

# Printed Editions and Manuscripts of *Tianjing Huowen*

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## Abstract

The *Tianjing huowen* 天經或問 (preface dated 1675) of You Yi 游藝 (fl. 17C.) is a book on natural philosophy, composed under strong influence from the scholarly circle led by Fang Yizhi 方以智 (1611–1671) in the Jiangnan region. Although this book is known to have been more widely distributed in Japan than in China, no extensive survey of its textual exemplars has so far been carried out. Based on a survey of existing printed editions and manuscripts of the book, this paper seeks 1) to specify the most important exemplars useful for restoring the text of the book, and 2) to clarify the aspects of this book's textual production and circulation, especially in Japan, where the majority of surviving exemplars are found.

**Keywords:** Natural philosophy, Astronomy, Meteorology, Cheng–Zhu Confucianism, Jesuit

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## 1. Introduction

*Tianjing huowen* 天經或問 (Jp. *Tenkei wakumon*, Dialogue on the heavens), preface dated Kangxi 康熙 14 (1675), was written by the Qing scholar You Yi 游藝 (dates unknown, fl. 17th c.) under the influence of the scholarly circles led by Fang Yizhi 方以智 (1611–1671) in China's Jiangnan 江南 region. As is well known, its influence on later generations was greater in Japan than in China.<sup>1</sup>

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<sup>1</sup> The representative research on this book is as follows. Watanabe, “*Tenkei wakumon to Edo jidai chūki no tenmongaku*” (1941); Yoshida, “*Tenkei wakumon no juyō*” (1986); Watanabe, *Kinsei Nihon tenmongakushi*, vol. 1, pp. 37–44 (1986); Fung, “*Mingmo Qingchu Fangshi xuepai zhi chengli ji qi zhuzhang*” (1989); Zhang, *Mingmo Qingchu lixue yu kexue guanxi zailun*, pp. 49–103 (1994); Fung, “*You Yi ji qi Tianjing huowen qianhouji*” (1996); Yamada, “*Chūgoku no ‘yōgaku’ to Nihon*” (1997); Kume, “*Nihon ni okeru Tenkei wakumon no juyō (1): Sono shoshigakuteki kōsatsu*” (2004); Moon, “*Late Circulation of the Early Qing Natural Studies in 19th Century Korea*” (2008). In China, the work is now generally referred to as *Tianjing huowen qianji* 天經或問前集 (Former part of the *Tianjing huowen*), but *Tianjing huowen* is the only title used in the primary sources, including the Qing printed edition. The phrase “former part” can be found in fascicle 106 of the *Siku quanshu zongmu tiyao* 四庫全書總目提要 (Annotated catalog of the complete imperial library), so it dates back to at least the period in which the *Siku quanshu* itself was edited, and is useful for distinguishing *Tianjing huowen* from its sequel, *Tianjing huowen houji* 天經或問後集 (Jp. *Tenkei wakumon kōshū*, Latter part of the *Tianjing huowen*), but the bibliographical issues around its use should be kept in mind.

However, much about the actual text of *Tianjing huowen*, which must be the foundation for research on the work itself, remains unclear, including its development, its circulation, and how it was read, both in China and Japan. These matters must be established based on primary sources. This paper addresses these issues based on a survey of surviving printed editions and manuscripts to both clarify the multifaceted history of the text and identify the exemplars most useful for reconstructing the original text.

## 2. About *Tianjing huowen*

*Tianjing huowen* attempted to explain a wide range of phenomena ranging from the terrestrial to the celestial. It is written in a clear question-and-answer style and covers everything from fundamental structures of the world to the reasons things are as they are (所以然). The *Siku quanshu zongmu tiyao* 四庫全書總目提要 (Annotated catalog of the complete imperial library) praised it as follows:

[The book] addresses, in a question-and-answer format, celestial and terrestrial phenomena; the movements of the sun, moon, and stars; the reasons for eclipses and waxing and waning; and the characteristics of wind, clouds, thunder, lightning, rain, dew, frost, mist, rainbows, and secondary rainbows, exploring the reasons why each of them are so 所以然 individually with great clarity. (Vol. 106)

No detailed biography of the author You Yi (courtesy name Ziliu 子六, literary name Daifeng 岱峯) survives, but he was a man from Jianying 建陽, Fujian province, descended from You Zuo 游酢 (1053–1123), renowned disciple of the Northern Song philosopher Cheng Yi 程頤.<sup>2</sup> He studied first with Huang Daozhou 黃道周 (1585–1646) before learning calendrical astronomy and the principles of the *Yijing* from Xiong Mingyu 熊明遇 (1579–1649) and Fang Yizhi. The latter two also wrote prefaces for *Tianjing huowen*, and Fang Yizhi in particular “authenticated” (鑑定) the work.<sup>3</sup> In the text, You Yi refers to both as his teachers (Earth 37b, Earth 6b, etc.) and quotes their opinions extensively (Heaven 31a, Earth 34a, etc.).<sup>4</sup> He was also close to Fang Yizhi’s

<sup>2</sup> The biographical information and overview of *Tianjing huowen* is based on the following research: Yoshida, “*Tenkei wakumon no juyō*”; Fung, “You Yi ji qi *Tianjing huowen* qianhouji,” pp. 286–300; Fung, “*Tianjing huowen tiyao*,” pp. 153–156.

<sup>3</sup> Recent research on Fang Yizhi and Xiong Mingyu (particularly related to science) includes the following. Shang, *Mingmo Qingshu (1582–1687) de gewu qiongli zhi xue*; Lim, “Restoring the Unity of the World”; Hsu, “Xiong Mingyu yu younian Fang Yizhi”; Xiong, *Hanyutong xiaoshi: Gezhi cao (Fu: Ze cao)*.

<sup>4</sup> Quotations from *Tianjing huowen* in this paper, unless otherwise indicated, are from the Japanese printed edition edited by Nishikawa Seikyū 西川正休 (Shōyōken edition, TML A). Generally speaking, readings are based on Nishikawa’s *kunten*, but some amendments were made. In reading and investigating the

student Jie Xuan 揭暄 (dates unknown) and included many quotations from the latter's *Xietian xinyu* (*Xuanji yishu*) 写天新语 (璇璣遺述) (New discourse on the heavens (Description of the legacy of the armillary sphere)), such as in Diagram 8a, Heaven 1b, etc.).<sup>5</sup> All of these facts demonstrate that the work developed under heavy influence from Fang Yizhi's circle.

It is well known that You Yi offered an Aristotelian cosmology in *Tianjing huowen*.<sup>6</sup> For example, he attributed the proper movements of the sun, moon, and five planets to the motion of individual spheres 天 (*tian*, literally "heavens"), saying, "Each [of the celestial bodies] is in the sphere to which it sticks" (Heaven 45b). The diurnal motion of the same celestial bodies he attributed to the rotation of the *primum mobile*, highest sphere of all (Heaven 46b). This is clearly based on the geocentric Western cosmology introduced to China by Matteo Ricci (1552–1611) and his fellow Jesuits. *Tianjing huowen* also unambiguously assumed that the earth is a sphere (Heaven 4a–5b), and one of its 22 diagrams, "The zeniths and meridians according to different places" (Diagram 12a), draws on the illustration and explanation in *Tianwen lue* 天問略 (Abridged questions about the heavens) by Jesuit missionary Manual Dias the Younger (1574–1659) in explaining that sphericity. You Yi also frequently quotes Li Zhizao's 李之藻 *Hungai tongxian tushuo* 渾蓋通憲圖說 (Illustrated explanation of the sphere and astrolabe) and Johann Adam Schall von Bell's *Xinfa liyin* 新法曆引 (Introduction to new calendrical methods) in advancing his arguments (Heaven 5b–10a, etc.). Evidently, he read widely these translated Western astronomical treatises and used them extensively, even if his quotations from them were often not clearly indicated as such.

However, as Yoshida Tadashi 吉田忠 observes, *Tianjing huowen* is rooted in a specifically Chinese natural philosophy, particularly the philosophy of *qi* 氣 dating from the Song Dynasty, and it must be emphasized that it was through this philosophy that Western science was received.<sup>7</sup> For example, in answer to the question of why, if the earth is a sphere, it simply floats in space without falling, You Yi explains:

The earth and the heavens are [both] round and fundamentally continuous. The ancients said that to reduce the earth by one *chi* 尺 is to increase the heavens by one *chi*. If so, the earth is also the heavens, referred to as "the earth" by virtue of having form. (Heaven 4a)

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text, much use was made of the following commentaries and editions: Nishimura, *Tenkei wakumon chūkai*; Shibukawa ed. *Kōsei tenkei wakumon* and *Kōsei tenkei wakumon kokujikai*.

<sup>5</sup> Regarding Jie Xuan's *Xuanji yishu*, see: Yoshida, "Cosmogony in the *Xuanji Yishu* of Qi [Jie] Xuan"; Shi, "Jie Xuan dui Ouzhou yuzhouxue yu lixue yuzhoulun de tiaohé"; Sun, "Jie Xuan *Xuanji yishu* chenshu ji liuchuan kaolüe."

<sup>6</sup> The following summary relies heavily on Yoshida, "Tenkei wakumon no juyō," pp. 217–219.

<sup>7</sup> Yoshida, "Tenkei wakumon no juyō," p. 222.

Here, with reference to passages from works like the *Zhuzi yulei* 朱子語類 (Conversations of Master Zhu) and Jie Xuan's *Xietian xinyu*,<sup>8</sup> You Yi declared that the earth and the heavens are one, distinguished only in the matter of having or lacking form. He then turned to the question of why the earth does not fall:

The heavens enclose it. The rotating *qi* rises without ceasing, blocking it on all sides and permitting no rolling away. [...] On no side is there any corner [i.e., it is round]. Since its all sides are “up,” it has no place [that is “down”] to fall to. It rests in the center of the heavens. Nor does it depend on anything. (Heaven 4a)<sup>9</sup>

In other words, because the rotating *qi* rises endlessly around the earth, it is held in place from all sides, making it impossible for it to roll away.

The Aristotelian dichotomy between the earth and the heavens is entirely absent from this explanation, as are the ideas of “proper places” or actions of the four elements and the ether. Their role in the system is played by the rotating *qi* instead. In his preface to *Tianjing huowen*, Jie Xuan said, “Yi’s writing deploys only a single *qi*” (Preface 9b), but the same philosophical tendencies can be seen in *Xietian xinyu* and Xiong Mingyu’s *Gezhi cao* 格致草 (Draft of investigations [into things] and extensions [of knowledge]): the position was shared throughout their circle. They did not simply receive and introduce the Western theoretical framework in its original form, but had used the theory of *qi* to “Sinicize” Aristotelian natural philosophy in the course of coming to understand it. *Tianjing huowen* has been called an “astronomical text of the Western school” (*Seiyō-ryū tenmonsho*),<sup>10</sup> but it must be stressed that its character was fundamentally as described above.<sup>11</sup> At around the same time, Mei Wending 梅文鼎 (1633–1721), a scholar who sought to unite of Chinese and Western mathematical science, offered high praise for *Tianjing huowen* and *Xietian xinyu* in a poem:

*Tianjing* [huowen] and [*Xietian*] xinyu both achieve much

<sup>8</sup> Compare *Zhuzi yulei*, fascicle 98, Zhangzi I: “蓋天在四畔，地居其中，減得一尺地，遂有一尺氣，但人不見耳。” Also compare Jie Xuan’s *Xietian xinyu*, fascicle 1, “Tianqi neishi” 天氣內實：“朱子云，地之四畔，皆天。減一尺地，便多一尺氣。多一尺氣，不多一尺天乎。況地為天心，亦氣所結，則地亦天也” (Bo ed. *Zhongguo kexue jishu dianji tonghui*, p. 300).

<sup>9</sup> These sentences are written as if spoken by You Yi, but in fact they rely on the “Daziang henglun” 大象恒論 section of Xiong Mingyu’s *Gezhi cao*, which reads: “天包着他，元氣晝夜運行，四面都是上，無可墜處，又在天之至中，亦無可倚處。” Xiong, *Hanyutong xiaoshi: Gezhi cao* (*Fu: Ze cao*), p. 425.

<sup>10</sup> For example, in Nihon Gakushūin ed., *Meiji-zen Nihon tenmongakushi: Shinteiban*, p. 151.

<sup>11</sup> Regarding the “Sinicization” of Aristotelian natural science in *Tianjing huowen* and *Gezhi cao*, see Yamada, “Chūgoku no ‘yōgaku’ to Nihon.”



Fig 1. Qing printed edition of *Tianjing huowen* (Shiga copy)

Few past or current scholars can match them<sup>12</sup>

The character of *Tianjing huowen* as described above was surely not irrelevant to Mei Wending's appreciation, and seems particularly important when considering how *Tianjing huowen* was read by later generations.

### 3. Surviving Printed Editions and Manuscripts

#### 3.1 Qing printed edition (Dajitang edition)

Regarding the Qing printed edition of *Tianjing huowen*, I have so far been able to consult the two copies in Japan: one in the Cabinet Library of the National Archives of Japan (call number 305-207; hereinafter cited as the "Cabinet copy") and one in the Library of Faculty of Education, Shiga University (call number 子-109; hereinafter the "Shiga copy"). As described below, both were clearly printed using the same blocks, and this printing will be referred to as the "Dajitang edition" after the publisher shown inside

<sup>12</sup> Mei Wending and Mei Guecheng, *Jixuetang shichao*, fascicle 2, 13b. This is one poem from *Ji Fang Weibai wushou* 寄方位白五首 (Five poems for Fang Weibai); "Fang Weibai" refers to Fang Yizhi's son, Fang Zhongtong 方中通 (1634-1698).

the cover.

Of the two copies, the Cabinet copy is already well known, so I will speak principally of the newly discovered Shiga copy.<sup>13</sup> This work is a single bound volume in thick brown paper covers and the title *Tianjing huowen: Quan* 天經或問全 (*Tianjing huowen: Complete*) directly written on the front cover. The title page reads “Authenticated by Fang Yizhi / Written and edited by You Ziliu/*Tianjing huowen*/Dajitang publishers edition” (方密之先生鑑定／閩中游子六輯著／天經或問／書林大集堂梓).<sup>14</sup> At the bottom right corner is a stamp impression reading “Shi shi mi wen” (石室／秘文) (5.3 cm square, carved in relief, dark yellow ink paste). The ownership seals at the beginning of the volume read “Kōdōkan, Hiko[ne] Domain” (彦藩／弘道館／蔵書印) and “Ōtsu Normal School Library” (大津師範学／校書籍縦覧／所蔵書之印). This indicates that the book originally belonged to the Kōdōkan school in the Hikone domain (originally the Keikokan 稽古館, but renamed in 1830) and was inherited by the library of the Ōtsu Normal School in Shiga (later the Shiga Normal School, predecessor to the Faculty of Education at Shiga University) after the Meiji Restoration.

The book appears in two Kōdōkan library catalogs from the end of the Edo period, so it must have remained there until at least around 1850,<sup>15</sup> but records regarding its history to that date are scant. The first half of the book shows signs of use, with *kenten* 圈点 annotations in red ink to aid in reading and *akatōshi* 赤通し (pieces of red paper marking the text; indigo and plain *washi* paper was also used) added, but their origin is not clear. However, astronomy (*tenmongaku* 天文学 or *tengaku* 天学) was taught at Hikone since the Keikokan was founded as the domain school in 1799, and it is highly likely that the Shiga copy, along with other volumes on astronomy and calendrical calculation in the Kōdōkan library, was used for this purpose.<sup>16</sup> It should be noted that

<sup>13</sup> Regarding the Cabinet copy, see Fung, “You Yi ji qi *Tianjing huowen* qianhouji,” pp. 289–290; and Kume, “Nihon ni okeru *Tenkei wakumon* no juyō (1),” pp. 110–111. I offer my sincere gratitude to Yoshida Tadashi for informing me of the existence of the Shiga copy.

<sup>14</sup> Note that the copy of *Tianjin huowen houji* in the National Library of China (no fascicle divisions, 4 volumes; microfiche number A02705) was also published by Dajitang, with a title page reading “Published by Liangzhe Lifuyuan / *Tianjing huowen houji* / Dajitang publishers edition” (兩浙李撫院發刊／天經或問後集／書林大集堂藏板). A facsimile of this book is included in Bo ed. *Zhongguo kexue jishu dianji tonghui*, pp. 220–274, but the title page is not included. Inspection of the original is not permitted, making it impossible to measure the borders and other elements, but the format and characters appear to closely resemble the Dajitang edition. Regarding Dajitang, see Xing, “Fang Yizhi *Yaodi paozhuang* banben kao,” particularly note 1 on p. 109.

<sup>15</sup> Asakura, *Hikone-han Kōdōkan shojaku mokuroku*, pp. 93, 219. Regarding the dating of the two catalogs, see Ibuki Satoru’s commentary in the same volume, pp. 389, 396–397. For details about the transmission of books belonging to the Kōdōkan, see Kimata, *Shiga no kyōikushi*, pp. 35–47.

<sup>16</sup> See Kyū *Hikone-han gakkō* 旧彦根藩学校, pp. 390, 412, 419 in vol. 1 of Monbushō ed. *Nihon kyōikushi shiryō: Fukkokuban*. On p. 412 in particular, an individual named Ōnishi Junjirō 大西順次郎 states that when the Keikokan was established, he took classes “about the movements of the sun, moon and stars using an armillary sphere.” Regarding the other books on astronomy and calendrical calculation in the Kōdōkan’s library, see Asakura, *Hikone-han Kōdōkan shoseki mokuroku*, pp. 93, 310, etc.

several Hikone samurai, including Hiraishi Tokimitsu 平石時光 (1696–1771),<sup>17</sup> were noted for their proficiency in these subjects even before the period in question, but any direct connection to the Shiga copy remains to be determined.

When the Shiga and the Cabinet copies are compared, it is apparent that not just the cover page but the printing format throughout (single-line border on all four sides, no vertical guide lines, no “fishtails” at the center of the folio; 9 columns of 24 characters each per page) is identical, as is the structure of the prefaces, diagrams, and colophon, and the script of the main text. There can be no mistake that books were both printed from the same blocks: even the minor printing defects presumably caused by defects in the printing blocks<sup>18</sup> are all identical.

Furthermore, although in the Cabinet copy several pages at the beginning and end of the book and some of the diagrams are severely damaged or missing, all of these are more or less intact in the Shiga copy, which has generally been preserved in much better condition. The Shiga copy thus promises to be of use in “filling in the gaps” in the Cabinet copy, which was thought to be the sole surviving copy. True, the Shiga copy’s text is not perfect or complete either, having lacunae due to insect and other damage, as well as minor printing errors, but most of these can be amended with reference to the Cabinet copy.<sup>19</sup> In other words, the two copies complement each other, so that collating the two should permit reconstruction of the most complete edition of the Dajitang text possible at this time.<sup>20</sup>

The text reconstructed in this way would represent what is currently the sole known original imprint of *Tianjing huowen*, making it the foundational historical material for study of the work. However, it seems that this Dajitang edition was *not* the only edition of *Tianjing huowen* printed in the Qing era. There is evidence that other editions with different content existed and made their way to early modern Japan. This will be explored in detail in the next section.

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<sup>17</sup> Regarding Hiraishi Tokimitsu, see Watanabe, *Kinsei Nihon tenmongakushi*, pp. 156–157; and Yoshida, “Hikone no wasanka: Hiraishi Tokimitsu,” pp. 8–11.

<sup>18</sup> For example, the apparent horizontal crack in the printing block between the south pole and the sphere of the moon in “Three forms of the sun, moon, and earth within the celestial sphere” 渾象内日月地三形図 (Diagrams 2b); the missing wavy line from the upper border in the main text, page 5a (lines 3–5 of the text); the missing lines to 減, 升, and 不 in the main text on page 55a, lines 1–3; the characteristic gap in the border to the right of the text 長短不 on p. 56a of the main text.

<sup>19</sup> For example, page 92b of the Shiga copy is missing two characters on line 3 due to a hole; the Cabinet copy reveals that the missing characters are 原有. A similar situation can be seen on page 94a, where the Cabinet copy supplies 之言 as the two missing characters on line 4 of the Shiga copy.

<sup>20</sup> It appears that the Dalian Library in China also holds a copy of the Dajitang edition of *Tianjing huowen*, although I have not viewed it personally. See Zhang, *Dalian tushuguan cang guji shumu*, Zi bu 1, 579b. I am grateful to Chu Longfei for informing me of this.

Table 1. Surviving manuscripts of *Tianjing huowen*

Number/abbreviation	Current owner	Call number	Volumes	Former owner	Date	Columns × Chars/ column on each page	Preface by Zhang	15 Printed Figures	Comments
Manuscripts copied in China									
[01] HNS	Institute for the History of Natural Sciences, Chinese Academy of Sciences, Beijing	善子521-577	1		Qing	9 × 24	○		
[02] SQ	(Commercial Press Taiwan facsimile of Siku Quanshu, Wenyuange Edition)	—	4		1782	—			
[03] Seika	Seikadō Bunko (Japan)	11-25	1	Lu Xinyuan 陸心 源	Qing: Daoguang era (1782–1850)	ca. 10–12 × ca. 25–28	○		
[04] Shanghai	Shanghai Library, Shanghai	編普348211-14	4	Yuanbilou Collection of Liu family in Lujiang 廬江劉氏遠碧樓	Republic of China	10 × 21			With indigo printed border reading "Liu family manuscript, Yuanbilou"
Manuscripts copied in Japan									
[05] Hirayama	Hirayama Collection, Tohoku University Library	MA438	1		1694 (original colophon), 1965 (colophon by Kodama)	9 × 24			Manuscript copy of Dajitang edition
[06] Hayashi I	Hayashi Collection, Tohoku University Library	2770	1	Hayashi Gitan 林 義端 (publisher)	1697 (colophon)	9 × 24		○ (Ver. I)	With printed border and <i>Tianjing Huowen</i> title in block center ( <i>hanshin</i> 版心, Ch. <i>bansin</i> )
[07] Hayashi II	Hayashi Collection, Tohoku University Library	2769	2	Enkyō 圓鏡 (monk?)	ca. 1700	9 × 24 (8 × 18 for Zhang Changliang preface)		○ (Ver. I)	
[08] Hazama	Hazama Collection, Osaka Museum of History	羽101-32	2	Asuka Kinai 飛鳥 喜内	ca. 1700	9 × 24		○ (Ver. I)	
[09] KyoLib	Kyoto University Library	6-04-7-4	2	Ōmoya Sōhachi 大野屋惣八 (booklender)	ca. 1700	11 × 23		○ (Ver. I)	
[10] Ryūkoku	Shaji Dai Bunko, Ōmiya Library, Ryūkoku University	646-5-W	1	Head of Honganji By 1730		9 × 24		○ (Ver. II)	
[11] Akioka	Akioka Collection, Kōbe City Museum	天文曆字45	3	Hōjū 善充 (monk)	1740 (colophon)	10 × 20			With two <i>shikigo</i> by Numata Keichū 沼田敬忠 in 1722 and 1725
[12] Matsura	Matsura Historical Museum	甲89-314	1	Matsura Seizan 松浦静山 (head of Hirato domain)	Edo period	12 × 23–24			
[13] Naikaku	Cabinet Library Collection, National Archives of Japan	305-209	2		Edo period	9 × 18			
[14] Unno	Unno Collection, International Research Center for Japanese Studies	MB/27/Yu	1		Edo period	9 × 24			
[15] KyoBun	Kyoto University, Library of the Graduate School of Letters	文・地理K6-25	2		1745 (colophon)	11 × ca. 23–30			
[16] Kano	Kano Collection, Tohoku University Library	8.21381.1	1	Komagome Saikyōji 駒込西 教寺	1802 (colophon)	9 × 24			
[17] Hiraoka I	Author's library	—	2	Ogasawara family	Edo period	11 × 24			
[18] Hiraoka II	Author's library	—	1	Kūen 空淵 (monk?)	Edo period	10 × 20		○	Manuscript copy of Shōyōken edition
Reference Dajitang Edition	Library of Faculty of Education, Shiga University	子109 (Shiga)	1	Kōdōkan (Hikone domain school)	ca. 1675	9 × 24			
Reference Shōyōken edition	Tokyo Metropolitan Library	特7325 (TMLA)	4		1730	10 × 20		○	



### 3.2 Surviving manuscripts

At present, 18 surviving manuscripts of *Tianjing huowen* are known, four copied in China and the remaining 14 copied in Japan. The details of these manuscripts are summarized in Table 1.<sup>21</sup>

#### 3.2.1 Manuscripts originating in China

Of the four Chinese manuscripts in Table 1, [02] SQ and [03] Seika have already been described elsewhere,<sup>22</sup> while [04] Shanghai is apparently a copy of the *Siku quanshu* manuscript. This leaves [01] IHNS, held at the Institute for the History of Natural Sciences, Chinese Academy of Sciences.

[01] IHNS shares many characteristics of the Dajitang edition, including the title page described above.<sup>23</sup> However, it differs from the Dajitang edition on two important points:

(1) It includes a preface by Zhang Changliang 張昌亮 dated 1675.<sup>24</sup>

(2) Its list of “past and present astronomers” (古今天学家) contains 252 names—nearly twice as many as the 157 names on the Dajitang edition’s list.

[01] IHNS is the only known text that exhibits these characteristics.

At this point it is helpful to consider the comments of Kurume domain scholar Irie Tōa 入江東阿 (1699–1773) in the explanatory notes (*hanrei* 凡例) to his *Tenkei wakumon chūkai* 天經或問註解 (Commentary on *Tianjing huowen*), printed in 1750. To summarize, Irie viewed two printed editions: a copy of the Dajitang edition described above, and another Qing edition that appears to have been the original, or at least one of the sources, from which [01] IHNS derived. Irie’s comments read as follows, with emphasis added to show the correspondence of this testimony to the two points above:

There are two older printed editions of *Tianjing huowen*. The one I saw some years ago *had the same six prefaces as the edition printed in Japan* [Shōyōken edition], *but its list of “past and present astronomers” was twice as long*, and its volume of diagrams had the six-character title “*Tianjing huowen*: First fascicle” (天經或問首卷). Its diagrams and lettering were also different in many

<sup>21</sup> After this paper was accepted, I was able to locate two other manuscripts: one in the Kōchi Castle Museum of History and one in the Kawasaki Municipal Science Museum, neither of which I have yet consulted personally. As more information is shared publicly via the Internet and other means, it is more than possible that even more copies will be discovered.

<sup>22</sup> Fung, “You Yi ji qi *Tianjing huowen* qianhouji,” pp. 290–291.

<sup>23</sup> A facsimile of [01] IHNS is included in Bo ed. *Zhongguo kexue jishu dianji tonghui*, pp. 157–219, but this title page is not included. I offer my sincere gratitude to Sun Chengsheng at the Institute for the History of Natural Sciences, Chinese Academy of Sciences, for his assistance in surveying the original manuscript.

<sup>24</sup> Kume has already noted that this preface was not included in the original Dajitang edition, rather than being lost at a later date. See Kume, “Nihon ni okeru *Tenkei wakumon* no juyō (1),” p. 140, note 16.

respects. Recently, I was able to borrow and peruse a copy belonging to the Gujō Lord 郡上侯. I have revised the present text by making use of it. I found that this copy *lacked the preface by Zhang Changliang* and the six-character title at the beginning of its diagrams. Furthermore, *its list of “past and present astronomers” was exactly as long as the Japanese edition’s*. In light of this, the Japanese edition is largely the same as the two older editions but has nevertheless variants with respect to each. I have yet to find grounds for deciding on which [Qing] edition it is based.<sup>25</sup>

Of the “two older [i.e. Qing] printed editions” Irie mentions, the second “copy belonging to the Gujō Lord”<sup>26</sup> can be assumed with confidence to be the Dajitang edition.<sup>27</sup> The differences he observed with the first copy correspond well to the characteristics of [01] IHNS as described above. Thus we may suppose that the first Qing edition Irie describes was the original printed edition, or at least one of the sources, from which [01] IHNS was derived, making [01] IHNS important historical material for reconstructing its now-lost text.

Irie’s testimony is not the only evidence that this edition came to Japan. The edition printed in Japan also includes the preface by Zhang Changliang, which means that this Japanese edition must also be referred to when reconstructing the original text. This matter is discussed in detail in the following section.

### 3.2.2 Manuscripts originating in Japan

*Tianjing huowen* was sought and studied more fervently in Japan than in China, and the manuscripts that survive in Japan show that the work was widely copied and studied around the Kamigata area long before the first printed Japanese edition was published in 1730.

According to the Kyoto-based Confucian scholar Nakamura Tekisai 中村惕齋 (1629–1702), it was Nanbu Sōju 南部草寿 (1637–1688), head (*saishu* 祭酒) of the Nagasaki Seidō 長崎聖堂 Confucian school, who permitted the work to be imported to Japan sometime between 1676 and 1679.<sup>28</sup> Sōju was a close friend of Nagasaki astronomer Kobayashi Kentei 小林謙貞 (1601–1683), and the many disciples of the two men learned from both.<sup>29</sup> It is difficult to believe that Sōju would have failed to inform

<sup>25</sup> Irie, *Tenkei wakumon chūkai*, first fascicle, introductory notes.

<sup>26</sup> This “Gujō Lord” is probably Kanamori Yorikane 金森頼錦 (1713–1763). See also Irie, *Tenkei wakumon chūkai*, first fascicle, author’s preface, 5a-b.

<sup>27</sup> Kume, “Nihon ni okeru *Tenkei wakumon* no juyō (1),” p. 140, note 16.

<sup>28</sup> Watanabe, *Kinsei Nihon tenmongakushi*, p. 39. Regarding the Nagasaki Seidō and surviving related material, see Kumamoto Kenritsu Daigaku Hiraoka Kenkyūshitsu, *Web tenji: Nagasaki Seidō no sekai*, at <http://hiraoka.zinbun.kyoto-u.ac.jp/seido.html>.

<sup>29</sup> Hiraoka, “Kobayashi Kentei den,” pp. 20–21.

Kentei of the book's arrival. Indeed, Kentei, who himself was in close contact with the Nagasaki magistrate (*Nagasaki bugyō* 長崎奉行), may have been involved in granting the necessary permission.

The next commentator to mention the book in this early period was Kaibara Ekiken 貝原益軒 (1630–1714), who recorded “*Tianjing huowen*, three volumes” (天經或問三冊) under the year 1685 in his reading list, *Ganko mokuroku* 玩古目錄 (Record of toying with the past).<sup>30</sup> It is worth noting that when the *Tianjing huowen houji* 天經或問後集 (ca. 1681) arrived two years later in 1687, it was partly defaced with black ink and sent back as a prohibited book (*kinsho* 禁書).<sup>31</sup>

[05] Hirayama is a particularly important Japanese manuscript. Its final page contains a colophon dated 1694.8.15 (崑元祿七甲戌仲秋望日), making it the oldest known manuscript from either China or Japan. It begins with a copy of the Dajitang edition's title page, but, according to the colophon added to the manuscript by Kodama Akihito 児玉明人 in 1965, this does not date from the early modern period; rather, it was added by Kodama sometime after 1925 (during the Shōwa period) based on the Cabinet copy. However, as Kodama's colophon also notes, this manuscript closely resembles the Dajitang edition: the characters at the head of each line in each folio are always the same, and even the script style is almost identical. Obviously, [05] Hirayama is a faithful copy of a Qing printed edition from the same family that arrived before 1694, making it highly important for supplying readings missing from the two copies of the actual Dajitang edition described in the previous section.

Another point of interest is the fact that several of the Japanese manuscripts also contain fifteen printed folios of diagrams. What is more, those folios exist in two different versions, which will be referred to below as Version I and Version II.

Version I is found in the four manuscripts numbered [06] to [09] (see Figures 2 and 3). Comparing the contents of Version I to the equivalent 15 folios in the Dajitang edition (page numbers “Diagram 1” to “Diagram 15”), they are virtually identical, from the details of the diagrams and text to the size of the printed border (internal measurements: ca. 19.0 cm × 11.0 cm).

These printed diagrams that appear without warning inside otherwise handwritten manuscripts are indistinguishable at a glance from those in the Dajitang edition. The diagrams in all four manuscripts were clearly printed from the same blocks, which were likely created in Japan. This can be deduced from the single difference from the Dajitang edition: an additional single border around the entire printed area (internal measurements

<sup>30</sup> Kyūshū Shiryō Kankōkai ed. *Ekiken shiryō* 2, p. 17.

<sup>31</sup> Ōba, *Edo jidai ni okeru tōsen mochiwatashisho no kenkyū*, p. 36. Regarding *Tianjing huowen houji*, see Nakayama, “*Tenkei wakumon kōshū ni tsuite*”; Fung, “You Yi ji qi *Tianjing huowen qianhouji*,” pp. 291–294; Sun, “Ming Qing zhi ji xifang sanjishuo zai Zhongguo de liuchuan he yingxiang.”



Fig. 2. Printed folio in [06] Hayashi I. (Left page is folio 1a, first half-folio of printed section; right page is manuscript.)

20.0 cm × 30.8 cm across entire folio page), which must have been added by the Japanese block-maker so that the folios could be printing and bound in an *ōbon* “large book” (a.k.a. *Minobon* “Mino book”).

Since the blank space in the gutter makes two-page spreads like the star chart in Figure 3 extremely difficult to use, it is unlikely that the Japanese block-maker added the space intentionally. Rather, they appear to have faithfully reproduced the diagrams in the Qing edition using *kabusebōri* 被せ彫り or a similar technique, with the blank in the gutter an unavoidable consequence of wider Japanese folio sizes. Furthermore, in all four manuscripts containing Version I, these 15 folios were indeed printed on Mino-sized Japanese *choshi* 楮紙 paper, all but confirming that not only the block-making but also the printing was carried out in Japan.

This raises new questions: Who created the blocks? Why did they create them, and when? Taking the last question first, the blocks must have been created by 1697 at the latest, since [06] Hayashi I can be dated to that year. As for why, the most natural assumption is that it was done not just to spare copyists the time and effort needed to reproduce the diagrams but also to provide diagrams that were far more accurate and attractive than could be achieved by hand. Diagrams were frequently a problem when copying manuscripts; since they required not just a legible hand but also artistic ability on the part of the copyist, they were often simply omitted. Printed diagrams must have had

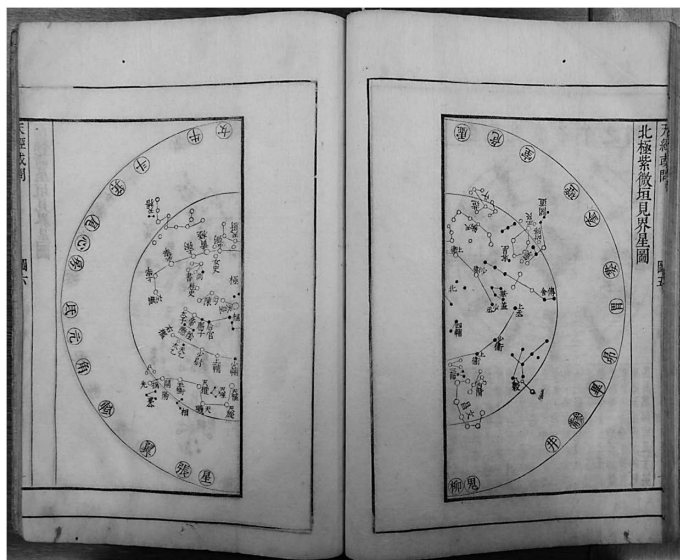


Fig. 3. Printed folios in [07] Hayashi II. (Half-folios 5b-6a.)

great appeal to those who sought copies of *Tianjing huowen*, since they would have allowed the diagrams to be obtained with minimum effort and maximum accuracy.

Even more intriguing is the existence of a manuscript containing Version II, which differs from Version I. The 15 folios comprising Version II are inserted at the beginning of [10] Ryūkoku.<sup>32</sup> Version II is largely similar to Version I in the content and text of the diagrams as well as the huge blank in the gutter, but the characters are in a clearly different style, and other minor differences can be observed.<sup>33</sup> Version II's orthography also exhibits a greater tendency to use:

- Simplified or popular versions of characters (*zokuji* 俗字)—for example, 弥 for 彌 and 竜 for 龍 (Diagram 4b), 経 for 經 (Diagram 15b);
- Cursive instead of formal (*kaisho* 楷書) versions of characters—for example, 此, 界, 総, and 分 (Diagram 2a, 7b, and 8a); and
- Repeat marks instead of writing the same character twice in a row—for example, 圓々 (Diagram 2a), 極々 (Diagram 14b).

<sup>32</sup> [10] Ryūkoku can be viewed in its entirety via the Ryūkoku University Library Digital Archives at [http://www.afc.ryukoku.ac.jp/kicho/cont\\_18/18657.html](http://www.afc.ryukoku.ac.jp/kicho/cont_18/18657.html) (accessed 2019.06.08). I offer my sincere gratitude to all those at the Ōmiya branch of the Ryūkoku University Library who cooperated in making images of this manuscript available.

<sup>33</sup> For example, the first character of line 13 in the explanation of “Three rings, six vertices, and eight arcs” 三輪六合八觚之図 (Diagram 2a) is blacked out (in Version I it is 距); in “Three forms of the sun, moon, and earth within the celestial sphere” 渾象内日月地三形図 (Diagram 2b), the position of the moon in its orbit is different; and in “Waning crescent, new moon, waxing crescent, full moon” 晦朔弦望之図 (Diagram 3b), the shading on the moon is variously present or absent.

This relative orthographic freedom was common in Japan around 1700, but difficult to imagine in a book printed in China at that time.<sup>34</sup> This is additional evidence that, while based on the Dajitang version, the blocks for Version II were, like those for Version I, prepared in Japan. Furthermore, since it is difficult to see the need to create blocks like this if the Japanese printed edition was available, it is reasonable to assume that these printed folios of Version II, and eventually [10] Ryūkokū itself, were established before 1730.

It is fair to wonder at this point why at least one of the parties who prepared these blocks did not simply print the entire book. The first possibility that comes to mind is that after the promulgation of a stricter *Kinshorei* 禁書令 (Prohibited Books Regulation) in 1685, publishers may have consciously chosen not to print a full edition of a book that, after all, mentioned and quoted many books by Christian missionaries in China. Note that the sequel *Tianjing huowen houji* was in fact declared a prohibited book in 1687, and that the first edition of *Tianjing huowen* printed in Japan, edited by Nishikawa Seikyū 西川正休 (1693–1756), only appeared in 1730—ten years after the *Kinshorei* was relaxed in 1720 by the eighth shogun Tokugawa Yoshimune 徳川吉宗. This situation strongly suggests that printing the entire book was intentionally avoided.

On the other hand, it should be noted that in Edo-period Japan, manuscripts retained an important place within book culture; there were even bookstores and sales routes specializing in manuscripts rather than printed books.<sup>35</sup> Moreover, unlike printed books, manuscripts were seldom targeted for censorship; if the demand was there, even prohibited books were copied and circulated in manuscript form.<sup>36</sup> Thus, regarding the background to this development of multiple manuscript–print hybrid texts of *Tianjing huowen* in Japan ca. 1700, it is necessary to recognize an often neglected aspect of the *Kinshorei*: while it certainly discouraged the printing of Japanese editions, in practical terms it allowed people to own prohibited books and even to sell and distribute them, as long as they were in manuscript form.

Returning to the question of who created the printed diagrams (sometime between 1697 and around 1730), it was likely someone within the Kamigata intellectual circles centered around Kyoto, intending to distribute or sell them to the particular class of scholars seeking manuscripts of *Tianjing huowen*. Consider the colophon attached to [06] Hayashi I, which reads:

This [manuscript of] *Tianjing huowen* was made by borrowing Eda Bunzō's 江

<sup>34</sup> In early modern Japan, *zokuji* 俗字 were considered irregular character forms, yet still more common than “correct” forms even in official documents. See Yamashita, “Kinsei kara kindai Nihon ni okeru itaiji shiyō no henka,” especially pp. 146–147.

<sup>35</sup> Hashiguchi, *Edo no hon'ya to honzukurī: Zoku wahan nyūmon*, pp. 183–218.

<sup>36</sup> Hashiguchi, *Edo no hon'ya to honzukurī*, pp. 205–210.

田文蔵 manuscript and having it copied by the venerable Shima Jun'an 嶋順安. Afterwards, using Itō Tōgai's 伊藤東涯 Chinese [printed] edition, I added *kenten* 圈點 and punctuation in red and corrected errors and omissions before treasuring it carefully. The Confucian scholar Fukada Shōshitsu 深田昌叱 [正室] heard about this and asked through Master [Itō] Koan [伊藤] 固庵 to borrow the book. In correcting his household's manuscript, he also revised the text; the annotations in red on paper inserts are the result. Accordingly, my concerns about copying errors are now ended. I say [this text] may truly be called verified. Fifth day of the tenth month, Genroku 10 (1697.10.5), Master of the Bunkaidō 文會堂.

The “Master of the Bunkaidō” was the Kyoto publisher Hayashi Gitan 林義端 (?–1711), who was a disciple of Itō Jinsai 伊藤仁齋 (1627–1705).<sup>37</sup> Hayashi lists a total of five people involved in the production of this manuscript, and at least two of those—Eda Bunzō, about whom nothing is known, and Fukada Meihō 深田明峯 (1639–1707), also known as Shōshitsu 正室, who was a Confucian scholar for the Owari domain—owned their own manuscript of the book, while Itō Tōgai (1670–1736), Jinsai's son, owned a Qing printed edition. Furthermore, the red annotations in this manuscript were based on Tōgai's copy, and the notations in red on paper inserts were copies of Fukada's corrections. Evidently, by 1697, this circle of scholars were not only exchanging information about manuscripts and printed editions of *Tianjing huowen* but also sharing the results of their examinations of the text itself.

Incidentally, this manuscript uses folios with printed single borders on all four sides not just for the printed diagrams but for the text as well. Because these pre-printed pages even have the title, *Tianjing huowen*, in the block center (*hanshin* 版心, Ch. *banxin*. See right leaf of Figure 2), it is clear that they were made specifically for use in manuscripts of this work. Presumably they were created by Hayashi himself, whose fondness for Chinese books inspired him to quit his job as a money-changer and become a publisher instead; after printing the paper, he provided it to Shima Jun'an to use in copying Eda Bunzō's manuscript.

The next noteworthy manuscript is [11] Akioka, which contains two *shikigo* 識語 (comments) by the surveyor and astronomer Numata Keichū 沼田敬忠 (literary name Sōken 操軒; dates unknown).<sup>38</sup> The colophon of this manuscript states that it was copied by a monk named Hōjū 峯充 in 1740, but the two *shikigo* reveal that Hōjū was working

<sup>37</sup> Mori and Asakura (comm.), *Kōshōgaku ronkō*, p. 242. Regarding the close relationship between Hayashi and Kogidō, see Nakajima, “Hayashi Bunkaidō Gitan nenpu kō (jō),” pp. 38–47.

<sup>38</sup> Regarding Numata, see Satō, “Sanada Hōmotsukan shozō no sokuryōjutsusho ni tsuite”; and Satō, *Kinsei Nihon sūgakushi*, pp. 218–225. Numata's two *shikigo* are valuable new historical materials revealing many new facts about Numata's life and circumstances.

from a manuscript created by Numata in the Kyōhō 享保 era (1716–1736). The first *shikigo*, written 1722, has the title “On *Tianjing huowen*” (題天經或問); the second, added in 1725, is untitled. The latter in particular is highly relevant to this discussion, and so is included in full below (with emphasis added).

When I was in the southern capital [Nara], I studied closely with Mori Gensenshi 森原泉子. One day, discussing astronomy, our conversation ranged to *Tianjing huowen*. I said, “I have heard that the book reveals many things that past Confucian scholars did not. I wish to read it, but have not yet been able to.” Later, I was assigned as an official to Niiya 新谷 in Iyo province. In Kyōhō 6 [1721], Gensenshi copied the book and sent it to me from the southern capital. My gratitude overwhelmed even my delight. Reading the book for the first time, I naturally found many passages enlightening, but there were also places that were difficult to parse and understand. I suspected the mistranscription of characters and the omission of words. Furthermore, because Gensenshi was not good at drawing, the diagrams at the beginning of the work were omitted. I could not but find this regrettable. In the spring of the following year [1722], I visited Murakami Kenjun 村上見順, who served the Lord Katō 加藤君 as court physician in Ōzu 大洲. The conversation happened to touch on this book, and Kenjun said, “My family also owns a copy.” I asked to borrow it and take it home with me, and by collating it with my own I was able to correct the mistranscribed characters and supply the omitted words. I also added the diagrams missing from the beginning. I was delighted to be able to restore it to nearly perfect condition. That year, Gensenshi visited me with a *printed version of the diagrams* and the original manuscript [on which Numata’s copy was based], both borrowed. He said, “The diagrams were omitted from the book I gave you earlier. *Fortunately, there is a printed version of the diagrams.* Therefore, I give them to you. As for the original manuscript, use it for reference and collation.” I was therefore able to collate the text again. I found that *the printed diagrams were very beautiful. Finally, I have kept the printed diagrams in order to supplement the [originally] omitted diagrams.*

〈However, I could not bear to discard the diagrams previously copied from Murakami’s manuscript. I add them as a separate volume to this book, making three volumes in all.〉 Then I returned the original. At last I had something like a perfect book. The following year [1723], I left Niiya and returned to my home town. The year after that [1724], I stayed at Gensenshi’s place for a while when visiting the southern capital. My old friend Ogura Hokō 小倉保孝 came to visit, and our conversation once again touched on this book. Hokō said, “I also



copied Gensenshi's original, then later obtained another copy and collated the two. Why don't you [Numata] take it back with you and compare them further?" I gladly agreed to this. In the spring of this year [1725], I stayed at the Kimura's 木村 house in Takasago 高砂. In between my lectures, I have furthered my collation and revision. (Ogura's manuscript had *kenten*, as did, presumably, the Ming [*sic!*] printed edition. Therefore, at this point I was adding these in red.) I found errors and omissions in Ogura's manuscript. In order that he might make the necessary corrections, I recorded some of my doubts and discoveries on slips of paper before returning it. After this, my manuscript had been restored to perfect condition with no regrets. Accordingly, I record its history here. Middle third of the third month, Kyōhō 10 [1725.03.11–20], Sōken Numata Keichū.

According to Numata, three people were involved in the creation of the manuscript he owned: Mori Gensenshi from Nara<sup>39</sup>; Murakami Kenjūn, a doctor for the Ōzu Lord; and one Ogura Hokō. All three also had their own manuscripts, and one (Gensenshi) not only provided his own manuscript to Numata, he also later searched out and provided the "original" it was based on. In other words, Numata was able to examine a total of four manuscripts. What is more, Ogura had also apparently examined yet another manuscript and collated with it.

Note especially that Gensenshi showed Numata a "printed version of the diagrams" (italicized sentences above). 1722 predates the Japanese printed edition of the work as a whole, so Gensenshi must have had Version I or II of the printed diagrams discussed above. Numata's description of the printed diagrams as "very beautiful" conveys his joy and excitement at a time when he had yet to encounter the Qing printed edition.

With the exceptions of Shibukawa Harumi 渋川春海 (1639–1715), Japanese scholars who used *Tianjing huowen* before the publication of the Japanese edition have attracted little attention to date, and such use often seems the result of pure coincidence. However, the information found in the surviving manuscripts reveals the strong demand for this particular Chinese text on astronomy in Japan around 1700, and the lively tradition of studying it, even under the seemingly strict Prohibited Books Regulation. The existence of these manuscripts not only urges us to reconsider our views of the historical context but also indicates that Shibukawa's own use of the text may have been influenced by the intellectual circles of Kyoto to which he attached himself.

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<sup>39</sup> The reading "Mori Gensenshi" is from the original text, suggesting that this person's surname either was or incorporated the element *Mori* 森, but nothing more is known of them.

Table 2. Japanese printed copies by group

	Group A Shōyōken (Edo)	Group B Wakanaya (Edo)	Group C Sūzanbō (Edo)	Group D Toshundō/Sūkōdō (Ōsaka)	Group E Toshundō/ Bunkindō (Ōsaka)	Group F Yonto I	Group G Yonto II	Group H Yonto III (Meiji era)
(1) Members	TMLA, Shanghai, etc. (Total: 8)	Mine A, NLC, etc. (Total: 13)	HS B, Hayashi B, etc. (Total: 20)	Kuwaki E, NAOJ C, etc. (Total: 21)	Hiraoka A, Kuwaki F (Total: 2)	Hiraoka E (Total: 1)	Hayashi C (Total: 1)	Akioka B (Total: 1)
(2) Note on publisher inside front cover	"Printed by Shōyōken" (松葉軒 壽櫻)	"Printed by _____" (壽櫻)	"Printed by Sūzanbō" (嵩山房 粹)	"Toshundō/ Sūkōdō" (曙春堂 / 崇高堂)	—	—	"Toshundō/ Sūkōdō" (曙春堂 / 崇高堂)	"Toshundō/ Sūkōdō" (曙春堂 / 崇高堂)
(3) Publisher name in folio block center	Shōyōken	Shōyōken	Shōyōken	Shōyōken	Shōyōken	Shōyōken	Shōyōken	Shōyōken
(4) Colophon (date, location, publisher name)	Eleventh month, Kyōhō 15 [1730] Nihonbashi, Edo Shōyōken Yorozuya Seibē	Eleventh month, Kyōhō 15 [1730] Nihonbashi, Edo Wakanaya Kohē	Eleventh month, Kyōhō 15 [1730] Edo Sūzanbō Kobayashi (Suharaya) Shinbē	<i>Tenkei wakumon chūkai</i> Blocks prepared in eleventh month, Kyōhō 15 [1730], revised in eighth month, Kanset 6 [1794] Shinsai bashi-dōri, Osaka Toshundō	<i>Tenkei wakumon chūkai</i> Blocks prepared in eleventh month, Kyōhō 15 [1730], revised in eighth month, Kanset 6 [1794] Shinsai bashi-dōri, Osaka Toshundō	(No date) Edo/Nagoya/ Kyōto/Osaka Suharaya Mohē, Kawachiya Tasuke, Kawachiya Nisuke, etc. (Total: 12)	(No date) Edo/Kyōto/ Nagoya/Osaka Suharaya Mohē, Kawachiya Kihē, etc. (Total: 12)	(No date) Kyōto/Tokyo/ Nagoya/Osaka Yoshimoya Nihē, Kawachiya Kihē, etc. (Total: 13)
(5) Advertisements				Sūkōdō, Toshundō, Bunkindō, etc.	Bunkindō			
(6) Gaps in outer border		○	○	○	○	○	○	○
Heaven 1a		○	○	○	○	○	○	○
Earth 15b/ Tairyaku 36b			○	○	○	○	○	○
Heaven 51b/ Preface by Kinoshita 5a				○	○	○	○	○
(7) Estimated printing date	1730 to mid-18th c.	Mid-18th c.	Mid- to late 18th c.	Late 18th to early 19th c.	Late 18th to early 19th c.	Early to mid-19th c.	Early to mid-19th c.	Mid to late 19th c.

### 3.3 Japanese printed edition (Shōyōken edition)

*Tianjing huowen* was first printed in Edo in 1730 by the publisher Shōyōken Yorozuya Seibē 松葉軒萬屋清兵衛, with Nishikawa Seikyū editing the text and supplying *kunten*. Scholars have previously noted four different variants of this book, each with a different colophon, but all are considered part of the same edition.<sup>40</sup> My survey has identified four more versions of the printed text with hitherto unreported colophons, necessitating a comparison of the eight versions to establish their order of appearance. Table 2 is the result of this comparison. It divides the 67 printed copies of this work now preserved in Japan, China and South Korea into eight groups labelled A to H in presumed printing order.<sup>41</sup>

To begin with, note that all of the copies in Table 2 were printed from the Shōyōken's original blocks. All have the name "Shōyōken" in their block center, and it is unlikely that the publisher name would have been retained if new blocks had been created using *kabusebori* or similar techniques. Even more important evidence is provided by the gaps in the outside borders summarized in row (6) of the table. Comparing these gaps is known to be an effective way of distinguishing whether similar-looking editions were printed from the same blocks or not. These gaps result from damage to the blocks themselves, meaning that copies with the same gaps are from the same edition, and the more gaps a copy has, the later in the printing run it was produced.<sup>42</sup> In early modern Japan, gaps in the text itself were amended with techniques like *ireki* 入れ木, in which a smaller piece of wood was embedded in the original block, but gaps in the outer border did not affect the legibility of the text and were therefore often left unamended.<sup>43</sup> Row (6) shows the result of applying this principle to compare characteristic border gaps across the known Japanese printed editions.

Group A's colophon and inside cover note states that the book was printed in 1730 by Shōyōken Yorozuya Seibē. Given that the "Shōyōken" in the block center survives in all other copies, this group must have been the original (first) Japanese printed edition. The colophon information and border gaps evolve steadily through the series of groups, from A to B to C and so on; note in particular that gaps observed in an earlier group are never absent from later groups. This continues to Group H, printed in the Meiji era, which inherits all of the characteristics of the foregoing groups. In other words, the same blocks were used to print every Japanese edition, from the first in 1730 to the last in the Meiji period. Accordingly, this paper refers to this edition as the "Shōyōken edition".

The following commentaries on each group are intended to provide information

<sup>40</sup> Nagasawa, *Wakokubon kanseki bunrui mokuroku: Zōho hoseiban*, p. 117; Kume, "Nihon ni okeru Tenkei wakumon no juyō (1)," p. 114.

<sup>41</sup> For fascicle divisions, owners, and call numbers of the copies summarized in Table 2, see appendix.

<sup>42</sup> Nakano, *Shoshigaku dangi*, pp. 215–217.

<sup>43</sup> Nakano, *Shoshigaku dangi*, pp. 272–276.

about the generations of publishers through which the right to publish the Shōyōken edition passed.<sup>44</sup>

### Group A: Shōyōken (Edo)

Shōyōken Yorozuya Seibē, real surname Matsuba 松葉, was a publisher in Nihonbashi, Edo. The colophon of this group reads as follows: “Kyōhō 15 [1730] / 11th month / 1-chōme Nihonbashi-dōri / Shōyōken, Edo / Yorozuya Seibē” (享保十五年／庚戌十一月／日本橋通一丁目／江府書林松葉軒 萬屋清兵衛鑄). Group A copies generally have plain brown covers of thick paper. Other books related to astronomy published by Shōyōken include:

- Nakane Genkei 中根元圭, *Koreki benran* 古曆便覽 (Handbook of old calendars) in 1685 and its later copies/editions in 1687, 1725 and 1732
- *Rekirin yōryaku* 曆林要略 (Summary of the *Rekirin*), ed. Kasuga Tsunetaka 春日經高 in 1732
- Shimada Dōkan 島田道桓, *Kiku genpō chōken bengi* 規矩元法町見弁疑 (Useful treatise on basic rules of land surveying for cities) in 1734 (prefaced by Nishikawa Seikyū).<sup>45</sup>

### Group B: Wakanaya (Edo)

Group B was published by Wakanaya Kohē 若菜屋小兵衛, another Nihonbashi bookseller. During the Kanpō period [1741–1743], Wakanaya received a large number of printing blocks for books of *haikai* from Shōyōken,<sup>46</sup> and the blocks for *Tenkei wakumon* may have come into his possession along with these. The inside cover and colophon of this group are largely unchanged from Group A, but the references to Shōyōken are either deleted or updated.

It should be noted that Wakanaya also printed Irie Tōa’s *Tenkei wakumon chūkai* in 1750.<sup>47</sup> Wakanaya’s colophon at the end of the work contains the following two-line advertisement: “Forthcoming: *Kokon tengakuka den* 古今天学家伝 in 1 volume/*Honkyō chūkai* 本經註解 in 6 volumes.”<sup>48</sup> Both of these were presumably related to *Tianjing*

<sup>44</sup> In the absence of specific attribution, the information about publishers that follows is largely based on the following research: Yajima, *Tokugawa jidai shuppansha/shuppanbutsu shūran*; Inoue, *Kaitei zōhō kinsei shorin hanmoto sōran*.

<sup>45</sup> Hayami, “Yorozuya Seibē shuppan nenpyō,” pp. 31, 33, 57, 61, 63, 66–67.

<sup>46</sup> Hayami, “Yorozuya han haisho no idō,” pp. 34–35.

<sup>47</sup> The earliest printed copies of the book bear a colophon which reads “Month 12, Kansei 3 [1750] / Edited by Irie Heima 入江平馬 [i.e. Tōa], Kurume domain scholar, Chikunan 筑南 / Printed by Wakanaya Kohē, publisher in the eastern capital” (于時／寛延三年庚午冬蜡月／筑南久留米学官／入江平馬編述／東都書肆 若菜屋小兵衛梓行). See the following copies: Tōhoku University Library, Fujiwara Collection, call number 279; *idem*, Hirayama Collection, MA408; *idem*, Hayashi Collection, 22.

<sup>48</sup> See final page of the following copies: Tōhoku University Library, Fujiwara Collection, 279; *idem*, Hirayama Collection, MA408; *idem*, Hayashi Collection, 22.

*huowen*: *Kokon tengakuka den* (Biographies of past and present astronomers) was likely to be based on the “List of past and present astronomers” in the text of *Tianjing huowen*, while *Honkyō chūkai* (Commentary on the main text) would have been a commentary on the Heaven and Earth volumes. Ultimately, neither book appears to have been published,<sup>49</sup> but the fact that Wakanaya was planning to publish other *Tianjing huowen*-related works is worthy of note as indicative of the demand for the book.

### Group C: Sūzanbō (Edo)

Published by Sūzanbō Kobayashi (Suharaya) Shinbē 嵩山房小林新兵衛, also based in Nihonbashi. The inside cover and colophon are the same as Group B, except with the publisher name updated. Many copies have covers of thin, plain light brown paper. It seems that Sūzanbō obtained the blocks for *Tianjing huowen* from Wakanaya along with the blocks for Irie’s commentary: Sūzanbō also printed Irie’s commentary, and its colophon is the same as the Wakanaya printing with the publisher name recarved to “Rights purchased by Sūzanbō Kobayashi Shinbē” (嵩山房／小林新兵衛求版).<sup>50</sup> Other astronomy books published by Sūzanbō include Nishimura Enri’s 西村遠里, *Tengaku shiyō* 天学指要 (Outline of astronomy) in 1778 and Takai Shinga’s 高井晒我 *Kunmō tenchiben* 訓蒙天地辨 (Beginner’s discourse on Heaven and Earth) in 1792.

### Group D: Toshundō/Sūkōdō (Osaka)

In the second half of the 18th century, Shōyōken’s blocks traveled up the Tōkaidō highway along with the blocks for Irie’s commentary to become the joint property (*aiaban* 相合版) of two publishers in Shinsaibashi, Osaka: Toshundō Yamaguchi Mataichi 賭春堂山口又一 and Sūkōdō Izumoto (Kawachiya) Hachibē 崇高堂泉本 (河内屋) 八兵衛. Group D’s inside cover is the same as Group C, except with the publisher name updated. The colophon is new, and reads:

*Tenkei wakumon chūkai* [*sic!*] 〈Published in 3 volumes [*sic!*]〉

Blocks prepared in eleventh month, Kyōhō 15 [1730]

Revised in eighth month, Kansei 6 [1794]

Osaka booksellers 〈Yamaguchi Mataichi, Kitakyūtarō-machi, Shinsaibashi-dōri/Izumimoto Hachibē, Minamikyūhōji-machi, *Dō-tōri*〉<sup>51</sup>

<sup>49</sup> The Japan Academy has a manuscript entitled *Kokon tengakuka den* (call number 5856) thought to correspond to this work, but there is no evidence that it was printed. Nishimura Enri 西村遠里 later completed a commentary on *Tianjing huowen* entitled *Tenkei wakumon chūkai* 天経或問注解 (preface dated Meiwa 明和8 [1771]), but this too was not published and survives only in manuscript form.

<sup>50</sup> See colophon of Tohoku University Library Kano Collection 8\_21382.

<sup>51</sup> The original Japanese text reads: 天経或問注解 〈全部三冊／発行〉／享保十五庚戌年十一月刻／寛政六甲寅年 [1794] 八月校訂／大阪書房 〈心齋橋通北久太郎町 山口又一／同通南久寶寺町 泉本八兵衛〉

A contemporary record shared among Osaka booksellers, *Hangi sōmoku roku kabuchō ichi* 板木総目録株帳一 (Woodblock catalog and publishing rights list, vol. 1), also states that the rights to “*Tianjing huowen*, 4 [volumes]” (天経或問四) and “*Ibid*, [Irie’s] commentary, 3 [volumes]” (同註解 三) belonged “Jointly, to Kawa[chiya] Hachi[bē]/Yama[guchi] Mata[ichi]” (相河八・山又), followed by, in a different hand, “Kawa[chiya] Ta[suke]” (河太).<sup>52</sup> The final notation refers to the printer of Group E, Bunkindō (Morimoto) Kawachiya Tasuke (see below), showing that the rights were later partly transferred to him as well.

The errors noted above in the colophon are clearly due to confusion with Irie’s commentary, but all previous colophons were from the Shōyōken edition; furthermore, that Toshundō and Sūkōdō printed all four volumes of *Tianjing huowen* is clear from the fact that eleven four-volume copies of books in Group D have been found, such as Kuwaki E and KyoBun B. Additionally, several copies in Group D were bound with the colophon from Irie’s commentary instead of the colophon given above (specifically, Academy D, HS C, Hazama B). All in all, it seems clear that the errors in the colophon were not simple confusion between the two works but partly due to the publishers handling (and presumably selling) *Tianjing huowen* and Irie’s commentary together as a set.

Additionally, despite the colophon’s claim that the book was “revised” (校訂) in 1794, absolutely no noteworthy changes to the text are visible. Either the revision (repair) was done so well that it left no trace, or this claim was simply sales talk. However, the Shōyōken blocks remained in relatively good condition throughout the early modern period, with only one defect in the main text, that is, the cracks on the three characters “己性同” (Preface by Kinoshita 5b, line 6), and this was not repaired in Group D; thus, the “sales talk” explanation cannot be ruled out.

According to the previously mentioned *Hangi sōmoku roku kabuchō ichi*, other astronomy texts to which Toshundō and Sūkōdō jointly owned the rights were *Tenshō retsuji zu* 天象列次図 (Diagram of the arrangement of the celestial bodies), a one-sheet print, and *Heitengi* 平天儀 (Volvelle), a one-sheet print with an accompanying volume of explanations, *Ibid*. [i.e. *Heitengi*] *zukai* 同図解 (Illustrated explanation of *Heitengi*). The former is presumably Shibukawa Harumi’s *Tenshō retsuji no zu* 天象列次之図 of 1670, and the latter Iwahashi Zenbē’s 岩橋善兵衛 *Heitengi* and *Heitengi zukai* of 1802.

### Group E: Toshundō/Bunkindō (Osaka)

Group E was as a new joint printing between Toshundō and Bunkindō after

<sup>52</sup> Ōsaka Furitsu Nakanoshima Toshokan, *Hangi sōmoku roku kabuchō ichi*, p. 133. A copy of Irie’s commentary with Yamaguchi and Izumimoto jointly listed in the colophon can be found in the Tōhoku University Library’s Hirayama Collection (call number MA396).

Sūkōdō's printing rights were transferred to Bunkindō Morimoto (Kawachiya) Tasuke 文金堂森本(河内屋)太助.<sup>53</sup> The colophon from Group D is used, with the second publisher amended to “Morimoto Tasuke, Karamono-chō, *Dō-tōri*. [i.e. Shinsaibashi-dōri]” (同通唐物町／森本太助) No copy from this group with a surviving inside cover note has yet been located.

Bunkindō owned the rights to many texts on astronomy in the Bunka period (1804–1818), as can be determined from historical materials like the aforementioned *Hangi sōmoku roku kabuchō*. Including rights owned jointly, the full list is<sup>54</sup>:

- Shibukawa Harumi, *Tenshō retsuji no zu*
- Iwahashi Zenbē, *Heitengi* and *Heitengi zukai*
- Nishimura Enri 西村遠里, *Tengaku shiyō* 天学指要 (Outline of astronomy)
- Nishikawa Joken 西川如見, *Tenmon giron* 天文義論 (Discussion of astronomy)
- *Idem*, *Kaii bendan* 怪異弁断 (Discussions of the extraordinary)
- *Idem*, *Tenmon kyōdō waka chū* 天文教導和歌注 (Commentary on Japanese poems for teaching astronomy)

Although Bunkindō prepared his own blocks in some cases, he is better known as a seller of books printed from existing blocks bought from Kyoto and Edo publishers.<sup>55</sup> Presumably, he purchased and used the blocks for the Shōyōken edition of *Tianjing huowen* and Irie's commentary following the same business strategy.

### Group F: Yonto I

At present, only one copy from this group is known (Hiraoka E). Its colophon reads “Released by publishers in three cities (*santo* 三都).” In fact, however, it lists a total of twelve publishers in four cities: Edo, Kyoto, Osaka, and Bishū (Nagoya), so it will be referred as “Yonto (‘four cities’) I.”<sup>56</sup> Note that the rights were not necessarily jointly owned by all the listed publishers; some may simply have been resellers.<sup>57</sup>

### Group G: Yonto II

This group's colophon also lists twelve publishers, but three of the publishers from Yonto I's list have been and replaced with new names. The last name in particular,

<sup>53</sup> However, in *Hangi sōmoku roku kabuchō ni* 板木総目録株帳二 (revised Bunka文化9 [1812]), the rights to *Tianjin huowen* and Irie's commentary are attributed “Jointly, to Kawa[chiya] Ta[suke]/Kawa[chiya] Hachi[bē]” (相 河太・河八). See Ōsaka Furitsu Nakanoshima Toshokan, *Hangi sōmoku roku kabuchō ni*, p. 263. It is unclear why Yamaguchi's name should not be found in a record revised in 1812, necessitating further research. It may be relevant that some of the books in Group D (Kunaichō, Hiraoka B, Academy D, HS C) include advertisements for Bunkindō Kawachiya Tasuke.

<sup>54</sup> Ōsaka Furitsu Nakanoshima Toshokan, *Hangi sōmoku roku kabuchō ichi*, p. 133; Ōsaka Furitsu Nakanoshima Toshokan, *Hangi sōmoku roku kabuchō ni*, p. 263.

<sup>55</sup> Hashiguchi, *Edo no hon'ya to honzukurī*, p. 175.

<sup>56</sup> See Appendix B for the full list of publishers.

<sup>57</sup> See Hashiguchi, *Edo no hon'ya to honzukurī*, p. 181.

Kawachiya Kihē 河内屋喜兵衛 (whose *uji* was Yanagihara 柳原 and business name was Sekigyokuen 積玉園) was the head of the Kawachiya group of publishers, which was the most powerful in Osaka at the time.

### Group H: Yonto III (Meiji era)

This is the latest printing known to exist. The colophon lists 13 publishers, one more than Group G; two have been deleted and three added. However, addresses that once used “Edo” are amended to “Tokyo,” making it certain that this was printed during the Meiji period.<sup>58</sup>

In summary, the following observations can be made. The blocks for the Japanese edition of *Tianjing huowen* were created by Shōyōken and Nishikawa Seikyū in 1730. They then began to circulate through Japan’s early modern publishing world independently, passing through the hands of many different publishers for more than a century and a half, surviving even into the Meiji period.

We should note, however, that, even within groups, there are minor differences between copies that were omitted from Table 2 for the sake of simplicity. These include differences in color, pattern, and thickness of cover paper; different *kaiseiin* 魁星印 and other publisher seals on the inside cover; and different places of insertion for prefaces (*jo* 序 and *batsu* 跋). This diversity is so great that it would be reasonable to say that no two copies of the Shōyōken edition are alike. Given that all books printed in the Edo period were hand-made, this is in a sense only natural, but it also constitutes evidence that the *Tianjing huowen* was reprinted many times over, as it is unlikely that publishers altered these elements during the course of each single print run. In all probability, it was the most frequently reprinted and widely distributed Japanese edition of any Chinese astronomical text during the Edo period. The influence of this book has often been described in terms of the volume of commentary it inspired, or the number of other works that used quotations from it, but it should not be overlooked that this activity was all supported by repeated reproduction of the text itself.

## 4. Conclusion

Which printed editions or manuscript copies should be used to produce the most complete and reliable text of the *Tianjing huowen*?

First, the two Qing printed copies surviving in Japan (the Shiga and Cabinet copies) are clearly the same edition, each able to supply what the other lacks. The Dajitang edition text reconstructed from these two books will be of unshakable importance as the sole surviving original printed text of the *Tianjing huowen*, making it foundational

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<sup>58</sup> See Appendix B for the full list of publishers.



historical material for all research on the work.

On the other hand, among the manuscripts originating in China, [01] IHNS in particular evidently transmits the text of another Qing printed edition. Collating this with the Dajitang edition as reconstructed above will be an essential task for understanding the original form of the text.

Nevertheless, the importance of manuscripts originating in Japan must not be overlooked. [05] Hiramasa in particular faithfully reproduces even the script style of the Dajitang edition, and will surely be useful in amending any deficiencies in the Shiga and Cabinet copies. Furthermore, the 15-folio printed set of diagrams (Version I) inserted into manuscripts [06]–[09] can be safely assumed to be facsimiles of the Dajitang edition's diagrams, so that these texts guarantee the greatest accuracy when it comes to amending the gaps in the diagrams.

Finally, the many surviving copies of the Japanese printed edition (Shōyōken edition) are also of value. The fact that this edition contains Zhang Changliang's preface is proof that another Qing printed edition arrived in Japan, quite aside from Irie's testimony on that matter. At the very least, collation of the Shōyōken edition with those in manuscript copies will be essential for reproducing that preface. Furthermore, recall that Irie compared the Japanese text with two types of Qing printed text and concluded that "the Japanese edition is largely the same as the two older [i.e. Qing] editions but has nevertheless variants with respect to each." Comparison to the Japanese edition will doubtless be of great utility in clarifying the differences and distance between the two Qing printed editions.

Through collation and correction using the texts and principles established above, it should be possible to reconstruct the most complete and reliable text of *Tianjing huowen* currently producible from primary materials.

The reason that so many important copies of the text survived in Japan was, of course, because it was in Japan that the text captured a particularly wide readership. The information found in the manuscripts originating in Japan reveals the strong demand among Japanese readers for this particular Chinese astronomical book around 1700, and the lively tradition of acquiring and studying it, even under the seemingly strict Prohibited Books Regulation. After the publication of the Japanese edition in 1730, the book achieved even wider popularity. The blocks for the edition continued to be used to produce printed copies, passing through the hands of many different publishers for more than a century and a half, even to the Meiji period.

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### Appendix A

**Table 3.** Details of the 67 Japanese printed copies of *Tianjing huowen* summarized in Table 2

Group	Copy #	Name	Extant volume(s)	Volume name(s)	Location	Call number
A (8 copies)	1	HS A	2	Heaven, Earth	Tōhoku University Library, Hayashi shūsho Collection	1624
	2	TML A	4	—	Tokyo Metropolitan Library	特7325
	3	Akioka A	4	—	Kōbe City Museum, Akioka Collection	天文曆学37
	4	Shanghai	2	Preface/ Illustrations (Pref/Illus, hereafter), Earth	Shanghai Library	線普長024944
	5	OSM	4	—	Osaka Science Museum	2011-29
	6	Nagasaki A	3	Pref/Illus, Heaven, Earth	Nagasaki Museum of History and Culture	15_94_1
	7	KyoLib A	3	Pref/Illus, Heaven, Earth	Kyoto University Library	10-01_イ3_16
	8	Academy A	2	Heaven, Earth	Japan Academy	8544
B (13 copies)	1	Otonashi	3	Pref/Illus, Heaven, Earth	Kyūshū University Library, Otonashi Collection	802-テ-6
	2	Academy B	2	Pref/Illus, Heaven	Japan Academy	6380
	3	NAOJ A	4	—	National Astronomical Observatory of Japan Library	348・307
	4	Kuwaki A	4	—	Kyūshū University Library, Kuwaki Collection	10・24
	5	Mine A	4	—	Nagasaki Museum of History and Culture, Mine Collection	440-4
	6	Nagasaki B	3	Pref/Illus, Heaven, Earth	Nagasaki Museum of History and Culture	15_94_2
	7	NAOJ F	4	—	National Astronomical Observatory of Japan Library	広瀬29
	8	Sekisui A	3	Pref/Illus, Heaven, Earth	Kyūshū University Library, Sekisui Collection	テ9
	9	NLC	4	—	National Library of China, Ancient Books Collection	科200-823
	10	TML B	3	Pref/Illus, Heaven, Earth	Tokyo Metropolitan Library	和230

Table 3. Continued.

Group	Copy #	Name	Extant volume(s)	Volume name(s)	Location	Call number
	11	Hazama A	3	Pref/Illus, Heaven, Earth	Osaka Museum of History, Hazama Collection	101-31
	12	Academy C	4	—	Japan Academy	6878 · 6837
	13	Haga	3	Pref/Illus, Heaven, Earth	Tōhoku University Library, Haga Collection	MB25_015
C (20 copies)	1	Ryūkoku A	4	—	Ryūkoku University Library, Ōmiya Branch	640-3-w
	2	Ryūkoku B	3	Pref/Illus, Heaven, Earth	Ryūkoku University Library, Ōmiya Branch	640-6-w
	3	HS B	3	Pref/Illus, Heaven, Earth	Tōhoku University Library, Hayashi shūsho Collection	760
	4	Kuwaki B	3	Pref/Illus, Heaven, Earth	Kyūshū University Library, Kuwaki Collection	11
	5	NDL A	3	Pref/Illus, Heaven, Earth	National Diet Library (Japan)	859-63
	6	Hayashi A	1	Tairyaku (Pref/Illus, Heaven, Earth omitted because in different group)	Tōhoku University Library, Hayashi Collection	691
	7	Kuwaki D	1	Tairyaku	Kyūshū University Library, Kuwaki Collection	22
	8	Nagasaki C	4	—	Nagasaki Museum of History and Culture, Fukuda Collection	15-11
	9	Hiraoka H	1	Tairyaku	Author's collection	—
	10	Kano A	4	—	Tōhoku University Library, Kano Collection	8_31830
	11	Hayashi B	4	—	Tōhoku University Library, Hayashi Collection	692
	12	Kano B	4	—	Tōhoku University Library, Kano Collection	8_21380
	13	NAOJ B	4	—	National Astronomical Observatory of Japan Library	349 · 308
	14	Kuwaki C	3	Pref/Illus, Heaven, Earth	Kyūshū University Library, Kuwaki Collection	12
	15	Ryūkoku C	3	Pref/Illus, Heaven, Earth	Ryūkoku University Library, Ōmiya Branch	640-15-2
	16	Hiraoka C	3	Pref/Illus, Heaven, Earth	Author's collection	—
	17	KyoBun A	3	Pref/Illus, Heaven, Earth	Kyoto University, Library of Graduate School of Letters	K6-22
	18	Seoul	3	Pref/Illus, Heaven, Earth	National Library of Korea	古7-20-40
	19	Hirayama	2	Heaven, Earth	Tōhoku University Library, Hirayama Collection	MA401
	20	NDL B	1	Tairyaku	National Diet Library (Japan)	118-69
D (21 copies)	1	Kuwaki E	4	—	Kyūshū University Library, Kuwaki Collection	9 · 25
	2	KyoBun B	4	—	Kyoto University, Library of Graduate School of Letters	K6-2, 3, 4

**Table 3. Continued.**

Group	Copy #	Name	Extant volume(s)	Volume name(s)	Location	Call number
	3	Mine B	3	Pref/Illus, Heaven, Earth	Nagasaki Museum of History and Culture, Mine Collection	440-8
	4	Hiraoka G	4	—	Author's collection	—
	5	Miyajima	3	Pref/Illus, Heaven, Earth	Private collection	—
	6	Muroga	3	Pref/Illus, Heaven, Earth	Kyoto University Library, Muroga Collection	MB_21_和5
	7	Shinjō A	1	Tairyaku	National Diet Library (Japan), Shinjō Collection	特2-91
	8	Ryūkoku D	4	—	Ryūkoku University Library, Ōmiya Branch	640-2-w
	9	Watanabe	4	—	National Diet Library (Japan), Watanabe Collection	VF7-N55
	10	NAOJ D	3	Pref/Illus, Heaven, Earth	National Astronomical Observatory of Japan Library	351
	11	Kunaichō	4	—	Kunaichō (Imperial Household Agency), Shoryōbu	205-121
	12	Kazu	3	Pref/Illus, Heaven, Earth	Private collection	—
	13	Nagasaki D	4	—	Nagasaki Museum of History and Culture	15_695
	14	Nakanoshima	4	—	Osaka Prefectural Nakanoshima Library	641-30
	15	Hiraoka I	1	Tairyaku	Author's collection	—
	16	Hiraoka B	4	—	Author's collection	—
	17	NAOJ C	4	—	National Astronomical Observatory of Japan Library	350 · 309
	18	Academy D	4	—	Japan Academy	6879 · 6838
	19	HS C	3	Pref/Illus, Heaven, Earth	Tōhoku University Library, Hayashi shūsho Collection	579
	20	Hazama B	1	Tairyaku	Osaka Museum of History, Hazama Collection	101-33
	21	NAOJ E	1	Tairyaku	National Astronomical Observatory of Japan Library	310
E (2 copies)	1	Hiraoka A	3	Pref/Illus, Heaven, Earth	Author's collection	—
	2	Kuwaki F	1	Tairyaku	Kyūshū University Library, Kuwaki Collection	23
F (1 copy)	1	Hiraoka E	1	Tairyaku	Author's collection	—
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## Appendix B

Publishers listed in Group F: Yonto I colophon:

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- [Suharaya] Ihachi, Asakusa Kayachō 2-chōme, [Edo] 同浅草茅町二丁目 同伊八
- Yamashiroya Sahē, Nihonbashi-dōri 2-chōme, [Edo] 同日本橋通二丁目 山城屋佐兵衛
- Nishinomiya Yahē, Nakabashi Hirokōji, [Edo] 同中橋廣小路 西宮弥兵衛
- Okadaya Kashichi, Shiba Shinmei-mae, [Edo] 同芝神明前 岡田屋嘉七
- Okamura Shōsuke, Shimogaya Ikenohata Nakachō, [Edo] 同下谷池之端仲町 岡村庄助
- Eirakuya Tōshirō, Honmachi-dōri, Nagoya, Owari province 尾州名古屋本町通 永樂屋東四郎
- Hanabusaya Daisuke, Hongokuchō Jikkendana, [Nagoya, Owari province] 同本石町十軒店英屋大助
- Yoshinoya Nihē, Sanjō-dōri Gokōmachi kado, Kyoto 京都三條通御幸町角 吉野屋仁兵衛
- Hishiya Tōbē, Honmachi-dōri, Nagoya, Owari province 尾州名古屋本町通 菱屋藤兵衛
- Kawachiya Tasuke, south of Shinsaibashi-dōri/Karamonochō [intersection] 大阪心齋橋通唐物町南へ入 河内屋太助
- Kawachiya Nisuke, [same address] 同 同所 河内屋仁助

Publishers listed in Group H: Yonto III colophon:

- Yoshinoya Nihē, Sanjō-dōri Gokōmachi, Kyoto 京都三条通御幸町 吉野家仁兵衛
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- Suharaya Shinbē, [same address] 同 同所 須原屋新兵衛
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- Okamura Shōsuke, Shimogaya Ikenohata Nakachō, [Edo] 同 下谷池之端仲町 岡村庄助

- Eirakuya Tōshirō, Honmachi-dōri, Nagoya, Owari province 尾州名古屋本町通  
永樂屋東四郎
- Yorozuya Tōhē, [same address] 同 同所 万屋東平
- Hishiya Tōbē, [same address] 同 同所 菱屋藤兵衛
- Hishiya Heibē, [same address] 同 同所 菱屋平兵衛
- Kawachiya Kihē, Shinsaibashi-dōri Kitakyūtarōmachi, Osaka 大阪心齋橋通北久  
太郎町河内屋喜兵衛

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