



Fig. 1. Hongryeonbong Fort 2 on Mt. Acha (Korean Institute for Archaeology and Environment)

The Structure and Characteristics of Goguryeo Fortresses in South Korea

Yang Sieun
Professor, Chungbuk National University

Introduction

The full-fledged investigation of Goguryeo (高句麗, 37 BCE – 668) fortresses¹ located in South Korea began fewer than two decades ago; even so, South Korean research achievements on Goguryeo fortresses exceed those of North Korea and China due to the concentrated excavations that have taken place during this relatively short time.

The first Goguryeo fortress excavated in South Korea was Guui-dong Fort, which was investigated in 1977. At the time South Korean archaeologists could not envision the presence of Goguryeo sites in South Korea, so the excavation team tentatively concluded that the Guui-dong Fort's remains were associated with a tomb from the Baekje Dynasty (百濟, 18 BCE – 660). However, the Guui-dong site came to be reinterpreted as the remains of a Goguryeo fortress after the discovery of a distinctive Goguryeo-style long-necked jar with four handles and wide mouth during the 1988 excavation of the Mongchon Earthen Fortress (夢村土城) in Seoul, the first capital of Baekje—i.e., during the Hanseong Period (漢城時代, 18 BCE – 475), the first phase of Baekje. This development, along with the 1979 discovery of the Jungwon Gogu-

ryeo Stele (中原高句麗碑) in Chungju, North Chungcheong Province, fostered optimism that Goguryeo fortress sites would be found in South Korea.

Subsequent field surveys beginning in the early 1990s resulted in the further discovery of the remains of Goguryeo fortresses in the Seoul region and northern areas of Gyeonggi Province. Formal excavations began in the late 1990s with Mt. Acha Fort 4 (阿且山4堡壘), which overlooks the north of the Han River. More than 100 Goguryeo sites have now been reported in South Korea, of which approximately 80% are fortress sites. Excavations have confirmed sixteen sites to be fortresses constructed by Goguryeo. However, given that those fortresses might have been renovated a number of times by various peoples, significant care must be taken in establishing their characteristics.

This paper has two objectives. The first is to conduct a comprehensive examination of the structural characteristics of Goguryeo fortress sites excavated in South Korea. It is expected that the research results will provide a sound basis for further studies on Goguryeo fortresses. The second objective is to consider the characteristics of Goguryeo fortresses located in South Korea, focusing on their distribution, chronology, and role within the Goguryeo system of defense. These two issues have been examined by other scholars, but previous studies analyzed only basic features of individual fortress sites, included sites which might have been occupied only temporarily by the Goguryeo army, or attempted to understand the

¹ In this paper, “fortress” refers to fortifications in general, including both large fortifications termed “성” (城) and smaller ones termed “보루” (堡壘) in the original Korean text. When distinction is required, “성” (城) is translated as “fortress” and “보루” (堡壘), “fort.”

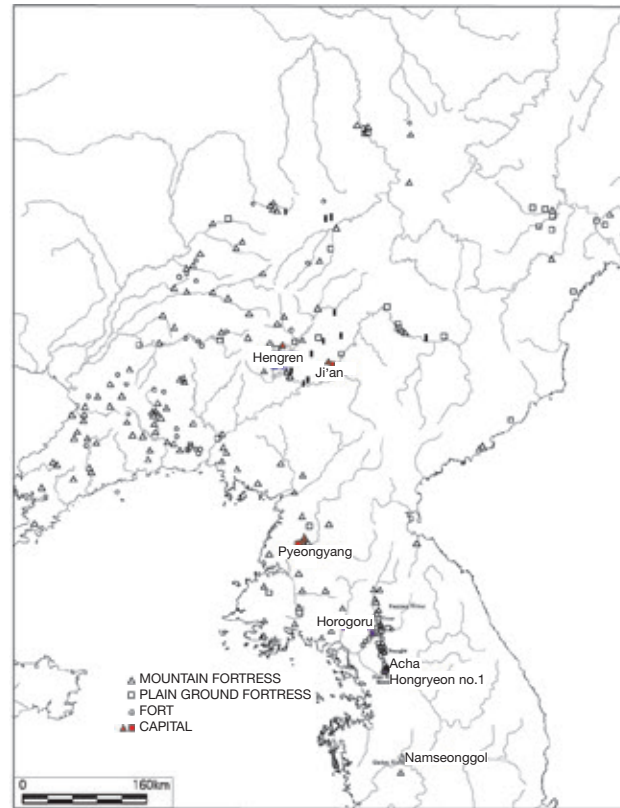


Fig. 2. Distribution of Goguryeo fortresses

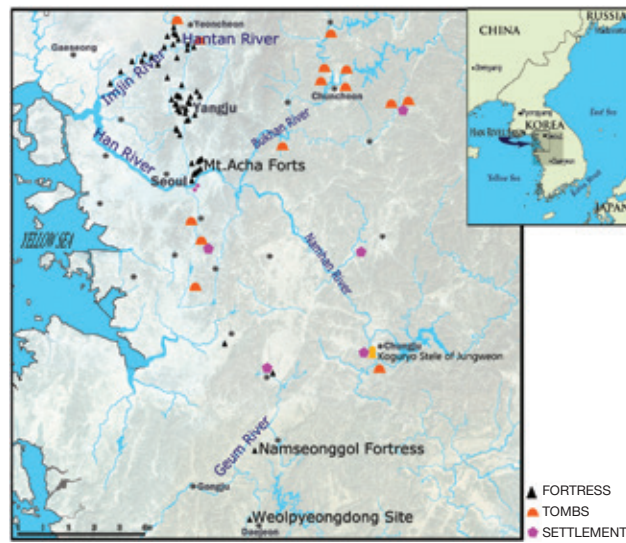


Fig. 3. Distribution of Goguryeo sites in South Korea

context of fortress construction based only on historical records but without detailed examination of the archaeological evidence. This paper addresses these weaknesses with a focus on the Goguryeo fortresses confirmed through excavations rather than sites iden-

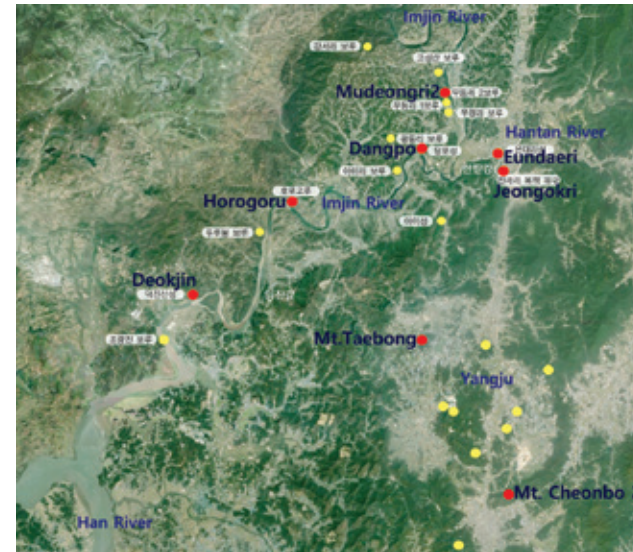


Fig. 4. Distribution of Goguryeo sites in northern Gyeonggi Province

tified only through surface surveys.

Overview of Goguryeo Fortress Sites

Goguryeo fortress sites in South Korea are distributed throughout the Imjin-Hantan River (臨津江; 漢灘江) region, the Yangju (楊州) region, the Han River (漢江) region, and the Geum River (錦江) region. Detailed features of these fortress sites have been discussed in numerous publications; therefore, only a brief overview of the Goguryeo fortress sites investigated in excavations or preliminary excavations will be presented in this section through the tables (See the table in p. 35).

Structure of the Goguryeo Fortresses of South Korea

1. Main fortress structure

The walls' structure and their construction methods are key elements of the main fortress because of their primary function of defense from external threats. Goguryeo fortress walls were built with materials that could easily be found around the fortress sites; they can be categorized into wooden fence structures, earthen wall structures, and stone wall structures. Among the middle- to large-scale Goguryeo fortresses that encircle valleys (包谷式山城) in China'

Type	Name	Altitude (m)	Circumference (m)	Notes
Flatland fortress	Eundae-ri Fortress (隱登里城)	60 ?	1005	- Hantan River north side - Composite structure comprising inner and outer fortresses (?) - Earthen wall (?): (5th century): stamped earthen core, worked stone reinforcements added to the wall exterior - Artifacts: pottery and ironware
Flatland fortress	Jeongok-ri Wooden Fence Structure (全谷里木柵)	55	?	- Hantan River north side - Wooden fence (5th century?): double wooden fence structure - Artifacts: pottery
Flatland fortress	Horogoru Fortress (彌蘆古壘)	28	401	- Imjin River north side - Wooden fence (5th century): double wooden fence structure, pit - Stone-built wall (6th-7th century): stone wall with earthen core with vertical post indentations, roof-tiled building, building with <i>ondol</i> heating facilities, water reservoir facilities, etc. - Artifacts: roof tiles, pottery, ironware, stone objects, animal remains (e.g., horse, cattle, pig, deer), grains (e.g., rice, millet) - Role: headquarters of the Imjin River region - Reused during the Unified Silla and Goryeo periods
Flatland fortress	Dangpo Fortress (棠浦城)	13	450	- Imjin River north side - Stone-built wall (6th-7th century): stone wall with earthen core, the stone wall with vertical post indentations and square hole located amongst the stones of the wall - Artifacts: roof tiles, pottery, ironware, etc. - Reused during the Unified Silla and Goryeo periods
Mountain fort	Mudeung-ri Fort 2 (無等里2堡壘)	93	300 ?	- Imjin River west side - Stone-built wall (6th-7th century): 2 <i>chi</i> (堆) structures, retaining walls, drainage facilities, etc. - Artifacts: pottery, stone objects, grains (e.g., rice, millet), roof tiles (small number), ironware (helmet, body armor, etc.), and iron slag - Presence of iron production facilities
Mountain fort	Deokjin Mountain Fortress (德津山城)	80	?	- Imjin River north side - Stone-built wall (certain sections constructed by Goguryeo forces) - Expanded during the Unified Silla period

Table 1. Key features of the Goguryeo fortresses of the Imjin-Hantan River region

Type	Name	Altitude (m)	Circumference (m)	Notes
Mountain fort	Mt. Taebong Fort (胎峰山堡壘)	150		- Stone-built wall: stone wall and building with <i>ondol</i> heating facilities - Artifacts: pottery and ironware
Mountain fort	Mt. Cheonbo Fort 2 (天寶山2堡壘)	336	150 +	- Wooden fence (?): row of post-holes (built earlier than the building with <i>ondol</i> heating facilities) - Stone built wall (6th century): stone wall, 1 <i>chi</i> structure, building with <i>ondol</i> heating facilities, above-ground building, and water reservoir facilities - Artifacts: pottery, ironware and whetstone

Table 2. Key features of the Goguryeo fortresses of the Yangju region

Type	Name	Altitude (m)	Circumference (m)	Notes
Mountain fort	Guui-dong Fort (九宜洞堡壘)	53	46	- Stone built wall (6th century): 4 <i>chi</i> structures, building with <i>ondol</i> heating facilities, drainage facilities, and water reservoir facilities - Artifacts: pottery, bricks and ironware (e.g., iron pot) - Small-scale fort entirely burnt down - Possible existence of another fort to the south with a wooden fence and water reservoir facilities
Mountain fort	Hongryeonbong Fort 1 (紅蓮峰1堡壘)	116	140	- Stone built wall (6th century): wooden fence, double stone wall with vertical post indentations, support posts, 1 <i>chi</i> structure, roof-tiled building, building with <i>ondol</i> heating facilities, drainage facilities, water reservoir facilities, etc. - Artifacts: pottery, ironware, roof tiles, etc. - Presence of a government administrative office overseeing the Han River region - Partially rebuilt and temporarily used by Silla forces
Mountain fort	Hongryeonbong Fort 2 (紅蓮峰2堡壘)	117	218	- Stone built wall (6th century): wooden fence, surrounding trench with drainage facilities, double stone wall, support posts, in-filled earth (pseudo-stamped earth), 7 <i>chi</i> structures, building with <i>ondol</i> heating facilities, water reservoir facilities, drainage facilities, pottery-firing structure (?), mill, storage facilities, etc. - Artifacts: pottery with inscriptions (e.g., 庚子—i.e., 520 or 580—官釜 or 官倉), ironware - Role: Production and circulation of military supplies (?)
Mountain fort	Mt. Acha Fort 3 (阿且山3堡壘)	296	420	- Stone built wall (6th century): stone wall, entrance structure, building with <i>ondol</i> heating facilities, drainage facilities, storage facilities, mill, blacksmith's workshop, etc. - Artifacts: pottery, ironware, etc. - The largest of the Mt. Acha forts (only partially excavated)
Mountain fort	Mt. Acha Fort 4 (阿且山4堡壘)	286	256	- Stone built wall (6th century): double wooden fence, stone wall, 5 <i>chi</i> structures, wall, building with <i>ondol</i> heating facilities, temporary blacksmith's workshop, water reservoir facilities, drainage facilities, etc. - Artifacts: pottery with inscriptions (e.g., 再牟元, 支都元, 後都都?元, 下官), ironware (e.g., helmet) and stone objects
Mountain fort	Mt. Yongma Fort (龍馬山堡壘)	230	150	- Stone built wall (6th century): stone wall, 3 <i>chi</i> structures, building with <i>ondol</i> heating facilities, auxiliary building, water reservoir facilities, storage facilities, warehouse, wooden ladder, etc. - Artifacts: pottery, ironware
Mountain fort	Sirubong Fort	206	260	- Stone built wall (6th century): double wooden fence, stone wall, 4 <i>chi</i> structures, surrounding trench, building with <i>ondol</i> heating facilities, water reservoir facilities, drainage facilities, etc. - Artifacts: pottery with inscriptions (e.g., 大夫井大夫井), ironware, stone objects, etc.

Table 3. Key features of the Goguryeo fortresses of the Han River region

Type	Name	Altitude (m)	Circumference (m)	Notes
Mountain fort	Namseonggol Mountain Fortress (南城谷山城)	105	360	- Wooden fence (late 5th century?): double wooden fence, <i>chi</i> structure, moat, stone-built eastern entrance gate, building with <i>ondol</i> heating facilities, pottery-firing structure (?), etc. - Artifacts: gold earring, pottery, ironware, etc.
Mountain fort	Wolpyeong-dong Site (月坪洞遺蹟)	130	?	- Stone-built wall: stone wall with vertical post indentations, wooden fence (?) - Artifacts: pottery - First built by Baekje forces and reused by Goguryeo forces

Table 4. Key features of the Goguryeo fortresses of the Geum River region

s Liaoning region, a single fortress wall sometimes comprises separate sections, one section consisting of earth, another of stone, and yet another of mixed earth and stone. In South Korea, the earthen walls of Eundae-ri Fortress, in the northern Gyeonggi region, are faced up to a designated height with worked stone. Horogoru and Dangpo Fortresses both feature stone walls with earthen foundations and cores (Fig. 5). The walls of Mudeung-ri Fort 2 in Yeoncheon were constructed using a mixture of stone and clay with the outer surface covered in clay. Namseonggol Mountain Fortress in Cheongwon was primarily a wooden fence structure, but the fortress gate incorporated stone walls to enhance the defensive function. Making the best possible use of the local environment, Goguryeo fortresses apparently used various materials and construction methods in order to fulfill their protective function.

1) Wooden Fence Structures: At present, remains of wooden fence structures have been identified at the following sites: Jeongok-ri site, Horogoru Fortress, and Mudeung-ri Fort 2 in the Imjin-Hantan River region; Mt. Cheonbo Fort 2 in the Yangju region (Fig. 6); Guui-dong Fort, Hongryeonbong Forts 1 and 2, Mt. Acha Fort 4 (Fig. 8), and Sirubong Fort in the Han River region; and Namseonggol Mountain Fortress in the Geum River region. Wooden fences functioned as fortifications or as support posts for the earthen foundations of the fortress' stone walls.

Wooden fence structures that clearly served a defensive purpose include the wooden fence of Horogoru Fortress, which had been standing before the stone wall was erected, as well as the wooden fences of Jeongok-ri and Namseonggol Mountain Fortress. The most representative example is the wooden fence of Namseonggol Mountain Fortress, a dual structure consisting of inner and outer fences. The two rows of fences are placed 2.5-3 meters or 4-4.5 meters apart, depending on the local topography. The wooden posts used in the fences are 20-30 centimeters in diameter; the distances between the post centers range from 1.5 to 1.8 meters (Fig. 9).

Remains of wooden fence structures identified at other fortress sites also consist of two rows, akin to the defensive wooden fence structures examined above. However, the wooden fences of Mudeung-ri Fort 2 and Hongryeonbong Forts 1 and 2 (Fig. 10) likely supported the stone fortress walls, or the



5a



5b



5c



5d

Fig. 5. Horogoru Fortress in Yeoncheon (Land & Housing Museum): a) View from above; b) Stone wall (foreground: Silla period additions; background: original Goguryeo structure); c) Remains of the wooden fence structure and pits built earlier than the stone wall; d) Roof-end tile with lotus design from Horogoru Fortress



Fig. 6. Mt. Cheonbo Fort 2 in Yangju (Seoul National University Museum)



Fig. 7. Distribution of Goguryeo sites in the Han River region

earthen core of the fortress' stone walls, rather than actually serving a protective function in their own right. Therefore, further research is required for the remains of the wooden fence structures found at other fortress sites.

2) Mixed Earth and Stone Fortress Walls: Walls of mixed earth and stone were used primarily for barrier structures located in the frontier pass regions of Goguryeo in the peripheries of the Ji'an (集安) region of China. Some Goguryeo fortresses have earthen

walls to which an additional layer of stone was added at the base or up to a designated height on the exterior. Some fortresses feature earthen walls that contain an inner stone core or a linear arrangement of stones; because the one or two layers of stones placed at the base of such earthen walls are not exposed, it is impossible to distinguish this type of fortress wall from a plain earthen wall from the exterior. The earthen walls of Eundae-ri Fortress were merely faced with irregular stones, with the result that the fortress is categorized as an earthen-walled fortress rather than as a stone-walled fortress, like Horogoru and Dangpo Fortresses, both of which feature an additional outer layer of regularly-shaped, worked stones systematically stacked onto the outer wall. Earthen walls with stone reinforcements added to the base or outer wall surface are generally observed at Goguryeo fortresses constructed after the capital was relocated to Pyongyang (平壤) in 427. Therefore, fortresses utilizing walls of mixed earth and stone seem to have appeared later than earthen-walled or stone-walled fortresses.

3) Stone Fortress Walls (Fig. 11): The stone fortress walls observed at many Goguryeo fortresses can be divided into single-faced and dual-faced types. For single-faced stone walls, an inclined ground surface was manipulated into an appropriate angle with stones stacked along the inclined surface, the gaps filled with earth and stones. This type of stone wall consisted of two sections—the stone-wall section and the earthen in-fill section—and was primarily utilized in small-scale mountain forts of South Korea. In contrast, large-scale flatland fortresses, such as Horogoru Fortress, utilized dual-faced stone walls in which stones were stacked vertically along both sides of the wall.

In the basic method of stone-wall construction, large stones are placed at the base of the wall and then other stones are gradually stacked inwards in stair-step fashion to a designated height. Even so, apart from particular sections, such as *chi* (雉) structures, for example, stair-step construction was seldom utilized for the Goguryeo mountain forts of South Korea, presumably due to the desire to use as little labor as possible for mountain forts. In the case of fortress walls exceeding a certain scale, such as those of Horogoru and Dangpo Fortresses, the ground surface was flattened, after which several

layers of clay were added to establish the base of the fortress wall. By contrast, the foundations for the walls at the Mt. Acha forts were created by laying down a small amount of clay on the weathered-rock soil to achieve a horizontal ground surface. In addition, it appears that the stone walls extended only sufficiently high to shield the living space within the forts because it was structurally difficult to build high walls of one or two layers of stone for these small mountain forts; consequently, no evidence of parapets, which can be found among the middle- to large-scale Goguryeo mountain fortresses, exists in the Goguryeo mountain forts of South Korea. However, the use of low stone walls made it possible to fully utilize the living quarters in the limited space of forts situated on mountain peaks.

The outer walls of Goguryeo stone-walled fortresses generally feature neatly stacked, well-worked stones. Seen from the front, the stacked stones form a running bond pattern—termed a “品”-shaped pattern in Chinese and Korean—in middle- to large-scale fortresses. In contrast to the middle- to large-scale fortresses in China and North Korea, however, this stone wall pattern is seldom observed in the mountain forts of South Korea, in which the walls were built using only one or two layers of stones. Since these walls are relatively thin, it is possible to observe stones that have been displaced due to soil pressure and loss of balance in the stone wall. In this case, the sections of the wall that have crumbled can be easily identified.

The stones for facing the fortress walls were usually worked into a rectangular or wedge-shaped form. The frequently used wedge-shaped stones resemble elongated pyramids lacking their tops, or points. From the outside, the individual stones appear to be evenly rectangular; however, from above, the stones appear narrower towards the back, due to their generally triangular shape. The stones used for stacking the inner section of the wall were shaped like elongated diamonds; their very narrow points were set toward the front in order to interlock with the wedge-shaped stones. However, rectangular stones were favored over wedge-shaped ones in the mountain forts, which used only one to two layers of stones.

2. Additional Features

1) Surrounding Trenches: Additional defensive structures in the form of surrounding trenches, or



Fig. 8. Mt. Acha forts: a) Aerial photograph of the Mt. Acha fort cluster (Guri City); b) Hongryeonbong Fort 1 (Institute for Archaeology and Environment, Korea University); c) Mt. Acha Fort 4 (National Institute of Cultural Heritage); d) Sirubong Fort (Seoul National University Museum); e) Hongryeonbong Fort 2 (Korean Institute for Archaeology and Environment)

oehwang (外隍, literally “outer ditch or trench”), have thus far been identified only at Hongryeonbong Fort 2 and Sirubong Fort (Fig. 12). The trench of Hongryeonbong Fort 2 surrounds the fortress 2-3 meters away from the outer wall. Measuring 1.5-2 meters in width and 0.6-2.5 meters in depth, the trench is either “U”- or “V”-shaped in cross-section. The surrounding trench had stone reinforcements in places with a weak ground structure and a drainage system to ensure it did not fill with water.

2) Chi structures : *Chi* (雉) structures are protruding square sections of the fortress walls located at points where enemy movements could be easily observed or where additional fortifications were required. The “Π” shape of the *chi* structures made it possible to fight the enemy from both flanks as well as from the front and therefore enhanced the fortress walls’ defensive role.

Numerous *chi* structures have been identified from Goguryeo forts located in South Korea. Compared to the forts’ main walls, these structures were



Fig. 9. Namseonggol Mountain Fortress (Chungbuk National University Museum): a) Overview; b) Internal post structure



Fig. 10. Wooden fence structures: a) Wooden fence structures that functioned as supports (Hongryeonbong Fort 1) (Institute for Archaeology and Environment, Korea University); b) Wooden fence structures that functioned as supports (Mudeung-ri Fort 2) (Author’s photograph)

often built as more durable structures due to their important defensive function. Two types of *chi* structures have been identified: those packed with stone and those packed with earth. The sections of fort walls with *chi* structures are generally well preserved because the *chi* structures often acted as a retaining element in supporting the walls.

The Mt. Acha forts are notable for their unusual *chi* structures, which are detached from the main fort walls. This type of *chi* structure has yet to be identified in the Goguryeo fortresses of China or North Korea. Such *chi* structures are found at defensively weak points along the wall, where the flat approaches to the fort would have allowed an enemy to assemble in large numbers. The addition of these stone structures would have enhanced the fort’s defensive power. Some of these *chi* structures appear to be associated with entrance structures.



Fig. 11. Stone walls (Author's photograph): a) Chengshan Mountain Fortress (城山城) in Zhuanghe (莊河), Liaoning Province, China; b) Sirubong Fort



Fig. 12. Surrounding trench (Author's photograph): a) Sirubong Fort; b) Hongryeonbong Fort 2

3) Entrance Structures: Fortress gates have been identified in all middle- to large-scale Goguryeo fortresses; however, only in rare cases have they been found in forts. Structures that can definitely be interpreted as gates have yet to be found among Mt. Acha forts, for example (in the case of Mt. Acha Fort 3, the structure identified as an entrance appears to have been a stairway leading into the fort rather than a proper entrance gate).

All forts required some type of entrance, and that entryway likely would have been a sturdy structure outfitted with additional defensive components. Features identified among the Mt. Acha forts that correspond to this description include the double-layered *chi* structure from Mt. Acha Fort 4, the triple-layered *chi* structure from Mt. Yongma Fort 2, and the No. 3 *chi* structure from Sirubong Fort (Fig. 13). Apart from the stairway of Mt. Acha Fort 3, ladders would have been used to access the other Mt. Acha forts, as evidenced by the wooden ladder dated to the Goguryeo

period found at Mt. Yongma Fort 2.

4) Vertical Post Indentations: Vertical, square-sectioned indentations with sides 20-30 centimeters in width and spaced at intervals of 1.5-2 meters occur in the stone walls of Goguryeo fortresses. These indentations accommodated wooden posts at regular intervals to reinforce double-layered stone walls, the indentations set along the inner stone wall and protected by the outer stone wall. Only Daeseong Mountain Fortress (大城山城) in Pyongyang previously was reported to have such features; however, such indentations have been recently identified at Dangpo and Horogoru Fortresses (Fig. 14), Hongryeonbong Fort 1, and Wolpyeong-dong Mountain Fortress. Stones placed at the base of the vertical indentations have been observed at Horogoru and Dangpo Fortresses.

All of the Goguryeo fortresses with vertical post indentations identified so far were constructed after the move of the Goguryeo capital to Pyongyang in



Fig. 13. Presumed entrance structures: a) No. 3 *chi* structure of Sirubong Fort (Seoul National University Museum); b) Double-layered *chi* structure of Mt. Acha Fort 4 (National Institute of Cultural Heritage)

427. Except for the Goguryeo examples, all of the stone fortresses featuring vertical post indentations in South Korea date to the Goryeo period or later. This indicates that the use of vertical post indentations represents a fortress construction technique that dates to the late Goguryeo period.

5) Water Reservoirs and Storage Facilities: A constant supply of water for the mountain fortresses was as important as the fortifications themselves. The majority of Goguryeo forts on mountain peaks had water reservoirs, as it would have been difficult to obtain an independent water supply (Fig. 15). Such water reservoirs were generally built by digging a square pit into the weathered bedrock and then facing the walls with mud to keep the water from seeping out. Wooden logs were stacked along the walls of the pit to fix the mud in place. Pits of a similar nature at some forts have been broadly interpreted as storage facilities, but their exact function remains unconfirmed.

6) Drainage Facilities: Drainage facilities were laid out below the fortress walls or gates to allow any water that accumulated within the fortresses to escape. Since heavy rains could result in damage to the fortress walls as well as to the various structures located inside and outside the fortress, drainage facilities were constructed as a preventative measure. Generally located around the base of the fortress walls, these facilities likely were put in place during the earliest phase of construction. Their placement below the stone building foundations indicates that the drainage facilities at the Mt. Acha forts were set in place prior to the construction of the buildings within. Hongryeongbong Fort 2 and Sirubong Fort feature both vertically-set drains that allowed water from inside the fort to flow outside and a long, laterally-set drain that encircled the mountain summit.

7) Internal Facilities: Most of the structures that have been identified within Goguryeo fortresses are either above-ground or semi-subterranean buildings. Most such structures found in South Korea are constructed above ground with stone foundations, surrounded by outer walls made of a wattle-and-clay mixture. *Ondol* structures for underfloor heating, which are built in an "L"-shape or in a straight-line along the building walls, suggest that these buildings functioned



Fig. 14. Vertical post indentations (Author's photograph): a) Dangpo Fortress; b) Horogoru Fortress

as dwellings. Ceramic vessels associated with food storage and consumption (e.g., small bowls, pedestal bowls, dishes, jars) have been excavated in the vicinity of *ondol* structures. In addition, an iron cauldron was found *in situ* at Guui-dong Fort, placed on the firebox of an *ondol* structure.

Mt. Acha Fort 4 included an *ondol* structure built along a sloping floor; iron pincers for use in hammering iron were found in its vicinity, together with a large number of iron objects, indicating that a simple blacksmith's workshop may have operated at the site for the repair of iron tools. A small furnace for working wrought iron was identified at Mt. Acha Fort 3 (Fig. 16), and numerous iron-slag and furnace-wall fragments were discovered at Mudeung-ri Fort 2. It is possible that a workshop for iron production existed at Mudeung-ri Fort 2, though too little archaeological evidence remains at the site to confirm this possibility.

Archaeological features associated with pottery



Fig. 15. Water storage and drainage facilities: a) Water reservoir (Mt. Yongma Fort 2) (Author's photograph); b) Water drains (Sirubong Fort) (Seoul National University Museum)

production have been identified at Hongryeongbong Fort 2 and Namseonggol Mountain Fortress, but direct archaeological evidence of a pottery kiln have yet to be discovered. The stone base of a foot-operated mill identified at Mt. Acha Fort 3 suggests that facilities for grain processing were also present at Goguryeo fortresses.

The Characteristics of Goguryeo Fortresses in South Korea

1. Fortress Distribution

Goguryeo fortresses identified in South Korea are broadly located in four regions that comprise the mid-western area of the Korean Peninsula: the Imjin-Hantan River, Yangju (in Gyeonggi Province), Han River, and Geum River. Interestingly, Goguryeo fortress sites have yet to be identified in Gangwon Province and the Chungju region, even though both

the Goguryeo stone chamber tombs and the Jungwon Goguryeo Stele are located there. Perhaps this is because the main transport routes that extended from the southern part of the peninsula to Pyongyang were located to the west of the Taebaek Mountain Range (太白山脈) which vertically bisects the Korean Peninsula. This lack of a Goguryeo line of defense in the eastern part of the peninsula may explain how Silla (新羅) forces were able to expand so easily along the eastern coastline and into South Hamgyeong Province in the mid-sixth century following the territorial expansion policy of King Jinheung (眞興王, r. 540–576) of Silla, the markers of which are the steles that commemorate King Jinheung's inspection of newly acquired lands.

The most common feature concerning the location of Goguryeo fortresses in South Korea is their situation to the north of the rivers for defense against Baekje and Silla forces that would have attacked from the south or southeast. Most of the Goguryeo fortresses situated to the south of the rivers are Baekje or Silla fortresses temporarily appropriated by Gogu-



Fig. 16. Building with *ondol* structures and a blacksmith's workshop (Author's photograph): a) Building with *ondol* structures (Mt. Yongma Fort 2); b) Small furnace (Mt. Acha Fort 3)

ryeo forces, rather than Goguryeo-built structures.

A brief examination of the distribution of Goguryeo fortresses in South Korea reveals that Goguryeo fortresses of the Imjin-Hantan River region were distributed along the rivers in an east-west direction. Basalt cliffs of 10-15 meters in height that extended over several kilometers along the two rivers would have functioned like fortress walls for the defense of the areas to the north and west of the rivers. Goguryeo fortresses in this region tend to be situated near fords in wide river bends where the currents are relatively slow. The Imjin River region was part of Goguryeo territory from the fifth century to the fall of Goguryeo in 668. It appears that both flatland fortresses and mountain forts were strategically constructed along the Imjin River since the *de facto* southern boundary of Goguryeo was located in this region from the mid-sixth century onward, following Goguryeo's loss of the Han River region.

The Yangju region is a key transportation point that gives entry to present-day Seoul—i.e., Hanseong, the Baekje capital from 18 BCE until 475—from the Imjin-Hantan River region or likewise when moving northward from Seoul to Gaeseong via the Yeonchon area. The north-south transportation routes passing through the Yangju Basin region could have been effectively cut-off since the area is surrounded by mountainous terrain; consequently, Goguryeo fortresses in the region are found along the tops of mountain ridges, ensuring high visibility of the surrounding landscape and transportation routes passing through the flatlands. Excavations thus far have been undertaken only at Mt. Cheonbo Fort 2 and Mt. Taebong Fort 2. Though their true nature has yet to be fully revealed, these forts share similarities with the Mt. Acha forts in terms of their structures and of the artifacts recovered from the sites.

In terms of numbers, most Goguryeo fortresses in South Korea have been found in the Han River region. The Goguryeo fortresses of this region are distributed only in the vicinity of Mt. Acha, to the north of the Han River, in contrast to the Imjin-Hantan River region where Goguryeo fortresses are located along the rivers. One reason for such difference may be the different topography of the Imjin-Hantan River region, where cliffs along the river acted as natural fortifications. The only way to attack Pyeongyang (i.e., the Goguryeo capital from 427 until 668) by land from the south would have been to cross over to

the north bank of the Han River and then follow the route from Jungnang Stream to Pyeongyang via Uijeongbu, Yangju, Imjin River, and Gaeseong. Along this route, the forts on Mt. Acha would have functioned as key centers for defense. It is possible that the seventeen systematically linked forts on the peaks of Mt. Acha and its environs would have functioned together as a middle-sized fortress.

By contrast, the Geum River region features only a small number of Goguryeo fortresses which are distributed in a very scattered manner, perhaps because the region was both the southernmost part of Goguryeo territory and the frontline in the conflict with Baekje and Silla forces.

2. Fortress Scale

In contrast to the middle- to large-sized Goguryeo fortresses in China and North Korea, the Goguryeo fortresses of South Korea tend to be smaller in scale. With the exception of the flatland fortresses of the Imjin-Hantan River region, Goguryeo fortifications were all situated on mountainous terrain, with the majority being mountain forts with walls of 200-300 meters in circumference.

Shim Gwangzhu posited that the fortresses in North Korea differed in function from the mountain forts in South Korea because the Goguryeo fortresses located north of the Yeseong River (禮成江), in the Hwanghae Province region, tend to be large in scale, with walls of 2-10 kilometers in circumference. These large-scale fortresses, including Jangsu Mountain Fortress (長壽山城), were distributed at intervals of 20-40 kilometers. By contrast, the Goguryeo forts of South Korea tend to be distributed on a north-south axis along transportation routes, with high concentrations in localized areas. Thus, the mountain forts of South Korea likely were established at key points to secure strategically important transportation routes, rather than to function as administrative centers (Shim Gwangzhu 2006, 62-64).

Differences in size indicate that small mountain forts and middle- to large-scale fortresses would have served different functions. However, the role of these fortifications could change according to the overall defense strategy, political situation, and geography. Since Hwanghae Province was located immediately to the south of the Goguryeo capital of Pyeongyang, the fortresses of this region could have played a greater defensive role, with consequent differences

in size and distribution from those of the northern Gyeonggi region.

The Imjin-Hantan and Han River regions were also strategically important. It is recorded in China's *Beishi* (北史, *History of the Northern Dynasties*) that government offices (官司) were installed for local administration at dozens of Goguryeo fortresses, including Yodong (遼東城) and Hyeondo (玄菟城) Fortresses. These records indicate that fortresses located at strategic military points were used as local administrative centers from the mid-Goguryeo period onward. In particular, fortresses that have yielded archaeological finds of roof tiles can be interpreted as places where government offices once stood, as China's *Jiutangshu* (舊唐書, *Old History of Tang*) records that roof tiles were used only for Buddhist temples, royal ancestral shrines, royal palaces, and government buildings in Goguryeo. Numerous roof tiles have been recovered from such flatland fortresses as Horogoru and Dangpo Fortresses in the Imjin-Hantan River region, for example. The Horogoru Fortress site has also yielded roof-end tiles with lotus designs, convex tiles used to cover roof ridges, and ridge-end tiles, along with ink stones, which make it likely that the local administrative center of the Imjin-Hantan River region was located in this fortress.

The function of the tightly clustered group of small-scale mountain forts at Mt. Acha may have been similar to that of large-scale fortresses. The central presence among the Mt. Acha forts is Hongryeongbong Fort 1 where a roof-tiled building once stood. There would have been no need for a large, tiled-roof building at such a small mountain fort, had it served only a defensive function at a militarily strategic point. The presence of a tiled-roof building thus stands as evidence of the important role that the Mt. Acha forts served in terms of the local Goguryeo administration.

3. Chronology

The chronology of the Goguryeo fortresses of South Korea must be examined by adopting a comprehensive approach in which the artifacts discovered at fortress sites are considered in association with the temporal sequence of the fortresses and the internal archaeological features.

Based on excavated artifacts and the results of radiocarbon dating analysis, Horogoru Fortress (a wooden fence structure), Eundae-ri Fortress, both in

the northern Gyeonggi region, and the Namseonggol Mountain Fortress in Cheongwon are at present regarded as the earliest Goguryeo fortresses in South Korea. These fortresses, which have been dated to the mid- to late fifth century, do not have neatly stacked stone walls constructed with worked stones of regular shape; rather, they feature simple wooden fence structures or walls that consist of irregularly shaped stones added to the surface of an earthen core. The pottery from the early fortresses comprises jars of various sizes, all with simple rims. Some vessels feature paddle marks on their bodies, and their shoulders are often decorated with wave or dotted designs. The ceramics recovered from the early fortress sites share similarities with those recovered from the Mongchon Earthen Fortress, which was occupied by Goguryeo forces from 475, when the Baekje capital Hanseong fell under Goguryeo's control, and also with the ceramics from Goguryeo stone-chamber tombs located south of the Han River.

The forts of Mt. Acha, to the north of the Han River, the forts of the Yangju region, and the forts of the Imjin River region, along with Horogoru and Dangpo Fortresses in the Imjin River region, have been dated to the sixth century or later. These structures have stone walls built with worked stones of regular shape, double stone layers, vertical post indentations, or earthen cores. The ceramics from these fortresses include jars of various sizes, large bowls, and steamers, all with rolled rims. The vessels have undecorated shoulders and lack paddle marks on their bodies. Some of the vessels feature burnished patterns, rather than incised linear patterns. In the case of pottery from the Mt. Acha forts, temporal variation in production methods can also be observed. Based on such variations in production methods, Sirubong Fort has been identified as the latest of the Mt. Acha forts due to the presence of pedestal bowls whose bases flare outwards and upwards at the bottom (Yang Sieun 2003, 59-60).

The general belief, based on the historical situation of the day, is that the Mt. Acha forts were used early in the sixth century, following the occupation of Hanseong by Goguryeo forces in 475 (Choi Jongtaek 2008, 150-151; Yang Sieun 2013, 126). It has recently been argued, however, that the earliest dates of the Mt. Acha forts must be pushed forward to the late sixth century rather than 551, due both to the nature of a diachronic change observed in the Goguryeo ce-

ramics of Horogoru Fortress and to the radiocarbon dates from individual items and sites (Kim Yeongseop 2009, 50; Yi Hyeongho 2014, 99-100).

Conclusion

The study of Goguryeo fortresses by South Korean researchers began at a later date relative to the efforts of Chinese and North Korean specialists; however, full-scale excavations on approximately ten fortress sites have provided the basic material needed for research. The Goguryeo fortresses of South Korea are distributed in the Imjin-Hantan River, Yangju, Han River, and Geum River regions. These fortresses are all characteristically located to the north of the rivers in order to defend against attacks by Baekje or Silla forces from the south or southeast. In addition, the Goguryeo fortresses of South Korea tend to be small-sized fortresses or mountain forts that stand in contrast to the middle- to large-scale Goguryeo fortresses in China and North Korea. Apart from the riverbank flatland fortresses of the Imjin-Hantan River region, all of the Goguryeo fortresses in South Korea are located on mountains, the majority of the forts claiming walls of 200-300 meters in circumference.

The Goguryeo fortresses of the Imjin-Hantan River region are mostly located at fords where wide river bends permit crossing. They consist of both riverside flatland fortresses and mountain forts. Based on wall-construction methods, the sequence of archaeological features, and the artifacts excavated within, it is possible to attribute Eundae-ri Fortress and the wooden fence structures of Horogoru Fortress and Jeongok-ri site to the fifth century, which was the earliest phase of Goguryeo fortress construction in South Korea. All of the fortresses constructed after the sixth century have stone walls built with worked stones of regular shape. Dangpo and Horogoru Fortresses, both on riverside flatlands, feature double-layered stone walls and vertical post indentations. These architectural elements have also been identified at Daeseong Mountain Fortress as well as at Hongryeonbong Fort 1 in the Han River region. The walls of Dangpo and Horogoru Fortresses had earthen foundations and earthen inner cores covered with regularly stacked stones. Horogoru Fortress may have functioned as the local administrative center for the Imjin River region, given the presence of roof-end tiles with lotus

designs, ridge-end tiles, convex tiles used to cover roof ridges, a ceramic drum, and writing tools such as ink stones. In addition, the large amount of iron slag recovered from Mudeung-ri Fort 2 suggests that iron-production facilities also may have existed at the site.

Surrounded by mountainous terrain, the Yangju Basin claims ideal topographical conditions effectively to block transportation routes that run in a north-south direction. Set on the tops of mountain ridges, Goguryeo forts commanded an ideal view of the routes that passed through the flatlands. Notably, the forts of this region, in contrast to those of Mt. Acha, were not clustered in one area.

Set to the north of the Han River, forts with stone walls in the Mt. Acha area are distributed along the tops of mountain ridges. The Goguryeo forts of the Han River region are found only on Mt. Acha and its environs, in contrast to those of the Imjin River region which are located at intervals along the river. Given their systematic connections, the Mt. Acha forts likely functioned collectively as a middle- to large-scale fortress, rather than merely as strategically important points placed to secure transportation routes. The remains of a tile-roofed building excavated at the site suggest that a government office was present at Hongryeonbong Fort 1. Given the historical context, the Mt. Acha forts likely came into use early in the sixth century, following Goguryeo's occupation of Hanseong in 475. Even so, the results of recent radiocarbon analysis suggest that the use of the Mt. Acha forts did not begin until late in the sixth century.

The function of the wooden fence identified at the Mt. Acha forts is currently the subject of debate. It is argued that the fence functioned as a wooden structure that supported the earthen in-fill section of the stone walls, rather than as a defensive structure as in the cases of Horogoru and Namseonggol Fortresses (Shim Gwangzhu 2014, 36-41).

The Geum River region formed the frontline in Goguryeo's conflict with Baekje; consequently, Goguryeo's occupation of this region would have lasted a relatively short time. This region has the lowest frequency of Goguryeo fortresses in South Korea, which reflects the region's political instability at that time. Based on the nature of the pottery recovered from the site, it is assumed that this region was occupied by Goguryeo forces in the late fifth century. Even so,

archaeological evidence is insufficient to determine whether the Goguryeo fortresses of this region were established after the Goguryeo occupation of the Baekje capital Hanseong in 475, or whether Goguryeo forces advanced into the Daejeon area from Gangwon Province through Chungju (location of the Jungwon Goguryeo Stele), regardless of Goguryeo's control over Hanseong. The Goguryeo tombs dating to the mid- to late fifth century recently identified in Gangwon Province, northern Gyeonggi Province, and some regions south of the Han River (e.g., Pangyo, Yongin, Cheonggye, Chungju) suggest the plausibility of both scenarios. ㄸ

TRANSLATED BY KO ILHONG

This paper is an abridged and revised English version of "The Structure and Characteristics of Goguryeo Fortresses in South Korea," previously published in 2010 in *Journal of Goguryeo and Balhae Studies* (고구려발해연구), 36, with the addition of recent archaeological findings.

Selected Bibliography

- Choi, Jongtaik (최종택). 2008. "Investigating the Political Situation of the Han River Region in the Ungjin Baekje Period through the Archaeological Material" (고고자료를 통해 본 백제 웅진도읍기 한강유역 영유설 재고). *The Journal of the Baekje Research Institute* (百濟研究) 47: 127-160.
- . 2012. *Acha Mountain Fortresses and the Southward Expansion of Koguryo* (아차산 보루와 고구려 남진경역). Seoul: Seogyong Munhwasa (서경문화사).
- Kim, Yeongseop (김영섭). 2009. "A Reconsideration of the Mt. Acha Goguryeo Forts" (峨嵯山 高句麗 堡壘群의 재고찰). Unpublished M.A. thesis, Dankook University.
- Noh, Taedon (노태돈). 2005. "The Goguryeo Annexation of the Hanseong Region and the Nature of its Control" (고구려의 한성 지역 병탄과 그 지배 양태). *Competition among Three Kingdoms for the Supremacy over the Han River Region* (서울 한강유역을 둘러싼 삼국의 각축). Seoul: Seoul Metropolitan City.
- Park, Sunghyun (박성현). 2010. *Establishment of the Base Fortresses and the Formation of the Gun-Hyeon System in Silla* (新羅의 據點城 축조와 지방 제도의 정비 과정). Unpublished Ph.D. dissertation, Seoul National University.
- Seo, Yeongil (서영일). 2009. "A study of the Construction Method of Eundae-ri Fortress in Yeoncheon" (연천 은대리성 축조공법과 성격 고찰). *Journal of Korean Cultural History* (文化史學) 31: 39-62.
- Shim, Gwangzhu (심광주). 2006. *A Study on the Fortress of Goguryeo in South Korea* (南韓地域 高句麗 城郭研究). Unpublished Ph.D. dissertation, Sangmyung University.
- . 2014. "The Results of Excavations on the Goguryeo Fortresses and their Construction Method" (고구려 성곽 발굴조사

성과와 축성기법). *The Historical Value of the Forts of the Mt. Acha Area and Measures for their Preservation* (아차산 일대 보루군의 역사적 가치와 보존 방안), edited by Hangang Institute of Cultural Heritage (한강문화재연구원).

- Yang, Sieun (양시은). 2003. "On Manufacturing Techniques of the Goguryeo Pottery from the Han River Valley" (漢江流域 高句麗土器의 製作技法에 대하여). Unpublished M.A. thesis, Seoul National University.
- . 2013. *A Study of Goguryeo Fortresses* (高句麗 城 研究). Unpublished Ph.D. dissertation, Seoul National University.
- . 2014. *The Characteristic of Goguryeo Pottery in South Korea* (남한지역 출토 고구려 토기의 현황과 특징). *Journal of the Honam Archaeological Society* (호남고고학보) 46: 61-87.
- Yi, Hyeongho (이형호). 2014. "A Study on the Pottery of Goguryeo in South Korea" (남한지역 출토 고구려토기 연구). Unpublished M.A. thesis, Korea University.
- Yi, Jeongbeom (이정범). 2009. "An Analytic Study on the Visibility Zones of the Forts in Northern Gyeonggi Province" (경기북부지역 보루의 가시권역 분석 연구). Unpublished M.A. thesis, Korea University.