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## 24. Historical Review of Hot Spring Waters in the Republic of Korea

by  
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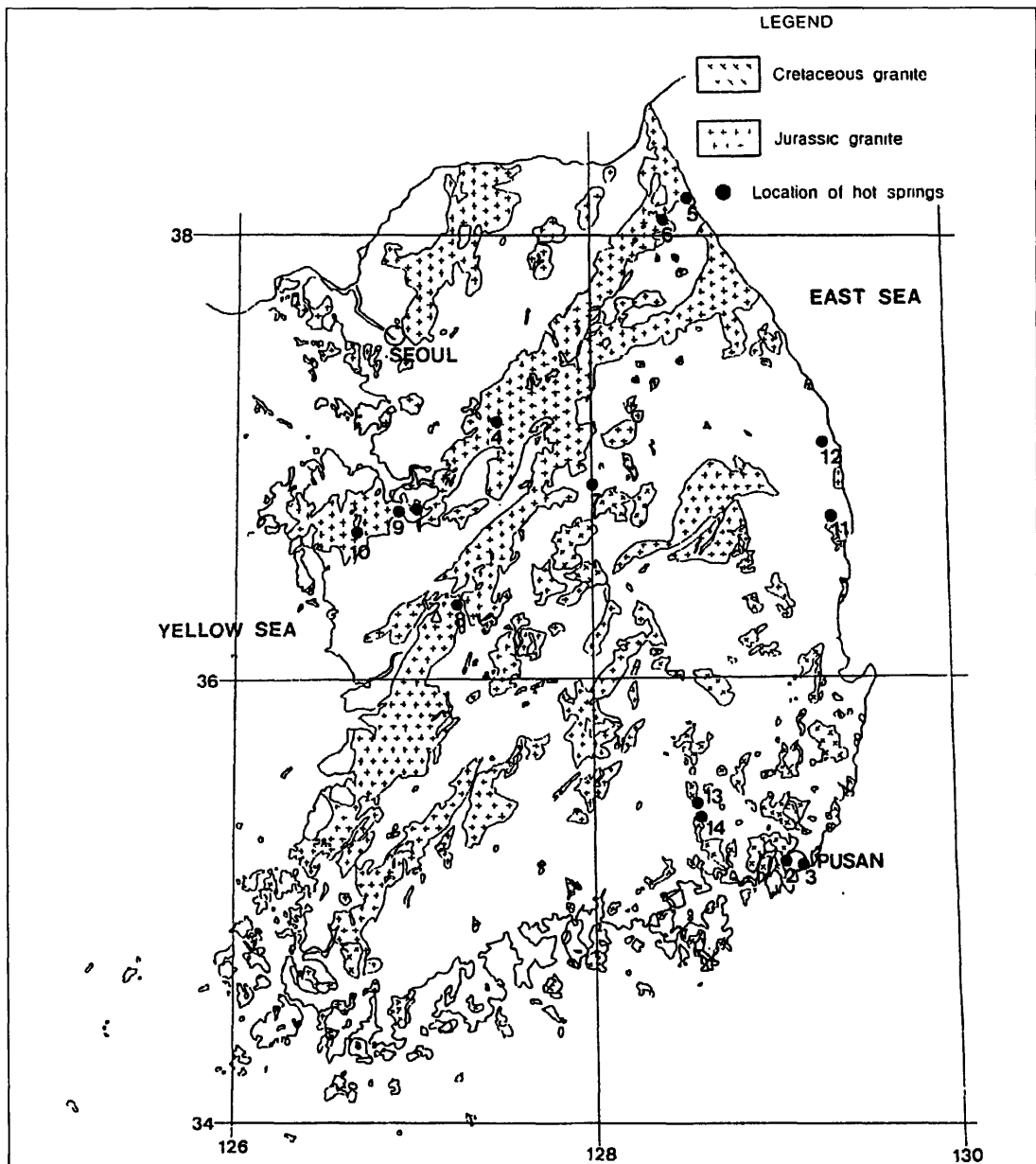
*Abstract:* This chapter focuses on ancient uses of hot spring waters in Korea. Because the Southern Korean Peninsula has very poor geothermal resources due to its stable tectonic setting, geothermal springs, commonly known as hot springs, are restricted to a few locations. Koreans love to bathe in hot springs, using them through millennia for medical therapy, recuperation, and relaxation. Citations about historical uses of hot springs and mineral waters include 173 articles in 20 historical books and annals, such as the *Samguk sagi*, *Samguk yusa*, *Koryo sa*, *Choson wangjo sillok*, and *Tongguk yoji sungnam*.

### INTRODUCTION

FOR MANY CENTURIES, LOW-TEMPERATURE, NONVOLCANIC geothermal waters, commonly called hot springs, have been used for medical therapy and bathing in 14 locations in the southern half of the Korean peninsula, in the “old geothermal areas” (Yum, 1994). Historical records of Korean hot springs were first reviewed by Cheong (1983). The histories and legends of hot spring uses before the Industrial Revolution, starting with the Japanese invasion in 1910, are found in several very old historical books and annals, cited separately at the end of the chapter. The legends often include tales of wounded animals, such as deer, cranes, and other birds that are cured by bathing in hot springs.

Much hot spring water is warm and slippery, and people are convinced that the water can cure eye and skin diseases; a hot spring called “Heaven’s Blessing” has been used, with limited medical benefits, to treat such illnesses. People who live near

such hot springs believe that the springs have the power to cure every disease, and tales of miracles pass quickly from ear to ear. Thus the ponds are crowded, filled by patients with many diseases, including leprosy, who dig to expand the ponds, making small villages. The original dwellers may not like this, fearing the spread of contagious infections brought by the diseased people. They sometimes get rid of the ponds, soaking a dead dog in them during the night. This effort to protect the villages reflects an aspect of the Korean national character, for the village is the basic unit of Korean society. Korean national traits are reflected in other legends, as well.



Map of ancient Korean hot springs, shown in relation to Korean granites, modified from Chwae, 1995, printed with permission: 1. Onyang, 2. Donglae, 3. Haeundae, 4. Icheon, 5. Cheoksan, 6. Osaek, 7. Suanbo, 8. Yusong, 9. Dogo, 10. Deoksan, 11. Baekam, 12. Deokgoo, 13. Bukok, and 14. Mageumsan hot springs. Each hot spring is discussed in the text.

## GEOLOGIC AND TECTONIC SETTINGS OF THE KOREAN PENINSULA

THE KOREAN PENINSULA, WHICH EXTENDS SOUTHWARD FROM NORTHEASTERN ASIA, HAS A CLOSE affinity with the Asian continent in geology and tectonic setting. It is regarded as a stable, cratonic land mass. The Korean Peninsula has no geological resemblance to the islands of Japan, which are characterized by active volcanism (Kim, 1987).

Most Korean hot springs are located in granitic areas, Jurassic and Cretaceous in age, and are low-temperature geothermal resources, nonvolcanic in origin. The chemistry of geothermal waters verifies that the hot spring waters are alkaline (pH = 8.0-9.5), fluoride-rich (5-15 mg/l), mainly low in total dissolved solids (130-800 mg/l), and of the Na-HCO<sub>3</sub> type (Lim, 1995). The map shows a close relationship between the granites and the hot spring locations.

## HISTORICAL RECORDS FOR KOREAN HOT SPRINGS

HISTORICAL RECORDS SHOW THAT KOREAN HOT SPRING AND MINERAL WATER RESOURCES WERE used in 43 locations—the number is larger than expected and includes the northern Korean Peninsula territories—according to a total of 173 articles in 20 books and annals, such as *Samguk sagi*, *Samguk yusa*, *Koryo sa*, *Choson wangjo sillok*, and *Tongguk yoji sungnam*. The oldest record, found in *Tongsa kangmok*, says that the brother of Sochon Wang (reign 270-292) bathed in a hot spring in 286 A.D. during the Koguryo period (37 B.C.-668). (Note: The word “Wang” and the suffixes “-jo” and “-jong” indicate the name of a king.) These records tell us that the royal family enjoyed bathing in hot springs from the early Three Kingdom period (18 B.C.-668).

In the Paekche period (18 B.C.-660), the histories of Onjeong-gun (“Warm Spring Province”) and Onsoo-gun (“Warm Water Province”) were included in several books, such as *Samguk sagi*, *Koryo sa*, and *Tongguk yoji sungnam*. Another book, *Samguk yusa*, recorded that a prime minister during the reign of Sinmun Wang (681-692) bathed in Donglae hot spring.

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### Korean Dynasties (Lee, 1984, printed with permission)

Ancient Korea, 2333 B.C.-108 B.C.  
Three Confederated Kingdoms of Samhan (the Three Han States):  
    Shilla, 57 B.C.-935 A.D.  
    Koguryo, 37 B.C.-668 A.D.  
    Paekjae, 18 B.C.-660 A.D.  
Kaya, 42-562 A.D.  
Parhae Kingdom, 669-928  
Unified Shilla, 618-935  
Koryo, 918-1392  
Choson, 1392-1910  
Japanese annexation, 1910  
Republic of Korea, 1948

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Through these records, we know that the royal family and people in the governing groups enjoyed bathing in hot springs from the time of the Three Kingdom period, and that ordinary people were permitted to do so from the reigns of Sejong (1418-1450) and Munjong (1450-1452) in the Choson period (1392-1910).

Reaching the hot springs required a 7- to 10-day journey from the capital, and rulers used the trip to view the lives of ordinary people. The rulers enjoyed the visits to the hot baths, and on their return journeys were inclined to be merciful. For example, an earlier king named Munjong (reign 1046-1083) in the Koryo period lowered several provincial taxes on the way back to the capital, and Sonjong (reign 1083-1094) gave vacations to officers who wanted to bring their old sick parents to the hot springs (*Koryo sa*). King Sonjong ordered a search for new hot springs around the capital city, decreeing that the finder would receive several benefits in social status, money, and an exemption from labor and duty.

The fact that every governor had to manage and repair bathing facilities at hot springs located in his territory has provided important records regarding the management and laws of hot spring use (*Kyongguk daejon*, *Daejon hoetong*). Records in *Koryo sa*, *Sejongsillok chiri chi*, and *Tonggukyoji sungnam* comment on the history and name-origin of the hot springs in 43 locations, offer a hot spring commentary (*Oju yonmun changjon sango*), and give locations and characteristics of hot springs and mineral springs (*Yijesokgo*).

The flowing hot spring waters of Korea were enjoyed mostly by the king, his family, and the nobility, a pattern that continued up to the Japanese occupation in 1910. Then, the Japanese developed and modified hot spring use to resemble modern customs in Japan.

### *ONYANG HOT SPRING*

**I**N PAEKCHE (18 B.C.-660), THE ONYANG HOT SPRING AREA WAS CALLED *ONJEONG* (“warm well”). The name was changed to *Onsoo* (“warm water”) in the Koryo period (918-1392) and finally to *Onyang* (“warm village”) (*Tonggukyoji sungnam*, Book 19). A legend says that a curious farmer found the hot spring while trying to learn why grasses in the area grew well, the surface water dried up easily, and the land did not freeze in the winter. Taejo (reign 1392-1398), founder of the Choson Dynasty, and his sons visited Onyang and built the special royal rooms for bathing. Hungson Taewongun later rebuilt the facilities.

Onyang has two historical monuments. One, the Shinjeong Stele, (the initial chapter photo), is Chungchongnam-do Cultural Property and Monument No. 229. The stele, which is an upright stone tablet, records the miraculous gushing-up of two wells during visits to Onyang by Sejo (reign 1455-1468). In 1464, well into his reign, Sejo arrived at Onyang on March 1 after visiting the Venerable Hyegak, a famous Buddhist priest in Pokchon Temple on Songni Mountain. On the fourth day of his stay in Onyang, the king noticed a gushing flow of water in the garden of the royal lodging. He had a well dug on the spot and the water in the well was ice cold, clear, sweet, and soft. As news of this miraculous well spread, all eight provinces of the kingdom sent the king letters of congratulations on the auspicious well. Six years later, in 1468, Sejo stayed in Onyang again with his mother, and he found another outflowing spring. A second well was dug named *Shinjeong* ("divine well"), and he ordered a second stele set up to record the miraculous phenomenon. Shinjeong Stele was erected in 1475, the seventh year of the rule of Songjong, who was a son of Sejo. Im Won-jun wrote the text on the stele, and Yi Suk-ham was the calligrapher. The stele tells us that the Onyang was famous for old mineral and hot springs.



Younggwoe-dae Stele at Onyang hot spring. The stele is 100 cm tall and 16 cm wide.

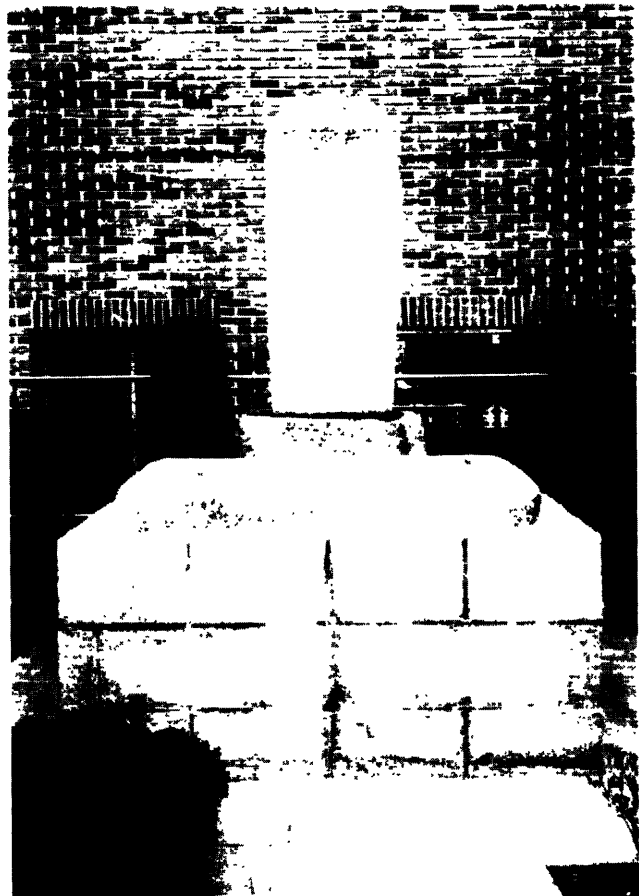
Another monument is Younggwoe-dae Stele, which is a Chungchongnam-do Cultural Property and Monument No. 228. Younggwoe-dae was an archery ground where Crown Prince Sado practiced archery when he went with his father, Yongjo (reign 1724-1776), to the hot spring in Onyang. Chongjo, the son of Sado, ordered the Onyang county chief to rebuild the archery

ground and plant three trees in memory of his father. He also ordered the Younggwoe-dae Stele set up, commemorating his father in the 19th year of his reign, in 1795. The calligraphy of the title was executed by the king himself, while the inscription was written by Yun Haeng-im, an official of the palace library.

### *DONGLAE HOT SPRING*

ACCORDING TO HISTORIC RECORDS, DONGLAE HOT SPRING HAS BEEN IN USE SINCE THE SHILLA period (57 B.C.-668). Because this spring has been famous for its recuperative powers since ancient times, it has attracted many people over the years. Legend says that a white crane always enjoyed bathing around the spring, and people dug a small pond for bathing at the hot spring. The prime minister, Chungwongong, during the reign of Sinmun Wang (681-692), enjoyed bathing here (*Samguk yusa*). *Tongguk yoji sungnam* mentions that a king of the Shilla period bathed in this spring and ordered copper pillars placed at its four corners to indicate the hot spring boundaries. The temperature of the spring was too hot for bathing and high enough to cook a chicken. *Yeonsangok hanglok* records that this spring was separated by stones into sections for men and women and that each room was built for five to six people to use, with hot water supplied from raised conduits.

A stele erected in October 1766, the 42nd year of the reign of Youngjo (1724-1776) in the Choson period, commemorates the renovation of the hot spring facilities by P. L. Kang, a magistrate of Donglae Province. The



Stele in Donglae, erected in 1766 upon the reconstruction of the public bath. Height: 144 cm.

stele reads that a bathhouse was built in 1691, in the 17th year of the reign of Sukjong (1674-1720), that Kang rebuilt the house containing two public baths, one for men and one for women, and installed a caretaker's house, a gate, and the stele. An annual memorial service called "The Great Dragon Rite," begun in the Shilla period, is still held here. The 303rd service was on September 9, 1995, of the lunar calendar.



Ancient granitic bathtub in Donglae (inner space: 135 x 70 x 35 cm), hand-carved from massive granite in the 1760s. Before the granitic tubs were carved, wooden tubs were used for bathing. A 19 x 26 cm guidebook for Donglae hot spring, written in Korean, is used for scale.

### *HAEUNDAE HOT SPRING*

**H**AEUNDAE HOT SPRING IS LOCATED ON THE BEACH, ABOUT 10 KM FROM DONGLAE HOT SPRING. The water quality is blackish and the total dissolved solids equal 4,500-5,500 mg/l. The spring was developed in the Shilla period (57 B.C.-668), and the nobility enjoyed bathing there very much. Queen Chinsong Yowang (reign 887-897), her noblemen, and their court ladies enjoyed pleasure-seeking parties every season; a faithful retainer closed the spring after a flood. Legend says that the spring was famous for curing leprosy and that patients came stealthily to the spring, bathing there at night.



### *ICHEON HOT SPRING*

**I**CHEON HOT SPRING HAS BEEN CALLED *ONCHEON BAMEE* ("HOT SPRING AND SNAKE VILLAGE") FOR 500 years. In the 1870s, a farmer found the warm spring in his rice field and cured his eye trouble by washing his eyes in the water. Since then, the hot spring has been called *Yaktang* ("medicine spring") and used for therapy.

### *CHEOKSAN HOT SPRING*

**L**EGEND SAYS THAT A FEW CRANES CAME TO CHEOKSAN HOT SPRING TO LET A FEMALE CRANE wash her wounded legs. Later, when she was cured completely, they flew north and people called this place *Haksapyeong* ("crane and sand field"). Another legend says that two old red, wounded snakes recovered completely after wintering at this spring.

### *OSAEK HOT SPRING*

**O**SAEK HOT SPRING AND MINERAL WATER (A CARBONATE WATER) WERE FAMOUS AND USED BY patients with skin diseases from the late Choson Dynasty (1392-1910). This hot spring is famous for its high altitude (800 m); the other historical springs are at about sea level.

### *SUANBO HOT SPRING*

**T**WO HUNDRED YEARS AGO, A VAGABOND WITH SKIN DISEASES FOUND A SMALL HOT SPRING surrounded by piled straw in a rice field. He drank the warm water and bathed in it, recovering easily in a short while. When he left the spring, curious farmers dug to expand the spring. Historical books give the hot spring different names (*Koryo sa*, *Sejongsillok chiri chi*, and *Tongguk yoji sungnam*).

### *YUSONG HOT SPRING*

**Y**USONG HOT SPRING WAS FOUND IN THE LATE CHOSON PERIOD (1392-1910). WHEN KING Taejo (reign 1392-1398) was searching for the capital city of the Choson Dynasty, he visited Mount Kyeryong, near Taejon, and stayed a few days to bathe there (*Tongguk yoji sungnam*). Taejong (reign 1400-1418) also visited the hot spring and enjoyed bathing in its waters.

### *DOGO HOT SPRING*

**T**WO STORIES EXPLAIN THE DISCOVERY OF DOGO HOT SPRING. ONE SAYS THAT THE SPRING WATER was used to cure wounded soldiers in the Three Kingdom period and that the village was called *Shilla-ri* ("village of Shilla"). Another legend says that a lady of Shilla prayed to Buddha for a son and that she gave birth to a son who had the upper body of a cow and the legs of a human being. As she mourned for her son, she searched for a way to cure him, finally returning her son's body to normal by washing him in the spring water. These fantastic stories tell us that Dogo hot spring has been famous since the early Shilla period (57 B.C.-935).

### *DEOKSAN HOT SPRING*

**T**HE STORY OF DEOKSAN HOT SPRING IS VERY SIMILAR TO THAT OF CHEOKSAN HOT SPRING. THERE was a white crane with wounded wings and legs who came to Deoksan. He could fly after washing himself in the hot spring for three days. Farmers dug and expanded the spring, which has been used for bathing ever since. They called this place *Onchon-gol* ("hot spring village") (*Chungbo*). They said that these warm and slippery waters were very helpful, especially for treating skin diseases and neuralgic pains.

### *BAEKAM HOT SPRING*

**I**N ANCIENT TIMES, A HUNTER PURSUING A WOUNDED DEER WITH A SPEAR ACCIDENTALLY FOUND this hot spring flowing warm mineral water. Monks living in nearby Baekam Temple built a facility with tubs so patients seeking cures for various diseases could bathe in the waters. A governor in the area during the reign of King Myongjong (1170-1197) in the Koryo Dynasty (918-1392) built a bathhouse, which is now gone, with gigantic granite bathtubs. The governor hired a manager to control the facilities and to make them convenient for public use. The facilities were rebuilt several times, but no historical records exist for the reconstructions.

The documents *Koryo sa*, *Sejongsillok chiri chi*, and *Tongguk yoji sungnam* all say that a drop of water from Pyeonghae hot spring (another name for Baekam hot spring) would cure every patient and that a man could turn into an angel by washing his armpit in this water.

### *DEOKGOO HOT SPRING*

A LEGEND SAYS THAT A MR. JEON, WHILE LEADING A HUNTING PARTY IN THE LATE KORYO period (about 600 years ago), discovered Deokgoo hot spring and that everyone in the party enjoyed bathing there after the hunt.

### *BUKOK HOT SPRING*

THE WORD *BUKOK* MEANS "IRON POT," AND *BUKOK* HOT SPRING WAS NAMED AFTER THE TOPOGRAPHY of its site, which looks like a traditional iron pot. There were three small springs at Bukok, which were cold in the summer season and warm in the winter. The water was famous for curing skin diseases. So many patients and lepers came to the village that the villagers finally buried the spring, closing it for good. The spring was uncovered in 1960s, and its temperature (80° C) is the highest of all the hot springs on the Southern Korean Peninsula.

### *MAGEUMSAN HOT SPRING*

A LEGEND SAYS THAT MINERAL AND HOT SPRING WATERS HAD FLOWED IN THIS AREA SINCE THE Choson period (1392-1910). The water at Mageumsan hot spring was very famous for curing all diseases by drinking and bathing, but a severe public nuisance caused by developing the springs resulted in its closure. The hot spring was developed further by a Japanese investor in 1910.

### PRESENT STATUS AND DEVELOPMENT

MOST OF THESE HOT SPRINGS WERE FLOWING NATURALLY UNTIL 1910, WHEN FURTHER DEVELOPMENT began. Today, dozens of boreholes have been drilled at these ancient sites, and resort cities have been constructed, with many facilities using the waters, such as hotels, condominiums, public baths, and entertainment areas. All 14 of the famous, historical hot spring sites of Korea discussed here now suffer shortages of hot water, and the groundwater tables are declining rapidly 50-250 m beneath the surface. Reevaluation and reassessment are seriously needed to consider how to best use the hot springs. The gross pumping rate at every hot spring site should be controlled by precise hydrogeologic investigations.

As the demand for geothermal waters has increased tremendously, so has exploitation and development. By 1996, new geothermal investigations were conducted in boreholes drilled at more than 150 locations. The boreholes are tested by the Korean Institute of Geology, Mining, and Materials (KIGAM), which has published technical reports that discuss geology, geography, borehole characteristics, geophysical and temperature logs, long-term and step-drawdown tests, recovery tests, and chemical analyses of pumped water. The new locations are characterized by low temperatures (25°-35° C) and depths of 400-1500 m (Yum, 1994). Unfortunately, with extensive exploitation and development of new boreholes, the deep groundwater environment has deteriorated.

## DISCUSSION AND CONCLUSION

**G**RANITIC ROCKS ARE THE MAIN HEAT SOURCES FOR HOT SPRINGS IN THE REPUBLIC OF KOREA. Korean hot springs can be classified into two groups: the 14 old, historic hot springs and the new hot springs at over 150 locations, developed by drilling boreholes. The old hot springs, showing high temperatures and relatively high total dissolved solids, are fed with waters from much shallower depths than the new.

Since the Shilla period, as shown in 173 articles in ancient books and annals—such as the *Samguk sagi*, *Samguk yusa*, *Koryo sa*, *Choson wangjo sillok*, and *Tongguk yoji sungnam*—the Korean people have been very familiar with hot springs, regarding them as a way to cure diseases. The ordinary Koreans of long ago used hot springs mainly for medical therapy. The ancient Korean governing classes also regarded hot springs baths as sources of recuperation and relaxation.

Before 1910, the use of hot springs in Korea was limited to bathing in the naturally outflowing hot spring waters. Today, the situation is almost the same: 99 percent of hot spring waters are used for bathing; the other 1 percent is used for local district heating projects, including greenhouses, and for aquiculture. In Korea, hot spring bathing is the most economical way to use hot spring waters.

## CITED HISTORICAL BOOKS AND ANNALS

*Choson wangjo sillok* (*Annals of the dynasty of Choson*) were drafted by historians in the Office for Annals Compilation (Chunchuwan). To ensure their safe transmission to posterity, copies were placed in special repositories (*sago*) in widely separated parts of the country.

*Chungbo* (*Loyal treasure*).

*Koryo sa* (*History of Koryo*) is structured as annals, treatises, and biographies. A greatly revised final version was completed in 1451.

*Oju yonmun changjon sango* (*Random expatiations*), by Yi Kyu-gyong (1788-1856), covers the whole spectrum of scholarly endeavor: astronomy, geography, government, economics, society, history, and other disciplines.

*Samguk sagi* (*History of the three kingdoms*), the oldest extant history, was compiled by Kim Pu-sik at the command of Injong in 1145.

*Samguk yusa* (*Memorabilia of the Three Kingdoms*) was written by the monk Iryon (1206-1289).

*Sejongsillok chiri chi* (*Geographical description and veritable records gazetteer*) appeared during the reign of Sejong (1418-1450).

*Tongguk yoji sungnam* (*Survey of eastern country [Korean] geography*) was compiled in 1481, under headings such as pavilions, temples, shrines, historical remains, famed officials who had governed a particular district, other historical figures associated with the area, poetical creations, and other compositions.

*Tongsa kangmok* (*Annotated account of Korean history*) was written from an orthodox Confucian point of view by An Chong-bok.

*Yeonsangok hanglok* (*Tales of mountains and valleys*).

*Yjesokgo*.

*Yongjae chonghwa* (*Assorted writings of Yongjae*) is the literature of tales and anecdotes by Song Hyon.

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"Sightseeing at Hakone Spa," by Utagawa Kuniyashu in the Bunsei period, 1818-1829; woodblock print. A party of women relaxes with food, tea, and conversation by the stone-enclosed hot spring in the background. The tiny vertical lines rising from the hot spring water indicate heat. The woman seated in the center foreground is holding a long-stemmed pipe, filling its bowl with tobacco leaves from her silken pouch. *Courtesy of the Shogangi Temple.*  
*Photo by Mr. Suzuki, Hakone Board of Education*