

REPORT UPON ARCHAEOLOGICAL RESEARCH,  
DEPARTMENT OF LITERATURE, VOLUME V.

THE EXCAVATION OF THE SHELL-MOUND AT TSUKUMO,  
A NEOLITHIC CEMETERY IN THE PROVINCE  
OF BITCHU.

BY

DR. KENJI KIYONO, SADAHIKO SHIMADA

AND

DR. KOSAKU HAMADA.

AND

THE EXCAVATION OF THE TODOROKI SHELL-MOUND,  
IN THE PROVINCE OF HIGO.

BY

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AND

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## PREFACE

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The present volume contains reports of the excavations of the shell-mounds at Tsukumo in Bitchû and at Todoroki in Higo. The former was the project of Dr. Kenji Kiyono of our Medical Department, who bore the expense and conducted the work himself, aided by my assistant Mr. Sadahiko Shimada and others. The latter was a joint enterprise between Dr. Kiyono and our Archaeological Institute, in which Mr. Masamoto Sakakibara and I took part with Dr. Kiyono.

The report on the Tsukumo excavation consists, in the Japanese section, of two parts, the first on the archaeological remains &c., written by Mr. Shimada and myself, and the second on the human skeletons by Dr. Kiyono. For convenience I condense these reports into one, reserving for the time the authors' opinions. The report on the Todoroki excavation is also consolidated into one, although originally written in two parts, one on the human bones by Dr. Kiyono, and the other on the archaeological finds by Mr. Sakakibara and myself.

Dr. Kiyono reserves a detailed anthropological study of the human bones of both sites until the reconstruction of these bones has been accomplished. This is now being carried on under his supervision.

My special thanks are due to Dr. Kiyono for his kindness in co-operating with us in the excavations as well as for his generosity in furnishing financial help, both for the field work and for publication expenses. Dr. Kiyono asks me to mention his acknowledgements for the assistance in the excavation at Tsukumo to Messrs S. Shimada, T. Takatori, S. Matsueda, T. Hattori and his brother Yutaka Kiyono and others. Our joint acknowledgements are due to Messrs N. Koga, H. Hirano, I. Murakami, Mr. and Mrs. Kaneda of Higo, and to Mr. M. Sakakibara who shared in the excavation at Todoroki and wrote some chapters of this report. Lastly, I must not omit the names of my assistant, Mr. Sueji Umehara, who contributed some chapters in the Japanese section of the Tsukumo report; and of Professors C. Hiki, T. Ogawa and Mr. T. Kuroda who kindly assisted us in examining stones, animal bones and shells, respectively.

KOSAKU HAMADA.

Kyoto Imperial University, March, 1920.

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The Excavation of the Tsukumo Shell-mound,  
A Neolithic Cemetery in the  
Province of Bitchû.

BY

DR. KENJI KIYONO, SADAHIKO SHIMADA  
AND DR. KOSAKU HAMADA.

CHAPTER I. THE SHELL-MOUND AND ITS EXCAVATION.

(Plates I—III.)

The shell-mound at Tsukumo is one of the neolithic cemeteries in Japan discovered a few years ago, and a greater number of human skeletons have been unearthed there than at Kô, the well-known site in the province of Kawachi. The discovery of these bones dates back to 1870, but until Mr. Ryuzô Torii visited the place in 1915 and shortly after Professor Takuji Ogawa of our University made a visit there and sent his assistant Mr. Kwanichi Uchida, it had not been noticed by scientific circles.

Unfortunately, however, Mr. Uchida's discovery of skeletons in a crouching position, did not attract much attention, until the same kind of burial was brought to light at Kô by K. Hamada in 1917. Since then Professors Ogushi, of the Osaka Medical College, Hasebe, of the Tôhoku Imperial University, and we ourselves have carried out several excavations there and made some wonderful discoveries of skeletons and other archaeological remains. The following is a list of the excavations and the number of skeletons found by various excavators.<sup>1</sup>

Mr. Torii	1915	no skeletons (To) <sup>2</sup>	Dr. Ogushi	1919	11 skeletons (Og 3)
Mr. Uchida	„	2 skeletons (Uc)	Dr. Hasebe	„	2 skeletons (Ha 1)
Mr. Matsueda	1915-18	5 skeletons (Ma)	Dr. Kiyono	„	11 skeletons (A, B, & C)
Mr. Hattori	1917	? (Ht)	Dr. Kiyono	„	33 skeletons (I, II &c.)
Dr. Ogushi	1918	1 (Og 1)	Dr. Hasebe	„	22 skeletons (Ha 2)
Dr. Ogushi	„	4 skeletons (Og 2)	Dr. Kiyono	1919-20	22 skeletons (a, b & c)

1. Dr. H. Matsumoto also visited the Tsukumo site in 1916 and got several skeletons which had been previously excavated by Mr. Matsueda. See *The Journal of Zoology*, No. 338 (Tokyo, 1916)

2. Abbreviations on the map of the excavation. Plate II.

Tsukumo is situated in the village of Nishi-Ôshima, about two miles south-east of Kasaoka on the Sanyô railway line. Though the spot is now half a mile from the sea, we judge from the surrounding configuration that it formerly stood close to the coast. The shell-mound, with apparently no signs of shells, lies on a diluvial slope just in front Messrs Matsueda's and Hattori's houses. It is near a small country road which people travel daily. Who could imagine that here lay a neolithic cemetery where such a huge number of human skeletons were later found?

Kiyono carried out three excavations here; the first in September of 1919, the second, the same month assisted by Shimada; and third between December and January of 1919-1920. Hamada also visited the site at this time. It was observed that the shell-mound was overlapped by a surface soil about six inches deep, beneath which was a layer of black soil from six inches to a foot and half thick. The shell strata varied in thickness from one to two feet, generally speaking being thicker at the north-western, and thinner toward the south-western part. The shells were usually mixed with the black earth. In some places they were very scanty, and could scarcely be distinguished from the soil. Under the shell layers the black soil was visible again, and then the sub-soil or natural clay began. So we may say that the shell strata intersected the black soil in the middle. The human débris although chiefly occurring in the black soil and the shell strata, were also discovered to some extent in the surface soil where it had been disturbed by ploughing.

In the area of the first excavation, the shell strata were very thick and 11 skeletons were discovered. In the area of the second excavation, 33 skeletons were unearthed, including one of an infant in a cinerary urn. The shell layers differed much in this area in their thickness and the quantity of shells. In the area of the last excavation, the shells were rather scanty, but 22 skeletons were found, some with personal ornaments made of horn. Pottery fragments were abundant, but not many stone implements were discovered.

## CHAPTER II. THE HUMAN SKELETONS.

(Plates IV—XXI.)

We discovered 66 skeletons altogether in our three excavations. They were laid generally in the deepest level of shell strata, although a few were found in the upper level of shells and in the upper black soil. Usually neighbouring skeletons were buried on about the same level, which shows there existed a general usage of digging pits to a certain depth. However, we came across some that had been buried above other bodies previously interred, as for example Nos. 41 and 53 intersected Nos. 43 and 54, respectively. The difference of the levels of burial,—about  $1\frac{1}{2}$  feet each side of the line O-P on the map (Pl. II), seems to indicate that there once existed terraces in this cemetery. The head direction was not fixed, though it took a somewhat eastward direction as was the case at Kô cemetery,<sup>1</sup> and we are incline to think this was influenced by Sun Worship.

With only two exceptions the bodies were buried in a contracted position. They were generally placed with the heads upward and with a few exceptions the knees bent vertically. Nos. 25 and 52 were laid sideways, and Nos. 8, 28 and 55 in a sitting posture. We indicate varied degrees of contraction of the knees as well as both limbs in the diagrams (Fig. 9), but no such attitude as that of a foetus, as we see often in Predynastic Egypt was found. Two extended burials, Nos. 35 and 45, are to be mentioned as exceptions. Some savage tribes bent the bodies just before death or immediately afterward, but buried them in extended positions, if they had no opportunity to do this before the *rigor mortis* set in. Perhaps this may have been the case here in these exceptional examples.<sup>2</sup>

Though some bodies had no protection, except a cover of mats or the like, which of course has perished, others seem to have been protected by wooden coffins or something of the kind. As to the separation of some bones, like mandibles, from the skeletons, in quite undisturbed burials, we must assume that

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1. See this Report, Vol. IV, Chap. I.

2. On the contracted burial in other neolithic sites in Japan as well as in other parts of the world, see this Report, Vol. IV, Chap. III.



there existed some vacant space, until the bodies were totally putrefied. The skeleton of an infant (No. 26) was found in a coarsely made cinerary urn, and a similar instance has been reported by Prof. Ogushi. It is very touching to see that even men in the neolithic age, gave such particular care to children. Traces of fire, as the presence of charcoal indicates, are visible near certain skeletons, which perhaps were burnt with some religious meaning. Stones sometimes were noticed close by the skeletons, but there was not sufficient evidence to assume that they had been placed there intentionally, as is the case at Kô.<sup>1</sup>

### CHAPTER III. THE REMAINS FOUND.

(Frontispiece & Plates XXII—XXXIII.)

a) *Stone Implements*: Very few were found during our excavations. A side scraper, a few arrow-heads in hard sandstone, and some roughly made weight-stones were the chief finds. There was also a big grindstone, though no polished celts were discovered.

b) *Personal Ornaments*: Most interesting specimens made of deers' antlers were discovered associated with the skeletons. One is an ear-ring of a nearly rectangular form found near the left temple of skeleton No. 34. (Frontp. 6 & Fig. 4). We missed the right one, but this kind of ear-ring had been reported also by Dr. Ogushi. (Fig. 7). At Kô there were discovered several pairs of stone ear-rings *in situ*, different in material, but of a similar type. Two others which were found near the pelvis of the skeleton were very curiously cut. One bearing some resemblance to a cockscomb was associated with skeleton No. 53 (Frontp. 1 & Fig. 4), and the other, in simpler form, with skeleton No. 3. (Frontp. 2 & Fig. 4) They have holes at the ends through which to pass strings and seem to have been hung near the waist as amulets.<sup>2</sup> Specimens of a little different shape in the same material were discovered at Kô.<sup>3</sup>

Shell bracelets were found *in situ* in several cases. One on each forearm of Nos. 7, 37 and 62; one on the right in No. 6, one on the left in No. 4; two

1. See this Report, Vol. IV, Chap. III.

2. Similar Specimens were also found during Dr. Hasebe's excavation.

3) See this Report, Vol. IV, Chap. II.

on both in No. 38; and two on the left in No. 41; No. 34, however, is an extraordinary case, carrying seven on the right arm and eight on the left. They are made from shells of a species of arca. The individuals who wore bracelets seem to have been in most cases females, though we reserve more exact studies on this matter for the future.

A bone object with an incised decoration was also found at the left hand of skeleton No. 11, and a bone notch of an arrow near skeleton No. 23.

Seven green serpentine beads were found by the neck of a child skeleton No. 28, which because of such a special adornment, may have been that of a beloved child.

c) *Pottery*: Three kinds of pottery were discovered, the grey coloured Iwaibe, the reddish brown Yayoishiki and the neolithic ware. Very few pieces of the first were found and these occurred only in the surface soil. Fragments of the second were more frequent and occurred principally in the black soil; a very few also being found in the upper layer of the shells. The third, the neolithic pottery, was abundant in the shell strata and not a few specimens were found in the upper black soil. These facts show a very obvious sequence in kinds of pottery; the Yayoishiki succeeding the neolithic ware and the Iwaibe the Yayoishiki or co-existing with it, although there are different theories in regard to the race or races who originated them.<sup>1</sup>

The Iwaibe and the Yayoishiki pottery is very common, having no special characteristics to be mentioned, except a spindle wheel, of the latter sort. The neolithic pottery we may classify into three groups; (a) pottery of a brown colour, (b) polished pottery of a dark colour and more thinly made; (c) pottery of a dark brown tint and very coarse in character. The prevailing ornaments of (a) group are non-geometric designs, derived from the fastening of pottery vases by cords, and having elsewhere the pressed patterns of cords or mats. (Pls. XXVII, XXVIII, &c). The ware of (b) group has mostly geometric designs, and parallel lines on the necks or mouths of vases (Pl. XXVI &c.), while (c) group lacks ornaments except something like very simple indentations on the rims. (Pls. XXIV, 1, & XXV, 18-20). As a whole, the neolithic pottery here at Tsuku-

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1. See this Report, Vol. IV, Chap. III and Vol. II, Chap. III where Hamada's opinions are given.

mo shows a close resemblance to the pottery found in the shell-mounds in eastern Japan. Though the ornamentation and fabrication of the three groups of pottery differ, they undoubtedly belong to the same neolithic phase of culture, but probably the last two groups were a little earlier or a more primitive product than the first, for they occurred more frequently in the deeper layers than the other.

d) *Shells and animal bones* : We collected at least 11 species of shells, as given in a list in the Japanese text (page 25).<sup>1</sup> Of animal bones wild boars' and deer bones are most frequent. Professor Matsumoto<sup>2</sup> has already made a special study of the animal bones found here at Tsukumo.

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Though Professors Matsumoto and Suzuki<sup>3</sup> have published their notes upon some of the human bones found at Tsukumo, the results of professors Ogushi's and Hasebe's have not yet appeared, and reports on our discoveries must await some future opportunity for completion. We therefore reserve our opinion as to the race or races to which the neolithic inhabitants of this sites belonged. In any event it must be borne in mind that Dr. Matsumoto's measurements indicate that the Tsukumo people showed in cephalic form the brachycephalic tendency, while the Ainos are dolichocephalic in character. The pottery, however, rather resembles that in the shell-mounds of eastern Japan, which generally has been ascribed to a race akin to the Ainos or their forefathers. Moreover, the fact that three kinds of pottery followed in sequence, is naturally interpreted to mean that they were all made by one and the same race, in the course of the development of their civilization. The state of our archaeological investigations has changed greatly during these two or three years, and who can now be so naive as to say that our neolithic people were the ancestor of the Ainos or of

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1. Mr. I. Saga made an investigation of the shells found on this site, see *The Journal of Zoology*, No. 342 (Tokyo, 1917.)
  2. See *The Journal of Zoology*, Nos. 335, 339, 344, (Tokyo, 1917) .
  3. In regard to Prof. Suzuki's measurement of the Tsukumo skulls found by Mr. Uchida, see this Report. Vol. II, of Prof. Matsumoto's see *The Journal of Zoology*, Nos. 335, 337, 338, (Tokyo, 1916).

the Japanese? The Tsukumo shell-mound, in the human skeletons, pottery and personal ornaments that we have described, affords us an immense amount of material for research work in regard to the problem of the races of the neolithic age of Japan, upon which we are now engaged.



# The Excavation of the Todoroki Shell-mound, in the Province of Higo.

BY

DR. KOSAKU HAMADA, DR. KENJI KIYONO AND

MASAMOTO SAKAKIBARA.

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## CHAPTER I. THE SHELL-MOUND AND THE EXCAVATION.

(Plates XXXIV—XXXVII.)

Todoroki village is situated about two miles west of the town Uto, which lies seven miles south of Kumamoto. In the village there is a hamlet called Miyanoshō, famous for its copious spring, and the shell-mound lies just east of this hamlet, on the margin of a diluvial plain. A high hill, the summit of which was formerly occupied by an ancient castle, stands east of the shell-mound. We found a shell stratum in a cliff of the hill, but this and the shell-mound are probably quite independent of each other, judging from the configuration of the spot.

It is said that Professor J. Morse, who first excavated the shell-mound at Omori in 1879, visited the place a few years later, and since then it has become a well-known site for collecting stone implements. In 1917 Professor Buntaro Suzuki of our University made a trial excavation at this site and discovered three human skeletons of the neolithic age. Encouraged by this find we made up our minds to carry out a more extensive excavation.

We began our work on the 20th of December of 1919 and continued about a week. Attacking a spot west of Dr. Suzuki's excavation, we then pushed northward. The shell strata, which is some two to three feet thick lies about six inches under the surface soil and contains human skeletons as well as other remains. The shells consist of at least 11 species, of which oyster and clam shells form the great majority. The list of shells is given in the Japanese text. (page 73) Animal bones are also abundant, those of the deer and wild

boar which were the chief game of the neolithic inhabitant here, forming the larger part.

## CHAPTER II. THE HUMAN SKELETONS.

(Plates XXXVIII—XXXIX.)

We discovered eighteen human skeletons here, including those of three infants. Except the latter, in which the burial methods were obscure, all adults were in the contracted position, as at Kô, Tsukumo and elsewhere in the neolithic cemeteries in Japan. But here at Todoroki the head direction has, as far as our excavation shows, no fixed rule or prevalence, as at some other sites. Some are placed with the faces upward and some are laid on their sides, but the knees are all bent rather strongly. Amongst them No. 5 was found just above No. 6, which evidently was buried at a later time. This skeleton was in a sitting posture and shell bracelets were found *in situ*. There was also another instance in which the shell bracelets were carried as in No. 5. The preservation of the bones is not as good as at Tsukumo, owing to the nature of the earth, and we found no other personal ornaments attached to the skeletons.

The anthropological studies and measurements of the bones are reserved for the future, when the bones shall be repaired and arranged.

## CHAPTER III. THE OBJECTS FOUND.

(Frontispiece & Plates XL—LI.)

a) *Stone implements*: The quantity of stone implements was comparatively small. They included chipped and polished axes having no special characteristics, although it should be mentioned that one of tolerably large size was found. The material consisted of hard sandstone, diorite and serpentine. Arrow-heads of obsidian, quite finely made in triangular form, were rather plentiful as were also other shapes, with and without stems. There were two large and roughly chipped stones of triangular form. The use to which they were put is uncertain, but probably they were for hammering or such work. Several long grindstones also were discovered.

b) *Personal ornaments*: In addition to shell bracelets, two pendants made of boars' tusks, were found. One of a rather natural form is polished and has a perforation near the top. The other is crescent-shaped, with two holes, one of them being broken toward the end. Such ornaments are very common among our neolithic remains. They are also frequently found, dating from the palaeolithic time down to the savages of the present in many parts of the world.<sup>1</sup>

c) *Pottery*: No perfect specimens were found, but abundant fragments were picked up. These were chiefly in the shell strata, though some were in the upper soil. Except very few pieces of brown ware to be classed as the Yayoi-shiki of a later age, all are dark brown or black neolithic pottery. Open-topped vases and long necked shallow pots were plentiful. Some of them are thick but most are rather thin and somewhat brittle and bear coarse decorations. The ornamentation is generally geometric in character, and consists of incised patterns, and roughly made raised lines, produced by the pressure of the fingers upon the clay while it was moist. This raised ornamentation is characteristic of the Todoroki pottery, and it is remarkable that there was no single specimen found which had the real cord or mat design. Many nail or pseudo-nail ornaments on the hard thin ware were found, which had a resemblance to the neolithic pottery of the Kô site, and also pieces of thick ware were noticed, bearing an irregular pattern of straight lines, akin to that on the pottery found in the Kashiwada shell-mound in Hiuga. There is also a sort of pottery with thick designs of striking resemblance to those of the pottery of the Ataka shell-mound, about four miles east of this site. The Todoroki pottery, as a whole, is rather coarsely made and primitive in decoration.

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Until the detailed scientific research work in regard to the human bones from the Todoroki shell-mound is completed, we must reserve our opinions as

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1. Since this article was written Prof. Hasebe in an excavation at this Todoroki site, in September, 1920, found two broken pieces of white marble ear-rings, of the same shape as that discovered at Kô in Kawachi. They are reproduced in the Frontispiece by the kind permission of the excavator.

to the race to which these neolithic people belonged. Judging from their burial customs, pottery and other objects, however, we may say that, in the main, the inhabitants here were not very different from the Kô or Tsukumo people. It is probable that their stage of culture may have been more primitive and perhaps more ancient than that of the inhabitants of the above mentioned sites, because pottery is more primitive and there was no fixed direction of the head in the burial, which seem to have become the rule a little later. Although the Ataka shell-mound produced more skeletons than were found here at Todoroki, the excavation there was carried out unfortunately in a not very scientific way. We, therefore, expect that important results will be brought to light when the detailed studies of the human bones discovered this site are completed.

[THE END]

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