

REPORT UPON ARCHAEOLOGICAL RESEARCH
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REPORT UPON THE EXCAVATION OF A NEOLITHIC
SITE AT KO IN THE PROVINCE OF KAWACHI

BY

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WITH

NOTES ON NEOLITHIC SITES AT TAKAYASU AND AT KISHI,
IN THE PROVINCE OF KAWACHI

BY

SUEJI UMEHARA & SADAHIKO SHIMADA

AND

ON THE HUMAN SKELETONS FOUND AT TODOROKI, HIGO
AND AT TSUKUMO, BITCHU; WITH SOME REMARKS
ON THE STONE AGE INHABITANTS OF JAPAN
(Japanese Text only)

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Report upon the Excavation of a Neolithic Site at Kô-mura, near Domyôji, in the Province of Kawachi.

(Résumé of the Japanese Text)

CHAPTER I. INTRODUCTION.

1. Discovery of the site and our excavation.

The site of Kô-mura is a well-known and comparatively early discovered neolithic site in the Kinai district. It was first reported by Mr. Naomasa Yamasaki (now Professor of the Imperial University of Tôkyô) in May 1880, that he had found in that site stone implements, potteries and animal bones.* Since then many archaeologists have visited the site and described the objects found in it.

In November, 1916, Dr. Sadakichi Kita informed me that he saw a large collection of the Kô stone implements belonging to Mr. Senjiro Fukuwara in Kôbe, and that among them was a curious sort of stone implements very big in size and primitive in chipping. On inspecting some of the specimens, we found they have a remarkable resemblance in form to the palaeolithic implements in Europe. It is, however, quite difficult to believe, without the help of the co-existence of certain animal bones and the close examination of the bed where these objects were found, that the objects are true palaeoliths.

But according to Mr. Fukuwara's information, he was told by a peasant that these big palaeolith-like implements were found in a deep bed of sand, a few feet underneath the soil in which the usual stone imple-

* *Journal of the Anthropological Society of Tokyo*, Vol. IV. Nos. 39 & 40.

ments were contained. Moreover, some thirty years ago a corner of the site was washed away by an overflowing of the river Yamato which runs by the side of Kô village, and there a huge quantity of big animal bones was found. The place, therefore, is still called "Honeji," that is "the bone spot." I was much interested in this information and finally came to the decision to excavate the spot where the big bones and implements had been found and to discover the true nature of the site and of the implements.

2. The site of Kô and the spots of our excavation.

(Plates I & II)

The small village of Kô is a mile and a half south of Kashiwara railway-station on the Osaka-Nara line. It is said that the village had been also the seat of the ancient prefectural government (Kokufu or Kô) since historic times, and this shows the place was formerly important and suitable for human habitation.

The village is situated at the northern margin of the hill which extends from the south and on which stand ancient cemeteries, including the tombs of the emperors of the 5th century. Stone implements are found in the neighbourhood of the village, above all on the eastern side of it, along the road which leads to Funahashi village. The spot "Honeji" is at the point where the road descends the hill to the alluvial plain on which it stands.

A few days before beginning our work, we asked Dr. Ogawa, professor of geography, to examine the field, and according to his judgment, decided to dig A spot at the "Honeji" and B spot on the hill, which seemed not to have been affected by the before-mentioned flood.

CHAPTER II. EXCAVATION.

1. Excavation at the spot A.

(Plates II, III & IV)

The spot A is about 20 metres above the sea level of the Bay of Osaka and lies at the foot of the hill. On the 2nd of June, 1917, we began our work and attacked an area of 8 feet \times 12 feet. We examined layer by layer, each a foot thick. The first was black soil, much disturbed by ploughing, and contained a large quantity of fragments of potteries, stone implements and rejects, with some small animal bones. There are several kinds of potteries, such as ancient tiles, Iwaibé or hard grey-coloured ware and so-called Yayoishiki or the Intermediate Pottery. In the second layer, the same black soil but little harder than the first, we found similar objects, differing only in two points. First, the quantity of the débris became less and less as the depth increased: secondly, there occurred no Iwaibé or tiles. A broken piece of a big stone implement chanced to be found in this layer. We could scarcely find any remains in beds deeper than the second, and there appeared a yellowish sand stratum immediately below the black soil. We pushed three feet more into the sand but it was a quite undisturbed natural bed containing neither human nor animal remains. So we ceased work at this spot.

2. Excavation at the spot B.

(Plates II, III & V)

B spot is on the hill called "Inui" about a hundred feet south of, and ten feet higher than, A. It seemed the spot is quite undisturbed by any overflowing of the river Yamato. We excavated an area of 12 feet square and examined the earth carefully, layer by layer, each a foot thick, as we did at the spot A. The nature of the soil was very similar to A, that is to say, the first layer contained a large quantity of the Yayoishiki pottery, Iwaibé ware and stone implements and rejects, with some animal bones, &c; in the second stratum, a smaller quantity of the

same débris, except the tiles and Iwaibé. The soil is also black and hard until three feet below the surface, then begins the yellowish sand. Here in this sand bed we could not observe any trace of human work, though we pushed three feet deeper into the sand.

Unexpectedly we came to find three human skeletons, lying on the bed about two feet deep from the surface in the black soil. The first two were at the west side of the pit we had dug, the heads probably facing the east, the knees couching as in the contracted burial of the Pre-dynastic Egyptians. The skulls were not noticeable but the pelvis and femora were in fairly good condition.

The third one was unearthed in the middle of the pit, about two feet and seven inches deep from the surface and in a better state of preservation. We sent for Drs. Adachi and Suzuki, professors of anatomy, to examine this skeleton. The head facing the east, in the contracted position also, the knees pointing upwards. The hands placed along the sides of the thighs and the skull sadly broken by a block of stone which seemed to be placed on it intentionally. A few large fragments of pottery with a cord pattern covered the head.

On the 5th of June we finished our field work because the rainy season had begun, and the peasantry were busy with their rice planting.

We have learned from the facts gathered during the excavation that the spot A at "Honeji" was formerly on the slope of the hill extending from the spot B and only the surface soil about a foot or so was washed away by the flood.

CHAPTER III. REMAINS.

1. Stone Implements.

(Plates VI, VII & XVI)

In the Kô site, chiefly chipped stone implements were found with, occasionally, a few polished ones. The same thing happened in our excavation.

We obtained only a fragment of a polished slate knife at B spot and an andesite piece partly polished, at A. The former is a common implement, frequently found in neolithic sites in this country, in Korea, and in Manchuria as well. Stone axes or celts are very rare here, though we are informed that two or three specimens have been discovered.

Arrow-heads are plentiful at Kô. We found about two dozens of them, some in forms without stem, some triangular, some leaf-shaped, &c. The chipping is regular and the workmanship very fine in some cases, though the material is confined solely to Futagonite, a variety of vitreous andesite which is produced near Mt. Futago, 4 miles east of this site. Some scholars have tried to arrange the arrow-heads in chronological order according to shapes, but as Sir John Evans has enunciated his opinion against it in his monumental work,* I hesitate to accept their theories.

There were also stone awls and fragments of spear-heads. Though we could find no perfect specimen of any large-sized type of implement, we succeeded in obtaining two broken pieces. I shall have occasion later to consider this kind of implement.

Besides these stone implements, there were found a small cylindrical bead in green stone and a steatite piece with a hole at one side. We call such a cylindrical bead "Kudatama", and the steatite one must be also a crude imitation of "Magatama". Both are commonly found in

* Sir John Evans, *Ancient Stone Implements of Great Britain*, p. 369.

sepulchres of the Yamato tribe, so it will be natural to think that these two objects are of later manufacture than the stone implements. But at various places, these beads were also found associated with stone implements and with some metal objects. Hence opinion must be reserved as to the age of these beads, whether they should be attributed to neolithic or œneolithic.

2. Potteries.

(Plates VIII—XIII)

Potteries were the chief objects which we found in the excavation, though all in fragmental state. In style, there are three different kinds; that is, the Iwaibé, the Yayoishiki or Intermediate and the cord-ornamented.*

The quantity of the Yayoishiki far exceeds the other two. They were discovered, as mentioned elsewhere, in the black soil about 2 or 3 feet from the surface, at the spots A and B, respectively. The colour is generally dark brown and the fabric rather fine, though made without potter's wheel. Some of them have a polished surface and some ornaments incised or stamped thereon. We can judge from the fragments that there were various sorts of vessels, such as bowls, jars, and bowls with stand or handle. At A spot we came upon several specimens of stands for mounted bowls, but none at B. This, however, was merely accidental, making no essential difference in the nature of the sites themselves.

Dishes and bowls were rather rare. The only interesting specimen is a fragment of a shallow bowl with two holes near the rim. Jars were numerous and of many kinds of forms. Rims are sometimes decorated, but ornaments usually occur on the neck and shoulder. The size also differs very much.

* On the nomenclatures of potteries see Dr. Munro, *Prehistoric Japan, &c.*

The horn-like handle of the bowls is said to be one of the peculiarities of the Yayoishiki ware. We obtained three specimens of them which are all turned considerably upward. I can not dwell upon the details of the forms of the vessels which the reader may examine by referring to the plates and figures in the text. (Fig. 2.)

3. Potteries. (*continued*)

(Plates XIII—XVI)

Ornaments applied to the Yayoishiki pottery are mostly in geometrical patterns. They are rather few in their elements. We can classify them in six categories. 1) Parallel lines. 2) Circles. 3) Herring-bone lines. 4) Brushed lines. 5) Waved lines. 6) Cord-like patterns. These elements occur simply or combined together, but the application is not complex as in the case of the Ainu ware. We show all varieties of ornaments in Fig. 3.

The fragments of big vessels found near the skull on the eastern skeleton have the ornaments in cord or mat-like patterns. Though we can not restore the perfect form, one was probably a deep bowl about 9 inches in diameter and the other, a jar with open mouth about 12 inches in diameter. They are greyish brown in colour and the fabric is very coarse. One might say they without question belong to the Ainu ware, if the locality had not been known. The method of making is also worth noticing because they were made in coiling up the walls, as we see elsewhere in primitive pottery present or past. (Fig. 2a)

The Iwaibé was discovered near the surface at both spots. They did not differ from those found in sepulchral mounds everywhere in this country. The tiles, though not pottery in the strict sense, seem to belong to a Pre-Fujiwara period, used for the temple which once stood near by this site. We see a huge foundation stone of a pagoda south of B spot.

4. Human skeletons and animal bones.

(Plates V & XVII)

In Japan, neolithic human skeletons have been found in shell-mounds but never in such a site as Kô. So it was quite unexpectedly that we stumbled upon the human skeletons on the western side of the pit at the spot B, and unfortunately some damage was done to it. But the second one on the eastern side, we unearthed with every possible care under the supervision of Professors Suzuki and Adachi.

Our finds and later excavation confirm the conclusion that this spot B was a neolithic cemetery and human bodies were buried with heads to the east and in a contracted position. Generally they are lying on the back, knees flexed vertically. In this respect the position differs from the Pre-dynastic Egyptians who usually lay left side down in a contracted position. We see many instances of the contracted burial in different parts of the world.* The following is the list of human bones found in our excavation, compiled by Professor Suzuki.

a. Individual on the eastern side of the pit.

SKULL: Calva (13 fragments). Temporalia (left perfect, right imperfect). Os. zygomaticum (left). Corpus maxillae (small parts of both sides). Mandibula (almost perfect, 6 teeth attached, of which 5 decayed; masticating surface of molar teeth considerably defaced, further 3 dropped teeth).

TRUNK BONES: Columna vertebralis, costae, &c., (not complete).

UPPER LIMB-BONES: Clavicula (right and left, both broken at the ends). Scapula (left in fragments). Humerus (left, perfect; right upper end broken). Ulna (left, both ends broken; right, almost perfect). Radius (both perfect). Hand bones (not complete).

LOWER LIMB-BONES: Os. coxae (both in fragments). Femur (left, lower end broken; right, both ends broken). Tibia (right & left, both ends broken). Fibula (right and left, both ends broken). Foot-bones (cast in gypsum; both sides tolerably complete but toe-bones of the right all lost).

b. Individuals on the western side of the pit.

SKULL: Mandibula (right ramus broken, 3rd molar tooth remains). Some parts of Corpu-maxillae. 3 dropped teeth (2 molar, 1 small molar, all belong to lower jaw, masticating surface considerably defaced).

* Déchelette, *Manuel d'archéologie*. Tom. I. p. 471—474. also Hoernes, *Natur- und Urgeschichte des Menschen*. Bd. II. p. 427, &c.

TRUNK BONES: Vertebrae lumbales (3rd, 4th, and 5th). 1. Os. sacrum.

UPPER LIMB-BONES: Clavicula (in fragments, both sides?). Scapula (in fragments). Humerus (left, upper end broken). Fragments of both ends of Humerus (both sides?). Radius (fragments of the upper halves of both sides; fragment of the upper end of the right).

LOWER LIMB-BONES: Os. coxae (both sides, male?). Femur (left, lower end broken; right, both ends broken). Femur (left, lower end broken; right, perfect). Tibia (2 right and 2 left, all upper ends broken). Fibula (2 right and 2 left; ends broken). Patella (2 pieces). Talus (left). Calcaneus (left). Foot-bones (about 50 pieces). &c.

The skeleton on the eastern side, we can assume, belongs to one grown up male individual, but the western ones are not easy to determine, though apparently belonging to two persons. The construction of the skeleton is very strong and the tibiae show remarkable platycnemic character, though the femora have no platymeria but a marked pilastered form.* (Figs. 9, 10.) Readers will find detailed measurements of some of the important bones in the tables attached to Professor Suzuki's essay, with comparison with other bones found in Todoroki and in Tsukumo shell-mounds, as well as with those of Ainu and of Japanese.

At the beginning of our discovery, some doubts were cast on the antiquity of the skeletons, because the bed where they were discovered seemed too shallow. However, the nature of the bones themselves and the later excavations have established their authenticity. Mr. Torii discovered a skeleton buried in a cairn and Professor Ôgushi, skeletons whose skulls had pairs of stone ear-rings *in situ*. These facts have cleared away all doubts.

There were found some quantity of animal bones all in small fragments. According to Professor Ichirô Shishido of the Third High School, they consist of the antlers of deer and of antelope, jaw-bones of wild boar, limb-bones and teeth of deer, of wild boar and of horse. Bones of deer and boars are abundant and there is no doubt that these animals

*Prof. Koganei pointed out the same characteristics on the bones found by Mr. Torii at Kô site in a later excavation. See *Journal of Anthropology*, Tokyo, Vol. XXXII. No. 12, 1917.

were the chief game of the neolithic people and the flesh was cooked in pots like those we dug up in the site.

CHAPTER IV. CONCLUDING REMARKS.

1. On the palaeolith-like big implements.

We have hitherto described our excavation and the objects found during our work, so now I have to consider some important points relating to the site and remains.

In the first place, are the big stone implements really palaeoliths? or were they found in a deeper bed than that in which small neoliths are contained? The answer is in the negative. We discovered two fragments of a rather big type of implement in the same layer with the smaller ones, as well as potteries which are unquestionably the products of the neolithic age. And beneath the layer was an undisturbed natural sand bed and we have not found, as far as we dug, nor can we be expected to have found, any human débris in such a place.

Sometime ago our archaeologists discussed the question whether the quaternary man had ever lived in this country or not. But now-a-days no leading scholars believe in his existence, because there is hardly any data to support the theory. Dr. Munro, however, described his finds of some palaeolith-like stones, associated with certain tertiary animal bones at a cliff near Hayakawa river. Though unfortunately I have had no opportunity of examining the remains, those stones, judging from the picture in his book, seem to be of too doubtful a nature to justify an ascertain that they were the work of human hand.*

But Dr. Munro published a very interesting essay, in the Transactions of the Asiatic Society of Japan,† entitled "Reflections on some European Palaeoliths and Japanese Survivals". In this essay he tried to show certain resemblances of our stone implements to European palaeoliths in their forms and he came to the conclusion that in the Japanese implements survive some ancient forms of European palaeo-

* Munro, *Prehistoric Japan*. p. 41.

† Vol. XXXVII, 1909.

liths, as the Ainu, our stone age people, seem to be a survival of a Palasiatic race. Though I am not prepared to accept his argument in every detail, I quite agree with his view as far as it concerns the big stone implements of the Kô site.

It was Professor Adachi who first mentioned an exceptionally large stone spear-head found in this site.* I may here show some examples of this sort of stone from our University Museum collection, which were kindly presented by Mr. Fukuwara. Take, for instance, 3 and 4 in Fig. 4. Their forms being almond-like and the chipping very rough, they resemble remarkably the Acheulian or Chellian type of European palaeoliths, though they are somewhat flatter than the latter. Then how did these resemblances occur? They are, I think, merely a reappearance of the primitive technic of stone implement manufacturing which prevailed in certain epochs of the Old Stone Age in Europe.

There is another form of big stone implements. No. 2 in Fig. 5 is truly a spear-head or axe and this kind of chipped implement, was, I believe, used as axes by the inhabitants of this station, because we have seldom found polished celts at Kô. But in my opinion there are frequently found so-called spear-heads or axes which have too irregular chipping, and hence can not be regarded as implements that have been in practical use. Of course there must be some unfinished spear-heads or axes among these stones, but I am inclined to take such an example as shown in Fig. 5, No. 1 as a reject or nucleus of stone from which flakes of flat pieces were taken off. Sir John Evans shows us in his book, an interesting example of this kind of nucleus from Pressigny in France which I have reproduced here in Fig. 6.† Compare this with our Kô specimen, one can at once recognize their close resemblance. As Evans has said, this is merely a refuse or core from which flakes were taken. Naturally it is difficult to distinguish this nucleus from the unfinished spear-heads, but

**Journal of Anthropological Society of Tokyo*, Vol. XI, No. 119.

‡ Fig. 2 in *Ancient Stone Implements of Great Britain*.

I must admit there might at least be this kind of refuse among the Kô stones usually mixed up under the names of spear-heads or axes.*

2. On the genealogy of potteries.

There is no doubt that for archaeology, the studies of pottery give the fundamental data and are the main source of chronological and ethnological determination. But unfortunately there is not yet compiled any corpus of pottery or established theory on the genealogy of pottery in Japan. Above all, the Yayoishiki pottery is the most disputed subject in our archaeology from the point of view of ethnology, and there lies the chief interest of our investigation. Since a few years ago many sites where this pottery was found with stone implements have been excavated and our material for the study of it has multiplied. The Kô locality is also one of these sites and the chief pottery there found comes under this Yayoishiki category.

Two important facts relating to this pottery have been noticed in our excavation. First, the Yayoishiki was unearthed from the same layer as the Iwaibé and there is no strict stratigraphical difference. However, the latter diminishes in quantity as the depth from the surface increases and eventually does not associate with the former. Similar facts may be seen at several sites of the same sort. From this evidence it is obvious that the Yayoishiki was used by the same inhabitant who used the Iwaibé, and probably the Iwaibé was of later manufacture than the other.

Secondly, some cord-pattern pottery was discovered in the same bed, but in somewhat deeper layer, as the Yayoishiki. An exactly similar fact came to light in the later excavation of this site. My excavations at

* Prof. W. H. Holms made very interesting studies on the pseudo-palaeolithic implements in North America and came to the conclusion that most of them belong to the rejects or nucleus of implements. (*American Anthropologist*, 1893, Vol. VII.) Not being able to see his original paper, I read it in Mason, *Origins of Invention*, in which his arguments are cited.

various places in Kiushû also revealed a similar sort of fact. So we can not deny that there is a close relation between the two wares, ethnologically and chronologically. Thus we know that these three kinds of potteries are all connected with each other, and that the Yayoishiki comes between the other two potteries in chronological order. This, however, has been conjectured by Messrs. Shôzaburô Yagi and Gordon Munro years ago, and for this reason they called it the Yayoishiki or "Intermediate" pottery.

How shall we interpret these relations? First of all, we must consider the relationship between the Yayoishiki and the Iwaibé. It is known that there are some forms of the Yayoishiki in the Iwaibé, and in the Yayoishiki appears occasionally some Iwaibé forms. With this observation and the above mentioned facts, some archaeologists consider that the Iwaibé was developed spontaneously from the Yayoishiki ware; others that the Iwaibé was introduced from southern Korea where we find quite the same sort of pottery. In the latter theory two different views have been enunciated. First, the pottery was brought to Japan by and with the ancestors of the Yamato tribe themselves and secondly, the technic only (no doubt with potters) was introduced after the Yamato tribe had settled.

I have no time to discuss these questions at the present moment, but my opinion is that the technic was introduced with the potters from southern Korea, and in course of time, it was imitated by the Yayoishiki people who had dwelt here in Japan from time immemorial. In the end the Yayoishiki art gave way to the more developed Iwaibe, but there was a long period when both potteries existed side by side, the Yayoishiki especially for daily use, and the Iwaibé for funeral purposes. I think also that the Iwaibé ware is nothing but a offshoot of the Chinese pottery of the Han dynasties.

Now we some to consider the relation between the Yayoishiki and

the cord-ornamented potteries. At present we must exclude the developed cord-pattern pottery found in the north-eastern part of Japan, which seems with little doubt to have been made by the Ainu.* Most of our archaeologists attribute different kinds of pottery to different races or tribes. This idea may of course be correct in many cases, but not always. They attribute the cord-pattern pottery to the Ainu, the Yayoishiki to certain aborigines, such as the Hayato in our history, and the Iwaibé to the Yamato tribe. So when these different potteries appear in a site combined together, they come to the conclusion that a certain race inhabited that place with another, or certain pottery was imported from one race or another. But is this interpretation always natural, and is it free from prejudice?

Anyone who is acquainted with, for example, Cretan or Egyptian archaeology will notice that very different kinds of pottery were produced in different periods, and they are generally considered by archaeologists as having been made by one and the same race, only the style and manufacture had changed in the course of time by spontaneous development or by foreign influence, &c. Then at Kô, the cord-pattern pottery was found in the same stratum as the Yayoishiki, only a little deeper and it has no peculiarities, like Ainu ware, in decoration, how can we not think both potteries made by the same race, only in different stages of ceramic art? I believe this interpretation is more natural and probable than to attribute them to different races.

It is well known that pottery making has a close relation to basketry, and the cord or mat pattern is a natural and most frequent adaptation in primitive pottery, as we observe, for instance, in American Indian ware or in the Bronze Age products in Europe. So we may distinguish two varieties of cord-patterned pottery, one, the Full-developed

* Prof. Koganei, *Ueber den Urbewohner von Japan*. (Mitt. Deutsch. Gesell. f. Natur- u. Volkerkunde Ostasien, Bd. IX. Th. 8). Also Munro, *Prehistoric Japan*, &c.

Ainu ware and the other, the "Proto-cord-ornamented" pottery which is more universal in its nature. The Kô specimens, I believe, belong to this latter class and were made by the same race as that which made the Yayoishiki, in an earlier stage of the potter's art, and I can not agree with those scholars who consider it an Ainu product. We do not know yet who was the first possessor of pottery or where the ceramic art came from. But my opinion at present is that the maker of the Yayoishiki, the chief aborigines of Japan, were the original possessors, and they made "Proto-cord-ornamented" ware at the beginning. Then they developed their ceramic art in one direction, simplifying its decoration, and ending in the Yayoishiki; but the Ainu who learned the potter's art from them, pushed in another direction, complicating the ornamentation and design, and ending in the Full-developed cord-patterned ware*. I do not expect that this hypothesis will be accepted in every detail by our archaeologists, but hope to convert them from their prejudiced ideas in attributing different potteries always to different races.

3. On the human skeletons and the race problem.

Though we could not find any human skulls in good condition, Professor Ogushi was fortunate enough to unearth 15 skeletons, including 8 well preserved crania. But the result of his studies is not yet published and we are not able at present to discuss fully the race of the Kô people.

According to Professor Ogushi†, the height of the Kô people is greater than that of average Japanese or Ainu. But Professor Suzuki casts doubt on this affirmation, so we must reserve our opinion on this point until Professor Ogushi's detailed report appears.

Of the limb bones it is evident from the studies of Professors Koganei

* See the diagram on page 42. in Japanese Text.

† *The Osaka Mainichi Shinbun*, Oct. 16-, 1917. § *loc. cit.* , p. 9

and Suzuki* that the Kô people had a very strong platycnemic character of the tibia and femur with a remarkable "pilastered" form. From this point Professor Koganei came to the conclusion that the Kô people must have had a close affinity with the Ainu and shell-mound builders in north-eastern Japan, both of them having similar characteristics of the lower-limb bones. Professor Suzuki, however differs in his opinion, although he recognises the same characteristics of bones, he suggests that these peculiarities may be produced or decreased by changes in the mode of life, &c., and he is inclined to think the Kô people to be nothing more than the ancestors of the Japanese, because the osteological comparisons of both peoples, do not show such great variations as to differentiate them as belonging to different races.

Though not an anthropologist or anatomist, I, too, am of opinion that these characteristics of the lower-limb bones can not carry much weight as racial peculiarities for purposes of distinction. Platycnemia, according to Manouvrier, is to be regarded as a physiological character developed in relation to environment and habit. Over-action of the legs seems to be the chief cause of developing the platycnemic tendency, the flattening of the tibia. Thus we can explain the frequency of platycnemia among the people of mountainous districts or among prehistoric and modern savages who frequent mountainous regions, generally without footgear, when hunting, &c.

Unfortunately we do not know whether the ancient Japanese had platycnemia and femur à pilastre or not, but can presume their occurrence in some degree because those people were in a more barbarous stage of life and would surely indulge in excessive use of the legs. So I hesitate to attribute the Kô people to the Ainu race or to the same people as the shell-mound builders of N.-E. Japan.

* See the tables and figures in this volume attached to Prof. Suzuki's essay.

Of the crania we know little from our excavation. But according to Professor Ogushi's communication to the author as well as to the newspapers, all 8 skulls are of the brachycephalic or broad-headed type. Besides that, we are informed that nearly all the skulls found in various shell-mounds in Kiushû and in western Japan, such as at Todoroki* and at Ataka** in the province of Higo, at Tsukumo† in the province of Bitchû, are also brachycephalic. On the other hand, Ainu and shell-mound builders of N.-E. Japan have rather dolichocephalic or mesati-cephalic forms of skull.†† Cephalic forms, I believe, are more permanent and important characteristics for racial distinction than those of lower-limb bones. Thus we can distinguish two races in our neolithic inhabitants, one the narrow-headed race akin to, or ancestors of the Ainu, and the other the broad-headed.

The foregoing hypothesis concerning the neolithic inhabitants of Japan will be affirmed by archaeological evidence. Where the broad-headed folk appear, we find the Yayoishiki pottery, with the so-called "Proto-cord-ornamented" ware, are found with stone implements, and the narrow-head type of skulls are associated with cord-pattern ware. The former seems rather to have prevailed in south-western Japan, while the latter in the north-eastern part of the island so far as archaeological exploration has attained. I agree with Professor Koganei that the developed cord-pattern pottery is the product of the ancestors of, or of a race akin to the Ainu,‡ but the Yayoishiki and the "Proto cord-orna-

* After Prof. Suzuki, see Table I in this volume.

** Of the excavation of the Ataka shell-mound, the scientific results have not yet appeared, but I had occasion to inspect the skulls and obtained some information from Dr. H. Yamasaki, the excavator.

† After Prof. Suzuki, see Table I, see also Dr. Matsumoto's notes in *Journal of Zoology*, No. 338.

†† After Prof. Koganei's "Beiträge zur physischen Anthropologie der Aino". (*Mitt. Med. Fac. d. Kais. Jap. Univ.*, Tokio, 1893). *Journal of Anthropology*, vol. XXXII, No. 12. Dr. Munro, *Prehistoric Japan*, chap. XV.

‡ Koganei, *Ueber den Urbewohner von Japans. loc. cit.*, also my own articles on the Ainu and the neolithic patterns in Japan. (*The Koko-kai*, vol. III, No. 11, vol. IV, Nos. 4 & 6)

mented" ware, the earlier stage of the Yayoishiki, I believe, belongs to the of aborigines of Japan who became the main stock of the Japanese, though I admit a certain admixture of the Ainu had taken place already in the neolithic period.

The Kô site was, according to my opinion, one of the neolithic stations of these aboriginal Japanese. They manufactured first the "Proto-cord-ornamented" pottery and then the Yayoishiki, until the Iwaibé, a Korean art of ceramic, was introduced. The maker was of the same race, only the styles and technics had altered with the course of time. Perhaps they lingered on, living here down to historic times, and became the forefathers of the people of Kawachi province.

K. HAMADA

Notes on Neolithic Sites at Takayasu and at Kishi, in the Province of Kawachi.

CHAPTER I. SITE OF TAKAYASU.

1. The site.

A few days after had we finished our excavation at Kô, we were informed by Mr. Hirata that some pottery and stone implements had been discovered at Onchi in the village of Takayasu, about four miles N. N. E of Kô, on the other side of the river Yamato. Though we have not yet been able to make any excavation, the site seems similar to Kô and the objects found in it are of the same nature. So the inhabitants of this station probably belong to the same race and to a period not very different.

The village of Onchi is situated at the foot of Mt. Ikoma, on a terraced land about 17 metres above sea level. Stone implements and fragments of pottery are scattered on the surface of a field near a wood called "Tennô-no-mori". The objects in the possession of Mr. Hirata were found here on a slope when it was cut. According to our examination at a cutting of the terrace, some debris of pottery and stone were lying in a layer of black soil, as at Kô, between 2 to 4 feet from the surface, then began a yellowish sand bed. Thus here at Onchi the deposit of remains is deeper than at Kô.*

2. Stone implements.

(Plates XVIII, XIX.)

At the site of Onchi the nature of the stone implements is very

* Mr. Torii made a trial excavation afterward and confirmed this observation.

much the same as at Kô. Chipped implements in vitreous andesite come for the most part, and polished specimens in metamorphosed slate occasionally.

There is, in the collection of Mr. Hirata, a polished axe with a peculiar form, one edge shaped like an adze, and with a groove on one side. This is a form usually associated with Yayoishiki pottery and an interesting fact is that it occurs also in Korea, which seems to suggest some ethnic relation between the neolithic peoples of both countries. (Fig. 8). There are also two specimens of the polished knife which is more common in the Yayoishiki sites.

Along with chipped implements, we have a quantity of arrow-heads in various shapes as in the other site, but also a rare example of a sickle-shaped implement.

3. Potteries.

(Plate XIX.-XXIII.)

The chief pottery here is also the Yayoishiki, with, however, a little of the Iwaibé mixed. We see some perfect specimens of the Yayoishiki, in Hirata's collection, an open-shaped bowl, a pot with narrow neck and pointed bottom, and a jar with a ringed handle. The pot and bowl have a reddish-brown texture patched in black, while the jar is somewhat greyish-white in colour, which is only a variation produced in firing. A cup with high base and a small pot are in rather different texture, dark-brownish surface as in the usual Ainu ware. A flat stand is interesting, having one side hollowed out to receive the unstable pointed bottom of vases, which is frequent in this sort of pottery.

There are numberless fragments of the Yayoishiki, most of them consisting of necks and bottoms of vessels. Patterns are quite similar in character to those of the Kô examples. (Fig. 3).

CHAPTER II. SITE OF KISHI.

Plate XXIV.)

This site is about three miles south of Kô and was first reported by Mr. Y. Minamibôjô. It stands on a table land, some 50 metres above sea level, looking down upon the valley of the Ishikawa, a branch of the river Yamato. The deposit layer of stone implements and pottery here at Kishi seems thinner as compared with Kô or Takayasu, only a foot and a half from the surface if we may judge from cuttings at various points. The stone implements and pottery are of the same character as in the other two sites, though the latter was very scarce as far as the surface examination showed. Arrow-heads, spear-head-like implements and a slate knife were collected by us, but Mr. Minamibôjô has an interesting stone in form triangular and big in size, about 4 inches long and 2 inches thick. We expect a future excavation will reveal some interesting facts.*

S. SHIMADA. & S. UMEHARA.

* Mr. Torii later made a trial excavation also at Kishi but no important results were obtained.

**Notes on the Comparative Tables of Craniological
and Osteological Measurements given by Prof.
Suzuki in his Essay in this Volume.**

Instead of extracting Prof. Suzuki's essay, it is more convenient here to give some notes for the better understanding of the comparative tables of craniological and osteological measurements which make up the essential part of his argument.

1. Mandibles, tibiae and femurs of Kô site are of our excavation. A is of the skeleton found on the eastern side of the pit, and B of the western ones. No fragments of skull enough to restore and to measure.

2. Todoroki shell-mound is situated about two miles west of the town of Uto in the province of Higo and four miles distant from the shell-mound at Ataka where many well-preserved human skeletons were excavated by Dr. H. Yamasaki. The Todoroki shell-mound was visited in 1881 by Prof. Morse who first investigated the Ômori site. Prof. Suzuki made an excavation in May, 1917 and obtained some skeletons. The Todoroki cranium and other bones are of his own discovery.

3. Tsukumo shell-mound is near the coast of the Inland Sea in the village of Ôshima, about 4 miles N. S. of Kasaoka. The materials which Prof. Suzuki used are of Mr. K. Uchida's discovery in his excavation in June, 1916. There he found many fragments of potteries both of the Yayoishiki and of the cord-pattern as well. Dr. H. Matsumoto wrote also notes on skulls and limb bones found there by another excavator.

4. Of the modern Japanese, Prof. Suzuki uses the results obtained by his own measurements in Kyôto, so the sources are mostly of the people living in the vicinity of Kyôto. He quotes Prof. Koganei's results of

Ainu measurements from "Beiträge zur physischen Anthropologie der Aino" elsewhere cited.

Professor Suzuki's views concerning the Kô people have been already cited in the chapters of our report on the excavation and there is no need to repeat them here.

THE END

PREFACE

This volume contains the Report on our excavation of a neolithic site at Kô village, in the province of Kawachi, in June of 1917, and two notes on neolithic sites at Kishi and Takayasu in the same province, which seem to have some ethnological relation or similarity in the nature of their sites. The English column is an extract or epitome written rather freely from the Japanese text. The excavation at Kô is not yet completed, and later researches by Mr. Torii, and especially by Mr. Motoyama and Prof. Ogushi have revealed more important results than ours. But I am very pleased that our work has induced these later excavations and contributed much to our archaeological studies.

I must here express my thanks and appreciation to Professors Ginzo Uchida, Takuji Ogawa and Sadakichi Kita, as well as to Messrs. Hikoichi Motoyama and Senjiro Fukuwara, for kindness and encouragement shown to us during the work of excavation. I am also indebted to Mr. Kingo Tazawa who shared our field work with Messrs. Sadahiko Shimada and Sueji Umehara, my two assistants. And my sincere thanks are due to Professors Buntaro Adachi and Buntaro Suzuki of our Medical College, who cooperated with us and made painstaking studies of human skeletons. It is a great honour to us to be allowed to publish here a valuable article written by Professor Suzuki on the human remains discovered during the course of our work.

KOSAKU HAMADA,

KYOTO, MARCH 1918.