New Perspectives in the Study of Production and Exchange in Korean Archaeology[1]

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This paper focuses on the significance of production and exchange in Korean archaeology. While material culture in Korean archaeology has mainly been used as a means of designing temporal and spatial frameworks, new perspectives adopted in the research of production processes, production organization, and exchange contain great archaeological potential. Through recent excavations of production sites and pioneering studies of archaeological provenance, the study of production and exchange in Korean archaeology has begun to take place. This paper therefore presents, first, key issues concerning technology, production, and exchange in archaeological research. Second, key developments which have taken place in Korean archaeology regarding the study of production and exchange are examined, and new archaeological discoveries relevant to these issues are introduced. Finally, it is stressed that through the adoption of appropriate methods, the new perspectives examined in this paper can help archaeologists better understand the communities who manufactured, exchanged, and consumed material culture in ancient Korea.

Keywords: material culture, technology, production, specialization, exchange

1. Introduction

The main focus of Korean archaeology has been to establish temporal chronologies, as well as to identify the regional distribution of material culture. In doing so, archaeological materials have been used as chronological and geographical indicators of social groups. However, the last decade has witnessed

1. This paper was supported by research funds provided by Chonbuk National University in 2009.

The Review of Korean Studies Volume 12 Number 2 (June 2009) : 81-100

the excavation of a number of pottery and iron production sites which has made possible the examination of production technology, production organization, and the nature of societies involved in the production process. In addition, provenance studies using scientific methods have also begun to be adopted, thereby facilitating the reconstruction of ancient exchange systems. The study of production and exchange in Korean archaeology, therefore, has great potential to untangle issues regarding the craft production process, the consumer's demand of objects, and the interactive relationship between producers and consumers which took place.

With this in mind, the current paper presents new perspectives on the study of production and exchange in Korean archaeology. Key issues within current archaeological studies regarding the production and exchange of material culture will be highlighted first. In particular, issues of technology, production and exchange, and the way in which these issues should be approached will be discussed. Second, key developments that have taken place in Korean archaeology regarding the study of production and exchange will be examined,[2] and new archaeological discoveries relevant to these issues will be introduced. In doing so, different avenues of research about the production and exchange of material culture will be considered.

2. Archaeological Interpretation of Production and Exchange

This section presents the key issues regarding production and exchange currently being debated within archaeology. First, the assumptions regarding technology and technological change within a society are discussed, and the way in which these issues should be approached is considered. Second, the various issues surrounding production organization are examined, including that of craft specialization. Finally, the way in which artifacts become a part of social interaction is explored by looking into issues of exchange and consumption. Through this, the relationship between people and material culture, and the role of material culture in social change, is discussed.

2. Due to its ubiquitous nature, the majority of studies on production and exchange in Korean archaeology have focused on pottery. The current paper will therefore deal only with new perspectives and discoveries regarding ceramic evidence.

1) Approaches to Technology and Technological Change

Technology, contextualized in time and space, is a main topic of interest for archaeologists. The study of technology not only allows us to make inferences about the shaping of tools in everyday life, but more generally, the interaction between society and technology makes it possible to understand the nature of social systems and how they change over time. Therefore, it is necessary to examine how technology has been dealt with in recent archaeological theories.

During the early to mid-twentieth century, culture history was the dominant framework of archaeological research. Designing temporal chronologies and identifying the regional distribution of archaeological cultures was the main focus of this approach, through which the diffusion and migration of cultures could be traced. Within this framework, the cause of technological change was seen to come from outside, and not from within, society. This stems from a pessimistic view of human creativity which emerged as a reaction to the social evolutionism of the late nineteenth century (Trigger 1989:151). Therefore, rather than accepting the concept of 'technological evolution,' archaeologists at that time focused on comparing levels of technology among ancient cultures in order to trace processes of diffusion.

The paradigm of processual archaeology, which emerged in the 1960s as a reaction to culture history, contained a radically different perspective on technology. Influenced by systems theory, processual archaeology defined society as a group of interacting parts, with technology being one of these parts. Archaeologists were therefore interested in understanding how the technology of a society interacted with other elements. As processual archaeology was also influenced by cultural ecology, archaeologists also came to focus on the environmental constraints on technology, in particular arguing that technological change is significantly influenced by ecological conditions (Matson 1965; Kolb 1988). Technology and technological change were therefore understood as passive responses to variability within the environment.

Another perspective regarding technology which has emerged within the framework of processual archaeology has been the view that production is determined by various functional needs and physical properties (such as thermal shock) and that mechanical performance characteristics may affect the choices artisans make. According to this view, therefore, technological development only occurs when functional optimization is required. Similarly, behavioral archaeologists, who are interested in the specific activities which occur during

the life cycle of an artifact, have focused on the complex relationship between material properties, performance characteristics, and technical choices (Schiffer and Skibo 1987 and 1997; Skibo and Schiffer 2001).

The emergence of post-processual archaeology in the 1980s acted to turn on its head the discussion of technology in archaeological research. Influenced by the fields of sociology and French anthropology, post-processual archaeologists tend to focus on the active role that people had in the past (Dobres and Hoffman 1994). Rather than merely responding to external changes, it stresses that people "play a role in the formation of the social realities in which they participate" (Barfield 1997:4). Similarly, technology was approached as having been constructed and transformed by intentional human practice. And while post-processual archaeology may not have been able to submit plausible theoretical and methodological frameworks for the research of ancient technology, it can not be denied that, in presenting numerous case studies which stressed the active role of human agency in technology, it illustrated the importance of examining individual practices when approaching the issue of technological change.

Consequently, while archaeologists have investigated the issue of technology from various perspectives, the views of processual and post-processual archaeology appear to converge in their research trends. The majority of recent studies carried out, therefore, illustrate a flexibility of thought, combining approaches toward technology and technological change which have emerged from both frameworks.

2) Production Specialization and Production Organization

In considering the issue of production organization, the concept of craft specialization is of special interest, and its usefulness when considering the production organization of material culture should be considered critically. In addition, the relationship between the organization of production and social and political organizations should be carefully examined.

The term specialization was first devised in order to explain the development of a stratified social organization in pre-state or early state-level societies. In particular, the adoption of this term was influenced by the Marxist view that emphasizes surplus production and the emergence of special craftspeople. From the beginning when Gordon Childe started this current interest in craft specialization, the term 'specialization' was used not only to describe a mode of production, but also to signify socially differentiated societies in which access to

raw materials and goods are limited to the elite group of society (Clark 1995). In other words, specialization was often regarded as evidence of increasing social complexity.

Coming from this perspective, Van der Leeuw (1977) and Peacock (1982) devised models of modes of production which suggested an industrial end-point to the process of emerging specialization. Van der Leeuw's model presented six stages of pottery manufacture. Peacock, on the other hand, devised an evolutionary scheme, developed primarily for Roman pottery manufacture, which involved both increasing specialization and an increase in the size of the work unit, ranging from household production and household industry, through individual workshops, nucleated workshops, manufactory, factory, estate production, to military and other official modes of production. These early archaeological models of specialization were deeply rooted in social evolutionism, but methods of identifying these developmental stages by means of archaeological data had not been devised, and therefore, the validity of the schemes were not tested in specific archaeological contexts.

During the 1980s, it was Rice who first examined the relationship between specialization and social complexity using an archaeological case study. In her work on the pottery from the Maya lowlands, she suggested that social stratification and economic specialization reflect a differential access to resources and the societal management of these resources (Rice 1981). This work is significant in that, for the first time, a framework was offered within which the processes of specialization could be modeled using a relevant case study.

Following this, in the 1990s, Costin (1991) suggested that craft specialization is not absolute, but rather exists on a spectrum that is best measured by evidence pointing to changes in scale and intensity over time. She proposed four parameters characterizing the organization of production–context, concentration, scale, and intensity–and believed that it was possible to measure social complexity based on the nature of the production organization (Costin 1991:8-9). It must be noted that in order to make use of these models on specialization, direct evidence of production, which may not always be available, is required. Nevertheless, Costin's models are of great significance in that the four parameters presented are crucial to the understanding of production organization.

Consequently, while it has been illustrated that studies of specialization can contribute to the research of production organization, many of the previous models used to study craft specialization have overwhelmingly been based on

highly complex societies.[3] In addition, it is difficult to present a persuasive link between specialization and social complexity. It is therefore clear that we need to go beyond the assertion of simplistic associations between production organization and social complexity, and instead, focus on the various relationships which may exist between the two and what these various relationships may have to say about how people organized production.

3) Exchange, Trade Systems, and Consumption in Ancient Economies

Exchange can be understood as consisting not only of the flow of objects, but also the relationships which come to be established between producers and consumers. As such, the exchange or trading of objects should not merely be understood in terms of movement but also as the creation and transformation of values (Renfrew and Bahn 2004). Post-processual archaeologists in particular have focused on the latter, based on which alternative approaches toward exchange and trade were formulated.

For example, the term 'biography of objects' is often used by these emerging perspectives to describe the ways that different commodities become integrated into the sphere of daily life. The circulation of commodities across cultural, economic, or spatial boundaries is seen not just as a physical process, but as a social transaction between products and people within the wider relations of prestige and debt (Thomas 1991). Similarly, it has been suggested that ancient networks of long distance trade should be considered in a material discourse that incorporates their social significance (Helms 1993). According to Helms, the symbolism associated with prestige goods acquired from far distant locations can form a vital component of long-distance trade. If elites can monopolize the use, acquisition, exchange, and modification of the exotic, the goods that were delivered from a far distance can convey more value.

In addition, there have been various attempts to formulate models of ancient trading systems. Polanyi (1957), for example, suggested that exchange in premodern societies can be divided into three types: reciprocity, redistribution,

3. *Ceramic Production in the American Southwest* (Mills and Crown 1995) was written partially in an attempt to overcome this problem. In these case studies of middle-range societies, the meaning of craft specialization was broadened and redefined to include notions of people simply relying on, and sharing with, one another.

and market exchange. His work on ancient trade, regarded as one of the key examples of the substantivist approach, was adopted by many archaeologists and anthropologists, and his triad of ancient trade continues to influence studies of ancient economies. Following Renfrew (1975), Earle (1977) and Goody (1982), it was Brumfiel and Earle (1987) who synthesized the explanations of how objects were circulated in ancient complex societies. In order to examine the relationship between specialization and exchange in complex societies, they devised three exchange models according to different conditions of development: 1) commercial development model, 2) adaptationist model, and 3) political model. While their models have continuously been adopted by archaeologists, they are not without problems, for they are abstractions in which exchange is divorced from its social context. Therefore, the validity of generalizing the diverse realities of exchange that existed in the past into these three models must be questioned. In addition, such attempts to formulate systematic models of exchange are based on the assumption that there exists a causal relationship between exchange, production organization, and social complexity.[4] However, as it is difficult to make such generalizations, this relationship must be explored on a case by case basis.

Finally, just as production and exchange play an important role in social practices, so too does consumption, as consumers also try to construct their identities through their choices. There has recently been a growing interest in consumption, with attention being directed toward the consequences of consumption and its dynamic aspects due to the increasing trend of mass consumption in the modern world. The issue of consumption was reconsidered by Douglas (1984), who investigated the way in which food is used. Douglas and Isherwood (1996) argued that the way in which people consume goods does not need to be related with ideas of necessity and rationality, but rather should be regarded as an active and meaningful process which creates cultural values. Similarly, Appadurai (1986) noted that the demand for consumption is a function of social classification and practices, and does not come from universal human psychological desires. Consumption activity is specific and active, and the social context must be considered when examining it (Miller 1995). Therefore, consumption has been approached not only as a process of consuming, but also

4. It should be noted that Polanyi's three modes of trade are parallel to the modes of social organization (tribe-chiefdom-state) devised by Elman Service (Renfrew 1993), and may therefore be regarded as having been influenced by evolutionary frameworks.

as an essential process of reshaping society, with attention being paid to the processes through which anonymous commodities with an objective exchange value are transformed into people's possessions (Miller 1995).

4) Integrating Production, Exchange, and Consumption

While the realms of production, exchange, and consumption were discussed separately above, it must be stressed that the relationship between people and these aspects of material culture is closely interrelated. Therefore, it is crucial that we get away from the macro-scale modeling of the issues of production, exchange and consumption, and observe the way in which artifacts have social relations (Jones 2002). In particular, the study of the 'social life of things' can make a valuable contribution to archaeological research.

Material production can be treated as the mediator between the knowledgeable human agent and the social structure, as well as between the agent and the external physical properties of the material. As discussed above, production is a cultural act that transforms raw materials into usable and meaningful objects (Costin 1991), and our understanding of craft production has been broadened to treat pottery manufacture as a factor in constructing the identity of both the producer and the consumer. Therefore, the production of pottery can be seen as part of the negotiation of social reproduction, rather than as a passive marker of economic change (Lemonnier 1993; Van der Leeuw 1993).

In addition, according to Wright (1993), the production and consumption of an object represents generative principles, which are cognitive maps of social action. Material culture is not neutral, but plays a major role in the representation of social relations. Therefore, through a study of the technological styles in a given material culture, it is possible to identify a series of stylistic and technical features which are deeply involved with the thought and behavior of the people (Wright 1993:247).

Finally, with regard to this new way of approaching production, exchange and consumption, *chaîne opératoire* constitutes an important conceptual framework which can give technological studies both the empirical strictness they require and the social dynamics they deserve (Dobres 1999). *Chaîne opératoire* does not just order technical processes in the production of tools as a string of events, but can be used to define technology "as the series of operations which transforms a substance from a raw material into a manufactured product" (Van der Leeuw 1993:240). According to this perspective, elements such as "the

knowledge, skills, values and symbolic representations... generated in the course of action, as well as the social frameworks... implicated in the production and reproduction of everyday life" (Schlanger 2005:29) are seen to constitute technology.

3. Key Issues Concerning the Production and Exchange of Material Culture in Korean archaeology

This section will first examine, in chronological order, the archaeological findings of excavations recently carried out on pottery production sites in Korea. In doing so, key issues in the study of material culture which are currently being debated in Korean archaeology, such as that of production organization, production technology, and the relationship between the material culture and society, will be discussed. This then will be followed by an examination of alternative approaches to the exchange of material culture, which will done by presenting a study on pottery provenance that used scientific methods.

1) Bronze Age Pottery Production

The numerous excavations carried out in recent years have yielded a wide range of evidence concerning pottery production in prehistoric Korea. While possible firing structures for ceramics have been suggested for the Neolithic period (Bae 2006), it is the pit firing structures of the Bronze Age which provide the earliest clear evidence of pottery production.

For example, at the Gwanchangri site, which is one of the largest sites of the Middle Bronze Age Songgukri culture, twenty-five structures were reported as being pit firing structures used to produce the plain *mumun* pottery, which characterizes the Korean Bronze Age (KUM 2001). These structures are generally round-shaped hollows, in which an abundance of *mumun* pottery sherds, clear ash beds, and burned clays were discovered. Based on the stylistic features of the pottery from the structures, it was assumed that the kilns were used by villagers for domestic production. In addition, at the Daepyeong complex, a trench kiln was identified along with other types of firing structures, such as round shaped pit kilns, indicating that the kilns of this period varied in shape (KAI 2002). At the Gwanchangri site and Daepyeong complex, the firing structures were located in large villages, which suggests that in the Bronze Age,

villages required their own means of pottery production. The Jinjukri site (CNUM 1999), on the other hand, shows a different pattern, in which the kilns were situated right next to only a small number of dwellings. It should be noted that the Jinjukri site is situated on a location ideal for the access of superior raw materials and fuels.

Based on this evidence, it has been possible to discuss the issue of production organization during the Korean Bronze Age. For example, Cho (2006) has suggested that large household industries (e.g., Gwanchangri and Daepyeong) and nucleated workshop industries (e.g., Jinjukri) may have co-existed in this period. It is hoped that this issue of production organization in the Bronze Age, which was a period that witnessed the emergence of social complexity, will be further explored through the examination of new evidence in the future.

Second, firing technology at this time is another issue to be considered. The Bronze Age pit firing structures may appear similar to open firing structures in plan, but they would have been more efficient in maintaining certain firing temperatures, especially around 700-900℃ (Gosselain 1992). In addition, while it is impossible to separate fuel from the vessels in pit firing, the production of thin-walled, red-burnished *hongdo* pottery in these structures seems to indicate that Bronze Age craftspeople had the sophisticated skills which allowed them to control the firing atmosphere. Therefore, further investigation of this complicated firing technology through physio-chemical analysis may provide insight into the level of pottery production technology for the Bronze Age.

In addition, with regard to kiln technology, a series of experimental projects, as well as ethnographic works, have recently been conducted. Shoda (2006) has argued for the existence of two different firing methods for the Bronze Age: open field firing and covered field firing. In particular, by observing firing traces on *mumun* pottery, he suggested that during the Early to Middle Bronze Ages, the open field firing method was replaced by the covered field firing method, which occurred in association with the beginning of wet-rice cultivation. While his argument needs to be rigorously tested, his research illustrates the potential of adopting appropriate experimental and ethnographic measures in reconstructing ancient technology.

Finally, Ko and Bale (2008) have focused on the relationship between the production organization of prestige goods and social complexity at the sites of Daepyeong, in the southern region of South Korea, during the Bronze Age. In adopting Costin's parameters (context, concentration, scale, and intensity) to evaluate the degree of specialization, they suggested that the specialized

production of red-burnished pottery, greenstone ornaments, and bronze objects began as a result of an economic supplement to agricultural production. They also argued that the village elite applied both corporate and network strategies to compete with other communities. This study is significant in that it represents, for the first time, the application of Costin's parameters to Korean material; in doing so, attempts were made to examine the relationship between production specialization and social complexity.

2) Pottery Production of the Proto-Three Kingdoms and the Three Kingdoms Periods

While no Goguryeo pottery production sites with kiln structures have yet to be found, evidence from excavated production sites seems to suggest that Baekje and Silla pottery was mainly fired using the cross-draft kiln. Often built against the slope of a low-lying hill, the cross-draft kiln was a semi-subterranean or subterranean structure with a permanent roof. The floor plans of excavated kilns show that they were generally of an elongated oval shape, with the firing chamber, firebox, and stoke area clearly distinguished. However, these cross-draft kilns do not appear to have automatically replaced pit firing structures.

During the Proto-Three Kingdoms (AD 0-300) period, this new cross-draft kiln coexisted with the pit firing structures for some time, with the former appearing around the second to first century BC (Bonggeri, Sacheon), and the latter existing until the third century AD (Danghari, Hwaseong, Daeseongdong Kimhae) (KAI 2000; Yi and Kim 2000; BUM 1998). Although the adoption of the cross-draft kiln has generally been regarded as going hand in hand with the production of *tanalmun* pottery, the first cross-draft kilns of the Late Bronze Age were still used for manufacturing late *mumun* pottery (Bonggeri), while the late pit firing structures were used for firing both *kyongjilmumun* and *tanalmun* pottery (Danghari and Daesungdong). It, therefore, appears that the adoption of the cross-draft kiln was a complicated process and that the association between firing structures and their final products is not as clear-cut as previously believed. Consequently, the way in which the introduction of the cross-draft kiln may have influenced the actual practices of pottery production, such as the forming method used or the decoration technique adopted, has emerged as a key issue in production studies and requires further investigation.

During the Three Kingdoms (AD 300-676) period, the mode of production has also emerged as an interesting topic of research, with two different types of

pottery manufacturing sites identified in the Baekje area possibly shedding light on this matter. First, at the Samyong-ri site, in Jincheon, where dwelling structures were absent, more than twenty cross-draft kilns were discovered. It has been suggested that easy access to raw materials and fuel may have been a key factor in the establishment of this production location, and archaeological evidence from the site is indicative of an intensive level of ceramic production or, indeed, mass-production. Gwangju Haengam-dong and Naju Dangga are also seen to belong to this category of production site (Chennam Institute of Buried Cultural Properties 2007; MNUM 2004). A different mode of production, on the other hand, is represented by the kilns of Kwisan-ri, Taegok-ri, and Yongwon-ri, which were attached to agricultural villages (Chungcheng Institute of Buried Cultural Properties 2000; GNM 1990; Chungcheng Institute of Buried Cultural Properties 1999). Not only were the kilns limited in number, consisting of one or two cross-draft kilns found in and around settlements, the ceramic products that they produced were mostly utilitarian vessels, most likely manufactured for self-consumption by the villagers. The above evidence therefore points to the existence of two different modes of production for this period: the former sites representing a factory mode of pottery production and the latter sites representing a domestic mode of pottery production. That such varied modes of production existed raises another question regarding the relationship between the emergence of these different production modes and the events of social transformation which took place at the time.

The production technology of *onggwan* (large jar-coffin), which have been found in the Yeongsan River basin, also presents an interesting topic for research. At the Oryangdong site, facilities for the production of *onggwan* were identified for the first time on the Korean Peninsula. In all, nineteen kilns were found in close proximity to several burial sites, which consisted of *onggwan* tombs, stone lined tombs, stone chamber tombs, and, interestingly enough, tombs lined with *onggwan* fragments (NNRICH 2008). One of the *onggwan* kilns was found to be 10 meters long and 1.5 meters wide, with the overall shape of the kiln being quite similar to other cross-draft kilns of the time. Given that *onggwan* is generally over a meter long, it would have been very difficult for the craftspeople to form, dry, move, and fire the jars. Therefore, this special category of artifact, which must have been used as a prestige good, raises the question of elite control over craftspeople, as well as of production technology.

The control of craftspeople by the central elite is an issue which has also been examined through the Silla pottery found at Songokdong, which is one of

the major production sites in the Gyeongju region (GNRICH 2004). At Songokdong, forty-seven pottery kilns, clay procurement sites, pile buildings, and workshops (which contained holes in the ground where a potter's wheel may have stood) were identified. As with the Baekje site of Samyong-ri, Songokdong has been regarded as a location in which the mass-production of ceramic products took place. In addition, based on the prestige pottery excavated from this site, Lee (2003) has argued that the production and distribution of products at Songok-dong may have been actively manipulated by the central elite of Gyeongju, the Silla capital. This suggestion, however, has been based solely on stylistic analysis and has not been supported by any scientific methods. Indeed, given that an increase in the scale of production can not necessarily be taken to indicate control by the central elite of the craftspeople, studies in the future should take into account alternative ways of looking at state formation, the development of the central elite, and pottery production.

3) Exchange and Provenance Study

With regard to the issue of exchange, the systematic study of provenance, through which the movement of objects from producer to consumer may be traced at a high resolution, is most urgently required. Recently, there have emerged various attempts to do so by Korean archaeologists.

A goods example of this is the studies of provenance which have been undertaken on the prestige pottery of the Baekje state. This prestige pottery, which includes black burnished jars, has widely been approached as a symbol of the Baekje state used by the central elites to convey Baekje's authority over regional communities. As it was suggested that the relationship between the central Baekje administration and the indigenous elite would have been unilateral, prestige pottery found in burials from regional contexts was seen to represent the authority of the Baekje state in its peripheral territories (Park 2001). In other words, it was argued that the central administration would have distributed prestige pottery to the regional elite in order to enhance central authority.

Recent provenance studies using NAA (neutron activation analysis) and ceramic petrography have shown, however, that prestige pottery from regional sites may not have come from the Baekje center (Kim and Kwon 2005; Cho 2006). In other words, the prestige pottery found in regional contexts may possibly have been produced and exchanged among regional communities

without interference from the central administration. This is significant because it suggests that the relationship between state formation (and expansion) and Baekje-style pottery should be reconsidered. These attempts also bring to light three key points regarding the application of scientific methods: the establishment of appropriate archaeological research questions, the importance of sampling strategies, and the need to take into account the archaeological context when arriving at interpretations from the results of the analysis. Studies which take into account these factors will contribute greatly to our understanding of ancient exchange systems.

4. Discussion

The case studies presented above show that issues of pottery production and exchange have yet to be fully explored in Korean archaeology, although the evidence itself contains great archaeological potential. Here, the key issues surrounding the study of material culture will be summarized, and the significance of new perspectives which appear in the archaeological research will be discussed.

First of all, it has been demonstrated that the identification of production technology can indeed deliver much information about the people who manufactured and consumed material culture in the past. For example, as discussed above, the relationship between Bronze Age *mumun* pottery and *hongdo* pottery in terms of production technology is still not clear, as the production process of *hongdo* has not yet been fully investigated. In other words, in the absence of proper investigation, *hongdo* pottery has been categorized as a special pottery type (prestige good) separate from *mumun* pottery. But by reconstructing the processes of production (i.e., looking at raw material choicein raw material choice and manipulation, forming methods and the conditions of firing in raw material choice and manipulation, forming methods and the conditions of firing in raw material choice and manipulation, forming methods and the conditions of firing in raw material choice and manipulation, forming methods and the conditions of firing in raw material choice and manipulation, forming methods and the conditions of firing, clay manipulation, vessel forming, surface treatment, and firing practices), it will be possible to assess the level of production technology for these respective pottery types. In doing so, it will also become possible to consider the relationship

between production technology and production organization–in other words, who manufactured *mumun* and *hongdo* pottery. Based on this, the nature of production specialization in the Korean Bronze Age can also be appropriately evaluated.

Second, with regard to the introduction of the cross-draft kiln and its probable influence on ceramics during the Proto-Three Kingdoms period, the process of technological innovation is another issue which requires further consideration. Although the adoption of this new kiln structure is seen to have influenced pottery production processes, the specific nature of this influence on the final products has yet to be fully explored. In addition, as Sørenson (1989) has illustrated through his research about Scandinavian societies, technological change which we might regard as innovation does not necessarily result in social importance. In other words, the adoption of technological innovation may take on many different guises, with social contexts deeply influencing the processes of technological choice. Consequently, it can be stressed that the way in which communities on the Korean Peninsula may have actively transformed, according to their own needs and that of the social context, production processes associated with this new cross-draft kiln firing technology is another topic which requires further exploration.

Third, as attempts have been made to assess modes of production for the Bronze Age and later periods, the relationship between production organization and social complexity needs to be explored as well. This was, for example, attempted by Ko and Bale (2008), but it is too early to pass judgment on the validity of their concluding arguments regarding the technology of craftspeople, production specialization, and the relationship between production organization and social complexity during the Bronze Age. Nevertheless, this case study is extremely meaningful in that, using actual evidence from Korea to address key archaeological issues, it has demonstrated the potential of material culture studies in Korean archaeology. It is, therefore, evident that through further studies of production and exchange, it will be possible to fully explore the interactive link between social-political change, the status of craftspeople, and their influence on the production of archaeological materials.

Finally, although the current paper has focused on studies which deal with pottery, there have also been attempts, albeit limited, in Korean archaeology to consider issues of production and exchange with regard to other types of material, such as bronze, iron, glass, and wood. In the future, as such studies accumulate, it will also be of interest to compare aspects of production and

exchange for pottery vis-à-vis other types of material. By examining the production and exchange of other material goods in Korean archaeology, and by incorporating this into our interpretation of pottery, it will be possible to greatly enhance our understanding of people and their lives.

5. Conclusion

Material culture in Korean archaeology has mainly been used as a means of designing temporal and spatial frameworks, and so issues of production and exchange have been underexplored. Therefore, the current paper has summarized the related issues of technology, production organization, and exchange in an attempt to emphasize the need to investigate, in detail, the specific nature of the relationship between material culture and the people who produced and used it. In addition, by introducing and discussing several case studies in Korean archaeology, attempts were made to demonstrate the potential of exploring these issues of production and exchange. When appropriate research methods are adopted, these endeavors will contribute to a better understanding of the link between production, exchange, and social dynamics in ancient Korea. It is believed that the new perspectives examined will ultimately allow us to understand how material culture may have actually been experienced, and, therefore, involved in the day-to-day practices of those who manufactured, exchanged, and consumed it.

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