

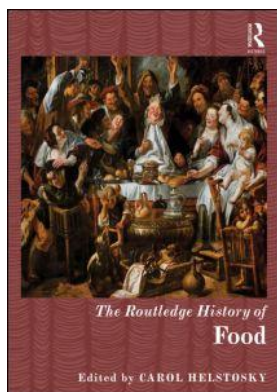
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SCIENCE, FOOD AND HEALTH IN CHOSŎN KOREA

Michael J. Pettid

Yak sik tongwŏn (藥食同原)

Medicine and food are of the same origin.¹

Introduction

While it might seem a modern trend to relate the foods we eat to the ability of our bodies to combat disease and maintain health, in premodern Korea this was most certainly the case for a good deal of the population. The combination of an emphasis on scholarship fostered by Confucianism and a long following of the cosmology of East Asia led those in Chosŏn Korea (1392–1910) to develop a comprehensive science that covered aspects of the body and its relationship to diet. Medicinal practices developed from this perspective resulted in food being seen as a major part of the maintenance of health, for both preventing and curing illness. This understanding moved far beyond simply those involved in medicine and became part of the general assumptions made about diet and health. Such evidence is seen in records found in literary miscellanies, cookbooks, and even official records that comment on the efficacy of certain foods in aiding health. Moreover, dietary customs reaching the modern era also reflect a strong acknowledgement of the relationship between food and overall health.

A difficulty in writing a chapter like this is to find records of how diet was actually conceived in past times. Fortunate for the researcher of premodern Korea is the penchant of Chosŏn period (1392–1910) scholars for leaving a great wealth of writings to show how these individuals understood various aspects of life. This is supplemented with a huge number of government publications also covering almost every facet of life. Of course this creates a problem of excess: one needs to wade through many, many works, mostly handwritten in Classical Chinese, to find the gems on which one can build research. And we also are limited by those who were literate and left writings behind, so there is the risk of erroneously extending a small sample to larger society. Thus we must use a variety of sources to formulate what must have been orthopraxy for the population in general.

While there are numerous works from different eras that played an important part in the development of the overall ideas that bonded food and health, one work that had significant and lasting influence was the *Tongŭi pogam* (東醫寶鑑 Exemplar of Eastern Medicine) compiled by Hŏ Chun (許浚 1546–1615) beginning in 1596. This work served to synthesize many of the existing notions concerning food and the elements that governed

health and thus became the foundation for the further expansion of these ideas through the present day. Furthermore, the influence of this work was not limited to simply Chosŏn Korea, but it spread throughout East Asia and China, demonstrating the flow of culture throughout this region.

The present study will focus primarily on the *Tongŭi pogam* and examine some of the entries in the book that directly discuss the relationship between certain foods and maintaining health or curing illnesses. Along with this work, an understanding of the fundamental tenets of East Asian cosmology, particularly the Five Phases and *yin-yang*, is needed to understand the relation of the body and foods. The Five Phases (fire, water, wood, metal, and earth) are what constitute all things and both create and regulate each other. Along with *yin* and *yang*, the interaction between these properties creates the balance that humans need to live healthily. Imbalances in the Five Phases or *yin-yang* were thought to cause illness or a poorly functioning body. Diet was a key means to achieve balance in the body, as certain foods would enhance deficiencies of properties in the body. This understanding of how the cosmos, and by extension the body, functioned spread throughout premodern society and greatly influenced concepts of a healthy diet. While this might seem too abstract for much of the premodern population to fully grasp, the actual application of these principles in the preparation of foods was not difficult and actually helped form the ideal for an excellent meal.

East Asian cosmology: Confucianism and the body

Confucianism had been present on the Korean peninsula since the fourth century when it was first introduced from China to the Koguryŏ Kingdom in 372 CE.² The initial importance was mostly limited to the upper-most reaches of society and primarily focused on study of the Confucian Classics, particularly in relation to the administration of the country. Such a situation continued until the thirteenth century when the reformed Confucianism of Zhu Xi (1130–1200) and others in Sung China (960–1279) was popularized in the Koryŏ dynasty (918–1392) and began to outpace Buddhism as the most significant social and ideological system. While this was a top-down process, before long many aspects of society such as social order, legal systems, education and medicine began to reflect Confucian notions. For our purposes in this chapter, the influence of Confucianism on the body and its relation to the larger world became pronounced.

Of course understandings of the body were affected by a great deal more than simply Confucianism. Rather, there were other inputs that shaped Korean understandings of how the body functioned and how it interacted with the larger cosmos. Foremost among these scientific explanations for the workings of the world are the Five Phases (K. *ohaeng* C. *wu xing* 五行) and *yin* and *yang* (陰陽). The Five Phases are dynamic states that are closely related to the changes in the properties of objects. They are fire, water, wood, metal, and earth, and these, not by coincidence, are also five of the names for the days of week (respectively, Tuesday, Wednesday, Thursday, Friday, and Saturday). All things are imbued with these properties and we can see the transmutation of elements in their transformation. For example, water gives birth to plants (wood), which can be burnt to create fire, and the ashes from the fire give rise to soil. Along the same lines, water can regulate fire and metal (such as a saw or an axe) can regulate wood.

The Five Phases are grouped into two cycles that reveal their dependence and interconnectedness. First is the idea of birthing or generating which is as follows: wood feeds

fire, fire creates earth (ash), earth generates metal, metal enriches water (water enhanced with minerals is superior to pure water), and water nourishes wood. The second cycle is that of regulating or overcoming and is as follows: wood parts earth (for example, tree roots growing in the ground), earth dams water, water extinguishes fire, fire melts metal, and metal cuts wood.

The first mention of the Five Phases dates to a collection of writings from ancient China entitled the *Shangshu* (尙書 ‘Book of Documents’).³ A Latter Han dynasty (25–220 CE) work, the *Bai Hu Tong* (白虎通 ‘White Tiger Convention’), provides a sequence for the interaction of the Five Phases as metal, wood, water, fire, and earth.⁴ In terms of medicine and the body, the Five Phases are associated with various organs, reactions, tastes, and other phenomena as detailed in Table 4.1.

The concepts and associations in Table 4.1 were certainly well understood by the fourteenth century in Korea by the literati class. This broad knowledge was also a part of the basic erudition that guided the development of diverse fields of study such as medicine, astronomy, and science. While lower status people might not have been aware of all the particular nuances of the associations in Table 4.1, the basic ideas concerning food and the body would have been commonly understood.

Another important consideration is the influence of the Confucian notion of filial piety by the mid-Chosŏn period. Filial piety (K. *hyo* 孝) was the most fundamental building block of Chosŏn society and the emphasis on Confucianism in this period made even stronger any pre-existing notion of filial behavior. In Confucian terms, the bond between parent and child demanded not just obedience and respect, but also that children honor their parents not only while they were alive, but also after their deaths with the performance of rites. As the body itself was bequeathed by one’s parents, it was to be taken care of as a sign of respect; defilement in any manner was unacceptable. The relationship defined by filial piety, although at times this might have been obscured by external circumstances, was one of reciprocity. The parents raised and nurtured their children who in turn cared for their elderly parents and performed rites to them after their deaths. Based on these understandings, care of one’s body and its health was a filial duty. Thus, eating correctly and preventing illness was as important as serving one’s parents.

Table 4.1 The Five Phases and their associations

Phase	Wood	Fire	Earth	Metal	Water
Direction	East	South	Center	West	North
Season	Spring	Summer	Late Autumn	Autumn	Winter
Grain	Barley	Beans	Broomcorn Millet	Brown Rice	India Millet
Time	Morning	Midday	Afternoon	Evening	Late Night
Reaction	Birth	Growth	Change	Harvest	Storage
Taste	Sour	Bitter	Sweet	Spicy	Salty
Color	Blue-Green	Red	Yellow	White	Black
Sensory Organ	Eyes	Tongue	Mouth	Nose	Ears
Five Vital Organs	Liver	Heart	Spleen	Lungs	Kidneys
Six Viscera	Gall	Small Intestine	Stomach	Large Intestine	Bladder
Body	Muscle	Arteries	Skin	Body Hair	Bone
Emotion	Anger	Joy	Anxiety	Sorrow	Fear
Sound	Shout	Laughter	Song	Weeping	Moan

Diet

The basic diet for Koreans in the first two centuries of Chosŏn was a rather simple one that was heavy on grains, vegetables, and herbs, and had limited amounts of meats.⁵ Korea, like China, has an ideal climate for wet-rice cultivation and rice was easily the most desirable grain. That is not to say rice was the only grain, however. Rather, for those of the lower status groups rice was an ideal but not necessarily part of the daily fare. Grains such as millet and barley were far more common and obtainable than rice. Rice became a means of paying taxes and of supporting the government bureaucracy, not unlike elsewhere in Asia. Francesca Bray describes this situation:

The possibilities of multi-cropping and the high yields of wet rice are consistent with very high land productivity, though this does depend on heavy inputs of labour. As a wet rice farming system becomes more intensive the land's population carrying capacity increases sharply, as do the labour requirements. The intensification of rice-farming both permits and requires demographic increase. It is no coincidence that the most densely populated agricultural regions of the world ... all have a centuries-long tradition of intensive wet-rice farming. No wheat-growing areas can sustain such numerous populations.⁶

Accordingly, the government of Chosŏn put great efforts into optimizing the production of rice through both technological advances and improvements to the infrastructure. The use of seedbeds (*mop'an*) to plant rice and subsequently transplanting (*iang-pŏp*) the seedlings was a major development as this allowed significant savings in labor-intensive tasks such as weeding.⁷ This benefit is seen in that before the widespread adoption of transplanting seedlings it would take the labor of 8.5 people to plant and weed one *mal* of rice seed by the direct planting method; using transplanting, the same amount of seed could be managed with the labor of just three people.⁸ However, a prerequisite to this technique was to have a regular and controllable water supply so irrigation projects were necessary. From the early to late fifteenth century, building and reconstructing dams was a major focus of the government and by the reign of Yejong (1468–9) some 769 were built throughout the country.⁹

Also important to diet were seasonal vegetables and herbs found throughout the peninsula. Koreans had a keen understanding of their environment and learned which wild herbs were beneficial and which were to be avoided. The *Kuhwang ch'waryo* (救荒撮要 'Concise Reference for Famine Relief') was first published in 1554 as a response to a poor harvest. The work lists some 851 types of edible plants and herbs, well demonstrating the depth of understanding of the natural environment. This work was written in a mixed script of both literary Chinese and the vernacular Korean script, and this allowed greater circulation of the knowledge therein. However, we can expect that much detailed information on the various plants was circulated throughout society in simple transmittals between the older and younger generations. This transmittal through oral means can be verified in folk and poem songs that detail the gathering of wild herbs.¹⁰

Along with the gathered vegetables and herbs were those vegetables and fruits cultivated during growing seasons. Common vegetables included scallions, garlic, squash, pumpkin, mustard leaf, sesame, and lettuce, among others. Fruits included pears, persimmons, and peaches, among others. These cultivated crops were highly important to the diet and supplemented by the gathered vegetables and herbs to provide a steady, year-round source of food.

Fermented foods including kimch'i also had a major role in diet. While historical records do not have a definitive date for the advent of fermented vegetables, we do know that the peoples living on and around the Korean peninsula in ancient times had mastered the process of fermenting soybeans among other items.¹¹ It is thought that fermentation processing was also used to preserve vegetables in early kingdoms; certainly by the Koryŏ dynasty (918–1392) fermented vegetables were commonplace and records of this period indicate that various forms of kimch'i were enjoyed. Of course kimch'i prior to the mid-seventeenth century was not seasoned with chili pepper as today, but rather with seasonings such as garlic, peppercorns, and ginger.¹²

Meat and fish were also present in small amounts with beef being the rarest of treats. Livestock rearing was never a major practice in this period as the peninsula lacked sufficient land to support this. Moreover, a live cow was much more valuable to farmers as a labor-saving device than as a meal. Pork, on the other hand, was much easier to obtain and was prepared in various ways such as roasting or adding to soups. Chicken and dog meat were also utilized as meats, with dog in particular being ascribed a number of medicinal qualities such as helping balance the *ki* (C. *qi* 氣 vital energy of the body) in the summer. Nonetheless, it was fish and other marine creatures that were most prominent in the foods of this period. Both fresh and saltwater fish were common and could be eaten raw, broiled, dried, or added to soups and side dishes. It is safe to say that most meals had some form of marine product present.

Of course, we should caution against assuming too much consistency in the diet of all the people of this period. Access to premodern society is generally limited by written records and these are naturally more commonly concerning the upper status groups of the period. Economic and geographical environments would certainly affect the foods taken, as would external factors such as drought. Notwithstanding these caveats, it is safe to see the basic elements of diet enumerated above as being the most common features of the premodern diet in this period.

East Asian cosmology: food and the body

The bond between food and health was very well understood by the mid-Chosŏn period. An adage reflecting this – more than medicine, food maintains health – was widespread by this time. Also prominent was the idea that one should preserve health through proper diet and lifestyle rather than simply waiting for a disease to appear.¹³ Medicine in Chosŏn Korea was much more proactive than reactive in this sense: diet was a means to keep illness at bay. This relationship between health, illness, and food was founded in the basic ideas of the Five Phases, *yin* and *yang*, and the need to help the flow of vital energy (*ki*) through the body. *ki* is a natural energy that circulates through the body in specific patterns or forms known as meridians. While this concept was present from ancient times in Korea, by the mid-Chosŏn period it was understood as being the source of energy, life, and activities of the human body.¹⁴ The healthy flow of *ki* was vital to the body and from a medical standpoint there was a need to prevent *ki* from becoming excessively cold, damp, blocked, or affected by wind. An early seventeenth-century commenter cites the source of this as the Confucian classic, *Lizhi* (禮記 'Book of Rites'):

The “Naech'ik” [內則 Patterns of the Family]¹⁵ states that on the whole, one should eat many sour foods in the spring, plenty of bitter foods in the summer,

lots of spicy foods in the fall and abundant salty foods in the winter. In general these four tastes follow the flow of the four seasons. Also, sweet foods transmit the essence of the earth and thus give vitality to the Five Vital Organs (*ojang* 五藏) and assist the vitality of the Five Phases as well. All one needs to do is look at the food patterns of the ancient ages to see this.¹⁶

The linkage of healthy eating with the ancient sages of China is a common one in many aspects of promoting Confucianism. The legendary Huangdi (黃帝 the Yellow Emperor) was held to have been a sage emperor who brought centralized rule and civilization to the Chinese people in the third millennia BCE. Shennong (神農 the Divine Farmer) pre-dates Huangdi and is said to have introduced the five grains, livestock rearing, acupuncture, and moxibustion (the practice of burning dried mugwort on either acupoints or bodily regions to stimulate warmth and enhance the circulation of *ki*) to China. Later Confucian works such as *The Analects* (論語 *Lunyu*) attributed to Confucius and *Mencius* (孟子 *Mengzi*) said to have been written by Mencius glorify the times in which these emperors lived, citing them as times of peace and prosperity for all. Thus, regardless of whether such idyllic times and rulers ever existed, the perception among Confucianists was that it had and therefore should serve as a model for the current society.

The work that this chapter focuses on is the aforementioned *Tongüi pogam*. This medical work was compiled as a comprehensive reference book for treating illness and ensuring health. This massive compilation is divided into five volumes: internal medicine (four fascicles), external medicine (four fascicles), various diseases (eleven fascicles), medicines (three fascicles), and acupuncture/moxibustion (one fascicle). There is also an index of two fascicles that allowed easy reference of conditions, illnesses, and medicines. The work contains thousands of entries; for example, the medicines volume alone has over 1,400 entries. As the work was written in literary Chinese, usage would have been limited to those of the literati class or otherwise well-educated individuals. However, the content soon found its way into vernacular works, thus widening the circulation of the work. The present chapter focuses mainly on the three fascicles of the medicines volume: this is where the relationship between various foods, the body, and illness are discussed in detail.

The *Tongüi pogam* was quite crucial for explaining and popularizing notions of various foods as a means of combatting and preventing illness. Without doubt, the author of the work, Hō Chun, understood the body as an amalgamation of the Five Phases and that food was a means to facilitate the flow of *ki* throughout the body. The proper flow of *ki* was vital to health: if organs were blocked from this they would inevitably weaken and cause illness. This was a part of the larger cosmos, an extension of the workings of the larger world reaching to the body of humans. Hō describes this process:

In the heavens there is both *yin* and *yang*. Warm things, cool things, cold things, and hot things are from heaven. The warm and hot things are the *yang* of heaven, and the cool and cold things are the *yin* of heaven. In the earth there is both *yin* and *yang*. Things that are spicy, sweet, bland, sour, bitter or salty are from the earth. Spicy, sweet and bland tastes are the *yang* of the earth, and sour, bitter, and salty are the *yin* of the earth.¹⁷

The inter-workings of the *yin* and *yang* and the Five Tastes, where each correspond with one of the Five Elements, is described as the perfect balancing of the essential elements of

the cosmos. This interaction and exchange is characteristic of Confucian notions of harmonic interface as described well in the Sung Confucian philosophy of Zhu Xi. Zhu based his metaphysics on the creation of a holistic system, the idea that the universe formed in stages from an unformed *ki* before moving to the divisions of *yin* and *yang*, the Five Phases, heaven and earth, and the ten thousand things.¹⁸ This resulted in Zhu perceiving that these concepts all interacted and were the basis for human nature and the cultivation of the self. Hŏ extends these dominant Confucian notions to his vision of the healthy body, a microcosm of the cosmos.

The interaction of the Five Elements is seen in the flow of *ki* to each of the major organ groups. Each of the Five Tastes is associated with a particular organ/organ group and the balance of this is imperative to good health. Hŏ describes this:

In general, each of the five tastes enters the stomach and then they each go to the place they like. For example, sour first goes to the liver, bitter to the heart, sweet to the spleen, spicy to the lungs, and salty to the kidneys. In principle, if the vital energy (*ki*) is gathered for a long period it will then settle and promote transformation. Conversely, if a single taste is eaten for a long period that will be a factor in reducing life expectancy.¹⁹

As the flow of *ki* in the cosmos can be explained through the interaction of these forces, so too can foods in the body. The emphasis on consumption of foods for a healthy body is one of balance and following the larger flow of the cosmos.

Harmonic balance of the Five Elements matches the balance to be sought in *yin* and *yang* as well. *Ki* is also multifaceted as we can see in the next passage and this must be balanced as well:

What is drank promotes *yang ki* and what is eaten strengthens *yin ki*. If one does not over partake of food the flavor through the mouth reaches the stomach, and the scent through the nose reaches the lungs and chest. The scent and flavor of food mutually blend and balance *yin* and *yang*, thus creating a spontaneous *sin'gi* (神氣 divine *ki*).²⁰

Of course if foods are not taken in appropriate balance, there are ill consequences. In truth the act of over-indulgence is a cardinal fault in Confucianism as this represents a lack of self-awareness and self-control. The extension of lack of control in one's behavior in the public realm or home is seen in the absence of the same control in one's diet:

Sour tastes go to the muscles and if overeaten will cause a blockage in the small intestine. Salty tastes go to the blood and if overeaten will cause one to be thirsty. Spicy tastes go to one's *ki* and if overeaten will cause sweating. Sweet tastes go to the flesh and if overeaten will cause depression. If salty things are overeaten, one's blood will not circulate well and the color will change. If bitter things are overeaten, one's skin will become dry and hair will fall out. If spicy foods are overeaten, one's muscles will cramp and their fingernails and toenails will become dry. If sour foods are overeaten, one's skin will become rough and their lips chapped. If sweet foods are overeaten, one's stomach will hurt and their hair fall out.²¹

Illness, then, is a controllable phenomenon much like personal behavior. This echoes the teachings of Confucius and Mencius who see the failure to behave in a socially responsible manner a result of a lack of self-discipline and reflection. Hō takes this same approach and views over-indulgence and the resulting consequences as being due to a similar lack of self-control. Given the fact that most people in this time period were not able to over-indulge in food, one could still become ill by eating too much of a single food.

Food as medicine

The foods covered in the *Tongŭi pogam* are broken down into the categories of liquids, grains, fowl, meats, marine products, insects, fruits, vegetables, and herbs, among others. The work gives numerous examples in each category and draws from both Chinese and Korean sources. Each section begins with a description of the category of food and ties this to understandings of the flow of vital energy from the foods to the consumer. Following the overall introduction, the work then discusses the basic properties of particular foods in how they help particular body parts or to combat disease, as well as how they should be prepared. In this way the work functioned as a comprehensive reference work for physicians in diagnosing and curing ailments through food. The recurring medical theme is the absolute need for balance among the Five Phases and *yin* and *yang* for maintaining health.

The section on grains provides a good example of how the interaction of the cosmos and diet were understood:

In nature it is nothing but grains that allow humans to maintain their lives. As grains receive vital energy from the earth, their qualities are level and taste bland. Due to this even nature they help build strength and are good at cleansing [the body] and consequently one can eat these continually without growing tired [of the grains]. Thus, grains are something that humans like very much. Altogether, there are 107 types of grains.²²

Grains, like all plants, hold a combination of *yin* energy from the earth and *yang* energy from the sun. The balance between the two energies creates a food that the body craves for good health. Consider the following main entries for three of the most commonly consumed grains in early Chosŏn:

Chopssal (foxtail millet)

Its nature is slightly cold, taste sour, and has no toxins. It strengthens the energy of the kidneys, eliminates fever in the stomach and spleen, helps the flow of energy, and aids urination. It is good for the stomach and spleen.²³

Meŕssal (non-glutinous rice)

Its nature is balanced, is sweet in taste while bitter, and has no toxins. Rice aids the flow of the stomach's *ki*, aids healthy skin and muscle tissue, aids the internal body and cures dysentery, and fosters [the flow of] *ki* while eliminating stifling sensations. When cooking rice or porridge, if it is not thoroughly cooked it is not good for the spleen. Eating well-cooked rice is good.²⁴

Pori (barley)

Its nature is warm (some say somewhat cold), tastes salty, and has no toxins. It aids [the flow] of *ki*, promotes good digestion, remedies diarrhea, eliminates

nauseous sweat, and makes the Five Vital Organs strong. If eaten regularly, it will promote healthy weight gain and give one's skin a healthy luster.²⁵

Each of the grains above has specific organs or body parts where they promote health and the flow of energy. The awareness of grains as the center of a meal or a good diet was quite prominent in premodern Korea and seen in the large number of ways that grains could be consumed. Of course boiled grains were most common, but flour could also be made from rice and that in turn used to make rice cakes (*ttŏk*). Thin porridges were also made from cooked rice. Further, there were beverages made from rice such as the sweet and fermented *sikhye* and rice wine (*makkŏlli*) that were a staple among farming families. Other grains, such as buckwheat or wheat, could be made into flours and both of these grains were commonly used in making noodles.

A contemporary of Hŏ Chun was the scholar Yi Sugwang (李睟光 1563–1628). Using various sources, Yi compiled an encyclopedic work that covered many aspects of Chosŏn society and history including an extensive commentary on diet and health. His views mirror those of Hŏ in various areas including the properties of grains that were essential for good health, especially in promoting the flow of positive *ki* throughout the body. He cites Mencius in stating that the “five grains should be cultivated” and thus links the production of these staples to the pursuit of the Confucian principle of government based on the promotion of humaneness (仁 K. *in*; C. *ren*).²⁶

It was argued that the prominence of grain-based diets in Asia was one of the reasons for some of the physical differences between the peoples of East and Southeast Asia and those of European descent. Yi Hyoji cited larger stomach capacity and lengthier intestines of Asians as being the result of grain-based diets rather than the more meat-heavy diets of Europeans in traditional times.²⁷ Beyond this, we can note that ideally each of the day's three meals was served with a heavy grain component.

Also included in the grain section are soybeans, a key protein in the premodern Korean diet. While today we know that soybeans are a complete protein with high protein content (38–45 percent), in the early Chosŏn period they were simply an essential part of the diet across socio-economic and status boundaries. Soybeans were eaten in a variety of ways: sprouts could be boiled to create side dishes or added to soups and stews while the whole beans yielded an excellent oil that was used for cooking. By the fifteenth century, tofu was made from the bean curd and a variety of condiments used soybeans as a base including soy sauce and soybean paste (*toenjang*).²⁸

The medicinal properties of soybeans are certainly well known today, but in the *Tongŭi pogam* they are said to be excellent for protecting the body's organs:

Kŏng (soybeans)

Its nature is balanced, taste sweet (some say salty), and has no toxins. It protects the Five Vital Organs, aids digestion and circulation, and allows the intestinal *ki* to flow warmly. If one eats soybeans continually, he/she will lose weight.²⁹

The last quality of soybeans described above indicates that weight control was a concern for some segments of the population in seventeenth-century Korea. Kim Ho indicates that this was due to a rise in the merchant class and wealth in late Chosŏn, and that obesity became quite a common problem that stemmed from people simply eating too much.³⁰ The emphasis on soybeans in the diet also indicates that there was an appreciation that

over-consumption of meat was not beneficial for one's health, much the same as contemporary scholarship supports.

Despite the rising problem of obesity among the wealthy, a more consequential concern among the ruling elites in Chosŏn was the possibility of famine and the social chaos that could accompany a particularly bad series of harvests. In the mid-Chosŏn period there was a long-lasting cold period that greatly hindered agrarian output. This period of colder temperatures seems to have been present throughout Asia and somewhat overlaps with the Little Ice Age experienced in Western Europe and North America. For Chosŏn Korea it was the period from 1601 to 1800 when temperatures were generally colder and agricultural production suffered.³¹ There were notably severe famines in both 1680 and 1695 that resulted in the government permitting the governors of three provinces to mint more money in order to provide the people with relief.³² The lowered agrarian yields were all the more problematic when coupled with the two sets of devastating invasions (Hideyoshi invasions of 1592–7 and the Manchu invasions of 1628, 1636) that caused some 70 percent of arable land to be either damaged or not under cultivation by the end of the Manchu invasions.³³ While the lower temperatures had caused earlier winters and thus shorter growing seasons that had negative effects on harvests, in truth it was the invasions that caused the most serious consequences and resulted in famine becoming commonplace.³⁴

While it was grains and legumes that provided the core of the peoples' diet, these were also the very crops that suffered greatest in times of either war or adverse growing conditions. As such, the government had long sought alternatives that could be found in times of hardship. Pre-dating the aforementioned *Kuhwang ch'waryo* of the sixteenth century is a thirteenth-century volume entitled *Hyang'yak ku'gūp pang* (鄉藥 救急方 'Emergency Folk Medicine Remedies') that contained information on the various herbs and plants that could be consumed as medicinal remedies or simply food in dire times. Such knowledge was not limited to formal compilations as the following account details:

While Yi Tanha (李端夏 1625–89) was taking pine needle medicine, he thought of a means to overcome hunger. In the early Chosŏn when there was famine, a method for overcoming this was to grind pine needles into a powder and eat this. He submitted a memorial to the royal court to spread this information by posting wooden placards throughout the land.³⁵

We can thus see that concern for a lack of staple foods was a common one in the Chosŏn period. While rice was certainly at the pinnacle of grains, shortages were commonplace and alternatives were always required.

Second in importance to grains and legumes in the Chosŏn diet were vegetables and herbs. These could be either cultivated or gathered and were prepared in various ways such as parboiling, eating raw, or stir-frying. Vegetables were a *yang* food and thus complemented *yin* foods such as meats. A common practice was to wrap cooked meats in vegetable leafs and then eat, which assured a balance of *yin* and *yang* foods. The gathering of wild greens and herbs seemed to have been an important task for the womenfolk of Chosŏn as we can cite a significant number of poems and folksongs that describe the various greens sought out by women.³⁶

In the vegetable section of the *Tongŭi pogam*, some 122 varieties of vegetables and herbs are listed along with their medicinal qualities. The following are some examples of both gathered and cultivated vegetables that are still common components in the Korean diet:

Naengi (Shepherd's Purse)

Its nature is warm, tastes sweet and has no toxins. It benefits the flow of energy (*ki*) from the liver, spreads evenly through the body and benefits the Five Vital Organs.

It grows in fields and meadows, and even in the winter cold it does not die. If one makes porridge with *naengi* and eats it, as the energy of that is carried by the blood to the liver, his/her eyes will become bright.³⁷

Tödök (Bonnet bellflower)

Its nature is somewhat cold, tastes bitter, and has no toxins. It protects the stomach and spleen and aids the lungs' energy. It can cure a drooping scrotum caused by a rupture in [the flow] of *ki*, absorb pus, erode tumors, and protect the Five Organs from damage by wind.³⁸

It grows in all regions in mountainous areas. Its leaves are similar to the Chinese matrimony vine and it is best if the roots are white and substantial. One can eat the stalks and roots as vegetables.³⁹

Both *naengi* and *tödök* are gathered greens and were highly important to the diet of pre-modern Korea. *Tödök* root, dried and then ground into a powder, was in particular thought to be an excellent remedy for boils and abscesses. The medicinal properties of *tödök* are still acknowledged in contemporary Korea, but for the most part, both of these plants are known as healthy and tasty foods that provide the body with important vitamins and minerals.

Minari (Wild parsley)

Its nature is balanced (although some say it is hot in nature), tastes sweet, and has no toxins. It alleviates stifling sensations in the chest and dry throat, helps mental clarity and supplements sharpness, and helps skin be healthy. It also cures the fever that can arise after drinking alcohol and allows good action of the small and large intestines. In women, it cures leucorrhoea and post-menstrual abdominal pain, and it is also good for sudden fevers in children.

It is also known as *suyöng* (water flower) as it grows in water. The leaves are similar to wild celery (*Angelica polymorpha*, K. *kunggung*), has white flowers and no seeds. The roots are also white. Make into *kimch'i* or a fresh vegetable dish and eat; also it can be parboiled and eaten. Eating it raw is also good. Also, it cures five types of jaundice.⁴⁰

Tülkkæ (perilla seeds)

Its nature is warm, taste spicy, and has no toxins. It helps *ki* flow downwards, and is good for stopping coughs and dry throats. It loosens the lungs, aids digestion, and strengthens bone marrow.

If one harvests a lot, grind the seeds and mix with rice before making porridge and eating. This helps skin tone and also the downward flow of *ki*.⁴¹

Minari and *tülkkæ* are both cultivated greens. *Minari* is used in many types of *kimch'i*, along with also commonly being added to soups and eaten as a seasoned side dish. *Tülkkæ* could be added to soups or side dishes as a seasoning, but the most common use was as a savory oil, quite like the more well-known sesame oil.

The *Tongŭi pogam* also discusses seaweed in the vegetable section. A common seaweed in the Korean diet was brown laver (*miyŏk*), used as either a side dish or in soups. This, along with five other varieties of seaweed, is also covered in the *Tongŭi pogam*:

Its nature is cold, taste salty, and has no toxins. It can relieve the stifling sensation associated with fevers and also cure goiters and blocked *ki*. It also aids good urination.

When it is taken from the sea it has a dark green color, but when dried turns a deep purple color, so it is also known as the “purple vegetable” (*chach’ae*).⁴²

The *Tongŭi pogam* also discusses various fruits at length and describes their respective medicinal benefits. Fruits were eaten raw, dried, or added to teas and liquors. At other times many of the fruits were boiled for long periods of time with other ingredients to make thick medicinal drinks that were to be taken for either the maintenance of health or to cure illness. A total of ninety-one types of fruits are listed, including the following:

Mogwa (Chinese quince)

Its nature is warm, tastes sour and has no toxins. Vomiting, diarrhea or cramps along with intestinal convolutions can be cured with this fruit; it promotes good digestion, and is also good to quench the thirst after a bout with dysentery. It also cures abdominal pain, beriberi, dropsy, glycosuria, nausea, and coughs with phlegm. Also, it makes muscle and bones strong, and if one’s legs or knees are weak it will cure that as well.⁴³

Yuja (Citron)

The peel of a citron is thick and sweet and has no toxins. It will eliminate bad *ki* in the intestines, dissipate the toxins left by liquor, and improve the breath of those who drink.⁴⁴

Subsequent cookbooks contain numerous recipes for the preparation of fruits such as citron and quince. For example the late Chosŏn work entitled *Kyuhap ch’ongsŏ* (閩閩叢書 ‘Encyclopedia for Women’s Daily Lives’) contains a number of recipes for using quince in porridges and rice cakes. A recipe for making a sweetened fruit candy with citron is also included:

Thinly skin good citron, slice into four pieces while lightly cutting off any white parts, slice these thinly and lightly boil in water. Next pour melted honey onto these pieces of citron. Remove all the inner fruit from the peels of the citron, and then serve as candied citron.⁴⁵

It is common to see fruits used in various teas and confections in other written works as well, demonstrating wide usage.

Naturally, meats were prominent in promoting a healthy diet and the *Tongŭi pogam* has numerous examples, some 236 in all. These were consumed in smaller amounts than they are in today’s cuisine in Korea, yet the *Tongŭi pogam* featured a wider array of meats than we see in Korea today. While beef certainly held the highest position among meats, beef consumption among lower social status groups was not common. The fact of the matter is that a live cow was a very important labor-saving addition for a farming family. There is also the reality that the Korean peninsula lacks the space needed for

large-scale cattle-rearing. Thus beef was a rare treat for commoners in Chosŏn and reserved only for the most special occasions.

All of that does not mean that beef was not at the pinnacle of meats. The aforementioned Yi Sugwang states that of all foods “beef was most beneficial for humans” and that daily consumption would lead to longevity.⁴⁶ The *Tongŭi pogam* also praises the medicinal benefit of beef and parts of cattle:

Uhwang (Ox bezoar)

Its nature is even (some say cool), its taste bitter (some say sweet) and it has some toxins (some say it has no toxins). It promotes tranquil spirits and eliminates miasma and ghosts. It will reduce instance of insanity, sudden palpitations, and fainting from nerves, and also cures every sort of illness in children. The vigor of the ox bezoar flows to the liver and reduces disease in muscles and tendons.⁴⁷

Uyuk (Beef)

Its nature is even (some say warm), taste sweet, and it has no toxins (some say it has some toxins). It protects the stomach and spleen, stops vomiting and diarrhea, and cures dropsy and diabetes. Additionally it will promote strong muscles, tendons and bones, and strengthen the back and legs.

As a foodstuff, the yellow cow is best. If cow’s milk, urine or dung is used as a medicine, that coming from the black cow is inferior [to that of the yellow cow].

The meat of a dead cow should absolutely not be consumed. If it is eaten, boils will inevitably form.⁴⁸

Perhaps due to the relative uncommonness of beef consumption among the lower classes, beef was accorded numerous special attributes as seen above. This demonstrates the blending of Confucian concepts concerning health with the more-or-less native shamanic beliefs that saw disease as a consequence of supernatural entities such as ghosts and malevolent spirits. This demonstrates that despite the hegemonic influence of Confucianism in the mainstream culture of the upper status groups, folk practices remained prominent in explaining disease and other seemingly uncontrollable aspects of life such as atmospheric phenomena and weather fluctuations.

A more readily available meat was pork, which was prepared in various ways such as grilling or adding to stews. Hog-rearing was widely practiced in premodern Korea for at least two millennia. There are numerous entries for the various parts of the pig along with one for pork in general:

Ton (Pork)

Its nature is cold (some say cool), the taste is bitter, and it has some toxins. It is good to reduce fevers. Arteries blocked by fever and weakness in the muscles or bones can be cured with this.⁴⁹

Ton tu (Pig’s stomach)

If there is consumptive fever in the stomach or spleen this can be used. Boil together with ginger, mandarin orange peel, ginseng, spring onion roots and new rice, and then eat.⁵⁰

While most meats are not necessarily seen as curatives today, one meat is still highly regarded as being good for one’s body. Dog meat has long been consumed in Korea as

it was seen as being a particularly good food to be taken in the hot summer months. Hot and spicy soups were seen as being essential to the balancing of one's *ki* with that of the external environment. Known as *iyŏl chiyŏl* (以熱治熱 using heat to regulate heat), this was thought to elevate the temperature of one's internal *ki* to that of the external environment and thus provide protection for one's health during the hot summer months. In the *Tongŭi pogam* the description for dog meat demonstrates a variety of beneficial traits:

Mogu yak (Male dog meat)

Its nature is warm (some say hot), taste sour while salty, and it has no toxins (some say it has toxins). It promotes tranquility in the Five Organs, protects against fatigue in the Five Organs and also against the Seven Damages,⁵¹ enables good blood circulation, and makes the bowels and stomach sturdy. It further builds marrow, warms the back and knees, creates strong erections, and aids overall energy.

Yellow-colored dogs are best; white and black dogs are not as good.

These days people eat the meat after throwing the blood away. This is not good.

The blood of fat dogs is tasty, how can it be taken out? If it is removed there is no good effect.

In the spring if a dog has reddish eyes and a dry nose while acting mad, it should not be eaten.⁵²

It is notable that many of the curative effects mentioned above are still cited in contemporary Korea as reasons for consuming dog meat. Even today we can hear of the efficacy of dog meat in promoting an increased libido among males or as a means to overcome the heat of summer and aid overall health.⁵³

Maybe even more important to the Korean diet than meat in the mid-Chosŏn were the wide array of marine creatures consumed. Both fresh and saltwater fish were common and these were served in a variety of ways, including broiling, dried, raw, or added to soups and side dishes. Records from a Song Chinese visitor to the Koryŏ dynasty (918–1392) in the twelfth century seems to indicate that although hogs and sheep were commonly seen on the peninsula, these were largely reserved for the upper status groups. Commoners instead consumed marine creatures such as shrimp, clams, oysters, abalone, and loach among other seafood.⁵⁴ Such a situation was no doubt due to economics, as commoners could readily supplement their diets with relatively easily obtainable seafood.

The dietary benefits of seafood were certainly acknowledged in the *Tongŭi pogam* and other mid-Chosŏn period works. For example Yi Sugwang cites crab as being a particularly good food:

In order to cure an illness through diet, the *Bencao* [本草]⁵⁵ states, by eating crab it will promote digestion, help the strength of the stomach, and govern the flow of blood through the arteries.⁵⁶

In the *Tongŭi pogam* there are fifty-three types of fish listed; other types of marine animals such as crabs, snails, oysters, and shrimp are listed in the insect section of the work. The following entries show some of the medicinal benefits of eating various types of fish:

Ingŏ ssŭlgae (carp's gall bladder)

Its nature is cold, taste bitter, and has no toxins. It will remedy amaurosis and make the eyes bright. If the eyes have a fever and become engorged with blood it will cure this along with deafness.⁵⁷

Pungŏ (Crucian carp)

Its nature is warm (some say even), taste sweet, and has no toxins. It distributes the flow of energy from the stomach and strengthens the Five Vital Organs ... If it is boiled and made into soup along with *sunch'ae* (*brasia schreberi*/watershield) it aids those who have chronically poor digestion. If it is sliced and eaten raw it will cure chronic dysentery.⁵⁸

Chogi (croaker)

It has a balanced nature, sweet taste, and no toxins. It is good for one who cannot digest their food well or has a sudden bout with dysentery after eating fully. If it is made into a soup with *sunch'ae* it helps those who have lost their appetite or cannot digest food well. It is also good for helping the flow of *ki*.⁵⁹

Taegu (codfish)

Its nature is balanced, taste salty, and has no toxins. Eating this will strengthen one's *ki*.⁶⁰

Compared to meats, grains, or vegetables, seafood has markedly less representation in the *Tongŭi pogam*. While this is understandable in terms of grains or vegetables, which formed the main pillars of the premodern diet, it also shows the preference of the upper status groups for meat in their diets. Thus the various parts of cattle, hogs, or dogs were held to have superior benefit for the body. Of course one needed the economic ability to purchase these meats and this in turn demonstrates that diet and medicine had a clear socio-economic hierarchy in premodern Korea.

A final category of medicinal foods found in the *Tongŭi pogam* is that of alcohol. There are thirty-four types of alcohol included, some with strikingly exotic names such as winter of heaven's gate liquor or southern palace golden flower liquor. As might be expected, Hŏ Chun both praises and cautions when discussing liquor:

Chu (Liquor)

Its nature is very hot, its taste is bitter while being both sweet and spicy, and has toxins. It helps diffuse weakened *ki* and eliminates all sorts of poisonous *ki*, aids circulation, makes the intestines strong, and gives a luster to skin ...

If one drinks liquor for a long time, it will damage his/her mental capacity and be a hindrance to a long life.⁶¹

It is unfortunate that Hŏ does not include recipes or the ingredients for the various types of alcohol he lists. For that, we need to seek out cookbooks that include full descriptions and instructions for making liquor. One stellar example is the cookbook written by Lady Chang of Andong (1598–1680). Entitled *Umsik timibang* ('Recipes for Tasty Food') it holds some 146 recipes of which fifty are for alcoholic drinks.

The *Tongŭi pogam* was published in the early seventeenth century via wood-block printing that allowed many copies to be made and distributed. The main readership was the educated upper status groups throughout the country. Over time, this became one of the commonly found books in the homes of the upper status groups and was used for

diagnosing and treating various ailments.⁶² Beyond its use in the homes of the upper status groups, it became a reference book used by both medical specialists and pharmacists throughout the country. Furthermore, the information in the book became important for the subsequent books on medicine published in Chosŏn. The work is still considered a highly important and valuable resource for practitioners of traditional Korean medicine in contemporary Korea today.

Food, the cosmos, and life

The contents of the *Tongŭi pogam* give an interesting glimpse into the inter-working of the body, food, and the cosmos as perceived in the mid-Chosŏn period. The work was greatly influenced by Confucianism, the dominant ideology of the day, as well, especially in the context of the filial duty associated with remaining healthy. It also demonstrates a trait of Chosŏn period intellectual thought, and that is the interrelatedness of Confucianism and nearly every aspect of life. A properly functioning body was one in which all of the various parts worked together in a harmonious and balanced fashion. For Chosŏn period physicians, the body was no different than human society. Society was structured to be harmonic, with all people contributing to the overall welfare by performing their duties. The body was thought to follow the same pattern, with all parts contributing to health so long as they were provided the correct nourishment.

Of course food is an essential part of this process of maintaining a healthy body. A balance of foods is the ideal for ensuring a well-working body. Over-consumption of any one type of food was seen as a factor in bringing about poor health. Thus meals were ideally presented as a means to ensure balance. Naturally such a balance was not always possible and, like today, there were always those who overate or otherwise did not follow a healthy diet. Nonetheless the basic ways of taking meals leans heavily toward this ideal of balance.

Meals, especially for those of the upper status groups, were served on small individual tables. This was known as the *pap sang* (dinner table). The *pap sang* was the most representative meal of this period and featured an array of side dishes such as kimch'i and other vegetable dishes served with boiled rice/grains, a soup, and perhaps a fish or meat dish. Harmony in this meal works on several levels, such as is found in contrasts between soft (boiled vegetables) and hard (roasted laver), bland (rice) and spicy (*kimch'i*), hot (soup) and cold (raw vegetables), oily (fish) and dry (dried anchovies), or chewy (stir-fried fernbrake) and tender (stir-fried mushrooms). Beyond the palate, harmonic balances were found in other senses: the aural with crisp sounds (such as the crackle of roasted seaweed folded over rice with one's chopsticks) contrasting with the muffled sound of folding rice in a seasoned perilla leaf; or the olfactory with the pungent smells of garlic and pepper contrasting with the more delicate scents of sesame oil.

There was also visual harmony within a meal, as there was a whole array of practices aimed at creating meals with balance between colors known as *komyŏng* (decorative garnish). Based on the Five Phases, many foods feature the five colors of blue/green, red, yellow, white, and black. For green garnish, onion, squash, cucumber, or such vegetables are shredded to add color. For red, carrots, or jujubes, are cut into thin strips for visual effect. Yellow and white are achieved by separating egg yolks and whites, frying very thin and cutting into strips; black color is provided by dark-colored mushrooms or laver. Of course, such extravagant preparation of foods was not an everyday occurrence for people in premodern Korea and mostly reserved for those in the royal palace or the uppermost status groups.

While the *pap sang* shows the aesthetic behind Korean food, the health benefits were quite real. A meal balancing the various foods provided the body excellent nutrition. Whether one was actively following the advice of a physician to combat an illness or simply eating meals prepared according to these standards, the result was the same. Like a well-functioning society in which all parts worked together, the harmony of the foods matched the harmony physicians sought for the body, and this aided the preservation of health.

Notes

- 1 A common Korean adage.
- 2 Ki-baik Lee, *A New History of Korea*, trans. Edward W. Wagner with Edward J. Shultz, Cambridge, MA: Harvard University Press, 1984, p. 38.
- 3 Authorship and exact dating of this work is not possible, but traditionally it was attributed to Confucius (551–479 BCE).
- 4 This is a work compiled by Ban Gu in the Han dynasty and is named after a series of debates held at the White Tiger Pavilion.
- 5 The following is based on Michael J. Pettid, *Korean Cuisine: An Illustrated History*, London: Reaktion Books, 2008, pp. 27–67.
- 6 Francesca Bray, *The Rice Economies: Technology & Development in Asian Societies*, Berkeley: University of California Press, 1986, p. 16.
- 7 For more on technological advances, see Michael J. Pettid, “Working Women in Chosŏn Korea: An Exploration of Women’s Economic Activities in a Patriarchal Society,” *Journal of Global Initiatives* 5, 2010, 28. Double-cropping did not become common until the late seventeenth century.
- 8 A *mal* is a unit of measure equal to approximately 18 liters. Yi Hŏnch’ang, *Han’guk kyŏngjesa che 3 p’an* (The Economic History of Korea, third edition), Seoul: Pŏbmuna, 2006, pp. 46–7.
- 9 Yi Hŏnch’ang, *Han’guk kyŏngjesa che 3 p’an*.
- 10 For an example, see Pettid, *Korean Cuisine*, pp. 51–2.
- 11 There are records of fermented seasonings being exchanged as wedding gifts from the late seventh century. See Kim Pusik, *Samguk sagi* (三國史記 History of the Three Kingdoms), trans. to modern Korean, Yi Pyŏngdo, Seoul: Ŭryu munhwasa, 1996, 1.201.
- 12 Chili peppers are a New World food and were not introduced to Korea until the early seventeenth century. See Yi Sugwang, *Chibong yusŏl* (Topical Discourses by Chibong), reproduction, Seoul: Ŭryu munhwasa, 1998, 20. 10b.
- 13 Kim Ho, “Yakkuk kwa ūwŏn” (Pharmacies and Medical Clinics), in *Chosŏn sidae saenghwalsa 2* (Life History in the Chosŏn Period, 2), ed. Han’guk komunsŏ hak-hoe, Seoul: Yŏksa pip’yŏngsa, 2000, pp. 282–3.
- 14 Kim Ho, *Tongŭi pogam yŏn’gu* (A Study of the *Tongŭi pogam*), Seoul: Iljisa, 2003, p. 154.
- 15 This is a chapter of the *Lizhi* (Book of Rites 禮記), one of the Confucian classics that predates the Former Han dynasty (206 BCE – 9 CE).
- 16 Yi Sugwang, *Chibong yusŏl*, 2: 433.
- 17 *Tongŭi pogam*, p. 2726.
- 18 The “ten thousand things” is a metaphor used in literary Chinese for “everything” or “all things.”
- 19 *Tongŭi pogam*, pp. 2723–4.
- 20 *Tongŭi pogam*, p. 1662.
- 21 *Tongŭi pogam*, p. 1711.
- 22 *Tongŭi pogam*, p. 2759.
- 23 *Tongŭi pogam*, p. 2764.
- 24 *Tongŭi pogam*, p. 2766.
- 25 *Tongŭi pogam*, p. 2772.
- 26 *Chibong yusŏl*, 2: 439.
- 27 Yi Hyoji, *Han’gug’in ū ūmsik munhwa* (The Food Culture of Korea), Seoul: Sin’gwang ch’ulp’ansa, 2006, p. 55.
- 28 For more uses, see Pettid, *Korean Cuisine*, pp. 40–1.
- 29 *Tongŭi pogam*, p. 2762.

- 30 Kim Ho, “Yakkuk kwa üiwön,” p. 282.
- 31 See Woo-Seok Kong and David Watts, “A Unique Set of Climatic Data from Korea Dating from 50 BC, and Its Vegetational Implications,” *Global Ecology and Biogeography Letters*, July, 1992, 133–8.
- 32 James B. Palais, *Confucian Statecraft and Korean Institutions: Yu Hyöngwön and the Late Chosön Dynasty*, Seattle: University of Washington Press, 1996, p. 929.
- 33 It should be noted that this situation was magnified by a significant loss of population as well. See Pae Yöngdong, *Noggyöng saenghwal üi munhwa ilgi* (‘Reading the Culture of Farming Life’), Seoul: Minsog’wön, 2002, p. 329.
- 34 Yöngdong Pae, *Noggyöng saenghwal üi munhwa ilgi*.
- 35 Yi Imyöng, *Sojaeman-rok* (疎齋漫錄 ‘Scattered Records by Sojae’), in *P’aerim* (稗林 ‘Forest of Tales’), reproduction, Seoul: Ch’aegudang, 1969, 18a-b.
- 36 See Pettid, *Korean Cuisine*, pp. 51–5.
- 37 *Tongüü pogam*, p. 2936.
- 38 The most damaging elements to the body’s *ki* were excessive wind, cold, heat, and dampness. This was especially thought true for women and children. See Kim Ho, *Tongüü pogam yön’gu*, p. 208.
- 39 *Tongüü pogam*, p. 2937.
- 40 *Tongüü pogam*, p. 2944.
- 41 *Tongüü pogam*, p. 2946.
- 42 *Tongüü pogam*, p. 2952.
- 43 *Tongüü pogam*, p. 2910.
- 44 *Tongüü pogam*, p. 2905.
- 45 Pinghohak Yi-ssi, *Kyuhap ch’ongsö* (閩閩叢書 ‘Encyclopedia for Women’s Daily Lives’), reproduction, Seoul: Chusik hoesa pojinjae, 2006, p. 108.
- 46 *Chibong yusöl*, 2: 431.
- 47 *Tongüü pogam*, p. 2816.
- 48 *Tongüü pogam*, p. 2817.
- 49 *Tongüü pogam*, p. 2842.
- 50 *Tongüü pogam*, p. 2844.
- 51 The Five Fatigues and Seven Damages (五勞七傷 *oro ch’ilsang*) are fatigue in the five organs (lungs, liver, heart, spleen, and kidneys) and damages to various body organs.
- 52 *Tongüü pogam*, p. 2840.
- 53 See Pettid, *Korean Cuisine*, pp. 84–5.
- 54 Jing Xu, *Gaoli tujing* (高麗圖經 ‘Illustrated Account of Koryö’), reproduction, Seoul: Asea munh-wasa, 1983, 23: 2a.
- 55 This is a sixteenth-century Ming Chinese work. The full title is *Bencau gangmu* (本草綱目 ‘Compendium of Materia Medica’).
- 56 Yi Sugwang, *Chibong yusöl*, 2: 432–3.
- 57 *Tongüü pogam*, p. 2859.
- 58 *Tongüü pogam*, p. 2860.
- 59 *Tongüü pogam*, p. 2864.
- 60 *Tongüü pogam*, p. 2867.
- 61 *Tongüü pogam*, p. 2777.
- 62 Kim Ho, *Tongüü pogam yön’gu*, pp. 251–2.