

Special Feature

Choe Hangi's *Gihak*: Universal Science and the Fusion of Eastern and Western Knowledge

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Choe Hangi and the Intellectual Trend of the Nineteenth Century Joseon

Modernists often perceive Joseon during the nineteenth century as a powerless state that failed to modernize on its own. After the end of the so-called “Joseon Renaissance” under the reigns of kings Yeongjo (r. 1724–1776) and Jeongjo (r. 1776–1800), the country’s government was characterized by several Seoul-based hereditary elite families who dominated state affairs beginning in the reign of King Sunjo (r. 1800–1834) and going up through the reign of King Gojong (r. 1863–1907). This period, marked by “*sedo* politics,” or government by royal in-laws, saw a concentration of political power in the hands of a limited number of clans, the weakening of royal authority, and social and economic chaos. As social mores wound down, exploitation of the people by the local officials increased, leading to popular uprisings.

Another aspect of Joseon society in the nineteenth century worth noting is the state oppression of Catholics, the number of whom had grown from the late eighteenth century. When King Jeongjo passed away, his heir, who was enthroned as King Sunjo, was still quite young. Queen Jeongsun (1745–1805), the second consort of King Yeongjo grabbed control of the court along with her relatives. In 1801, they defined Catholicism as deviant learning 邪教 which was spreading into the middle class 中人. Oppression of the Catholic community began with the implementation of large-scale searches and the torture of practitioners.¹ It continued until the government officially permitted the propagation of Catholicism upon the signing of the Korea-France Treaty of 1886.

Although social and political instabilities continued throughout the nineteenth century, the intellectual and cultural communities did not remain isolated or stagnant. During this period, books and knowledge imported from China spurred the rise of broad scholarship (*bakhak* 博學) and a growing interest in branches of practical knowledge which previously had been on the periphery of Neo-Confucian studies. Also, with the participation by the Seoul-based hereditary elites and the middle class, printing and publication were developed

and popularized. It was in this time that commercial publication flourished.

One of the key elements triggering this intellectual vigor was the introduction from China of books about Western learning. These books were written in Chinese by Western missionaries with a goal to propagate Catholicism in China. At the end of the sixteenth century, Matteo Ricci (Ch. Li Madou 利瑪竇, 1552–1610) came to China as a Jesuit missionary. Since that time, Western missionaries undertook the translation of Western knowledge into Chinese with an aim to converting the Chinese imperial court and intellectuals. Mathematics and astronomy were at the center of this enterprise. As emperors in the Ming and Qing dynasties recognized the usefulness of Western mathematics and astronomy, they intended to introduce the Western calendar system by appointing Western missionaries as supervisors of the Bureau of Astronomical Observation (Qintianjian 欽天監), an office in charge of not only observing phenomena in the heavens but of calendrical calculation as well.

The Qing court promulgated the use of the Timely Modeling System (Shixianli 時憲曆) which was based on Western mathematics. The Joseon court also introduced it and adapted it to suit the country’s needs. The calendar is based on the mathematical and astronomical theories of the European Renaissance as transmitted by Western missionaries at the end of the sixteenth century. A growing number of Joseon elites, therefore, began to study Western mathematics and astronomy.² Given the circumstances, Joseon society during the latter part of the nineteenth century had two contradictory facets: political stagnation and intellectual vigor. Joseon scholars actively capitalized on the fact that this foreign knowledge, although somewhat different, was also similar to traditional knowledge and introduced it into their own scholarship. Among them was Choe Hangi 崔漢綺 (1803–1879)—style name Hyegang 稭康—whose unique pursuit and thought was a milestone in the Joseon Confucian landscape.

¹ State oppression wreaked havoc on scholars, mainly the Southerners (Namin 南人), including Yi Gahwan 李家煥 (1742–1801), Yi Seunghun 李承薰 (1756–1801), Jeong Yagyong 丁若鏞 (1762–1836), and Gwon Cheolsin 權哲身 (1736–1801), who had been active in forming Catholic communities.

² To perform Western calendrical calculations, the Qing court published books on Western mathematics and astronomy such as *Lixiang kaocheng* (*Compendium of Observational and Computational Astronomy* 曆象考成) and *Lixiang kaocheng houpian* (*Sequel to the Compendium of Observational and Computational Astronomy* 曆象考成後編). Those books were imported to Joseon during the reign of King Yeongjo. Many scholars including Hong Daeyong 洪大容 (1731–1783), Hwang Yunseok 黃胤錫 (1729–1791), Jeong Cheoljo 鄭喆祚 (1730–1781), Yi Gahwan 李家煥, and Yi Deokseong 李德星 (n.d.) read them to study Western mathematics. In the later eighteenth century, some scholars, particularly those based in the capital, founded research groups to study Western mathematics. See Moon 2003a, 51–84.

One of his contemporaries, Yi Gyugyeong 李圭景 (1788–1856), the author of *Oju yeonmun jangjeon sango* (*Oju's Scattered Manuscripts of Glosses and Comments*) described Choe Hangi as “the most resourceful and skillful [scholar] among his peers” and wrote that “his good memory and extensive knowledge are incomparable to those of other scholars.”³ In the “Biography of Choe Hangi” (*Hyegang choegong jeon* 惠崗崔公傳), Yi Geonchang 李建昌 (1852–1898), a Confucian scholar of a century later, wrote that Choe Hangi held the biggest collection of books in his time and was an avid reader. According to Yi, Choe wrote thousands of books in his lifetime, and whenever he heard about good books, he did not spare money to buy them; furthermore, he sold his old books cheaply. For this reason, booksellers across the country vied to sell their books to him. He read all the newly published Chinese books as soon as they arrived in Joseon.⁴

Choe Hangi was born in Gaeseong, a trade hub in Joseon, but he spent most of his time reading and writing in Seoul as an independent scholar. Without associating himself with a particular school of thought, he took the liberty to accept new theories introduced to the capital and used them in his writings in his own unique way. The intellectual climate in Joseon at that time, however, is not sufficient to explain his scholarly path. First, he departed from the bounds of classical studies, the most common foundation for scholarship at that time. Although he pursued classical studies in his youth (Kwon 2004, 24–25), the approach that he took did not confine him. He did not give authority to classical studies or the interpretations of the canonical literature; rather he absorbed knowledge in various disciplines. Not only Choe, but other scholars during the eighteenth and nineteenth centuries also pursued broad scholarship. Choe distinguished himself from his colleagues by the fact that he strove to adopt the scientific knowledge transmitted from the West via China. The path he took in his scholarly pursuit led him to create a unique knowledge system of his own. This is a prime example that shows how the system of Western knowledge, when translated into the scholarly language of East Asia, was accepted and adapted in the framework of the Confucian intellectual tradition.

Gihak as a New Universal Science

Choe Hangi is regarded as a unique thinker in the history of Korean philosophy. The purpose and values of his scholarship shared much with traditional Confucianists, but it also differed from their work in terms of the methods used to generate the content and, most of all, the intellectual resources that he deployed. In particular, he invested so much in purchasing new books imported from China that he used up almost all his family's assets. He mainly sought Western scientific literature translated into Chinese, which were later widely used in his writings in various ways. His works cover a broad range of Western scientific disciplines transmitted to China at that time, including astronomy, mathematics, medicine, chemistry, optics, physics, agricultural policy and technology, and machinery. He acquired Western-imported knowledge from various fields since his goal was markedly different from those of contemporary intellectuals. He aimed to incorporate Western scientific subdisciplines into the large knowledge system that he envisioned.

When Choe was active as a scholar, protestant missionaries in China were vigorously translating a significant amount of new scientific information of fairly broad sub-disciplines. His interest in Western science began in the early stage of his academic pursuits. In 1836, at the age of thirty-four, he wrote *Singitong* (*Penetrating Supernatural Qi* 神氣通) and *Chucheung nok* (*Records of Induction and Inference* 推測錄), which he later merged into one book titled *Gicheuk cheui* (*Discourse on the Body and the Operation of Qi* 氣測體義). From this, we can infer that in his thirties Choe had already completed the framework of his theory to some degree since the structure and intent of his study is evident throughout the book. As soon as he had constructed an outline of his thought, he began fleshing it out in a manner different from what his peers in Joseon would have done. For example, he edited *Taixi shuifa* (*Hydrological Methods of the Great West* 泰西水法) by Sabbathinus de Ursis (Ch. Xiong Sanba 熊三拔, 1575–1620),⁵ a book on water conservancy methods. He used it as the basis for writing *Yukhaebeop* (*The Way of Water Conservation and Irrigation* 陸海法) in 1834. Another of his works, *Simgi doseol* (*Diagrammatic Explanation of the Heart-Mind's Instrumentality* 心器圖說, 1842) provides illustrations and annotations of machinery, such as

3 *Oju yeonmun jangjeon sango* 五洲衍文長箋散稿, “Saso jeolbun pyeongakbon byeonjeungseol” 士小節分編刻本辨證說.

4 *Myeongmidang sango* 明美堂散稿, “Hyegang Choegong jeon” 惠崗崔公傳.

5 *Taixi shuifa* presents drawings of various hydraulic machines with annotations based on modern hydraulics.

a crane, and of the movement of celestial bodies. He based it on *Yuanxi qiqi tushuo luzui* (*The Essence to the Book of Wonderful Machines* 遠西奇器圖說錄最) which contained drawings and annotations of structures and the principles of various machines which was authored by the Jesuit missionary Johann Terrenz Schreck (Ch. Deng Yuhan 鄧玉函, 1576–1630). A later work by Choe, *Seonggi unhwua* (*The Dynamic Change of Stellar Qi* 星氣運化, 1867), was composed of excerpts from *Tantian* (*Conversation about the Sky* 談天), the Chinese translation of *Outlines of Astronomy* (1851), a beginner's guide to astronomy, written by Frederik William Herschel (1738–1822) in Britain and jointly translated by the British missionary Alexander Wylie (1815–1887) and Qing mathematician Li Shanlan 李善蘭 (1810–1882) (Jun 2010, 62–63).

Choe Hangi adopted knowledge from various periods, from Renaissance period science, transmitted by the Society of Jesus (informally known as the Jesuits) in the seventeenth century, to modern science of the early nineteenth century. He edited or interpreted this information in his own way and used it in his writings. From his mid-thirties, he began to write books based on the sub-disciplinary knowledge that he acquired from his study of Western science. When he was forty-nine, he conceived the idea of writing, *Injeong* (*On Governing the People* 入政), a work that would become seminal. He finished writing it in 1860 when he was fifty-eight. In 1857, he authored *Jigu jeonyo* (*Descriptions of the Nations of the World* 地球典要) which introduces various customs and practices from different countries. He followed this with *Gihak* (*Qi-Study* 氣學) which encapsulates the complete structure and system of his theory of *qi* 氣 (Kwon 2004, 27–30).

Modern scholars might easily see Choe's adoption of Western knowledge as using advanced knowledge to develop scholarship in East Asia which had fallen behind the West in terms of science. In other words, his passion and interest in Western knowledge, in particular science, is usually seen as the pursuit of modernism, and thus scholars might define him as a "scientific thinker" who was learned in the traditional knowledge of the pre-modern East Asia but accepted new science from the West. As objectivity, rationality, coherence, and systemization are essential to Western science, modern scholars might see Choe as an unsuccessful thinker whose achievement is nothing more than listing bits of information selectively taken from Western theories. Indeed, his understanding of Western science deviates from the original context, and his study can be easily viewed as a variant kind of scholarship made through

the inclusion of selected Western knowledge and his own contributions. Also, his understanding and acceptance of Western science is insufficient to consider him either modern or scientific. Accordingly, the appraisals of Choe Hangi's scholarship range between general evaluations focused on his adoption of Western science and those that express disappointment in particulars of his thought and disapproval of his limited interpretations of random selections from Western science.

Our question starts from here. Can Choe Hangi's ideas and the implications of his scholarship be explained only by the general evaluation that he was tied to the framework of traditional thoughts and concepts despite his intention to actively adopt Western scholarship? Should his arbitrary selection, application, and adaptation of Western science be considered nothing more than unsuccessful scholarship? One may do justice to Choe's scholarship and meaningfully evaluate it by setting down detailed questions and discussion topics bridging the general and particular evaluations. The questions that take a full grasp of Choe's scholarship are as follows: why was Choe Hangi so passionate about studying Western science? What did he expect to find through this study and what kind of impact did he want to achieve? One should ask why he wanted to adopt intellectual resources originating from foreign countries, and what did he intend to explain with that knowledge.

The common answer to these questions is as follows. The scientific knowledge of nineteenth century Europe was relatively advanced compared to that of the East. From the perspective that European modernization was a product of scientific development, one may conclude, "Choe Hangi intended to introduce modernity to Joseon by using advanced Western knowledge." This assessment, however, is hardly fair to Choe's work because he was neither aware of the scientific progress occurring in Europe as represented by the Scientific Revolution, nor was he much interested in the effects of the scholarly achievement on European society.

From the natural science of the Renaissance to Newton's mechanics and the latest knowledge of the nervous system in the nineteenth century, Choe Hangi embraced them all. However, he was not very interested in the historicity of Western science, the belief that scientific knowledge developed by discarding old knowledge from previous generations. Above all, most of the Western learning books that Choe Hangi came across were not science textbooks that contained only modern scientific information; rather, they were the products

of “mediated knowledge” written with a goal to transmit Christianity to East Asians. The explanations of Newton’s mechanics and descriptions of the nervous system were purposed to prove the existence and omnipotence of God. Choe recognized the utility of individual Western scientific theories but regarded as a clear limitation the attribution of all causes of every existence and changing movement to God. More importantly, he did not intend to “learn” Western science, but to apply and position it within his own study.⁶ In other words, Choe considered Western scientific knowledge a resource for his scholarship, rather than an end goal.

The fact that Western knowledge was a resource for his study means that he intended to use it to establish a higher level of study—*gihak*. He aimed to incorporate the knowledge of Western scientific subdisciplines into the larger system of his own devising called *gihak*. In fact, *qi* is a fundamental concept that is arguably the most important in all fields of study in East Asia, including Neo-Confucianism, from antiquity up through Choe Hangi’s time. The term *qi* was traditionally used to interpret both world and man, life and movement, and thoughts and moral conduct. It was both the material constituting all things and a constitutional principle at the same time; it is a broad concept that explains not just matter but also vitality and movement.

Although *qi* is a complex and comprehensive term that cannot be simply classed as a conceptual category of “material,” it is an axiomatic concept that has never been discarded or doubted in East Asia up to at least Choe’s time. *Qi* is mentioned in the *Zhou yi* (*Zhou Book of Changes* 周易), *Huangdi neijing* (*Yellow Emperor’s Canon of Internal Medicine* 黃帝內經), the *Guanzi* 管子, the *Mengzi* 孟子, and the *Zhuangzi* 莊子. The concept of *qi* in those books is very nearly the same and remained unchanged in later philosophical schools of thoughts such as Confucianism and Daoism as well as in medicine. Even after the emergence of Neo-Confucianism, which aimed to explain the world by focusing on *li* (principle 理) rather than *qi*, no significant change was observed in the semantic network of *qi*. Therefore, among scholars influenced by Neo-Confucian

thought, few would discount the importance and implications of *qi* along with *li*, the constitutional principle of the world. Also, philosophers such as Zhang Zai 張載 (1020–1077) of the Song period or Dai Zhen (1723–1777) from the Qing period focused their theories on *qi*, not *li* when they presented a monistic view of the world. In this light, Choe Hangi’s strategy of centering his theory on *qi* seems nothing new.

Choe Hangi’s *gihak*, however, does not simply emphasize the aspect of *qi* within the framework of the theory of *li* and *qi*. He went beyond the traditional concept of Neo-Confucianists and found unique layers and problems to *qi*. First, he separates it from *li*. Then, he discarded the traditional principle 戴震 of *yin-yang* and Five Elements which conceptualizes the movement and change of *qi*. For him, *qi* was not simply a cosmic principle or a natural phenomenon, but a concrete, empirical matter that could be experienced and measured. According to Choe Hangi, the universe operates by the interaction between *qi* and material.

People call what can be seen material and what cannot be seen *qi*, but who knows that all things in the universe begin with *qi*, change to material, and then change and become *qi* again?⁷

Unlike other Confucian scholars, Choe Hangi believed that *qi* could be verified by Western scientific theories and experiments. He reached that conclusion as the result of joint efforts with worthy men, “Recently, the form of *qi* was clearly revealed in experiments with machines” (*Myeongnamnu surok* 明南樓隨錄). He was convinced that the actual existence and movement of *qi* could be proven by mechanical experiments.

It is only after knowing the form and matter of *qi* which is everywhere under Heaven that one can understand the principle of movement and transformation, *unhwa* 運化. When a bowl is placed upside down in a water jar, the water does not enter the bowl’s interior. As the inside of the bowl is full of *qi*, water cannot enter it. This is the first proof that *qi* has form and matter. In a room with two windows facing east and west, if the east window is quickly closed, the west window opens by itself. This is because

⁶ For example, in 1866, Choe Hangi wrote a book, *Singi cheonbeom* (*A Practical Understanding of the Body-Machine Theory* 身機踐驗) which consists of excerpts of medical books translated into Chinese by Benjamin Hobson (Ch. He Xin 合信, 1816–1873) along with his opinions. In the book, he coined the term *singi* (body-machine) and used it in describing a human body. Even in quoting the Chinese text, he used *singi* in place of “*quantu*” 全體, a Chinese translation of “anatomy.” For detailed information, see S. Kim 2020.

⁷ *Singi cheonbeom* 身機踐驗, “Muljil jeuk gijil” 物質即氣質.

qi energy which fills the room is expelled in a movement like a bellow. This is the second proof that *qi* has form and matter.⁸

Choe Hangi asserts that the essential movement of the universe called *unhwa* should be understood by looking at substance and material form. If not, he cautioned, the study will end up a pointless discourse which ascribes the universe's essential movement to *li* or *wuji* (the Great Void 無極) in Neo-Confucianism, or formless ghosts. In this context, his study of *qi* was not an attempt to establish a new metaphysical theory with *qi* at its forefront. To him, *qi* was more about how the myriad things could exist rather than about their principle. Above all, it was something that could be experienced and measured through observation and experimentation in real terms. With a belief that the operation and movement of *qi* can be proven, he consistently endeavored to understand the movement of all machines and changes in natural phenomena in relation to the movement and change of *qi*, aided by Western experiential scientific knowledge.

He borrowed widely from specific disciplines of Western science in order to empirically demonstrate *qi*. For example, his book *Gicheuk cheui* 氣測體義 includes general theories on atmospheric refraction and optical phenomena, and information about thermometers taken from Western science. Of course, the Western scientific knowledge that Choe encountered was not systematic and consistent but was an assortment of heterogeneous information from different sources and backgrounds that ranged from astronomy and mathematics in the Middle Ages to the latest Newtonian mechanics, astronomy, medicine, and chemistry in the nineteenth century. Scientific discourse from different time periods was presented with a mixture of various conceptual tensions and contradictions. When Chinese books were the only sources from which to learn Western science, he had no option but to take an incidental and sporadic approach to those theories.

His goal, however, was not to introduce or understand Western science for its own sake. Rather, he took parts of Western scientific theories from their original contexts and included them in the subdisciplines of the study of *qi* to constitute his own theory. For instance, Choe Hangi had no information

about the important turning point in the history of science called the Scientific Revolution. In his view, both the medieval science transmitted by the Society of Jesus and Newtonian mechanics which emerged after discarding mechanical models were equally valid. Furthermore, he arbitrarily used Western knowledge interpreting ideas, for example, taken from Newton's theory as "Giryunseol" (theory of the *qi*'s wheel), which states that *qi* wraps around an object in a circle (S. Kim 2016).

He adapted concepts and theories where necessary according to the context that he set out. He purposefully ignored or deleted information if it did not align with the key principles which he conceived in *gihak*, such as the principle of active, transformative *qi* (*unhwagi* 運化氣). He aimed to construct a single consolidated framework within which to interpret the movement and change of the universe; he called this paradigm *gihak*. He claimed that the character *qi* (Ko. *gi*) had been in use since four to five thousand years ago but that it was he that coined the term "*gihak*" and proclaimed it a new theory created by himself. According to his explanation, the absence of the term, *gihak*, indicates that scholars failed to fully understand the essence and operation of *qi*.

The nomenclature of studies are: *seonghak* (sage learning 聖學), *dohak* (learning of the Way 道學), *ihak* (learning of *li* 理學), *simhak* (learning of heart-mind 心學), *seonhak* (Zen Buddhism 禪學), *yuhak* (Confucianism 儒學), *bulhak* (Buddhism 佛學), *cheonhak* (learning of the Heaven 天學). Only for *qi*, is there no named school or master since it was not understood and recognized.⁹

He was convinced that he fully understood and was able to perceive *qi*, an achievement that no one else could make. His conviction relied on empirical knowledge of nature and humans which he gained from Western science. He did not mind if the process lacked a systematic approach or specific methods. As long as the project rendered *gihak* a class of universal science that included particulars proposed by him and served as a reference for subdisciplines of knowledge, the fact that he himself did not experiment or validate the theory with mathematical methods did not matter at all. This relates to the fact that

⁸ *Injeong* 人政, "Giji hyeongjil" 氣之形質.

⁹ *Injeong* 人政, ch.13.

Choe's intention for *gihak* was to design a universal science that concerned all matter and existence and would transcend every discipline. Universal science is laid out at the highest level in a hierarchical relationship with scientific subdisciplines, for example, medicine, geology, or mechanics, that prove individual phenomena. In this sense, universal science differs from theories or methodology used to validate regarding specific problems. Just as modern scholars presenting macroscopic discourses or Big History cannot be criticized for the absence of objective experiments or mathematical validation for future phenomena, Choe Hangi should not be requested to prove his theory of *qi* by performing experiments.

In his view, individual phenomena and theories in Western science did not exist independently but always converged to and were deduced from *gihak* which was a universal science or meta-discourse. For him, it was the highest-level study and a meta-discourse serving as the basis and assessment standard for the knowledge of particulars. Other theories are treated as elements of knowledge to be deployed and evaluated by the highest-level study. In this context, it may not be valid to evaluate Choe Hangi's study based on the degree to which he understood Western science by forgoing establishing a relationship of the study of *qi* as a basis and a condition for justification of particular knowledge because it is merely an assessment from the perspective of Western science. Choe Hangi's declared goal was not to introduce or learn Western science itself but to utilize Western science as a tool for constructing his own framework and logic for *gihak*.

Understanding Humans through Active, Transformative *Qi* and Supernatural *Qi*

An important characteristic of *gihak* as a universal science is that this system was built upon actual theories and evidence and not ideological thinking about *qi*. Choe Hangi found those physical theories and evidence in Western science. The Western scientific subdisciplines were instruments with which to prove and theorize empirical *qi*, called active, transformative *qi*, *unhwagi* 運化氣. Choe developed a unique concept named “*unhwa*” 運化 to mean vital, moving, circulating, and changing *qi* with an emphasis on self-sustaining energy and the resulting ability of actively changing.

Unhwa is a key concept which Choe established in the 1850s. He seems to have arrived at this concept and theory of *unhwa* based on his understanding of the revolution and rotation of the earth which he gained from *Diqiu tushuo* (*Explanation of the Map of the Globe* 地球圖說) published by the French missionary Michel Benoit (Ch. Jiang Youren 蔣友仁, 1715–1774) in 1767. He used this concept as an essential philosophical principle in his books *Gihak* and *Injeong* written in the late 1850s (Kwon 2004, 28–29).

Choe Hangi believed that he could demonstrate and prove *qi* through the operation and experimentation of machines which were set forth in Western scientific discourses and theories; however, he finds the ultimate cause is active, transformative *qi*. He was consistent in using active, transformative *qi* in forming the structure of his study of *qi* by allocating individual Western scientific theories and knowledge to it. In other words, the *qi* demonstrated by experiments is not energy, material, or force but an empirical form of active, transformative *qi*. Saying that machines operate because of active, transformative *qi* and that experiments demonstrate this may be an erroneous or unscientific inference in minds of contemporary scientists. But, from Choe's perspective, it is meaningless or mistaken to explain specific scientific knowledge without referring it to *gihak* or active, transformative *qi* because he used Western scientific knowledge in order to validate the detailed structure of *gihak* and explain the resultant effects in sub-disciplines.

Unhwa is regarded as the principle of existence and activities of all beings. Choe proposed this concept or principle as a pillar of his theory to encompass human mental activities, organization and operation of societies, and moreover the structure and activities of the universe. He classified *qi* into two categories: the *qi* of shape and material, *hyeongjil* 形質, and active, transformative *qi*.

There is *qi* of shape and material and active, transformative *qi*. The former refers to the bodies of the earth, moon, sun, stars, and the myriad things; the latter includes rain, light, wind, clouds, coldness, warmth, dryness, and humidity. The *qi* of shape and material is comprised of and originates from active, transformative *qi*. Large objects endure for a long time while small things disintegrate soon; All of these are attributed to the operation of active, transformative *qi*.¹⁰

10 *Qihak* 氣學, ch. 2.

Although he categorizes *qi* using the presence of physical form and material as an easy classifier, this universe and its operation are ultimately the mere expression and adaptation of one active, transformative *qi*.

If existence and activities in the universe are those of active, transformative *qi*, *li* loses its standing as an ontological principle in Neo-Confucianism. Choe does not acknowledge *li* as an ontological principle. If *li* is removed as an ontological principle, the condition of man, which used to be explained by *li*, should also change. If man is neither made up of nor regulated by *li* and is composed of only active, transformative *qi* which is constantly moving and changing, how can the morality of man, which was previously assured by *li*, be explained? Choe Hangi explores anew the position of man in a world in which every being, including humans, is comprised of active, transformative *qi* but is still obligated to fulfill moral values.

In *Singitong*, written in his thirties, Choe suggests a unique concept, supernatural *qi* (*singi* 神氣) to explain the nature of cognition. The concept of supernatural *qi* describes the existence and activities of a myriad things ranging from mechanics to the human cognitive activities. He used this concept to explain the sensibility of sensory organs and the cognitive faculties of humans based on the activities of *qi*. In a traditional context, *sin* 神, or spirit, refers to an operation or activity that is beyond the limits of human perception. Choe conceptualized the nature of *qi* by combining *sin* and *gi* (Ch. *qi*) although its cause and process cannot be empirically observed or measured. He stated, “*qi* is one; if it is endowed in man, it becomes the supernatural *qi* of man; if it is endowed in an object, it becomes the supernatural *qi* of the object.”¹¹ From the perspective of man, supernatural *qi* refers to the cognitive abilities with which man experiences and perceives the world. At birth heaven endows man with supernatural *qi* and a body. Supernatural *qi* does not have any cognitive abilities other than reasoning from experience and memorizing. Supernatural *qi* enables humans to perceive the world and through those perceptions to reason and experience the world. In other words, Choe's theory states that supernatural *qi* includes the meaning of “heart-mind” (*sim* 心), a concept traditionally considered a cognitive subject in the context of Neo-Confucianism. Choe views heart-mind as the agency that senses and perceives things. However, the

meaning of supernatural *qi* is closer to the soul of scholasticism than to the heart-mind concept of Neo-Confucianism. Choe transposed the three functions of the soul mentioned in books written on the soul by Jesuits in China into three operations of supernatural *qi*.

Scholasticism emphasizes that humans are capable, through reasoning, to make moral choices using memory and inference along with volition. In particular, in order to explain the cognitive abilities of humans, Choe used the terms: *myeongo* (reason 明悟), *ae yok* (will 愛欲), and *gieok* (memory 記釋), terms that he borrowed with slight modifications from Francesco Sambiasi (Ch. 畢方濟, 1582–1649) in his book *Lingyan lishao* (*A Humble Attempt at Discussing Matters Pertaining to the Soul* 靈言蠡勺) which explains three functions of anima with the terms *mingwu* (reason 明悟), *aiyu* (will 愛欲), and *jihan* (memory 記含) in introducing the scholastic theory of the soul. As the soul presides over memory and judgement in the scholastic context, supernatural *qi* uses “*chu*” (induction 推) based on knowledge obtained through the senses and “*cheuk*” (inference 測) to pursue new knowledge. Then the acquired knowledge of universal principle is stored in supernatural *qi* and, when necessary, can be recalled.

Supernatural *qi* adopts most of scholasticism's epistemological system and therefore can be seen as a concept synthesizing an Eastern and a Western understanding of humans. But supernatural *qi* is not the same as soul. Above all, supernatural *qi* is in essence a form of active, transformative *qi*, *unhwagi*, operating in humans, and thus it manifests materiality and vitality as *qi*. For this reason, Choe Hangi's *gihak* unites epistemology and physiology as an active, transformative *qi* functions in humans without division into body and spirit. Therefore, Choe's concept of supernatural *qi* cannot be explained only by the scholastic theory of soul.

Also, Choe Hangi emphasizes empirical experience of the objective world in explaining supernatural *qi* as follows, “Supernatural *qi* by its nature is active and has difficulty remaining consistent and thus often results in miscomprehension and delusion. Therefore, studying objects in person and having empirical validation are necessary.”¹² For Choe, the entire process of cognition engages the external world. He argues that reasoning should be based

11 *Singitong* 神氣通, “Chetong gijil gagi” 體通氣質各異.

12 *Shingitong* 神氣通, “Tongheo” 通虛.

on the empirical and objective world. In this sense, supernatural *qi* offers a clue to understanding the fundamental conditions of humans presented in his *gihak* as supernatural *qi* operates through empirical experiences of a constantly changing world.

In Choe Hangi's system, values are not innate in the heart-mind of humans and so neither is knowledge. Everything is the outcome of the operation of supernatural *qi*; perpetual universal values are not innate, but they manifest themselves in the changes and movement of *qi*. According to this logic, the mental activity of humans is different from that of "heart-mind" in the Neo-Confucian context in which *li* is the source of all values and the fundamental principle of all beings. It is also different from that of the soul as a reasoning ability solely endowed by God. Choe Hangi proposed a unique perspective to explain the reasoning ability of humans based on the naturalness and empirical nature of *qi* by connecting the "heart-mind" theory of Neo-Confucianism and the scholastic theory of the soul with the monistic *qi* theory.

Three Levels of the Universe and *Gihak* as Shared Learning

Active transformative *qi* is the operating force of the entire universe. It connects all beings not just at the human level but at the society and universal levels in oneness. Choe Hangi suggested it is the key axis that links these three levels or three phases. He divides the scope of *gihak* into three levels: movement and transformation at the cosmic level (*daegi unhwua* 大氣運化), movement and transformation at the social and political level (*tongmin unhwua* 統民運化), and movement and transformation at the human level (*ilsin unhwua* 一身運化). The movement and transformation at the cosmic level, *daegi unhwua*, refers to a cosmology grounded on a *qi*-based world view and falls into the area of natural science that studies physical forms and matter, and the movement of *qi*.

Movement and transformation at the social and political level, *tongmin unhwua*, refers to a social-engineering arena concerning the organization and operation of politics and society. Lastly, movement and transformation at the human level, *ilsin unhwua*, concerns the study of humanity and encompasses human body and cognitive abilities. For Choe Hangi, however, these three levels are not hierarchal; the movements and transformations at each of the three levels are rather durable and open by nature as they are interconnected.

Active transformative *qi* is the key principle and substantial force that integrates and connects all three. In addition to these three levels, Choe defined another dimension, movement and transformation at the relational level (*gyojeop unhwua* 交接運化) to explain the overall relationships between humans expounded in *Daxue* 大學—cultivating character; regulating the family, governing the country, and securing peace and order throughout the world.

Movement and transformation at the human level is crucial to cultivating character; movement and transformation at the relational level, to regulating the family; movement and transformation at the social and political level, to governing the country; movement and transformation at the cosmic level is crucial to securing peace and order throughout the world.¹³

In this aspect, his worldview seems confined to the traditional Confucianist ideology. Individuals, society, country, and the universe move on one axis, which interface with each other by the moving, vital *qi* penetrating all those levels. In this, virtue is omnipresent in perpetuity. Individuals do not just stay as a self but are mandated to extend their egos to the cosmic level. This self-extension should be realized by all people under Heaven at the social and political level. In this sense, Choe argues that *gihak* is a learning applicable everywhere under Heaven.

Gihak collects what all people see and hear using those sensory organs such as eyes and ears and summarizes what people experience and test it as a standard; the aim is to collect knowledge from the people and disseminate it [back] to the people. Therefore, this is about all people learning together, not alone. The integration of this study regarding movement and transformation of people under heaven will be done by one person but a wider dissemination depends on people close or afar.¹⁴

Choe intends to expand the scope of *gihak* from East to West and from antiquity to contemporary time. His goal was to use this study as a public resource for everyone in the world. He regarded it a duty to compile the studies of *qi* and was devoted to integrating Confucianism, Buddhism, and Western

13 *Injeong* 人政, "Buunhwa pyeongwunae" 敷運化平宇內.

14 *Gihak* 氣學, ch. 2.

scholarship.

If worthy men in the West read the Chinese classics written by sages, they would definitely take some and discard others; If wise Chinese read classics by Western sages, they would take some and discard others. If one collects and finds reasons in how they decide what to take and what to discard, what is taken should be the Way that can be acted upon and what is disregarded shall not be the Way.¹⁵

His enterprise with *gihak* was to create a worldview and build a system of subdisciplines that reflect that world view. His vision for an exchange of knowledge and dissemination had a far greater scope than those of preceding or contemporary scholars. As ambitious Europeans successfully reached out across the world with advanced navigational technologies, Choe came to imagine a new space connected to every nook and corner of the world. After he learned that Juan Sebastián Elcano (1476–1526), a sailor in the Magellan expedition in the early sixteenth century succeeded in voyaging around the world after stopping in the Philippines and India, and crossing the Atlantic Ocean, his hopes were raised that the whole world could be connected.¹⁶

Choe Hangi wrote, “Today, Western ships can sail around the world from east to west or west to east. It takes eight to nine months to go around the world thanks to the accomplishments of those who came before.”¹⁷ He expanded the scope of *gihak* to the entire physical world, not to an abstract cosmology. He believed that the development of transportation would facilitate communication and the development of countries around the world. He thought that with the exploration of sea routes, countries could become one and goods and products could move around and that he would change not just customs but the teaching of rites.

The teaching of rites originally meant a Confucianist ideology of unchanging values and cultural legitimacy. But Choe went beyond this traditional perception and boldly believed that the teaching of rites could change. His optimism came from the belief that no cultural legitimacy is fixed,

and only substantial things survive as time changes. Choe argues, “Teachings change according to contemporary customs in each country and also by later generations depending on their level of mastery; Among those changes, what is useless, and void [of relevance] is discarded, and [those things of] substance are taken [to heart].”¹⁸ He pursued practical benefits and interests by looking beyond the traditional ideology of teaching of rites.

He would accept what looked beneficial as much as possible for practical purposes. For this reason, it was necessary to accept and use Western technological knowledge that was more practical and beneficial.

People in Western countries are able to travel due to advanced machinery and profits from trading....Studies of measurement and calculation and machinery, in particular, millings (water-powered or steam-powered textile machine), windmills (removing seeds from cotton), ships, and canons are all more practical.¹⁹

A pragmatic approach and profit-making requires one to make changes in response to changing situations. Choe stated, “As for the method to deal with change, one should make changes in response to the change; one should not refuse changing on the grounds that some things are unchangeable.”²⁰ The status quo should not remain so on the ground of things considered unchangeable; it should change in response to changes. A concrete example is the study of advanced technologies from the West.

For those who felt threatened by the rapid spread of Catholicism in Joseon at that time, Choe said, “We should not be concerned more about the spread of Western religion than about a failure to adopt all practical things from [the West].”²¹ He thought that Joseon should proactively participate in the world that had already opened up. But the participation in this process does not mean the inferior is following the superior. China has its limitations and so does the West. Both China and the West can find themselves lopsided if they are unyielding or obdurate. Accordingly, in Choe’s view, the East and the West are complementary.

15 *Gihak* 氣學, ch. 2.

16 *Singitong* 神氣通, “Cheonha gyoboek chwicheonin ijiljeong” 天下教法 就天人而質正.

17 *Chucheuknok* 推測錄, “Haebak jutong” 海舶周通.

18 *Singitong* 神氣通, “Cheonha gyoboek chwicheonin ijiljeong” 天下教法 就天人而質正.

19 *Chucheuknok* 推測錄, “Dongseo chwisa” 東西取捨.

20 *Chucheuknok* 推測錄, “Haebak jutong” 海舶周通.

21 *Chucheuknok* 推測錄, “Dongseo chwisa” 東西取捨.

As for excess and deficiency, decide whether to use it or not, by examining its state. As for void and substance, decide to take it or not, based on evidence from empirical testing. If the laws of China and the West are reconciled according to transforming *qi*, all scholars in the world can form a single school of learning and a consistent universal law can preside over the myriad things.²²

He believed that communication could make China and the West complementary because of his conviction that he had laid the foundation for communication and change through his philosophy. He was convinced that anything useless would vanish of its own accord and would be replaced by something substantial. His optimism that all matters would be presided over by one penetrating law led him to believe in communication between the East and the West. Strictly speaking, Choe did not see Confucianism as the source of civilization and knowledge acquisition.

He stated, “Of the Way of Confucianism, one should acquire the principles of ethics, benevolence, and righteousness and discern and reject ghosts, calamity, and augury; Of the laws of the West, one should learn calendrical calculation and the theory of *qi* and the removal of strange, deceitful things and things concerning calamities; Of Buddhism, emptiness should be substituted by substance. If one can reconcile the three teachings of Confucianism, Buddhism, and Daoism in harmony and execute reform for the new based on the old, it can be a teaching that is truly applied to the entire world.”²³ In this belief, he intended to combine Confucianism, Buddhism, Daoism, as well as Western science.

His basis to selectively accept Eastern and Western learning and to envision universal civilization can be found in his work of penetrating scholarship, *gihak*. From the perspective of *gihak* as a universal science, all beings are in the process of changing in time. He stated, “What is truly found to be better than ours—for example, good laws and institutions, useful machines, and quality local products—should be adopted for the good governance of the country.”²⁴ His remarks relate to the following believe of his: “What is learned in the West

can be useful for us. Even if there are areas in which we cannot catch up with them, we can look at our situation and theirs and complement what is lacking. Whether to take it or how to control it is solely up to us.”²⁵

Choe Hangi still had a sense of duty rooted in the Confucian world view. But he was not restrained by the structure of traditional scholarship, rather, he ventured to cross the intellectual boundary by objectifying Confucianism and Neo-Confucianism, the very foundation from which he grew. He declared *gihak* was a universal science and believed that the existence of *qi* as a substance and its movement are empirically demonstratable through Western science. He created the system and structure of *gihak* and used scientific methodologies and principles, believing that his study of *qi* could provide the framework for integrating all studies and civilizations. *Gihak* was an ambitious project to integrate the world into a single realm serving as a community for all people from the East and the West to communicate without barriers and to flourish.

Conclusion

From the perspective of modern scholars, Choe Hangi's idea seems ironic. His claim that all existence should pursue moral virtue as members of a moral world while at the same time emphasizing the materiality of *qi* sounds erroneous. Also, from a scientific view, his scholarship is not immune to criticism. Although he intended to depart from the metaphysical frameworks of Confucianism and Neo-Confucianism or Christian theology provided in Western learning, it is difficult to see that he had completely removed those views and achieved an objective, rational scientific world view. He emphasized observation, experiment, and validation, but he did not study theory to prove a particular problem or examine the conditions and testing methods nor did he perform experiments.

Also, his study has clear limitations with regard to Confucianism and Neo Confucianism. Choe presented *gihak* with an intention to get away from the Confucian and Neo-Confucian ideologies and understanding of humans. Yet, he does not seem completely free from the Confucian world view in

22 *Injeong* 人政, “Ipbon yupyeongdang” 立本有偏黨.

23 *Singitong* 神氣通, “Cheonha gyobeop chwicheonin ijiljeong” 天下教法, 就天人而質正.

24 *Chucheknok* 推測錄, “Dongseo chwisa” 東西取捨.

25 *Injeong*, “Ipbon yu pyeondang” 立本有偏黨.

that he explained humans, society, and universe with one principle and value and regarded humans and all things in the universe as having a mandate to implement moral values through their own existence and movements. Choe's acceptance and adaptation of Western science is not simply an exploration of knowledge as a scholar of the study of nature, but the outcome of his sense of duty and pursuit of knowledge underpinned by the traditional values of East Asia. He may well be a dreamer who tried to assemble various pieces of Western knowledge on his own into part of his pursuit of knowledge still based on East Asian value.

These negative assessments of Choe Hangi, however, may just be a one-sided view arising from a results-oriented or modern perspective. If the *gihak* that Choe tried to establish can be regarded as universal science, a higher discipline and justification for all subdisciplines, not as the scholarship that comprised a collection of subdiscipline knowledge, it may not be fair to criticize the absence of theories and experiments for universal science. Strictly speaking, the reason that his vision for the study was not approved or established in society may not be that his scholarship lacks intellectual vigor or is unrealistic but that existing world views, institutions, systems of studies eviscerated the power or discarded his language and concepts. Therefore, caution is needed to avoid bias in evaluating Choe Hangi's *gihak* which aimed to integrate the systems, cultures, and values of East and West by applying a standard of science and modernity which were beyond the horizon of his scholarship in the first place.

His scholarship was not more than a transient process formed at the confluence of knowledge from the East and the West. He anticipated that scholarship in the West will become ineffective in time. He intended to interpret the world and explicate human cognition through observing movement and existential transformation, not in terms of matter. In so doing, he believed that humans could communicate, exchange, and develop without any barriers. His optimism seems a pointless, groundless delusion, but the value of his scholarship with its emphasis on the implementation of morality, most of all, the duty of the world's citizens, and pursuit of integration of East and West still merit studying for our time.

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Abstract

Choe Hangi, a 19th-century Korean scholar, established an original field of scholarship called *gihak*, or *qi*-study which goes beyond the boundaries of the Confucian and Neo-Confucian intellectual foundation of that time. In his study, he used as important intellectual resources Western Learning taken from books translated into Chinese by European missionaries who aimed to propagate Christianity in China. The Western scientific knowledge in those books led him to develop a unique paradigm of thought. This paper focuses on the purpose and effect of his adoption of Western scientific knowledge, rather than his perspective or the particulars of the Western science introduced to his study. The proposition that his *gihak* should be defined as a meta-discourse and universal science is instrumental in order to expound the implications and purpose of his adoption of Western knowledge. This notion will frame Western science as the sub-disciplinary scholarship constituting the details of the universal framework presented in his *gihak*. Choe perceives the movement and action of *qi* as the essence of the world. With an eye towards establishing *gihak* as a universal science, he used his knowledge of Western learning to prove that the movement and action of *qi* can be used to interpret the nature and purpose of universe and all living things including humans. This paper will explain the characteristics of *gihak* as universal science, examine the three layers of scope in his study, and a shift in human understanding. Through this, his intention to address the problems of the time, communicate with the world, and pursue peace through the fusion of Eastern and Western knowledge will be demonstrated.

Keywords: Choe Hangi, *gihak* (*qi*-study), *unhwagi* (active, transformative *qi*), Western Learning, *daegi unhwua* (the movement and transformation at the cosmic level), *tongmin unhwua* (the movement and transformation at the social and political level), *ilsin unhwua* (the movement and transformation at the human being's level), *singi* (supernatural *qi*)