

Qualitativeassignment

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## Qualitative assignment

**Introduction**

The purpose of this paper is to reinterpret and evaluate existing archaeological debates based on the approach of scientific explanation. The target subject of this paper is about three different models explaining the starting point and origin of Upper Paleolithic period of Korea. This subject is directly related to my own dissertation, the study of stemmed points in Korean Peninsula. In the beginning of the thesis, I should have to mention about the topic and take a position. I believe that scientific approach enables neutral and reasonable evaluation. For this reason, I choose the debates for this paper.

The debates of starting point and origin of Upper Paleolithic period (MIS 3-2 transition) are most problematic and popular issue in the study of Paleolithic in Korea. Some people insist that emergence of blade (32,000 BP) is the starting point while others think stemmed point (35,000 BP) indicate the start. And the origin of Upper Paleolithic had been regarded as coming from Shuidonggou site located in northeast China. However, nowadays this concept starts to be rethinking. Since the dates of the similar sites in Korea were turned out be earlier than Shuidonggou (???). Therefore people have tried to find the new origin and they present the three different models. First model is in situ evolutionary one which is that blade, stemmed point and other Upper Paleolithic assemblages autonomously emerged in the South of Korean peninsula. Second one is migration model. From the north, not China but Siberia, and southern China, people came to the Korean peninsula with new stone tools. Last model is trade and exchange model mixing with migration one. Once people with new technology settled down in the north part of Korea and then give their knowledge or lithics to other group (??? and Bae\_2012).

In this project, I would like to analyze those three different models based on archaeological evidence, perspective of human behavior, different scales of behaviors, apply several scientific approaches into the models, and reinterpret and evaluate the models.

The three models are introduced and supported in different articles: (1) In situ model

in an article, titled, “Emergence of a blade industry and evolution of Late Paleolithic technology in the Republic of Korea” (???), (2) Migration model in “Origin and pattern of the Upper Paleolithic industries in the Korean Peninsula and movement of modern human in East Asia” (???) and “The nature of the Early to Late Paleolithic transition in Korea: Current perspectives” (??? and Bae\_2012), and (3) Combination model in “Current observations of the early Late Paleolithic in Korea” (???)

### **Archaeological evidence**

Main reason of the debates is that the related Korean archaeological records do not provide strongly perceived distinctive toolkit such as Aurignacian in Europe (???). Lithics, especially, blade industries are the key component of the models. Blade and micro blades and related tools such as stemmed points are regard as new technology of the period, the starting point of Upper Paleolithic, however, majority of lithics, core and flake tools, have been continuously used from the former period. Usage of raw materials, change in lithic assemblage, chronological sequence based on dating records, comparison with different excavation sites, stratigraphic aspect, genetic analysis of the Y-chromosome, and paleobathymetric variation, absence of Levallois technique are also used for building model. More specific arguments are followings:

- (1) In situ model: Based on indigenous behavioral evolution, Seong asserts that the change of using blade and blade tool is viewed as slow, frequency of using the blade industries is increased, and similar pattern of making stemmed points and then microblades can be seen are indicating evolutionary processes gradually. The main mechanism of his evolutionary background is that climate change had driven needs of new toolkits including projectile points and it causes consideration of raw materials. And due to uneven distribution of resource or quarry, hunter-gatherers' mobility and social networks were increased and it derived blade technology. Seong compares lithic assemblages of different cultural layers in one site (time difference) as well as ones of

different sites and infers with the results that different aspects of layers and sites indicates high mobility. If the aspect were common and stable, then it means that hunter-gatherers had no need to move. Chronological sequence shows that there was no significant change before 40,000BP but “gradual” changes, producing blades could be seen between 40,000 and 30,000BP at middle cultural horizons at Hwadae-ri, Hopyeong-dong, and Youngho-dong sites and these artifact types dominate the lithic assemblages from Yongsan-dong and Gorye-ri sites. From earlier cobble and pebble-tools such as choppers and polyhedrals dominated assemblages to endscrapers, burins, and backed knives and produced from relatively high quality vein quartz, the lithic assemblages were changed gradually. Not just for kinds of tools, ratios of blade to flake, large tool to small tool, and growing reliance on blade were also gradually changed (???).

- (2) Migration model: Bae’s model is based on combination of different foraging groups emigrating from Siberia and southern China. He points out absence of continuous behavioral evolutionary transition such as from Oldowan to Acheulean. And he presents genetic studies and paleobathymetric variation. The analysis of Y-chromosomes shows relationship between modern human in Korean peninsula and in southern China. Foraging groups of southern China could easily go to Korean peninsula through route of yellow sea because the two regions were connected at that time. About low completeness of early blades and relating tools, he asserts that new comers might have adapted to the local environment in the Korean peninsula by adopting the conventional technology of tool production instead of retaining their own tool making tradition of producing blades. Proper raw material takes risk and cost. And southern China also had flake-based lithic industries. He asserts that the blade technology came from Denisovan, in southwestern Siberia according to similarity of lithics with Korean blades (???).

- (3) Combination model: This model can be called as migration-trade interaction model or modified version of migration model. This model was originated from errors of other models. Lee argues that new technologies were introduced in Korean peninsula but they didn't change traditional assemblages. In other words, the blade toolkits were introduced, but did not immediately replaced pre/coexisting traditional assemblage. The traditional lithic industry, or full-fledged simple core and flake tool assemblages (SCFA) seems to reoccur around 100 ka and flourish until 30ka. During the blade period, the SCFA exhibits the general characteristics without a wide range of variation within assemblage. Like Bae's assertion(???), Lee thinks that evolutionary theory (in situ) does not make sense due to absence of any predetermined lithic strategies that require extensive preparation, such as Levallois technique. But he also questions Bae's migration theory. Because there is rugged mountain as natural barrier in Northern part of Korean Peninsula so it is hard to move in from north. In addition, the blade technology in Korea is not related with Homo sapiens which Bae thinks as foraging groups from southern China because the age of the oldest one in Eurasia is younger than 40 ka. It means that Homo sapiens, modern human might arrive in Korea much later (the analysis of hominine remains is practically impossible in Korea), but blade-technology based lithics was started before the period that the modern human arrived. However, he recognizes the possibility of migration in some point and trade interaction because of existence of obsidian and Arca shells which indicate long distance mobility (???).

### **Links between evidence and behavior**

About the advent of new technology, in other words, blade technology, the three models explain the same phenomenon in different ways. Evolutionary theory, migration, and trade are main frame of explanations of each model. These evolution, migration, and trade are broad range of human behavior and they contain small range of behaviors such as adaptation for surrounding environment, mobility, or subsistence pattern. Especially on this

specific research period, the starting point of Upper Paleolithic (MIS 3-2 transition), the term of “modern human behavior” is frequently used to depict similar pattern of subsistence, frequent mobility, and use low material.

Interesting point is that the three models explain introduction of incomplete blade toolkits and coexistence with traditional assemblages as the result of modern human’s ability of adaptation (evolution) (???) or long-distance mobility (???), or the result of combination with mobility and trade (not by modern human) (???). Without the common evidence of blade toolkit, Seong presents different aspect of sites and layer as evidence of mobility, effort for adaptation, and in situ development (???). Bae expects the migration from southern China and Siberia with generic evidence of modern human on the basis of the fact that one of main characteristic of modern human is highly mobile forager (???). Lee argues that the introduction of new technology by modern human’s migration or evolution is hard to believe due to the discordance between dates of archaeological record and ones of Homo sapiens. Therefore he thinks that the new technology was the results of combination of trade, some part of migration, and in situ-development based on adaptation for endemic environment of Korean peninsula (???). Both Seong and Lee recognize the existence of social network or mobility in Korean peninsula because of necessity of acquisition for fine-grain raw material and actual evidences such as obsidian from Mt. Baekdu, Kyushu, and Hokkaido sources (???).

### **Links between evidence and behavior**

migration or trade or both essential factors to illustrate modern human behaviors: raw material availability, subsistence, and mobility systems

### **Behavior at different scales**

between indigenous foragers and non-indigenous among indigenous

## Discussion

Main reason of the debates is that the related Korean archaeological records do not provide strongly perceived distinctive toolkit such as Aurignacian in Europe (Lee 2013).

### 1) Which model is more reasonable?

(1)Seong: in situ, evolutionary- IBE “x->y”, Salmon “indigenous behavioral evolution”  
“The change of using blade and blade tool is viewed as slow, evolutionary process that eventually culminated in the Late Paleolithic transition”

“The increasing frequency of blades in these sites is evidence for in situ model”  
“Similar subsistence pattern: making stemmed point and then microblade” His argument is based on “modern human behavior” which I don’t agree as Lee’s opinion.(Seong 2009) He regards the modern human behavior as “pattern”-world wide one. Then, does it mean DN?/ontic? He applies the pattern into Korean case.. (He didn’t mention about modern human itself) ->generalized strategy to a formalized technology in the Late Pleistocene can be understood by the interplay of various factors, raw material availability, subsistence, and mobility systems and so on. He thinks that those changes can indicate evolution. And he concludes that the case of Korean Upper Paleolithic is fit into the pattern. In addition, Population density, growing intensity of competition among local populations, complex site structure, and specialization in animal exploitation were changed in Upper Paleolithic (Gamble 1999; Gilman 1984; McBrearty and Brooks 2000; Whallon 1989, 2006 all cited in Seong 2009).(But Seung doesn’t mention about the exact evidence of increased population.) He asserts that case of Asia is different with Europe, for example, Mousterian failed to reach to East Asia. And that’s why similar tendency should be understood in the evolution approach emphasizing “adaptation” . Main mechanism: climate changed -> toolkits also changed ex) need for projectile technology -> uneven resource distribution -> increasing mobility and increasing social networks => blade technology

(The mechanism itself is causal..) How and why blades became so widespread? = due to changes in settlement and subsistence systems, social structure, and population dynamics. High mobility: formal/generalized (standardized?) tools (and preparing core/blank which is suitable shape and size) represent reduction of production cost and associated with high mobility since it minimizes the weight of artifacts hunter-gatherers need to carry. But I think this argument is not more related with starting point but phase 2. (1) individual site in the sequence of stratified sites -in a site: different characteristic according to time difference -difference between each site => high mobility -check all site->IBE??

(2)chronological sequence

-no significant difference before 40,000

-significant difference between 40,000 and 30,000 : blades and SP were recovered at m

(3)change in lithic assemblages

-from earlier cobble- and pebble-tool-dominated assemblages to endscrapers, burins, and

-same kinds of tool such as choppers and polyhedrals: their size and frequency seem to

(4)change in SP and blade assemblages

-comparing the ratio: blade to flake ratio, large tool/small tool ratio, and ratio of g

(5)Raw material change

-use new material for blade and related lithics: fine-grained raw materials such as si

-obsidian from Mt. Baekdu, Kyushu, and Hokkaido sources (Lee 2008 cited in Seong 2009)

analogic model derive the power of problem-solving from comparison

I agree with Kohler and Leeuw (2007).-focus on context itself.



**fine-grain/coarse-grain**

(2)Bae: migration, unification/ ontic “Combination of different foraging groups emigrating from Siberia and southern China” “Population movement” “Counter argument of in situ: absence of continuous behavioral evolutionary transition such as from Oldowan to Acheulean” “Genetic evidence: foraging groups from southern China (modern humans) that still used Early Paleolithic core and flake tools migreaged northward to the Korean Peninsula” -> question “Why did they move facing colder environmental condition” -> answer: depending on “Paleobathymetric variation : South china was dry and that region and Korean Peninsula were connected at that time-swallow yellow sea”, “Marine Isotope: not that much cold at that time” “But still don’t know why they moved”

Law like statement: modern people -> migrate -> all modern people migrate -> it started upper Paleolithic But it seems Salmon’s causal!

**Unification/(causality)**

(3)Lee?: mixing model?/ (He says new technologies was introduced but didn’t change traditional assemblages) Basically His argument was originated from errors of others’.—foil? The blade toolkits were introduced, but did not immediately replaced pre/coexisting traditional assemblage. Also blade technology did not replace the preexisting assemblage. Full-fledged simple core and flake tool assemblages (SCFA-pre/coexisting traditional assemblage) seems to reoccur around 100 ka and flourish until 30ka. During the blade period, the SCFA exhibits the general characteristics without a wide range of variation within assemblage. Blade-based lithic technology initially starts around 35 ka in Korea (Bae,2010). Evolutionary theory (in situ) does not make sense due to absence of any predetermined lithic strategies that require extensive preparation, such as Levallois technique (Bar-Yosef and Kuhn 1999 cited in Lee 2013). And migration model should have Levallois technique too because Levallois technology is comprised of not only the Levallois technique, but also blades. The most possible region the blade might originated from (migration theory) is Altai region and 50ka (micro blade-30ka) based on evidence from Denisova Cave

(Derevianko 2011 cited in Lee 2013). But there is huge time gap between Altai and Korea though the initial period of blade introduction is still not clear in Korea. The Korean blade assemblage from the period does not show sophisticated blade technology. The number of case of blade core is limited. But, the full-scale reduction sequence and crest technology exist in Korea (agree with some part of migration model). There is natural barrier in Northern part of Korean Peninsula, rugged mountain. Some blade-like assemblages might be produced by accident. And there are numerous methods of manufacturing blades or long flakes (Bar-Yosef and Kuhn 1999 cited in Lee 2013). The blade technology in Korea is not related with Homo sapiens (The age of the oldest one in Eurasia is younger than 40 ka). (The analysis of hominin remains is practically impossible in Korea) DNA of Denisovan from Altai are sisters to Neanderthals (Reich et al., 2010; Meyer et al., 2012 cited in Lee 2013). Korean blades seem to be the result of a founder effect by pre-modern humans. (Maybe South-model of Bae's assertion is possible.) He suggests the notion of "the ancestor and descendant relationship".

Migration/trade interaction model-modified version of migration model "NO documented evidence of migration" "Small frequency of new technology-blades and stemmed points at the beginning (slow introduction) of the Late Paleolithic but still most of assemblage were dominated by traditional lithics" "Possibility of long distance migration: obsidian, Arca shells"

IBE model?

## 2) Application of scientific explanation

hunter-gatherer's/Binford- functional explanation natural selection- apply to functional explanation - such as evolutionary explanation- but hard to verify/ unprovable. for example- no proxy in attribute of lithic. but zoo archaeology- it works -markov-chain. community noun (reading and check all reading and case and then determine whether or not this case is general or is hard to explain in general way) and practice informal-high probability

## Conclusion

### Note for writing

- (1) Modern human and blade/microblade So far, blade/microblade technology has been regarded as symbol of modern human. But current evidences support the counterargument of those relationship. In other words, there is some cases which illustrate no relationship between blade/microblade technology and human. For example, the technology got started ealier than evolution towards modern Homo sapiens in Africa. In addition, there is no blade/microblade eventhough modern human reached until Southeast Asia (Shea et al., Bae & Bae 2012). (Lim et al., 2007)
- (2) the Korean Late Paleolithic can be divided into two cultural stages: 1) an initial blade technology that appears sometime between 40 and 36ka; 2) around 25ka microblade begin to appear

Causality&mechanism: Causality is more small scale-particular. Mechanism: more broad, general,

Lim, H. S., Lee, Y. I., Yi, S., Kim, C.-B., Chung, C.-H., Lee, H.-J., & Choi, J. H. (2007). Vertebrate burrows in late Pleistocene paleosols at Korean Palaeolithic sites and their significance as a stratigraphic marker. *Quaternary Research*, 68(2), 213–219.  
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