

# The Influence of Western Astronomy on *Kokugaku-sya*'s Theologies about the Creation of the World

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## Introduction

This paper examines how the *Kokugaku-sya* (国学者) incorporated Western-derived astronomy of the world into their interpretation of mythology and created their own mythology of the creation of the world. *Kokugaku-sya* were people who, from the 18th to 19th centuries, questioned the nature of Japan by studying its ancient myths and classics. Their study is called *Kokugaku* (国学). For this reason, they are generally considered to be conservative and exclusionist. However, there was an aspect in which the *Kokugaku-sya* attempted to assert the correctness of their own interpretation of mythology by actively utilizing knowledge of Western origin. In this respect, compared to Buddhists and Neo-Confucians the time, *Kokugaku-sya* were more active in absorbing knowledge of foreign origin. However, the relationship between *Kokugaku* and Western astronomy has not been fully clarified.

Nobuhiro Satō (佐藤信淵 1769–1850), who is examined in this paper, was the most active in the strange fusion of Western astronomy and ancient mythology. He created the story of the beginning of the world by combining mythology and Western astronomy. This paper reveals the historical background and logic behind the combination of ancient Japanese mythology and Western astronomy to create a new mythology.

## 1. The Reception of Western Astronomy in 18th and 19th Century Japan

In this section, we examine the extent to which Western astronomy was understood in 18th and 19th century Japan. We also survey the Buddhist view of the universe, which was the belief of the majority of people at the time, and the view of the universe revealed by Western astronomy were opposites.

In Japan at that time, the first people to accept Western astronomy was the *Oranda-tsūji* (阿蘭陀通詞), or official translators in Nagasaki who were involved in trade with the Netherlands (see Katagiri 2021). Western astronomy was then accepted by *Rangaku-sya* (蘭学者) who studied Western sciences using the Dutch language and official calendar makers called *Tenmon-gata* (天文方), who used translations of *Oranda-tsūji* as a reference (see Kazu 2016). In addition, world maps were in use by the beginning of the 17th century, and the spherical Earth theory was accepted by intellectuals at an early stage.

The following is an overview of the reception of Western astronomy in 18th and 19th century Japan, referring to *Nihon no tenmongaku* by Shigeru Nakayama, a historian of science. Yoshinaga Motoki (本木良永 1735–94), a *Oranda-tsūji*, copied the diagram of the sun at the center of the universe from the work of the Dutchman Willem Blaeu (1570–1630). In his work, *Taiyo kyūri ryokai setsu* (1792–93), he introduced the heliocentric theory, and was a pioneer in the acceptance of the heliocentric theory in Japan (Nakayama 1972, p.93). Tadao Shizuki (志筑忠雄 1760–1806), a

younger colleague of Yoshinaga, was also an active adopter of Newton's ideas. He understood the theory of universal gravitation. However, their main occupation was trading with the Dutch, and their ideas were not shared by many people. In particular, Tadao's understanding of Newton was difficult to understand, and no one directly inherited his ideas (Nakayama 1972, pp. 109-116) .

However, in the 19th century, the knowledge of astronomy that they translated from Dutch books was accepted by more people in the form of publications. Kōkan Shiba (司馬江漢 1738-1818) illustrated to people that the Earth is sphere. Since he could not read Dutch, he published his works based on translations by Yoshinaga and others (Nakayama 1972, p.94) . This was the time when the Western astronomy theory was accepted by intellectuals.

However, the general public lived within the Buddhist worldview. Polovnikova who studied the reading of the common people, pointed out that "the Buddhist worldview was the basic worldview among the common people" (2014, p. 182) . It was only after the modern era that the worldview revealed by Western astronomy, especially the heliocentric theory, spread to the common people.

The Buddhist view of the universe was that a mountain called Syumisen (須弥山) existed in the center of the immovable earth, and that celestial bodies such as the moon and the sun circled around it. As in the case of Christianity, cosmology did not become a subject of great controversy in Buddhism, but there were several monks who argued against the Western view of the universe. Monnō (文雄 1700-1763) wrote a book called *Kusen hakkai gechōron* (1754) , which defended the Buddhist view of the universe and criticized the Western view (Nakayama 1972, pp. 140-44) .

In this section, I have reviewed the reception of Western astronomy in 18th and 19th century Japan. A certain degree of Western cosmology was beginning to spread among intellectuals. In this context, *Kokugaku-sya* actively tried to incorporate the knowledge of Western astronomy into their own thoughts.

## 2. Motoori Norinaga and Western knowledge

In this section, we discuss how the most famous *Kokugaku-sya*, Norinaga Motoori (本居宣長 1730-1801) , rejected the worldview of Buddhists from the perspective of the West.

Originally, *Kokugaku-sya* studied Japanese classics and mythology, so one would think that they would reject knowledge of Western origin, but this was not the case.

First of all, *Kokugaku* was an academic discipline that began around the 18th century to study the classics and mythology of Japan. One of its characteristics was that it pursued the image of ancient Japan while excluding the ideas of Buddhism and Neo-Confucianism. For them, ancient Japan was the ideal. Therefore, they tried to revive the pure ancient Shintoism by interpreting the ancient myths such as the *Kojiki*. Additionally, people who studied *Kokugaku* are called *Kokugaku-sha*.

However, the *Kojiki*, an ancient myth doesn't describe the beginning of the universe.

The names of the Deities that were born in the Plain of High Heaven when Heaven and Earth began were the Deity Master-of-the-August-Centre-of-Heaven, next the Divine-Producing-August-Producing-Wondrous Deity, next the Divine-Producing-Wondrous-Deity.

(Chamberlain 1981, p.17)

The *kojiki* begins with a scene in which the universe already exists and deities arise one after another. The *Kojiki* does not tell us about the beginning of the universe. Shigeru Nakayama had the following to say about this point. “There was no cosmological tradition in the Japanese classics that was worth protecting, so there was no need to attempt a painful apologia.” (1972, pp. 168–9) . This was an advantage for *Kokugaku-sya*. Because the *Kojiki* does not describe a definite cosmology, it did not conflict with Western astronomical knowledge as Buddhism did.

Norinaga, attempted to reject the Buddhist view of the universe based on knowledge from the West. He spent his life interpreting the *Kojiki* and wrote a commentary on the *Kojiki*, *Kojiki-den*. He had to prove that the *Kojiki* was authentic and that the Buddhist view of the universe was wrong.

In his denial of the Buddhist view of the universe, he brought up the measure of the West. He said “In recent years, it has become known in China and Japan that Westerners have sailed around the world and know its geography. And with the revelation of what they taught, it became clear that the idea of *Syumisen* was a delusion.” In addition, he recognized that the earth is sphere. He said “When Westerners come to China or Japan, they come from the west or east. This is evidence that the earth is a sphere, floating in the sky.” (*Samon Monnō ga kusen hakkai gechōron no ben*, in *Norinaga zenshū*, v.14 p.163) . However, Norinaga did not directly connect the descriptions in the *Kojiki* with the knowledge of Western astronomy. There were two reasons for this. First, in his time there were not enough environments for learning Western astronomy in Japanese. Second, he respected the *Kojiki* and interpreted it carefully.

In the period after Norinaga, *Kokugaku-sya* actively obtained knowledge of Western astronomy. In particular, one person who combined Western astronomy with mythology was Nobuhiro Satō.

### **3. The Thought of Satō Nobuhiro and Western astronomy**

Satō Nobuhiro was born about 40 years after Norinaga Motoori. As a result, he was able to learn more about Western astronomy than Norinaga. He also studied the various disciplines of 19th century Japan, such as Dutch studies, Neo-Confucianism, and *Kokugaku*. He was also a dreamer by nature. He had eccentric ideas, such as conquering the world and reclaiming Tokyo Bay as farmland. He was also famous for faking his own career. Senzō Mori, who critically studied Nobuhiro’s own biography, described him as follows. “There are many exaggerations and lies in what Nobuhiro says. We must understand that his discourse is full of contradictions everywhere.” (1942, p.271) It has also been shown that much of the Western astronomical knowledge Nobuhiro presented in his writings was plagiarized from the works of others (Hani 1929, pp. 106–111) .

At the same time, however, there is a small appreciation of Nobuhiro’s originality. Haruhiko Ueda, an astronomer, evaluated Nobuhiro as follows. “There are few Japanese astronomical texts that seriously address the causes of celestial motion. Given this, the originality of Nobuhiro Sato deserves more recognition, even if it was based on a myth.” (2013, p.26) . By his extensive academic knowledge and imagination, He interpreted Japanese myths. Unlike Norinaga, he combined his knowledge of astronomy with mythological depictions to make the creation myth. In this section, we refrain from discussing his plagiarism and self-aggrandizement. We consider how he conceived the beginning of the universe from myth.

As previously stated, the *Kojiki* does not describe the beginning of the universe. However, the

*Kojiki* describes the beginning of the earth.

Hereupon all the Heavenly Deities commanded the two Deities His Augustness the Male-Who-Invites and Her Augustness the Female-Who-Invites, ordering them to “make, consolidate, and give birth to this drifting land.” Granting to them a heavenly jeweled spear, they deigned to charge them.

(Chamberlain 1981, p.21)

Two deities are creating the earth by stirring this spear. Then there is a description of these deities building a pillar on the new earth in the *Kojiki*. Nobuhiro paid attention to this description and identified the stirring with the rotation of the earth and the building of the pillar with the earth’s axis. In this seemingly absurd way, Nobuhiro tried to combine mythology and Western astronomy.

Nobuhiro saw the spear and the pillar in the *Kojiki* as the key to understanding the origins of the universe. He accepted the correctness of the laws and principles revealed by Western astronomy. He said “Westerners have recently studied astronomy and calendars, and have shown that the sun is at the center of the universe, and that the earth and other stars revolve around it. And Westerners said that they had mastered astronomy.” (1977, p.372) However, what was necessary for Nobuhiro was to understand why the universe is made up of such laws. Therefore, he said, “It is a myth only in our country that the earth was stirred up with this contraption, and that it was thrust into the center of the turning earth to make it the axis of the earth’s rotation ; the whole world knows nothing of this.” (1977, p.395) The reason for the earth’s rotation was derived from a forceful interpretation of the *Kojiki*. Nobuhiro was trying to find the acts of the deities as the cause behind the laws revealed by Western astronomy. In other words, his interest was in revealing the beginning of the universe. However, the *Kojiki* does not describe the creation of the universe. Therefore, Nobuhiro extended his theory of combining the creation of the earth in the *Kojiki* with Western astronomy to the creation of the universe. He said “The fact that the imperial ancestor deity also once thrust a heavenly jeweled spear into the sun to become a pillar of heaven is beyond doubt. [...] I will formulate a new theory and thereby make up for the lost ancient myth.” (1977, p.379) In this way, Nobuhiro could explain the creation of the universe from mythology. By interpreting the *Kojiki*, Nobuhiro found the birth of the earth and the reason for its rotation in the acts of deities. He expanded it to argue that the sun, the center of the universe, was created by deities in the same way, and thus the world began.

Nobuhiro went far beyond the mythological text and tried to get to the creation of the universe. Originally, the *Kojiki* is not a myth about the origins of the universe. Also, in Japanese tradition, understanding the nature of the universe was not considered very important. However, when Western astronomy, a discipline that reveals the reality of the earth and celestial bodies, came into contact with Kokugaku, a discipline that interprets myths, a new way of thinking arose, one that would get to the root of the universe, as Nobuhiro did.

## **Conclusion**

In 19th century Japan, there was a wide variety of learning. People responded to the knowledge brought from the West by denying it or combining it with their own studies. The background of

creative interpretations of mythology by Nobuhiro was the diverse knowledge of 19th century Japan. Nobuhiro's ideas may seem absurd when viewed from a modern scientific perspective. Although it is important to view them as intercultural activities that arose from contact with the West, the new other in 19th century Japan. Inspired by Western astronomy, Nobuhiro pursued the creation of the world through mythological interpretation.

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