

THREE STAR MAPS PRODUCED IN KOREA DURING THE 18TH CENTURY

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1. Introduction

In this paper a survey of three star maps produced in Korea in the mid-18th century as the results of interaction with the Jesuits in Beijing is briefly outlined. The first of these is the *Honchŏn Jŏndo* (abbreviated to *HJ*), a wood-cut print. The other two are large screen star maps, each consisting of 8 panels of a folding screen, called *Screen Star Map Type 1* (abbreviated to *SSM1*) and *Screen Star Map Type 2* (abbreviated to *SSM2*). On each of these three star maps there are detailed explanatory texts, which provide information on the transmission of western astronomy to Korea by the Royal astronomers.

2. HONCHŎN JŎNDO (HJ)

This is a star map printed in black and white with the name *Honchŏn Jŏndo (HJ)* clearly printed on an upper side of the frame, which is 86 cm high and 59 cm wide. The central part of the print is a circular star map of 57.6 cm in diameter. The circle is divided into 12 equal regions with 12 straight lines drawn from the north celestial pole, which is the center of the circular map. The angular separation between adjacent lines is thus 30 degrees. The stars on this map were plotted in the equatorial coordinates and have different symbols regarding their brightnesses. The symbols for stars are as follows: double circles for the 1st magnitude stars, circles with a point at the center (⊙) for the 2nd magnitude stars, larger open circles (○) for the 3rd magnitude stars, smaller open circles (◦) for the 4th magnitude stars, and the asterisks (*) probably for the 5th magnitude stars, globular clusters and nebulae. The number of stars plotted on the *HJ* is 2,034 with 3 additional symbols.

As shown in Figure 1, the telescopic views of the Sun, the Moon, and the five planets and information on their sizes and distances are inscribed on the top side of the print, while two models of the solar system and a diagram explaining the solar and lunar eclipses are on the bottom of the print. There is no clear information to identify this star map, *HJ*, in the Korean history regarding when the map was made and how many prints were produced. However, this map was probably made around the 1750's, slightly ahead of the *SSM1*.

3. SCREEN STAR MAP TYPE 1 (SSM1)

This is the first type of the star maps on an 8-panels folding screen. It contains two different star maps. One on the first three panels, Nos. 1-3, is a copy of the celestial planisphere engraved on a stone slab in 1395, and the other, on the panels Nos. 4-7, shows the *General Map of the Stars in Northern and Southern Hemispheres in Ecliptic Coordinates*. The last panel, No. 8, contains the diagrams of the Sun, the Moon and the five planets. The size of each panel is about 165 cm high and 56 cm wide, which makes the total width of 4.48 m for this *SSM1*. There are two inscriptions on the panels Nos. 4-7. The one in the top part is a copy of the statement made by Ignatius Kögler and Fernando Bonaventura Moggi in 1723, and the one in the bottom part represents the revisional work on the number of stars, which is given also in Jungbo Munhon Bigo (1959).

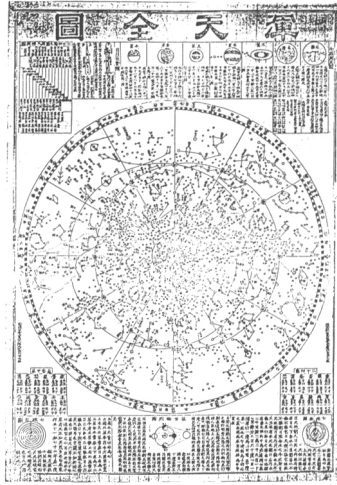


Figure 1. A wood-cut print of the *Honchŏn Jŏndo* by the Korean Royal Observatory in 18c.

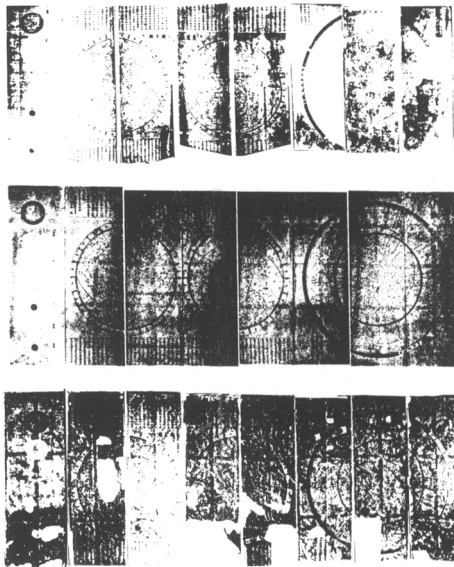


Figure 2. Three copies of the *Screen Star Map Type 1 (SSM1)*. The Nanbang Bunkakang in Osaka, Japan (top), the Whipple Museum in Cambridge, UK (middle) and the National Folk Museum in Seoul, Korea (bottom).

Three copies of this map are known to exist, one each in England, Japan and Korea. The comprehensive investigations of the copy in England have been made by Needham and Lu (1966) and Needham *et al.* (1986), and the copy in Korea by Nha and Lee (1995). These three copies of *SSM1* were assembled in one photograph, with the use of computer scanning techniques, as shown in Figure 2. Needham *et al.* (1986) considered that the map was a product of the Jesuit-Korean contacts, and thus estimated the approximate date of the map to be as early as 1755. However, an additional panel was discovered recently on a photograph by Miyajima (1997). A statement on this panel says that this *SSM1* was made in the ninth month of the 44th year of King Yŏngjo, that is October 1768.

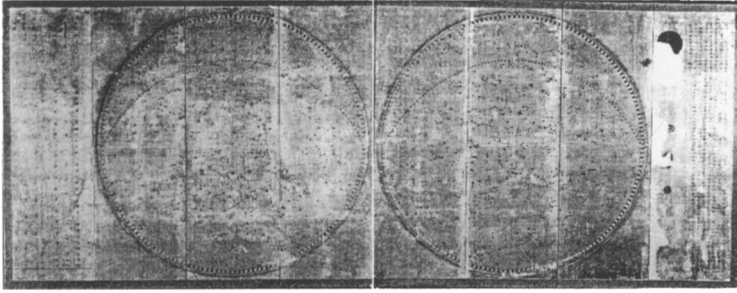


Figure 3. One of recent photo-prints of the *Sinbŏb Chŏnum-do*, Screen Star Map Type 2 (*SSM2*).

4. SCREEN STAR MAP TYPE 2 (SSM2)

This is the second type of a folding screen star map, which, excluding the drawing of the celestial planisphere in 1395, seems to be a reformed from the *SSM1*. The more widely used name of *SSM2* is *Sinbŏb Chŏnum-do*, which has been listed as a national treasure No. 848. The size of each panel is 183.5 cm high and 57 cm wide, with the total width of 4.51 m for the screen stretch. Panel No. 1 contains the inscription of the related astronomical knowledge on the right side and the diagrams of the Sun, the Moon and the five planets on the left side. Panels Nos. 2-4 contain a map of stars in the northern hemisphere in ecliptic coordinates and panels Nos. 5-7 contain a map of stars in the southern hemisphere in ecliptic coordinates. The last panel No. 8 contains the names of officials who have engaged in the map making.

SSM2 was recovered by accident in a storage room of Bŏbju-sa Temple in 1961 by Professor Lee Yongbŏm, who later reported a detail study of this map (Lee 1966). It is a remarkable coincidence that two Korean screen star maps, *SSM1* and *SSM2*, which were made by the same institute in about the same time two centuries ago, became known to the world in the same year 1966 as reported from two different places.

5. REFERENCES

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