down from the European cartographers, and the various categories of information from these same sources have been selected and incorporated into the text blocks. Selecting valid passages in the source is one thing, but presenting them in the correct place so as to dispel any doubts and uncertainties is another. Myths and products, climatic, geographic, and ethnographic information coexist in a disorderly fashion all over the Bernese *mappe-monde*. Some of the notes do not match their location; others are inaccurate, either temporally or factually. Several have had their content modified or shortened, while others were copied word-for-word from the source. This narrative and visual representation necessitated an adaptation to the author's time and place in order to convince the viewer that this virtual representation was legitimate and valuable. However, we cannot entirely rule out the possibility that some maps were intentionally designed to instil uncertainty, and that some texts were wilfully mistranslated.

Imagine the following situation: An exciting, strange story which happened somewhere is told 'elsewhere', in A, and recorded there in B. Later it seems as if the story has happened in B – and only there, in that particular place. So the story has 'travelled' from A to B and has varied or been adapted to B, but the core of the story remains the same. In other words, the same narrative moves from one place to another, from one map to another, even globally through time.

To illustrate the relocation of information on our map, Herodotus' ancient story of the battle between dwarves and cranes provides an excellent example.¹¹⁰ Much

110 Laufer demonstrates several borrowings from the West, including the legendary motifs of the miracle peoples and the miracle fairy tales associated with them. The story of the pygmies and the cranes is one particular example (Laufer 1916: 200–204); the story of the Amazons is another. Herodotus initially located them on the banks of Terme River in the central part of Northern Turkey. Ricci placed them in modern Georgia, in the Caucasus. On Verbiest's map they disappeared completely, but not in his *Explanations of the World Map*, where he placed them in the western part of the Tartary (*Daerda* 鞑而鞑); see *Kunyutu shuo*, p. 750a, lines 13–17. From there the text on Ricci's map migrated further north, and on our map further west, i.e. north of the Caspian Sea, between the Volga and the Urals, in today's Kazakhstan (F117). Kenneth Chen went in search of the story in Chinese literature and found the Land of Western Women (*Xinü guo* 西女國), which paid tribute to Rome, included in

later, Ricci filled the void on the island of Kola with the story *The Kingdom of Dwarves* (*airen guo* 矮人国),¹¹¹ right where the pygmies settled on Monti Urbano's map in 1587.¹¹² Jan van Linschoten (1563–1611) moved the story more to the west – north of Greenland – on his 1594 map,¹¹³ making the viewer believe to some extent that the kingdom was inhabited by northern trolls. The Chinese literary source *Classic of the Deities and the Extraordinary* (*Shen yi jing* 神異經), written by Zhang Hua 張華 (232–300) in the 3rd century, locates Herodotus' story in the Mediterranean,¹¹⁴ more or less in the original place.¹¹⁵ On G. de l'Isle's map, the 'Bakke Bakke' people are said to be the dwarves living in the African forest of the Macoco Kingdom, north of the Kingdom of Congo.¹¹⁶ So the story moved further south. On the Bernese map, the country where this geranomachy takes place is Mauretania (F218). So the story moved westward. The original protagonists were the pygmies and the cranes (*he* 鶴). Later, they became the Bakke Bakke people and storks or marabous. Ricci's map presents a combination of a marabou-stork and a kite (*guanyao* 鸛鵒). In the case of our author, not only has the place been moved, but the dangerous cranes have also mutated into some unidentifiable, mythical birds, i.e. into *queqin* 鵲鷁. A *qin* 鷁 is a songbird from the wagtail family, which weighs about 25 g. How can an inch-tall dwarf fall prey to an insectivorous wagtail? Instead of a wagtail or a crane, the first syllable *que* 鵲 in fact denotes a bird that would fit much more appropriately into the story: the 'pied harrier' (*queyao* 鵲鷁) belongs to the hooked-bill family of birds, which includes carnivorous falcons, hawks and kites – all well-known to the Chinese.

the *Great Tang Records on the Western Regions* (*Da Tang xiyu ji* 大唐西域記) of Xuan Zang 玄奘 (ca. 602–664) as well as other books; see Chen 1939a: 333, n. 19a. Verbiest also took the second part of the Amazons' story, about cutting off their right breasts, and transferred this to the women living in Amazonia; see *Kunyutu shuo*, p. 771a, line 9. Cf. Morsier-Fritz 2021: 985; and Appendix II, text block F117.

111 For the English translation of Ricci; see Chen 1939a: 330.

112 In Monti Urbano (1544–1613), Tavola Quarta, Libro Terzo is written alongside 315–350° E/81–83° N: “Qui sono pigmei longhi [?]nente un braccio [...] a guerra [?]n le cigogna”, translated as: “Here are pygmies long [?] one arm [...], and at war (with = [co?]n) the storks”. Although Münster's mention of this in his *Cosmographia* is earlier (1544: 629; 2010 [1628]: sic. 1585 [actually on pp. 1558–1559]), he places the pygmies in India. This is because Pliny settled the pygmies in four different places: Geraneia, Antiochia, India and where the Nile originates; see Toggweiler 2017: 3 n. 42.

113 Linschoten, 1594.

114 Alex Scobie demonstrates the range of Herodotus' *Iliad* H I, 2 over different continents; see 1975: 123–124.

115 Hennig writes about the pygmies and the cranes in Egypt and explains how the story of the geranomachy was known at the Pharaohs' court; see 1932: 20–24.

116 “Forêts habitées par les peuples Bake Bake [...] que l'on prétend être une Nation de Nains” (The forests inhabited by the Bake Bake people [...] who, it is claimed, are a nation of dwarves); see G. de l'Isle's map, 1708.

Queyao might be predators of mammals such as ‘dwarves’, but they are still not the cranes (*he* 鶴) which migrate to Mauretania. So the text on our map is translated as follows:

此處古謂矮人國。男|女長止尺餘，五歲生子，八歲而老，以羊爲騎，穴居，以避鵠鷄之食，三月出壞其卵(sic.: → 卵)。 (F218)

In Antiquity, this place was called the land of little men. The height of men and women stopped at about one *chi* (32 cm). At the age of five, they gave birth to children, but at the age of eight, they were already old. They rode sheep and lived in caves. To avoid being eaten by harriers, each year in the third month they left [the caves] to destroy their eggs.

The author neglected the legendary bird and concluded the story with what seems, at first glance, a peculiarly enlightened and critical remark about legends and myths:

然非真人，實是小猴產此方耳。 (F218)

Of course, they are not real people. In reality this is an area in which little monkeys abound.

Thus this myth of little pygmies so hairy that they are mistaken for monkeys is no longer believable. Our scribe emphasised that these little creatures were more like real little monkeys. Little did he know or even imagine ‘other’ human beings. In fact, the fictional pygmies were rediscovered in Africa in 1870, by the adventurer Paul Du Chaillu.¹¹⁷

Another example of ‘globalisation’ is provided by the trading venues in the New World. The place where the amassed goods were collected and readied for transfer is located next to the Bay of Darién in Panama (F320) and covers the Department of Antioquia in Columbia, 6° N/34° W. Although every one of the characters is copied from Verbiest, the trans-shipment centre that Verbiest describes was a quarter of the world’s circumference away, in the Old World, more precisely in Hormuz (about 27°N/49°E). Yet the characteristics of the old Asian and Oriental trading post and the New World trading centre remain the same:

富商大賈多聚此地，百貨駢集。 (F320).

The wealthy traders pile up the bulk they purchase in this place, where hundreds of things are collected together.¹¹⁸

Not only places and their stories, but also products and their ‘advertising’ text are moved around all over the globe. Raw ivory and tusks are still produced as

¹¹⁷ Toggweiler 2017: ii.

¹¹⁸ *Kunyutu shuo*, p. 751b, second-to-last line below Hormuz (*A’ermusi* 阿爾母斯).

international commodities in Botswana, Namibia and Zimbabwe today. The former Kingdom of Monoemugi (*Mu'emushi guo* 穆厄目世国, F331) on our map produced not only ivory, but also rhinoceros horn.¹¹⁹ Monoemugi was located in present-day Kenya and Tanzania, north of the Kingdom of Monomotapa (*Monamudaba guo* 莫訥未大巴国, F366–F402) and separated from it by the Zambesi. The latter was once the place where ivory was purchased, but this is no longer the case. On the Bernese map the enormous tusks from the region of modern Liberia were the best:

產象極大,一牙重二百斤。(F290).

The elephants are enormous here. One tusk weighs about 200 *jin* (catties).

This text, written on the Kingdom of Guinea (*Guinieya guo*, 龜捏亞国, F290–291), originally came from Verbiest's map, but there it was located in Mozambique and Zimbabwe.¹²⁰ So the Bernese map shows the place where these internationally sought-after goods were most readily available at that time.

Or take the case of Cocos Island in the Pacific, which highlights the global promotion of coconuts. There are many Cocos Islands in the world. However, the Cocos Island on the Bernese map (F380) is not the same as the one on Verbiest's map, which shows Cocos Island between two large text blocks in the Indian Pacific Ocean, between 13°S/135°–145°E.¹²¹ In *The Explanations of the World Map*, only a few words are said about the trees on the little islands of Ceylon, where coconut palms grow:

海中生一椰樹,其實甚小可療諸病。¹²²

Coconut trees grow in the middle of the sea; its copra are very small and can cure various diseases.

On the Bernese map, Coconut Island (*Yezi dao* 椰子島, F380) is located 10° south of Isla de la Gente Hermosa (*Limin dao* 麗民島, F344, 11°S/171°W), at about 16°S/172°W. This corresponds most closely to Tafahi Island in the Tonga archipelago, far from the Indian Ocean. The long text on our map is all about one and the same Coconut Island product, namely the coconut:

119 知|地產金,銀,象牙,犀角,寶具之類。(F330) “Note that the region is prolific in gold, silver, ivory, rhinoceros horn and similar valuable objects”.

120 Monomotapa (*Monumutapiya* 莫訥木大彼亞); see *Kunyutu shuo*, p. 764a, lines 3–4. At the time it was also called Monomotapa or Mwene Mutapa (ca. 1450–1629), which extended as far as Mozambique and Zimbabwe.

121 Ricci's text, which mentioned the coconut in the context of alcohol in India and Palembang, is reused by Verbiest, who places it along the Andaman coast – but only on Verbiest's map.

122 *Kunyutu shuo*, p. 750b, lines 8–9.

此島產椰種,其用甚廣幹|可造舟車.葉可覆屋.實能|掩飢,漿 (sic.: → 漿)止渴,可當酒,醋,油.穀 (sic.: → 穀)盛飲. 椰 (sic.: → 棕)索納(sic.: → 緬).東洋諸島|亦有之. (F379)

The coco(nut trees) grow on this island. Their use spans a wide range. The trunk can be used for building boats and carts. The leaves can be utilised to cover roofs. Its solid part, [i.e. the copra] satisfies hunger. Its juice quenches thirst and can be processed into alcohol, vinegar and oil. Its shell serves as a drinking bowl and its coir for rope braiding. Various islands in the Eastern Ocean [Pacific] also have such (trees).

The copyist literally took the polyvalent uses of the coconuts grown in India from *The Explanations of the World Map*¹²³ and applied this to his text advertising the Polynesian coconut. However, the origin of this text is probably the chapter on the “Tega tree”, the world’s best fruit tree, which grows in the region along the Malabar coast in Ludovico de Varthema’s 1510 *Itinerario*.¹²⁴

5 Factual Errors in the Text Blocks

Although I have clarified some of the geographical misunderstandings in Section 1, there are still errors in content and fact which can only be deduced in the texts themselves and their locations. On Brazil we read:

此地產蘇木鼻烟.白糖之本土,并出貓暗夜光諸寶石. (F395).

This place [Minas Gerais] is prolific in brazilwood¹²⁵ and snuff. It is the home territory of white sugar. Also, various gems are exported; they sparkle in the dark night like cat’s eyes.

The problem in this block is the ‘white sugar’. Which kind of sugar does the author mean? From the time Columbus brought sugar plants from the Canary Islands to South America, Brazil’s sugar cycle was the economic basis for the first 200 years of Portuguese colonisation, and today it has become the world’s largest producer of sugar.¹²⁶ The white sugar (*bai tang* 白糖) derived from sugar beet (cultivated *beta*

¹²³ Kunyutu shuo, p. 748b, lines 13–15.

¹²⁴ Varthema 1535: 50–51a. Pigafetta used this *topoi* in his report; see Pigafetta and Jostmann 2020: 92–93.

¹²⁵ Giles translated *sumu* 蘇木 as sapan-wood. ‘Sumu’ is translated as *Caesalpinia sappan* L. and can also mean brazilwood, which includes Indian redwood from tropical Asia (India, Burma, Vietnam and South China); see Fèvre et al. 2005: 435a. Brazilwood designates a different kind of wood endemic to the Atlantic forest, in this particular case the genus *Caesalpinia*. Brazilwood sounds better as a term for wood from Brazil, where it is located on the Bernese map.

¹²⁶ Columbus took sugar cane (caña de azúcar) with him to the New World from “the Canary Islands also called *Islas del azúcar*”, and as early as “1533 the conquistador Hernan Cortes was lord over sugar plantations in the Valley of Cuernavaca in Mexico”; see Pérez Morera 2013, I: 17, 85.

vulgaris) grows only in the temperate climate zone. Is this a factual error? If white sugar derived from beet is meant here, then this would be a clue that the text was written after the Prussian Sigismund Marggraf discovered the high concentration of sugar in beetroot in 1747. Previously honey and sometimes sugar cane were used as sweeteners in Europe. After that date the promotion of white sugar began, reaching its peak during Napoleon's continental system, when white sugar became popular in Europe and the British went looking for sugar abroad, though not necessarily in Brazil. Brazil, along with India and China, has the favourable tropical and subtropical climate zones required for growing sugar cane (*xiugui ganzhe* 秀贵甘蔗, shortened to *zhe tang* 蔗糖, lat. *saccharum officinarum*), but it has nothing to do with sugar derived from beet. One could say that the author confused 'white' (*bai* 白) and 'cane' (*zhe* 蔗), but the characters look so very different that this is not a convincing excuse. In any case, the Chinese are much more likely to have used sugar cane as a sweetener, and for a longer period of time. So if it was a Chinese who wrote the text, what did he mean by 'white sugar'? Cane sugar as liquid treacle was black sugar (*hei tang* 黑糖), while the best sugar looked grey like 'wrong stones' (*jia shan* 假山), followed by deep coral (*shen hubo* 深琥珀) and red sugar (*chi tang* 赤糖). Further colours of sugar were light yellow (*qian huang* 浅黄) and white (*bai* 白), which was achieved through refinement.¹²⁷ Refining sugar cane with water was a new method developed in Europe during the 16th century.¹²⁸ The knowledge of how to refine sugar in China is vaguely described in the *Editorial for Farming and Mulberry Cultivation* (*Nong sang jiyao* 農桑輯要), written by a secretary in the Agricultural Department under the Song dynasty and published in 1273. During the Yuan period, such refinement is described in detail.¹²⁹ When white sugar is manufactured (*zao bai tang* 造白糖), the book speaks of 'boiling and refining by smelting' (*aolian* 熬煉) and refers to it as 'white granulated sugar' (*bai sha tang* 白砂糖).¹³⁰ So the Chinese knew how to refine sugar earlier and independently, as Marco Polo (1254–1324) testified at the end of the 13th century, when he reported that the sugar used at the Khan court all came from 'Unken', and that an enormous quantity of sugar was also made in 'Fuju',

127 Wang Zhuo 王灼 (ca. 1081–ca.1160) gives the spectrum of 'Sugar Frost' (*Tang xiang* 糖霜) beside the colours of sugar and their ranking in *The Recipes of Sugar Frost* (*Tang xiang pu* 糖霜譜); see Ji 1995: 13.

128 The first sugar refinery in Europe was only opened in Augsburg in 1573; see Brockhaus 24: 604a.

129 The term 'white sugar' (*bai tang*) has existed since the Tang dynasty, but it is unclear which kind of sugar this was; see Ji 1995: 9. However, the *Gazetteer of the History of Min and Southern Products* (*Minshu nanchan zhi* 閩書南產志), edited in 1620, describes the process of sugar refinement in detail; it is also described in chap. 6 of *Little Knowledge of Physics* (*Wuli xiaoshi* 物理小識), edited by Fang Yizhi 方以智 (1611–1671) in 1643, which contains a paragraph entitled "How to Manufacture Sugar" (*Zao bai tang fa* 造白糖法); see Ji 1995: 14.

130 Ji 1995: 12.

i.e. Fuzhou.¹³¹ In Ming times, Song Yingxing 宋應星 (1587–ca. 1666) identifies the places where sugar is produced in large quantities in his 1637 book, *The Exploitation of the Works of Nature* (*Tiangong kaiwu* 天工開物): the production locations of cane sugar ‘are numerous in the region of Fujian and Guangdong’ (*chan fan Min Guang jian* 產繁閩廣間).¹³² Incidentally 1637 was the same year refined sugar was sent to England from Fujian Province¹³³ – so why would the English seek it in Brazil? Moreover, Fujian is the province where the places Polo had already mentioned in Yuan times are located. So when Polo said sugar, he meant cane sugar, which is also logical because beet sugar was unknown at that time. Hence it is plausible that ‘white’ should be translated as ‘whitened’ or ‘refined’, and when a Chinese from Fujian in the 18th century talked about sugar, he used the term ‘white sugar’ as a matter of course. Finally, the candy on top: no map other than the Bernese map mentions *bai tang* in Brazil.¹³⁴

The reader will more easily understand the next example if I first explain sperm oil (*spermaceti*): what is it, and from which animal does its name derive? The sperm whale (*physeter macrocephalus*) was hunted for its blubber, which was rendered into oil, so-called ‘sperm oil’. The Chinese called sperm oil ‘Perfume of Dragon Saliva’ (*longxian xiang* 龍涎香), i.e. the luxurious ambergris used in the perfume industry, and had long known the difference between this and ‘tiger amber’ (*hupo* 琥珀), i.e. amber consisting of fossilised tree resin. There are two different versions of ‘ambergris’ on our map: ‘Fragrance of a Dragon that Prolongs [His Life]’ (*long yan xiang* 龍延香, F189), written in the region of Persia, and ‘Scent of the Dragon that Violates(?)’ (*long wei? xiang* 龍違香, F129). Although *wei* 违 (to violate) as used in the text block in the Pacific Ocean next to Alaska seems to be the most likely reading of this character, both readings were intended to render ‘Perfume of Dragon Saliva’, but the latter in particular shows that the text conceals not only an writing error, but also a misunderstanding of what ‘sperm oil’ actually is:

131 Polo describes: “Unken, where there is an immense quantity of sugar made [...] they only used to boil and skim the juice, which when cold left a black paste. But after they came under the great Kaan some men of Babylonia [Egypt; my note according to n. 8 to Polo’s text] who happened to be at the Court proceeded to this city and taught the people to refine the sugar with ashes of certain trees”. Enormous quantities of sugar were also manufactured in Fuzhou; see Polo, Yule and Cordier 1903: II, 226. Cordier believes ‘Unken is Yungchun’ (Yongchun 永春), ‘locally known as Eng-chun or Ung-chun’; see 1903: II, 230. Ji states that Unguen is the city of Wengan (溫敢城); see 1995: 11.

132 Song Yingxing 1637: I, 74. It goes on to say: “the other regions together get only one 10th of them (i.e. Fujian and Guangdong), that’s it” (*tafang hebing de qi shi yi er yi* 他方合併得其十一而已). While manufacturing white sugar “one uses ‘yellow mud water’ (*huang nishui* 黃泥水) [...] there are five grades of quality (*wu pin* 五品) [...] the best you can get is ‘rocky mountain’ (*shi shan* 石山)”; see 1637: I, 78–79.

133 Ji 1995: 22–23.


134 Of course this only pertains to maps that we have been able to verify.

春時是魚雄者常出精，如油浮水面，而漸凝凍，每爲風濤湧泊於岸。北方人取比(sic.: → 此)悞(sic.: → 物)爲龍_香，又捕此魚，一頭之中有油數，担用法製之，則堅凝如琥珀子，醫可有大有。(F129).

In spring, the male fish constantly emit sperm which floats like oil on the water surface, gradually solidifies and, being frozen by wind and driven by big waves to the shore, the northerners take it and make it into Scent of the Dragon that Violates [sic.: → Perfume of the Dragon Saliva]. They also catch this fish (because) there is an amount of oil in his head. Through processing methods, it is hardened into tiger amber which is of great use in medicine.¹³⁵

Although Marco Polo already knew that the people on Socotra Island and in Madagascar would drag the whale ashore and eviscerate it to extract the ambergris,¹³⁶ our copyist still believed that it was ejaculated fish sperm that turned to sperm oil. This conception also dominated in medieval Europe. Alternatively, he may have ignored the nature of spermaceti by simply copying the characters in a disorderly manner. Furthermore, it seems he was unaware that yellow amber or white amber is not blubber of the spermaceti whale or *amber gris* in French, but fossilised tree resin. Of course, both can be found while beachcombing.

Our ‘artist’ knew a lot about fish, as evidenced by his transcription of the sundry notes on fish in the various seas. This is clearly reflected in the precise phonetic renderings of the terms for dolphin (*de'erfei* 得尔費, *de'lfī, F310, Figures 5 and 6); whale (*balena yu* 巴勒納魚, F288, Figure 8), alias *balaena*¹³⁷ in Latin; mackerel (*ma yu* 麻魚, text F519, picture F555);¹³⁸ gilthead seabream, alias *dorada* (*jin yu* 金魚,

135 In this Chinese sentence, the eleven underlined characters are either irregular forms or mistakes on the map which are rectified here. Some are popular variants, some are presumably the scribe's own *ad hoc* creations, and some are simply wrong. *Biwu* 比悞 should probably mean ‘these things’ (*ci wu* 此物) and is not *biwu* as a phonetic transcription for blubber, since the scribe has already mistaken *ci* for *bi*; also, the component *bi* should replace *ci* in the lower part of the character  for a reading of *li* 麗, as in *Lidao xia* 麗島峽 (Belle Isle Strait, F142). Conversely, *pi* in the phonetic transcription of Peak (*Pico*) can be written with the character *bi*, as in *Bige dao* 比各島 (specific Ilha do Pico, Açores, F181, F216), but the scribe used *ci* in *ci ge shan* 此各山 (F162), so it became ‘every one of these mountains’ instead of Peak or Pico; cf. n. 5.

136 Polo, Yule and Cordier 1903: III, 407, 411.

137 Verbiest called the whale ‘balea’ (*baleya* 巴勒亞) in Chinese, which sounds less precise because of the missing ‘n’.

138 ‘Mackerel’ can hardly be translated with just one syllable, *ma* 麻, but the text describes the typical behaviour of the mackerel: 麻魚狀極龐笨，飢餓時，潛于海底，魚聚處。亿(sic.: → 凡)魚近其身即麻木，不能動，因而食之。倘人以手|足近之，亦必麻木。(F519) “The mackerel behaves exceptionally rudely and stupidly. When it is hungry, it hides at the bottom of the sea, where the fish gather. Hundreds of thousands of fish lie side by side, but they are rigid and immobile and are therefore eaten. Suppose people with hands and feet approach it, then it inevitably becomes numb”. Indeed, mackerel do not have a swim bladder to control buoyancy and therefore sink to the bottom if they do not paddle as swiftly as they should. They are small fish and swim in schools with mechanisms that

F321)¹³⁹ in Italian and *dourada* in Portuguese; and cod, alias *bacalhao* (*bai jiao'er yu* 白角兒魚, picture F490)¹⁴⁰ in Portuguese and written in Spanish as *bacalao*, the fish that hunts the shoals of flying fish (*fei yu* 飛魚, F490). Furthermore, he lists the swordfish (*jian yu* 劍魚, F336, Figure 10)¹⁴¹ and the mimetic octopus (*bolibo yu* 薄里波魚, F456, see Figure 11),¹⁴² alias *polpo* in Italian and *pólipo* in Portuguese and Spanish.

On earlier maps, the names of fish were neither always recognisable phonetically nor retranslated in a significantly new way. Occasionally however, the author perpetuated earlier models, as in the case of Verbiest's male and female 'sirens' (*xileng yu* 西冷魚, F250),¹⁴³ and he made weird mistakes concerning the walrus in the text, which are presented here in detail, along with a discussion of the picture:

help them to align themselves with neighbouring fish. They are fished in large quantities. The picture of the mackerel on the map is too big compared to the other fish.

139 Morsier-Fritz 2021: 965, n. 43.

140 The literal translation 'white triangle [fin]' fish points to the three dorsal and two adipose fins, which look like white triangles. This replaces Verbiest's incorrectly retranslated 'dogfish' (*gou yu* 狗魚). Since a dogfish is a freshwater fish and does not correspond to the geographic location of the cod on the map, our copyist seems to have copied everything from Verbiest. On closer inspection, however, he has changed it substantially; see *Kunyutu shuo*, p. 774a, lines 13–16 and 786b, line 1–3. For a comparison of Verbiest and Gessner; see Walravens 1972: 231. After reading the journal of Antonio Pigafetta (ca. 1491–ca. 1431), Magellan's assistant, the original text is unmistakable, but the fish are differently and more precisely named: "In this Ocean sea one can observe an amusing fish hunt: There are three kinds of fish, which are all longer than an arm, and are called *doradi*, *albacore* and *bonniti* [my note: a kind of tuna fish]. The latter pursues the flying fish called *colondrini* [my note: Spanish: *golondrina* (*Dactylopterus volitans*)] which are longer than a hand's breadth and very tasty. When those three species spot some of these flying fish, the flying fish immediately jump out of the water and, as long as they have wet wings, skim further than a crossbow shot. While these fly, the others follow their shadows underwater. As soon as the flying fish fall into the water, the hunters snap them and eat them up. That is indeed a very pretty spectacle". This is my translation from the German version of Pigafetta's journal, published in Pigafetta and Jostermann 2020: 78.

141 The swordfish usually lives in the Gulf of Guinea, not where it is located on the map. Conversely, it is unclear which fish the term 'sea devil' (*haimo* 海魔, F364 text and picture) refers to in the Gulf of Guinea. The 'sea devil' or 'sea demon' is not Leviathan, but the literary figure could have served as a 'monster fish' representing whales or sharks. In the German language there is a fish called *Seeteufel* (sea devil, lat. *lophius piscatorius*), but it never reaches a size such that "people on the boat rammed by the monster fish pray for mercy"; see *Kunyutu shuo*, p. 774b, lines 12–13. See Gessner's sea devil (*Seeteuffel*) in the Illyrian Sea, among other kinds of whales (*Allerley Wallfischen*), 1575: CVL.

142 薄里波魚体無定色[...]輒伏石色|與石無異。(F456) "The body of the 'Bolibo' fish [i.e. the octopus] has no particular colour. [...] It hides in stones and imitates their colours so that there is no (visible) difference from the stones". The original text may come from the *Carta Marina*, which says of the octopus in Latin: "De polypis [...] Mutatur colore jus ex lapidis colore cui adhaeret". In English: "Its colour changes according to the colour of the stone to which it adheres"; see Magnus 1599: 568.

143 Although the text states that "the upper body of the siren may have a male or a female form and the lower half is a fish body", only male sirens are painted on the Bernese map. The second part of the text says that "the bones cure blood disorders" and enthuses that "the female fish is more effective". It



Figure 10: The swordfish (*jian yu* 劍魚).



Figure 11: The mimetic octopus (*bolibo yu* 薄里波魚).

海馬足如鳧_辰有_病自能就茨,放血,療治。其平(sic.: →牙)豎白莖|淨,文(sic.: →紋)理細如綠髮,可為念珠等物。(F201).

The feet of the walrus are like the mallard's claws [sic.: → flippers]. When it is sick, it is able to move itself over into the reeds, to let its blood (and thus) cure the disease. Its tusks are absolute white gems, literally entirely veined and polished like 'green hair' [i.e. black lacquer]. They can be processed into objects like prayer beads.¹⁴⁴

is ironic that the artist exclusively depicts male sirens while praising the female – after he has recommended killing them, of course.

144 I have five remarks on this confusing sentence: 1) *Haima* 海馬 was often translated from Verbiest's Chinese text (see *Kunyutu shuo*, p. 774b, line 11) as 'seahorse' (*hippocampus*), which is entirely bizarre. The very tiny seahorse has quite the opposite weight of a hippopotamus. Piotr Michał Boym, (1612–1659, S. I., Chinese name Bo Mige 卜彌格) translated the term *haima* as *caballo marino* and illustrated it as a hippopotamus (amphibious); see Boym 2002 [1656]. However, a hippopotamus has no tusks, as the text says. Conversely, the walrus (lat. *Odobenus rosmarus*) has tusks, and its name derives from the Greek 'walking on teeth' (ὄδους βαίνω). Note that the walrus is called a 'sea elephant' (*haixiang* 海象) in Chinese today. 2) 'Green hair' in lyrical Chinese means 'hair black as lacquer' (*qihei* 漆黑; see ZWDCD 28209.330, gloss on Li Bai). In association with the white tusks, the colour green or black does not fit. However, both lacquer and polished tusks can shine: they have that in common. This idiomatic expression was not appropriately chosen, which might be a clue that the author was not Chinese. 3) 'Ordinary' (*ping* 平) is a mistake for the corrupt character 'teeth' (*ya* 牙) on Verbiest's map. 4) The self-helping and self-healing practices of therapeutic phlebotomy were widespread in Europe until the 19th century. This passage about phlebotomy comes from *The*

This sentence is puzzling. The walrus (海馬, F200, Figure 12) is depicted in the painting on the right-hand side, below the upper cartouche in the Western Hemisphere. Indeed our artist did not know what a walrus looks like. He painted the walrus similarly to a horse (*ma* 馬), with feet like claws (*zhao* 爪) instead of flippers.

We know that Columbus (1451–1506) reached America, more specifically the island of Guanahani (San Salvador) in the Bahamas, in 1492. Our map-maker wrote:

闍龍船始竟得亞墨利加,大喜放砲。(F213).

When Columbus¹⁴⁵ ship first sought and [eventually] found America, there was great joy and a cannon was fired.

What is incorrect about this – and our author knew it because he used it later as an argument – is the idea that Columbus was searching for America. In fact Columbus was looking for Marco Polo’s Cathay. While he intentionally sailed to the East Indies, he arrived in America fortuitously. The same text block states that the local (American) people hosted ‘the guest from the West’ (*xi ke* 西客). Strictly speaking, they were not people from the West, seen from the location of America. However, for the Chinese, the Europeans are Westerners. Again this may be interpreted as a clue that it was a Chinese or a Chinese-influenced European in China who wrote this text.

In text block F324 we learn what Amerigo Vespucci’s (1451–1512) logbook says:

亞墨利哥舟師稽之古書諒, ...

The old logbook of the revered navigator Amerigo presumes, ...

Natural History by Pliny the Elder (AD 23/24–79). The section “Hippopotamia” tells the legend of the ‘bleeding’ hippopotamus, which cuts itself on the reeds and is therefore supposed to be the proof for and inventor of a natural bloodletting practice: “When the animal has become too bulky by continued over-feeding, it goes down to the banks of the river, and examines the reeds which have been newly cut; as soon as it has found a stump that is very sharp, it presses its body against it, and so wounds one of the veins in the thigh; and, by the flow of blood thus produced, the body, which would otherwise have fallen into a morbid state, is relieved; after which, it covers up the wound with mud”; see Pliny, Book VIII, chap. 40, 26. Hence if ‘reeds’ (*ci* 茨 of *ciru* 茨茹, *sagittaria sagittifolia*, which is not a sharp cutting reed) is taken, then the passage could be tentatively read as ‘cut on the reeds to let blood’. 5) The copyist made one stroke too many for the character to be *pi* 庇, C00913, which means ‘to dispatch the water’, but he also made one stroke too few for the character *zhao* 爪, a variant of *zhao* 爪 (claw).

145 In the text Columbus is called the ‘Dragon of the Cabinet’ (*Gelong* 闍龍); his name is conventionally transcribed as *Gelunbu* 哥倫布 today.



Figure 12: The walrus
(*haima* 海馬).

The author of the text on the Bernese map continued by borrowing Verbiest's passage¹⁴⁶ about Vespucci's quest for a vast country to the south, which – unlike Verbiest – our author referred to as a continent:

... 亦道南尚有一乾坤, 巡行南海, 果尋得一大州 ...

... that there still has to be a way to circumnavigate this one universe¹⁴⁷ from the south. He searched in the South Sea and in fact found a vast continent. ...

¹⁴⁶ *Kunyutu shuo*, p. 771, lines 15a-11b.

¹⁴⁷ Verbiest uses 'universe' (*qiankun* 乾坤) only once, in mentioning Magellan's passage through the strait to circumnavigate the 'universe'. Verbiest may not have used the appropriate term; he probably intended to say 'worldly' or 'earthly' vehicle (*kunyu* 坤輿), which is more appropriate for a heavenly body; see *Kunyutu shuo*, p. 771b, line 7. The term 'universe' has long been known in China and means much more than just the earth, which can be circumnavigated. It is the origin of everything because it is the union of *qian* 乾 (the heaven) and *kun* 坤 (the earth) in the *Classic of Changes* (*Yijing* 易經). Or in luni-solar terms, *qian* is the full moon hexagram and *kun* is the empty 'black' moon hexagram of the 'male' formula 'the eight trigrams which precede heaven' (*xian tian bagua* 先天八卦). In this sense *qiankun* is meant to be a whole cycle (responsible for day and night, respectively) of a synodic lunar month, as well as the sidereal orbiting period of the moon related to the 'fixed' constellations in the sky; cf. Fiedeler 1998: 92, 138 Figure 9, 156, 178–183. In cartography the term was also used in the titles of Chinese maps, for instance in the *Qiankun wanguo quantu gujin renwu shiji* 乾坤萬國全圖古今人物事跡 (*Complete Map of the Universe of the Myriad of Countries on Old and New [Maps with] Traces of Human Events*) of 1593 and 1600. In contrast, the term 'universe' only appeared in Europe in the 17th century. If the author was a foreigner, he may have been unfamiliar with the term *qiankun*,

In addition to the presumed spelling mistake, writing *yi dao* 亦道 (still a way) instead of *chidao* 赤道 (Equator), we must assume that the subject of the sentence is always the same – namely Amerigo Vespucci, as he appears in the text borrowed from Verbiest:

其後又有亞墨利哥者[...]尋得赤道,以南大地。¹⁴⁸

After him, there was again another, Amerigo, who searched [...] and found a vast land south of the Equator.

But then the author inserted and faithfully quoted the passage by Verbiest,¹⁴⁹ which is part of the story of Columbus' voyage, without changing the sentence's subject, which leads us to believe that the story is still about Vespucci's voyage:

舟人一半留彼,一半還報國王,致其物產,明年,國王又命載百谷百果,攜農師巧匠,往教其地人情益喜 ... (F324)¹⁵⁰

One half of the sailors remained there/with him, and the other half returned to tell the King [i.e. Ferdinand II of Aragon] that he [Columbus] would deliver (Him) His goods the following year. [The next year,] the King ordered once again to load hundreds of [different sorts] of grain and fruit as cargo, as well as teachers of agriculture and skilled artisans to educate His [new] locals, so that they feel beneficial and happy ...¹⁵¹

mistaking it for 'earthly vehicle', but for a Chinese who was familiar with the interpretation of *qiankun* from the *Classic of Changes*, it meant more than just 'universe'.

148 *Kunyutu shuo*, p. 765, lines 6b–7b.

149 *Kunyutu shuo*, p. 765, lines 4b–6b.

150 Almost the first thirty characters are his own, and then the author inserted Verbiest's text about Columbus; see *Kunyutu shuo*, p. 765, lines 4b–6b.

151 I changed the punctuation so that *ming nian* 明年 is a duration following the verb of the preceding sentence, because Columbus, lacking time and funds, thus delayed the refund and sent little home, but asked the Spanish king for more resources. Because Columbus returned with two boats in 1493, his first voyage started in 1492. Half a year later, in September, he set sail again under the Spanish crown with between 1,200 and 1,500 people, returning only in 1496. In the letter to Santangel he promised to bring back to Ferdinand II and Isabella, the Catholic monarchs, "as much gold and slaves as you need"; see Columbus 1493: Carta a Santangel. In 1496 he returned from his second voyage without gold, but with slaves whom Isabella liberated because she wanted the indigenous people to be treated well and to become 'good Christians'. His third voyage in 1498–1500 was followed by the fourth and final voyage, in 1502–1504; see Vespucci and Schwarz 2014: 55–56. However, Vespucci writes about his third voyage that the Portuguese King Emmanuel I had prepared three ships and requested him to explore foreign lands, so they set out on 10 May 1501; see the translation of Vespucci's diary by Robert Wallisch in Vespucci and Schwarz 2014: 171. In theory, it could therefore be possible that this passage also applies to Amerigo Vespucci. But the original passage says nothing about the nature of the people, unlike Columbus and the text on the Bernese map.

According to Columbus' famous letter to Santangel – i.e. the copy of the letter to the Spanish King Ferdinand II of Aragon, to whom Columbus wrote in 1493 – he would bring him all the promised goods the next time, in 1494. If the sentence's subject were Vespucci, then the passage in his log would be autobiographical and could have been written on any one of his four voyages, in 1497, 1499, 1501, or 1503.¹⁵² Today we have Vespucci's Soderini letter of 1504 and his Medici letter of 1502: that is all we have, but no logbook. Perhaps one existed in earlier times and was lost. The fact is that we cannot conclusively prove that the borrowed passage concerning Columbus does not also apply to Vespucci. The trick used in the text on our map results in a rendering of Vespucci's voyage that is more lively and credible, one that shows Amerigo Vespucci as the hero of the story throughout the whole passage and implies that his genuine voyage and conquest deserves monumental recognition. So the author leads us to the conclusion that this is the reason why the name 'America' is derived from Vespucci's given name, Amerigo:

... 因亞墨利哥始開此區,即以其名名之。

... Because Amerigo was the first to open up this territory, it is named after him.

This last phrase about the naming is also borrowed from Verbiest, but this time from the Amerigo passage. So the whole block F324 seems to be about Amerigo Vespucci.

If Vespucci also asked the king for more resources the next year, then the king in question would have been Ferdinand II for the first two voyages and Manuel I of Portugal for the last two, depending on during which of his four voyages he wrote the letter. Some historians, such as Roukema, think that Vespucci's first voyage was mythical.¹⁵³ So even on the basis of secondary sources, the year to which 'next year' refers cannot be clearly identified.

152 Amerigo Vespucci, whose name is now written as *Yameilige Weisipuqi* 亞美利哥 韋斯普奇 in Chinese, is credited with four voyages. The first voyage is said to have taken place from 1497 to 1498, the second from 1499 to 1500, the third from 1501 to 1502, and the fourth between 1503 and 1504. The majority of researchers doubt whether he in fact made four voyages. Some believe he did, stating that the first two were sponsored by the Spanish King Ferdinand II of Aragon and the last two by the Portuguese King Manuel I. Others believe that the second and third voyages are plausible, but the first and the fourth are uncertain. According to the current state of research, only the second and third voyages are supposed to have taken place; see Vespucci and Schwarz 2014: 61. The most important letter in which Vespucci recounted his four voyages was sent to René II, Duke of Lorraine. Saint Dié was in the Duchy of Lorraine, where Ringmann and Martin Waldseemüller worked and translated Vespucci's letter. In this way the connection can be traced back, and this explains the inception of the idea of how America got its name, which also originated in Saint Dié. The fact that Vespucci took America not for the West Indies or for Cathay, but as a *Mundus Novus*, provided the title for his travelogues and was accepted throughout Europe.

153 Roukema 1962: 70–75.

Today we know the theory that the toponym ‘America’, derived from Vespucci’s first name, originates from the Saint Dié canon chapter in the Duchy of Lorraine, specifically from a team of people: the Alsatian Matthias Ringmann (1482–1511) and the German Martin Waldseemüller (ca. 1470–1520).¹⁵⁴ Thus their idea that Amerigo Vespucci discovered America is upheld here.

6 The Date of the Political Situation Reflected on the Map

In this last section I will consider the possible dating of the map. Our map contains no title, no author, no date and no place of manufacture, as would commonly be found in a cartouche on European maps at that time. The cartouches on our map are simply filled with a cloudy or marbled design. If the scribe had intended to write a text in the cartouches, he would probably have refrained from using such a background design for the sake of clarity. Due to this lack of available information in the cartouches, we have attempted to date the map using the toponyms located in China, and then proceeded to consider the political situation around the world at that time.

The particularities of the Ming or Qing prefectures (*fu* 府), which specify a historical timeframe, can be summarised as follows: in Yunnan Province, Beisheng 北勝 (F229) lost its prefecture status in 1698, as mentioned above. In Zhili Province, two toponyms were renamed, i.e. Xuanfu 宣府 (F159), now Zhangjiakou 張家口, was renamed Xuanhua 宣化¹⁵⁵ after 1693; and Zhending 真定 (F195) Prefecture, now close to Shijiazhuang 石家莊, was changed to Zhengding 正定 in 1723.¹⁵⁶ Thus the situation on our map reflects the years before 1723. Mahu 馬湖 (F230), however, was still a prefecture as well as an important location in Sichuan Province until 1728: after this date, it was integrated into Xuzhou 敘州 (F230) Prefecture.¹⁵⁷

Returning to the lines of crosses, which are used to outline the provinces, we see that there are none between Gansu and Shaanxi;¹⁵⁸ none between Henan, Anhui and

154 It seems that after Matthias Ringmann’s death, Martin Waldseemüller abandoned the idea that Amerigo conquered America first; see Vespucci and Schwarz 2014: 68–72.

155 Fuchs 1937: 224.

156 The FHAC-*Kunyutu* depicts the same places, using the argument that the map dates from between 1698 and 1723.

157 Fuchs 1937: 228.

158 In 1666 Shaanxi Province was divided into two parts: Ganzhou (乾州, F193, correction of Index I, Part One: it is not Ganzhou in Hunan Province) and Suzhou 肅州 (wrongly written as Suozhou 索州, F193 and Figure 1), which in turn merged as *gan* 甘 and *su* 肅 into *Gansu* Province. Thus we conclude that the map’s creator was either unaware of the division of Shaanxi Province in 1666 or else that he was using an earlier map as a template, because the two places, Suzhou and Ganzhou, are included.

Jiangsu, i.e. the Jiangnan 江南 region until 1667; none between Guangdong, Fujian and Zhejiang; and none between Hubei and Hunan, i.e. Huguang 湖廣 until 1664 and Jiangxi. Dotted lines mark some of the boundaries between the northern provinces, as we can see between Shanxi, North Zhili (Bei Zhili 北直隸) and Shandong; between Jiangsu and Zhejiang, i.e. South Zhili (Nan Zhili 南直隸); and, as already mentioned, between Sichuan and Yunnan. The two large provinces of North and South Zhili appeared to be in a transition period at the end of the Ming and beginning of the Qing in the 17th century. Although the eighteen provinces already existed at that time, this division depicts China during the Ming period.

Lanzhou 蘭州 (F194) remains intriguing, as it is located in the undivided Shaanxi Province, although it replaced the former Lintao 臨洮 Prefecture only in 1738, when Gansu Province already existed. The question thus arises of whether Lanzhou was an important place to mention, or whether we are in the period after 1738.

Even more disturbing is the question concerning the toponym Shenyang 瀋陽 (F159). This city lies beyond the Great Wall in Manchuria and is also marked with three small towers, as is Beijing, symbolising the capital of the country – but which country? Shenyang was named Shengjing (盛京, literally ‘rising capital’) by Nurhaci (1559–1626) in 1634, after he conquered it in 1625. In 1657 the name Shenyang was changed to Mukden (Fengtian 奉天, literally ‘received from Heaven with both hands’).¹⁵⁹ After the fall of Beijing in 1644, during the Manchu conquest, Nurhaci’s grandson Shunzhi transferred the imperial administration from Mukden to Beijing. However, for the Manchus Mukden always retained the importance of their ancestral home. Hence the name Shenyang indicates either the short period between 1625 and 1644, when Nurhaci and his son ruled Shenyang and ‘China’ was still under the Ming, or it shows the new capital and the ancestral seat both marked with the symbol of the three towers at the time when the Qing were on the rise, after 1644. The map contains an overriding number of facts pointing to a later date, because the author was very uncertain about the provincial boundaries during the Great Ming period, as seen above. Maybe he was not Chinese, but just a copyist. Otherwise, he might have enquired about the actual administrative situation in China at the beginning of the 18th century, for instance, considering the geopolitical situation between 1700 and 1730 by consulting Chinese maps such as the *Kangxi Provincial Map* (*Huang yu quan lan fen sheng tu* 皇輿全覽分省圖, literally ‘The Map Overviewing Completely the Provinces of the Imperial Territory’) of 1693–1722, the *Map of the Great Ming*

¹⁵⁹ ZWDCD 18963.5 states that Shenyang was a tributary of Yuan and was called Shengyang Circuit (*Shengyang lu* 瀋陽路). Ming established the Shenyang Guard (*Shenyang wei* 瀋陽衛) until Taizu 太祖, Emperor of Qing [i.e. Nurhaci], moved the capital from Liaoyang 遼陽 to this place, naming it Shengjing. Emperor Shizu 世祖 [1638–1661, i.e. Shunzhi 順治] established Fengtian Prefecture and installed a prefect.

Territory (*Da Ming yuditu* 大明輿地圖), or the *Complete Map of Shengjing's Territory* (*Shengjing yudi quan tu* 盛京輿地全圖) of 1734–1736. We should also note that Zhuang Tingfu's two maps still clearly label this location as Shengjing, although they were made in 1794 and 1800. The only print we have of the FHAC-*Kunyutu's* Eastern Hemisphere is barely legible, so we cannot verify whether it reads Shengjing, or Shenyang, or nothing at all. The use of Shenyang may even reveal the fact that the copyist was a modern man who used the Chinese characters Shenyang 瀋陽 at a time when the city's name changed several times – from Mukden to Shenyang and back again – between 1914 and 1945: a period when Europeans were in search of Chinese antiques, such as maps.¹⁶⁰ Whatever the name of this city – sometimes Shengjing, sometimes Mukden, and sometimes even both at the same time – this toponym does not enable us to fix the date of the map's creation.

Crossing the Great Gobi Desert (*shamo* 沙漠, F157 and 158) from Mongolia (*Menggu* 蒙古, F159), one finds the red-tinted *Ga'erda* (噶兒鞏, *Ga'lda, F157), which is possibly the toponym 'Calchahan' or a reference to the Oirats people, under the personalised name of Galdan (1632/1644–1697), their leader. In any case, it shows the Altai region¹⁶¹ between 1689 and 1697.

Regarding the islands along the coast of China, the former Sand Gate Islands (*Shamen dao* 沙門島, F195) are recorded in the *Gazetteer of Dengzhou Prefecture* (*Dengzhou fu zhi* 登州府志) as having burnt down in 1515 and again in 1594. They became the Sandmill Islands (*Shamo dao* 沙礮島) in 1717 or later and have continued to be mentioned as the Long Islands (*Chang dao* 長島) or the Long Mountain Islands

160 The Nanjing Kuomintang government changed the name from Mukden to Shenyang 瀋陽 in 1929. After the Russo–Japanese war (1904–1905), Mukden was a principal residence of the Japanese who occupied Manchuria until 1945. When the Japanese invaded and captured the city in 1931, they yet again changed its name to Mukden. After the communist liberation in 1945, the name finally reverted to Shenyang. During the period between 1920 and 1933, the toponym Shenyang used to appear in this writing style. According to the postmark, the Chinese postal administration retained the spelling Moukden/奉天 for use on international mail until the late 1920s. After that a Chinese-Manchurian bilingual type 瀋陽/奉天 (Shenyang/Mukden) date stamp was used until 1933.

161 The place is called "Calchahan, demeure du Coutousta-Lama Patriarche des Mogols d'eleuts" on de l'Isle's 1700 map, or personalised as the name of the Oirat people or their leader, i.e. Galdan. J.-F. Gerbillon, (1654–1707, S. I., Chinese name Zhang Cheng 張誠), who wrote *Ga'erdan* 噶爾丹 for the person Galdan (1632/1644–1697); see Bossierre and Heyndrickx 1994: 29, 196. "In 1690 Zunghar leader Galdan quickly rebuilt an alliance with the sixth Dalai Lama of Tibet and moved eastwards [...] in mid-January 1697 the emperor launched a third campaign [...] into the Altai mountains where Galdan had set up camp, [...] the imperial party then returned to the capital [...] only later to discover that Galdan had already died in early April"; see Cams 2017: 64, 68, 115. Galdan's enemies, Zanabazar and Chakhundorji, lived in Calchahan, and after the battle with Galdan in 1689 they submitted to the Qing. From then on Calchahan was Galdan's place of retreat, but only for a short period.

(*Changshan dao* 長山島) archipelago.¹⁶² On the Bernese map, the Island of Hainan floats in the sea without being assigned to any country or province. In fact it belonged to different provinces, but it has been called Qiongzhou 瓊州¹⁶³ since the Tang administration. The Great Ryūkyūs (*Da Liuqiu* 大琉球, F232), the Small Ryūkyūs (*Xiao Liuqiu* 小琉球, F232) and Three Kings Island¹⁶⁴ (*San wang dao* 三王島, F232; i.e. jap. Miyakojima 宮古島, Ishigaki 石垣, Taketomi 竹富町, all now part of Okinawa, Japan) were considered Chinese because they are coloured yellow on this map. Indeed, the Kingdom of Ryūkyū (*Liuqiu guo* 琉球國, 1429–1879) was a Chinese vassal state under the Ming (1429–1644), until the Japanese invaded on 5 April 1609 and paid tribute to the Ming and the Qing. Would a Japanese, as mentioned above, paint these islands yellow, thus ‘ceding’ them to China, especially at a time when Japan was about to become a protagonist in soon-to-be Manchukuo? Similarly, it is unlikely that a Korean would paint the borders of Korea (*Chosŏn* 朝鮮, *Chaoxian* in Chinese, F196, 1392–1910) half green and half yellow, i.e. partly Chinese and partly Japanese, although this was at times the case during the Japanese occupation of Korea in the early 20th century. Instead, it looks as if the copyist generously coloured the borders without worrying too much about the implied political interpretations.

Finally, it is also essential to investigate why the author of the Bernese map adopted the toponym *Zhongguo* 中国 for China instead of the contemporaneous name of the dynasty commonly used on Chinese maps. Traditionally, the dynasties customarily signalled sovereignty over their territory through their dynastic name, as is evident on most maps, which refer to the country as Great Ming (*Da Ming* 大明),

162 Sandmill Island appears between the Bamboo Islands and the Long Mountain Islands (*Changshan dao* 長山島) in Matteo Ripa's *Kangxi Imperial Atlas* (*Kangxi huangyu quanlan tu* 康熙皇輿全覽圖) on the copper engraving of 1719, row 4 nr. 2, 4–5 E/37–38 N; see Ma, Liu and Wang 2007. Hence it looks as if it is the modern Cheyou Island 車由島 or part of the Temple Island archipelago (*Miao dao qundao* 廟島群島), which somehow lies between the Long Mountain Islands and the Bamboo Islands, and as though it were the *totum pro parte*, hence the name for the entire archipelago. In the table of the *Ming Dynasty Atlas*, these islands figure as the Sand Gate Islands (*Shamen dao* 沙門島); see Tan 1982: 51.

163 Qiong Mountain 瓊山 is located on Hainan Island and provides the *Qiong* 瓊 element for the administrative nomenclature, regardless of whether it refers to a district, a subprefecture, a prefecture, a circuit, or a province. The Bernese map does not hide any nautical or astral secret, therefore there is no uncertainty about whether Hainan Island is part of Qiongzhou Prefecture 瓊州 or of Lianzhou Prefecture 廉州 on the mainland, as Timothy Brook proposed when he examined the Seldon map; see 2013: 16, 157. Under the Song, Qiongzhou was assigned to the West Circuit of Guangnan 廣南西路. Under the Yuan, it was called Qiongzhou Circuit 瓊州路 and was reassigned to Huguang Province 湖廣行省 until the year 1368. During the Ming dynasty it reverted into Qiongzhou 瓊州 Prefecture, which belonged to Guangdong 廣東 Province, and the administration was located in the district of Qiongzhou (today's Haikou), governing the whole island. As for the main island, it remained the same during the Qing dynasty; see Fuchs 1937: 226. Hainan belonged to Guangdong until 1988, when it was established as a province.

164 On G. de l'Isle's 1700 map, where he called the place *I. des roys mages*.

Imperial Ming (*Huang Ming* 皇明), or Great Qing (*Da Qing* 大清).¹⁶⁵ I agree that the concept of a ‘nation-state’ is inappropriate in interpreting Zhongguo as China, since this connotation only dates from the late 19th century and therefore should not be projected back onto the 17th.¹⁶⁶ On the other hand, the Chinese used the term Zhongguo when describing their country in cultural and spatial contrast to foreign countries, and Jesuit missionaries also referred to it by this name, though not exclusively. The fact remains that the term Zhongguo was used on the Bernese map with a *spatial* rather than a *temporal* focus, i.e. without explicit reference to the trans-dynastic self-identity implied in Zhongguo. The Jesuit Verbiest also used the name Zhongguo on his map and in *The Explanation of the World Map*, where it features no less than fourteen times. To what extent does it affect the Bernese map? Considering that the Bernese *Kunyutu* was presumably created with Jesuit background knowledge, namely via the work of Verbiest, and the fact that Zhongguo only appears twice (F195 and 231), one could speculate that the cartographer’s self-identification as a Chinese belonging to Zhongguo, was only very moderate. This may also indicate that by the mid-to late-19th century, a Chinese map-maker under Jesuit influence may have created the Bernese world map depicting China as one among other states.

6.1 A Glimpse of the Wider World in Which Year?

The map highlights the difference between ‘Asian Russia’ (*Aluosuo guo* 阿羅索國, F81) and ‘European Moscovia’ (*Meisiguweiya* 洸斯箇未亞, F115) by using colours. Moscovia was an exonym for the Grand Duchy of Moscow, which Europeans used from the 14th century until the time of Tsar Peter the Great. This is one reason why we do not find St Petersburg on the map. Within a radius of about 700 km from the spot where St Petersburg is actually located, one finds Jegalva as Mitau (*Moduo* 末多, F114), the capital of the Duchy of Courland (1578–1918) at that time; Riga (*Lijia* 利加, F114); Pleskow (*Bolesigu* 伯肋思故, F114); the Solovetsky Islands or Solovki (*Suo dao* 所島, F79); and Yaroslavl (*Bieluoseluo* 別洛色洛, F115), a major city in the Tsarist

¹⁶⁵ Dong 1989: 381. The practice of naming the dynasty with reference to geographic China has already been mentioned in D’Elia 1938: 111.

¹⁶⁶ Nicolas Standaert’s rejoinder to Chen Bo’s “The making of ‘China’ out of ‘Zhongguo’: 1585–1690” provides textual evidence that the notion of Zhongguo was very rarely used until the late 19th century, because Zhongguo was not described or interpreted as a ‘nation-state’. Moreover, the Jesuit missionaries also used terms other than Zhongguo for China. Finally, the longer the Jesuits stayed in China, the more they replaced the trans-dynastic name with the dynastic name Qing; see Standaert 2016: 307–328. On the two versions of Ricci’s map which Giles compared and translated, the one in the Vatican bears the name *Da Ming* and the other *Zhongguo*; see Giles 1918: 384.

Empire, located on the banks of the fluvial road (i.e. the Volga [*Wo'erjia he* 窩耳加河, F153]) to Novgorod (*Nuowogeluo* 諾窩各落, F115) in the 17th century – but there is nothing that sounds like St Petersburg. The latter city was founded in 1703 by Peter the Great and became the capital from 1713 to 1728, and again from 1732 to 1918. In the period between 1713 and 1728, or any time after that, St Petersburg would have been on the map, whether it was the capital at that time or not.

The representation of the Kingdom of Poland (*Boluoniya guo* 波羅泥亞国, F114, n.b. the Italian pronunciation), which corresponds to the expanse of the Polish-Lithuanian Commonwealth on our map, is immense. It extends from Riga on the Baltic Sea to the voivodeship of Ruthenia (*Lüeyi'er guo* 畧疑尔国, F114),¹⁶⁷ with its capital city of Lviv (?*buer* 口布耳, F149, [Lem?]berg or Lwów), and the voivodeship of Kyiv (*Juwei* 覺未, F114), both in Lesser Poland. It also runs further south, next to the Moldovan Ochakiv (*Yuesagu* 約撒固, F150, Özü in the Crimean Tatar language)¹⁶⁸ on the Black Sea. Indeed the Polish-Lithuanian Commonwealth was extensive before it was divided among the three eagles in the years 1772, 1793 and 1795. Previously its size was only reduced by the loss shown on the map – namely the part of the voivodeship of Kyiv, with its capital city of Zhytomyr (*Juminie* 聚米聶, F150),¹⁶⁹ and the controversial Smolensk (*Yilengsigu* 疑冷斯故, F115), which had to be handed over to Muscovy (*Meisiguya* 洩斯箇未亞, F115)¹⁷⁰ in 1667 and was lost to the Swedes in 1708. All this would argue for dating the map during the period between 1667 and 1708.

Also the map still depicts Kraków (*Kelagewei* 克拉各未, F113) as belonging to the Polish-Lithuanian Commonwealth: the city was not ceded to Austria until 1722. On the opposite side of the border lies Cassovia (*Jiafuwei* 加弗未, F149, today Košice), the capital city of the Principality of Upper Hungary. Most of the time this city belonged to the, by then declining, royal state of Hungary (*Wengjialiya guo* 翁加里亞国, F149; only briefly did it become Ottoman, as shown on the map. The Principality of Moldavia, with its capital city of Jassy (*Yaxi* 雅西, F150), and the Principality of Wallachia were both vassal states of the Ottoman Empire more or less beginning with the Battle of Mohács in 1526 until the end of Russo-Turkish War in 1812. Moldavia was divided between Austria (1775) and Russia (1812), but on our map it still belongs to the Ottomans; only later are the two merged into Romania. The Principality of

¹⁶⁷ The Ruthenian Voivodeship and its capital city, Lwów, belonged to Greater Poland.

¹⁶⁸ G. de l'Isle's 1700 map calls this Oczakov and places it in 'Turquie Europe'. The Moldovan villages were inhabited by Romanians, even if they were ruled by Tatars.

¹⁶⁹ Żytomierz was the capital in 1667 and was part of the voivodeship of Kyiv, which was given to Imperial Russia (referred to on our map as Moscovy) as part of the Treaty of Andrusovo. It remained the capital until 1793.

¹⁷⁰ This exonym was only used by Western Europeans for the Grand Duchy of Moscow until the time of Peter the Great.

Transylvania, north of the Danube River (*Danubo he* 大奴波河, F150), had to pay tribute to the Ottomans until it was finally made over to the Habsburgs in the Treaty of Karlowitz in 1699. Thus this situation reflects the period before the Treaty of Karlowitz was signed in January 1699, ending the third Polish-Ottoman War (1683–1699). Since this treaty was concluded without the tsar's involvement, it was revised a year later, in 1700, in the Treaty of Constantinople. As a result, Sultan Mustafa II had to relinquish the Asov region (*Yashake* 亞沙客, F152) to the Russian Tsar Peter the Great, as our map shows, although Asov had to be returned to the Ottoman Empire eleven years later.

To summarise, in addition to the downfall of the Kingdom of Hungary and the principalities mentioned above, South-Eastern Europe also includes Sofia (*Sofeiya* 所非亞, F150) and Varna (*Wa'erna* 瓦爾納, F150) in the Eyalet of Rumelia, as well as the Aetolia-Acarnania district of Central Greece (*Eleqiya guo* 厄肋齊亞國, F150)¹⁷¹ – everything on the map belongs to the Ottoman Empire. Thus the political situation clearly corresponds to the period between 1699 and 1708.

Our last consideration concerning the European continent is so-called Byzantium (*Beichanjue* 北產爵, F150),¹⁷² which seems to be a somewhat nostalgic name, as this city had fallen victim to the Ottoman Turks in 1453 and had been called Constantinople ever since. Here the Ottoman Empire is divided, as it also is on G. de l'Isle's map *L'Asie*, into 'European Turkey' and 'Asian Turkey', which would indicate a date of 1700. This year would correspond to the map's presentation of Western Europe: on the map, the Holy Roman Empire, comprising 'Germany' (*Reermaniya guo* 熱爾瑪尼亞國, F113), to which the Kingdom of Prussia has not yet succeeded, and

171 Ann Heirman has shown that the version of Francesco Sambiasi's *Complete Map of the World* (*Kunyu quan tu* 坤輿全圖) in the Bibliothèque Nationale de France and in the library of Ghent, ca. 1639, carries the toponym Greece, but the copy in Turin bears the name *Geleqiya* 厄勒齊亞 (Greece); see 2009: 37. What is relevant to our copy are the Chinese characters *Eleqiya guo* 厄肋齊亞國 (F150). *Eleqiya* was Karli-Eli, Land of Charles, the region of Aetolia-Acarnania during the Ottoman Empire from the 16th to the 18th century. The name goes back to the historical moment when Carlo I Tocco was the last Christian ruler of this region. Despite the historical accuracy, the toponym Greece or Grèce had appeared on some European maps since the Latin 'Graecus' and was used before the founding of Greece in 1828/1829. The modern pronunciation 'Eleqiya' is problematic. The first character *e* 厄 is in fact transcribed as <gè> in the XREMZ. Ricci already transcribed England as *An-ge-li-ya* 諳厄利亞. However, the scribe who made the Bernese map might have understood that *an-ge* 諳厄 should be divided into the phonemes 'ang' and 'e', and unlike Ricci, he wrote *Ang-li-ya* 昂利亞國 (F111), suppressing the epenthetic vowel 'e', which Ricci had inserted. In spite of the modern pronunciation, 'e' fits into the French exonym Egypte (*Eriduo guo* 厄日多國, F222, <Ejito guo> according to XREMZ). Hence the sound value of the grapheme *e* 厄 varies and works as 'ge' in G(r)ecia (*Eleqiya* 厄肋齊亞), in addition to the elision of 'r'. I would like to thank Henning Klöter for this reference (p.c., 15.08.2019).

172 The scribe wrote *bei* (北) instead of *bi* (比), in contrast to 'Bichanqihe' (比產齊何) on Ricci's map. Of course some southern Chinese dialects pronounce *bei* as *bi*.

other major countries such as Portugal, Spain, France and Italy, including the Republic of Venice, all align with the political situation in the year 1700. The latter, as part of the Holy League, won the war against the Ottoman Empire in the Peloponnese or the so-called Kingdom of Morea from 1685 to 1687. Nevertheless, precisely this loss of the Eyalet of Morea, which had been established by the Ottomans in 1661, was never accepted; the region was finally reconquered in 1715 and reintegrated into the Ottoman Empire until the Greek war of independence in 1821, and the conflict was only settled by the Treaty of Adrianople in 1829, when modern Greece began. On the map, Karli-Eli (*Eleqiya guo* 厄肋齊亞国, F150) is integrated into Ottoman territory, meaning that this political depiction of Karli-Eli dates either from the period 1460–1699 or 1715–1829; to be consistent with the other depictions of political situations on the map, it is most likely the latter.

The nearby city of Belgrade (*Bo'erjiadong* 白耳賈冬, F149) was occupied by the Habsburgs three times (1688–1690, 1717–1739, 1789–1791), but on our map it does not belong to the Habsburg Archduchy of Austria as part of the Holy Roman Empire, which undoubtedly reflects the situation between 1690 and 1717 or between 1739 and 1789, during the ‘interim’ periods. An overall consideration of South-Eastern Europe would suggest the historical context of the Adriatic coast prior to the period 1699–1717, which is quite a time frame. But in the final analysis, we must consider the date that corresponds to the Adriatic situation as well. Together with the extrapolated circumstances with regard to Moscovia and the Polish-Lithuanian Commonwealth, we can say that the map depicts the political situation in the period between 1690 and 1717.

The following section attempts to specify a date for the map as derived from textual evidence. In the southwestern part of the Eastern Hemisphere, we find the following text block on the ‘land of parrots’ (*yingge di* 鸚駟地, F469),¹⁷³ which states:

南極野區新爲第五大州,然盡|是無人之空地,因相隔各方,而海|圍難渡,自古無人,而至彼但二
百|年弗郎幾商曾駕船過大浪|山,偶望見是地,而來,就船,惟見|鸚歌等鳥,無他物.故因名地.
(F506).

The desolate region of the South Pole was recently regarded as the fifth continent. However, it is an entirely empty territory without people. Because it is separated from the opposing areas and the sea is dangerous to cross, it has been deserted since ancient times. Only two hundred years ago, Frankish merchants reached this [area] with their ships, passing the Big Waves Mountain [i.e. Table Mountain]. Inadvertently, they sighted this real land. While they were approaching in their ships, they only saw [heard!] the song of birds like parrots, [i.e. penguins gabbling] but nothing else. That is the reason for the name of the island [i.e. Parrots’ Island].

173 *Ge 駟* is the variant C1774 for , which Ricci also used in approximately the same place.

Although the name of the island is not mentioned in the text, we surmise that the fifth continent and the 'land of parrots'¹⁷⁴ designates Australia. The European discovery of Australia can be said to have begun in 1606 with Willem Janszoon (ca. 1570–ca. 1630). However, the text states that the continent was discovered 'two hundred years ago', which would bring us to 1806 as the date when the Bernese map was made. Firstly, one has to consider what the map-maker means by 'Frankish merchants'; secondly, one must ask which year he means when he writes 'two hundred years ago'. If the author of the Bernese map had a close affinity with France, he might have claimed the Frankish merchants as French. This reminds us of the Frenchman Jean Rotz of Dieppe (16th cent.), who went in search of Marco Polo's *Java la Grande* and accompanied Jean Parmentier (1494–1529) on his 1529 voyage, which, indeed, he also depicted on his 1542 map.¹⁷⁵ This would date the Bernese map to the year 1729.

Since the text on our map was taken from Ricci's map, one could also count the 'two hundred years' from the time when Ricci made his map in China, around 1600:

佛朗幾商曾船過此海望見鸚鵡地,而未就舶。

Frankish merchants sailed through this sea with their ships, sighted the parrots' land, but did not leave their ships.

So the Frankish merchants would have sailed through this sea around 1400. *Nota bene*: Ricci's text does not mention the duration of time. But Ricci wrote about Magellan, indicating a duration of time on Magellanica, above the Arctic Circle and the 'polar world on the south of the earth' (*dinan jijie* 地南極界), i.e. Antarctica, opposite the Land of Chile (Qile guo 祁勒國), at 60°–70°S/200°–210°E:

墨瓦蠟泥係拂郎幾國人姓名,前六十年始過此峽。

Magellan is the full name of the man from the Frankish Kingdom who passed this strait sixty years ago.

There is a minimal graphical difference to our text in the character *fú* 佛~弗~拂, which is irrelevant – Magellan was not French, but Portuguese,¹⁷⁶ so the merchants

174 The 'land of parrots', *terra psittacorum*, was located in many places and had many other names. Even Madagascar and another location south of Africa were considered. In general, terra australis is the southern area of the world; it distinctly referred to the Antarctic, with its penguins, and is not to be confused with Australia as a continent. However, Australia was recognised as the 'Pays of Perroquets', *terra psittacorum*; see Ptak 2006: 200, n. 43.

175 Rotz: *Map of the world in two hemispheres*, 1542.

176 On Ricci's map we can distinguish the following spellings: Portugal (*Bo'ertuwa'er* 波爾杜瓦爾, *Bo'rtuwa'l); France, i.e. Françaia (*Fulangcha* 拂郎察); and the Franks are transcribed as *Folangji* 佛郎幾 in the text block at 42°S/35°E, or written as *Fulangji* 拂郎幾 in line 10 of the text block west of Cape

would have been Portuguese. As far as the year is concerned, if we start from the point in time when Ricci was in China, then this is a good twenty years earlier. In 1520 Magellan passed through the strait that would later be named after him, so ‘sixty years later’ would mean that Ricci must have had these sentences in mind when he was still in Europe, i.e. in approximately 1580. Therefore the twenty years’ difference is not a valid argument with regard to the ‘two hundred years’, when the Frankish merchants ‘sailed through the sea’, because the phrase ‘only two hundred years ago’ is merely written on the Bernese map. Thus we have to reject this version.

If we interpret the ‘Frankish merchants’ as Portuguese, then we have to consider that the Portuguese and Galician explorer Luís Vaz de Torres (ca. 1565–1607), known

Horn at 30–45°S/250°–270°E. In contrast, the Bernese map shows the name of the country as Lusitania instead of Portugal, a new toponym which has been copied neither from Ricci nor from Verbiest. Moreover, France is called Francia (*Fulangcha guo* 弗郎察国), and the Frankish merchants (*franchi* in Italian) are transcribed as *Fulangji shang* 弗郎幾商 (F506), with *fu* 弗 as in France, and differently from the two variants on Ricci’s map. *Farangi* فرنگی was transcribed in Chinese as *Folangji* 佛朗機 or *Folangji* 佛郎機, pronouncing ‘ra’ instead of ‘la’ in the second syllable. In Arabic there are the two forms: *farank* فرنك and *faranj* فرنج. According to Pelliot, “the Portuguese are called *Fārangī* in Persian”. Later on “the Portuguese were called *Pudulijia* 蒲都麗家”; see 1947: 86, n. 7 and 39. I do not understand why Pelliot thought that this description only applies to the Portuguese. Portuguese do not primarily have “un teint blanc [... et] des cheveux tirant sur le roux” (see idem, p. 112). This description tallies rather with the Dutch, who often have white skin and red hair. However, the Indian name *firangi* [phiranga roga] denotes syphilis in Ayurvedic medicine, which was probably in evidence when Vasco da Gama and his team sailed to South Asia. Pigafetta called the same disease ‘for franchi’, i.e. the European disease; see Pigafetta and Jostmann on Timor, chap. XLVI, 2020: 222. The location of the Franks is undefined. The first use of *Farang* فرنگ in the Persian language is found in the *History of the Franks* (تاریخ الإفرنج *Tārīḫ-i Ifrang*) by Rashid al Din (1247–1318). It is also a geographical term, as the title of the 3rd Book, *bāb* باب, confirms: *Chronicles of Nasser al-Din Shah from His Third Journey to Farangestān* (Rūznāmah-i khāṭirāt-i Naṣir al-Dīn Shāh dar sivvum-i Farangistān فرنگستان روزنامه خاطرات ناصرالدین شاه در سفر سوم فرنگستان), in which Farangestān فرنگستان is not well defined in Europe, but in which the clearly delineated centre of the empire is “Rome (*Rūmiya* رومیا), the gigantic”, with “its first dignitary the *Pāp* پاپ (the pope) which means father of the fathers”, in contrast to the “Rey de Frans” ری دو فرانس (King of France). The most remote eastern countries of the Frankish Empire in the Christian domain are Bohemia, Poland and Hungary; see Jahn 1951: 4, 14–15. The Arabs and the Persians called all types of Western Europeans Franks. Products from the West are still referred to with the attribute *farangī*: e.g. Frankish mulberries (*tut franghi* توت فرنگی) are strawberries in Farsi. Brook suggests that the term ‘Franks’ comes from Arabic and was a generic term for Europeans in general and a term for Spaniards among Ming Chinese; see Brook 2013: 123. For the different names of Portugal on the various editions of Ricci’s map; see Morar 2019: 22. It remains unclear why the author coalesced the ‘fu’ of the Franks with that of France. Maybe he wanted to glorify the French, not the Portuguese. Otherwise he always made sure that the homonymy was split with another grapheme; see Chapter 6.1 “*Allograph in Homophonous Toponyms or Error?*” in Morsier-Fritz 2021: 980–981.

as the ‘Breton’¹⁷⁷ when he sailed for the Spanish, went in search of Australia in 1606 – in the same year as Willem Janszoon (1571–1638) – through the strait which bears his name. If Torres is referred to as Portuguese, then text F506 on the Bernese map must have been written in 1806. A closer look at the ‘desolate region of the South Pole,’ (*nanji yequ* 南極野區, F506), i.e. Antarctica, 20° north of the Polar Circle on the Bernese map, where ‘parrots’ land’ is found, could give us the alleged *Terra Australis* or Australia, which was discovered in 1820. Matteo Ricci placed his ‘land of parrots’ next to the ‘ca’ (*jia* 加) in Magellani-ca, in the South Pole region, where ‘the strait, the sea and the land are named after him’ (*yi qi xing ming xia ming hai ming di* 以其姓名峽名海名地), and which is located in almost the same place on the Bernese map. He points out that there are very ‘few locals of this Southern region who reached here’ (*ci nanfang diren zhi zhe shao* 此南方地人至者少). We have to assume that this was due to the cold. Alas, I think that the ‘parrots’, even more than the people, would all be frozen at this latitude, and that therefore the text is not about ‘parrots’, but penguins. Moreover, the name given to the birds, *yingge* 鸚駟 – for which there is no standard equivalent in English, but which were called *ge* 駟 in Chinese – is probably an effort to represent the sounds the birds made, rather than indicating that they were ‘parrots’.¹⁷⁸ Therefore the name should be translated as penguins. Many species of the penguin family *spheniscidae*¹⁷⁹ live in the Antarctic Convergence, including on ‘Magellanica’, i.e. Tierra del Fuego and in Australia. However, the African penguin lives in South Africa. The Northern rockhopper penguin lives on the Amsterdam and Saint Paul Islands (*Sheng Baoliü dao* 聖保綠島, F443) – en route to Australia – and

177 Luís Vaz de Torres could have been Galician, Breton, Portuguese, or French. Little is known about his origin. The term ‘Frank’ is not cited at all in his biography. However, the toponym Le Bastion de France (*Fulangji ta* 弗郎幾塔, F184), a French Comptoir in Bone (Annaba) on the Tunisian-Algerian border in the 16th century, is written with the [ji ~ kil] as in ‘Franchi’ and not derived from ‘Francia’ *Fulangcha guo* 弗郎察國 (F148) in Italian. The author’s use of *cha* 察 in the Italian name ‘Francia’ for France is reasonable. However, the ‘ki’ as *ji* 幾 in the adjective ‘Frankish Bastion’ is not very plausible because it was not a Portuguese Bastion: Le Bastion de France was built by an extremely affluent merchant from Marseille, France.

178 The scribe used a different *ge* 歌 in the text than in the toponym *ge* 駟. The variant C1774 鸚 (哥+鳥) stands for *ge* 駟, as in the *Shuowen jiezi* 說文解字 (early 2nd-century Chinese dictionary); see Li and Jia 2000: 334. The following entries claim that *gege* 駟駟 is onomatopoeic, referring to the parrot’s sound: see ZWDCD 48166, 47758, 47724, 47724,3 and 47724,4. The parrots were ‘speaking birds’, *yingwu* 鸚鵡; related terms are *yingge* 鸚哥 and *bage* 八哥; see Ptak 2009: 31 or 2011: 114. For the toponym *terra psittacorum* or ‘land of parrots’, see n. 174 above. It is the same character as on Ricci’s map, whence the name ‘parrots’ land’ derives, and is located on the large Magellanica, opposite South Africa: “This region is prolific in parrots. That is the reason for the region’s name” (*cidi duo zhi niao ge. gu yin ming di*) 此地多之鳥 駟. 故因名地).

179 Winkler, Billerman and Lovette 2020: “Spheniscidae”.

particularly on Tristan da Cunha (*Yaguna dao* 亞故納島, F435) in the Southern Atlantic.

The same argument applies to the cryptic ‘crocodiles’, which are not far from the parrots on the Bernese map, where they are said to swim.¹⁸⁰ Crocodiles live in tropical and subtropical areas, and therefore would also be frozen at such a latitude. Thus we could identify them as Southern Sea elephant seals rather than ‘crocodiles’.

Moreover, in relation to the mystery of the map’s inception year, it is also worth remembering that a maritime calamity took place in the vicinity of Prince Edward Island (*Dina dao* 第納島, F474)¹⁸¹ in 1694. The Dutch VOC merchant ship *Ridderschap van Holland*¹⁸² was lost, along with 325 passengers and its crew, on the way to Batavia. The ship with a broken mast shown on our map could be the ship in question, which was destroyed in stormy weather (F473, Figure 13). The loss of such an extraordinary ship was a financial fiasco, so the same Nicolaes Witsen (1641–1717) mentioned above, the mayor of Amsterdam who knew Peter the Great, instructed the Protestant Willem de Vlamingh (1640–1698) to mount an expedition with three ships in 1696 to look for the wreckage and any survivors.¹⁸³ Perhaps the map also depicts the main search vessel, the *Geelvinck* (Yellow Finch), just behind the shipwreck (F472).¹⁸⁴ This was not the regular sea route, which was normally taken and can be traced on the Bernese map, was perhaps a deviation due to the fact that France was at war with Holland for nine years. Vlamingh left Holland ‘strictly incognito’, sailed along the Scottish coast, then south to Tristan da Cunha (*Ya Guna dao* 亞故納島, F435) and the Cape of Good Hope, next to the mountain where ‘big waves break against the

180 Morsier-Fritz 2021: 986.

181 When Barend Barendszoon Lam van Bunschoten on *Marseveen* (i.e. Marion, the ship’s name) sighted two unknown islands in 1663, he named them Dyna (Prince Edward Island, 46°38’38”S/37°56’35”E) and Marseveen (Marion Island, 46°54’22”S/37°44’13”E). Calling the island *Dyna* was not very specific, since the word in Arabic means ‘island’, resulting in a pleonastic toponym ‘island–Island’. The two islands are not only represented on G. de l’Isle’s French maps (*mappe-monde*, 1700), but also on N. de Fer’s *Mappe-monde* (1694). G. de l’Isle admitted that this information came from Dutch maps. It may have been taken from the Dutch map *Nieuwe Pascaert van Oost Indien*, made by Johannes van Keulen (1654–1715) in 1680, where Dina Island is already located in the same place. The Bernese map depicts two islands, but with one name: ‘Dina Island(s)’.

182 The ship was built in Amsterdam by the VOC in 1682 and was 50 m long and 12 m wide, with a gross tonnage of about 520 tons.

183 Despite the rumours that the *Ridderschap van Holland* was pirated, the ship’s fate has not been clarified to this day; see Playford 1998: 4, 71: n. 2. Playford’s book contains the first English translation of de Vlamingh’s private journal, which differs from the *Yellow Finch*’s logbook.

184 The other two boats were a hooker called *Nyptangh* (Nipper or Pincers) and a galliot called *Weseltje* (Little Weasel); see Playford 1998: 5, 11.

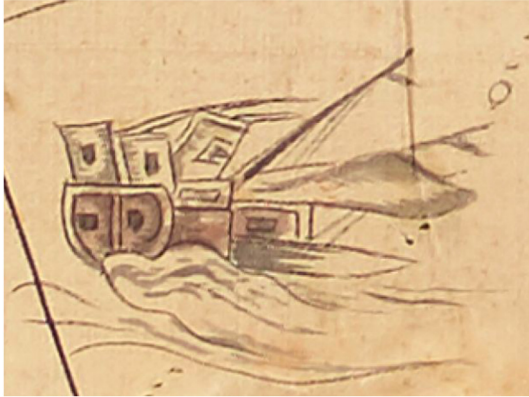


Figure 13: Is this the wrecked *Ridderschap van Holland*?

mountain', which is Big Waves Mountain (*Dalang shan* 大良山, F438) south of Cape Town, called Table Mountain by the Dutch.¹⁸⁵

Since the tragic fate of the *Ridderschap van Holland* was known to everyone involved in sailing and mapping in the final years of the 17th century, these hot spots were also depicted on the Bernese map to some extent. Therefore the text would have been written after the incident and the rescue expedition of 1696–1697, and maybe even after Witsen's 1705 report on the matter.¹⁸⁶

Leaving the cape in October 1796, Vlamingh sailed along the Brower route via the Scattered Islands (Sami dao 撒弥島, F435), which have not yet found their correct geographical place on the Bernese map, and Saint Paul Island (Sheng Baolü dao 聖保綠島, F443),¹⁸⁷ which the author of the Bernese map locates as follows:

此島相近島,不勝数,密布海上。(F479).

This island [Saint Paul Island] is near other islands, which are not numerous but densely scattered in the Sea, [i.e. the Scattered Islands?].

Saint Paul Island was first sighted in 1559 by the Portuguese, with Father Manuel Álvares (ca. 1536–1570) on board. Were these Portuguese the Frankish merchants of two hundred years ago, mentioned above? In that case the text on our map would have been written in the year 1759, which also tallies well with the next text. The text block placed at Namaqualand, the land of the 'Hottentots', describes them as follows:

¹⁸⁵ Playford 1998: 5.

¹⁸⁶ Witsen's publication, which criticised de Vlamingh's investigative voyage, appeared in 1705; see Playford 1998: 73: n. 9.

¹⁸⁷ Playford 1998: 15.

人極愚蠢,身有羶氣,衣惟獸.及女盤獸腸于身,以爲師(sic.: →時)待爛,則食之. (F401).

The people here are extremely stupid; (their) body has a perspiration smelling of ‘ram’. Their clothing consists only of beasts’ (skins). Moreover, the women wrap the guts of wild animals around their bodies; over time they rot and are eaten later.¹⁸⁸

No year is mentioned in this passage, but it recalls the description given by the German Peter Kolb (1675–1726). He was sent to South Africa by a Prussian noble to study astronomy and surveying in 1704, where he noted his experiences and observations. He described the ugly perspiration as well as the preservation and subsequent consumption of meat. His description fits perfectly with this text block. The book containing this description was published in German in 1719, and the Dutch edition soon followed in 1727. Such reports and recent travelogues were bestsellers among map-makers and were read immediately. While the political situation depicted on the map provides so much evidence for dating the map between 1700 and 1730, it is more likely that it was made in the later part of this period, towards the end of the 1720s, or even later.

The only vague evidence against this early dating of the map is the name of the Kingdom of Lusitania (*Luxidaniya guo* 路西大尼亞国, F147). Lusitania, a Roman province, retained its name in literature and in other texts even after the fall of the Roman Empire. The 1807 Treaty of Fontainebleau, signed by Napoleon and Charles IV, planned for the Kingdom of Lusitania – including its capital city, Lisbon – to be reduced to the region between the Douro and Tagus rivers and ruled directly by France. This toponym, which stands for the proposed but never extant Kingdom of Lusitania, is an indication that the map may date from Napoleonic times, unless our

188 Seven characters of this text were copied from Verbiest, who targeted the people of the Kingdom of Mutapa and may have taken the information from Dapper’s book (1668), because his map dates from 1674. However, there is nothing about ‘eating rotten meat’. A similar passage was found in Kolb’s *Caput bonae spei*, 1719. The Dutch edition was published in 1727 and was important for the Dutch map-makers, who were among the leading European experts in this field. In 1704 Kolb went to South Africa with an introductory letter from Nicolaes Witsen, the mayor of Amsterdam and bailiff of the Dutch West Company (*Gectrooieerde Westindische Compagnie*, WIC), whom I have already mentioned in relation to Willem de Vlamingh and to Tsar Peter the Great and his map of Russia. Kolb’s description is very similar to the Chinese text and was not found in the books of O. Dapper (1668), Tachard (1686), Vogel (1702), or Böving (1712), against whom Kolb sometimes argued. He wrote that the ‘Hottentot’ women cream their bodies with sheep fat. It is no wonder that our text says that they smell not like a pig, but ‘like a ram’. Kolb also knew that the locals clearly distinguished which intestines were immediately edible and which were dried for possible later consumption. Similarly, the skins were used under the men’s feet as soles; they ran on them for a long time and consumed them later. Thanks to Gesine Krüger, University of Zurich, who pointed me towards Kolb (p.c. 01.12. 2018), I was able to establish the link to the text passage F401. The author of the original text must have read or heard of Kolb’s 1719 German edition or the 1727 Dutch edition.

artist was in a lyrical mood and decided to use the poetic name for Portugal. The maps by Zhuang Tingfu show no Lusitania on the Iberian Peninsula, but contain two different spellings for Portugal as well as for Spain, namely Spagna and Espagne.¹⁸⁹ Unfortunately, the FHAC-*Kunyutu* cannot be used to verify whether Lusitania is present on that map. However, the toponym Lusitania is found on Verbiest's map and on another old European map.¹⁹⁰

7 Conclusions

Based on the preceding analysis, I conclude that the Bernese *Kunyutu* 坤輿圖 is an anonymous, artistic and hand-coloured map in Chinese depicting the global political situation around the years 1700–1730. Almost all of the 1,025 places marked on this world map can be identified without difficulty. The remaining half of the total characters appear in 112 text blocks that describe peoples, their idiosyncrasies and their local goods. Appendix II makes the translation of these texts accessible to a larger scholarly readership for the first time. Analysis suggests that only seventeen of these text blocks are the original work of the author of the Bernese map. Alternatively they may come from an as-yet-unidentified source. A Venn diagram shows that 52 % of the text blocks were copied from older maps, particularly from *The Complete World Map* (*Kunyu quantu* 坤輿全圖) made by Verbiest in 1674 and *The Complete Map of the Myriad Kingdoms of the World* (*Kunyu wanguo quantu* 坤輿萬國全圖) made by Ricci in 1602, supplemented with texts from *The Explanations of the World Map* (*Kunyutu shuo* 坤輿圖說) written by Verbiest in 1674. Perhaps the two maps above were merged into a later, unknown map, which became the source for the Bernese map. European templates may also have been used: the 1700 *mappe-monde* and the 1728 *mappe-monde*, both made by G. de l'Isle and written in French, would have provided the latest information at the time. Consequently, the Bernese map must have been produced in 1729 at the earliest. The map is defined by a distinctly artistic rendering in the *Kunyutu* 坤輿圖 genre, illustrating all kinds of humans, animals and ships. The artistic design of the rural calendar on the ecliptic is rarely seen before the late 18th century, yet is present on both the Bernese *Kunyutu* and the

¹⁸⁹ Ricci renders *Po'erduwa'er* (波爾杜瓦爾) for Portugal. Zhuang Tingfu's 1794 map mentions Spain under two names, i.e. Spagna (*Shibanya* 是班牙) and Espagne (*Yixibani* 以西巴尼). Portugal is called *Po'erduwa* (*Poqianduwa* 波欠杜瓦 sic.: → *Po'erduwa* 波爾杜瓦). On his 1800 map there are two names for Portugal: *Po'erduwa* 波爾杜瓦 and *Putaoya* 葡萄呀, as well as two names for Spain: *Shibanya* 是班牙 and *Yixibani* 以西巴尼. Verbiest's Iberian Peninsula is full of toponyms, one of which is indeed Lusitania, with a different spelling (*Lüexidaniya* 略西大泥亞) than on the Bernese map.

¹⁹⁰ *Universalis Tabula Iuxta Ptolemaeum* by Ptolemy, Mercator et al., published in 1584.

very similar *Kunyutu* 坤輿圖 held in the First Historical Archives of China (FHAC). The latter is characterised by mathematical accuracy and is said to have been made between 1696 and 1723, *de facto* reflecting the situation in 1723 or later. Perhaps it is derived from an unknown original; one of these two sources could in turn have served as the template for the Bernese map. In any case, a relationship to the latter is apparent. Whether the rural calendar on the Bernese map was influenced *by* or was an influence *on* Zhuang Tingfu's 莊廷敷 1794 map is a matter for further research. Following this line of enquiry, the Bernese map may not have been created until the mid-to late-18th century, having merely relied on earlier maps, which were themselves created between 1700 and 1730. On the one hand, I have shown several times that the demarcation of countries in Europe points to the period from 1698 to 1728, while the division of the provinces within China indicates the late Ming period, but the name changes of Chinese cities on the map suggest the end period of Emperor Kangxi (r. 1661–1722), and which are documented in the imperial annals. The last clue on the map, which can be dated is the reference to Zhen'an, which was a prefecture in Guangxi between 1729 and 1738. So the map claims to be older than it is. On the other hand, the seasonal calendar influenced the author to distribute all twenty-four solar terms of the rural calendar along the ecliptic, which appears to be a novelty in Chinese cartography and was applied by mapmakers in the Fuzhou region around the end of the 18th century.

This close examination has revealed that the map was made eighty to one hundred years later (after 1700), by someone who was very well versed in Chinese. However, the author made many orthographic, geographic and factual errors, which could indicate that he was not an official scribe or a professional map-maker, since these were learned *jinshi* scholars who would accredit the information upon which the map was based and the purpose for which it was created. It seems much more likely that a copyist linked, wrote, modified and shortened sentences from borrowed passages and, by editing in this manner, omitted relevant characters, which resulted in grammatically awkward sentences. The popular variants of characters and spellings would not have been tolerated had our map-maker worked in the Bureau of Operations at the War Ministry in an official capacity. There his collaborators or the head of the Imperial Workshops would have corrected all of these errors in the editorial process. Thus we can conclude that the author of this map was not employed as a regular official selected by the emperor. Another indication that he was neither a cartographer nor a map-maker is that the tick marks related to the graduation and time for the projection on the circumference of each hemisphere as well as the rural calendar on the ecliptic are mathematically inaccurate. Perhaps because the author himself knew he was a copyist and not a professional, he mentioned neither his name, nor the place where he worked (presumably in his private studio), nor the date. This single manuscript on silk was probably sold to a wealthy Chinese or to a

corporation and mounted as a wall map at a later date, for presentation to a broader audience. The author may have been a Southern Chinese-speaking Frenchman taught by Southern China speakers or a French-speaking Southern Chinese taught by a Frenchman, as I have noted in analysing the transcribed toponyms listed in Index I and some of the strange wording in the block texts. Thus the map is not only a cartographic, but also a linguistic composite of previous maps, with translations and transcriptions from French and Portuguese into the Southern and Northern varieties of *guanhua*. The use of Southern Mandarin on the map, provided this was not simply copied, implies a possible Jesuit tradition and a time frame between 1738 and 1850.

Acknowledgments: To keep the studies of this map under lock and key, preventing errors from being identified, would be to repeat the mistake made by the mystery author of the Bernese *Kunyutu*, who left his work to posterity unsigned. Thus they are published here, but not without thanks to Alice Baker Robinson for checking the English of the draft, and to the three anonymous peer reviewers who provided useful comments, criticisms and suggestions, thus preventing greater inconsistencies. Last but not least, thanks are due to Wolfgang Behr, University of Zurich, for his encouragement, his enduring commitment and his willingness to overcome boundaries in the service of knowledge.

Appendix II: Translation of Text Blocks

Text Blocks

I have inserted the punctuation, “|” indicates the end of the text line. Most footnotes elucidate characters which were originally errors and required mandatory replacement in order for the sentence to make sense. “**” provides an improved meaning, but the original is not considered as a mistake.

Eastern Hemisphere

F39

近北極者,半年無日|海凍,人鑿¹問²冰穴,多|取大魚.因其地不生|五穀,以漁肉充飢,漁|油³燂³燈,魚骨造舟車,|或磨成麵.

As for proximity to the North Pole, it is half a year without the sun (and) the sea freezes, (so) the people chisel into it and open holes in the ice and often get big fish. Since the five grains do not grow in this area, they quench their hunger with fish meat, burn fish oil for light and use fish bones for boats and carts, sometimes grinding them into flour.

1. Instead of *jian* 鑒 (mirror, to examine), variant A04359-008 of *jian* 鑑 read *zao* 鑿 (to chisel, to gouge) as Ricci does (*Kunyu wan guo quantu*, 70°–80°N, 230°–240°).
2. Instead of *wen* 問 (to ask) read *kai* 開 (to open) as Ricci does (*Kunyu wan guo quantu*, 70°–80°N, 230°–240°).
3. Instead of *mo* 默 (silent) read *ran* 燃 (to burn), as Verbiest does (*Kunyutu shuo*, p. 760b, line 16) or *dian* 點 as the map of Verbiest does at 80°–90°N, 315°–325° on the Western hemisphere and as Ricci does (*Kunyu wan guo quantu*, 70°–80°N, 230°–240°).

F44

此灣海冰塊，|為風擊堆疊|成山。船觸之，定|為¹墓粉。

This bay [Barents Sea] consists of ice floes, which are pushed along by the wind and accumulate to become mountains so that the ship hits against them and certainly is crushed to pieces.

1. Instead of *zi* 墓 (without *ri* 日), incorrect variant A03386-004 of *zi* 自 (self) and perhaps because of its resemblance, it is mistaken for *ji* 齧 variant B06304-005 of *ji* 齧 (to jerk, to smash, to crash), as Verbiest does, see *Kunyutu shuo*, p. 773a, line 3.

F46

此峽潮水|甚急。路本|凝凍。

This strait [is not specified, could be south of Vaygach Island, i.e. Yugorsky Strait or north of it, i.e. the Kara Strait] has high tides of great violence. The route is frozen solid to the ground.

F50

海濱各凍。行|旅于水¹上幾|歷晝夜，棄車，|掛帆，望星而|行。

Every sea coast is frozen. Travelling on water¹ for several days and nights the carts are put away and the sails are hoisted to travel using stars for navigation.

1. Instead of *shui* 水 (water) Verbiest reads *bing* 冰 (ice), so ‘through several days and nights on ice’ (冰上歷幾晝夜, *Kunyutu shuo*, p. 758b, line 1).

土人髦首披皮為|衣，不鞍而騎，善射，|遇獸，輒殺而生食，|冬月臧居室韋。

The locals wear fur on their heads and dress in leather. They ride bareback and are good at archery. When they encounter wild animals, they shoot and eat (them) raw. In the winter months, they are fortunate to live in rooms (made) of leather.

F54

西船至此經度，|數月無日氣候。|極寒，欲抵東洋|為東，堅所阻直|守至冰解，仍歸|大西。

The Western ships come up to this latitude. For several months without sun in an extremely cold climate, they aim to reach the East by the Eastern Ocean [Pacific], but are firmly blocked and endure in a upright position until the ice melts* and then they return to the Great West.

* Verbiest continues from here with the second part of F44, see *Kunyutu shuo*, p. 773a, line 1–2.

F74

此島生一種石,取煮之|成絲,可以織,火浣布。古|人火化人屍,以此布包|之,其骸燼灰存在布內,不散。便貯確中。

The island [Iceland] produces a kind of stone* that turns into silk** which can be woven [after] the fabric has been boiled with fire and ‘bleached’. The people of earlier times cremated human corpses, which were wrapped in this fabric. Their skeletons and ashes remained in the textiles and were not dispersed in order to preserve them in there.

* The stone is probably dolomite rock.

** Rather linen than silk.

F81

氣徒¹極寒。雪下堅|凝。行旅駕車渡雪|中,馬疾如飛。

The climate is extremely cold. Snow constantly falls and consequently freezes. Travelling by horse and cart through snow, the horses are wild as if they were flying.

1. Instead of *tu* 徒 (apprentice) read *hou* 候 (weather) in *qihou* 氣候 (climate), as Verbiest does, see *Kunyutu shuo*, p. 759b, line 9–10.

F88

北方人胖力強嘉食,速于消化,皆因氣冷,|逼圍。体内之火不使|渙散。故脉道開張,血|氣流通,其力不能|不強健矣。

The people of the north are fat, sturdy, robust and love food. The speed of digestion is above all due to the climate, which is so cold and penetrates everywhere. Thus the fire inside the body must not be allowed to dissipate and extinguish. For this reason, the energetic paths open up so that blood and energy flow vigorously and circulate, such that the bodily forces cannot but become strong and healthy.

F90

南船鮮至此海。|又海濱冰塊推|疊,不能望見涯|岸。故未審,其曲|直如何。

The ships from the south recently reached this sea. Once again, the ice floes are pushed up to the seashore and pile up there, so that the coast on the horizon could not be seen. Therefore, it has not yet been explored to ascertain whether it is undulating or straight.

F111

此海濱產珍珠。

This [Scottish] seacoast is prolific in real pearls.

F113

海濱生琥珀¹極多。

This seashore [on the Baltic Sea] is extremely prolific in amber.

1. Instead of *bo* 泊 (moor, to anchor) read *bo* 珀 (amber), as Verbiest does, see *Kunyutu shuo*, p. 758b, line 3.

F117

此地古稱|古國。因其|女好戰生|數戚。割石¹|乳以便弓|矢。

This place [now Kazakhstan] was previously called “Ancient Land”. The reason for this is that the women preferred fighting to bearing numerous offspring. They cut off their right breast, in order to handle a bow and arrow [more] comfortably.

1. Instead of *shi* 石 (stone) read *you* 右 (right), as Verbiest does, see *Kunyutu shuo*, p. 771a, line 9.

F118

地產熊狼貂鼠，其皮他邦|所重。

The region [between Ufa, Republic Bashqortostan of Russia and Tara, Omsk Oblast, Russia] is prolific in bears, wolves, minks and rats. Their fur is held in esteem by other states.


F121

地產麝獸。臍後|一肉囊香滿，其|中輒病，而石上|剔出，始安香如蘇合油，而黑能|瘥耳病。


This region [Altai Mountains to Lake Baikal] produces wild musk deer, which have a meaty pouch* behind the navel which smells strongly and in which they carry diseases. When it is cut off on a stone, it starts to emit a soothing fragrance like Liquidambar Orientalis. And its black [parts] can cure ear diseases.

* The pouch means the preputial gland.

F146

西國土勢¹物產|²限³難悉，惟以|號各指之。

Since the extent (sic.: → limit) of each product grown under local conditions in Western countries is difficult to know, we simply refer to each by naming it.

1. This is variant A00402-003 of *shi* 勢 (conditions, circumstances).
2. This character is hard to identify, perhaps it is the variant  A03100-002 of *zhi* 紙 (paper, classifier of nouns like paper, document, so ‘each’) or the variant 絳

B03364-01 of *jiang* 絳 (crimson) or variants 1 絳, 2 絳, and 5 絳 of *chi* 絨 (B03374, linen).

3. *Xian* 限 literally means restrictions, specified scope and limit.

F146

西海有魚。身雖微，而胎于所底，即足止，其速行。

The Western Sea [i.e. the Atlantic] has fish shoals. Although the fish are tiny, the little ones are [spread] all over the bottom. It suffices to stamp the feet to stop their quick movements.

F153

其水甚浩，蕩惟以地，脈相通大，海，其水鹹¹。

The water [of the Caspian Sea] is a very vast and shallow lake, (the water level is) almost on the bottom. Its waters are connected to the big sea. Its water is salty.

1. Do not read 鹹 in one character as *zhan* 戰, variant A01483-002 of *zhan* 戰 (to fight), but read it as the similar *xian* 咸, variant A00568-006 of *xian* 鹹 (salty). Compare the almost identical smeared *zhan* 戰 on Kunyutu, Verbiest's map, and the different spelled *xian* 鹹 on Ricci's *Kunyu wan guo quantu*.

F183

亞大辣山至，商人呼為天柱¹云。

When the Atlas Mountains are reached, the merchants call: “(They are) supporting heaven”¹.

1. Instead of *zhu* 柱 (to lean, to support) Ricci reads: “the pillars of heaven” (*tianzhu* 天柱).

F184

此海之底，些珊瑚樹林也。

At the bottom of this [Mediterranean] sea, there are several forests of coral trees.

此地肥饒，一麥嘗秀，三百餘穗。鳥甚多。馬能與虎鬪。昔此國強，盛今已廢。

This region [Fezzan] is fertile and rich and produces wheat that tastes excellent and has more than three hundred spikelets. There are many birds. The horses can fight with tigers. This kingdom [the Kanem-Bornu Empire or Siġilmāsa?] used to be strong. It has now been abandoned.

F189

地產金寶。海出珍珠龍涎¹香。

This region [Persia] is prolific in gold and treasures; there are real pearls and the Fragrance to Extend [one's Life] Like a Dragon [sic.: → Perfume of the Dragon Saliva]*, all of which is extracted from the sea.

1. Write *xian* 涎 (saliva), not *yan* 延, variant A01236-002 of *yan* 延 (to prolong, to extend) which would mean ‘Fragrance to Extend [one’s Life] Like a Dragon’ to get then the Chinese name *longxian xiang* 龍涎香 (Perfume of Dragon Saliva) of sperm oil, as Verbiest does.
- * Perfume of the Dragon Saliva which refers to ambergris used in the perfume industry.

F218

此處古謂¹人國。男|女長止尺餘，五歲生子，八歲而老，以羊爲|騎，穴居，以避鵠²之|食，三月出壞其卵³，然|非真人，實是小猴產|此方耳。

In Antiquity, this place [Mauretania] was called the land of little men. The height of men and women stopped at about one *chi* (32 cm). At the age of five, they gave birth to children, but at the age of eight, they were already old. They rode sheep and lived in caves. To avoid being eaten by harriers, each year in the third month they left [the caves] to destroy their eggs. Of course, they are not real people. In reality this is an area in which little monkeys abound.

1. ¹人國 read as variant of *ai* 矮 (little, short), as Ricci, see on Kola Peninsula on Ricci’s map.
2. The pied harrier *queyao* 鵠鵠 (*circus melanoleucos*) exists in northern China and Mongolia, but the combination *queqin* 鵠鵠 does not exist as such, *qin* 鵠 being the alternative form of *qin* 鶻 and means the same species of *wagtail* (*ling* 鶻, ZWDCD 48016) as the white wagtail *bai jiling* 白鶻鶻 (*motacilla alba*) belongs.
3. Instead of *mao* 卯 (5–7 a.m.) read *luan* 卵 (egg, as Ricci, see on Kola Peninsula on Ricci’s map).

F219

此處乏水泉|萬千里。無江|河。行旅遇者|湏¹備兼自²之|水。

This region [the Algerian Sahara] lacks water sources: there are no streams and no rivers (for long distances) up to thousands of *li*. If you encounter travellers, then prepare twice as much water for facial cleansing as you would require for yourself.

1. Instead of *hui* 湏 (to clean the face) read *xu* 須 (must), as Verbiest does.
2. Instead of *zi* 自 (yourself) read *xun* 旬 (ten days). Verbiest’s reading makes more sense: “... twice as much water needs to be prepared for ten days”.

F221

昔此處多|修隱藏¹之士。

Formerly, there were many scholars here [i.e. Sabah, Libya], who were well versed in occult practices*.

- 1.* *Xiu ying zang* 修隱藏 can also mean to heal the womb.

F221

因憐地水泉|絕少,而此地|水之所,滿¹目²獸聚焉.復³異|數相合,輒產|音,形怪之獸.

Since there are only very few sources of water here, the waterhole in this region is full of all (wild) animals, which congregate here. When the most diverse species gather repeatedly, they produce sounds and exhibit behaviour, that is typical to wild animals.

1. Instead of *man* (full) read *zhu* 瀦 (waterhole), as Verbiest does, see *Kunyutu shuo*, p. 761a, line 16–17.
2. Instead of *mu* (eye) read *bai* 百 (hundred, all, every), as Verbiest does.
3. Instead of *fu* 復 (again, repeatedly) Verbiest writes *mei* 每 (each, every) in the sense of ‘each time’.

F222

泥¹埭河近地,|草木茂盛倍,|常產巴尔撒|木,極香,王崩|用塗尸,不行.

In the nearby Nile region, grass and trees grow twice as abundantly as usual, and balsam wood*, which smells extremely aromatic, can be found. When the king dies, the ointment (tapped of the balsam wood) is applied to his corpse so that it does not decompose.

- * Verbiest does not specify any balsam wood for this area, but the aromatic Balsam he mentions comes from Peru.

F223

濱產珊瑚|寶石.

This coast [along the Red Sea] is prolific in coral and gems.

F224

產香樹百種,割之,有香油流出,|為藥極效.又產|乳香*地處所魚.

Hundreds of types of resin tree grow here [Yemen]. If you cut them, the fragrant oil runs out from them. As a medicine, it is very efficient. ‘Breast Perfume’* also grows, and fish are bred on-site.

- * I.e. frankincense.

F232

中国物產詳|載省誌,不贅.

The Chinese products are detailed in provincial records, so will not be repeated (here).*

- * Verbiest elucidates the geographical location of China and describes its people; he explains that the variety of goods produced both in China and in its tributary countries is exhaustively documented in provincial records, obviating the need

for him to repeat them here. The 43 characters long section has shrunk to 10 characters here, see *Kunyutu shuo* 747b, lines 13–15.

F234

此山恆,出大|爆石彈,甚遠。|山內如迅雷,|轟擊不絕。|人畏近之,|胃¹火山。

This mountain is steep and ejects big explosive stone bombs, which fly very far. Inside the mountain, there is [a noise] like constant thunder, a tireless bombardment and battle. People are afraid to approach it and call it 'fire mountain'*.

1. Instead of *wei* 胃 (intestines) read *wei* 謂 (to call, to name), as Verbiest does.
2. I.e. a volcano.

F255

其人色帶青,皆¹露|體,惟掩²其口,如我|輩閉藏陰陽者,然|食時,僅一露口耳。

The [clothing] colour worn by its people* is indigo. They all¹ expose their bodies, only veiling the mouth, just like us who cover and hide the female and the male [genitalia]. When eating, they only briefly reveal their mouths.

1. Ricci writes *bei* 背 (back of the body) instead of *jie* 皆 (all, each). Perhaps it should be another *bei* 被 which means blanket and the interpunctuation would be unnecessary, so it would read: "Its people dress up and wear a blue blanket which exposes the body [partially] and covers only their mouth. They cover it sometimes with a cloth sometimes with a leaf like us when we are cover and hide the female and male [genitalia]. However, when they eat, they only briefly reveal their mouth." The picture of a Tuareg in la descriptione dell'Africa, 1556 by Leo Africanus (146? – 1548) was widely known in Europe.² Instead of dialect *an* 俺 (I, me, my, we, us, our) read *yan* 掩 (to cover), as Ricci does. Ricci also uses the same sounding but different character *yan* 揜 (to cover) when he says that there is a big difference they veil their mouth sometimes with cloth and sometimes with a leaf like us who cover and hide the female and male[genitalia]. 亞察那入,其人色帶青,背露體,惟掩其口,或以布或以葉揜之,如我輩閉藏陰陽者,然一大異也,惟食時,僅一露口耳。
- * Ricci calls the area or the people Akanar(u) (yachanaru 亞察那入, the Azanagi of Plancius, see original text in n. 2) where the blue tunic people are found. Naming the Tuareg may be a clue: the region where the text appears is on Mali. However, the names 'Blue People' and 'Tuareg' are not endonyms of the *Imuhay*.

F255

土有貓,出汗,|以石拙¹汗,文|香可玩。西國|多用之。

In this region, there is a cat* that secretes sweat**. The traces of this sweat are scratched¹ away with a stone and processed [into perfume]. Western countries often use it.

1. Instead of *zhuo* 拙 (clumsy, dull) read *shi* 拭 (to wipe off), as Ricci does.

* That is the civet cat (*civettictis civetta*). Verbiest names the cat Arkalia (ya'erjialiya 亞爾加里亞), see *Kunyutu shuo*, p. 764a, lines 4–5.

** In fact, the sweat is the secretion of its perianal glands.

F256

人極男¹猛, | 兇²徒所至, | 即食其人。

These people are extremely manly¹ and wild. They roam around and wherever they [in the territory of Jingba 井巴* which roughly corresponds the former Sokoto Caliphate] they eat the people they find there.

1. Verbiest writes *yong* 勇 (courageous) instead of ‘manly’, see *Kunyutu shuo*, p. 764b, line 1.

2. Instead of *huan* 還 (to return) which is written as in F306 where it means ‘to return’, Verbiest writes *qian* 遷 (to move), see *Kunyutu shuo*, p. 764b, line 2.

* See *Kunyutu shuo*, p. 764b, line 1.

F258

人極智慧, 昔学崇奉正|教, 其土號爲祭主者。

The people [in Sudan] are of extreme intelligence and wisdom. In the past, they learned to worship and believed in the ‘Right Doctrine’*, but now, they worship the Lord with their local symbols.

* The orthodox teaching could be Catholicism, but also to Islam or any other religion.

F258

此產五穀, 五|金, 散多, 人不|善練¹恒, 以生|金塊易²物。

The Five Crops are grown here and the Five Metals are scattered abundantly (around the area) The people are not good at refining [gold] and are always engaged in exchanging raw gold lumps for goods.

1. *Lian* 練 (to perfect) is variant A04322-003 of *lian* 鍊 (to smelt). Verbiest writes *lian* 煉 (to refine, to smelt) which is variant A04322-002 of the same *lian* 鍊 of our text, and means to refine metal by cleaning with fire.

2. Instead of *yang* 易 (bright) read *yi* 易 (easy, to exchange), as Verbiest does.

F262

沙勿畧聖人度|此海路, 直抵東|洋諸国宣教, |化及至廣東|地, 即遊世後, 利|西泰
繼入中華。

When Saint Xavier passed this sea route [in 1542] to go directly to the various countries of the Eastern Ocean [Pacific] to spread the doctrine [i.e. Catholicism] and to convert (people to it), he reached the Guangdong region [in 1549]. That means, after he travelled the world, [i.e. he died in 1552] Li Xitai [i.e. Matteo Ricci] continued [the work of Xavier] and entered China [in 1583].

F264

印第亞海諸番之|會商舶合湊富饒|其民.地產鳥獸草|木金宝,各極記異.

All the various foreign merchant ships in the Indian Ocean cooperate to make their people prosperous. The area [of the Deccan] is prolific in birds, wild animals, herbs, wood, ore and gems, all of which are extremely notable and exotic.

F267

此海有淺礁甚|多,又有異風變|亂,後¹雜倏勿²更|二十四向.几舶莫|適從,固至惟³波.

This [South China] Sea has very many shallow reefs. It also has several winds, which change chaotically. Once they have changed direction randomly, they suddenly² sheer out into one of the twenty-four [possible] directions. Some vessels cannot follow [the course] “from solid to waves only”.³

1. Verbiest writes *ling* 凌 (to rise high as a tower).
2. Instead of *wu* 勿 (to do not) read *hu* 忽 (suddenly), as Verbiest does.
3. Verbiest goes on to explain what will happen then: “This is the reason why (the boats) get destroyed and wrecked” (因至摧破), they run aground on the shallow reefs.

F270

賊島人從未知用火.|飲食俱生.近西舶至,|彼教,以取火爲烹.地|無鉄箭,以人骨爲銳.

The inhabitants of the Thieves Islands [i.e. Mariana Islands] did not know how to use fire. Food and drink were [consumed] raw. Recently, western [people in] boats came and taught (them) how to cook with fire. There is no iron for arrows; instead, human bones are used to make arrow points.

F289

海有鳥名亞爾爵¹,作|巢水次,一成²一乳,自|卵³至翼,不過半月.海|必平靜,無風波.商船|待之,而渡海.

Above the [North Atlantic] sea there are birds called ‘alques’ (in French; *auk* in English). They make their nest along the water line. A single [nestling] gets² (a single)

breastfed* from egg³ to wing [from hatching to fledging]. In less than half a month, the sea must be calm and quiet, as well as free from wind and waves, so the merchant ships (often) have to wait for them until they can cross the sea.**

1. Verbiest calls the birds ‘Alquen’ (*yaerjuenüe* 亞爾爵虐) in French.
2. Instead of *cheng* 成 (5–7 a.m.) read *sui* 歲 (year), as Verbiest does, see *Kunyutu shuo*, p. 760a, line 9.
3. Instead of *mao* 卯 (5–7 a.m.) read *luan* 卵 (egg), as Verbiest does.

* A (bird) is breastfed (sic.: → nursed) for one year (一歲一乳), after Verbiest.

** This text figures in the Mediterranean Sea on Verbiest’s map.

F290

產象極,大一|牙重二百斤.

The elephants are enormous here [Liberia now]. One tusk weighs about 200 *jin* (catties).

F292

鳥木金銀多,|甚不產鉄,故|特貴之.

[Benin] is rich in birds, wood, gold and silver, but it produces no iron, which is why they treasure it enormously.

F293

地民從來不能|見其王,以為不|用飲食,而生.故|敏之如神.

The local people have never been allowed to look at their king; they assume that he does not need to eat and drink, and yet is alive; hence they revere him like a ghost [i.e. voodoo].

F294

土不產鉄,|其王善用|丘¹,以為²木|為標鎗.人³皆黑色,惟|目⁴極白.

The soil does not produce iron. The king of it [Abyssinia] is skilled in handling weapons¹ such as spears with points made of wood². All the people³ (here) are black, only the eyes⁴ are extremely white.

1. Instead of *qiu* 丘 (mound, hillock) read *sui* 兵 (weapon), as Verbiest does.
2. Verbiest has another wording, he writes: “At this place they do not have swords however, they take wood as points of spears,” (無兵刀以木為標鎗, see *Kunyutu shuo*, p. 763b, line 12).
3. Instead of *ru* 入 (to enter) read *ren* 人 (man), as Verbiest does, see *Kunyutu shuo*, p. 760a, lines 14–15.
4. Verbiest writes ‘teeth and eyes’ *chi mu* 齒目, see *Kunyutu shuo*, p. 763a, line 15.

F300

此海生好珍|珠.海人沫水,|取之爲菜.

This sea [Gulf of Mannar, Laccadive Sea, Ceylon] grows very real fine pearls. Sailors sift the water (with a dip net) to get (them) for a dish.

F304

此島產丁香,|胡椒二樹,天|下所無.

On these [Moluccas] islands, there are cloves and two types of pepper, [like] nowhere else in the world.

F306

此瑪熱蘭船也|徧繞|全地,至呂宋,復還大|西,名爲勝身,因戰勝|風,濤,盜,賊等險,四遇¹|赤道之下,歷三十餘|萬里.

As Magellan's ship also circumnavigated the whole world, it reached Lūsōng and then returned to the Great West; it was called victory ['Victoria'] over life because it fought and won against dangers such as wind and waves, robbers and bandits. It crossed¹ under the equator [to the south] on four occasions and covered over 30.000 *li* (8100 sea miles/15.000 km).*

1. Verbiest writes *guo* 過 (to pass), not *yu* 遇 (to encounter), see *Kunyutu shuo*, p. 771b, line13.

* See the text which influenced this text block below the ship Victoria on the map of Abraham Ortelius of 1590. It is written there in Latin below the ship: *Prima ego velivolis ambivi cursibus Orbem Magellane novo te duce ducta freto. Ambivi meritos vocor VICTORIA; sunt mi vela, aloe, precium, gloria, pugna, mare.* Translated in English as: I first sailed round the globe, guided by Magellan, a new guide. Worthy of my ambition (the ship) was called VICTORIA by me; these are my sails, the aloes, the price, the glory, the battle, and the sea.

F325

海有蟹,大踰丈許,其|螯以拊¹人首,人首立斷|,其|殼²覆地如矮屋然,|月朔其身瘠,月望則|肥,其復藏石.并其眼|,可療肺腎諸病.

Crabs live in this [South Atlantic] sea. They are tremendous and can jump about one *zhang* [ten feet]. Their pincers (are capable) of pinching a human head and that head will immediately break. Their shell covers the ground like a kind of a low house. At new moon their bodies are lean, at full moon, they are fat and they hide in stones. Furthermore, their eyes can cure lung and kidney diseases, and other ailments.

1. Verbiest writes the *qian* 箝 (pincers, clamp) but it has the same meaning.

2. Instead of *gu* 殼, variant B01790-002 of *gu* (paper mulberry tree) read *qiao* 殼 (shell), as Verbiest does, see *Kunyutu shuo*, p. 774b, line 9.

F326

此海出大龜,浮時,群鳥饒,其皆夜至此島,就食。人捕之。一龜之內有五百觔。

Giant turtles come from this sea [Gulf of Guinea]. When they emerge from the water, flocks of birds circle them. They all come to this island at night looking for food. People catch them. The interior of a single turtle consists of five hundred meat muscles.*

* All these marine turtles live in the Gulf of Guinea; the leatherback sea turtle weighs about 250–700 kg, the green sea turtle about 70–170 kg and the hawksbill turtle about 100 kg.

F330

人身盡黑,不服衣裳。髮皆捲。知地產金,銀,象牙,犀角,宝具之類。

The body of the people [e.g. in Tanzania and Kenya] is entirely black; they do not wear clothes. Their hair is all curled up. Note that the region is prolific in gold, silver, ivory, rhinoceros horn and similar valuable objects.

F332

此處出馳名琥珀生石上,如石乳¹然多在海濱²。

This place [on the seashore of Madagascar] produces amber, which is well known far and wide. It grows on stones like ‘stone milk’ [stalactites] and of course, is found prolifically on the seashore.*

1. The characters should be reversed, signifying ‘stalactite’ (*rushi* 乳石).
2. Instead of *bin* 賔 (to swallow) read *bin* 濱 (shore), as Verbiest does, see *Kunyutu shuo*, p. 758b, line 3.

* Verbiest thinks that the amber (stone of tree resin) is a greasy paste which comes out of the rocks’ crevices from under water to the surface, where it floats like oil and then is carried to the shore by wind and weather, *Kunyutu shuo*, p. 758b, lines 3–4, or F342.

F336

劍魚嘴長丈許,有齒刻如鋸,猛而多力,以嘴舶則能破。海船甚畏之。

The mouth of the swordfish is approximately one *zhang* long (about 3.30 m). Its teeth are jagged like a saw. It is brutal and has such a mighty mouth that it can rip a boat to pieces. The [navigators of] seagoing ships are very afraid of him.

F337

蘇門答利產象¹于,龍腦,椒挂²沉²香,金,銀俱甚多。

Sumatra produces ivory¹ and ‘Dragon Brain Aromatic Essence’ [of the *Dipterocarpoideae*, i.e. terpene], pepper, cinnamon², heavy perfumes and innumerable gold and silver objects.

1. Instead of *yu* 于 (in, on) read *ya* 牙 (teeth) of *xiangya* 象牙 (tusks, ivory), as Verbiest says on Java, see *Kunyutu shuo*, p. 751a, line 4.
2. Instead *gua* 挂 (to hang) read of *gui* 桂 (cinnamon), see *Kunyutu shuo*, p. 750b, line 12.

F339

此地產|捏捏,挂|章,金宝。

At this place [Kalimantan, Selatan, Borneo] needles, buckles and other golden treasures are produced.

F342

東海多出琥珀,乃是|海底脂膏,從石隙流|出。初如由¹,天熱浮海|面,見風如凝,天寒出|隙便凝,每為大風衝|至海濱。

Huge quantities of amber are extracted from the Eastern Sea. This is a greasy paste which oozes out of a crack in the rocks on the seabed. Initially it floats on top of the sea like oil as it warms up naturally. When exposed to the wind it solidifies, and in cold weather it produces cracks and is washed onto the shore with every major wind.

1. Instead of *you* 由 (to depend on, reason, because of) read *you* 油 (oil), as Verbiest does, see on Poland in the *Kunyutu shuo*, p. 758b, lines 3–4.

F363

鳥,獸,果,實甚|繁絕。無人居,但|西船泛,海恒泊。|此島樵¹採漁獵。

There is, indeed, a great variety of birds, wild animals and fruit. No one ever lived on [St. Helena Island]. Only western vessels have to moor up for longer (periods of time) when the sea floods. On this island one gathers (firewood)¹ and chooses fish and venison.

1. Verbiest reads *qiao* 樵 (to gather firewood, to cut firewood), see *Kunyutu shuo*, p. 765a, line 1.

F364

此魚名海魔,極|力,遇扁舟輒播|弄,人踮而食。

This fish is called sea monster. It is extremely powerful. When it appears at the side of a boat, people always hastily get into action tiptoeing away to eat.*

- * Verbiest reads: “people always get so alarmed that they hastily kneel and ask Lord for mercy” (惟跪祈天主). This version turns out very differently.

F374

爪哇無兵曾到|擒其王,其地通|商船。物多,金,良¹,|珠寶,瑪瑙,犀角,|象牙,木香俱有。

No soldier has ever come to Java to conquer its king.* Merchant ships cross its area. Among the many goods, just about everything exists [here]: gold, silver¹, beads, gems, malachite, rhinoceros horn, ivory and sandalwood.

1. Instead of *gen* 艮 read probably *yin* 銀 (silver), *gen* as sign in trigram does not make sense here.

* On Ricci's map it states the contrary: that soldiers of Yuan China came once to Java and carried the king off (爪哇元兵曾到擒其王).

There are two different sources for this story: in the *Ming shi* 明史 it says that Shizu 世祖 of the Yuan [i.e. Kublai Khan (1215–1294)] took revenge upon the King of Java [i.e. Kertanegara Sri Maharaja diraja (r. 1268–1292) King of Singhasari, East Java] for branding the face of his minister and envoy Meng Qi 孟琪, sending a punitive expedition to Java in order to destroy the country and then come back (Zhang, Tingyu (1974) [1739]: 8402). While Marco Polo wrote in chapter VI “Concerning the Great Island of Java”: “And I can assure you, the Great Kaan never could get possession of this Island.” Perhaps the latter is the origin of the statement in question (Polo, Yule, and Cordier (1903): II, 272).

F375

此島出檀,|香,金,銀,¹香,|安息香,蘓|木,片腦。

This island [Timor] exports sandalwood, perfume, gold, silver, cloves, [or spices] soothing fragrance [i.e. *Liquidambar Orientalis*], sapan wood [i.e. *Caesalpinia sappan*] and ‘Cobbled brain’ [i.e. camphor or Gurjan oil].

1. On Verbiest's map it states: cloves (*dingxiang* 丁香), so our author forgot to write the character *ding* (nail) in Chinese which renders ‘clou de girofle’ in French.

F376

印第亞在安日河左右之地,并|小西洋諸島,皆最饒國也。天下|寶石,寶貨,自是地出。其人黑色,|小穿衣,無紙,以樹葉爲書,用鉄錐|當筆。士,農,工,賈,各世其業,但國|王例不世。及海島有強人。卒|衆俱不相屬。

India is located in the region to the right and left of the Ganges. Moreover, it is surrounded by various islands of the Lesser Western Ocean [i.e. the Andaman Sea and the Bay of Bengal]. The precious gems and costly goods of the world come from precisely this place. The people are black. They wear few clothes. They have no paper, but tree leaves with which they make books, and they use an iron pen [i.e. stylus] as a brush. Scholars, peasants, artisans and merchants, all pass on their profession down the generations, but the king of the country does not hand over the rule to the (next) generation. Moreover, on the islands, there are powerful people with armed forces, none of which are relatives of (the king).

F401

人極愚蠢,身有羶|氣,衣惟獸.及女盤|獸腸于身,以爲師¹|待爛,則食之.

The people here [i.e. Namaqualand] are extremely stupid; (their) body has a perspiration smelling of ‘ram’. Their clothing consists only of beasts’ (skins). Moreover, the women wrap the guts of wild animals around their bodies; over time¹ they rot and are eaten later.

1. Instead of *shi* 師 (teacher) probably read *shi* 時 (time), in reference to the original text about the Hottentots of Peter Kolb (1675–1726).

F403

此海有暗撫¹.水洞²|礁出,悉是珊瑚,貓|暗³,寶石,各處不乏.

This sea [East Africa north of the Cape of Good Hope] has dark [i.e. deep] reefs¹ [under] water and dry² reefs out of [over water, i.e. cliffs], which are all made of gems like coral and cat’s eyes³, which are in abundance everywhere.

1. Instead of *xiao* 撫 (to choose, to wipe; *sou* to push) read *jiao* 礁 (reef), as Verbiest does, see *Kunyutu shuo*, p. 775a, line 16.
2. Instead of *dong* 洞 (hole) read *gu* 涸 (dry), as Verbiest does, see *Kunyutu shuo*, p. 775a, line 16.
3. Instead of *an* 暗 (dark) read *jing* 睛 (eyes) of the binomen *maojing* 貓睛 (the gem called cat’s eyes), as Verbiest does, see *Kunyutu shuo*, p. 775b, line 1.

F445

此海船夜行,搖動.水面|光時如火,持器汲起滿|器,自¹大²光,滴入堂³中,見|亦榮,然可玩,後漸消|滅.

When the vessels travel this sea [i.e. the Indian Ocean] at night, they are jolted and shaken, and the water surface is as bright as fire (with the result) that the objects in one’s hand are completely doused (with light). Therefore, all¹ the fire² shine (of the objects themselves) spills over into the palm³, and one (can) also observe (them) play naturally and gloriously until (the light) gradually fades.

1. Instead of *zi* 自 (self) read *ju* 俱 (all, completely), as Verbiest does, see regarding n. 1–3 *Kunyutu shuo*, p. 773, line 6.
2. Instead of *da* 大 (big) read *huo* 火 (fire), as Verbiest does.
3. Instead of *tang* 堂 (hall) read *zhang* 掌 (palm), as Verbiest does.

F473

此處四時有|波浪出|魚¹,似|巨²舫³大.

At this spot, there are waves from which crocodiles* emerge every four seasons, they seem as large¹ as two junks² [lashed together].

1. On Ricci’s map it says *eyu* 鱷魚 (crocodile), but the variant as it appears on the Bernese map is nowhere to be found.

2. This character does not read as *chen* 臣 (minister) but as *ju* 巨 (huge), as on Ricci's map.
 3. Instead of *jin* 筋 (muscle) read *fang* 舫 (junk), as Verbiest does.
- * In my opinion these are not crocodiles but southern elephant seals.

F476

海鳥有二種，一宿島中者，常日飛颺海面。海舶|遇之可占海島達近。一|生長海中，不知登岸。船|上欲取之，以皮布，水面|以釣¹差餌，置皮上。鳥就|食。輒可釣¹至，若釣魚然。

There are two types of seabirds. One [the Southern giant petrel or great-winged petrels], which nests on the island and always soars in circles over the surface during the day. From the vessel, it can be observed reaching the close islands. The other one [the albatross] is at sea all its life and doesn't know how to land ashore. If you want to catch them from the ship you take a hook, hang the bait on it and place it on the leather that [goes] onto the water surface. The birds come and eat it, and are then caught with the hook, just as if angling.

1. Verbiest writes *gou* 鈎 (hook) not *diao* 釣 (angle), see *Kunyutu shuo*, p. 774b, lines 14 and 15.

F479

此島相近|島，不勝數，|密布海上。

This island [Ile Saint-Paul] is near some islands, which are not numerous but densely scattered in the sea, [i.e. the Scattered Islands].

F506

南極野區新為第五大州，然盡|是無人之空地，因相隔各方，而海|圍難渡，自古無人，而至彼但二百|年弗郎幾商曾駕船過|大浪|山，偶望見是地，而來，就船，惟見|鸚歌等鳥，無他物。故因名地。

The desolate region of the South Pole was recently regarded as the fifth continent. However, it is an entirely empty territory without people. Because it is separated from the opposing areas and the sea is dangerous to cross, it has been deserted since ancient times. Only two hundred years ago, Frankish merchants reached this [area] with their ships, passing the Big Waves Mountain [i.e. Table Mountain]. Inadvertently, they sighted this real land. While they were approaching in their ships, they only saw [heard!] the song of birds like parrots, [i.e. penguins gabbling] but nothing else. That is the reason for the name of the island [i.e. Parrots' Island or Australia?].

F519

麻魚狀極蠢笨，飢餓時，潛于海底，魚聚處。億²魚近其身，即麻木，不能動，因而食之。倘人以手足近之，亦必麻木。

The mackerel behaves exceptionally rudely and stupidly. When it is hungry, it hides at the bottom of the sea, where the fish gather. Hundreds of thousands of fish lie side by side, but they are rigid and immobile and are therefore eaten. Suppose people with hands and feet approach it, then it inevitably becomes numb.

1. Instead of *yi* 亿 (hundred million), Verbiest writes *fan* 凡 (all, where), see *Kunyutu shuo*, p. 774b, line 1.

F522

海產獨*魚。魚頭上有角長四五尺，如獨角獸，無異。海發浪時，其角偶觸石，則退其色透明。人取之于海濱，作飲器，能鮮解毒入藥龍勝。

The sea [in this area] produces a unique* fish. On the head of the fish is a horn of a length that is 4–5 *chi* (1.20–1.50 m) long. It is like the unicorn beast: there is no difference. When waves arise in the sea, and its horn accidentally hits against a stone, it loses its colour and becomes iridescent and shimmering. People find it on the seashore and make it into drinking vessels, in which one can fill fresh, venom-dissolving medicine such as the ‘Dragon Victory’.

- * Add the omitted ‘horn’ (*jiao* 角) between ‘unique’ (*du* 獨) and ‘fish’ (*yu* 魚) to make – according to its image on the map, and by analogy with the formation of the word ‘unicorn’ (*du jiaoshou* 獨角獸) – the unicorn fish (*du jiaoyu* 獨角魚). In French it is called ‘licorne de mer’, in English narwhal.

Western Hemisphere

F129

春時是魚雄者常出精，如油浮水面，而漸凝凍。每為風濤湧泊于岸。北方人取比¹悞²為龍³香，又捕此魚，一頭之中有油數，担用法製之，則堅凝如琥珀子，醫可有大用。

In spring, the male fish constantly emit sperm which floats like oil on the water surface, gradually solidifies and, being frozen by wind and driven by big waves to the shore, the northerners take it and make it into Perfume of Scent of the Dragon that Violates [sic.: → Perfume of the Dragon Saliva]. They also catch this fish (because) there is an amount of oil in his head. Through processing methods it is hardened into tiger amber, which is of great use in medicine.

1. Read *ci* 此 (this) instead of *bi* 比 (to compare), therefore *ci wu* 此物 ‘these things’, see n. 2.

2. Read *wu* 物 (things) instead of *wu* 悞 (error), (variant A03838-001 of *wu* 誤), therefore *ci wu* 此物 ‘these things’.
3. Read ‘?’ in “*long* ‘?’ *xiang* 龍香” not as *wei* 违 (to violate) but as *long xian xiang* 龍涎香 (Perfume of the Dragon Saliva).

F135

亞泥淹舟師尋得此峽,未|末往訪相通胡總灣,否.如可|通此繞地,新路更便.西船以|至中国,可自四萬餘里.

The navigators of Anian search for a strait here, but they have not yet explored if it is continuous and connected to the Hudson Bay or not. If it could be reached overland, this new route would be far more convenient. Western ships could thereby reach China; it [now] measures slightly more than 40'000 *li* [about 10'000 nautical miles].

F140

此地多俺峻|崇山茂林稍|生五谷¹.民貧|漁臘為生.

In this area [then Labrador], there are many rugged, steep and high mountains, dense forests but few of the ‘five major crops’. The population is poor and relies on dried fish for a living.

1. Verbiest reads *gu* 穀 (grain). Literally ‘the Five Grains’ are used as *pars pro toto* for all cereals including beans, see chapter 3 “Facing Vulgarities (對俗)” of the *Bao-puzi* 包朴子 of Ge Hong 葛洪 (284–364), it states: “The Five grains do not bring human beings to life” (五穀非生人之類), 1978: 10.

F140

冬積雪甚厚.土人|騎木而行阡陌.夏|諸河泛凝.行旅員|布舟過水以行其|舟不沉.

In winter, the accumulated snow is very thick. The local people [Canadians] ride on a log, [i.e. a sledge] to lay dangerous traps. In summer, some rivers thaw, (others) remain frozen. The travellers cross the water use cloth boats and ride (in) their boats [i.e. canoes] so as not to drown.

F141

此地純沙.土人造魚|腊時,取魚頭數,為¹密布沙中.每頭種谷²|三四粒.後魚腐地肥.|谷³生暢投獲倍于|常土.

This region [then Labrador, now Quebec and Labrador Province] is pure sandy soil. When the locals prepare dried fish (for the winter), they take numerous fish heads and densely spread them out on the sand. Three to four crop seeds are planted into every single head. Later, the fish rots and the soil is fertilised, the crop grows and yields ten times (more) than in ordinary soil.

1. Instead of *wei* 為 (to take, to make), Verbiest writes *wan* 萬 (ten thousand), therefore it would mean “they take ten thousands of fish heads and spread...”, see *Kunyutu shuo*, p. 769b, lines 4–6.
2. See F140, n. 1.
3. See F140, n. 1.

F143

此灘魚甚多。海濱|人漁之將漁頭肥|地。魚身塩乾。商船|數千往¹販²大西諸|國賣之。

At these beaches [the Labrador Sea, Newfoundland, Labrador Province and Newfoundland] there is an abundance of fish. The coastal people catch them and prepare the fish heads for fertilising the soil. The fish body is salted and dried. Many thousands of merchant ships travel to trade with the various countries of the Great West, (where) they sell (the fish).

1. and 2. Verbiest twists the syllables to *fanwang* 販往 (to sell to) and not to *wangfan* 往販 (to sell, hawk) as on our map, whereas *wang* 往 is the common character for *wang* 往, (see ZWDCD 10305).

F169

此海湾多產珊瑚。|人取之先作鉄¹綱|沉水底。珊瑚貫中,|而生長。因绞綱出|之故,難得完好者。

This bay [British Columbia?] is very prolific in corals (i.e. pearls). Before people collect them, they sink a fine-meshed* net to the bottom of the water. Once the grain [i.e. the epithelium] of the coral has penetrated, (the pearl) grows slowly. Due to the nets getting tangled, they break through, which is the reason why it is so difficult to retrieve perfect ones.

1. *Tie* 鉄 (iron, strong) was used as the truncated character of *tie* 鐵 in ROC (1935–1936) and in Singapore (1969–1976), and also as the variant and truncated form *zhi* 紕 of *zhi* 織 (to weave), see de Morsier-Fritz 2021: 988; cf. F307.

* Read fine-meshed (*zhi* 織), Verbiest reads *tie wang* 鐵網 (strong net or iron net).

F172

此紅海多產珊瑚。海濱俱紅沙|映射水色。見之|如紅波出實非|紅也。

This [Eastern] Red Sea [British Columbia] is prolific in corals. The seashore is full of red sand reflected in the colour of the water. If you look at it, it looks as if there are red waves, but they are not red.

F173

此地人如獸散居野合。¹知母不知父。以鬪為威，敬黑貂為神。近來西士至，彼為教化，所自始引民，構屋以居民，數家成一聚落四周，以禾²柵為城，漸習于禮義。

The locals, i.e. [the Anishinaabe], are like beasts living scattered about and wildly copulating [such that] they recognise the mother but not the father. They fight for power and revere the black cat, [i.e. panther] as the spirit. Recently, Western scholars, [i.e. priests] came here and converted (the natives) to their doctrine, [i.e. Catholicism]: they began themselves to lead the people and build homes, so many families live together in a communal dwelling, i.e. a quarter, palisaded like a town. They gradually learn to practise the propriety of the rites [i.e. the Catholic mass].

1. To copulate (*yehe* 野合) can mean procreation through violation or sex in the wilderness.
2. Instead of *he* 禾 (cereal) read *mu* 木 (wooden) like in *mushan* 木柵 (wooden fence, palisade), as Verbiest does, see *Kunyutu shuo*, p. 770a, line 8.

F175

地產貂狐熊狼。

This region [of the Cree-Indians] is prolific in minks, foxes, bears and wolves.

F201

海馬足如鳧¹。有¹病自能就茨²，放血¹療治。其平³堅白莖¹淨，文⁴理細如綠髮，¹可為念珠等物。

The feet of the walrus are like the mallard's claws [sic.: → flippers]. When it is sick, it is able to move itself over into the reeds², to let its blood (and thus) cure the disease. Its tusks are absolute white gems, literally entirely veined and polished like 'green hair' [i.e. black lacquer]. They can be processed into objects like prayer beads.

1. Instead of *pai* 派¹, the variant A02196-001 of *pai* 派 (section, party, branch) read not *gua* 瓜, variant A02610-003 of 瓜 (melon) nor *pi* 派 C00913 (divert of water; with one stroke too many), but *zhao* 爪, (variant A02466-002, less one stroke) of *zhao* 爪 (claws). Just read as Verbiest does, see *Kunyutu shuo*, p. 774b, line 11.
2. This water-plant (*sagittaria sagittifolia*) is not a sharp-cutting reed. According to the original European source, it should be translated as 'at once [cut on the] reeds in order to let blood', see this passage on phlebotomy in *The Natural History of Pliny the Elder* (AD 23/24–79).
3. Instead of *ping* 平 (ordinary) read *ya* 牙 (teeth, translates here specifically as tusks), as Verbiest does.
4. Instead of *wenli* 文理 (art and science) – as Verbiest also does – read *wenli* 紋理 (veins).

F208

默是可地產各|色鳥羽。人賴¹以|爲画山水。有一|鳥夜，張其翼|則²發大光，可白³|照路。

The region of Mexico [now New Mexico] is prolific in bird feathers of every colour. The people collect them to make landscape paintings. There is a bird that spreads its wings at night, thereby radiating a great light which can illuminate the path by itself.

1. Instead of *lai* 賴 (rely on) read *ji* 輯 (to gather, to arrange), as Verbiest does, see *Kunyutu shuo*, p. 768b, line 15.
2. Instead of *bie* 別 (separate) read *ze* 則 (consequently), as Verbiest does, see *Kunyutu shuo*, p. 771a, line 6.
3. Read instead of *bai* 白 (white) read *zi* 自 (itself, of course), as Verbiest does, see *Kunyutu shuo*, p. 771a, line 6.

F211

依落鬼者|山谷野人。|最勇南措|頻年戰鬪，|好食仇心，|愈倍猛力。

As for the Iroquois, they are wild people living in mountain valleys. For years, the bravest [of them] moved south and fought in battles. They love to devour their enemies' hearts, which increases and multiplies their brutal strength.

F212

地產富足。男女尚勇，|不爲奸竊。遷徙什器|糧食，子女婦人作一。|駝喻¹峻山如登平陸。

The region produces plenty. Men and women are still brave, they do not engage in violence or theft. When they migrate, all equipment, grain and food, is bundled together by the sons, daughters and wives. (They) lug¹ them on their backs up steep mountains, as if they were climbing [walking] on a plain.

1. Instead of *yu* 喻 (to explain, to comprehend) read *fu* 負 (to burden, to carry), as Verbiest does, see *Kunyutu shuo*, p. 770b, line 2.

F213

聞龍船始覓得亞墨利加，大|喜放砲。土人從來見巨艘，大|驚恐，海中異魚。并開舟中砲|嚮，認爲，魚復中有雷。舟人登|岸乘馬，皆竄奔還，因疑，人馬|合爲一體。後漸相接，疑留西|客與之，但屋以便往來。

When Columbus' ship first sought and [eventually] found America, there was great joy and a cannon was fired. The locals, who had never seen such a gigantic vessel before, panicked and feared it was a strange fish in the sea. Furthermore, as the detonation of the ship resounded, they imagined that there was thunder inside the fish. As the sailors climbed ashore and held the horses, they all fled and ran far away, since they harboured the suspicion that men and horses were one and the

same body. Later when they came into mutual contact, they suspected that the remaining Westerners would stay as their guests, so they provided them with rooms (for their use) when arriving and departing.

F240

海有怪魚,狀如飛魚。伏舟底兩趨左右包住。舟人欲以鎗刀刺之,或發大饒驚之,慮震動復舟。

There is [another] strange fish in this sea. Its shape is similar to that of the flying fish. It hides alongside the boat hull, staying hidden on both sides of the bow of the ship. The sailors try to catch it with lances and knives, sometimes scaring it by making loud noise and by seesawing the boat repeatedly and dangerously.

F247

地產良藥,起者臭煙。

This region [written in the Gulf of Mexico but probably meant for Louisiana, Alabama, Georgia, and Florida] is prolific in good medicine; when it is prepared, it smells [like] smoke.

F250

西冷¹魚上身男女形。下半魚體。其骨能治血症。女魚更效。

The upper body of the siren (fish) may have a male or a female form and the lower half has the body of a fish. Its bones are capable of curing blood disorders. Female fish are more effective.

1. Verbiest writes the siren (*xileng* 西[楞]) differently, see *Kunyutu shuo*, p. 787a, line 1.

F281

此國石佑殺人以祭魔。祭發以綠石爲山。異¹人皆²千³上持石刀割取人心,擲⁴魔面,膠體別⁵分食之。外國商士始入內地,多凶死如此。今棄邪魔而歸正主。

The stone assistant* of this country [of the Aztecs] killed people as a sacrifice to the demons. The sacrifice was made on a green rock utilised as a mountain [altar] on which the man was placed on his back. [The stone assistant] took the stone knife to cut out and to extract the man's heart and hurled (it) at the demon's face, while the limbs were shared out as food. When the foreign merchants and scholars [i.e. priests] first penetrated into the interior territories, they often died ominously in this way. Today, they have renounced the false demon and turned to the true Lord.

1. Instead of *yi* 異 (different) read *zhi* 真 (to set), as Verbiest does, see *Kunyutu shuo*, p. 769a, lines 2–4.

2. Instead of *jie* 皆 (all) read *bei* 背 (back of the body), as Verbiest does.

3. Instead of *qian* 千 (thousand) read *yu* 于 (at, on, in), as Verbiest does.
 4. Instead of a variant of *ji* 擲 (to slap) read *zhi* 擲 (to throw, to hurl), as Verbiest does.
 5. Instead of *bie* 別 (to separate) read *ze* 則 (but, then), as Verbiest does.
- * Verbiest reads the customs of the stone (石俗).

F288

巴勒納魚身長數十丈。|首有二大孔，噴水上出，|勢若懸河。海船過之，以盛酒鉅木罌投之，連吞數罌俛首而逝。

The body of the whale is about several ten *zhang* [33 m] long. At the head, he has two large holes, which blow out water, as strong as a waterfall. If a vessel drives past him, heavy wooden barrels, filled with wine, are lavishly poured all over him. He swallows several barrels, one after another, until his head submerges and he perishes.

F307

此處多珊瑚樹生|水底。色綠質軟，生|白子，以鉄¹岡²取之。|出水即堅而紅色。

In this place [i.e. Coral Islands or Marquesas] many coral trees grow at the bottom of the water. Green and of a soft texture, they grow to white grains, which are collected with a solid meshed net. Once out of the water, they become hard and red.

1. *Tie* 鉄 (iron, solid) can also be read as *zhi* (to sew), see de Morsier-Fritz 2021: 998, n. 111 and 112.
2. Instead of *gang* 岡 (crest of a mountain, hill) read *wang* 網 (net-work), as Verbiest does, see *Kunyutu shuo*, p. 775a, line 15.

F310

得尔費諸魚性最良，|喜音樂。人¹以¹琴可以|騎之。或漁人為惡魚|所困，此魚往鬪解魚|人之厄。故国法禁人|捕之。

The dolphin has the friendliest nature of all fish and it likes music. Therefore, people who play the violin can ride it. When a fisherman gets into trouble with a malicious fish, this fish goes for a fight with (the fish) in order to get the fisherman out of danger. That is why according to the laws of the country it is forbidden for people to catch it.

1. Instead of ‘¹魚’ (HAND radical+ fish) read *ti* 提 (to play). The description of this fish (without the section about playing the violin) matches the *sidebai* 斯得白 (literally ‘this got white [spot] = Orca?’) on the Verbiest map.

F320

富商大賈多聚|此地,百貨駢集。

The wealthy traders pile up the bulk they purchase in this place, where hundreds of things are collected together.

F320

地出金根¹.天下|稱首鑛.有四鑛|取而不乏。

This place [Castilla de Oro] contains gold and silver, which is called the world's leading [area] for mining. Although four pits have been exploited, they are inexhaustible.

1. Instead of *jingen* 金根 'golden roots' read 'gold and silver' (*jin yin* 金銀) as the phrase in F391, and as Verbiest does, see *Kunyutu shuo*, p.768a, lines 5–6.

F322

土人能居水,惟追|熱¹大魚²,而騎之,以|鉄釣³釣³魚目,曳之,|東西轉捕他魚。

The locals can inhabit the water. Not only do they catch and cook large fish², but they ride them as well and, using an iron hook around the eyes* of the (caught) fish, they tow them along to return in all directions to catch other fish.

1. Instead of *re* 熱 (to warm, to heat up) read *zhi* 執 (to seize, to catch), as Verbiest does.
2. The author of the Bernese map did not specify the kind of fish as the *Kunyutu shuo* (p. 767b, line 6) does: the big fish is called 'All white wolf' (du bailang, 大魚名都白狼), or the map of Verbiest says: the big fish is called 'Changing white wolf' (huan bailang, 大魚名換白狼).
3. Instead of the first of the two identical characters *diao* 釣 (to angle, angle) read *gou* 鉤 (hook), as Verbiest does.

* The picture in F323 on our map shows the hook in the jaws rather than between the 'eyes'.

F324

亞墨利哥舟師稽之古書諒,亦¹道南尚有一乾坤.巡行南海,果|尋得一大州.舟人一|半留彼,一|半還報国王,致其物產,明年,国|王又命載百谷百果,攜農師巧|匠,徃教其地人,情益喜.因亞墨|利哥始開此區,即以其名名之。

The old logbook of the revered navigator Amerigo presumes that there still¹ has to be a way [just¹] to circumnavigate this one universe from the south. He searched in the South Sea and in fact found a vast continent. One half of the sailors remained there (with him), and the other half returned to tell the King* that he would deliver (Him) His goods the following year². [The next year] the King ordered once again to

load hundreds of [different sorts] of grain and fruit as cargo, as well as teachers of agriculture and skilled artisans to educate His [new] locals, so that they would feel beneficial and happy. Because Amerigo was the first to open up this territory, it is named after him.

1. *Yi* 亦 (again, also or mood particle like ‘just it’ or ‘still’) should probably be read as *chi* 赤 of *chidao* 赤道 (equator), compared with the passage of Verbiest (*Kunyutu shuo*, 765b, line 7) saying: “to search for and to find a vast land south of the Equator” (尋得赤道以南大地).
2. It is common for the tense adverbials to appear at the beginning of a sentence, therefore *ming nian* 明年 (next year) should open the next sentence: “The next year, the King ordered again that...”.

I changed the punctuation so that *ming nian* is a specification of time duration following the verb, because Columbus lacking time and funds thus delayed the cargo and sent little home but asked the Spanish king for more resources.

- * This is Ferdinand II of Aragon in the case of Columbus.

F356

此處產撒尔木樹,|以刀割之,油出極香,|傳諸傷捐一晝一夜,即|如故,塗痘不撒¹.塗屍,|千餘年不活².

The sal tree* grows in this region [of Bolivia]. If you cut it with a knife, extremely aromatic oil runs out. It is said that applying it to various wounds for one day and one night means that [the skin] will be restored to as it (previously) was. The anointed pustules will not spread¹ further. If you embalm a corpse with it, it will not come alive² (in the sense of becoming a biologically active corpse, which decomposes) for more than a thousand years.

1. Instead of *sa* 撒 (to spread) one can also read *ban* 癍 (to scar), as Verbiest does, in the sense that the pustules heal without leaving scars, see *Kunyutu shuo*, p. 766a, lines 10–11. The text most probably emanates from Ricci, who writes thus about the use of myrrh resin from Arabia: “if you embalm a corpse it will not be defeated” (塗尸不敗) in the sense of ‘defeated’ by decay.
 2. Instead of *huo* 活 (to be alive) it is also possible to read *xiu* 朽 (to decay, to rot), as Verbiest does, in the sense that the corpse will not rot for more than a thousand years.
- * It is not the sal tree (*shorea robusta*), because this grows on the Indian subcontinent. This most likely represents another tree, the Tolu balsam tree (*tolumyroxylon balsamum*), which is native to Colombia, Peru and Venezuela and from which the Tolu balsam or the similar Balsam of Peru is tapped.

F358

雅瑪瑣者強女各也。|因此地女好勇喜射。|西商如入河，遇女子|般小舟，來射殺二商，|去如飛謂故雅瑪瑣。

As for the Amazons [in the Amazon region, Brazil], every single woman is strong. Women from this area love bravery and amuse themselves by shooting arrows. When Western merchants advanced down the river, they encountered women in their characteristic small boat, who shot and killed two merchants and disappeared as if they were flying, so they are called the Amazons.

F359

地不產灰麥|不釀酒，用草根|**晒**¹乾磨麵|，作餅以當餅。

This region [Piauí, Brazil] does not produce grey wheat or brew alcohol, but instead uses grass and roots, which are sun-dried and ground into flour to make flatbread for eating.

1. Instead of **晒** write *shai* 晒 (sun-dried).

F379

此島產椰種。其用甚廣。幹|可造舟車。葉可覆屋。實能|掩飢。**漿**¹止渴，可當酒，醋，油。|穀²盛飲。**瓠**³索納⁴。東洋諸島|亦有之。

The coco(nut trees) grow on this island [i.e. Tafahi Island, Tonga archipelago]. Their use spans a wide range. The trunk can be used for building boats and carts. The leaves can be utilised to cover roofs. Its solid (part)* satisfies hunger. Its juice¹ quenches thirst and can be processed into alcohol, vinegar and oil. Its shell² serves as a drinking bowl and its coir for rope braiding³. Various islands in the Eastern Ocean [Pacific] also have such (trees).

1. Instead of **漿**, which seems to be like *jiǎng* 獎 (prize, award) with a CLOTHING radical, write *jiang* 浆 (pulp, here juice) with a WATER radical.
2. Read *ke* 殼 (shell) instead of *gu* 穀 (cereals), as Verbiest does.
3. Instead of **瓠**, variant A00784-028 of *zhi* 執 (to hold, to grasp) or *zhi* 瓠 variant of *hu* 瓠 'gourd', meaning a drinking bowl, Verbiest reads *rang* 瓠 (pulp) which is the content, not the container (*Kunyutu shuo*, p. 748b, line 14). In fact, it is not the pulp which is used but the coir (*zong* 棕) or the fibre (*xianwei* 纖維) from the outer husk of the coconut.
4. Instead of *na* 納 (to accept, to take in) read *tao* 綯 (to braid), as Verbiest does, see *Kunyutu shuo*, p. 748b, line 14. Unfortunately, on Verbiest's map the whole the passage about the coconut in the text block on India is smeared: this would have given a clue as to which the correct characters instead of <zhi> and <na> would be.

* This part is correctly called *copa* (*qian* 乾).

F391

索露¹產金銀,其|鳥|巴|爾|撒|木|各|等,良藥甚多。

In Peru*, there is silver and gold, all kinds of birds, balsam wood [*Myroxylon balsamum var. pereirae*], etc., and many good medicines.

1. Instead of *suolu* 索露 for naming Peru, read *bailu* 白露, which is phonetically more appropriate for Peru, and also how Verbiest writes it throughout the *Kunyutu shuo*.

* Peru is also called Beilu (字露国) in F356 on the Bernese map.

F395

此地產蘇木,鼻烟,白糖之本土,并出|貓|暗|夜|光|諸|寶|石。

This place [Minas Gerais, Brazil] is prolific in brazilwood* and snuff. It is the home territory of white sugar**. Also, various gems are exported; they sparkle in the dark night like cat's eyes***.

* Brazilwood designates different kind of wood endemic to the Atlantic Forest, in this particular case it is the genus *Caesalpinia*.

** Literally 'White sugar' must be refined brown sugar, if there is no misunderstanding.

*** The sparkling is the chatoyancy effect in gemstones.

F395

此處荒郊從來古無成屋。民|散居,以鳥毛織衣,臥無床|褥,但結繩為綱旁,高中窪|雨¹賴²以木椿掛之,偃臥其|中,行即為轎。

In the barren wasteland of this region [Matto Grosso, Brazil], built houses have never existed. The people here live scattered around (the area). They use birds' feathers to weave their clothes. They do not have a bed or mattress to sleep on but create a net surface (i.e. a hammock) from ropes. They hang it on both ends, high–medium–low, on trees or poles. They lie down on their backs to sleep in it. When travelling, it is used as a sedan.

1. Instead of *yu* 雨 (rain) read *liang* 兩 (both) and compare it with its writing in block F487.

2. Instead of *lai* 賴 (relay on) read *tou* 頭 (head, beginning respectively end), see on Ricci's map diagonally across the states Bahia and Minas Gerais of Brazil.

F429

銀河者因多有銀,|沙|同|水|湧|出。水退|布|地|銀|沙。銀粒不|煩|掘|鑛|故|也。

The [name] of Rio Plata is because in many (places) silver sand spills out together with water. As the water infiltrates, the silver sand spreads over the earth. That is the reason why people do not bother to mine for silver nuggets by digging.

F456

薄里波魚体無定|色,隨所居水爲色,|欲攝他魚,輒伏石色|與石無異.他魚以爲|石石也.或就之則|噬.

The body of the ‘Bolibo’ fish [i.e. the octopus called in Italian ‘Polipo’] has no particular colour. Depending on where the octopus is in the water, it takes on the colour and likes to imitate other fish. It hides in stones and imitates their colours so that there is no (visible) difference from the stones. Other fish, believing that the stone is (really) a stone, sometimes get eaten by (the bolibo).

智利人長心兇.遍|体皆毛.另¹女以五|色画面俱,持弓矢|喜嗜人肉.

Chileans are tall and proud. They are hairy all over their bodies. Men and women like to paint a mask on their face with five colours. They carry bows and arrows and enjoy and are addicted to human flesh.

1. Instead of *ling* 另 (the other) read *nan* 男 (man), as Verbiest does, see *Kunyutu shuo*, p. 768a, line 2.

F487

此處古謂兩¹之地²相連.近有³大斯莽⁴船師|至此,審知有大海陽²開.|曰此方通太³海.

As for this region [of New Zealand*], the ancients said that the edges of the earth connect to each other (here) from both sides. Recently however, there was the navigator [Abdel] Tasman who reached here, explored and came to see that there is an opening [passage] through to the Great [Eastern] Ocean. This means: from this point one passes in to the Great Pacific.

1. Read *bian* 邊 (side), see Ricci’s map.
2. Instead of *yang* 陽 (clear, sun) read *yang* 洋 (ocean).
3. Read *ping* 平 (peaceful, pacific).

* The text is written between 40° and 50°S and 190° and 200°W on the Bernese map counted from the Argentine coast (70°W), then it would correspond to 10° to 20°E, i.e. the region of New Zealand.

F490

大海有魚善飛,但不能高舉掠水|平,過遠至百餘丈.又有白角兒魚|能噬之,其行水中比飛魚更速,¹善于窺影飛魚.²之,遠近³.然能何⁴其|影之所向,先至其所,開口待啖.舟|人嘗以白練爲餌飄搖水面,給爲|飛魚捕之百發百中.烹之其味甚|美.

In this Great Sea (the Southern Pacific), there is a fish that flies very well. It cannot soar high but can skim as far as 100 *zhang* (33 m) over the water’s surface. There is also bacalhao [i.e. cod] which eat them. They whizz through the water faster than the flying fish and are very good at observing where the shadow (of the flying fish) falls. The flying fish is afraid of (the cod), fleeing far away as (they) approach

him. However, they can, of course, spot the direction in which the shadow [of the flying fish] goes, and reach (that place) earlier, waiting to catch their prey open-mouthed. Boatmen try to imitate (the flying fish) by using a white silk cloth as bait; they wave and flap it on the surface of the water so that they get one hundred per cent of the cod. If you fry them, they taste very nice.

1. The author of the Bernese map did not introduce a new subject in the sentence other than the bacalhao but Verbiest does mentioning *gouyu* 狗魚 “the dogfish which is good at in observing where the shadow of the flying fish falls” (有狗魚善窺飛魚之影, *Kunyutu shuo*, p. 774a, line 13 and p. 786b, line 1).
2. Read 畏 as *wei* 畏 (to fear), as Ricci does.
3. On Ricci’s map is written *dun* 遁 (to escape, to flee) instead of *jin* 近 (near).
4. Instead of *he* 何 (what) read *ci* 伺 (to wait upon, to spy), as Verbiest does, see *Kunyutu shuo*, p. 774a, line13.

F500

其人少,如欲散,走遇|人及鳥獸,輒殺而|食。

The men of it [i.e. Patagonia] are few in number; they like to roam, and whenever they encounter men, birds, or beasts they unceremoniously kill and eat them.

F532

海船實¹大,容載千餘|人,風帆十餘,道約二|千四百丈,布為之|**桅**²|高二十丈.鐵
貓³重二|千餘斤.纜繩重萬|四千餘斤。

The sea vessel is spacious. It can transport more than a thousand passengers. It has more than 10 wind sails, [full-rigged] it needs about 2400 *zhang** of fabric. The [main] mast is 20 *zhang* (6 m) high. The iron anchor weighs more than 2000 catties (1210 kg). The hawsers and ropes weigh more than 4000 catty (2419 kg).

1. Read *guang* 廣 (wide, large) instead of *bin* 寘 (to swallow), see caption in *Kunyu tu shuo* 788b.
2. **桅** read *wei* 桅 (mast), as Verbiest does, see *Kunyutu shuo*, p. 788b.
3. Instead of *mao* 貓 (cat) of the Bernese and Verbiest’s text read *mao* 錨 (anchor) in the binomen *tiemao* 鐵錨 (iron anchor) and in the seaman’s language here.

* It is not clear if it is 2400 方丈 = 26,670 m² or 223 m² 2400 × 3 m = 768 m².

F538

瑪熱郎初踰此夾,是南|北平原濟¹,蕩香²,無**捱**³際|.入夜燐火星流瀾漫山|谷.因命
為大⁴地。

Magellan was the first to navigate this strait. North and south of it, there were (only) vast plains, and shallow lakes; thus no horizon and no boundary. As night falls, bonfires are kindled, and the stars illuminate the mountains and valleys, therefore it was called the Great Land⁴.

1. Either read *ben* 溇 (swamp), as on the Bernese map, or *mang* 溇 (vast, expansive), as Verbiest does, see *Kunyutu shuo*, p. 771b, line 8. The enumeration of “plains (*pingyuan* 平原), ‘swamps’ (*ben* 溇)” goes with the subsequent ‘shallow lakes’ (*dang* 蕩) together but Verbiest’s idea also fits “the plains (*pingyuan* 平原) are vast (*mang* 溇) and the shallow lakes...”. After the next mistake, see n. 2, it will be apparent.
2. Instead of *xiang* 香 (perfume), read *yao* 杳 (dark, quiet), as Verbiest does. To talk about ‘perfume’ at this point is certainly a mistake, so I take <yao> of Verbiest’s version, and there is a parallel construction which says: plains (平原) are vast (溇). and shallow lakes (蕩) are quiet (杳).
3. Instead of *ai* 捱 (to procrastinate) read *ya* 涯 (a limit, the horizon), as Verbiest does.
4. Verbiest calls it the Land of Fire (*huo di* 火地, see *Kunyutu shuo*, p. 771b, line 9), which corresponds the Tierra del Fuego.

F572

特辣計船至此|經度,皆海無地。

Drake’s boat arrived at that latitude, where there is only sea and no land.

Annex I: The 24 solar terms of the Chinese lunisolar calendar, called the *Rural or Farming Calendar* (*nongli* 農曆) for shor

0°	<i>Chunfen</i> 春分	Vernal Equinox (20–22 March)	15°	<i>Qingming</i> 清明	Clear and Bright (4–6 April)
30°	<i>Guyu</i> 穀雨/谷雨	Grain Rain (19–21 April)	45°	<i>Lixia</i> 立夏	Beginning of Summer (5–7 May)
60°	<i>Xiaoman</i> 小滿/小滿	Grain Buds (20–22 May)	75°	<i>Mangzhong</i> 芒種	Grain on Ear (5–7 June), literally spikelets grow/n
90°	<i>Xiazhi</i> 夏至	Summer Solstice (21–22 June)	105°	<i>Xiaoshu</i> 小暑	Minor Heat (6–8 July)
120°	<i>Dashu</i> 大暑	Major Heat (22–24 July)	135°	<i>Liqiu</i> 立秋	Beginning of Autumn (7–9 August)
150°	<i>Chushu</i> 處暑/处暑	End of Heat (22–24 August)	165°	<i>Bailu</i> 白露	White Dew (7–9 September)
180°	<i>Qiufen</i> 秋分	Autumn Equinox (22–24 September)	195°	<i>Hanlu</i> 寒露	Cold Dew (8–9 October)
210°	<i>Shuangjiang</i> 霜降	Frost’s Descent (23–24 October)	225°	<i>Lidong</i> 立冬	Beginning of Winter (7–8 November)

(continued)

240°	<i>Xiaoxue</i> 小雪	Light Snow (22–23 November)	255°	<i>Daxue</i> 大雪	Major Snow (6–8 December)
270°	<i>Dongzhi</i> 冬至	Winter Solstice (21–23 December)	285°	<i>Xiaohan</i> 小寒	Minor Cold (5–7 January)
300°	<i>Dahan</i> 大寒	Major Cold (20–21 January)	315°	<i>Lichun</i> 立春	Beginning of Spring (3–5 February)
330°	<i>Yushui</i> 雨水	Rain Waters (18–20 February)	345°	<i>Jingzhe</i> 驚蟄/惊蛰	Awakening of Insects (5–7 March)

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