



The Influx of Western Science and Choe Han-gi's Political Philosophy: *From Virtue to Knowledge*

Kyungsoo KIM

Abstract

This paper argues that Choe Han-gi's political philosophy should be defined as jichi (rule by knowledge). Deokchi (rule by virtue) is a common political principle present from primitive Confucianism all the way up to Neo-Confucianism, and which places the essence of politics in the ruler's moral virtue. On the other hand, jichi is distinguished from deokchi in that it is a political principle centered on knowledge. Choe's advocacy of jichi while inheriting Confucianism is related to the acceptance of Western science. Deokchi in Confucianism is justified within the relationship between the Mandate of Heaven and the human mind, and Choe Han-gi is no exception. However, the acceptance of Western science differentiates the concepts of the Mandate of Heaven and the human mind, and jichi is justified. In jichi, policy decisions are made based on the relevant knowledge, and the acquisition of knowledge occurs through cognition. These characteristics are prominent in practicing politics for the people. Politics for the people is not based merely on the morality of the ruler. When politics is based on the knowledge gained by cognizing the opinions of the people, politics for the people is realized.

Keywords: political philosophy, *jichi*, *deokchi*, cognition, gi monism, people's opinion

Introduction

The purpose of this study is to elucidate how the political philosophy of Hyegang Choe Hangi (1803–1877), while inheriting Confucianism, can be defined as *jichi* 知治 (rule by knowledge), rather than *deokchi* 德治 (rule by virtue). The political principles of Confucianism can be summarized as moralism, which is referred to by the concept of *deokchi*. *Deokchi* places the essence of politics in the ruler's moral mind and understands an ideal society becomes possible when the ruler's moral mind functions as the principle of governance. Thus, *deokchi* can be explained as a political principle centered on moral virtue, and in this context, the concept of *jichi* in this article refers to a political principle centered on knowledge.

There is a clear difference between the thinking of Hyegang and Confucian political theory, in that Hyegang defines the essence of politics as knowledge, not moral virtue. In Choe's philosophy this ambivalence of both inheriting and diverging from Confucianism is fundamentally related to the integration of Eastern and Western studies.¹

Hyegang encountered Western science through Chinese translations of Western books and had a deeper interest in and enthusiasm for this new knowledge than any other scholar of the late Joseon period. Western scholarly works translated into Chinese through the collaboration of Jesuit missionaries and Chinese scholars began to be imported into Joseon from the early 17th century. As a result, by the late 18th century in Joseon, over 400 different titles had been imported, with one-fourth of them pertaining to scientific and technological fields, such as astronomy, calendar-making, geometry, geography, anatomy, and mechanics (Choi 1981). Hyegang was passionate enough regarding this new knowledge to spare no expense in purchasing Chinese translations of Western books published in Beijing.

Hyegang's attitude toward Western science can also be confirmed

1. Many studies have been conducted on the integration of Eastern and Western philosophies in the context of Hyegang's philosophical thought. Particularly in the areas of astronomy, geography, and medicine, progress has been made to the extent that comparisons have been made with Hyegang's works and the Chinese translated texts he references in them. Representative studies include H. Lee (2000); No (2005); and M. Kim (2009).

through his encyclopedic writings. The complete works of Hyegang are classified as encyclopedic because they range across various subjects, to include astronomy, geography, medicine, mathematics, and agriculture. Excluding his philosophical writings, all of these introduce the contents of Chinese translations of Western books and provide commentary. Through these, we can confirm his interest in Western studies.

This attitude of Choe went beyond simply advocating the acceptance of Western science to integrating Eastern and Western studies. Seeking to embrace Western science within the framework of Eastern *gi* monism (*gi irwonnon*), Hyegang attempts to integrate this monism with Western science from the concept of *gi* 氣 to establish an original philosophy.² Hyegang devoted efforts to this East-West integration, incorporating even the achievements of Western science in the 1850s into his concept of *gi*, and the resulting philosophical features are encapsulated in his political philosophy.³

Hyegang's breakthrough in developing a new philosophy through Western science was related to his efforts at overcoming the dominant ideology of Neo-Confucianism in Joseon at the time. He sought to derive a new political principle by basing his philosophy on the ever-changing

-
2. The evaluation of the characteristic of East-West integration in Hyegang's philosophy can be broadly divided into two categories. One criticizes Hyegang as a failed intellectual due to his errors in understanding and adopting Western science. On this, see Jun (2007a). The other posits that we should evaluate Hyegang's acceptance of Western science in the Korean context, and in doing so, we can understand him as a progressive thinker. On this, see Kim Seon-hee (2014). I agree with the latter view and will proceed with this discussion based on that standpoint. However, this article will not go into detail of the method and form of East-West integration, focusing instead on identifying the nature of the political philosophy that emerged as a result of that integration.
 3. Hyegang was among the very first in Korea to pay serious attention to the more up-to-date 19th century publications of Protestant missionaries in China. Lee Hyeong-Gu (2005, 342–343) evaluates Hyegang as the Joseon scholar the most receptive and understanding of Western scientific achievements, and the most current with Western science. In relation to this, Jun Yong-hun (2016) analyzes Hyegang's reinterpretation and acceptance of Newton's celestial mechanics in his late work, *Seonggi unhwa* 星氣運化 (Movement and Change of *Gi* in the Stars). Additionally, Jun highlights Hyegang's encounter with Newton's academic works in his Chinese translation of John Herschel's (1792–1891) *Outline of Astronomy*, titled in Korean *Damcheon* 談天 (Talk about Haven).

tangible phenomenal world beyond Neo-Confucianism, which justified the moral goodness of *i* 理 (*li* in Chinese) through the intangibility and immutability of Heaven.⁴ As an intellectual who pondered ways to overcome the severe turmoil of 19th-century Joseon, Hyegang's political philosophy, completed in his later years, encapsulates all his thinking. Therefore, the fundamental point at which he inherits Confucianism but possesses the characteristics of a political philosophy as *jichi* rather than *deokchi* lies precisely in its association with the integration of East and West.

The field that has received the most attention in the academic community as a characteristic of Hyegang's philosophy as a result of the integration of East and West is epistemology. Since Park Chong-hong (1965, 35) first characterized Hyegang's epistemology as empiricism, there has been an outpouring of related research, and as a result, epistemology accounts for the largest proportion of research on Hyegang's thought.⁵ This article is also related to this stream of research. However, it differs in that it examines not epistemology itself, but Hyegang's political philosophy's interrelationship with epistemology for the purpose of identifying the characteristics of his political philosophy.

Previous studies of Hyegang's political philosophy have focused on evaluating its implications for modern democracy.⁶ This tendency is related to the nationalistic search for the ideological origins of Korean democracy in pre-modern scholars. However, such an intent has resulted in neglecting the analysis of the content of Hyegang's political philosophy and instead focusing solely on its modern significance. In this regard, the contribution of this article is its analysis of the content of Choe Han-gi's political philosophy,

4. “還天下本無之無形，舉天下本有之有形，措天下差誤之教文，明天下氣化之學問。天人之道得正，政治之術得安” (Choe 2002, 5:12b).

5. Recent studies on Hyegang's epistemology include papers analyzing the Western studies that influenced the establishment of epistemology and comparing their distinctive features through an analysis of British empiricism (Sook-kyung Kim 2018; Ahn 2007; J. Lee 2013).

6. There are a total of thirteen studies evaluating the democratic implications of Hyegang's political philosophy, which can be broadly classified into two categories. One asserts a direct relevance to democracy, evaluating clear expressions of civil rights and popular sovereignty within Hyegang's philosophy. The other categorizes characteristics indirectly related to democracy.

marking the *first study* to define that philosophy's political principle as *jichi*.

To argue this point, I will analyze the integration of Eastern and Western studies that constitutes the structure of Hyegang's political philosophy. Through this analysis, I will also examine the characteristics of *jichi* derived from it, and explore its distinctiveness from *deokchi*. Despite being categorized as a Confucian scholar, Hyegang's advocacy for *jichi* sheds light on a new aspect of 19th-century Joseon Confucian scholars influenced by Western studies. Additionally, it can contribute to our understanding of the flexibility and diversity within Confucianism.

Linking Heaven and Human with Knowledge

Hyegang's political philosophy fundamentally inherits the *deokchi* of Confucianism. Not only does Hyegang assert that the standard for politics is Confucianism, but he also claims to follow in the footsteps of Confucius.⁷ Additionally, he emphasizes edification of the ruler as emphasized in Confucianism, highlighting *politics for the people* as the purpose of politics, aligning with the *deokchi* doctrine of politics for the people.⁸ However, Choe's political philosophy cannot be simply defined as *deokchi* because the concept of Heaven justifying political principles and the concept of the human mind as the subject of practice are differentiated in Choe's thought.

Confucius' virtues are systematized in the relationship between Heaven and the human mind. Zhu Gong 周公 asserts that the Mandate of Heaven resides in protecting the people, and the realization of Heaven's Mandate is based on the ruler's virtue, thus establishing the ideological foundation of *deokchi*. Confucius then outlines the virtues of a ruler to fulfill the Mandate of Heaven through his moral thought centered on benevolence.⁹

7. “儒術，乃統民運化之道也...至於百官萬姓，同寅協恭，制化政教，因治而慮亂，因亂而圖治，不可無儒術... 況自堯舜周孔以來，統民制治，皆尊此術乎” (Choe 2002, 3:227a).

8. “若使君師之道大明，政教之術相將，以教爲政，以政行教” (Choe 2002, 5:43a); “用人之道，捲藏之爲政教學問，敷施之爲治民安民” (Choe 2002, 3:455b).

9. Zhu Gong, also known as the Duke of Zhou, who lived around 3,000 years ago, was a significant figure in Chinese history, particularly during the early Zhou dynasty.

Subsequently, in Mencius *deokchi* is systematized as a political principle of Confucianism.

Mencius argues through the doctrine of innate goodness that human innate moral nature is based on the Mandate of Heaven. Thus, virtue based on the moral nature of the human mind becomes a just political principle to realize politics for the people by observing the Mandate of Heaven. Mencius' political philosophy is also inherited by Neo-Confucianism. However, in Neo-Confucianism, Heaven and the moral nature of human mind is defined as the same entity, called *i*, thus solidifying the connection between Heaven and human mind. As a result, *deokchi* is inherited in a more elaborate way, becoming a common political principle from primitive Confucianism to Neo-Confucianism.

Hyegang also derives the legitimacy of political principles within the relationship between Heaven and human mind. However, in his philosophy, which embraces the achievements of Western science, the concepts of Heaven and human mind are differentiated, leading to distinctiveness in political principles. The political principle that implements the Mandate of Heaven is transformed from virtue to knowledge.

Hyegang, who developed his philosophy within the framework of the monism of *gi* (which explains the creation and change of all things through *gi*), defines *gi* as Heaven.¹⁰ However, due to the influence of Western science, Hyegang's concept of *gi* is differentiated from the traditional concept of *gi*,

Grounding the legitimacy of governance in the Mandate of Heaven and the virtue of the ruler are the core contents permeating the *Classic of History* (*Shujing* 書經), particularly its "Book of Zhou," to secure the orthodoxy of the Zhou dynasty. "今至于爾辟, 弗克以爾多方, 享天之命" (*Classic of History*, 'Duofang' 多方, 12); "爾, 曷不忧裕之于爾多方. 爾, 曷不夾介义我周王享天之命. 今爾尚宅爾宅, 敗爾田, 爾, 曷不惠王, 熙天之命" (*Classic of History*, 'Duofang,' 12).

10. *Gi* has traditionally been translated as "material force," since it was seen as both the matter, the stuff, out of which the material world was formed, and the energy which animated that matter. Heaven is another way of referring to the Dao, the Way things should behave, the Way they should move, interaction, and change. In this sense, it referred both to the way celestial objects moved through the sky and to the model of appropriate movements those objects displayed.

signifying a change in the understanding of Heaven.¹¹ This difference can be summarized into two aspects: external properties of *gi* and intrinsic properties of *gi*.

Firstly, the external properties of *gi* entail that *gi* possesses mass and form. This implies that Heaven is perceivable by the human senses. Encountering the Western theory of atmospheric refraction discovered by Tycho Brahe (1546–1601), Hyegang embraces it as empirical evidence that *gi* possesses qualities and forms (Y. Lee 1988, 159). The atmospheric refraction convinces Hyegang that something pervades the universe, evidence that *gi* is a tangible entity.¹²

The theory of atmospheric refraction, referring to today's atmospheric layers, cannot be definitively equated with *gi*. However, for the 19th-century Joseon scholar Hyegang, the discovery of the atmospheric layer represented a remarkable achievement, revealing the existence of *gi* possessing mass and form. Therefore, “*gi* possessing mass and form” is Hyegang's new concept of *gi*, established based on the solid evidence of the theory of atmospheric refraction. And with this concept of *gi*, he is able to break away from the traditionally intangible concept of Heaven and establish the foundation of philosophy on a tangible concept of Heaven.¹³

Seo Gyung-deok 徐敬德 (1489–1546), who developed the philosophy of *gi* monism within the framework of Neo-Confucianism, divided *gi* into the metaphysical and physical. The *gi* of the physical realm is tangible as the *gi* that constitutes things in the phenomenal world, while the *gi* of the

11. Hyegang's concept of Heaven emphasizes the natural element and is characterized by the extension of Heaven to objective existence in general. In this sense, it would be in line with the purpose of philosophy to designate his concept of Heaven and the discourse on it as natural science. However, since the focus of this article is on comparing the concept of Heaven in Neo-Confucianism to that of Hyegang in order to reveal their differences, we will use the term Heaven as it is. Also, considering that Hyegang himself refers to Heaven as *gi*, it may be an approach to analyze *gi* philosophy through the concept of Heaven. “天者，氣之大體，氣者，天之充滿形質。統而論之，天即氣也，氣即天也” (Choe 2002, 5:28a).

12. “地體圓，而所包蒙氣，受日光而生耀如珠，故謂之地球” (Choe 2002, 1:119a).

13. In addition to the theory of atmospheric refraction, various pieces of Western scientific knowledge about the Earth's atmosphere were accepted by Hyegang as evidence of the properties of *gi*. See Jun (2007b, 250–253).

metaphysical realm is intangible as the Heaven from which things originate. Hyegang, on the other hand, not only does not distinguish *gi* into a metaphysical and physical realm, but also defines tangible *gi* as Heaven. Of course, in acknowledging that the discourse regarding Heaven as the origin of all things still persists, it cannot be said that he completely excluded metaphysics. However, he distinguishes himself from previous philosophies by specifying that *gi* is a tangible entity. The means by which he justifies this was the Western theory of atmospheric refraction.

Secondly, he defines the intrinsic properties of *gi* as only its kinetic nature, called *unhwa* 運化 (movement and change). Traditionally, *gi* has been characterized as possessing the properties of movement and change, explained by the theory of yin-yang and the five elements. However, the influx of Western science led many scholars during late Joseon to lose faith in the theory, and Hyegang was no exception (Y. Kim 2004, 153–158). As a result, he maintained that *gi* possesses the properties of movement and change, but replaces the concept that describes it with *unhwa*.

Hyegang inherits tradition in that the term *unhwa* had been used to signify the movement and change of *gi*. However, his concept of *unhwa* is distinct in that it established the confirmation of the Earth's rotation and revolution, as well as the movements of celestial bodies in Western astronomy, which he understood as the mobility of *gi*.¹⁴ As such, his concept of *unhwa* is close to a kind of physical dynamism in that it was established through the achievements of Western science.

Hyegang subdivides the mobility of *gi* by categorizing it into four aspects: vitality (活), movement (動), circulating (運), and transformation (化), thereby detailing the *unhwa* of *gi*.¹⁵ This classification is a method to

14. In Kwon's (2004, 67) analysis, Hyegang did not firmly establish the term *unhwa* to explain the nature of *gi* in the 1830s. It was only in the 1850s, during the process of editing the *Jigu jeonyo* 地球典要 (Essentials of the Earth), that he formulated theories regarding *unhwa* after becoming convinced of the Earth's rotation and revolution. For detailed information on the Western scientific knowledge used to establish the mobility of *gi*, see Jun (2007b, 250–253). Jun's study explains in detail how Hyegang accepted Newton's law of universal gravitation as evidence for the movement of *gi*.

15. “故以活動運化之性，分排四端，始可以形言...則又釋之，以活生起也，動振作也，運周旋也，化變通也” (Choe 2002, 5:48b). More detailed information about the four aspects of *gi*'s

explain all movements and changes, including the creation and transformation of all things, the movement of the mind, and the operation of machines, through *unhwa-gi*. Thus, Heaven, defined through the concept of *unhwa*, is only a constantly moving and changing entity. As a result, moral values are excluded from Hyegang's concept of Heaven. The basic premise of Confucianism, which justifies human morality from Heaven, can no longer be tenable in his philosophy, and this is the fundamental reason his political philosophy cannot be defined as *deokchi*.

In the sense that human beings are composed of *gi* as Heaven, the relationship between Heaven and humans is akin to that found in Neo-Confucianism. However, the characteristics of the human being composed of tangible *gi* and *unhwa-gi* distinguish it from the human of Neo-Confucianism. Hyegang says that the tangibility of *gi* constitutes the human body, while the *unhwa-gi* constitutes human cognitive function. Here, just as *unhwa* is an intrinsic property of *gi*, cognition is defined as the essence of human beings.¹⁶

Just as *unhwa* is the nature of *gi*, all things composed of *gi* have *unhwa* as their nature.¹⁷ However, because the forms of each object composed of tangible *gi* are different, the mobility of *unhwa* manifests differently within them—in the form of celestial bodies, circular motion, and in the form of vegetation, leafing and fruiting are the natures that originate from *unhw-gi*. The nature of humans endowed by *unhwa-gi* is cognitive function. The assertion is that the essential mobility of humans lies in constant cognitive activity, based on sensory data provided by the body's sensory organs.¹⁸

In both Hyegang's philosophy and Neo-Confucianism, the mind is

mobility can be found in B. Park (2008, 218n5).

16. Hyegang perceives the human mind as a living entity that is constantly cognizing, and justifies it as the essence of the human by associating it with the mobility of *unhwa-gi*.

17. “活動運化, 統而觀之, 生氣常動, 而周運大化也...則天地人物大小之性, 各有所當, 又無差異, 實宇宙萬物所同之性也” (Choe 2002, 5:32b).

18. “天民形體, 乃備諸用, 通神氣之器械也. 目爲顯色之鏡, 耳爲聽音之管, 鼻爲嗅香之筒, 口爲出納之門, 手爲執持之器, 足爲推運之輪, 總載於一身, 而神氣爲主宰...色從目通, 而天下之色, 皆爲神氣之用. 聲從耳通, 而天下之聲, 皆爲神氣之用. 臭味諸觸具通於口鼻手足, 而事物之運動, 皆爲神氣之用. 閱歷經驗推移變通, 源於形體, 委於事物, 若不修明發用之源, 何以整頓發用之委哉” (Choe 2002, 1:7a).

considered to possess human nature. However, in Neo-Confucianism, the mind is composed of moral nature and cognitive function, while in Hyegang's philosophy, the mind exists with cognitive function as its sole nature. As a result, the epistemology of Neo-Confucianism focuses its discussion on the contextualization of moral feelings, with morality operating as an a priori cognitive principle. On the other hand, Hyegang's epistemology, which excludes moral nature, differs in that it only discusses the acquisition of empirical knowledge of objects.¹⁹

Hyegang defines this cognitive function as *chucheuk* 推測 (perceiving and inferring). *Chucheuk* literally means "perceiving" 推 and "inferring" 測, where the object of *chucheuk* is objects composed of *gi*. In other words, *chucheuk* refers to the process of perceiving objects through the sensory organs, obtaining sensory data, and inferring the acquired sensory data to gain knowledge about the objects.²⁰ His concept of *gi*, which embraces the achievements of Western science, and the human characteristics that develop through it, changes the relationship between Heaven's Mandate and human mind. Human essence, justified by *gi* as Heaven, is defined by the cognitive function called *chucheuk*.

Since the essence of human beings is the cognitive function called *chucheuk*, the human mind before the act of cognition (to mean *chucheuk* in this article) is like a blank slate. This is why the innate moral nature established by Mencius cannot be valid in Hyegang's philosophy. Mencius argues for the innate nature of benevolence based on the observation that anyone would feel compassion upon seeing a child about to fall into a well. However, Hyegang contends that compassion can arise for a child in that situation because we have the prior knowledge of cognition that the child

19. This distinction in Hyegang's epistemology has led scholars to explore the influence of Western studies. As a result, the Jesuit missionary Francesco Sambiassi's (1582–1649) *Lingyan lishao* 靈言蠡勺 (Humble Attempt at Discussing Matters Related to the Soul), which is based on Scholastic philosophy, has been evaluated as an influence on some of the concepts and principles of Hyegang's epistemology. See Sin (1993) and Kwon (1999). However, this aspect still requires further discussion, and in this article, the focus is solely on the characteristics of epistemology derived from the concept of *gi*.

20. “眼耳鼻舌身皆有所推而測在乎心，有推之測皆實，無推之測皆虛，或測其所不可測，或測人之理外，所測儘是無所推也” (Choe 2002, 1:198b).

will die if he falls into the well.²¹ There can be no moral values that pre-exist in the human mind before cognition. According to Hyegang, the innate morality of values in Confucianism, including filial piety, and even moral good and evil, are all acquired only after cognition.²²

What fascinated Hyegang about the achievements of Western science was that they were facts that had been proven through the cognitive processes of observation and experience. It came as a great shock to him that sailing ships circumnavigating the globe proved that the Earth was round, and that telescopes empirically proved facts about celestial bodies.²³ Consequently, he defined Heaven as tangible *unhwa-gi* instead of the intangible *i*, and he defined the essence of the human as cognition, which enables cognition of tangible *unhwa-gi*. Through these changes, he altered the conformity to Heaven into an act of cognition.

In Hyegang's view, the biggest problem of Neo-Confucianism was in defining Heaven, which is the criterion for human affairs, as an intangible principle. Considering that the intangible Heaven, imperceptible by humans, serves as the criterion for human affairs, it can be distorted by individual desires and biases.²⁴ His diagnosis is that the absence of such objective criteria expanded into the political dimension, leading to conflicts and disputes between factions, resulting in the confusion of the late Joseon period.²⁵ Thus, Hyegang tried to rectify the confusion in Joseon by defining Heaven as a tangible object that humans could cognize and empirically prove the criteria of human affairs. And the philosophical basis for this was Western science, which takes tangible things as the objects of study.

Thus, in Hyegang's philosophy, the way the human mind follows Heaven's Mandate is through cognition. In Neo-Confucianism, Heaven and

21. “前日聞知壓溺者多死，故乍見孺子入井，有怵惕惻隱之心。曾未聞壓溺之患者，見孺子入井，未有惻隱之心。” (Choe 2002, 3:177a).

22. “孩提之童，無不知愛其親，無不知敬其兄，出於推測。未有推測，親與兄天屬之義難知，何暇論其愛敬” (Choe 2002, 1:100b).

23. “桅船之利周行地球，乃人氣之運化，古無，而今有也。海水之周圍相連，人心之經營排布，古今所同。至於見聞漸廣，器械益精，古不如今，推測之驗，運化之方，今明于古。球面周通以來，罷千古之疑惑，開萬事之方向，恨古人之未及聞，幸今人之皆得見” (Choe 2002, 5:51a).

24. “若捨是氣而務測其理，許多傳會無限誕說皆由此生” (Choe 2002, 1:123a).

25. “治世之所痛嫉，莫甚於朋黨” (Choe 2002, 5:36b).

human mind are connected by the pure *i*, so the way the human mind follows Heaven's Mandate is through the moral nature, which is *i*. In politics, the same principle justifies *deokchi*. But unlike moral nature, cognition is only one function. Therefore, only by recognizing the various things that are composed of *unhwa-gi*, and thus building up knowledge of *unhwa-gi*, can we know Heaven's Mandate.

In the Eastern monism of *gi*, the properties of *gi* remain the same for objects composed of *gi*. Therefore, knowledge about objects directly relates to knowledge about *unhwa-gi*, which ultimately leads to understanding Heaven's Mandate as reflected in the way objects move, interact, and change. In Hyegang's philosophy, human mind follows Heaven's Mandate through the knowledge of cognition, and this justifies *jichi* rather than *deokchi* in politics. In the relationship between Heaven and human mind, *jichi*, not *deokchi*, is established as a legitimate political principle.

Category of *unhwa-gi* and Political Principle

In the first chapter of *Doctrine of the Mean* (*Zhongyong* 中庸) it states that following the Heavenly path is the way humans should go. In this characteristic of Confucianism, politics is defined as the principle of taking Heaven as the standard of human society and realizing it. Hyegang, as a Confucian scholar, adheres to this principle in his political philosophy. In that philosophy, *jichi* is a political principle justified in the relationship between Heaven and human mind. Therefore, to examine the characteristics of *jichi* specifically, it is necessary to discuss the relationship between Heaven and humans in more detail.

Hyegang advocates a dynamic worldview by defining the essential characteristic of *gi* as *unhwa*. All things composed of *gi* are also dynamic beings that are in a state of *unhwa*.²⁶ He organizes his philosophy by

26. “夫氣之性，本是活動運化之物。在於內，則日月星漸次成就於運化之中，在地面，則海陸物產鱗次成就於運化之中，在人身，則臟腑血脈，承大氣之運化，而成就身內氣之運化，在瓶缸，則通塞出納，承大氣之運化，而成就器內之運化，在機械，則輪轉機木舌，借大氣運化之勢，以

classifying the category of *unhwa* into three main areas: *ilsin unhwa* 一身運化, the realm of the individual; *tongmin unhwa* 統民運化, the realm of political society; and *daegi unhwa* 大氣運化, the realm of Heaven. These three types of *unhwa*, referred to as *samdeung unhwa* 三等運化, establish a vertical hierarchy where *ilsin unhwa* follows *tongmin unhwa*, and *tongmin unhwa* follows *daegi unhwa*.²⁷

Hyegang's political philosophy is structured within this hierarchy. The hierarchical relationship between *tongmin unhwa* and *daegi unhwa* is similar to Confucianism in indicating that the standard of politics is in Heaven. However, unlike Confucianism, which does not prescribe a realm of politics separate from Heaven, Hyegang distinguishes between the realms of *tongmin unhwa* and *daegi unhwa*.

In the case of Neo-Confucianism, Heaven's Mandate is already given as human innate moral nature. Therefore, human moral nature itself has the status of Heaven, which is the standard for individuals and political society. There is no need to distinguish the realm of political society from the realm of Heaven and the individual; they are all united by a single principle of morality.

On the other hand, in Hyegang's philosophy, Heaven merely constitutes the human cognitive function. Before cognition, the human mind is a blank slate. It is through cognition that humans acquire knowledge and then use that knowledge to determine whether or not it is in accordance with Heaven. Knowledge is an empirical product of cognition and is not inherent like moral nature. Thus, even if one establishes the realm of politics based on accumulated knowledge, there is no guarantee that it will necessarily accord with Heaven. Even if politics takes Heaven as a standard, its accordance depends on the product of cognition, which is knowledge. This is why Hyegang distinguishes *tongmin unhwa* as an independent realm while inheriting the political theory of Confucianism.²⁸

爲活動助力之資, 在生物, 則有滋養之運化, 在朽物, 則有腐爛之運化” (Choe 2002, 5:18a).

27. “一身運化, 不可違於統民運化, 統民運化, 不可違於天地運化, 有違則非善道也。一身運化, 承順於統民運化, 統民運化, 承順於天地運化, 是謂善道也” (Choe 2002, 3:194b).

28. In this regard, Son (2004, 263–265) points out that in Hyegang's thinking, Heaven is synonymous with the atmosphere in Western natural science, and argues that the key task

This feature can also be seen in Hyegang's interpretation of the *Great Learning* (*Daxue* 大學). He redefines the eight sections of the *Great Learning* by restructuring the Confucian concept of "self-cultivation to govern others" into a structure of "cognition and utilization." He interprets the eight points of the *Great Learning* accordingly. "To investigate things and to acquire knowledge" signifies cognition; "to rectify the mind and to be sincere in thoughts" signifies the accumulation of cognized knowledge; and "to perfect the self, to govern the family, to rule the country, and to bring peace to the world" signifies the utilization of accumulated knowledge.²⁹ Among these three—cognition, accumulation, and utilization—cognition and accumulation are included in the activity of cognition as the acquisition of knowledge. Therefore, Hyegang's view of the *Great Learning* can be summarized in two dimensions: cognition and utilization of knowledge.

In Confucianism, the concepts of *self-cultivation* and *governing others* are consistent with morality. Cultivating the morality of the ruler is *self-cultivation*, while implementing the morality of the ruler in politics is *governing others*. Thus, morality becomes the common denominator in both self-cultivation and governing others. On the other hand, in Hyegang's philosophy, cognition and utilization are consistent with knowledge. The ruler cognizes and accumulates the knowledge necessary for politics, and then utilizes that knowledge in politics.

In Neo-Confucianism, the morality that runs through self-cultivation and governing others is not separated from the component of Heaven. Therefore, cultivating morality and implementing it in politics is tantamount to preserving and realizing Heaven. There is no need to separate the realm of politics from Heaven. On the other hand, the knowledge that runs through cognition and utilization is not given by Heaven. It is artificially acquired by humans through the act of cognition. Therefore, even though Hyegang sets the standard of politics in Heaven, he distinguishes the realm of politics, established through the utilization of knowledge, as a separate domain.

of Hyegang's philosophy is to utilize the cognition of *daegi unхва* in politics.

29. "天人運化, 累驗而得之於外, 成象而藏之于內, 隨機而用之於外. 即大學八條, 格物致知, 得之於外也, 誠意正心, 藏之于內也, 修身齊家治國平天下, 用之於外也" (Choe 2002, 5:54a).

Hyegang's distinctive definition of the relationship between Heaven and humans can be seen as a unique integration of Eastern and Western studies. Placing Heaven as the standard for politics reflects the inheritance from Confucianism. However, the separation of the political realm from Heaven, seeking to mediate between the two through cognition, bears the influence of Western science. Political philosophy is thus established within the unique framework where Eastern organism and Western mechanism coexist.

Hyegang's *jichi*, which runs through the structure of the *Great Learning* with knowledge, is established within this distinctive relationship with Heaven. How then can the realization of politics, based on Heaven as the standard, be achieved within this distinctive relationship with Heaven? The answer lies in Hyegang's inclusion of *jeungheom* 證驗 (verification) process in the process of cognition.

Jeungheom is the review and revision of cognized knowledge. In other words, cognized knowledge before *jeungheom* is only a kind of hypothesis; only after going through the process of *jeungheom* does it become established as knowledge.³⁰ Furthermore, the method of *jeungheom* confirms the correctness of the knowledge through the object of cognition. Here, the object of cognition is an object composed of *unhwa-gi* as Heaven. Therefore, Hyegang's *jeungheom* ultimately verifies the knowledge through Heaven, confirming whether that knowledge is in accord with Heaven.³¹

Knowledge acquired through human cognition is always susceptible to error. In Hyegang's philosophy, this error signifies a discrepancy between knowledge and Heaven, which leads to the mismatch between politics and Heaven. Therefore, in his philosophy of *jichi*, the accordance of politics with Heaven is completed through conformity from knowledge, and the means to achieve this is through *jeungheom*.

30. “夫氣，通之而可以證驗者。方許其通，雖謂通之而無所證驗，不可許其通也” (Choe 2002, 1:13b).

31. “理是氣之條理則有氣必有理，無氣必無理，氣動而理亦動，氣靜而理亦靜，氣散而理亦散。氣聚而理亦聚，理未嘗先於氣，亦未嘗後於氣，是乃天地流行之理也。人心自有推測之能，而測量其已然，又能測量其未然，是乃人心推測之理也。流行之理天地之道也，推測之理人心之功也，先以功求道，次以道驗功” (Choe 2002, 1:123a).

How to Practice *jichi*

Hyegang names his writing on his political philosophy, *Injeong* 人政 (People's Politics). He defines *injeong* as the establishment of political principles based on Heaven, and then governing the people through politics in such a way that all of these flow into a unified principle.³² The political principle is achieved through a knowledge of Heaven, and the value of that knowledge is only realized when it reaches the political realm.

Knowledge of Heaven is acquired through cognition of objects composed of *unhwa-gi*. Engaging with Eastern monism of *gi*, Hyegang identifies all objects of cognition, including physics and human emotions, as the products of *unhwa-gi*. Therefore, cognition of such objects is a means of acquiring knowledge about *unhwa-gi* and the establishment of political principles utilizing this knowledge is in accord with Heaven.

Hyegang categorizes what it takes for governing the country into 17 items.³³ When classifying these items according to modern academic disciplines, they encompass a wide range of areas, including the humanities, social sciences, and natural sciences. Therefore, acquiring knowledge to address these extensive matters demands numerous objects of cognition.

One characteristic of Hyegang's cognition is that the necessary objects of cognition can vary depending on the use of knowledge. Knowledge for agriculture can be acquired by cognizing objects related to agriculture, while knowledge for tool-making can be acquired by cognizing objects related to it. What is needed to establish ethical norms is human emotions, and the object needed to create tools is physics. Therefore, obtaining knowledge to be utilized for the 17 items required for governing the country demands numerous objects of cognition.

These characteristics indicate that the core competency of a ruler lies in

32. “自一身運化，至交接運化，至統民運化，皆效則于大氣運化，進退遲速違合順逆，自有運移之裁御正宜，因勢而利導，千百異論，咸歸零落，一統運化脗合天人，是謂人政” (Choe 2002 3:5a).

33. “天下可通之事，雖云多端。語其本，則我神氣通於彼神氣，彼神氣達於我神氣也。語其事類，則倫綱也，仁義也，禮樂刑政也，經史記述也，士農工商也，財用也，算數也，歷象也，器皿也” (Choe 2002, 1:31b).

the quantitative expansion of cognition. As a Confucian scholar, Hyegang is no different in that he emphasizes the Five Relationships as ethical norms, considering morality an important element of politics.³⁴ However, morality is also one of the various types of knowledge acquired through cognition. Morality is no different from other forms of knowledge in that it is acquired through the same cognitive process, only the object of cognition is different. Hyegang does not perceive morality as originating from the ruler's moral character, but rather to be a product of cognition. Therefore, even though Hyegang regards morality as an important element of politics, his political philosophy cannot be defined as *deokchi*. It still retains its character as *jichi* in that moral knowledge is one of the various forms of knowledge required to govern the country.

Hyegang also includes the achievements of Western science, which were newly introduced at the time, as objects to be cognized by the ruler.³⁵ He takes the position that both Eastern and Western cultures are fundamentally indistinguishable as products of *unhwa-gi*. Therefore, the essential competency required of a ruler is not moral virtue but the quantitative expansion of cognition. In other words, in *jichi*, what is demanded of the ruler as a qualification is expertise in various forms of knowledge, rather than moral virtue.

Among the various objects of cognition necessary for governing the country, what he considers most important is the opinion of the people. For Hyegang, who inherits the political theory of Confucianism, the purpose of politics is serving the people. Therefore, the knowledge to be utilized for the benefit of the people becomes the opinion of the people. This feature of *jichi* distinguishes it from Confucianism's *deokchi*. Whereas the basis for practicing for the people in *deokchi* lies in the morality of the ruler, in Hyegang's *jichi*, the basis lies in the cognition of the ruler.

Deokchi understands that politics for the people can be realized when the ruler's morality is served through politics. On the other hand, *jichi*

34. “人道大體, 在於敷行五倫, 修明政教” (Choe 2002, 3:156a).

35. “往古來今, 變遷無根, 上下四方, 循環無端, 若不以當今之耳目所觀記, 動靜所踐行, 爲根基標準, 觸處悠泛, 所學罔味” (Choe 2002, 5:5a).

understands that politics for the people can be realized when the people's opinions are cognized and policies based on knowledge of the people's opinions are implemented.³⁶ Hyegang cautions that if only the ruler's morality is taken as the standard for the people, while ignoring the opinions of the people, politics risks becoming disconnected from the people's needs. The characteristics of *jichi* based on epistemology also apply to politics for the people.

In the 19th century, Joseon was in the midst of rapid change. Internally, the foundation of social order was shaken by frequent peasant revolts and agitation of the class system. Externally also there were significant changes, such as the influx of Western studies and the demands of Western powers to open ports. Amidst such rapid changes, people's opinions naturally diversified and evolved. Hyegang's cognition of people's opinion is not an abstract or holistic one. Rather, it refers to the diverse demands of the people, varying by social class, occupation, and region.³⁷

Hyegang emphasizes that even the changing aspects of people's opinions should be considered as objects of cognition. *Unhwa-gi* inherently possesses the property of constant change and movement. Therefore, all things composed of *unhwa-gi* are justified as objects of cognition, even their changing aspects. Among these aspects of change, what he regards as most important is the characteristic manifested at the present moment, which he refers to as the concept of *banggeum unhwa* 方今運化 (current movement and change).³⁸ He argues that knowledge should not solely focus on preserving the old; instead, it should always be renewed based on *banggeum unhwa*.³⁹

The influx of Western science changed the knowledge that had long

36. “其實，乃得於民而治其民，非駕虛翼僞，而行其事也” (Choe 2002, 3:194b).

37. “身非獨一人之身，有億兆之身，心非獨一人之心。有億兆之心，統合億兆心，而抽發中正，以為心法，統合億兆身，而集成人道，以為修身，即億兆一體之身心，與一人之自身自心，有所不同” (Choe 2002, 3:323b).

38. “宇宙羅列，方今運化，資賴之根基，前後之標準。學者須定根基立標準，然後庶尋方向，亦可措行” (Choe 2002, 5:5a).

39. “博古而通今，文學之事，其通多牽於古。通今而證古，氣學之事，其通多在於今” (Choe 2002, 3:218a).

been acknowledged as factual in Joseon. In many fields, such as astronomy, calendar-making, and medicine, the knowledge of the past was no longer valid. Hyegang was well aware of these shifts and sought to establish political principles that corresponded to these new realities. Thus, through the concept of *banggeum unhw*a, he enabled the political embracing of the latest knowledge and circumstances.

In this manner, *banggeum unhw*a becomes the standard point of knowledge, which is up to date with people's opinions. Even if in past policies for the people were established by cognizing the people's opinions, such policies cannot be fixed and unchangeable. They must be continually adjusted so as to be based on popular opinion as manifested in the present moment, and this is justified in a manner consistent with *unhw*a-gi as Heaven. In this way, by cognizing not only the needs of the people but also the aspects of change, Hyegang hoped to increase the effectiveness of policies for the people.

Hyegang's cognition of people's opinions as an important object of cognition in politics is further emphasized in discussions of talent selection. In Confucianism, talent selection is considered a key element of politics, and Hyegang's philosophy is no exception.⁴⁰ The system of his book *Injeong* reflects his political view of talent selection as a key element of politics.

Hyegang asserts public opinion to be the absolute standard for talent selection. This means that knowledge used in talent selection must be acquired through the cognition of people's opinions. For him, the purpose of talent selection is to serve the people, not the bureaucracy.⁴¹ Therefore, only by cognizing the opinion of the people and using that knowledge as the standard for talent selection can service to the people be realized. It can be observed that when the political principle of *jichi* is applied to talent selection, knowledge regarding people's opinion becomes a standard practice.

In the *deokchi* of Confucianism, public sentiment is obtained as a

40. “學問之天人正論. 自古及今. 自近及遠. 多少賢俊, 不絕不之, 講究斯道, 漸次開明, 導化愚迷, 是乃天人道之天則選舉也” (Choe 2002, 3:412a).

41. “選舉不爲其人...乃爲萬姓之治安...是以, 聽之於民, 以定選舉” (Choe 2002, 3:376b).

posterior result of ruling. In other words, public sentiment is naturally obtained as a result of the rule of a virtuous ruler, and there is no need for prior knowledge of the people's opinions. On the contrary, in Choe Han-gi's *jichi*, people's opinion is considered as prior knowledge required before political action can occur. According to this perspective, knowing what the people want precedes obtaining public sentiment.

Hyegang's concept of people's opinion includes personal desires and emotions. The positive stance toward the personal desires and emotions of the people began to emerge among late Joseon scholars. However, Hyegang goes beyond merely affirming them; he explicitly states that they constitute the core elements of political discourse.⁴² He names this political characteristic *gugin gongchi* 國人共治 (politics with the people).⁴³

As mentioned, Hyegang's cognition varies in terms of the objects of cognition depending on the utilization of knowledge. When this feature is applied to politics, it is inevitable that people's opinion will be an important object of cognition. The purpose of politics is service to the people, which means that the utilization of political knowledge is to establish a political discourse for the people. Therefore, in order to acquire knowledge that can be utilized to establish a political discourse for the people, the people's opinion can only be understood as an important object of cognition.

The function of cognition is intrinsic to all human beings composed of *unhwa-gi*, without any differentiation. People's opinion ultimately refers to the contents that individuals have cognized through their function of cognition, comprising their desires and needs. Therefore, taking the people's opinion as the object of cognition is the same as taking the contents cognized by the people as my knowledge. In this regard, *gugin gongchi* signifies that while the ruler is the subject of establishing political discourse, the practical approach involves sharing the cognition of the people in the process.

42. “不可割斷，又不可銷蔑，則當廣大其私情，使萬姓各得私情，無不安所，即是公論” (Choe 2002, 3:357b).

43. “一國之事，當與一國人共治，不可與一二私人從欲而治。取一國公論所指望之人，任官責成，即與國人共治也” (Choe 2002, 3:326b).

Hyegang explains the opposite of *gongchi* 共治 (politics together) as *dokchi* 獨治 (politics alone). *Dokchi* refers to establishing political discourse based on the private opinions of a minority ruler, excluding the cognition of public opinion. It excludes the cognition of the people's opinion and establishes political discourse through the private opinions of a few officials, which is contrary to the political principle of *jichi*. *Jichi* means that politics should be implemented based on knowledge of the people's opinion, and this is characterized as *gongchi* in that the people's opinion is the basis of politics. In this respect, Hyegang contrasted *gongchi* with politics alone and was most wary of *dokchi*, which dominates politics without cognizing the people's opinion.⁴⁴

Even though Hyegang uses the concept of *gugin gongchi*, it primarily refers to governance under a Confucian monarchy. Under the Confucian monarchy, the political subjects who establish and implement political discourse are limited to the monarch and a few of bureaucrats. Therefore, the subject cognizing the people's opinion is also the ruler, not the people presenting their own opinions autonomously as political subjects. In this respect, Hyegang's *gugin gongchi* is a discourse included within the scope of Confucianism, emerging as a distinct political principle through integration with Western studies.

Conclusion

The philosopher Hyegang proposed a new political principle to overcome the chaotic situation facing 19th-century Joseon through the integration of Eastern and Western studies. His political theory is fundamentally established on the basis of Confucianism. Nevertheless, the influence of Western science was significant in establishing the political principle of *jichi* over *deokchi*.

Hyegang assimilated the achievements of Western science into *gi*

44. “天人運化之氣學，合天下人之見聞，以爲耳目，統天下人之驗試，以爲法例，得之於天下之人，以傳之于天下之人。是與天下共學，非一人之獨學” (Choe 2002, 5:35a).

philosophy, defining Heaven as *unhwa-gi* and human essence as the function of cognition. Through this, he aimed to establish philosophy as empirical knowledge based on cognition and verification. The empirical methodology of Western science is justified through *gi* philosophy. Therefore, now, the way for humans to follow Heaven is through cognition, and political principles in accordance with Heaven are realized by utilizing cognitive knowledge in politics.

Morality, a core element of Confucianism, is no different from other forms of knowledge in that it is acquired through cognition. Moral knowledge is just one of the various kinds of knowledge required to govern the country. In this regard, Hyegang's *jichi* represents a knowledge-centric political theory, not a morality-centric one. In addition, he defines not only natural scientific knowledge, which was previously neglected in Neo-Confucianism, but also newly introduced Western knowledge as necessary elements for politics. Without making a distinction between East and West, Hyegang presented a philosophical basis for reflecting even newly introduced knowledge in politics. Therefore, his *jichi* holds significance as a political principle that enables the acceptance and utilization of foreign knowledge that predates the Enlightenment period of Joseon.

Hyegang posits the purpose of politics as service to the people and considers the most crucial knowledge required to achieve this purpose to be understanding the opinions of the people. From his perspective, politics for the people can only be established with knowledge about the people's opinion. Relying solely on the ruler's morality without concrete knowledge about what the people desire and need can detach politics from public sentiment. Moreover, given the rapidly changing circumstances of Joseon at the time and the people's changing needs, such a detachability was bound to be even greater. In this regard, Hyegang's *jichi* inherits the *for the people* doctrine of Confucianism while reflecting the contemporary characteristics of his time, offering solutions to enhance the effectiveness of *for the people* policies.

REFERENCES

- Ahn, Young-sang. 2007. "Tomijeum-gwa bigyo-reul tonghaeseo bon Hyegang Choe Han-gi insingnon-ui teukjing" (Characteristics of Hyegang Choe Han-gi's Epistemology Viewed through Comparison with Thomism). *Dongyang cheolhak yeongu* (Journal of Eastern Philosophy) 49: 7–44.
- Choe, Han-gi. 2002. *Jeungbo myeongnammu chongseo* 增補 明南樓叢書 (Supplemented Complete Works of Choe Han-gi). 5 vols. Seoul: Daedong Institute for Korean Studies.
- Choi, So-Ja. 1981. "17, 18-segi hanyeokseohakseo-e daehan yeongu: Jungguk-gwa hanguk-ui sadebu-ege michin yeonghyang" (Study of the *Hanyi xisue shu* [漢譯西學書] in the 17th and 18th Centuries: The Effect on the Gentry in China and Korea). *Hanguk munhwawon nonchong* (Ewha Journal of Korean Culture) 39: 79–114.
- Jun, Yong-hoon. 2007a. "Gwahakjeok mol-ihae wi-e ssaemun sasang-ui nugak: Choe Han-gi-ga chuguhan jisik-ui tongseop" (Pavilion of Thought Erected for Scientific Misconceptions: Choe Han-gi's Pursuit of Consilience of Knowledge). In *Jisik-ui tongseop: Hangmun-ui gyeonggye-reul neomda* (Consilience of Knowledge, Transcending Academic Boundaries), edited by Jae-cheon Choe, 101–125. Seoul: Ieum.
- _____. 2007b. "19-segi joseon jisigin-ui seoyang gwahak ilggi: Choe Han-gi-ui gihak-gwa seoyanggwahak" (A Nineteenth-Century Joseon Intellectual's Reading of Western Science). *Yeoksa bipyong* (Critical Review of History) 81: 247–284.
- _____. 2016. "Choe han-gi jungnyeok iron-e natanan dongseo-ui jayeon cheolhak" (East-West Natural Philosophy Manifested in Choe han-gi's Theory of Gravity). In *Hyegang Choe Han-gi yeongu* (Study of Hyegang Choe Han-gi), edited by Silsi haksa, 319–374. Seoul: Saram-ui munui.
- Kim, Moon-yong. 2009. "Seoyang uihak-ui suyong-gwa sinchegwan-ui byeonhwa: Choe Han-gi-ui 'Singi cheonheom'-eul jungsim-euro" (Introduction of Western Medicine and Changes in Body Conception: Focusing on the Singi cheonheom of Choe Han-gi). *Dongyang gojeon yeongu* (Study of the Eastern Classics) 37: 345–375.
- Kim, Seon-hee. 2014. "Choe Han-gi-reul ilgi wihan jeeon: Geundaeseong-gwa gwahak-ui gwanjeom-eseo" (A Proposal to Understand Choi Han-gi: From the Perspective of Modernity and Science). *Cheolhak sasang* (Journal of Philosophical Ideas) 52: 67–96.

- Kim, Sook-kyung. 2018. "Seogu insingnon-ui gyebo-eseo bara bon Hyegang insingnon-ui wisang: Hyegang Choe Han-gi-ui insingnon-eul gyeongheom juui-ro bol su inneunga?" (Status of Hyegang's Epistemology in the Line of Western Epistemology: Can We View Hyegang's Epistemology as Empiricism?). *Yugyo sasang yeongu* (Study of Confucianism) 72: 117–138.
- Kim, Yong-hun. 2004. "Joseon hugi silhakjeok jayeongwan-ui myeot gaji gyeonghyang" (Characteristics of Sirhak [Practical Learning]'s View of Nature in the Late Joseon Dynasty). *Hanguk sasang sahak* (Study of Korean History of Thought) 23: 133–170.
- Kwon, O-young. 1999. *Choe Han-gi-ui hangmun-gwa sasang yeongu* (Study of Choe Han-gi's Scholarship and Thought). Seoul: Jimmundang.
- _____. 2004. "Saero balguldoen jaryo-reul tonghae bon Hyegang-ui gihak" (Gi Studies of Hyegang Reinterpreted through Newly Discovered Texts). In *Hyegang Choe Han-gi: Dongyang-gwa seoyang-eul tonghap-haneun hangmunjeok silheom* (Hyegang Choe Han-gi: An Academic Experiment Integrating East and West), edited by O-young Kwon, 13–104. Seoul: Cheonggye.
- Lee, Hyeon-Gu. 2000. *Choe Han-gi-ui gi cheolhak-gwa seoyang gwahak* (Choe Han-gi's Gi Philosophy and Western Science). Seoul: Sungkyunkwan University Press.
- _____. 2005. "Choe Han-gi-ui seoyang gwahak ihae" (Understanding Western Science by Choe Han-gi). In *Hyegang Choe Han-gi* (Hyegang Choe Han-gi), edited by Yong-hun Kim, 335–368. Seoul: Yemun Seowon.
- Lee, Jeong-woo. 2013. "Segye cheolhaksa-eseoui Hyegang cheolhak-ui wichi" (Position of Hyegang's Philosophy in the History of World Philosophy). *Dongyang cheolhak yeongu* (Journal of Eastern Philosophy) 80: 237–258.
- Lee, Yong-beom. 1988. *Jungse seoyang gwahak-ui joseon jeollae* (Transmission of Medieval Western Science to Joseon). Seoul: Dongguk University Press.
- No, Hye-jeong. 2005. *Jigujeonyo-e natanan Choe Han-gi-ui jiri sasang* (Choe Han-gi's Geographical Thought: Focusing on the *Jigujeonyo*). Seoul: Hanguk haksul jeongbo.
- Park, Byung-kun. 2008. "Hyegang's Sin-gi: Emphasis on Chucheuk." *Korea Journal* 45.2: 216–238.
- Park, Chong-hong. 1965. "Choe Han-gi-ui gyeongheomjuui" (Empiricism of Choe Han-gi). *Asea yeongu* (Journal of Asiatic Studies) 20: 1–41.
- Sin, Won-bong. 1993. "Hyegang-ui gihwajeok segyegwan-gwa geu yullijeok hamui" (Hyegang's Gi-based Worldview and Its Ethical Implications). PhD diss., Academy of Korean Studies.

Son, Byeong-ook. 2004. “Hangmun bangbeomnon-eul tonghaeseo bon gihak-ui seonggyeok” (Nature of Gi Studies through Methodological Approaches). In *Hyegang Choe Han-gi* (Hyegang Choe Han-gi), edited by O-young Kwon, 259–325. Seoul: Cheonggye.