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Re-examination of the Maejima Shell Mound and the Maejima Seashore Remains, located at the Aitsu Marine Biological Station

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1. Origin of the Maejima Shell Mound

The Maejima shell mound was discovered in 1956 by T. Sakamoto, who found pieces of earthenware made in the Jomon period and obsidian rock chippings near to the Umedono-tsuka Mound, which is located next to the Aitsu Marine Biological Station. The discovery was a memorable event in the history of the study of Jomon Culture in the Amakusa district.

In September to November 1995, before construction of a new building at the Aitsu Marine Biological Station, Kumamoto University staff conducted a special survey of the mound and Jomon period remains. Excavation of part of the shell mound produced evidence that the site is not simply a shell mound; it includes remains (Obata, 1995; Annual Reports from the Laboratory for the Excavation of Cultural Monuments at Kumamoto University, 2: 13-32).

This article presents the results of an analysis of the remains found in the layer containing shells (layer I), and age measurements (radiocarbon dating). Furthermore, I analyze the remains and radiocarbon dating of a site located on the seashore.
The remains contained in the mound are listed in Table 1. Column A shows the number of shells obtained at the time of excavation. Column B is the number of shells collected after washing.

1) By weight, about fifty percent of the remains were barnacles (Fig. 9).

2) Among the gastropods, two species, *Batillaria* sp. and *Cerithideopsilla cingulata* were most abundant; two bivalves, *Crassostrea gigas* and *Anomalodiscus squamosa* were also abundant.

3) Most species of mollusk were small, below 1 cm in length.

4) There were several small species that live on sea algae.

5) Most of the species found inhabit rocks, sand, or sandy mud on the seashore. However, there were also some shellfish that inhabit the sand on the sea bottom at depths

of 10 ~ 50 m, such as *Fusinus perplexus ferrugineus* and *Neverita hosoyai*.

6) No fish bones were found in the samples.

7) Some shells contained small holes drilled by shell eaters, such as *Neverita hosoyai*.

These findings are evidence that the barnacles and shellfish contained in the Maejima shell mound were not collected for food, but were for mixing in field soil as a kind of fertilizer. The radiocarbon dating at 200 ± 60 years B.P. (date No. 1 using a shell) and 630 ± 60 years B.P. (revised) supports this conclusion.

2. The origin of the Seashore Site

Numerous artifacts, such as stone tools and fragments of earthenware dated to the Jomon period, have collected on the seashore in front of the Aitsu Marine Biological Station. We have named the site the Maejima Seashore Remains. Artifacts were found at two separate locations: A and B (Fig. 2). At Location A, we found shells of *Tegillarca gigas*, a bivalve species that is extinct in Amakusa. At Location B, we found a sandy layer less than 30 cm below the surface that contained *Anomalodiscus squamosa*. The layer was dated at 6,090±50 years B.P. (date No. 2 using a shell), the same date as determined using an animal bone found at Location A (date No. 3, 6,320±50 years B.P.). The remains in the layer consist of barnacles and many shells (Fig. 8 (B)). Column C of Table 1 shows the number of shells recovered from the Maejima Seashore Remains.

The figures show the following characteristics of the remains:

1) The oyster *Crassostrea gigas* is the dominant species.

2) The bivalve *Tegillarca granosa* is more abundant at Location A than at Location B.

3) Bivalves are more abundant than gastropods.

4) The size composition of the species of Potamididae, such as *Batillaia zonalis*, reflects that of a natural population; small shells are more abundant than large shells.

5) Most species found occur in sandy mud or on rocks in the intertidal area.

About 6,000 years ago, during the Jomon period, the sea level was about 6 m higher than it is today. Therefore, remains are expected to occur at locations at least 6 m higher than the present shoreline. However, the Maejima Seashore Remains are located on a part of the shore that is only exposed at low tide, and remains have also been found at several other seashore or shallow sea bottom sites near the Aitsu M. B. S. (Fig. 1).

Yamasaki (1972) postulated that the large earthquake in southwestern Kumamoto prefecture in 744 lowered land in the Amakusa Matsushima area. The Amakusa islands are still sinking, albeit slowly. Further study is needed to confirm whether land actually subsided. In addition, further study of the remains from the Jomon period in the Amakusa Matsushima area is necessary.