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SURVEY IN THE KITASHIRAKAWA-
OIWAKECHO JOMON SITE

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Excavation at the Kitashirakawa-Oiwakecho Site, Kyoto, and the Late Jomon Environment

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Introduction

The present report aims to envelop the results of the excavation at the Kitashirakawa-Oiwakecho site in the northern campus of Kyoto University. The excavation was carried out in 1978 to 79 for the purpose of conservation to the buried cultural properties in relation to the construction of new buildings at the Department of Physics. This site has been known to have been found first in 1923 by Professor Kosaku Hamada, the founder of the Department of Archaeology of Kyoto University, and has been highly evaluated as an unique site of the Jomon age in Kinki district. After the discovery of this site four localities within the area were examined by preliminary digging, but a judgment that main portion of this archaeological site had already been lost by leveling the ground at the time of construction of the Faculty of Agriculture was drawn out. Thereafter, nothing of real excavation has been done for fifty years long except for some surfacial collections of earthenware remains of the Jomon period in and around the area of this site.

In 1971, fortunately an exposure which revealed some sedimentary layers containing the Yayoi earthen vessels was confirmed at two meters depth below the ground level at the time of the construction of new buildings of the Faculty of Agriculture. Say, it was the rediscovery of the Kitashirakawa-Oiwakecho site. Subsequently, Kyoto University Center for Archaeological Operations was established, and it intended to make conservation and to research the site itself.

Succeedingly the excavations were planned being accompanied with the constructive works in the campus, and they brought about some new valuable discoveries. In this way an extent of this site was clarified and a paleogeomorphology of the area including this site was restored. Especially, the discovery of abundant plant remains associated with archaeological remains suggested the possibility to make sure the relationship among vegetation, climate and human activity at the time of the Late Jomon age. In such circumstances, this report deals with the results of the excavation at B G 31 section of this site. It includes the result of studies on the palaeoenvironment of the Late Jomon age.

Excavation

The Kitashirakawa-Oiwakecho site is situated at the northern campus of Kyoto University, which is in turn located in the northeastern area of Kyoto City. Therefore, it is possible to say that the area lies to the east of River Takano, the upper stream and a branch of River Kamo running down through the central part of the City from north to south.

The excavation was carried out two times separately. As the basement block of the old building had reached down to 1.5 meters beneath the ground level, the area surrounding the old building was first subjected to the excavation. Then, the first excavation was made for the upper horizon than the Yellow Sand Bed. This Yellow Sand Bed is a conspicuous marker bed throughout the areas of the University campus. In this site, this bed lies at the depth of 1.5–2.0 meters under the ground surface. Judging from the chronology by the artifacts accompanied with the bed, the age of this marker bed is confirmed to the early Middle of the Yayoi period. The excavation of the upper horizons was made for the area of 300 m² which was the area escaped from the basement block of the old building. The second excavation was done after the basement block and its surrounding areas were eliminated. This area of the lower horizons is 643 m², and those horizons range from the Jomon period to the Early Yayoi age.

The upper horizons were coupled by eight beds, though two of them were restricted in distribution. Therefore, remaining six beds were examined from horizon to horizon, and consequently, there were found forty-two gullies and post holes relating to the cultivations of the Middle age and of the Modern age. After dismantling of the old building, the Yellow Sand Bed was removed completely by bulldozers.

Succeedingly, the excavation to the lower horizons was carried on from January 4th of 1979 and ended at March 30th of the same year. By the time of this excavation an amount of peaty mud blocks were sampled for detailed studies of palynology, paleobotany, timber-qualification (dendro-histology) and paleozoology. All of them were taken mainly from the horizons of the Late Jomon age, and all the sediments excavated were examined in various ways, viz. grain-size analysis, sedimentary structure, petrography, paleocurrent analysis. Shieving and washing method was taken for the extraction of insects, seeds and cones remains, and detection for animal teeth and bones was also made. Moreover, in order to qualify the material nature of stone implements the study of magnetism for them was applied so effectively.

The settlement

The area excavated is a portion of the Kitashirakawa-Oiwakecho site which is situated at marginal part of the alluvial fan, so-called the Shirakawa Fan. The topography of this fan had been constructed with a vast amount of gravels and sands of granite origin which were transported by River Shirakawa running down along the eastern hills. Hitherto, some archaeological sites of the Jomon period have been reported from those areas on the surface of the fan. Therefore, it is probable that there were distributed the settlements of the the Jomon period on the low relief topography of the fan.

The present location excavated was a place on the slope facing northwest at an edge of the fan. Therefore, most of the area cover swampy environments of the past, and the sediments were consisted of sand, gravel and peaty mud. In this way, in order to obtain the plant and animal remains involved in those sediments, a systematic sampling design was requested at the time of the excavation. It was necessary to use co-ordinate system to check up the horizon which yielded the remains, the location, topographic data and so on.

At first, at the time of the excavation a levee was settled artificially perpendicular to the line of the original slope of the fan. Associating with it, other two levees which were E-W and N-S trends respectively were prepared for the co-ordination system with every 10 meters intervals. Those co-ordination system was designed to accord with integral number of the Land Co-ordination System. Thus, the sampling locations were selected as ten, among which N. 5,7,8,9,10 were allocated near the slope of the fan, while N. 1,2,3,4,6 were distributed to the area of northwestern portion, that is swampy locations. Every 70 kg. samples were taken from each location for the examination of seeds and cones. Furthermore, every 1.5 kg. samples were also collected for other studies. In order to obtain small samples like teeth and bones of small mammals, the shieves of 5.0 mm.-, 2.0 mm.-, 1.0 mm.- and 0.5 mm. of mesh were used during the excavation.

Stratigraphy

The present geomorphology of the area is represented by rather flat topography with the highest part of 62.3 meters high above the sea level, but the surface feature of the past might be rather low relief topography with uneven surface. Below the surface the excavation recognized that there were fifty-seven stratigraphic units. The distribution of those units is so complicated vertically as well as horizontally. For example, the basal white sand bed, probably the Latest Pleistocene fan deposits, lies only one meter depth at the

southeast corner of the area, while at the northwest corner, thick marshy deposits of the Jomon period has nearly to 4.5 meters thickness below the surface. Those surfaces are horizontal. Most of those sediments excluding the upper horizon are deposits under the subaquatic environment.

As a result of the sedimentary faces analysis, it becomes to be possible to reconstruct the paleogeographical features of the area. Thus, it makes clear the real figure of a cliff facing north at the edge of the Shirakawa Fan. It is certain that the buried cliff extends from the area of the eastern mountain slope to the river bed of River Takano of the west. There might be marshy environment in front of the cliff, and organic materials might be supplied directly to those marshy areas from thick forested area situated on behind fan surface. In this marshy depression thick muddy sediments were accumulated with intercalations of sand, gravel, clay and peaty substances. Those sediments of the Jomon period are classified into several units by the type of earthenwares accompanied. For some timber remains included in the peaty clays radiocarbon dating was pursued; the fourth peaty clay bed is dated as 960 to 1010 yrs. B.C. and the second peaty clay bed above is 500 to 640 yrs. B.C. by O. Yamada; on the other hand, radiocarbon dating by Gak is 1290 yrs. B.C. for the fourth peaty clay bed and 940 yrs. B.C. for the second peaty clay bed respectively.

Paleovegetation

Paleobotanical studies were carried out for the reconstruction of the vegetation of the Jomon period around the Kitashirakawa-Oiwakecho site. The peaty mud deposits were analyzed by means of pollen diagram, treatment of seeds and cones remains and of histology of timber remains. Consequently, it becomes clear that some trees like *Cyclobalanopsis* (*Acer* and *Cornus*) were forested as common trees of that time. It is also possible to deduce that evergreen dense forests on the Shirakawa Fan in those days were dominated by *Quercus gilva*. In the mountain slope area back of the fan district, however, the forest of *Castanopsis* might be characteristic. And also, the oak trees would be an important member of the upper stream region of that granite gorge of River Shirakawa. Those climax forests were represented as typical vegetation of this area during the time from the Middle to Final Jomon period. The final stage of those climax forests was demarcated by the retreat of *Quercus gilva* and by the appearance of the secondary forests, grassland and barren earth.

Horse chestnuts, *Aesculus turbinata*, were unearthed abundantly from the marshy deposits. It is no doubt that those plants were *in situ*, and those might

be available as main foodstuffs for the Jomon people. In addition, there were other kinds of seed and fruit in the areas of the mountain slope nearby. Those were also available for gathering habit of those Jomon people. Therefore, it is reasonable to mention that the areas covering the Shirakawa Fan district with marshy forests and the mountain slope district of the east were the most favourable for hunting and gathering life habit at the time of the Jomon period. Those assumptions are evidenced by the finding of human foot prints on the surfaces of some peaty clay beds.

Although nothing of animal bone was found, 135 carapace remains of insect were identified from the peaty mud. They are composed mostly of fragmental carapaces of the beetles and those of other kinds of insect. It is also important that some pelletlike substances have been discovered in those peaty mud, because the presence of those substances indicates the presence of birds and small mammals in the surrounding areas of the site, even though definite remains has not found. It will be helpful to reconstruct the past environment of the area.