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Approaches to Experimental Pit House Reconstructions in the Japanese Central Highlands: Architectural History, Community Archaeology and Ethnology

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In Japan, over 1,000 prehistoric house reconstructions have been built at 360 different locations since 1949. Pit houses from Neolithic Jomon Period (14,000–300BC) are the most

common but they are mostly based on archaeological remains limited to pits and postholes. Therefore, decisions on material and structure come from various sources, some based on research and others rooted in cultural ideologies or individual's preferences. This paper compares reconstructions at three sites in the Central Highlands region of Japan. Despite the similarities in archaeological remains, the approaches toward reconstructions at each site are remarkably different. At Togariishi site (built 1949) the pit house design was made by Horiguchi Sutemi, a modernist architect and historian inspired by the past to find a Japanese essence in traditional farmhouses and tea houses that could intermix with Western architecture. At Idojiri site (first built 1958) archaeologists rejected mainstream academic concerns and embraced a community-centered approach to archaeological research and reconstruction. Lastly, the four pit houses at Umenoki site (built from 2014) were based on ethnographic examples from North America and were built by a carpenter and re-enactor who collaborated with the site archaeologists and the public.

Introduction

In Japan, experimental archaeology has thrived on many efforts to reconstruct prehistoric buildings. Since 1949, approximately one thousand buildings have been built at 360 sites (Ertl, 2021), making archaeological reconstruction something of a national pastime. In this article we compare approaches to making ancient pit houses at three sites located in the Central Highlands region of Japan: Togariishi-Yosukeone site (Chino City, Nagano Prefecture), Idojiri site (Fujimi Town, Nagano) and Umenoki site (Hokuto City, Yamanashi Prefecture) (See Figures 1–3). These settlement sites are located within a 15 kilometer radius of each other (See Figure 4), and they all contain similar features and artifact assemblages dating to Middle Jomon Period (3500–2500BC). The archaeological remains at these sites do not provide any unique evidence to differentiate the ancient architecture that once existed from any other site. Nevertheless, the pit houses that currently stand at these sites are very different from one other in design, materials, and construction.

> "How might one evaluate the different approaches to reconstruction introduced in this paper? If one is narrowly concerned with historical accuracy (making immaculate simulations of the original buildings), one finds compromises and obvious inaccuracies in each. These inaccuracies alone, however, does not entitle one to simply dismiss them as "absolute nonsense". What is important is not the quality of the "finished product", but rather the sincerity of the underlying approaches, aims and influences that guided

The differences between these Jomon reconstructions are reflections on the people who built them as well as the changing concerns of Japanese archaeology in the postwar era. In each case, we find that the individuals and groups involved have adopted approaches that emphasize more than just the historical accuracy of their reconstructions. In their approaches, we see different ideals about archaeological site

the design and construction of a reconstruction.

preservation and development, who the intended stakeholders or heirs to this heritage are and how the Jomon people and culture are thought to be best represented.

Introduction to Jomon Archaeology in Japan

The Jomon Period extends for well over 10,000 years (14,000–400BC). Its beginning is marked by the advent of pottery, and it ends with the introduction of paddy-field rice agriculture. Jomon sites are found throughout Japan and, for the most part, encompass the entirety of nation's current borders (Miyamoto, 2010). There is a vast range and complexity in stone tools, pottery, clay figurines, ornaments and lacquerware among the remains. The Jomon are thought to have been egalitarian and there is no direct evidence of warfare (Sahara, 1994). They are generally considered to have been hunter-gatherer-fishers, and while there is evidence of extensive plant utilization (Fujimori, 1950; Crawford, 2017), the Jomon did not engage in crop farming or raising livestock. Nevertheless, the Jomon lived in permanent settlements and the most distinctive of these were pit houses laid out in circular patterns surrounding a central plaza or grave site.

There are countless Jomon sites throughout Japan. In the Central Highland region of Japan (Nagano, Yamanashi and part of Gifu Prefectures), Jomon remains are so common that residents often tell stories about how they would hunt for potsherds in the neighborhood fields as children (Ertl and Yoshida, 2021, p.56). Once when visiting sites in Yamanashi Prefecture, a local archaeologist guiding us said: "in this area if you throw a stone in any direction, you are likely to hit a Jomon site". While the Jomon culture extend throughout most of Japan, the major Jomon Period site parks are in central and northern Honshu and the Hokkaido islands. In western Honshu (Kansai and Chugoku regions) almost all the developed prehistoric site parks date to the later Yayoi (400BC–300AD) and Kofun (300–538AD) eras (Ertl, 2017, p.68).

Ethnography of Archaeological Excavation, Analysis and Site Development

The comparison of approaches to site development presented in this paper are part of our ongoing experimental archaeology project that includes designing and building our own Jomon Period pit house (Ertl and Yoshida, 2020; 2021).[1] Over a period of five years, we plan to conduct a limited-scale excavation, analyze remains, construct a pit dwelling and investigate the ways that it was utilized. In September 2019 we broke ground at Suwahara, a Middle Jomon settlement site located in Hokuto City, Yamanashi Prefecture (See Figure 5).

Our experimental project is unique in Japan. Typically, reconstructions are made as "after the fact" interpretations of archaeological remains, erected only after the decision to preserve a site was made and funding for development was secured (Ertl, 2021, p.159). Our project reverses this order. We approach the excavation of a Jomon pit house feature with the intent

to reconstruct it, hoping to find new methods and analyses that might help rethink the current "best practices" for excavation. The local archaeologists in Hokuto have eagerly engaged with our project, explaining to us that despite having worked in the region for decades, they have never had the opportunity to excavate without strict time constraints (Ertl and Yoshida, 2021, p.71).

No matter how successful our excavation is, we realize there are no magic bullets that will reveal the above-ground structure of these buildings with any certainty. That is where this present study comes in.

When it comes time to build our pit house, there are no set guidelines or principles for us to follow (outside of being faithful to the archaeological evidence). In this investigation we examine both the general trends of reconstructions in Japan as well as the idiosyncratic details of how the other pit houses in the area surrounding Suwahara site came into being. This, we hope, will inform us as we develop an approach to the design and construction of our Jomon pit house.

Prehistoric Architectural Reconstructions in Japan

Over the past five years, the authors have completed a survey of reconstructed buildings in Japan (Ertl, 2017; 2021). Our results show that reconstructions have been made for each of Japan's prehistoric and early historical period eras.[2] At least one may be found in each of Japan's 47 prefectures and in 283 different municipalities, or one out of every six cities, towns and villages in the country. They are typically built at archaeological sites and located directly above the excavated features, protected by a new layer of soil. Almost all are funded by the government and are managed by municipal boards of education.

As for the types of buildings, 70% are pit dwellings and the remainder are mostly raised-floor storehouses and other stilted (pile) buildings (See Figure 6). The most common type of reconstructed building is the Jomon Period pit house featured in this paper. As a basic principle, reconstructions are built with aspirations to be accurate to archaeological remains, but the fact that buildings originally used organic materials means there is often little to work from. With no positive evidence, some have chosen to build with reinforced concrete or use stylized designs, with the intention that such buildings function as monuments rather than historical recreations (See Figure 7). Furthermore, many are found at campgrounds or amusement parks and there are also several short-lived experience-based projects built by school children or site volunteers.

Overall, two counterintuitive trends can be seen in the approach to reconstructions in Japan. First, extensive postwar archaeological research has uncovered many types of prehistoric building features in different environmental settings. This has led to a great variety and diversity in design, type of building and uses of materials and motifs, even among buildings

from the same time period and geographical region. Second, the lack of conclusive evidence for the above-ground structure has led to a vast amount of mimicry. Certain design themes and elements from previous examples continue to be used, sometimes without any archaeological evidence to support them (as with using thatch on roofs of Jomon pit houses).

The Jomon Pit House in Postwar Japan

In a recent essay on reconstructions of prehistoric pit houses, Sato Ryuma[3] describes how the "primitive hut" became iconic throughout Japan. In the conclusion, he claims that "[in the postwar era] there is no other non-residential type of Japanese architecture that has spread so widely throughout the country" (Sato, 2018, p.250). As the results of our above-mentioned survey confirm, his statement may contain some element of truth to it.

To understand the spread of the Jomon pit house in the postwar era, one must look back to the prewar and wartime "emperor-centered view of history" (*kōkoku-shikan*). Based in ancient mythological texts, historical research that might have challenged the sanctity of the Imperial lineage was restricted, if not outlawed (Fawcett and Habu, 1990, p.226). The early Imperial ancestors were identified as being interred in burial mounds of the Kofun Period, which meant that the Jomon sites were largely excluded from the politically charged debates on Japanese ethnic and cultural origins. As a result, the scholars at the time considered the Jomon period a relatively "safe" field of study (Mizoguchi, 2006, p.65).

In this context, architectural historians of the early 20th century focused their research on Shinto shrine architecture. They thought they had found the origins of Japanese dwellings in 17th century documents from shrine carpenters depicting a two-pillar rectangular A-frame pit structure called *tenchi kongen miya-zukuri* (See Figure 8) (Ito, 1901, pp.7–8). Images of this structure continued to be reproduced in history texts until the end of the war, even though no archaeological remains were found that could prove it had ever existed (Sato, 1990).

The contemporary image of the Jomon pit house is attributed to Sekino Masaru (1909–2001), professor of architecture history at University of Tokyo (Fujimori, 2013). Sekino Masaru's research on pit dwellings began in the 1930s and were inspired by excavations at several Jomon sites, where they found the earliest pit houses were mostly circular and contained four or more pillars (Sekino, 1942). By 1940 he drafted a plan for the first Jomon pit house reconstruction at Togariishi site (see next section) (Aoyagi, 2010, p.2076).

In an article on Jomon pit houses, architectural historian Fujimori Terunobu (2013) introduces the design by Sekino at Toro site (Shizuoka Prefecture) in 1951 (See Figure 9). Even though Toro dates to the latter Yayoi period, the basic structure of Sekino's pit dwelling comes from his earlier research of the Jomon Period remains at Togariishi site. The excavations at Toro were exceptional and provided several waterlogged wooden remains, although incomplete. Sekino drew from historical research to find solutions to the structure and roof design of the

pit dwellings. Quoting from an interview toward the end of his life, Sekino admits that his pit house “hides a small lie” (Fujimori, 2013, p.68). Namely, the thick thatch roofs in his design would have been impossible for the original inhabitants to make due to the absence of the iron tools needed to shape them.

With the defeat in the war and the occupation by allied forces, the emperor-centered view of history was purged from Japanese education (Fawcett and Habu, 1990). In its place, archaeology was well placed to fill the gap. Toro had been the first major excavation after the war, and it was well-recorded in the media and visited by many. Toro was described as providing hope that one can discover by one’s own hands the history of Japan (Edwards, 1991). Out of this postwar history, the reconstruction of prehistoric pit houses became an active part in the construction a postwar narrative on early Japanese identity and origins.

Togariishi-Yosukeone Site: Architectural History and the Origins of Japanese Dwellings

Togariishi-Yosukeone site (hereafter Togariishi) is a “specially designated historic site”, one of only four such Jomon sites and the first to be designated as such in 1952. If there is one thing that sets Togariishi apart from other Jomon sites, it is the contribution of Miyasaka Fusakazu (1887–1975), the primary site archaeologist, who actively invited academics and excavation groups from Tokyo and other areas to collaborate. In fact, much of the story written about Togariishi is the story of Miyasaka and his tireless efforts to understand the site over his lifetime (Miyasaka, 1998). Of the people he invited, the core research on the Jomon pit house was conducted before the war by Sekino Masaru.

After the war, Sekino was drawn into the excavations at Toro. He passed the design work for the Togariishi pit house to Horiguchi Sutemi (1895–1984), a modernist architect and professor at Meiji University. Horiguchi’s approach to modernism is notable in his attempts to incorporate Japanese architectural traditions. In particular, he identified Shinto shrines, farmhouses and sukiya-style tea houses (including Katsura Villa) as emblematic of Japanese-ness. Horiguchi believed that modernist spatial composition had already been realized in this traditional architecture (Isozaki, 2006, p.260). In particular, he found this in the principles of asymmetry, modularity, the use of exposed materials, lack of ornamentation and harmony with the environment (Fujioka, 1997, p.113).

Horiguchi’s concerns with combining Japanese tradition with western modernism can be seen in his pit house design, with its off-center entryway and roof structure based on farmhouses from the countryside (Horiguchi, 1951, p.1). The first Jomon pit house based on his design was built in 1949. Since then, the pit houses at Togariishi have been rebuilt, relocated and the numbers of buildings have changed. Today six largely identical buildings are spread out over a grassy plain surrounded by a stream and woods. These were built in 2000 as part of a major

remodeling of the grounds and adjacent museum. Now 20 years old, the thatch has started to rot and has been removed from some of the buildings.

There is a faded information panel at the entry to the park. It explains that 28 pit house features were excavated from 1946 to 1952 and that the first pit house was designed by Horiguchi Sutemi. The final line is noteworthy as it reads:

> *Today there are many designs for pit houses throughout the country based on a variety of research, but here we constructed the buildings based on the original designs in order to preserve the academic history of the site.*

This is rather vague, although also quite reflexive, sentence. Apparently, it was included by the curators at Togariishi to distance themselves from the many perceived inaccuracies in the buildings' designs and presentation.

The buildings at Togariishi are both the most iconic Jomon pit dwelling reconstructions as well as the most harshly criticized for their flaws. Of the many critiques we have heard, people cite the use of thatch as roofing material, the intentional replication of roofs found on traditional farmhouses, the off-center (asymmetrical) placement of the entryway and the location of structural rafters seem not to align with archaeological features.

For instance, in a short conversation with Kobayashi Kimiaki, the former director of Idojiri Archaeological Museum (see below), he expressed the following about the pit houses at Togariishi:

> *It's hard for me to say this, because they were made by such an authoritative figure, a man named Horiguchi Sutemi, but those reconstructions at Yosukeone [Togariishi] are absolute nonsense.*
> (personal communication, 25 November 2018)

Idojiri: Rebuilding Our History, by Ourselves

Kobayashi Kimiaki's critique of the pit dwellings at Togariishi is actually quite revealing. In contrast to Togariishi which developed in close cooperation with academics from Tokyo, the archaeologists at Idojiri have actively rejected such authority and mainstream approaches to site development. Soejima Kurando, one of the museum curators, has described the people at Idojiri as having an "Anti-establishment and rebellious spirit" (quoted in, Mochizuki, 2018, p.18).

Anti-authoritarian at their core, one should understand that Kobayashi's rejection of the pit houses at Togariishi is not based upon their scientific accuracy. Rather, he was rejecting the approach of the site management, which he feels enshrines the eminence of Horiguchi and Sekino, the University of Tokyo and the discipline of architectural history.

Talking with the current director at Idojiri Museum, Komatsu Takashi, he explained that the excavations and site developments since 1958 have been conducted by the Idojiri Preservation Group, made up of local farmers and residents. Their defining slogan has been "Our village history will be revealed (made) by our own hands" (Ertl and Yoshida, 2021, p.56).

One example of the "rebellious spirit" at Idojiri can be seen in the explanation panels in the exhibition room. The names given to pottery and figurines are unique (compared to other museums) and the explanation panels delve into detailed interpretations of the motifs and their cosmological significance. In these panels, one can see how the staff at Idojiri have embraced interpretations that draw from folklore, mythology, and iconography (Mochizuki, 2018, p.18). The current panels were mostly written by Kobayashi Kimiaki, who is also the designer of the current pit house.

As for the pit houses at Idojiri, there have been three generations built by members of the Idojiri Preservation Group. The first was built in 1958, the same year that major excavations took place. There is little documentation about the construction of this building, but the basic structure mirrors the design by Horiguchi at Togariishi with a similar roof structure and asymmetrical door placement. This first pit house burned down due to a careless visitor in May 1974. The Idojiri Preservation Group soon built the second-generation pit house with a design that was considerably different to the first. Again, there are no records as to how it was designed, but it is thought that the group members built it without direct reference to scholarship and simply relied upon local building practices that had existed up to the recent past.

The current pit house at Idojiri was built in 1993. In 2018, Kobayashi Kimiaki gave a presentation about how he had designed and built it.[4] Whereas the first two generations of pit houses were built to cover the original excavated features, they decided to build this time at a new location away from any remains. The current pit house was designed as a "model reconstruction", meaning that it is not based on any specific pit dwelling but rather on information and evidence from a variety of sources.

Kobayashi's talk went step by step detailing the kinds of information used to determine the shape, size and materials used. Much of this was rather straightforward and details such as the numbers of pillars, their thickness, location and so forth were based on his long experiences excavating in the area. His talk included two notable parts.

First, he openly admitted to several compromises. For instance, he explained that the most common construction material during the Jomon era was wood from chestnut trees. For their pit house, they intended to use chestnut posts and pillars, but when it came time to construct it, they found, "the posts were just too heavy to lift into place without using tools. By human strength alone it was impossible". For that reason, he confessed, "we decided to use cedar wood instead, even though we understand this may be considered cheating".

Second, the latter half of his presentation shifted from analysis of archaeological evidence to a discussion on the symbolism he found in the shape of the pit house floor. In particular, he said that it mirrors the shape of a uterus. Not only did he find morphological similarities, but he also cited how unborn fetuses or infants are often buried in upside-down pots near the entrances. He even drew from mythology, citing from ancient mythological texts, to illustrate his point. In short, his interpretation was that the pit house was designed by the Jomon people to represent a woman's womb. Having passionately explained his unique take on the pit house, in the end he did not specify how this translated into the design of the current reconstructed pit house.

Umenoki: Experimental Archaeology and the Incomplete Jomon Village

Umenoki site was discovered in 2003, and by this time archaeology in Japan had become a very different entity. Both Togariishi and Idojiri are representative of the early post-war archaeology, which often saw inclusive community-based projects motivated, in part, by the promise of reclaiming ownership of their history and nurturing a newly discovered identity. These kinds of community-run archaeological projects quickly became a thing of the past. Japan's rapid postwar economic growth transformed archaeology into a massive bureaucratic cultural resource management system (Ikawa-Smith, 2011) with some 7 to 9 thousand rescue excavations per year (Agency for Cultural Affairs, 2020, p.15).

The entirety of 28,000 square metres of Umenoki site were unearthed as part of a much broader "land improvement project" funded by the prefecture (Hokuto City Board of Education, 2018, p.6). While its discovery reflects the current bureaucratic archaeology system, the subsequent preservation and site developments at Umenoki should be attributed to Sano Takashi, the head of the Hokuto Archaeology Center and primary architect of the pit houses at Umenoki. Namely, his influence can be seen in the decision to preserve and designate Umenoki as a national historic site, the reliance on ethnographic examples for the design of the pit house and in the broad inclusion of people from outside the local community in various activities and experiments at the site.

Talking with Sano about why Umenoki was preserved, he said that before Umenoki, the Yamanashi Prefecture Board of Education had long wanted to develop its own outdoor Jomon site park like those in Nagano (including Togariishi and Idojiri). Sano said:

> *There were excavations of [Middle Jomon] circular settlements at Shakado, or Sakenomiba and Haramachi Nogyokoko-mae sites. These were excavated by the Prefectural Board of Education. But the prefecture-level institution was unable to preserve these sites because they had no real contact with local residents.*
> (Ertl and Yoshida, 2021, pp.59)

Objectively, the Jomon remains at Umenoki were similar to those at many other sites in Yamanashi. What set it apart was Sano's success in negotiating with the relevant actors, particularly the landowners, nearby residents and municipal officials, who needed to be convinced of the potential pragmatic benefits.

Ten years passed between the excavations and the designation of Umenoki as a national historic site in 2014. Development plans were made, and construction began in August 2017.

The authors of this article first visited Umenoki with Sano Takashi in December 2017 (See Figure 10). At the time, the site was little more than an open field with a parking lot and information center. One feature that stood out was that a pit dwelling in the middle of the field was being constructed with a roof that would be covered in bark and sod and would have a secondary entryway through a hole in the roof. A second striking difference was that the park was opened to the public even though reconstruction of the pit dwellings had only just begun. This contrasts to most other sites in Japan, which are typically opened to the public only after they are "finished".

As for the bark and sod roof, Umenoki is not unique in using it (Takada, 1998), although it remains far less common than thatch (Ertl, 2017). Sano's decision drew in part on his own experience excavating several Jomon burnt pit house remains that appeared to contain a charred dirt roof. Outside of this evidence, Sano drew design inspiration from Native American Indian architecture, specifically the pit dwellings of the Thompson River Indians (Nlaka'pamux) which are distinguished with having the entrance at the top that is accessed with a ladder.

To understand Sano's approach to reconstructions, one must know a bit about his background. He was trained at Keio University in a dual archaeology and ethnology program. This was the only major program in Japan where archaeologists also study cultural anthropology. The influence of his education can be seen in the displays at the former Akeno Village Museum which was curated by Sano. Many of the displays use comparative image sets, where Japanese archaeological remains are depicted next to images of contemporary ethnic groups from around the world. Rather than focus on the uniqueness of ancient Jomon remains, Sano has sought every opportunity to show how the Jomon are comparable to people who live in the world today.

In mid-2021, some four years after starting reconstructions, the construction at Umenoki continues. Sano has conceived of Umenoki as an experimental site, one where the buildings and landscape are intrinsically "incomplete" (See Figure 11).

To enable this, Sano hired a professional landscape gardener from Tokyo to work as a live-in guide at the site while he slowly builds the pit dwellings and assists with other experimental projects (See Figure 12). Since 2017, the carpenter has lived in this tent several days a week as

he works on the pit houses, sometimes collaborating with local volunteers. He spends his days making stone tools, chopping down trees, setting hearth fires and greeting visitors. Each new pit house is redesigned to incorporate changes learned from previous experiences building and using these dwellings.

This slow and experimental approach is the most notable feature of site developments at Umenoki. It is also what has made it a model that other site managers look up to. Even at Idojiri and Togariishi the archaeologists we interviewed both openly praised the work at Umenoki and sought to learn from Sano's approach.

Lastly, Sano has tried to actively engage with the community outside Hokuto City, even trying to find ways of promoting it to international residents, tourists, and researchers (See Figure 13). For example, he has consulted with travel companies that serve international high-end clients for ideas on how Umenoki might package Jomon-based experiences for visitors. Similarly, on several occasions Sano has invited the authors of this paper to assist with site promotion and development activities, bringing our perspectives from our research outside of Japan.

Conclusion

In this paper, we have looked how managers at three Middle Jomon sites have reconstructed three vastly different images of the Jomon pit house. If one were to look for commonalities, we might say that each is looking to the Jomon past to reflect upon and create a sense of identity or community. At Togariishi, Horiguchi's interest in the Jomon pit dwelling were a reflection on his search for a sense of "Japanese-ness" that might serve as a counter to the universality of Western modernism. With Idojiri, the community-based approach and the preservation group's anti-authoritarian spirit may be understood as residents attempts to express autonomy in an era of rapid economic growth that cemented power in Tokyo. Finally, Sano's experimental archaeology at Umenoki and his embrace of ethnographic comparisons with the Jomon reflect his cosmopolitanism outlook, where he has envisioned Umenoki as a site where people may come together to find their commonality.

How might one evaluate the different approaches to reconstruction introduced in this paper? If one is narrowly concerned with historical accuracy (making immaculate simulations of the original buildings), one finds compromises and obvious inaccuracies in each. These inaccuracies alone, however, does not entitle one to simply dismiss them as "absolute nonsense". What is important is not the quality of the "finished product", but rather the sincerity of the underlying approaches, aims and influences that guided the design and construction of a reconstruction.

As the late Hans-Ole Hansen (1939–2021) has shown us (Hansen, 1959), to make just one prehistoric house requires making a host of decisions that pull a broad range of data

together. Having come up with a design based on logical reasoning, Hansen further shows how the realities of construction force one to adapt their design to the resistance of the environment and limitations of one's physical strength. The problem is that the decisions and compromises that go into making these buildings are imperceptible in the form they take. We agree with Hansen that one must first try and understand the challenges of trying to build a prehistoric home. After having done that, as Hansen writes:

> *If you think your ideas are better than mine, all right, or if you feel that mine are better than yours, I won't quarrel with that either. It will just show how difficult it is to arrive at the truth, or how many possible ways there are of interpreting facts.*
> (Hansen, 1959, p.18)

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2 These divisions begin with prehistoric Paleolithic (from 35,000BC), Jomon, Yayoi and Kofun periods and the early historical period includes the Asuka (538–710AD), Nara (710–794AD) and Heian (794–1185AD) periods. For information on the characteristics and divisions in Japanese prehistory and protohistory, see Mizoguchi (2002).

3 In this paper, Japanese names are written in the convention of surname before given name.

4 This talk was organized by the Idojiri Museum and a volunteer group and held 25 November 2018 at the Fujimi Town Civic Center. The title was, "Exploring Jomon people's lives through reconstructed houses: Did they have thatched roofs in the Jomon era?"

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FIG 1. RECONSTRUCTED PIT HOUSES AT TOGARIISHI-YOSUKEONE SITE IN CHINO CITY, NAGANO PREFECTURE. (2 DECEMBER 2017). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG 2. RECONSTRUCTED PIT HOUSE AT IDOJIRI SITE IN FUJIMI TOWN, NAGANO PREFECTURE. (6 AUGUST 2020). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG 3. VIEW OF THE SOD ROOF PIT HOUSE AND SURROUNDING LANDSCAPE AT UMENOKI SITE IN HOKUTO CITY, YAMANASHI PREFECTURE. (20 SEPTEMBER 2021)

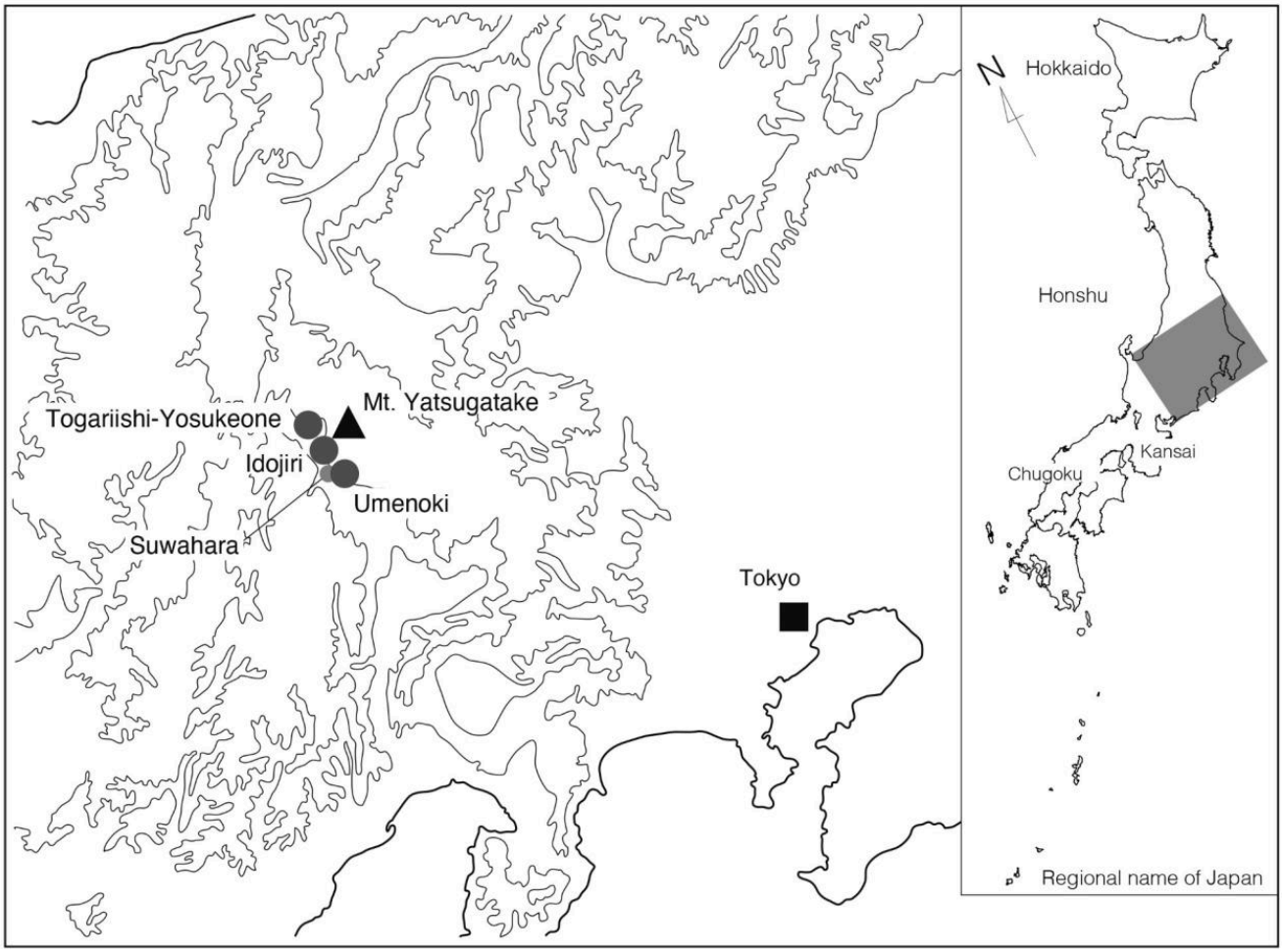

FIG 4. MAP OF THE CENTRAL HIGHLANDS REGION OF JAPAN AND LOCATIONS OF THE ARCHAEOLOGICAL SITES DISCUSSED IN THIS ARTICLE. DRAWING BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG 5. EXCAVATION AT SUWAHARA SITE IN HOKUTO CITY, YAMANASHI PREFECTURE. (19 SEPTEMBER 2019). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG 6. IMAGE OF THE WOOD CIRCLE AND RAISE FLOOR BUILDING AT SAKURAMACHI SITE IN OYABE CITY, TOYAMA PREFECTURE. (16 MAY 2012). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG 7. CONCRETE PIT HOUSE BASED ON REMAINS OF ISARAGO SITE IN MINATO CITY, TOKYO. IT IS LOCATED AT MITADAI PARK, ADJACENT TO THE ISARAGO SITE, WHICH WAS FULLY EXCAVATED AND TURNED INTO AN OFFICE BUILDING. (29 APRIL 2017). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

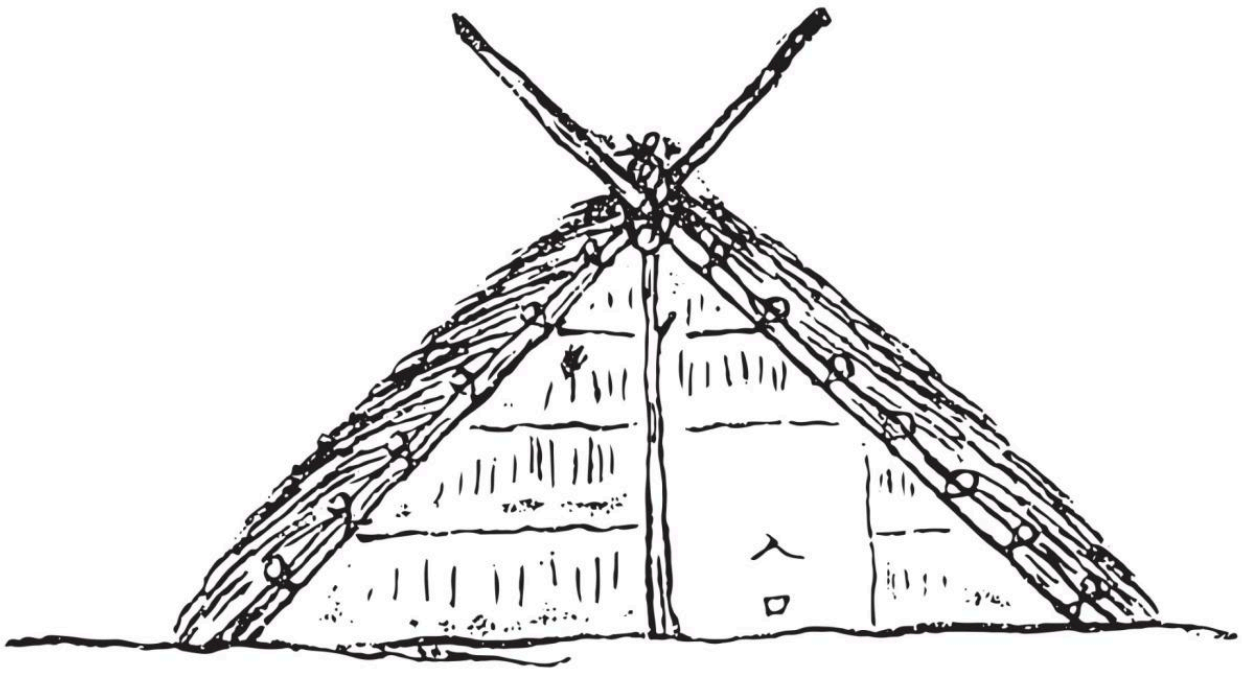

FIG 8. IMAGE OF THE TWO-PILLAR PIT STRUCTURE TENCHI KONGEN MIYA-ZUKURI. (REPRODUCTION BASED ON IMAGE ORIGINALLY PUBLISHED IN ITO, 1901, FIGURE 1).

FIG 9. CURRENT PIT HOUSE AND RAISED FLOOR STOREHOUSE BASED ON SEKINO MASARU'S DESIGNS AT TORO SITE IN SHIZUOKA CITY, SHIZUOKA PREFECTURE. (23 AUGUST 2020). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG 10. SANO TAKASHI (RIGHT) TALKING WITH YOSHIDA YASUYUKI (LEFT) DURING THE AUTHORS' FIRST VISIT TO UMENOKI SITE SOON AFTER ITS PUBLIC OPENING. (3 DECEMBER 2017). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG 11. UMENOKI SITE HAS BEEN ENVISIONED BY SANO TAKASHI AS AN EXPERIMENTAL SITE WHERE THE RECONSTRUCTED BUILDINGS ARE IN VARYING STATES OF COMPLETENESS. (19 NOVEMBER 2020). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG. 12. KUMA-SAN (LEFT), THE PART-TIME LIVE-IN GUIDE, IS SUPERVISING SEVERAL VISITING CHILDREN WHO SPENT THE DAY ENGAGED IN JOMON-THEMED ACTIVITIES AT UMENOKI SITE. (16 SEPTEMBER 2019). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA

FIG 13. EXPERIMENTAL OBSIDIAN KNAPPING TAUGHT TO STAFF AND VOLUNTEERS AT UMENOKI SITE. THE COURSE WAS HELD IN ONE OF THE PIT HOUSES CURRENTLY UNDER CONSTRUCTION. AMONG THE PARTICIPANTS INCLUDED A LOCAL RESIDENT WHO IS ORIGINALLY FROM CANADA (RIGHT) WHO IS ENGAGED IN TOURISM PROMOTION IN YAMANASHI PREFECTURE. (6 FEBRUARY 2021). PHOTO BY JOHN ERTL AND YASUYUKI YOSHIDA