

From the Ground Up: The Reconstruction of Japanese Historic Buildings from Excavated Archaeological Data

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Summary

In Japan, with a survival rate for old buildings lower than that of most European nations, excavated archaeological evidence is playing an increasingly significant role in the reconstruction of the history of building. This paper considers aspects of the impact of archaeological discoveries on our understanding of Japanese architectural history, and discusses problems concerning the interpretation and presentation of excavated evidence relating to buildings.

The paper, which is divided into three parts, begins by discussing postwar shifts in the perception of the history of the built environment in Japan brought about by archaeological discoveries. This is followed by an examination of some of the techniques and problems associated with reconstruction of buildings from archaeological data in Japan. In relatively rare cases, parts of the superstructure were among the finds, enabling the form of the buildings to be reconstructed with some confidence. Where only the pattern of post holes or foundations is left, the use of other evidence to supplement archaeological data becomes necessary. The combination of such material with excavated data at best defines a range of possible solutions, and it is further shown that alternative reconstructions of particular examples may lead to differing interpretations of their significance.

Finally, there is a discussion of the presentation of conjectural reconstructions, including models, and the erection of full-size replicas of parts of vanished historic complexes, which is currently enjoying something of a boom. The paper concludes by considering the debate about the desirability of such replicas.

Key words

JAPANESE ARCHITECTURAL HISTORY, ARCHAEOLOGY, PIT DWELLINGS, EARTHFEST POSTS, HÖRYŪJI, YAMADADERA, MITSUDERA, HANIWA, ICHIJŌDANI, HIKONE CASTLE, RECONSTRUCTION, YAMAGISHI TSUNETO, HEIJŌ-KYU, SUZAKUMON, DAIGAKUDEN, COMPUTER GRAPHICS.

1) INTRODUCTION¹

A major problem facing anyone researching the archaeological history of Japan is that the overall survival rate for old buildings is rather low—in comparison particularly with Europe (although survival trends are in some respects analogous). The 130 years since the end of the Edo period have not dealt kindly with the traditional architectural fabric of Japan, as it stood in 1868. The dismantling of the Bakuhan system was accompanied by the destruction of castles and warrior residences, while the brief suppression of Buddhism devastated temples. Earthquakes and war torched more widely and indiscriminately. Finally, the years of growth since 1945 have been accompanied by massive development and redevelopment in an economic environment in which the value of land has persistently and often enormously outweighed that of the buildings standing upon it. Moreover, this may be seen as the latest twist in a cyclical spiral of destruction and rebuilding by which the Japanese have repeatedly re-made their built environment.

Thus, arguably even more than in Europe, there is a need to supplement surviving structures with other evidence, in order to recover vital areas of the country's architectural past. Increasingly important among these supplementary sources of information is excavated archaeological evidence, for, while the built evidence above ground has been heavily eroded, a positive aspect of recent development from the architectural historian's point of view has been the enormous expansion of archaeological activity, bringing to light material of profound significance for architectural history. Architectural history² and archaeology of course share common ground: when the architectural historian approaches a building as an artifact to be interpreted on the basis of an examination of its fabric, his approach is essentially archaeological. In this paper, however, it is with excavated archaeological evidence that I am primarily concerned. Specifically, I want to consider the impact of such excavated evidence on our understanding of the history of Japanese architecture, and problems concerning its interpretation and presentation, particularly in the form of reconstructions.

2) ARCHITECTURAL HISTORY AND THE IMPACT OF ARCHAEOLOGY

I shall begin by considering examples of the impact of excavated evidence on perceptions of Japanese architectural history, both at a relatively detailed, tactical level, and in wider, more strategic terms. An example of impact at a tactical level is the influence on our understanding of ancient temple architecture of the remains of the *kondō* (golden hall) of Yamadadera at Asuka, one of the clan temples of the Soga family, completed in 643, burnt down in the 12th century and

excavated in 1978.³ The foundation stones of the main cylindrical posts were laid out in an enigmatic configuration, the *hisashi*, or peripheral aisle, having the same number of principal posts as the *moya* or core of the building, but a wider inter-columnar space at each corner (Fig 1). This inevitably made the corner intercolumniation of the *hisashi* extremely wide, and slots in the foundation stones indicate that smaller square-section posts were introduced at mid-span to provide intermediate support. Interestingly, the intermediate posts do not align with the corner posts of the *moya*. This contrasts with the typical arrangement, already found in the *kondō* of Hōryūji (Ikaruga, Nara Prefecture, now usually dated to the late 7th century, see also Fig. 1), in which the posts in both *hisashi* and *moya* are aligned, and if there are *hisashi* on all four sides of a building, each *hisashi* has two more bays than the *moya*. It thus appears that in the case of Yamadadera Kondō, *moya* and *hisashi* were not laid out according to a single rationalised grid of unvarying bay dimensions but conceived independently. Unearthed fragments

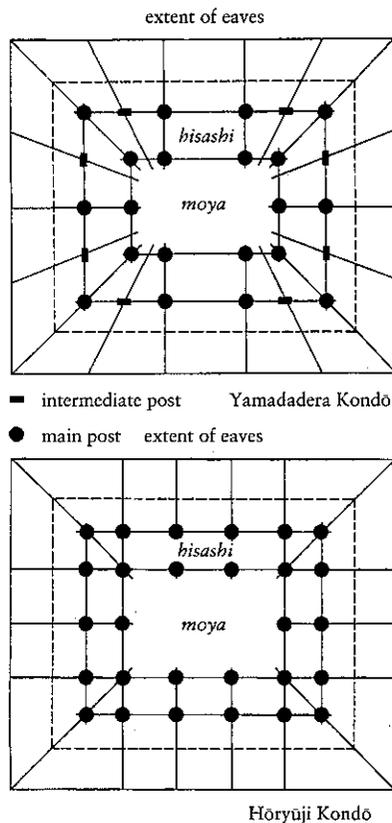


Fig. 1: Yamadadera Kondō & Hōryūji Kondō—Comparative plan and eaves arrangement.

of plaster suggest that the interior walls were covered with murals, and it may be that the rectangular posts were a device to avoid breaking up the plane of the wall any more than was absolutely necessary, so that the large panels of painted decoration could continue uninterrupted. However one interprets it, this was a layout that no-one had anticipated. It raises important questions about the process of rationalising planning and construction as buildings combining core and aisles developed (some of them considered below), and it would not have been known to us but for excavation.

Still essentially “local” in its implications, but nevertheless important in the context of the development of temple buildings in the 7th–8th centuries, is the case of the Wakakusa Garan at Hōryūji in Ikaruga. A major temple at Ikaruga was known to have been founded by Shōtoku Taishi around the dawn of the 7th century, and, on account of its archaic architectural features, such as the famous *kumogata hijiki* (cloud shaped brackets) of its capitals, Sekino Tadashi and other leading architectural historians of the early 20th century regarded the temple buildings as representative examples of Asuka Period architecture, commissioned by the famous regent. However, inconveniently for the architectural historians, *Nihon Shoki* records the complete destruction of Hōryūji by fire, with “not a building left,” in the 9th year of the reign of Tenji Tennō (670), whilst an entry for the 12th month of the previous year notes a fire at “Ikarugadera.”⁴ When this was drawn to their attention, the architectural historians argued that the surviving buildings of Hōryūji were so remote stylistically from those of the Nara Period (710–794) that it was inconceivable that Hōryūji could have been rebuilt as late as the final decades of the 7th century, and that the entry in *Nihon Shoki* must be inaccurate: Hōryūji was not Hakuho but Asuka in style. Conventional historians, led by Kita Sadakichi, retorted fiercely that the written evidence of *Nihon Shoki* could not be so lightly disregarded, and so battle was joined. Neither side made much headway, however, until the intervention of the archaeologists. In 1939, they unearthed Wakakusa Garan, the remains of another temple complex within the Hōryūji precincts, to the southeast of the existing Western Compound (Sai-in, see Fig. 2). This temple, which, with its pagoda and *kondō* laid out one behind the other along the central north-south axis, resembles Shōtoku Taishi’s other foundation, Shitennōji, in its layout, had been burnt, and produced tiles of an Asuka Period type. It was on a slightly different alignment from the Sai-in, but unquestionably earlier. *Nihon Shoki* was apparently vindicated and the architectural historians retired hurt, vowing never to underestimate written records and make bold statements based solely on stylistic data again. It was concluded that the style seen at Hōryūji must have persisted until late in the 7th century, implying, of course, that the succeeding style exemplified by the three-storey pagoda of Yakushiji (erected c. 730 in Heijō-kyō, but incorporating features that may have originated when the temple was first constructed

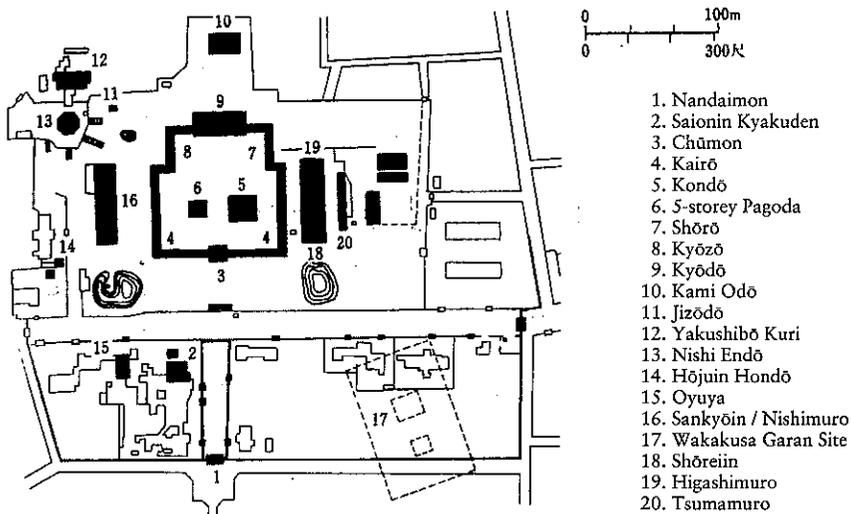


Fig. 2: Hōryūji Western Compound and Wakakusa Garan

at Asuka) appeared later and more rapidly than had previously been thought.⁵ Recent advances in tree-ring dating have further complicated the picture, since they suggest that 670 is actually the very latest date that the central post of Hōryūji's 5-storey pagoda could have been cut, and there is speculation that the temple could have been burnt down in 643, at the same time as Taishi's Ikaruga palace, and been rebuilt closer to the middle of the century. It may therefore be necessary to posit a period of co-existence of the Sai-in and the Wakakusa Garan, the records of fires in 669–70 referring to the destruction of the latter.⁶ What this still unresolved episode highlights, even more than the need to take account of written records which the architectural historians took so much to heart, is, I would argue, the potential of archaeology at a very basic level to show incontrovertibly that a rebuilding had taken place, even if the precise sequence and dating of events remains controversial.

Let us now consider two phenomena revealed by archaeological excavation which have had a very significant impact on the framework of Japanese architectural history at a more strategic level. The first is the *tateana jūkyō* or pit dwelling (see Fig. 3). Already before the end of the Edo period, it was known that pit dwellings had existed in the Japanese archipelago. However, there was a strong tendency to regard them not as a truly Japanese house type, but as the houses of more primitive, aboriginal peoples. Hollows (*kubo ana*) excavated in Hokkaido in the last years of the 19th century, identified as the remains of Ainu

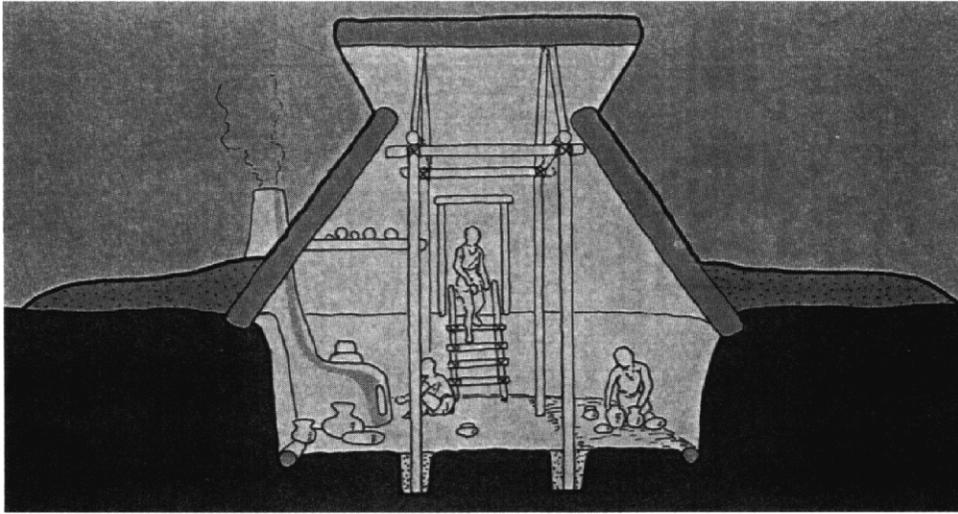


Fig. 3: Reconstructed section of a Kofun-period pit dwelling.

winter houses, seemed to confirm this view, as did passages in Japan's ancient chronicles, such as Keikō Tennō's address to Yamato Takeru in *Nihon Shoki*, describing the winter houses of the Emishi as "holes in the ground."⁷ The prototype of the house of a predicated "Japanese" ethnic group was sought rather in *haniwa* house models.

The gradual realisation, following their discovery in the Tōhoku region and as far south as the Kantō, that pit dwellings had once been far more widespread did not initially seem to call for a re-appraisal of the situation, since these were areas which, according to their early chronicles, the Japanese had acquired by conquest. It was the discovery, in 1937, of Yayoi-period *tateana* at the Karako site in Nara Prefecture that made a re-evaluation inevitable, though this was initially somewhat muted and it was in the very different climate of the post-war years that a wholesale re-appraisal occurred. It came to be recognised that the pit dwelling had an extraordinarily long history in Japan, having been in widespread use from pre-Jōmon times until the end of the Kofun period in Western Japan, and until the early Heian times or even later in the east and north.⁸ In particular, Ōta Hirotarō, one of Japan's leading postwar architectural historians, argued that, from the Kofun Period, the pit dwelling was specifically the house type of the common people, existing alongside elite houses which Ōta considered were fundamentally different in character. Convinced by the weight of archaeological evidence, Japanese architectural historians reinterpreted the pit dwelling as the earliest Japanese vernacular house type, rather than a non-Japanese aboriginal type.

This was a major shift in emphasis, but Ōta and his colleagues did not stop there. Struck by the revelation, as research into surviving Japanese vernacular houses (*minka*) proceeded, that early and remote examples often lacked a raised timber floor and had strikingly low eaves, Ōta suggested that the *minka* lineage as a whole derived from the pit dwelling and should be considered lineally distinct from the raised-floor houses of the elite.⁹ This idea ran counter to the ideas of the previous generation: in the mid 1920s, Kon Wajirō had suggested that the common four-room farmhouse represented the persistence of a primeval Japanese house type from which ancient palaces and mediaeval warrior mansions alike had diverged at different periods.¹⁰ Ōta's theory, heavily influenced by archaeology, has been extremely influential, and in essentials retains its dominance today, though the consensus is beginning to crack.

A second phenomenon concerning which excavation has caused a major re-evaluation is the role and significance of earthfast posts (*hottate bashira*) in Japanese architecture to the end of the mediaeval period. Prior to the archaeological revolution, earthfast posts were regarded as a feature of only the most primitive and ancient architecture, found occasionally in the vernacular houses of remote districts, in excavated pit dwellings, and fossilised in such special and rarified contexts as the Gekū and Naikū at Ise. Then came excavations at the ancient capital sites—first Fujiwara, and later Naniwa, Heijō and Heian—as well as *kokufu* and *gunga* sites across the country, and everywhere the story was the same: tiled roofs, tamped-earth platforms and posts set upon foundation-stones (characteristic of surviving temple halls of the ancient period) were confined to buildings of the highest status and the most formal character, such as the Daigokuden and the buildings of the Chōdōin in the Great Palace compound, the main halls of *kokufu*, etc. Otherwise, earthfast posts were the norm. The biggest shock, perhaps, was the discovery that the buildings of the Dairi (the imperial residential compound within the Great Palace) and the Western Palace at Heijō were all constructed in that fashion, as were aristocratic residences. Excavation has revealed that the diffusion of the practice of setting posts on *soseki* (foundation stones) was only beginning in the latter half of the Heian Period, and that earthfast posts were still used in warrior residences at such sites as Namioka Castle in Aomori Prefecture as late as the Sengoku Period.¹¹ As with the *tateana*, a phenomenon which had been regarded as very primitive (though, because of Ise, not necessarily non-Japanese), was revealed as widespread even at the highest levels of Japanese society into the Nara and early Heian Periods, and in buildings of impressive scale and regular and orthogonal layout.

The reaction to this revelation has been interesting: the combination of earthfast posts and roofs of vegetal materials for residential buildings has been interpreted as a manifestation of cultural continuity, analogous with what took place in the Meiji Period, when Western architectural styles were adopted for public

buildings, but houses by and large remained Japanese in style. Chinese styles and more durable materials, it is argued, were adopted for temples and halls of state, but earlier Japanese practices and aesthetic preferences lived on in domestic spaces.¹² This is perhaps an oversimplification: it assumes, among other things, that stone foundations and tiled roofs were all but universal on the continent at that period. Moreover, in terms of their basic planning, the earthfast-post buildings in elite compounds in Heijō-kyō are by and large conceived in terms of *moya* and *hisashi*, just as are buildings more overtly “continental” in style. Particularly in the capital, the differences may have had as much to do with a hierarchy of building types expressed in more or less costly methods of construction, materials and finishes as with a contrast between indigenous and continental traditions and techniques.¹³

In Japan, as elsewhere, the use of earthfast posts has important implications for a building. On the one hand, even with careful detailing, the posts rot at their point of entry into the ground, limiting the lifespan of the building, though a variety of techniques, such as wrapping the post in a sleeve of clay, and keeping the earth around it fairly dry, can slow the process of deterioration. Today we perceive this impermanence as a grave disadvantage, but the diameter of posts used in elite complexes in ancient Japan meant that they could survive for a considerable time, while the rate at which buildings were rebuilt and re-arranged suggests that the longevity of a given building was not initially a high priority. The less often appreciated but vital (and from the builder’s point of view, highly positive) point about earthfast posts is that they provide a building with great inherent stability, allowing the upper frame to be constructed with minimal bracing. The simplicity of structure that this made possible is well-illustrated by the reconstruction of the original form of a Nara-period residential earthfast-post structure that was later re-used, set upon foundation stones and substantially re-framed, to serve as the Mandala Hall of Taimadera.¹⁴ There can be little doubt that the abandonment of earthfast posts was bound up not only with a growing concern about the longevity of structures (especially where posts of smaller cross-section were in use) and concomitant problems of timber supply (particularly large scantling), but also with the development and dissemination of more sophisticated carpentry and framing techniques, a process of great interest for architectural historians. Another intriguing area of investigation has thus been opened up by archaeological excavation.

Archaeology’s capacity for providing the historian of the built environment with thought-provoking data during the 70s and 80s was truly remarkable. In the field of elite residential architecture alone, the excavation of the mansion of Prince Nagaya in Nara, the Onari Primary School site in Kamakura, and the Asakura Yakata site at Ichijōdani in Echizen, to name but three, have given us the layouts of the metropolitan mansion of an 8th century imperial prince, the 13th century

residences of members of the Kamakura Bakufu's warrior elite, and the 16th century residential headquarters of a Sengoku barony. This is quite a harvest, even if, as is inevitable, problems of interpretation remain numerous.

Even in the 90s, there are few immediate signs of diminishing yields. The last few years have seen the excavation at the Ikegami Sone site near Osaka of the remains of a 10-bay Yayoi-period timber building of earthfast-post construction, 20 m long by 7 m wide, carefully orientated so that its roof ridge ran east-west, and with a substantial well to the south of it.¹⁵ Initially dated to the mid-1st century A.D., it is now considered to be perhaps a century earlier, on the basis of tree-ring dating. In either case, such a structure indicates a hitherto unsuspected degree of architectural sophistication in Kinki by the beginning of the first millennium, with clear signs of continental influence, again raising questions about how meaningful it is to apply the term "indigenous" to the pre-Buddhist architectural tradition.

Equally dramatic has been the revelation of the existence of structures with 6 earthfast posts of chestnut 50 cm–80 cm in diameter, dating from the mid-Jōmon period at the Sannai Maruyama site in Aomori. On average, the posts were embedded nearly 2 m into the earth, leading to the speculation that they may represent the remains of towering raised-floor structures 10 m or more in height. The existence of substantial towers in the context of Himiko's capital in 3rd century Yamataikoku may be inferred from the Gishi Wajinden account, but to find examples of such size dating from 2000 B.C. was quite unexpected. Not only has this site caused a major re-evaluation of the scale of construction project that Jōmon society was able to initiate, if the interpretation of these buildings as towers is correct, it also appears to deliver the coup de grace to the notion of raised-floor structures in Japan as essentially a southern type introduced by Yayoi-period rice cultivators.

3) FOUNDATION AND SUPERSTRUCTURE

This rich harvest of excavated material can be used by architectural historians in a variety of ways, and in the second half of this paper I would like to consider what has become a controversial issue: the extent to which it allows us to reconstruct what history has denied us—the structures that once stood on the excavated sites. Clearly, the possibility of reconstruction depends to a considerable degree on precisely what a given excavation brings to light. In the context of Japan, where the superstructure of buildings before Meiji was almost invariably timber, it is only rarely that architectural elements from the upper structure (apart from roof tiles) survive in the soil. Where they do, their value is of course enormous. Perhaps the most dramatic discovery of architectural elements was

the eastern cloister (*higashi kairō*) of Yamadadera, 9 bays of which were recovered, some of them almost complete, buried by a landslide beneath a layer of roof tiles and bedding clay, and preserved by the waterlogged conditions of the ground (see Fig. 4).¹⁷ In such a case, reconstruction becomes a matter of patient re-assembly and almost no degree of conjecture is involved.

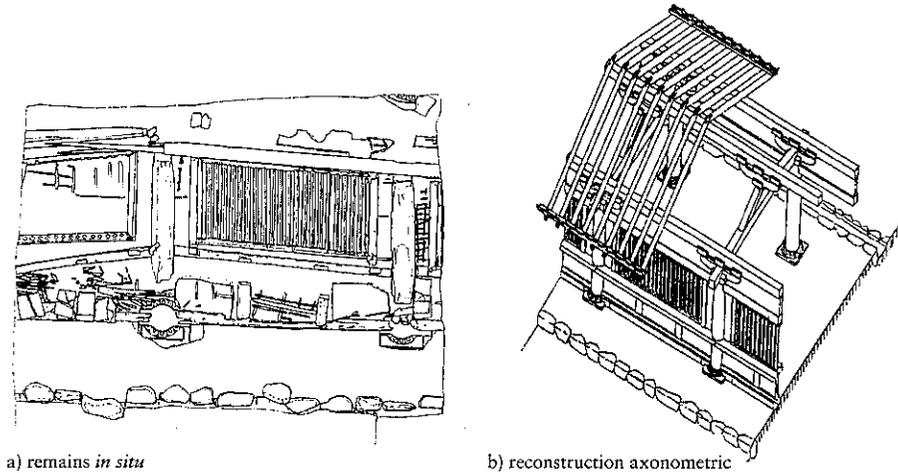


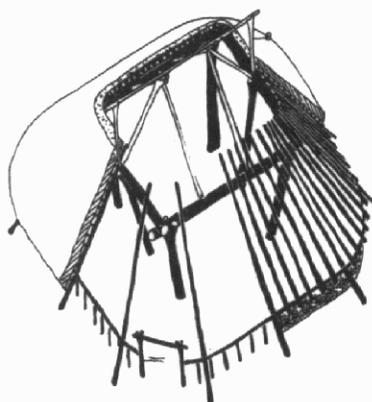
Fig. 4: Eastern Cloister of Yamadadera.

More fragmentary were the remains of a Yayoi-period raised-floor rice granary, including steps cut into a single piece of timber to form a ladder and a post complete with a disk of timber employed as a rodent guard (*nezumigaeshi*), from waterlogged deposits on the Yamaki site at Nirayama in north Izu in 1967. These subsequently formed the basis for the full-size reconstructions by Sekino Masaru of Yayoi-period granaries erected at Toro in Shizuoka, where the remains of similar structures were excavated.

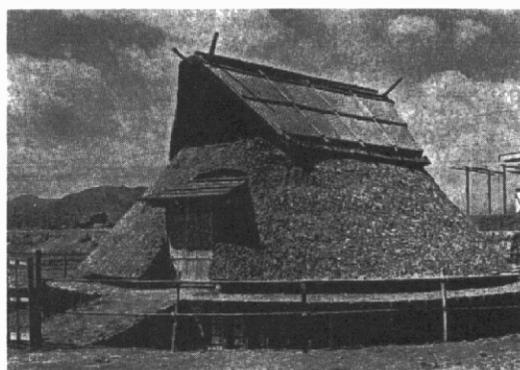
Alongside the granaries at Toro were found Yayoi-period houses, essentially of pit-dwelling type, though without a sunken floor because of the marshy nature of the ground. Little remained of the upper structure, but Sekino noted that the one-bay plan, defined by four posts, with rafters extending beyond it on all sides to ground level and a hearth at the centre, resembled the *tatara*, a simple proto-industrial structure for housing the furnace used in iron making. The earliest surviving specifications for a *tatara*, including diagrams, are contained in the *Tetsuzan Hitsu-yō Kiji*, a manual written by Shimohara Shigenaka in 1784, and Sekino relied heavily on this material in his reconstruction of the Toro houses (see Fig. 5).¹⁹



a) excavated houses



b) diagram of *tatara* structure



c) resulting reconstruction of Yayoi-period house

Fig. 5: Yayoi-period site at Toro, Shizuoka.

The similarity of the ground plans was the justification offered for the use of an 18th century diagram to reconstruct a 3rd century dwelling, though the architectural historians were unwilling to commit themselves on the question of whether the *tatara* can actually be regarded as having descended from the *tateana*. The reconstruction certainly constitutes a plausible superstructure. However, in the absence of clearer Yayoi-period evidence, it is no more than that, though Sekino made use of what proto-historic material he could in preparing his reconstruction, notably the famous Kofun period House Mirror (Kaokumon-kyō) from the Samida Tumulus in Nara Prefecture.

The case of the Toro houses illustrates the obvious point that it is impossible to reconstruct the upper structure of a building accurately on the basis of the foundations alone. In an article discussed in more detail below,²⁰ Yamagishi Tsuneto of Kyoto University has summarised what the foundations of a building may be expected to reveal as follows:

- 1) the size and form of the plan;
- 2) the size of the podium, if any;
- 3) whether there were raised timber floors or *engawa*;
- 4) whether the building had earthfast posts or foundation stones;
- 5) if the bases of the posts or their shadows on foundation stones survive, the size and cross-sectional shape of the posts.

In addition, he notes that the following things may sometimes be inferred, though dimensions can only be estimated:

- 1) in the case of earthfast posts, their original height above ground (estimated from the depth to which they were buried);
- 2) from the size of platform or position of drainage channels, the approximate projection of the eaves;
- 3) from the projection of the eaves, whether double or single eaves were used and what kind of bracket complex there was, if any;
- 4) the form of the roof;
- 5) from finds in the soil, whether the roof was tiled or not.

To Yamagishi's list should be added a range of domestic features, such as wells and hearths, baths and toilets, and sunken features such as *anagura* (storage pits) and the floors of pit dwellings.

It follows that a more detailed image of the building has to be built up on the basis of other material. The richer and more specific this corroborative material is, the more confidently one can reconstruct, but even so, unless a complete set of the architect's drawings survive, the best that can ultimately be produced is a more or less plausible approximation. Four examples will serve to give a sense of the degrees of approximation that one may encounter, and the potential for alternative reconstructions that they offer, beginning with the Kofun period hall of the Mitsudera site (Gunma, early 6th century).

The moated compound of Mitsudera, half of which was excavated in the course of constructing the Jōetsu Superexpress railway line, almost certainly represents the fortified residence and seat of government of a Kofun-period ruler of the heartland of the future province of Kōzuke (see Fig. 6). Post holes show the main hall (*seiden*) of the complex to have been a substantial structure, 14 m × 13.6 m in area, its main front facing south-east. It had a 3 × 3 bay *moya*, which was rectangular rather than square because of wider intercolumniations along the building than across it. Surrounding this was an aisle (*hisashi*) on all four sides, with an interpost span half that of the *moya*. At the rear, the building also had an outer pent-roofed area (*magobisashi*), which appears to have been an addition. The extent of the building and the disposition of posts are thus not in doubt, and, in the absence of tiles, there can be little doubt that it had a vegetal roof, but basic questions of its form remain uncertain, to say nothing of details such as the dimensioning and configuration of beams and rafters.

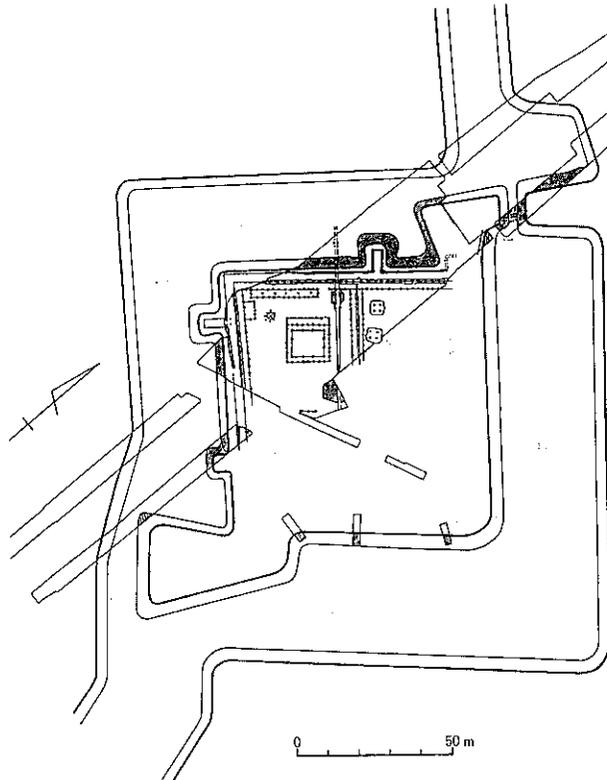


Fig. 6: Layout of the Mitsudera site, Gunma

A conjectural reconstruction of this building was nevertheless included in the excavation report (see Fig. 8), and shows it with a hipped roof of thatch and an off-centre entry giving access to an earth-floored area (*doma*), occupying about two thirds of the interior.²¹ A built-in raised timber platform occupies the entire depth of the right-hand third of the building (viewed from the south east), though there does not appear to be any evidence for it on the site, in the form of the remains of post-holes or foundation stones for the members (*yukazuka*) necessary to support such a floor. There seems to be no clear evidence regarding the position of the entrance either. What, then, was the thinking behind this reconstruction? There is unfortunately no direct explanation in the report, but its authors probably—and not inappropriately—took note of clay house models (*iegata haniwa*) found in Kofun period tumuli in Gunma, particularly the famous set found in the Chausuyama Kofun in Akabori, which is specifically referred to in this section of the report. Of the models found there, the main house and two secondary houses all have an off-centre entrance at one end of the long side, and a

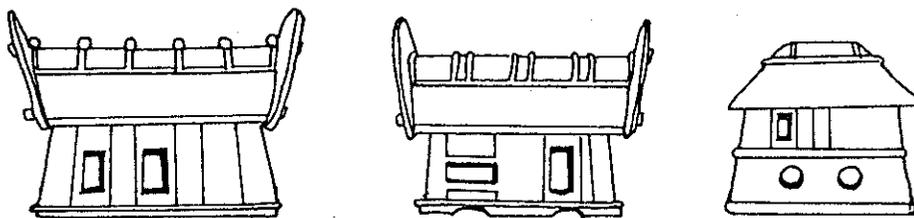


Fig. 7: Haniwa house models from Chausuyama Kofun.

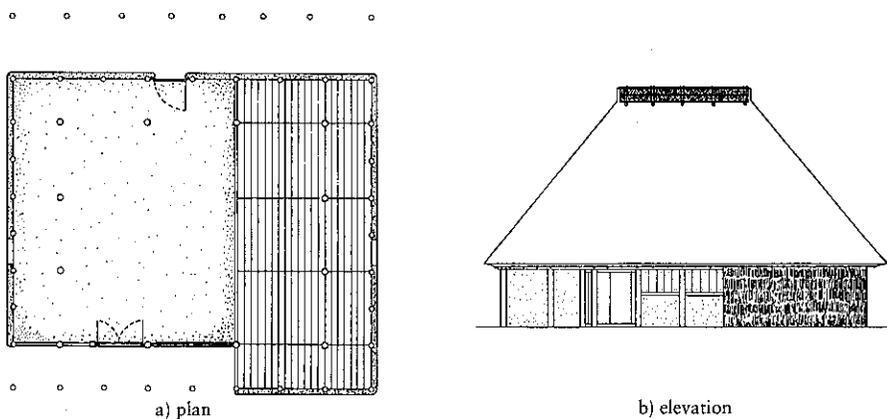


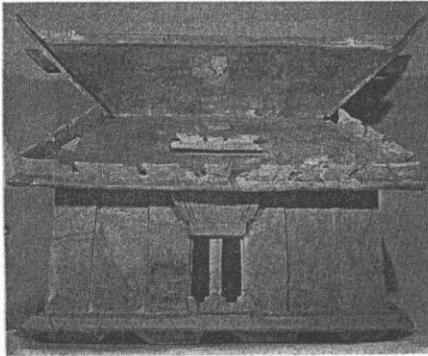
Fig. 8: Reconstruction of main building (*seiden*), Mitsudera site.

window at the other, just as in the reconstruction of Mitsudera (see Fig. 7). Such an arrangement irresistibly calls to mind the basic layout of later vernacular houses (*minka*), with an off-centre *odoguchi*. The similarity duly noted, the typical internal division of *minka* into a *doma* and raised floor living area was presumably then applied to the interior of the reconstructed building as a logical extension of the same line of thinking. Moreover, since a gabled roof like that of the main and secondary houses at Chausuyama was obviously inappropriate, a hipped roof, also found in some of the Chausuyama *haniwa* structures, was used. In other words, much as at Toro, highly stylised and abbreviated representations contemporary with the excavated building were used in combination with Edo period material, this time in the form of the most basic of surviving vernacular houses. However, features such as an internal raised floor, which might have been expected to leave some evidence at foundation level, appear to have been freely introduced despite the absence of such evidence, in what seems a ques-

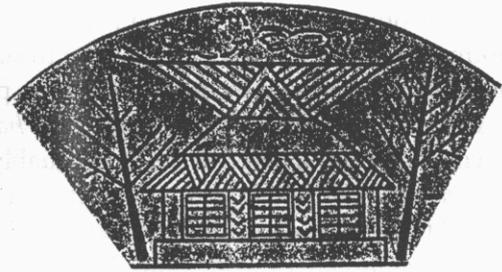
tionable manner. It is of course possible to conceive of a platform which took the form of one or more self-contained pieces of moveable furniture, but there is nothing in the reconstruction drawing to suggest that this is what was envisaged, nor is any supporting evidence for such a phenomenon offered.

It is possible, on the basis of different *haniwa*, and another line of reasoning, to come up with an alternative, but arguably more plausible reconstruction of the *seiden* at Mitsudera. It begins from the premise that, in view of the survival of a line of three posts constituting either a freestanding screen to avert evil, or a *torii*-like portal, about 15 m in front of the building and directly on its central axis, it is likely that the *seiden* had a central entrance, making it closer in terms of its basic gestalt to later halls of state in the Dairi and in provincial capitals. An initial problem with such a reconstruction is that the Mitsudera *seiden* had a *hisashi* post in the centre of its main facade, which might seem to rule out a central entry. However, there is a rather splendid *haniwa* from Tumulus No. 1 in the Teraguchi Wada group in Nara Prefecture²² which has in its main facade a central entrance consisting of a double portal divided by a post (see Fig. 9a). This entrance is the only opening in the *haniwa* and its importance is emphasised with an impressive decorative cresting. Overall, there can be no question that this *haniwa* fits the plan of the Mitsudera *seiden* better than the Chausuyama *haniwa* houses, with their simple gabled roofs, because it has a gabled and hipped (*irimoya*) roof, which the *moya-hisashi* arrangement of the *seiden*'s plan could naturally generate. It also resembles the single storey structure depicted on the House Mirror and identified as a *dō*, or royal hall by Kimura Tokikuni in *Kodai Kenchiku no Imēji* (see Fig. 9b).

A different model thus produces a radically different reconstruction of the building that once dominated the Mitsudera compound (see Fig. 10). While there is sadly no way to determine which reconstruction is correct, it is important to appreciate that the differences have considerable implications regarding the character and historical significance of the building. The second reconstruction implies that, far from being stylistically an essentially locally generated structure, as the excavation report suggests, it was related to ceremonial structures being erected in Kinki, at the centre of the Yamato state. Another piece of excavated material—admittedly non-architectural and from a different site—suggests that such connections may be historically feasible in the context of the 5th–6th century Kantō: it is the ceremonial sword found in the Inariyama Kofun in neighbouring Saitama Prefecture, the inscription on which identifies the owner (presumably the ruler buried in the *kofun*) as Wowake no Omi, a commander of swordsmen at the court of Great King Wakatakeru (tentatively identified as the Emperor Yūryaku, whose traditional regnal dates are 476–79 A.D.).²⁴ This evidence strongly suggests that a central court based in Yamato may have been creating regional sub-states in newly acquired territory under



a) *haniwa* from Kofun no. 1,
Teraguchi Wada Group, Nara



b) hall building from the House Mirror
(Kaokumon-kyō)

Fig. 9: Alternative models for a reconstruction of *seiden* of Mitsudera.

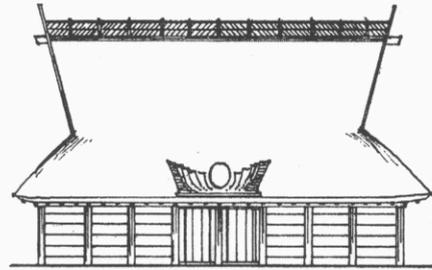
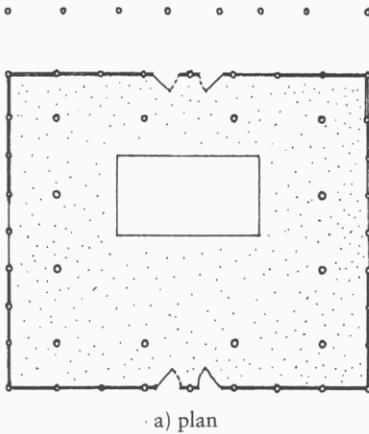


Fig. 10: Alternative reconstruction sketch for *seiden* of Mitsudera.

the rule of trustworthy royal servants. The reconstruction of Mitsudera's main hall proposed above is noteworthy for being compatible with an interpretation of it as a product of just such a socio-politico scenario.

A different approach thus leads to a very different reconstruction of an important building, and by extension, a different interpretation of its significance. The point to be argued here is not which is right or wrong, but rather that reconstructions of the buildings of this period based on their excavated plans alone are inevitably highly conjectural, owing to the paucity and ambiguity of corroborative data.

When we leave the twilight of proto-historic Japan for the ancient period, there begin to be surviving buildings which can form the basis for more confident reconstruction of the upper structure of excavated buildings. On very rare occasions, a straightforward copy is possible: at Yakushiji, for instance, the western pagoda could be reconstructed simply by duplicating the surviving eastern one. The details of the bracket complexes of the pagoda have also been used, with slight changes in scale, in the reconstruction of Yakushiji Kondō, after its plan was revealed by excavation. It is impossible to determine how closely this reconstruction corresponds to the original, since although structural system and plan in conjunction have a logic of their own, the vertical proportions are inevitably conjectural.

The situation is often less straightforward, as in the case of the above-mentioned mid-7th century Kondō of Yamadadera. There seems little doubt that the building was closely related stylistically to the slightly later Kondō of Hōryūji, with its *kumogata-hijiki*, and that it represents a somewhat earlier phase in the development of the style associated with their use. When it comes to reconstructing the details of the upper structure, however, various alternatives are possible and there is no definitive way of choosing between them. The important point to note about *kumogata-hijiki* is that whereas in later temple halls there are three sets of *hijiki* at each corner of the building (one projecting at right angles to the plane of each facade, and one at 45 degrees), in the case of *kumogata-hijiki* there appears to be only one, projecting at 45 degrees (in fact, *kumogata-hijiki* are generally tied back to the *moya* posts of the building, and from that point there are three of them just as in more conventional bracket complexes). Thus the corner *kumogata-hijiki* carried a far greater proportion of the roof load than the individual corner brackets of later temples—more in fact than they could really cope with, leading at Hōryūji to the insertion of extra supports at a later date. *Kumogata-hijiki* are also a feature of the 7th century Tamamushi Zushi, likewise preserved at Hōryūji, though in this case the brackets are radially disposed. A reconstruction model of Yamadadera Kondō with *kumogata-hijiki* on the cylindrical posts only has been built (see Fig. 11).²⁵ However, in view of the spans involved, the load supported by the brackets at the corners must have been even greater than at Hōryūji, and one wonders whether such a structure would have been viable. I think it possible that the intermediate posts of square section in the corner intercolumniations may have supported additional *kumogata-hijiki*, but the designers of the model concluded that they probably only supported rafters. Since they do not precisely align with the corner posts of the *moya*, the members they supported were probably laid out in a radial fashion and the reconstruction model accordingly has radial rafters, which offer the structural advantage that they reduce the load on the *sumigi* or hip rafters. Radial rafters (known as “fan

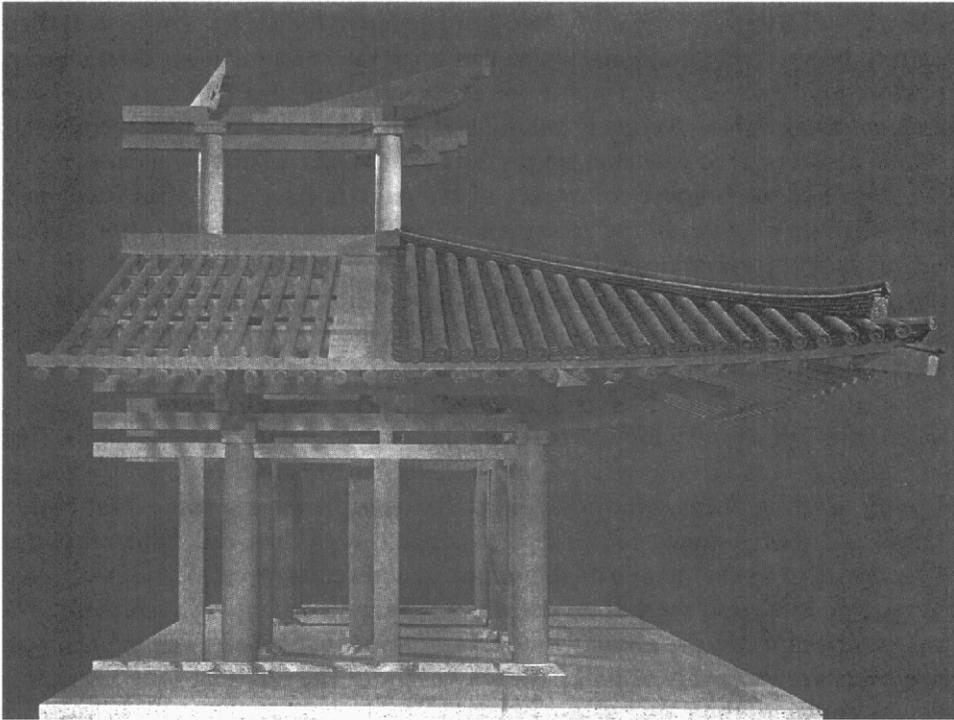


Fig. 11: Reconstruction model of the frame of Yamadadera Kondō, showing radial rafters.

rafters”) are not seen at Hōryūji or in other surviving structures of the ancient period, but were a feature of the Zen and Daibutsu styles introduced into Japan in the mediaeval period. The reconstruction of Yamadadera Kondō controversially suggests that they were briefly in use in the Asuka Period, half a millennium earlier. If so, their total disappearance thereafter is hard to credit, and I feel that an alternative and less radical reconstruction, with radial *kumogata-bijiki* set on rectangular intermediate posts, makes better structural sense, particularly as the Tamamushi Zushi has just such a feature (see Fig. 12). For present purposes, the point to note is that the survival of the base of the building alone is not sufficient to reconstruct the superstructure with total confidence, even when similar buildings survive to offer clues. Tantalising though they are, these clues are insecure foundations for a new theory about the development of roof construction.

Jumping ahead in time to the mid-16th century, the moated residence of the Asakura family, rulers of Echizen, at Ichijōdani in Fukui prefecture, belongs to the period immediately before elite residential complexes begin to survive with some degree of completeness, and it is therefore important as a potential proto-

type. The site is remarkable in that virtually all the foundation stones of the buildings have survived *in situ*. To help with the problem of identifying the various structures and reconstructing their layouts and probable appearance there is a considerable body of material, beginning with the handful of elite domestic buildings of 15th and 16th century date which survive, mainly in temples, as well as their more numerous 17th century successors, and a number of relevant vernacular houses. There are also contemporary illustrations, notably the *Rakuchū Rakugaizu* screens which give a bird's-eye view of the residential complexes of the military and aristocratic elites in Kyoto, as perceived by 16th century artists. We also have a guide to the thinking of the architects, in the early 17th century master-carpenter's manual *Shōmei*, and other plans of elite buildings and complexes. In addition, there is contemporary documentary material relating to the Asakura residence itself. With such an array of sources, it is possible to build up a remarkably rounded picture of the complex, and to

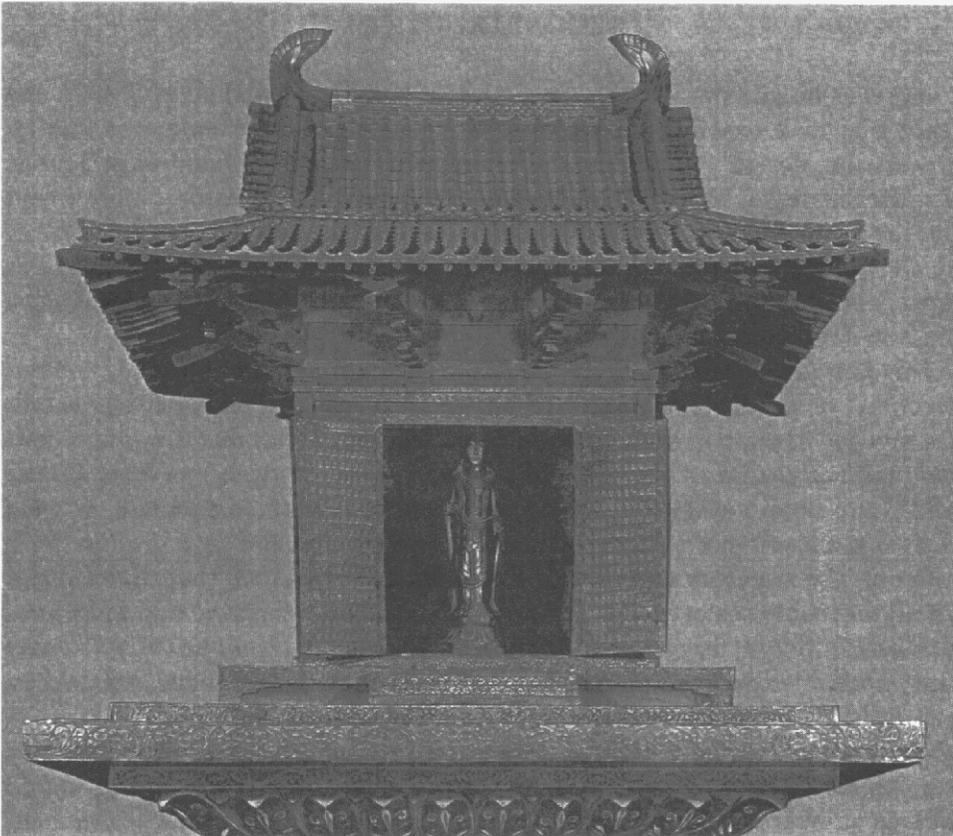


Fig. 12: Tamamushi-Zushi, Hōryū-ji, showing radial disposition of *kumogata hijiki*.

identify the majority of the buildings with some confidence. Nevertheless, despite the fact that domestic interiors were already to a considerable degree standardised, the details of vertical proportioning, positions of openings, the form and construction of the roofs and internal finishes are inevitably a matter of educated guesswork, and the image of the buildings can slide considerably within the parameters defined by the supporting evidence.

In the case of more recent Edo period sites, there are occasions, as at the Omote Goten of Hikone Castle, when a number of detailed contemporary plans survive of the complex to be excavated. This allows the excavator to identify the various structures he is excavating, and even to fill in the gaps where foundation stones are missing, though of course, depending on how detailed the drawings are, reconstructing the superstructure, and particularly the outline and structure of the roof, still remains a speculative process.

4) IN CONCLUSION: THE VALUE AND VALIDITY OF RECONSTRUCTION

It may thus be said that the reconstruction of buildings based on excavated evidence is at once exacting and inexact. It demands careful examination and interpretation, not only of the site and the remains unearthed, but also of a range of related material. Moreover, at the end of the process, the restorer must accept that the reconstruction is almost bound to be incorrect at a detailed level. All of which has given rise to a debate that I want to consider in the last section of this paper, about the value of undertaking reconstructions of excavated buildings, and how far reconstructors should go.

This is by no means a purely academic problem: in Japan today, “reconstruction” of buildings on excavated historic sites, not just on paper but as full-size replicas, is experiencing a boom. Some will retort that this is nothing new: they will recall that in the pre and postwar years, castle keeps from Osaka (1931) to Kumamoto (1960) were resurrected in reinforced concrete, as were excavated ancient monuments such as Shitennōji Garan and (as a disguise for a museum) the refectory complex of Kōfukuji in Nara. After that, there was a lull on the macro scale, except perhaps in the case of prehistoric buildings: sites such as Heijō-kyū, Toga-jō and Ichijōdani Jōka-machi were initially chastely landscaped after excavation in such a way as to show where roads and ditches, post holes, foundation stones and building platforms had been. The reconstruction of excavated buildings shifted from the site to the interior of site or regional historical museums, where reconstructions in miniature were produced in large numbers. There are examples of such models at all of the above mentioned sites and many others, and they form one of the principal methods of

display in the National Museum of Japanese History at Sakura in Chiba Prefecture. Now, however, the pendulum has swung again, and the full-sized reconstruction on site is back with a vengeance, not in reinforced concrete this time, but in the original materials, and with the emphasis on authenticity and attention to historic detail. In the best cases, the correct timber, selected as nearly as possible from the appropriate forest, is lovingly finished with halberd plane (*yariganna*) or scallop-bladed adze (*hamaguri-chōna*), to give it just the right surface (though this is not always sufficient to disguise the regularity of timber initially cut with a modern saw rather than split with wedges). Already, to mention but a few, Kakegawa Castle (Shizuoka Prefecture) has a new *ten-shū*, Ichijōdani has streets of *machiya* to supplement a lone *bukeyashiki* erected over a decade ago, and Kazusa Kokubunji has a brand new 8th century *garan*. At Hikone Castle, the Omote Goten has reappeared (Fig. 13), and within a facsimile of its original exterior, houses a historical museum, while at Heijō-kyū, a pair of elegant but highly controversial Nara-period pavilions stand in the reconstructed Tōin garden. Nearby, a new Suzakumon dominates the skyline (see Fig. 14), to be followed, if existing plans proceed, by a reconstruction of the Daigokuden, the main state hall of the Great Palace. I could go on: Historic Japan is apparently rising again as we cross the threshold of the third millennium.

Some architectural historians have serious reservations about what is going on, and none has put them more articulately than Yamagishi Tsuneto. Both in *The Journal of Architectural Historians of Japan* and, more recently, in the A.I.J.'s *Journal of Architecture and Building Science*, he has been strongly critical of current trends in architectural reconstruction in Japan,²⁶ not only with respect to excavated remains, but also to the restoration of surviving historic buildings, though there is only space to discuss the former here.

He argues that, because they are in large measure based upon surmise, the so-called reconstructions, whether small-scale or full-size, are not true replicas of what once stood on the site, nor can they be regarded as historic buildings: they are, in fact, no more nor less than pieces of modern architecture. They thus lack historical authenticity, and, although purportedly educational, designed to make a site easier for non-specialists to grasp, run the risk of being positively misleading to the viewing public, most of whom have no way of knowing how much of what they are looking at is fact and how much guesswork.

Yamagishi also expresses concern that huge sums ostensibly assigned to the budget for conservation are being funnelled into what are effectively new—and highly expensive—prestige construction projects while genuine products of a now vanished way of life (18th, 19th and even 20th century temples, shrines and houses, etc) are starved of resources and allowed to slide into oblivion.



Fig. 13: Reconstructed Ninomaru Goten, Hikone Castle, incorporating museum.



Fig. 14: Reconstructed Suzakumon of Heijō Great Palace Compound, Nara.

These are strong and cogent criticisms, and Yamagishi's last point in particular highlights an urgent problem which one can only hope the recent introduction of a lesser grade of "listed buildings" in addition to existing cultural properties may mitigate. What, then, are we to make of it all? Full scale reconstructions of major buildings on important sites are bound to be controversial. Clearly, too, while cultural aspects and local pride occupy the foreground, there is an economic agenda in the background. Reconstruction projects help to provide continuity of employment for the small but vital corps of specialist craftsmen who constitute a pool of human resources for the restoration and maintenance of historic structures, as we enter a relatively fallow period in the cycle of major repairs. From a wider perspective, in Japan's becalmed domestic economy, such projects are perceived as economically beneficial both in the short term, because of the activity they generate while they are under construction, and in the longer term because of the sightseers it is hoped they will attract in the future. This is a particularly important factor for remote or rural areas, but even a site like Heijō-kyū, on the edge of Nara, was, despite its extent, easy to pass over: once a Daigokuden approaching the awesome scale of Tōdaiji's Daibutsuden has been completed, it will assuredly be far more conspicuous. Seeking to maximise the economic potential of heritage is part of an international trend: rebuilding it first is, on reflection, not inconsistent with a scrap and build approach going back in Japan to the institution of *shikinen sengū* as Ise, and beyond. It may be said to reflect the transience, mutability and vulnerability of the traditional built heritage which is a characteristic that Japan shares with much of East Asia. At first sight, this offers a distinct contrast to Europe, whose wealth of surviving masonry monuments, less easy to sweep away, were earlier identified as worthy of retention and, simply by being there, arguably helped to generate an overall cultural climate sympathetic to architectural conservation. To contrast a tradition of rebuilding in Japan with one of conservation in Europe is of course rather too simplistic. For one thing, Europe too has had its periods of rebuilding and replacement, and exacerbated in some measure at least by environmental pollution, the exteriors in particular of most of its masonry monuments have, to a greater or lesser extent, been remade with varying degrees of regard for accurate replication of what was there before.

Nevertheless, "recladding" of an existing structure and wholesale re-erection based on excavated and corroborative evidence are, most observers would surely agree, activities of a different order. There is unquestionably a vividness and immediacy about walking down a full-scale piece of historic streetscape, and in a country where mediaeval streetscape does not survive, a reconstruction such as the street of *machiya* at Ichijōdani offers people an approximation to a "time-tunnel" experience broadly comparable to the Yorvik Viking Centre in York,

England. Such a “time tunnel” has its value, though, depending on how it is handled, it can veer uncomfortably close to Disneyland.

Many visitors to sites in Japan will doubtless find reconstructed buildings more stimulating than a landscaped field of shrubs marking post holes. Others—a minority perhaps—will find it all rather intrusive: the pathos of evanescence expressed in Matsuo Bashō’s immortal *haiku* about Hiraizumi, “Natsukusa ya, tsuwamonodomo ga yume no ato” (“Summer grasses: all that remains of the warriors’ dreams”) is certainly lost, but in cases like the Heijō palace site, ringed by busy roads and the encroaching 20th century city, an architectural presence of traditional form may be more of a plus than a minus in the eyes of many, though an extensive natural park in the heart of expanding Nara could be as great a boon in years to come. The aesthetics of the matter could be debated at length, each site requiring consideration on its merits.

If we adopt the more detached stance of the cultural anthropologist, this phenomenon may be regarded as another facet of modern Japan, to be accepted along with *pachinko* as part of the current cultural package. Seeking explanations for the grander projects, an appraisal based on the essentials of human nature might conclude that, behind the economic, educational and tourism-related reasons noted above—indeed, underlying them—must lie a desire for monuments in the form of tangible full-sized objects to bear witness to the achievements of an ancient and mediaeval culture that built on a scale to match the Pantheon or Westminster Hall, though in materials easier to eradicate. In the sense that it is bound up with cultural pride, such a desire is not at odds with but complementary to the drive for modernity that built the *shinkansen* and the Great Seto Bridge, or conceived a city on the waters of Tokyo Bay (such an appraisal confirms the perspicacity of Yamagishi’s stress on reconstructions as modern buildings). It follows that reconstructions are, paradoxically, manifestations of Japan’s de facto participation in a global civilisation in which the impressiveness (however measured) of a nation’s cultural heritage, like its modern achievements, conveys cachet and distinction. However, for the historian or archaeologist, all this rather misses the point: we should never lose sight of the fact, no less true for being oft-repeated, that total excavation involves the destruction of the site as an archaeological feature. To that extent it makes little difference what is erected there afterwards, though a full-size reconstruction arguably accords the site more recognition than an office block.

In the last analysis, it is for this reason, I would argue, that reconstruction is too important to be abandoned. Difficult and imprecise though it may be, having dug up and effectively destroyed the evidence, we surely have something approaching a duty to engage in a measure of reconstruction, because reconstruction and interpretation are ultimately inseparable, and reconstructions both reflect and influence the conclusions that are drawn from the site itself. In that

sense, my position is somewhat different from that of Yamagishi. A distinction can be drawn between different types and scales of reconstruction. Full size “blockbusters” may, according to the context, be controversial, but reconstructions at a reduced scale—which constitute the majority—whether 2-dimensional or 3-dimensional, are powerful educational tools that can inform in a vivid and interesting way, without impinging on the site itself, or involving an outlay of resources on the scale of a full-size replica. They too, of course, can be criticised for imposing a particular and partly hypothetical image on the viewer. In that respect, medium and scale make little difference: the drawback is inherent. It can be mitigated, however, if ways are found to convey a sense of the complexities of the reconstruction process.

The reconstruction process—at all scales—is, I am convinced, of enormous value to the researcher, arguably more so than the finished product, since it is in effect the testbed of hypotheses. It follows that a detailed record of the processes of reasoning and analysis by which the finished product was achieved should be kept and ways found to indicate to the interested viewer what they were, whether through diagrams and sketches in reports,²⁷ or videos, computer graphics displays or such other means as technology can devise. The line between what is known and what surmised requires clear definition. These are areas where more effort should be expended. Finally, since excavated evidence is rarely sufficient for us to identify the single “correct” solution, it will often be appropriate to offer more than one reconstruction of a given site. In the age of computer graphics, this is by no means an impossibility. One could certainly envisage interactive exhibits in which not only researchers but the interested lay viewer could work through the evidence to build up his/her own 2 or 3 dimensional reconstruction of a given site on a computer screen.

Notes

1. An earlier and shorter version of this paper was presented at the Joint East Asian Studies Conference (“East Asia: Looking Forward, Looking Back”) at Collingwood College, University of Durham, England, UK, in April, 1997. I am grateful to Professor Tamai Tetsuo of the Architectural History Seminar, Faculty of Engineering, Chiba University, who has extensive interests in this field, and whose advice, experience and insights have been of great assistance in the composition of this paper. Responsibility for the views expressed here, and for any errors rests nevertheless with the author alone.
2. The term is here used to denote the history of the built environment as a whole, without regard to debates about distinctions between “architecture” and “building.”
3. See Tsuboi Kiyotari, 1985, p. 79 ff.
4. See Takagi Ichinosuke et al. (ed), 1965, 1991, p. 373–5 and W. G. Aston (transl), 1972,

- 1985, pp. 292–93.
5. The possibility that a rebuilt Hōryūji might have incorporated consciously archaic features in its detailing does not appear to have found proponents.
 6. However, the proximity of the two makes such a period of co-existence difficult to envisage: for a discussion of the debate on the rebuilding of Hōryūji, see Fujii Keisuke and Tamai Tetsuo, 1995, pp. 37–39.
 7. See W. G. Aston (transl), 1972, 1985, p. 203.
 8. For a more detailed account of the gradual reappraisal of the pit dwelling, see Kitō Kiyooki, 1985, pp. 16–18.
 9. Ōta's ideas were first sketched out in *Zusetsu Nihon Jūtakushi*, published in 1948, but an article entitled *Nihon Jūtakushi*, published in 1954 represents his definitive statement and he included it in a collection of his major articles entitled *Nihon Jūtakushi no Kenkyū* (Iwanami Shoten, 1984).
 10. For a brief but clear synopsis of Kon's conclusions, see Hayashino Masanori *Kinki no Minka*, Sagami Shobo, 1980, pp. 7–8.
 11. See for instance Namioka-chō Kyōiku Iinkai S. 61–S. 62 nendo *Namioka-jō-shi Hakkutsu Chōsa Hōkokusho*, 1987.
 12. See for instance Fujii Keisuke and Tamai Tetsuo, 1995, p. 34.
 13. Morris, Martin N. 1995, p. 165.
 14. See Nara-ken Kyōiku Iinkai (ed.), 1960, pp. 177–195.
 15. See *Kikan Kōkōgaku*, 53, 1995, p. 109.
 16. See Aomori-ken Kyōiku Iinkai (ed.), 1994.
 17. See Tsuboi Kiyotari, 1985, pp. 96–103.
 18. See Nirayama-chō Kyōiku Iinkai (ed.) *Nirayama*, 1972, pp. 16–18.
 19. See *Nihon Kenchiku Gakkai* (ed.), 1980, p. 108.
 20. See concluding section.
 21. See Gunma-ken Kyōiku Iinkai et al. (ed), 1988, pp. 293–94.
 22. See Wada Atsumu, 1988, p. 102.
 23. See Kimura Tokikuni, 1979, pp. 28–31.
 24. See Wada Atsumu, 1988, pp. 138–48 for an excellent exposition of the arguments in favour of regarding Wowake no Omi as an official of the Yamato court who became a local ruler.
 25. See Suzuki Kakichi (ed.), 1988, pp. 20–23.
 26. See Yamagishi Tsuneto, 1994, 1996.
 27. This was attempted with considerable success, for example, in the report issued to accompany the reconstruction of the late mediaeval castle site of Nejo in Hachinohe City, Aomori Prefecture.

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要約

地面から上の部分：

考古学発掘データと日本の失われた歴史的建築の復元

マーティン・モリス

古建造物の残存率がヨーロッパの殆どの国々よりも低い日本の場合、建築と造営の歴史をより明確にする手掛かりとして、戦後膨大に増えた考古学の発掘調査に基づく資料が益々重要と成ってきている。本論において、日本建築の歴史を理解するため、考古学発掘データの重要性を考慮

し、建造物に関する発掘資料の解釈とそれに基づく復元の展示方法の問題について論ずる。

論文は三つの部分から成り立っている。第一部では、考古学の発見が戦後、日本の建築史において、どのような新しい見方を齎したのかを明らかにする。例として、若草伽藍の発見が法隆寺再建論に及ぼした影響や、掘立柱を利用する構造方法が、中世末までいかに広く使われていたのかという発見の影響等を取り上げる。また、大田博太郎博士は、前史時代から中世まで、竪穴住居が日本の住居タイプとして重要な位置を占めたことの発見を認め、それを日本の民家の原型として見直したという過程も説明する。

第二部では、発掘データに基づいて建物全体を復元するための方法論を考慮し、上部構造に関する資料不足による問題を分析する。山田寺回廊のように、上部の建築材が発掘される場合、説得力のある完全な復元が可能となるが、そのような例は珍しく、殆どの場合礎石や柱穴しかなく、関連資料により上部復元を行う方法しかない。関連資料の性格・範囲・確実性を伝える例を紹介する。なかに、埴輪、絵巻物、屏風絵、建築指図等の絵画資料と、残存する同時代の類似する建造物を参考に復元が行われた例を取り上げる。勿論発掘現場および関連資料の質によるのだが、発掘された跡とこのような関連資料を併せた結果、普通は一つの正確な復元よりも、幾つかの可能性を生み出すことや、復元の相違により、建造物の位置付けと解釈も当然異なることを指摘する。

最後の節において、推定復元の展示方法の問題について述べる。コンピューター・グラフィクス、建築模型や最近流行となった原寸の復元再建の方法等が取り上げられ、後者は特に道徳的な問題を齎し、論争の出発点になっている。著者は、復元に対する欠点についての不満を認めながら、発掘により破壊された現場から得たデータを最大限に把握・理解するため、復元の重要性を強調し、できるだけ方法を明確にしなが、復元は続けるべきだという意見で論文を終わる。