

Was there a pre-lapita, Japanese Jomon, cord-marked pottery occupation in Vanuatu?

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Dr. Jose Garanger, then of Centre National de la Recherche Scientifique (CNRS) in Paris, carried out archaeological research work on Efate Island in Vanuatu during the 1960s. In addition to excavations, he conducted surface collections in the Mele Plain (Figure 1). Fourteen distinctively different potsherds, consisting of 13 body sherds and one bottom sherd, were discovered from the surface (Figure 2). Thirteen of these potsherds (Garanger 1971, Fig.6 and 1972, Fig.33) were illustrated in Garanger's report and classified as paddle-impressed pottery (1971, p.58)¹.

This paddle-impressed pottery did not appear in any of his excavated sites and consequently, he was unable to place them in the chronology of Vanuatu prehistory. Sinoto

¹ A photograph of the Mele sherds was presented in August 1969 at the Sigatoka congress (Garanger 1971, Figure 6) and reproduced in a thesis submitted in 1970 where it is stated that "le décor de ces tessons était obtenu à l'aide de cordelettes... roulées sur la surface... et l'aspect obtenu rappelle les décors cordés du Jomon ancien, avis partagé par Y.H. Sinoto" (Garanger 1972:107-108 and Figure 33).

C. Serizawa after his visit in Honolulu in June 1971, went in Paris, in J. Garanger's laboratory, in April 1976 to look at and compare the Mele cord-marked sherds with Jomon sherds he had brought for the purpose. He again confirmed the similarity of the Mele and Jomon sherds.

recognized that the decorations on these pot sherds were very similar to Japanese Jomon (cord-marked) pottery of Japan. Garanger sent three sherds to Sinoto (N°8, 9 and 14). Upon closer examination of the sherds, Sinoto was convinced that they were nearly identical to Japanese Jomon designs. When Chosuke Serizawa, then Professor at Sendai University, Japan, visited Sinoto in Honolulu, he agreed that the designs were made by the same cord marking techniques as the Jomon. He later published a short article (1972) and stated that those three potsherds can be classified as Ento Kaso C and D Types (Figure 3). These types are well-known in the northern region of Honshu. They belong to the Early Jomon Period, dating about 5000 years B.P.

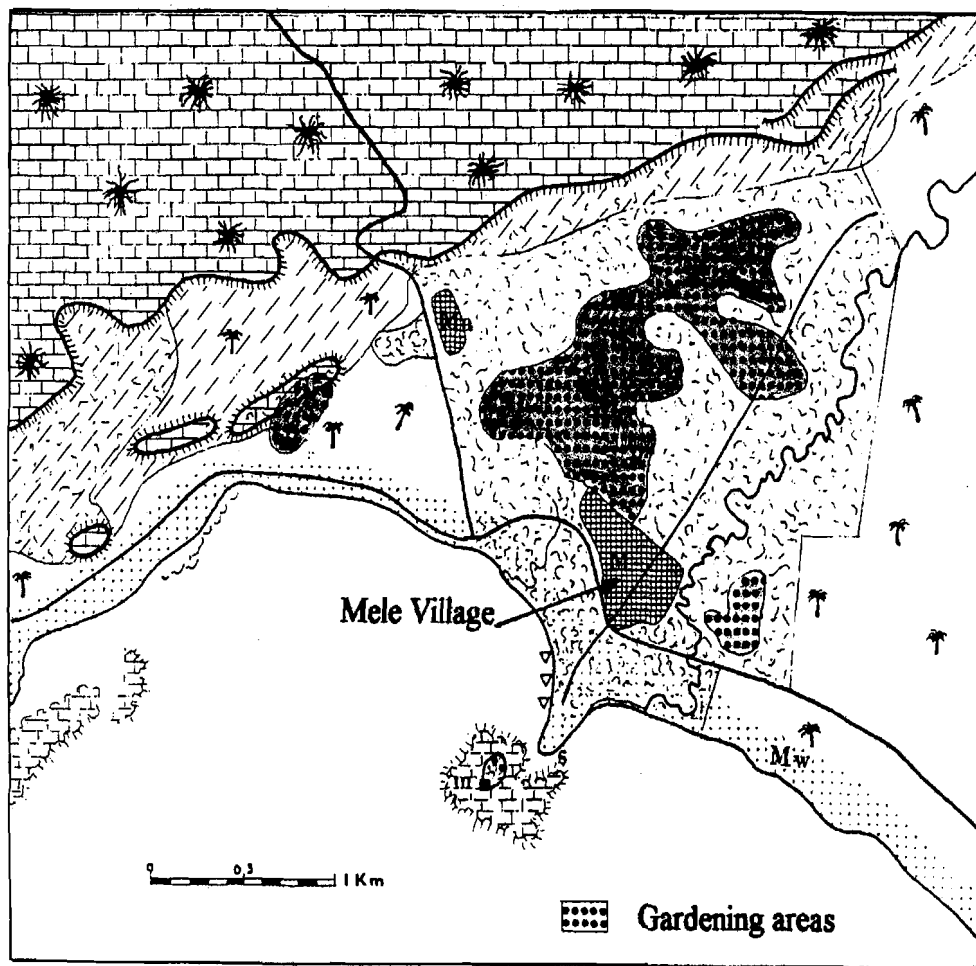


Figure 1
Mele Plain on Efate Island, Vanuatu (modified from Garanger 1972, Figure 30).

Japanese Jomon, cord-marks

There is “cord-marked pottery” reported out side of Japan. However, most of it exhibits paddle-impressed designs applied by a cord-wrapped paddle (Figure 4a).

The fundamental difference between Jomon cord-marks and other cord-marks is that the Jomon cord-marks are made by rolling a piece of cordage directly on the surface of a pot while the clay is still soft. A brief explanation of the basic techniques of Jomon cord-marking follows.

A single strand cord when rolled on clay, makes simple linear impressions. When the right twisted cord is rolled horizontally the lines rise obliquely (Figure 4b), with a left-twisted cord the lines descend obliquely (Figure 4c). The most common Jomon cord-marks were made using double-stranded cordage, which was made by twisting together two single-strand cords (Figure 4d). The thickness of the cords dictate the different widths of the impressions (Figure 4f and g).

There were variations in twisted cords which made for a variety of impressed designs (Figure 4e and Figure 5a-c), and other types of designs were made by cord-wrapped sticks (Figure 5d-f) or a carved roulette (Figure 5g).

Cord-marked potsherds from Mele Plain

There are three pot sherds from Mele that have cord marks distinguishable as Japanese Jomon Ento Kaso C and D Types.

Sherd N°9 (Figure 2) exhibits herring-bone cord-marks. Two pieces of single strand cords, one right-twisted and the other left-twisted, are doubled over and linked with one side twisted right and the other side twisted left. Rolled horizontally, this makes a herring-bone type cord-mark (Figure 5h).

Shard N°7 (Figure 2) exhibits cord-marks made by a special device. First, a thin single strand cord is fasten in a hole in the middle of a stick, then one end of the cord is wrapped around one half of the stick clockwise and the other end is wrapped counterclockwise on the other half. Rolled vertically, it produces a design as seen in Figure 5i. This design occurs only on Ento Kaso pottery.

Sherd N°8 (Figure 2) has a design produced by the impression of a cord-wrapped stick (Figure 5d).

The rest of the Mele cord-marked sherds seems to have common Jomon designs, though only a few are clearly visible (Figure 2). These cord-mark designs occur throughout Early to Late Jomon Periods and it is difficult to correlate with any specific types. However, notable comment was made by Prof. Yoshizaki of Hokkaido University (personal communication), that these cord-marks appear to represent a discrete Ento Kaso assemblage.

Close examination revealed that the 14 sherds probably represent a number of different pots. The physical condition of these sherds appear no different from the usual archaeological specimens, not overly weathered or eroded.

■ Petrography of Sand Tempers

In 1993, Drs Richard Shutler and William R. Dickinson initiated currently on-going petrographic studies and electron microprobe analyses of distinctive microperlite sand grains of Mele and Japanese Ento Kaso C and D Type potsherds for comparative studies. The results of these studies showed a remarkable similarity of temper materials (Figure 6).

In selected sherds, unusual microperlitic glass grains from the Mele and Japan material were found to be optically and chemically indistinguishable. Thus the conclusion can be drawn that the cord-marked sherds found on Mele Plain represent pottery manufactured in northern Honshu. None of the Mele cord-marked sherds have tempers indigenous to Vanuatu. This means that the cord-marked pottery was not manufactured in Vanuatu.

Summary of Petrographic and Electron Microprobe Analysis of Mele Cord-Marked Sherds

Our petrographic conclusions are based on a study of the following materials in thin section: (a) cord-marked sherds from Mele Plain, (b) selected Japanese Jomon sherds (n=14), principally from Aomori Prefecture (n=11), (c) indigenous prehistoric sherds (n=40) from Efate, neighboring offshore islets, and the nearby Shepherds Islands of central Vanuatu, (d) the sand in a soil sample from Mele Plain: and (e) diverse prehistoric sherds (n=135) from elsewhere along the New Hebrides island arc, which includes both the islands of Vanuatu and eastern outliers of the Solomon Islands. Our work has also included electron microprobe analysis of distinctive microperlite sand grains present in selected Aomori (n=4) and cord-marked Mele sherds (n=5) that are closely comparable in decorative style.

Summary of Temper Relations

As the cord-marked sherds from Mele Plain and Jomon sherds from Aomori Prefecture display closely similar decorative styles and contain closely related temper sands which include, in selected sherds, unusual micropelitic glass grains that are optically and chemically indistinguishable, we conclude that the exotic sherds found on Mele Plain represent pottery manufactured on Honshu.. As astonishing as this conclusion may seem, a different interpretation would require superimposed coincidences jointly straining credulity to the breaking point. The challenge is to explain how and when bona-fide Jomon pottery was transported from Aomori to Efate.

Geochemical analysis of clay bodies is a potential alternative approach to the problem ceramic sourcing (Hunt and Graves 1990; Ambrose 1992). Clay analysis is most useful in attempts to test whether given clay bodies were derived from specific clay deposits, a question which temper analysis cannot address except where non-plastic inclusions provide natural temper. Clay analysis is not so useful for specifying unknown provenances because the weathering that destroys bed rock to make derivative clay tends to mask any bedrock-related provenance signal in favor of a climatic signal, which is bound to be broadly similar throughout the region of interest (Dickinson *et al.* 1996).

Nevertheless petrographic analysis of non-plastic inclusions and clay analysis should not be viewed as “competing” methodologies. Rather, they should be regarded as “complementary”, and that whenever possible, both should be applied to the same assemblages. Only in that way the correspondences and inconsistencies between the two can be worked out (Personal communication from Kirch to Dickinson).

Clay analysis will be attempted in collaboration with Japanese archaeologists and geologists, in the near future.

■ Is there more Jomon marked pottery in Mele Plain?

Garanger originally reported that he prospected three areas in Mele Plain (Figure 1). The main prospected area in the middle of the plain is approximately 1.9 km long and 0.7 km wide. The other two areas are small, approximately 430 m by 200 m, one is to the East of Mele Village and the other is at the Western end of the bay.

In July of 1994, Dr. Mary Elizabeth Shutler went to Mele and placed test pits in every cleared spot where the surface could be seen, but she did not find any cord-marked pottery.

Before this conference, Drs. Shutler and Sinoto spent three days prospecting through the cleared gardens in Mele but no cord-marked sherds were found.

■ Chronology of the Mele sherds

Sherds nos. 3 and 5 sherds were used for thermoluminescent (TL) dating by Mr.O.B. Lian of the Physics Department, Simon Fraser University. Uncertainty in the total dose rate is difficult to estimate without knowing the correct gamma dose rate from the soil, and the potassium content of the sediment extracted from the sherd. An age of $(9 \pm 1 \text{ Gy}) / (3.2 \text{ Gy/Ka}) = 3 \pm 1 \text{ Ka}$ may be estimated. Therefore, at the current rate of uncertainty an age range of 2-4 Ka is entirely possible.

TL dating of sherds N° 7 and 9 has just been completed by Mrs. Doreen Stoneham, Research Laboratory For Archaeology and The History of Art, Oxford University. She stated that she has treated them as authenticity tests since there were some missing information. This means that a $\pm 20\%$ standard deviation on the results are applicable. The resulting dates were:

EF22-S-3 SFU	Lab #:A23	2000 - 4000
EF22-S-5 SFU	Lab #:A24	2000 - 4000
EF22-S-7	581x12	3500 - 5300
EF22-S-9	581x13	3600 - 5500

Sherds nos. 7 and 9 exhibit most characteristic Ento Kaso C and D designs. Petrographic analysis shows that they came from Aomori Prefecture and their dates match well with Japanese dates.

Although sherds N° 3 and 5 exhibit generic Jomon cord-marks, and were dated a bit later, it is still appropriate to associate these with Ento Kaso pottery, especially in view of the fact that repeated contact from Japan was highly unlikely.

The Mele cord-marked sherds date from about 3000 B.C., or 2400 years prior to the oldest radiocarbon dates, at about 600 B.C., reported by Garanger (1971:54) from cultural horizons in Vanuatu. The cord-marked Mele sherds appear to be wholly out of place in time as well as in space.

How did these Jomon pottery reach Mele?

Garanger states that there was definitely no mix-up of potsherds from elsewhere, which rules out curatorial error.

The following possibilities are presented with some qualifying remarks.

Possible modern importation

1. Pottery collectors brought Jomon pottery from Japan to Mele.

This is most unlikely, because collectors are interested in complete pots, not small sherds.

2. Potsherds were accidentally brought in with soil from Japan.

There was such an incident, when Jomon potsherds, mixed with soil, were brought from Honshu to the Bonin Islands (Intoh, personal communication to Dickinson). Was any soil transported from Japan to Vanuatu? This is also most unlikely.

Possible importation in ancient times

1. Joyce (1912) mentioned that he was struck by the close resemblance in quality and ornamentation between pottery from early British New Guinea and prehistoric pottery found in ancient shellmounds and residential sites in Japan (1912: 545).

2. Solheim (1968) has made a case for the Japanese origins of Melanesian coiled pottery on technological grounds.

3. Bulmer (1985, 130) stated that, “unless one wishes to argue that pottery was invented independently in Papua New Guinea, or adopted from neighboring Austronesian-speaking pottery communities, it seems most likely that Northern Papuan pottery had its origins elsewhere, outside of Papua New Guinea. A search of the literature for adjacent regions has shown that the only pottery at all similar in decoration and form in the western Pacific-eastern Asia area is found in the earliest phases of the Jomon pottery of Japan, the earliest of which dates to late Pleistocene”.

In all three of the above cases, as well as in the subsequent pottery cultures in Melanesia, no Jomon cord-marked pottery was present. However, a non-cord-marked pottery existed during the initial stage of Jomon culture. The designs of such pottery, for

example, in Kosegasawa Cave in Northern Japan (Yawata 1961) were compared with those from Melanesia.

Probably this is the first time that Japanese style cord-marked pottery has ever been found in Melanesia.

Drift voyages

If the cord-marked potsherds from Mele came from Japan during ancient times, they may have arrived through various routes.

1. There was a remarkable incident of a drift voyage from Marshall Islands to Vanuatu in 1951, which shows such an earlier drift voyage is possible. Seven people left Kwajalein in a small sailboat about 8 m in length, on July 18, 1951. After a few days they were hit by a storm and carried near Bikini Atoll. On November 4, 106 days after they had left land, they reached the shore of Lamaru plantation, Island of Epi in the center of Vanuatu, about 1800 miles south of their point of departure (Anthonio, 1952).
2. There are a number of recorded incidents of drift voyages from Japan to central Micronesia. It may be possible that during the Jomon period boats drifted from Japan to Vanuatu, either directly or indirectly. Even if humans did not survive, pottery may have reached the Vanuatu shores. So drift voyages cannot be ruled out.
3. Colin Smart (1965) conducted archaeological excavations on Kabara Island in the Southern Lau Islands. He illustrated potsherds from his excavations with incised, shell-impressed and appliqué decorations. Among them are sherds with spot-relief decorations. They resemble early Jomon designs made by rolling carved dowels or roulettes (Figure 5g). Sinoto searching for the whereabouts of these sherds has been unsuccessful to date.
4. Some physical anthropologists argue that there may have been expansion of Jomon people into Melanesia and to Polynesia (Brace 1990 and Katayama 1990)(Figure 7).

■ Conclusion

Thus far, no Jomon sherds have been discovered in association with local Mangaasi ware. The Jomon sherds found from the surface of Mele Plain may be derived from a deeper cultural horizon, separated from the upper Mangaasi-bearing deposits by undetermined thickness of sterile soil.

Was there an episode of contact by Jomon period drifters on Efate? How a handful of such sherds were found inland in Mele remains a mystery.

It may safely be stated that these cord-marked potsherds from Mele were manufactured in Japan about 5000 years ago. However, we are unable to say conclusively how and when these Jomon potsherds came to Vanuatu. The currently available evidence suggests a one time accidental contact. However, we archaeologist must continue to be cognizant of the potential occurrence of Jomon (cord-marked) pottery and associated artefacts in the western Pacific region.

A systematic survey and test excavations in Mele gardens are being planned for next year.

Aknowledgments

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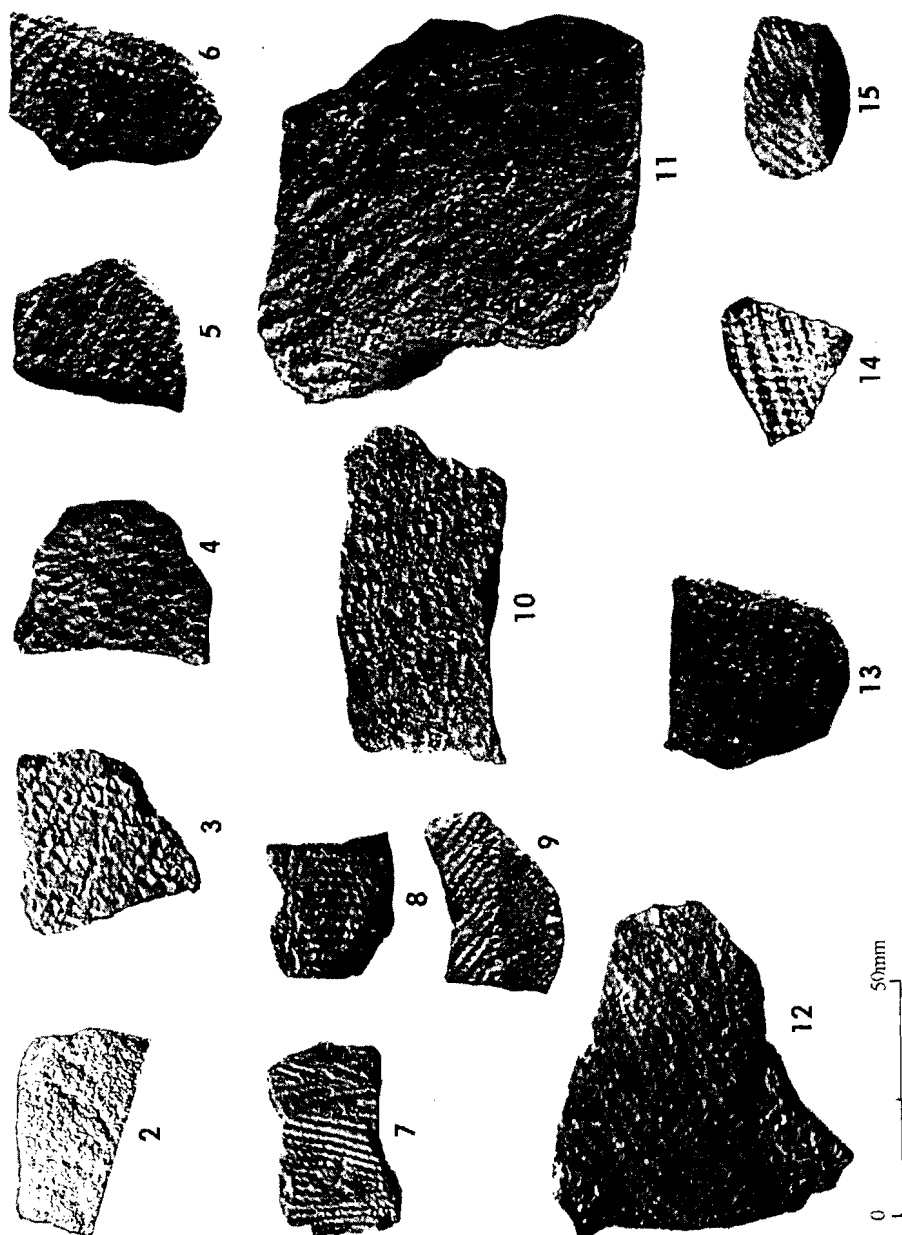


Figure 2
 Cord-marked potsherds from Mele Plain, Efate Island, Vanuatu. Collected by Garanger.
 No. 1 sherd is not included. Portions of all the sherds were cut off for petrographic analyses.
 Nos. 3, 5, 7, and 9 were used for thermoluminescence dating.

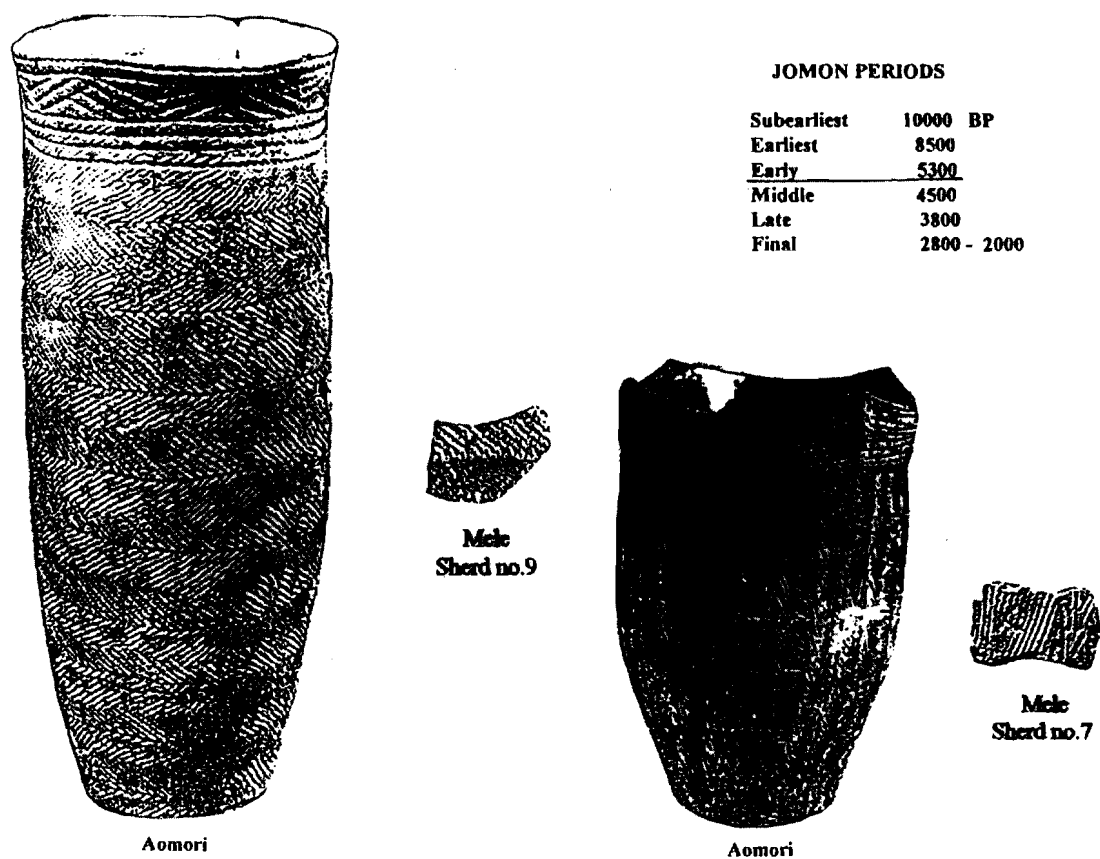


Figure 3
Ento Kaso Pottery. a, Ento Kaso C Type; c, Ento Kaso D Type (after Sekai Kokogaku Taikei).
Vol.1, Figures 36 and 41, Heibonsha publishing Co., Tokio); b and d sherds are from Mele.

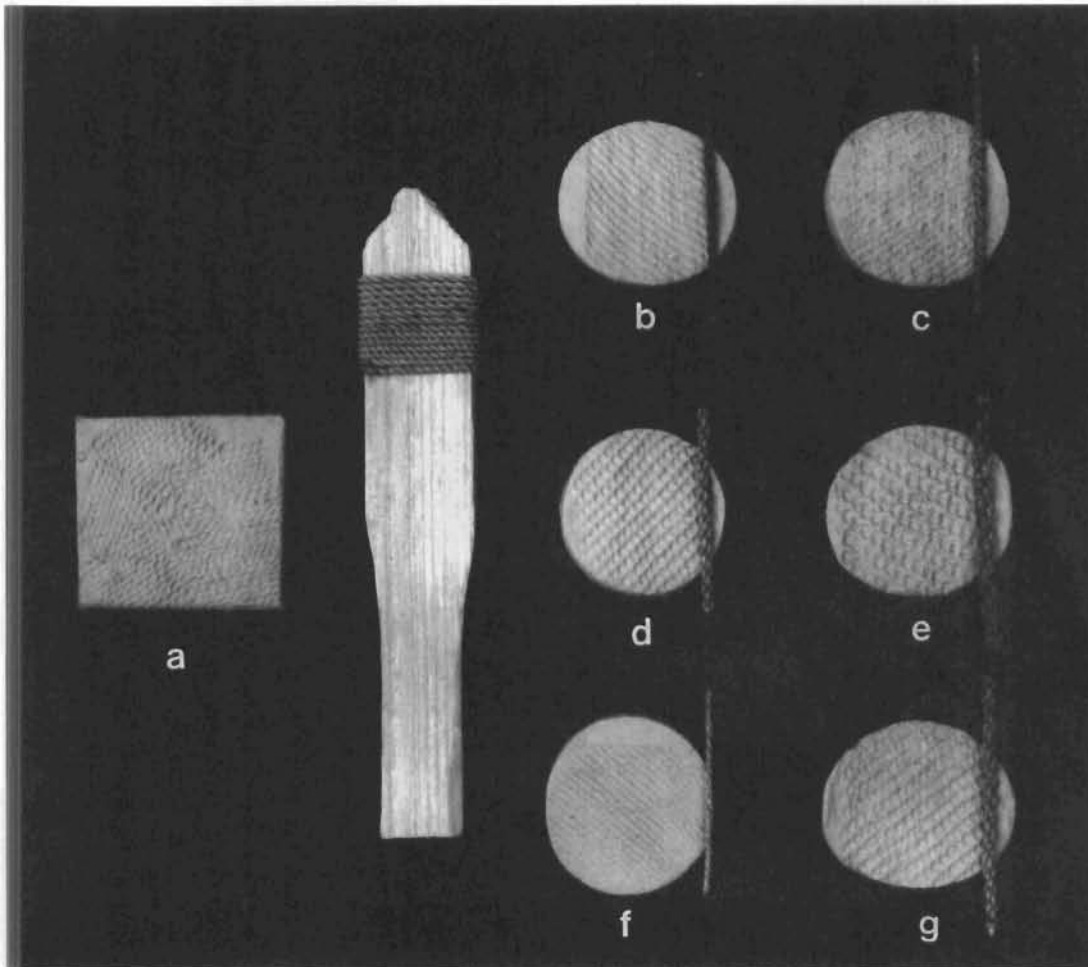


Figure 4

Methods of Jomon (cord-mark) makings. a, paddle-impressed cord-marks; b-g, marks made by rolling various twisted cords: b, single strand, right-twisted cord; c, single strand, left twisted cord; d, double stranded cordage made from twisting two single strand cords; e, twisting two double stranded cordage; f and g, different cord sizes make different widths of linear markings.

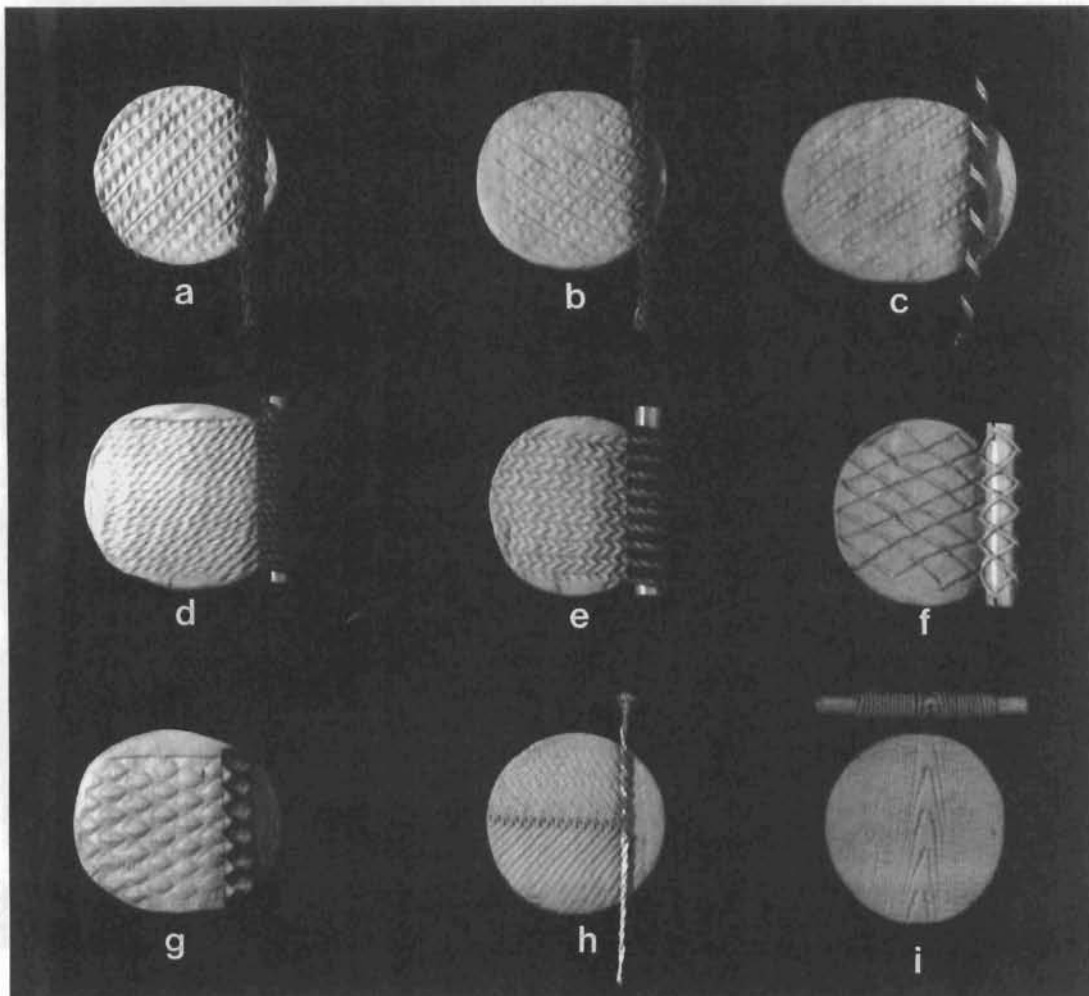


Figure 5
Methods of Jomon (cord-mark) markings.

- a-c, variation of twisted cords make variety of cord marks;
 d, a single-strand, twisted cord wrapped on a stick; e, right-twisted and left-twisted cords are wrapped on a stick;
 f, thin twisted two-single-strand cords wrapped diagonally in opposing directions on a stick;
 g, a carved stick; h, two pieces of single stranded cords, one right-twisted and the other left twisted, are doubled over and linked with one side twisted right and the other side twisted left;
 i, a thin single strand cord is fastened in a hole in the middle of a stick, then one end of the cord is wrapped round the stick clockwise and the other end is wrapped counterclockwise.

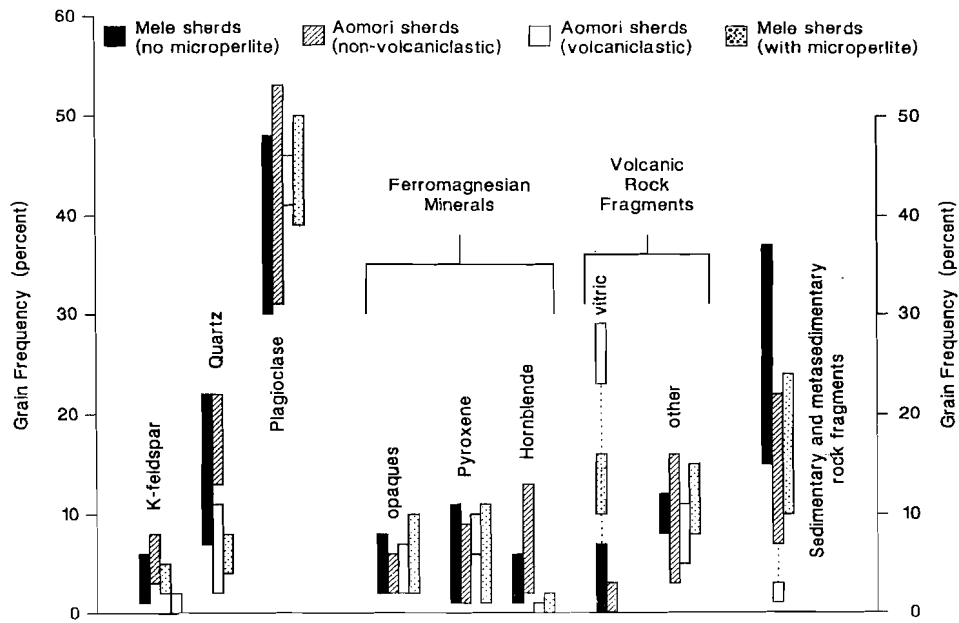


Figure 6
Petrographic analysis of Mele and Aomori, Japan cord-marked sherds.
Prepared by W.D. Dickinson.

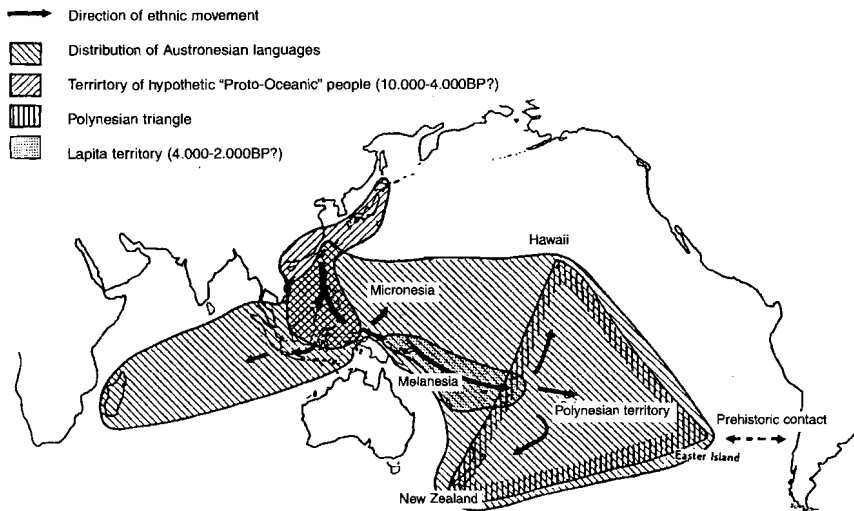


Figure 7
Prehistoric southward Monogoloid-dispersals, which related the hypothetical "Proto-Oceanic" ethnic movement into the South Pacific (after Katayama, 1990).