Accurate Meanings of Letters of the 'Neungpadae' Rock Inscription in Hahoe Village

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Abstract

Hahoe Village, one of the representative clan villages to which the Pungsan Ryu clan emigrated in the Goryeo era (13th century) is located in Andong City, Korea. There is a rock in the village called Neungpadae, on which is engraved an inscription which has been interpreted to mean 'Look down on waves (flood)', because the Chinese character '凌' means 'look down on' and the character '波' means 'waves'. People have stretched the meaning of these letters and interpreted them as 'Even if the Nakdong River overflows and produces a great flood, the flood water will not reach this rock, Neungpadae. The rock looks down on a flood (Andong City, 2002)'. However, this is an interpretation based only on the meanings of the two Chinese characters, '凌波', and has not yet been authenticated. This study aims to discover the accurate meaning of Neungpadae in Hahoe Village and debunk the widely known, but incorrect interpretation.

Keywords: Hahoe Village; Neungpadae; rock inscription; rock writing; cultural landscape; hydraulic modeling

1. Introduction

Hahoe Village is located in Andong City, Korea and is one of the representative traditional clan villages to which the Pungsan Ryu clan emigrated to the Goryeo era (13th century). Hahoe Village underwent expansion on the basis of Confucianism in the Joseon era (1392-1911). Many traditional buildings constructed in the Joseon era are in a good state of preservation in the village.

Hahoe Village, in which the descendants of the Pungsan Ryu family are still living, has been labelled a living museum of Korean traditional culture. The north, west and south sides of the village are surrounded by the Nakdong River, and a beautiful cliff called Buyongdae Cliff shows the picturesque scenery in the North, on the opposite side of the Nakdong River from the village. Hahoe Village, which has various elements of the traditional environment such as Feng Shui, traditional buildings, a cobweb like street layout, and earthen walls, was designated as an important cultural property of Korea in 1984, and it has been on the UNESCO World Heritage list since July 2010.

2. Rock Inscriptions of Hahoe Village

Examples of inscriptions named natural objects or landscapes can be easily found in countries in East Asia compared to Western countries. Naming was a way of attributing specific meaning to the elements of the environment, which influenced the way in which people looked at and appreciated landscapes (Yamazaki, 1994). Sometimes, these inscriptions were engraved on rocks.

There are rock inscriptions such as Neungpadae, Dohwacheon, Chuwoldam, Unsongdae, Dalgwandae, Ogyeon and Gyegangam near Hahoe Village, and all rock inscriptions have their own meanings and stories.

This study focuses on Neungpadae on the rock inscription. Neungpadae is located at the edge of the river 20m away from the Ogyeonjeongsa Pavilion and was engraved by Seongnyong Ryu.
柳成龍 (1542-1607), who was a representative and distinguished Neo-Confucianism scholar who was born in Hahoe Village in the Joseon era of Korea.

No record has been found in relation to why Seongnyong Ryu engraved the letters Neungpadae on the rock. However, the rock inscription has been interpreted as 'Look down on waves (floods)' because the Chinese character '凌' means 'look down on' and the character '波' means 'waves'. And, people have stretched the meaning of the inscription and interpreted this as "Even if the Nakdong River overflows and produces a great flood, the flood water will not reach this Neungpadae rock inscription. The rock looks down on a flood (Andong City, 2002)".

However, this is an interpretation based only on the meanings of the two Chinese characters, '凌波', and has not yet been authenticated.

3. Purpose of the Study

This study aims to uncover the accurate meaning of Neungpadae and disprove the widely known, but incorrect interpretation. Namely, the purposes of this study are as follows:

First, people believe that the meaning of 'Neungpa 凌波' in the Neungpadae inscription indicates 'disregarding water waves' because the inscription, Neungpadae, has been recognized as only a fragmentary translation of the Chinese characters, 凌波. Thus, people were led to believe that the flood water had never reached the rock, Neungpadae. However, the elevation level in which Neungpadae is engraved had been flooded frequently before modern civil engineering structures such as dams and levees were constructed for flood control. This study will prove the fact by analyzing old literature and measuring and conducting HEC-RAS simulation tests. Thus, it aims to prove that the inscription of Neungpadae does not indicate 'disregarding water waves (floods)'.

Secondly, if the meaning of Neungpa 凌波 in the inscription does not indicate 'disregarding water waves', there should be other reasons why the inscription was engraved on the rock. Thus, this study will uncover the reasons why the letter, Neungpadae, was engraved on the rock in Hahoe Village by etymologizing the inscription.

4. Previous Studies

Carl Sauer defined cultural landscape by saying "The cultural landscape is fashioned out of a natural landscape by a culture group" (Sauer, C. O., 1925). "Cultural landscapes are the result of consecutive reorganizations of the land in order to adapt its use and spatial structure to changing societal demands" (Antrop, M., 2005). The cultural landscape of a region is essential in interpreting the historical facts in the region. Usually, these landscapes have unique characteristics and intrinsic worth not present in other regions.

The worth of cultural landscapes has been revaluated due to the new concept established by UNESCO World Heritages. As addressed by the UNESCO World Heritage Centre, the World Heritage Convention in 1992 became the first international legal instrument to recognize and protect cultural landscape (Akagawa, N. and Sirisrisak, T, 2008).

Also, cultural landscapes are highly worthy as tourist attractions in a region. From a tourism perspective, the critical issue is that culture and scenery are inextricably integrated in the expectations and perceptions of locals and tourists alike. As an attraction, a cultural landscape is a place where the setting would not look the same without the culture, and the latter would not look the same without the landscape (Buckley, R., Ollenburg, C. and Zhong, L. 2008).

This study focuses on the landscape characteristics of Hahoe Village as conditions of location and
processes of acclimatization. Studies on traditional villages have focused on the principle of spatial formation through Confucian and Feng Shui principals, and the representative study was the one by Kim (Kim, T., 1964). Following this noticeable study Seo (Seo, S., 1999) analyzed antique books passed down in Hahoe Village.

Although there have been many studies on Hahoe Village, which were considered based on subjective assumptions, the functional roles of the landscape characteristics of the village have not been proven on an objective level.

5. Study Methods

5.1 Hydrologic Analysis

Neungpadae has been known to mean that "Even if the Nakdong River overflows and produces a great flood, the flood water will not reach this rock, Neungpadae. The rock looks down on a flood (Andong City, 2002)". To confirm whether such a translation is correct or not however, it is necessary to examine how often the Andong region including Hahoe Village was flooded and how high the flood water level was.

Studies on floods in the region including Hahoe Village are divided into two parts: before modernization and after modernization. The annals of the Joseon dynasty, Jeungbomunheonbigo book 增補文獻備考, Yeonggaji Book 永嘉志, Gyeomamjip Book 謹謹集 and Seoaejip Book 西崖集 have been analyzed to understand the great floods which occurred before modernization. And, the river research reports of Joseon (The Japanese Government in Joseon, 1923, 1925, 1929, 1933, 1936a and 1936b) were used as references to understand the floods that occurred after modernization.

Furthermore, the Basic Plan of River Maintenance, issued in 1993 by the Construction Ministry, was analyzed to discern the flood water volumes with several flood frequencies.

Also, the elevation levels of Neungpadae were measured on November 4th and 5th, 2009 to find the elevation level, which is directly related to flood damage. 'Triangulation point Andong 452' was used as a datum and the measurement was undertaken by registered first grade survey engineers. SOKKIA SET500 (No. D21802) and SOKKISHA C3E (No.117398) were used for the measurement. The results of the measurement are shown in Table 1.

Table 1. Leveling Work Result

| Measured Elevations at Hahoe Village | Elevation (EL,m) |
|--------------------------------------|-----------------|
| Neungpadae Rock Inscription Board    | 70.67           |
| Neungpadae Rock Plane               | 71.36           |

The simulation program, HEC-RAS (River Analysis System), was used for flood simulation in this study. HEC-RAS(River Analysis System) is one of the most popular and reliable river analysis programs in the world. HEC-RAS was developed at the Hydrologic Engineering Center (HEC) of the U.S. Army Corps of Engineers and superseded the HEC-2 river hydraulics package in 1995. While the HEC-2 river hydraulics package performs one-dimensional steady flow river hydraulics calculations only, the HEC-RAS also performs unsteady flow river hydraulics calculations. Moreover, the software allows sediment transport-mobile bed modeling and water temperature analysis (Brunner, 2008).

In this simulation, it was assumed that the river flow was steady and the site, Hahoe Village, is located between the Micheon 嘉川 confluent and Dalji 達溪 water level station. According to the basic plan of the Nakdong River maintenance (The construction ministry of Korea, 1993), the slope between the Micheon confluent and Dalji water level station is 1/1,900. The leveling work result of the river section in the basic plan of the Nakdong River Maintenance was then used to prepare the 3D hydraulic model. Namely, the section numbers from 630 to 639 in the basic plan of the Nakdong River maintenance were used for making 3D hydraulic models and the leveling values of Hahoe Levee, constructed in 1980, were eliminated to recover the original topography before 1980. And, according to the River Design Manual (Korea Institute of Construction Technology, 2000), the Manning's n values of Korean rivers are between 0.025 and 0.033 when there are no weeds around the river. Based on the research of the Korea Institute of Construction Technology, the Manning's n value 0.030 was used for the simulation, while the flood water volumes in Hahoe Village were assumed as the flood water volumes in the Micheon confluent in the upper stream from Hahoe Village. The basic plan of the Nakdong River maintenance includes data concerning flood water volumes with flood frequency in the Micheon confluent.

Of course, the flood water volumes resulting from civil engineering structures such as Andong Dam, Imha Dam, and Hahoe Levee were not considered. According to the results, the flood water volumes were 9,087 m$^3$/s in the 50-year return period, 10,304 m$^3$/s in the 100-year return period, and 11,432 m$^3$/s in the 200-year return period in the Micheon confluent. In addition, the data mentioned above was used for drawing a floodplain map with various return year periods (50,100, 200 year return periods) in this study.

5.2 Literature Review

The letters, Neungpa 徐polate, originated in China and first appeared in the poem, Nymph of the Luo River 洛神賦 written by Zhi Cao (曹植, 192-232). Seongnyong Ryu (柳成龍,1542-1607) seemed to quote the word Neungpa and engraved the word, Neungpadae on the rock. Through reviews of related literature, the accurate meaning of Neungpadae in Hahoe Village was examined.
6. Study Results
6.1 The Meaning of Neungpa as seen through Hydrologic Analysis

A great flood occurred in the Andong Area in 1916 when the water level began to be measured by a modernized method, after which another great flood occurred in 1934. Because there were no modern civil engineering structures such as dams and levees in the Andong Area at that time, damage due to floods was great. The first records of river water levels in Hahoe Village, which were measured by the modernized method, are shown in the flood of South Joseon (The Japanese Government in Joseon, 1936b). The flood levels and river beds of the whole area of the Nakdong River were investigated due to the great flood in 1934, a 50-year return period flood. Not only the level of the flood in Hahoe Village in 1934 but also the highest flood water levels measured in 1916 and 1925 were recorded in the flood of South Joseon (The Japanese Government in Joseon, 1936b). Table 1. shows the highest water level in floods at Hahoe Village.

Table 1. Flood Water Level at Hahoe Village

| Year | Elevation(EL.m) |
|------|----------------|
| 1916 | 72.06          |
| 1925 | 71.16          |
| 1934 | 74.94          |

According to the flood records in the flood of South Joseon (1936b), the fact that there were floods in 1916 (72.06 EL.m) and 1934 (74.90 EL.m) that reached the elevation level of the Neungpadae rock inscription (71.36 EL.m) has been clarified.

This proves that the great floods, which exceeded the elevation level of Neungpadae, had occurred. Thus, the interpretation "Even if the Nakdong River overflows and produces a great flood, the flood water will not reach this rock, Neungpadae. The rock looks down on a flood (Andong City, 2002)" is groundless. But now, the flood level does not reach the level of the Neungpadae rock inscription because a lot of modern civil engineering structures such as the Andong Dam and Imha Dam were constructed for water control in the upper stream of Hahoe Village.

According to the HEC-RAS flood simulation result, the flood level in a 50-Year Return Period is 74.68 EL.m at Chunghyodang House (忠孝堂) in Hahoe Village. Because the elevation level of Neungpadae is 71.36 EL.m, it is expected that floods exceeding the elevation level of Neungpadae might have occurred frequently. The elevation level of the 'Neungpadae' rock inscription in Hahoe Village was 71.36 EL.m according to the leveling work for this study.

The flood water levels were expected to be about 74.68 EL.m in a 50-Year Return Period, 75.32 EL.m in a 100-Year Return Period, and 75.93 EL.m in a 200-Year Return Period. These flood water levels prove that floods exceeding the elevation level of Neungpadae are likely to occur quite often.

Fig.4. is the floodplain map drawn by ArcGIS during the flood when the flood water just reaches the elevation level of Neungpadae (71.36EL.m). The floodplain map shows that the flood water reaches 71.36EL.m, which is the boundary between the town and the river. According to the floodplain map, if the river water reaches an elevation level as high as the Neungpadae (71.36 EL.m) or more, Hahoe Village will begin to be directly affected.

In other words, the elevation level of Neungpadae is the critical elevation level by which to avoid flood damage in Hahoe Village. At this point, it is presumed that the accurate meaning of Neungpadae is the 'wish' to help prevent the flood water reaching Neungpadae.

6.2 The Meaning of Neungpa as seen through Literature Review

The word, Neungpa (凌波), originated in China and was first seen in the poem, Nymph of the Luo River by Zhi Cao (曹植, 192-232).
The poem metaphorically describes the Luo River, "slowly taking a walk stepping on the waves and stirring up mist under foot".

The poem describes the waves and mist stirred up by her feet while the graceful goddess is crossing the Luo River. Later, Neungpa was interpreted to mean the beautiful wave and mist made by a beautiful lady in the water. The following is a part of a Chinese poem, Nymph of the Luo River, written by Zhi Cao.

Nymph of the Luo River

體迅飛鳧,飄忽若神。
In another moment, the motion was faster than a wild duck flying up and that was marvelous.

陵波微歩,羅韈生塵。
Taking a slow walk stepping on the waves stirred up mist under the feet.

動無常則,若危若安。
The motion was distemperate but was not dangerous and unstable.

進止難期,若往若還。
It is not easy to predict when this goes and stops, and looks like 'going forward' or 'returning back'.

轉眄流精,光潤玉顔。
If one looks out of the corner of one's eye, it emits light and gloss as if Jade.

含辭未吐,氣若幽蘭。
Lips opened just for speaking, breathing made small as if an orchid.

華容婀娜,令我忘餐。
The beauty makes me forget to eat.

Since then, the Nymph of Luo River was quoted as Lingbo (凌波, the same Chinese Characters but this is just the Chinese pronunciation) in many Chinese poems.

Tingjian Huang (黄庭堅,1045-1105) in the Song era(960-1279) in China wrote the poem "Wang chong dao shang hua wo shi zhi xin xin wei bei zhi zuo yang 王充道送水仙花五十枝令我忘餐酒" and likened a narcissus flower to 'Lingboxianzi 凌波仙子'. This was quoted from Nymph of the Luo River written by Zhi Cao. After the poem, the Nymph of Neungpa 凌波仙子 has been used as a term which indicates 'a narcissus flower 水仙花'. After this, Lingboxianzi attained the meaning 'God of flood control'.

Seongnyong Ryu also seems to have known the Chinese poem 'Nymph of the Luo River' written by Zhi Cao and understood what Neungpa (凌波) means exactly in the poem. Seongnyong Ryu wrote ten poems about the beautiful landscapes around Ogyeonjeongsa Pavilion, which are passed down in the Seoeajip Book in Hahoe Village. Notably, one of these poems has the title Neungpadae. These poems tell how Seongnyong Ryu felt about the Neungpadae rock at that time. With this, it can be analogized that Seongnyong Ryu quoted the word Neungpa from the Chinese poem 'Nymph of the Luo River' and engraved the word on the rock to express the beautiful landscape of waves stirring up mist. The poem which sings about the beautiful landscape of Neungpadae by Seongnyong Ryu is as follows.

Neungpadae 凌波臺

一石中突兀。
The long river water runs under this.

Endlessly showing gentle waves

Runs to the east endlessly.

Because the song gathering plants could not hear

How can I see a sock stirring up mist?

After standing alone for a long time

It gets dark in the mountain and river

Here, the first line 'One bulging rock 一石中突兀' indicates Neungpadae Rock. Of particular mention is the 'Endlessly shown gentle waves 波平杳無齋' in the 3rd line and 'How can see a sock stirring up mist 况見生塵襪' in the 6th line of this poem.

Those parts in the Poem 'Neungpadae' written by Seongnyong Ryu, who also carved the letter 'Neungpadae' on the rock, were quoted from the 2nd line of the poem of Zhi Cao, 'Taking a slow walk stepping on the waves stirred up mist under the feet陵波微歩,羅韈生塵' (See quoted Chinese Characters, 生塵).

Here, Neungpadae indicates the beautiful figure of a goddess walking over the water.

We can imagine that Seongnyong Ryu was sitting on Neungpadae Rock, relishing the picturesque wave formed by the sunshine and wind of the Nakdong River. It is also imaginable that he could find this wave as beautiful as the wave made by the Neungpa goddess quoted in the poem Nymph of the Luo River by Zhi Cao. After all, we come to the assumption that
he might have quoted Neungpa from Cao's poem and carved the word Neungpadae on the rock, where he could enjoy a beautiful wave.

Also, it is not the case that the word Neungpadae can be seen only from the Neungpadae rock in Hahoe Village. There are three examples of cultural heritage which use the word Neungpa in their names in Korea: Neungpa Bridge in the Buddhist temple Geonbong, Neungpagak Pavilion in the Taeun Buddhist temple, and Neungpadae in Donghace City.

Both Neungpa Bridge in the Buddhist temple Geonbong and Neungpagak Pavilion in the Taeun Buddhist temple are located in valleys and therefore were repaired many times due to flood damage. It seems that they were called Neungpa because they lie across a river with beautiful scenery. And, considering that it has often been exposed to damage due to flooding, it can be guessed that the name, Neungpadae, would have contained a 'wish' for the prevention of disasters.

The Neungpadae in Donghace City is also an example of naming from an aesthetic point of view. The Neungpadae was originally called "Chuam", and was derived from oddly formed rocks and strangely shaped stones. However, Myeonghoe Han (1415-1487), who was a provincial governor in Kangwondo in the Joseon era, changed its name from "Chuam" to "Neungpadae" in 1462 because it's superb scenic beauty could be likened to a beautiful woman's manner of walking.

As mentioned above, some cultural heritages with the name Neungpa have existed in Korea. It is implied that they all relate to beauty and the Neungpa goddess quoted in the poem, Nymph of the Luo River, which was written by Seongnyong Ryu. Thus, the presence of cultural relics with the name Neungpa prove that the word Neungpa did not originate from the fact that Seongnyong Ryu carved the letter Neungpadae on the rock.

7. Conclusion

This study was undertaken to clarify the meaning of Neungpadae, one of the strong tourist attractions in Hahoe Village. Hydrologic analysis and a literature review were used as research methods to clarify the meaning of 'Neungpa'.

The result obtained by hydrologic analysis as follows. The meaning of Neungpadae has been known as "Even if the Nakdong River overflows and produces a great flood, the flood water will not reach this rock, Neungpadae. The rock looks down on a flood (Andong City, 2002)" because the rock inscription, Neungpadae, was interpreted based on the two Chinese characters Neungpa only. But according to the simulation results, floods which reached the elevation level of Neungpadae (71.36 EL.m) had occurred frequently. In short, it is assumed that the meaning of Neungpadae seems to be the wish to help prevent the flood water reaching there (the elevation level of Neungpadae is the critical elevation level to avoid flood damage in Hahoe Village).

The accurate meaning of Neungpa can be analogized by a review of the literature also. The word Neungpa was first used by Zhi Cao in his poem Nymph of the Luo River in China and Seongnyong Ryu alluded to the real meaning of Neungpa in his poem Neungpadae. Here, Neungpadae indicated the beautiful figure of a walking goddess, and Neungpa indicates two senses both 'beautiful gentle waves' and 'God of flood control'. It can be imagined that Seongnyong Ryu found this wave as beautiful as the wave made by the Neungpa goddess quoted in Cao's poem, Nymph of the Luo River and carved the word Neungpadae on the rock, where he could enjoy a beautiful wave.

Also, it is not the case that the word Neungpa can be seen only from the Neungpadae rock in Hahoe Village.

'Neungpadae' in Hahoe Village can be evaluated as a symbolic landscape element that includes the aesthetic and ideological value of the environment. And other landscape elements in Hahoe Village also seem to have these aesthetic and ideological values. The interpretation of these landscape elements seem to be very important facts that certainly show the value of cultural landscapes in Hahoe Village. Studies of cultural landscape based on scientific and objective research, have to be continued as a task to let the world know the real values of Hahoe Village.

Notes

1. The river is called Hwacheon in the Andong area.
2. Seongnyong Ryu (1542-1607) was born in Hahoe Village and became prime minister during the Joseon dynasty. He was a representative scholar and politician in the Joseon era.
3. Nymph of the Luo River written by Cao Zhi (192-232). It survives in three copies dating to the Song dynasty. One copy illustrating a poem is held by the Palace Museum of Beijing.
4. The highest water level at the Nakdong River was 93.36 EL.m in 1936 in the Andong area after modernization. The second highest water level in the river was 93.18 EL.m in 1934. But, the highest water level in the flood that occurred in Hahoe Village in 1936 has not been handed down.
5. Nymph of the Luo River written by Caozhi (192-232). It survives in three copies dating to the Song dynasty. One copy illustrating a poem is held by the Palace Museum of Beijing.
"凌波微步, 罗韈生塵".

'Neungpadae' was actually used as a place for rest or amusement.

Registered Cultural Heritage of Kangwon #35.

Registered Cultural Heritage of Jeollanamdo #82.

References

1) Akagawa, N. and Sirisrisak, T. (2008) Cultural Landscapes in Asia and the Pacific: Implications of the world heritage convention. International Journal of Heritage studies. 14(2), pp.176-191.

2) Andong City (2002) Rock Inscription of Andong City. Andong: Andong City Press.

3) Antrop, M. (2005) Why landscapes of the past are important for the future. Landscape and Urban Planning, 1 (2), pp.21-34.

4) Brunner, G. W. (2008) HEC-RAS River Analysis System Hydraulic Reference Manual. Davis: US Army Corps of Engineers Hydrologic Engineering Center.

5) Buckley, R., Ollenburg, C and Zhong, L. (2008) Cultural landscape in Mongolian tourism. Annals of Tourism Research, 35(1), pp.47-61.

6) Domosh, M. (2004) Cultural Landscape in Environmental Studies. In International Encyclopaedia of the Social and Behavioural Sciences. New York: Elsevier.

7) Jackson, J. B. (1984) Discovering the Vernacular Landscape. New York: Yale University Press.

8) Kim, K. and Lee, D. (2000) A Case Study on Hahoe Village in Andong Korea. Prepared for the Korean National Commission for UNESCO, Bhaktapur, Nepal. UNESCO Conference on Cultural Heritage Management and Tourism.

9) Kim, T. (1964) A Research on Life Environment of a Clan Village. Daegu: Cheongdo University Press.

10) Sauer, C. O. (1925) The Morphology of Landscape. University of California Publications in Geography, 2 (2), 19-53.

11) The Construction Ministry of Korea. (1993). The Basic Plan of the Nakdong River Maintenance, Seoul, Republic of Korea.

12) Korea Institute of Construction Technology. (2000) River Design Manual. Seoul: Republic of Korea.

13) The Japanese Government in Joseon. (1923) The River Joseon, Seoul: The Japanese Government in Korea.

14) The Japanese Government in Joseon. (1925) The flood of Joseon, Seoul: The Japanese Government in Korea.

15) The Japanese Government in Joseon. (1929) The River Research Report of Joseon, Seoul: The Japanese Government in Korea.

16) The Japanese Government in Joseon. (1933) The River of Joseon, Seoul: The Japanese Government in Korea.

17) The Japanese Government in Joseon. (1936a) The basic plan of River Maintenance: The Japanese Government in Korea.

18) The Japanese Government in Joseon. (1936b) The flood of South Joseon, Seoul: The Japanese Government in Joseon.

19) Ryu, J. (2001) Seoaejip, Seoul: Seoae Clan Association.

20) Yamazaki, M. (1994) Kyoto – its cityscape traditions and heritage. Tokyo: Architecture 116 Process Architecture Co., Ltd.