

## Keynote Address : From Affluent Foraging to Agriculture in Japan

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## Keynote Address:

### From Affluent Foraging to Agriculture in Japan

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Ninety-nine percent of human history is based on a foraging economy. Yet during the last ten millennia foraging societies have undergone great changes. Most hunter-gatherers abandoned traditional foraging activities to engage in agriculture and other new subsistence pursuits. And the small number of those who continued foraging were driven into the harshest natural environments on earth, to lead a poor economic life. However, in a temperate forest zone of each side of the Pacific Ocean—the west coast of North America and Japan—so-called “affluent foraging societies” developed. This symposium will examine various issues relating to such affluence. In this keynote address I wish to point out one or two of the most important points and further to indicate several characteristics of an affluent foraging society in Jomon Japan.

By what measure can we conclude that these “affluent foraging societies” are more affluent than other foraging societies? How is affluence determined? Population density has been traditionally used to measure the affluence of a foraging society. Since the classical research of A. L. Kroeber, there has been a great deal of research on analysis of population density of such societies, and the excellent studies by M. A. Baumhoff, and more recently by S. Koyama on the analysis of Jomon population, follow in this tradition. Such studies on factors that bring about particularly high population densities, and whether the density in each district is reasonable or abnormally high, always becomes a subject of discussion. The analysis of these questions invariably leads to the study of relationships between environment and human population.

As is well known, one of the major factors supporting a high population density is generally the affluence of food resources. It is not easy, however, to grasp quantitatively and accurately what characteristics of environment are connected with what type of subsistence to support the population. To determine this it is considered necessary to carry out accurate and descriptive surveys of the natural environment in question. It is also necessary to evaluate the environment in relation to the specific characteristics of each subsistence activity. Research on existing foraging activities also concentrates on the assessment of the environment by the foragers themselves. This strategy must be replaced, of course, when considering the precise reconstruction of natural environment through technologies such as pollen analysis.

However, the factors that bring about and maintain an affluent society require high technical levels to utilize the scanty as well as the rich resources. It is well known that the California Indians developed effective utilization of food resources by discovering new methods of pulverizing and water-leaching acorns, instead of burying them in earth and pouring water over them to extract the poison. In Jomon society of Japan, the technical level of such techniques is also regarded as sophisticated, which in itself became a major factor in bringing about a long-lasting foraging society in eastern Japan.

The second important, if controversial, point is the study of the change from foraging to agriculture. On the one hand there exist various factors promoting the evolution from a foraging economy to agricultural systems, yet on the other there exist various factors restricting such an evolution. Such factors can be both internal and external, and the specific characteristics vary according to the conditions of each local society. But there is no doubt that both promoting and restricting factors for evolution have ecological as well as cultural components.

What kind of characteristics did such factors give to the evolution of foraging society? Here I would like to cite an example of Jomon society in Japan.

In the Jomon period, particularly after the Early Jomon period, Japan had notable local differences between east and west in terms of natural environmental and cultural characteristics. With central Japan as a rough border line, most of the eastern area was covered with temperate deciduous trees, while most of the western area was covered with evergreen forests. Such differences in ecological conditions were reflected in food resources. In eastern Japan, for instance, a great amount of good quality nuts existed and the rivers were rich in fish, particularly salmon. On the other hand, nuts of evergreen trees in western Japan were generally smaller and river fisheries were poor, all of which shows that food resources were obviously less attractive than in eastern Japan.

A great difference appears in the density and size of archaeological sites, which reflects such conditions. In the most densely populated Middle Jomon period, the population reached 3.0/km<sup>2</sup> in the Kanto area and 2.59/km<sup>2</sup> in the Chubu area; in the Kinki area the population was only 0.08/km<sup>2</sup>, and 0.13/km<sup>2</sup> in Kyushu. The difference in population density between eastern and western Japan during the Late Jomon period diminished somewhat.

The difference is not limited to population. Many pottery vessels in eastern Japan, for example, have quite a decorative pattern and various shapes. Particularly in the Final Jomon period, Kamegaoka-type vessels, with an intricate erased cord-marking, prevailed widely over eastern Japan after the Late Jomon period, whereas in western Japan, the majority of vessels are non-marked. But the appearance of Lunshanoid Black Polished vessels in western Japan makes us realize the existence of a different culture from eastern Japan. These non-marked vessels evolved into a new style of Yayoi ceramics.

Thus, eastern Japan seems to have surpassed western Japan during the Jomon period in terms of food resources and population. The technology of ceramics in

eastern Japan is far more elaborate than that in western Japan, and we can assume that an extremely affluent foraging society was evolving in the eastern part.

When and how did this affluent Jomon society develop into an agricultural society? There is no established theory among Japanese researchers on this point. Many traditional archaeologists deny the existence of agriculture in the Jomon period, and conclude that agriculture started in the early Yayoi period only after rice farming was introduced from Mainland China or from the Korean peninsula.

However, as will be reported by Kotani later in this volume, there have been an increasing number of discoveries of domesticated plant remains from the Late and the Final Jomon periods. And quite a few people, including myself, conclude that some form of agriculture took place before the spread of paddy cultivation in the Yayoi period. I suspect that by the Final Jomon period shifting cultivation, with millet and roots as its main crops, was common in western Japan. Because of the time constraint, I cannot elaborate on this topic here, but at least we can see that there were more than 10,000 ha under shifting cultivation around 1950, and more than 50,000–60,000 ha in the 1930's. Tracing history back further, we find more land was used for shifting cultivation, and that it was widespread throughout the mountainous region of western Japan. Considering the nature of this shifting cultivation, we can see that it did not develop from paddy cultivation, but rather preceded it.

The shifting cultivation of millet and root crops is connected with traditional techniques since the Jomon period. Judging from its characteristics, shifting cultivation in Japan is related to that of the mountainous districts of Southeast Asia and South China. The luciphyllous forest in western Japan is ecologically similar to that of western South China. Therefore, in introducing agriculture, certain factors were easily accepted in western Japan. On the other hand, Jomon society in the deciduous forest zone of eastern Japan resisted rice cultivation for some time, even into the Yayoi period.

The affluent Jomon society in eastern Japan adjusted itself very well to the natural environment of the deciduous forest zone, to attain a high degree of maturity as a foraging society. But such an adaptation made this society strongly resist the impact of agriculture and intrinsically restricted evolution toward an agricultural society. On the other hand, Jomon society in western Japan, whose degree of affluence as a foraging society was low, had an incipient agricultural society. Furthermore, in the next period of Yayoi, western Japan (unlike eastern Japan) accepted rice cultivation quite smoothly, and developed a viable production method and life-style.

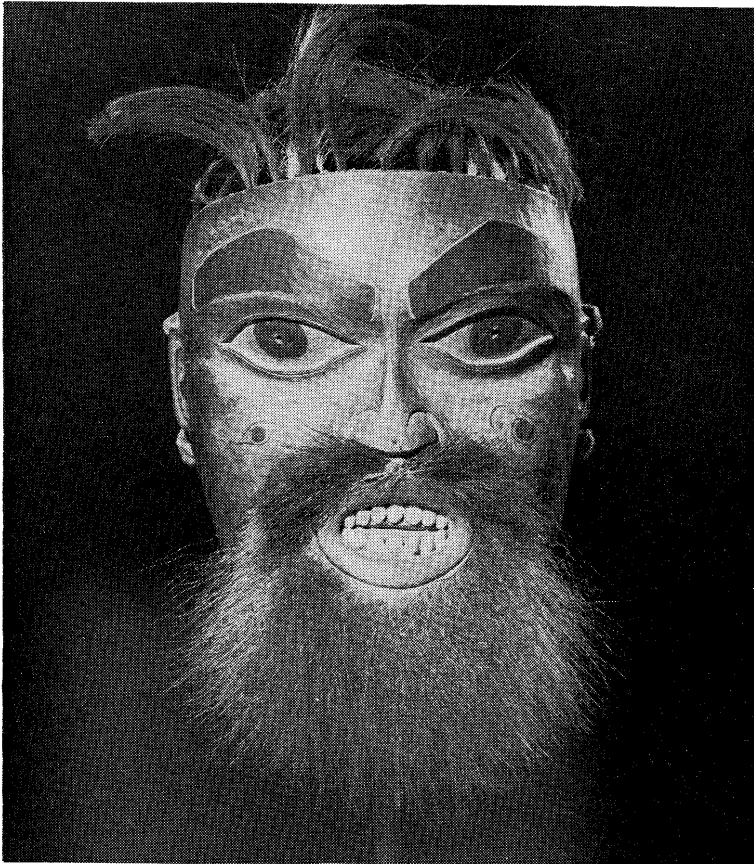
Thus the two Japanese foraging societies, established in the evergreen forest zone and the deciduous forest zone, seem to be raising a very interesting issue in considering the affluence and evolution of foraging society.

Here I would like to conclude my keynote address to the opening of this symposium, to and wish you all a stimulating, fruitful, and enjoyable week.



# Part I

## Foragers of the Eastern Pacific Coast



Tlingit Shaman's Mask  
(Courtesy of American Museum of Natural History)

