

# THE DWELLINGS AND SETTLEMENTS OF BRONZE AGE IN KOREA

- Focused on the excavational reports in Ulsan-

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## Abstract

The purpose of this study is to find out the new architectural characteristics of the settlements and dwellings of Bronze Age in Korea, based on the excavational reports in Ulsan area. Analyzing 12 cases of settlement and 109 cases of dwelling remains, I found out the new architectural characteristics as followings: 1. diversity of site selecting like hill side, seashore, and plains. 2. planning techniques of settlement like the moat, public space and building, and tomb territory. 3. development of vertical wall and division of interior space. 4. development of drainage and heating facilities. These characteristics mean the phase shifting to ground dwellings of Metal Ages from the pit house of Neolithic Ages.

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## 1. Introduction

The studies on the architecture of prehistoric period have deeply depended on the archeological excavations. Since 1990's the excavations have been increased explosively in Korea due to the construction projects. And the results provide plenty of significant materials for the study of prehistoric architecture. Some of them might be the important evidences for verifying the existing theories or for establishing new hypothesis.

Concerning to the dwelling and settlement of Bronze Age, Ulsan area is paid attention very much by the researchers. Not only because plenty of relics have been excavated, but also significant evidences which could provide the new hypothesis were found. Diverse locations of settlement sites suggest diverse life style during the Bronze period. The relics of the settlement with moat and rice field are the first finding in Korea, which seems to be very important for viewing their site planning.

288 relics of dwelling in 12 settlement sites have been excavated in Ulsan area. Even though some of them do not show distinct feature, the other 109 cases were enough for viewing general design of dwellings of this age. Specially the evidence of drain pit and vertical timber wall, and partition wall are the new findings with which make possible for establishing new hypothesis.

With the excavational reports of the relics, I analyzed the settlement site and the dwelling design. What can be the new hypothesis for the dwelling and settlement of Bronze Age is the main issue of this paper. The list of settlement relics analyzed in this paper is shown in Table 1

<Fig1>Locations of Relic Sites

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Name of Relics	Year of Excavation	Number of Dwellings	Site Locations
Hwajong- dong	1999	7(4)	coastal area
Down-dong	1995	12(1)	hillside
Yang-dong	1984	5(2)	hillside
Guyoung-ri	1996	13(6)	hillside
Banggi-ri	1996	48(15)	hillside
Bongge-ri	1999	19(5)	hillside
Woonkog	1995	5(5)	hillside
Gusu-ri	1999	6(4)	hillside
Okhyun	1998-99	73(16)	hillside
Geomdan-ri	1990	93(43)	hillside
Hogge-ri	1999	1(1)	hillside
Yonam-dong	1998	6(6)	flatland

<Table1 >, List of Bronze Age Settlement Relics in Ulsan

## 2. Site Selection and Site Planning of Settlements

Until now, the location of settlement site of Bronze Age has been generally described as hill side nearby river. Remains of this Age are mostly found on higher ground that overlooks flatlands along river courses. So archeologists call Bronze Age man as a slope dweller. This location is usually explained with the beginning of agriculture. The hill side near by river seems to be the best location for agriculture, suitable for gaining water, for making grain field, without worrying about flood.

Most of relics in Ulsan area are also found on hillside along river courses. Actually a settlement site with rice field was found in Ulsan. The Okhyun relics show a settlement site on hill side overlooking rice field. The relic of rice field dated to Bronze Age was the first case of excavation in Korea. <Fig. 2>

However the exceptional case is also found at the coastal area. The site of Hwajong-dong relics, for example, is located at water's edge along seashore looking out of East Sea. Each dwelling sites of this relic remain the stone sinkers which attest to the use of nets for catching fish. This fact suggest that some of Bronze Age man still lived in coastal area just like Neolithic Age man did. <Fig. 3>

Not only hill side sites but also flatland sites are found in Ulsan. For example, Yonam-dong relic is located at flatland very close the Dongcheon river course. Lots of the stone sinkers excavated in this site suggest that they relied for their food on both agriculture and fishing. But this site might need drainage for fear of flood. The pits surrounding each dwelling were excavated in this relic, which are believed to be drain pits. <Fig. 4>

The site planning of Bronze Age settlement has been rarely studied. In this respect, the relics of Ulsan are very important for viewing the site planning. Just because some settlement sites in Ulsan, for examples Geomdan-ri and Banggi-ri relics, remain the evidence of the moat. These relics have the moat dug in surrounding a settlement. The existence of moat might be said to be a powerful evidence of site planning. It means not only a defensive devices but also the boundary of a settlement territory. <Fig. 5>

The archeologists also found traces of the main gate and sub gate at the site of Geomdanri site. Nearby the main gate, they found a trace of double story building which is believed to be a watchtower. And the settlement has a cluster of center buildings which is bigger than any other buildings in the settlement. The center buildings are believed to be public buildings or chief's buildings.

The center buildings face to large open space which might to be a central plaza. In Okhyun relics, even the evidence of moat has not found, the location of center building and plaza appear same as in the Geomdanri relic. These facts suggest that the settlement began to be planned artificially from that Age.

## 3. House Form and Space of Dwellings

The Bronze Age men also lived mainly in pit dwelling. Circular construction of Neolithic Age now gradually fell into disuse as rectangular design came to dominate. The average size of them is larger than that of Neolithic Age. A

typical depth was around 50cm(1'8"), and the existence of 30cm(1') depth indicates that the floor depth became shallower and that the ground level dwellings were soon to come.

The hearth generally was located to one side, and the larger dwellings often had two hearths. On the whole, pottery vessels were stored in the inner recesses of the dwelling where the female performed their functions, while implements for outdoor use were left near the entrance, the living space occupied by the male members of the household.

The traces of vertical post-hole suggest that the dwellings had vertical walls independent from the roof structure. And the roof was constructed with beams and purlins. This structural system seems to be helpful to enlarge the interior space. Some archeologists call them "semi-pit dwelling"

Some relics of Ulsan provide more concrete examples for semi-pit dwelling. Vertical wall is good evidence characterizing semi-pit dwelling. The traces of vertical wall excavated in Ulsan relics are classified into three types: One is timber frame covered with grass. The second type is soil plastered wall. And the last type is vertical board wall.

Most significant discovery in Ulsan relics is the vertical board wall. It means more strong and solid wall for resisting against wind and rain. At the same time, it suggest the development of lumbering skill. Furthermore various types of wall design can be interpreted that they were used by differentiated social class respectively. <Fig. 6>

Another meaningful discovery in Ulsan relics can be said as the functional division of interior space. Because it has been **hot issue among scholars** concerning to the existence of multi-space dwelling. Some relics of Ulsan, Okhyun #3 and # 47 for example, show **different level of floor** in a interior space. Different levels of a space suggest that different function was assigned. <Fig. 7>

Dawoon # 7 is the most vivid evidence for attesting the functional division of a dwelling space. Archeologists found the trace of partition wall which divide into two space. In the floor of one space, they found a hearth which suggest a living space. In the other space, they found several potteries and plenty of carbonized grains which suggest a storage space. <Fig. 8>

These examples mean that the dwelling forms of Bronze Age are going to approach to the on-ground building of Metal Age. With practicing agriculture, they might need a convenient and long-lasting dwelling to settle down. Vertical wall enables to make room more spaceful. And the interior partition can be used for making living space more convenient. Ulsan relics show the significant characteristics of dwelling forms in Bronze Age as a middle phase of progress between Neolithic Age and Metal Age.

#### **4. Environmental facilities**

Ulsan relics also show the advanced skill for environmental control. Drain pit is one of examples to demonstrate it. In some relics, the pits dug around the outer wall has been excavated. But any scholar **has not defined** it as the drain pit. Just because they did not find the tail of pit stretching out to the lower area, they hesitated to define it as a drain pit.

In Okhyun relics, for example, such pits are found in lots of dwelling sites. The dwellings of Okhyun relics were constructed at the hill side. They made flat floor by digging higher part more deeply. Each dwelling site has the pit line dug along the wall line. And the lines meet at the corner of lower part of a dwelling and then stretch out to the lower area. Specially Wolsan relics in Kyongju area provide more vivid evidence. It show stone panel constructing in the tail of pit which reinforce the pit tail against falling down. <Fig. 9>

As mentioned earlier, Yonamdong relics show another type of drain pit. They have the outer circular pit surrounding a dwelling in addition to inner rectangular pit. Two pit lines are connected at a point. Considering the site located in flatland near by river side, they might have more concerned about flood. The drain pit was designed to prevent the rainfall from penetrating into the inner space. It suggest the advanced environmental control for making inner space more pleasant. <Fig. 10>

The diverse types of hearth appeared in Ulsan relics also suggest the development of environmental control in Bronze Age. Some of hearth, as shown in Yonamdong # 1, have two different level of floor. But the ashes are found in the lower level only. The hearth of Dawoon-dong #7 shows a pit line surrounding the hearth. Those designs are believed

to be a fire control facilities for keeping fire from burning outside. <Fig. 11>

The second type of hearth is the post hole dug in the hearth. As shown in Geomdanri #69, this type has a pair of post hole, and the diameter of each hole is 5-8cm. Considering fragments of pottery are usually found in the hearth, the pair of post is sure to be designed to hang the cooking pottery. <Fig.12>

The third type of hearth show more advanced cooking facilities. Geomdanri # 50, for example, remain lines of pit surrounding a hearth. And the pieces of stone panel are found in the hearth. So the stone panels are believed to be erected in the pits. This example suggest to be a design of cooking facilities. More vivid evidence is provided in the hearth of Hogge-ri. They built a embank with soil surrounding hearth. The fragments of pottery are also found in the hearth. These examples show development of environmental control to adapt themselves to the nature. <Fig 13>

## 5. conclusion

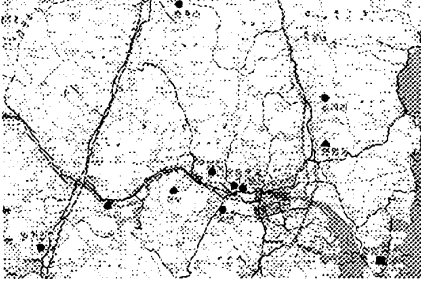
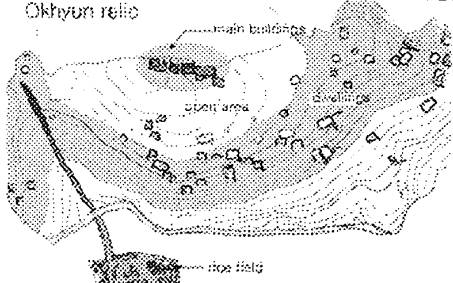
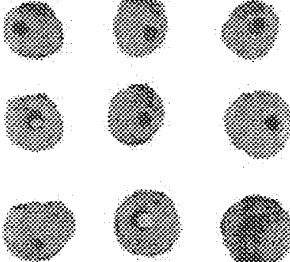
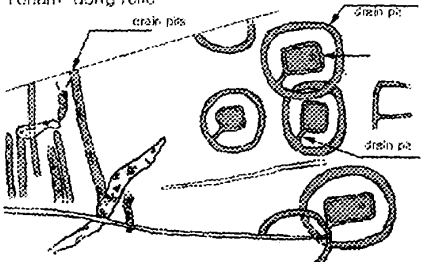
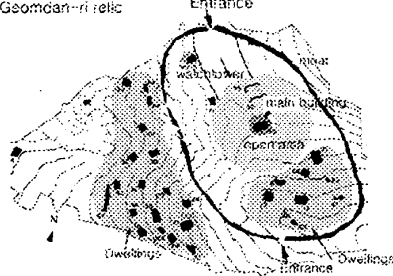
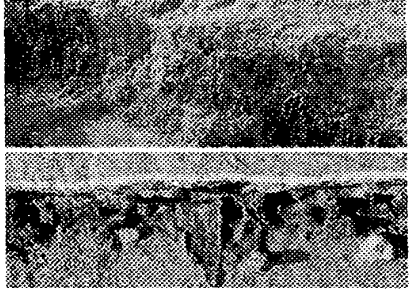
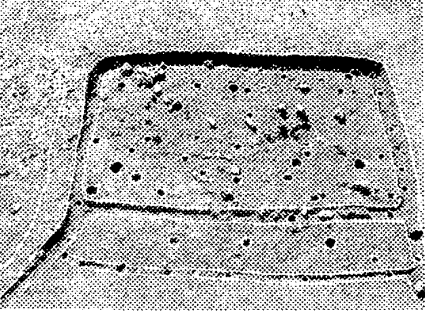
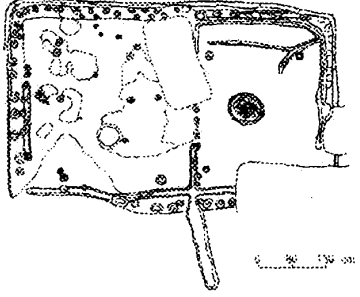
Concerning to dwellings and settlement of prehistoric period, only few things have been discovered. Newly excavated relics can provide new evidence for attesting the existing theories and establishing new hypothesis. As discussed above, Ulsan relics provide some significant evidences for reviewing the dwellings and settlements of Bronze Age. New findings based on Ulsan relics can be summarized as followings:

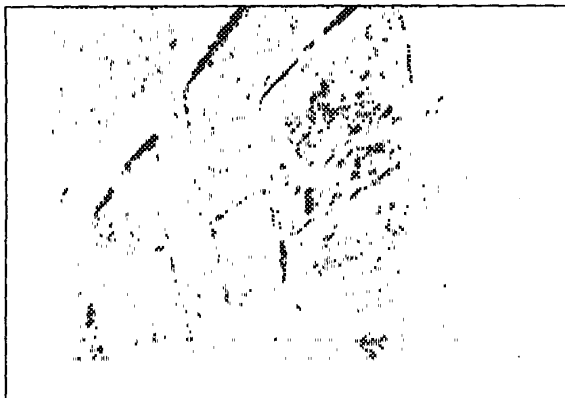
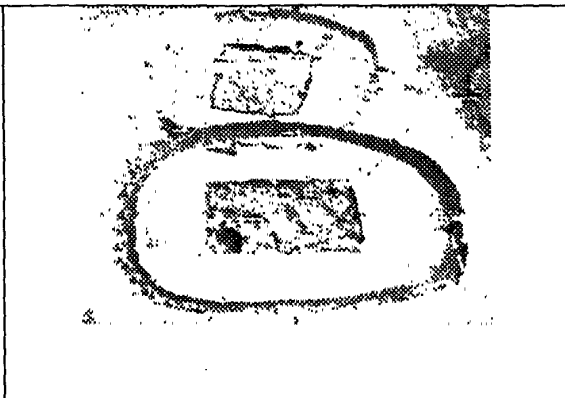
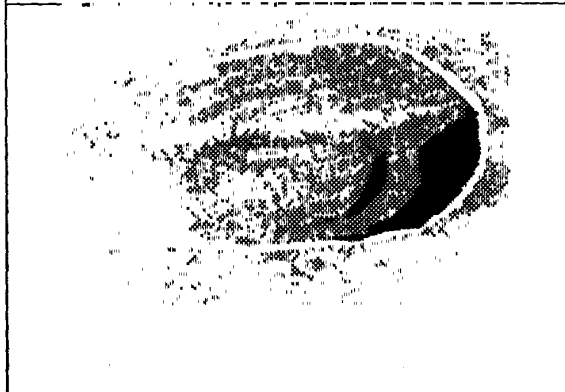
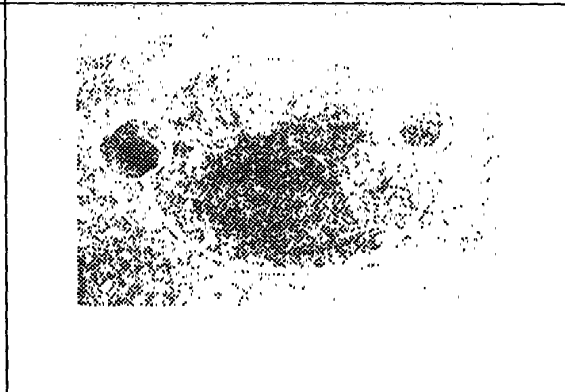
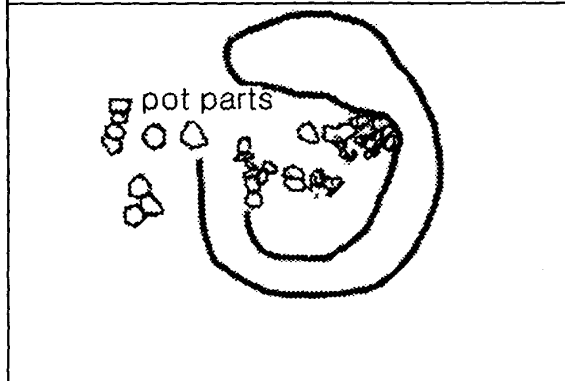
- a. diverse selection of settlement site and development of site planning
- b. development of vertical timber wall
- c. functional division of interior space
- d. development of environmental facilities such as drain pit and cooking hearth

However, these findings have not been verified comparing with the other area out of Ulsan. Regional differences can be found with comparative researches. That will be another approaches for the future.

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<p>&lt;Fig,1&gt; Locations of Relic Sitea</p>	<p>&lt;Fig,2&gt; Site of Okhyun relic</p>
	
<p>&lt;Fig,3&gt; A Photo of stone sinkers excavated in Hwajong-dong site</p>	<p>&lt;Fig ,4&gt; Site of Yonam-dong relic</p>
	
<p>&lt;Fig, 5&gt; Site planning of Geomdan-ri relic</p>	<p>&lt;Fig, 6&gt; Photo of board wall trace</p>
	
<p>&lt;Fig, 7&gt; Floor plan of okhyun #3</p>	<p>&lt;Fig, 8&gt; Floor plan of Dawoon #7</p>

	
<p>&lt;Fig. 9&gt; A Photo of drain pit in Okhyun site</p>	<p>&lt;Fig. 10&gt; Site of Okhyun relic</p>
	
<p>&lt;Fig. 11&gt; A Photo of hearth in Yunamdong #1</p>	<p>&lt;Fig. 12 &gt; A Photo of hearth in Gumdari # 69</p>
	
<p>&lt;Fig. 13&gt; Imaginary drawing of cooking facilities based on Hogge-ri relic</p>	