

Ganpyungui's Use as an Astronomical Calculator in late Joseon Dynasty

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Late Joseon Dynasty imported a lot of astronomical instruments from China, which are star maps, sundials, clocks, and astrolabe. Mainly they were made by European Catholic Missionaries. Korean scholars in later Joseon Dynasty tried to contact with them in Beijing to obtain new knowledge on science, especially Western astronomy. Some of them got astronomical and mathematical books that are translated from European. And they made some astronomical instrument by themselves and used to calculate astronomical phenomena or to observe celestial bodies.

One of the instruments is Ganpyungui that was used for astronomical calculations. It was designed by special projection method of geometrical calculations. It can be simply calculate the Sun's rising and setting time, duration of daytime, and twilight time in each 24 seasons at every latitude. One of instruments is kept in the National Folk Museum in Seoul which was made by Korean astronomer in 1718.

We examined accuracy of the instrument comparing tables for the Sun's rising and setting time which is published in the 18th century in Korea. Its accuracy shows within few minutes. We find interesting results that the instrument can be used even in present days.