Clustering Patterns of Prehistoric Settlements

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Key words: settlement; clustering; settlement group; settlement group cluster

Starting from the emergence of sedentary settlement, prehistoric societies tended to form settlement aggregates of varying scale regulated by specific organizational and spatial principles. The aggregation of settlements can be summarized into two basic patterns, “settlement group” and “settlement group cluster”, and their characteristics evolved through time.

Early Patterns of Settlement Clustering

According to the current data, the patterns of early settlement aggregation are most clearly observable in the Pengtoushan Culture and the Lower Zaoshi Culture between 10,000 and 7,000 BP. The sedentary settlement sites of these two cultures are most densely distributed in the Liyang Plain of northwestern Hunan, where they show three important features.

First, the settlement patterns can be classified into “settlement group” and “settlement group cluster.” To date, 12 sites of the Pengtoushan Culture of the tenth millennium BP and 17 sites of the Lower Zaoshi Culture of the eighth millennium BP have been discovered. The distribution map of Figure 1 shows that most of the sites form small local groups of two to three settlements. On the one hand, the distance between the nearest neighbors within a settlement group is small, usually within two to three kilometers. On the other hand, the distance between settlement groups is significantly larger than that within settlement groups (Figure 1). In addition, these small local settlement groups tended to form regional groups, that is, settlement group clusters. During the times of Pengtoushan Culture and Lower Zaoshi Culture, the prehistoric settlements of Liyang Plain can be partitioned into at least two settlement group clusters—the eastern cluster and the western cluster—with a nine-kilometer-wide unoccupied zone separating them.

Second, there is size difference among the settlement sites within settlement groups. The average size of the settlement sites was 0.8 ha during the Pengtoushan times, and 1.35 ha during the Lower Zaoshi times. However, members of a settlement group show significant size variation. For example, the Bashidang site at Lixian was the only site occupied more than 3 ha in the Liyang Plain during the Pengtoushan times; moreover, the site was enclosed by a circumference moat and earthen walls. Similarly, the 4.5 ha occupation made Hujiawuchang the largest moat site in Liyang during the Lower Zaoshi times.

Third, the relationships between settlements, settlement groups and settlement group clusters were egalitarian and not that of domination and subordination. In spite of the difference in size and the presence and absence of moat, there was no indication of the emergence of social hierarchy. The few moats enveloping the settlements were functioned as drainage facilities. They were four to ten meters wide and less than one meter deep. Apparently, they were not functioned as fortification facility, and their construction did not need to mobilize large labor force. Therefore, these moat settlements were not the high status centers that were crucial for the acquisition and exercise of social power.

The development of settlement clustering is also seen in the lower reaches of the Yellow River. The Houli Culture, dated to the ninth millennium BP, showed settlement pattern similar to that of the Zhangqiu and Zouping areas of Shandong (Figure 2). To date, one settlement group cluster comprising six sites has been identified. Among them, Xiaojingshan and Xiaopo are only one kilometer apart that they obviously formed a settlement group. Luzhuyuan and Motianling are three kilometers from each other, forming the second settlement group. The distance between these two settlement groups is 12km. In addition, Xiaojingshan and Luzhuyuan are relatively large sites. Excavations in the former revealed
that the 5.6 ha site was enveloped by a moat.

The Xinglongwa and Zhaobaogou cultures distributed in northeastern China provide numerous examples about the development of settlement clustering in the 8th millennium BP (Figure 3). According to the surveyors, “the settlement sites distribution along the banks of Xibo and Banzhijian rivers indicate that some of the Xinglongwa settlement sites had aggregated to form small local groups. These settlement groups were defined by their spatial proximity over the landscape. The relationship between the settlements within the same group was more intensive than that with the distance settlements.” Furthermore, the surveyors also argue, during the times of Zhaobaogou Culture, “a number of small settlement groups comprising two to three sites emerged in the valleys of Xibo, Banzhijian and Yang. The locational pattern suggests that the sites distributed on the south bank of Xibo River can be divided into three equal distance groups. The northeastern group comprised of four sites; the central group comprised of three sites; and finally, only one site is discovered in the southwestern group.”

The Origin and Nature of Settlement Clustering

1. The historical origin of settlement clustering

Many regions in China witnessed the aggregation of Paleolithic localities. The Liyang Plain in northwestern Hunan of the middle reaches of the Yangtze River and
the Shandong region of the lower reaches of the Yellow River are the most representational.

To date, 38 Paleolithic localities have been registered in the Liyang Plain and its surrounding area. The clustering tendency of these sites is evident (Figure 4). Four Lower Paleolithic localities have been discovered and three of them are distributed in close geographic proximity (Group 5). Among the 13 Middle Paleolithic localities, five of them aggregated to form two groups (Groups 5 and 9). Moreover, Groups 8 and 10 also form obvious clusters, regardless that both have one site with uncertain date. Among the six Upper Paleolithic localities, three of them aggregated together to form Group 1. Among the three Terminal Paleolithic localities, two of them aggregated to form Group 4. In addition, nine out of the 12 undated Paleolithic sites aggregated to form Groups 2, 6, 7, and 11.

In Shandong, the distribution of microlithic localities apparently shows two levels of organization—group and group cluster. The present spatial data suggest that the microlithic sites of Shandong can be partitioned into six group clusters (Figure 5). Each of them comprises of a number of sites that they form smaller groups based on spatial proximity. For instance, the cluster occupying the neighboring area of Jinshui County comprises of 20 localities, which can be further partitioned into four smaller groups.

It is evident that the settlement clustering of the Neolithic was the continuous development of the similar clustering processes of the Paleolithic.

2. The nature of settlement clustering

Based on the present discoveries, the nature of settlement clustering should be considered in the following two ways.

First, aggregation of settlements was a way of life of early humans. Because settlement clustering occurred at a very early time, it was not pertained to the emergence of social stratification or civilization. Aggregation of population was a strategy fulfilling the basic social needs of human kind. Especially in the context of limited technology, the size of population was the fundamental measure of productivity. Aggregation of population was the optimal strategy that provided mutual support and insurance in adaptation to the natural environment, and thus facilitated the development of the human race. In the early and middle Neolithic, because of the emergence of agriculture and the domination of subsistence economy, human beings increasingly needed the mutual support of each other. In addition to maintain the security, they also needed to safeguard the land and subsistence resources.

Second, population clustering is the operation of the
institutions of marriage and kinship in the field of settlement. According to Yan Ruxian and Song Zhaolin, the Naxi people living in the banks of Lake Lugu that bordering Yunnan and Sichuan address clan as “er.” Their oral history depicts that there were six er during the early times. They paired to form inter-marrying partners. Under this dualistic exogamous arrangement, one participated in the daily domestic activities of one’s own clan. Due to the growth of the clan, er fission into smaller daughter clans called “shiri.” As a result, the original er started to have the features of the tribe; and the several “shiri” in the er could inter-marry.

The aborigines of Australia partition themselves into two exogamous moieties. It is striking to note that “the moieties are spatially segregated in the large camp. Each of moieties erected their hatched huts in localities of different elevations or on the opposite side of a river.”

It is evident from the ethnographies of the world that the prehistoric settlement clustering was very likely attributable to the practices of kinship and marriage. The settlements were likely the dwellings of clans and the settlement groups were that of tribes. The larger settlement in a settlement groups was that of the mother clan or the tribal center. The broader and larger settlement
group clusters, on the other hand, were likely representing closely related tribal groups.

**Changes in Later Settlement Pattern**

In the late Neolithic, a series of important changes in the clustering of settlements occurred, which signaled the transition from societies organized by kinship and marriage to regionalized and high integrated societies.

1. The sixth millennium BP

Two of the most important changes during this period were the emergence of walled settlements and the development of hierarchy among settlements and settlement groups. The walled site at Chengtoushan was a historical landmark of this development in the Liyang Plain.

The walled site at Chengtoushan was built in 6000 BP. Its appearance was not only indicative of the emergence of regional center, it also signaled the increasing importance of the settlement group in which it was a member. Within a radius of 4km of the walled site, three contemporary smaller sites aggregated with it to form a settlement group (Figure 6). Pengtoushan, therefore, was a walled settlement of a settlement group or tribe. In spite of the size of settlement group was small, it was a significant development none the less, because it signaled the more-or-less egalitarian relationship between the members of a settlement group was replaced by the domination and subordination relationship. Moreover, the egalitarian relationship between settlement groups was replaced by a hierarchical one. It also started the processes of the integration of the previously autonomous settlement group clusters.

2. The fifth millennium BP

This phase was characterized by the large-scale integration of settlement group clusters. The present data suggest that the integration followed three distinctive patterns.
Pattern A  This pattern featured one single center, complex organization and distinctive hierarchy. The settlements were ordered into three hierarchical levels. From top to bottom, the primary order was the walled center; the secondary order comprised of settlement groups within the core area; and the tertiary order comprised of the settlement groups distributed on the periphery. Jijiaocheng, a walled settlement, and its subordinating settlement group clusters, were a typical example of this development in the Liyang Plain in the northwestern part of Hunan.

Jijiaocheng was the walled center of a settlement group or a tribe during the Qujialing phase (Figure 7, map on the left). However, it was catapulted into the center of a settlement group cluster in the Liyang Plain during the Shijiahe phase (Figure 7, map on the right). Although Jijiaocheng occupied only 15 ha, it had become the center of 36 settlement sites densely distributed within an area of about 20 square kilometers. It was apparent that Jijiaocheng was the nucleus of these settlements. More intriguingly, five of the subordinating settlement sites occupied unusual large area of 3 to 4 ha. Therefore, it was likely that the core area was constituted of several settlement groups. Finally, settlements located in the periphery were obviously distributed outside of the core area of the entity. This settlement pattern is a clear indication of the emergence of a multi-leveled organization that involved several settlement groups and multiple levels of domination and subordination.

Pattern B  This pattern was characterized by two centers, that is to say, two contemporary walled centers with each controlling a sub-area of the settlement group clusters. The most revealing example is found in the Rizhao region of Shandong, where two walled settlements of the Longshan phase, Liangchengzhen and Dantu, emerged simultaneously (Figure 8). The settlements within the core distribution were divided into two sub-areas, and the two walled settlements were the centers of their respective sub-areas. Although the two walled sites coexisted only during the early and middle Longshan phase, the less than three kilometers separating them suggest that their relationship was collaborative and friendly. The decline of Dantu during the late Longshan phase indicates the increasing integration of the settlement group cluster and the transition from pattern B to pattern A.

Pattern C  This pattern comprised of one center, a number of small settlement group clusters, and integrates with simple organization. It had three distinctive features: first, large walled center; second, the occupants of the walled center were large-scale settlement group;
third, no core distribution surrounding the walled center and no large settlement groups distributed on the periphery of the core area.

The settlement sites of Liangzhu Culture distributed around the towns of Liangzhu, Pingyao and Anxi in Yuhang, Zhejiang are typical examples of this settlement pattern (Figure 9). The center of the cluster was located at the large walled site at Liangzhu, which occupied an enormous area of 290 ha. The site is often referred to the first city in Chinese prehistory. Within the circumference walls, Mojiashan, as well as more than a dozen localities have been identified as dwelling zones. This is an indication that the residents of the site could not be the members of a single clan, they were settlement groups, tribal groups, or small settlement group cluster. For instance, Yaojiadun comprised of three settlement groups of nine discrete “dwelling precincts.” In addition, other than two small settlement group clusters, there was hardly any settlement located beyond the walled site. This is an intriguing contradicting pattern that the walled settlement occupied exceptionally large area but lack followers settled in close proximity. Evidently, this is a new pattern different from the former two patterns. This unique configuration of settlement distribution suggests that Liangzhu was likely the cen-
Conclusions

The following important understandings are gained in the above prehistoric settlement pattern study:

First, prehistoric settlements aggregated in different scale. “Settlement groups” were the spatial aggregation of several settlement sites. “Settlement group clusters” were the spatial aggregation of settlement groups.

Second, the settlement clustering was the prevalent organization of human societies of the Neolithic times pertained to the ways of life and dwelling arrangement. It was the continuous development of the aggregation of Paleolithic population. The nature of these human aggregates was very likely resulted from the kinship and marriage practices of the past. Individual settlements were very likely the dwelling of the clans. Settlement groups were related to the tribes. Settlement group clusters were likely pertained to tribal cluster. Finally, the integration of settlement group clusters during the late prehistoric phase was attributable to the formation of more complex social organization.

Third, settlement groups and settlement group clusters coexisted. During the eighth to tenth millennium BP, the aggregation of settlements was mainly regulated by kinship and marriage. During the sixth millennium BP, hierarchy started to appear among the settlement groups. It was then followed by a phase dominated by increasing stratification, complexity and integration of the settlement group clusters regulated by a host of institutions that included kinship, marriage and regionalization.

It is important to stress that settlement pattern study in Chinese archaeology was closely connected to the pursuit of the origins of civilization and the study was deeply affected by the “regional settlement pattern study” of the international archaeology community. Many archaeologists focus on the similarity and difference of the material remains of walled sites and large sites but overlook the social relation between the walled sites, large settlement sites, and other smaller sites within the settlement clusters. Also overlook is the complex interplay and uneven development between size, hierarchy and strength. Consequently, settlement pattern study is comparable to pottery classification that emphasizes the similarity and difference between the same class of material remains, but lack in depth analysis of the social relations of the settlement sites of varying scale. As a result, these studies cannot provide insight on the dynamics of history, and fail to comprehensively reveal the complexity and evolution of social pattern.

References


Notes: The original paper was printed in Kaogu 考古 (Archaeology) 2007.8: 45–56. It contains 12 figures, written by Pei Anping 裴安平. The present abridgement is prepared by the original author and translated into English by Lee Yun-Kuen 李润权.