

## Foreword

### The Conservation and Maintenance Project of the Shosoin Repository

Kazuki Sugimoto

This volume presents new understandings gained through studies carried out during the four-year project of the Conservation and Maintenance of the Shosoin Repository between 2011 and 2014. These concurrent studies have looked into the Shosoin Repository from interdisciplinary perspectives. The overall of the conservation project was fully reported in *Shosoin Shoso Seibi Kiroku* [Documentation on the Conservation and Maintenance of the Shosoin Repository] (Tokyo: the Imperial Household Agency, 2015), yet the outcomes of the studies have their own values to report further in depth.

As a foreword to these papers, I would like to firstly introduce the process toward the conservation project, secondly the management structure and thirdly on-site public viewings during the construction, and finally note the significances and achievements of the conservation project.

## Report on the Conservation and Maintenance of the Shosoin Repository

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The conservation and maintenance of the Shosoin Repository was performed as a project under the direct control of the Imperial Household Agency. It ran for 39 months from August 2011 to October 2014, at a total project cost of 801,951,900 Japanese yen. As a conservation project for the repository, it was the largest in scale since the restorations of 1913.

Prior to the conservation project, the most significant damage included distortion and disarray of roof tiles through ageing and growth of moss. During the major restoration of the early 20th century, the roof truss had been changed from a Japanese-style truss to a queen post truss. However, a preliminary investigation revealed that the truss was imperfect and the cantilevers previously incorporated were not fully functional. For the present conservation, a decision was made to retiling the roof and perform partial repairs, especially reinforcements to prevent the eaves from further sagging. The damaged wooden sheathing was also replaced. The roof truss was reinforced with metal fittings, and the eaves were supported by making the truss and cantilevers function correctly.

The initial investigation revealed that approximately 800 flat roof tiles have survived from the Tenpyō era, 8th century AD. Display cabinets with glass doors, made in Meiji 14 (1881) and used within the repository, were also dismantled temporarily. This allowed one to observe the *azeki* (roughly hewn three-faced timbers, creating the corrugated external walls of the repository) from inside the building.

In this paper, the history of repairs to the Shosoin Repository, an overview of the conservation work performed, and the styles and techniques relating to the repository are summarized.

# Various Issues around the Nara Period Flat Roof Tiles of the Shosoin Repository

Shozo Iwanaga

During the conservation and maintenance work of the Shosoin Repository – *Shoso*, an investigation was carried out on the Nara period flat roof tiles that were dismantled from the roof of the repository. This paper discusses the characteristics of the manufacturing techniques, the period and place of their production, as well as the context in which the tiles had come to be used for the repository.

In the Nara period, there are two kinds of techniques for manufacturing flat roof tiles: *oke-maki-zukuri* (a bucket-shaped wooden mold is used to make a clay cylinder which is cut into four flat roof tiles); and *ichi-mai-zukuri* (individual flat roof tiles are made on curved wooden molds). The *oke-maki-zukuri* tile is characterized by its beaten convex surface using a wooden board wrapped in rope. The beaten surface is rubbed smooth for 13 cm at the narrower end, and the wider end tends to bear finger marks. The Shoso *oke-maki-zukuri* tiles have distinctive technical features, and are likely to have been made by a specific workshop.

Previous studies have indicated that the tile production by *oke-maki-zukuri* had declined significantly in the 730s. However, on the roof of the Shoso, which was possibly built around Tenpyō Shōhō 5 (753), 595 *oke-maki-zukuri* tiles and 180 *ichi-mai-zukuri* tiles have remained. It is debatable whether the Shoso tiles could be newly made ones or reused old ones, or whether the building itself could be a reconstruction of an older one.

Compared with contemporary *oke-maki-zukuri* tiles excavated from neighboring archaeological sites of palaces, roof tile kilns and temples, the Shoso tiles are most likely to have been manufactured in the *Araike* kilns located to the south of the Todaiji temple. Flat roof tiles excavated from the *Kondo* (main hall) of the *Shin-Yakushi-ji* temple (established between 749 and 751) are also considered as the products of the *Araike* kilns, although there are some differences in technique from the Shoso tiles.

In this paper, the kilns that could have produced the Shoso tiles and the *Shin-Yakushi-ji* tiles are defined respectively as *Araike kiln A* and *Araike kiln B*, and the context of production and supply was discussed. The following possibilities are suggested:

1. the kiln A began operating before the kiln B. A building on which the kiln A roof tiles were used was dismantled and reconstructed to become the Shosoin Repository.
2. the kiln B began operating before the kiln A. At the kiln A, the *oke-maki-zukuri* technique of flat roof tile production continued on after Tenpyō Shōhō 5 (753), and the tiles were used for the newly built Shoso.

The second scenario is more probable, but the conclusions will require further investigation into the *Araike* kilns and *Shin-Yakushi-ji* temple.

# A Dendrochronological Investigation of Construction Materials Used in the Shosoin Repository ( III )

Takumi Mitsutani

The Shosoin Repository – *Shoso* is constructed as a single building with its North and South Sections built in *azekura* style (constructed with roughly hewn three-faced timbers stacked horizontally at all four sides so as to intersect at the corners) and the Middle Section in *itakura* style (constructed with thick flat boards). To date, the year of construction of the Shoso has been debated, and there are two hypotheses:

1. the North, Middle, and South Sections are from the original construction.
2. the North and South Sections were originally two separate buildings, and the Middle Section was a later addition.

A dendrochronological analysis on the construction materials of the Shoso was carried out in order to obtain more solid information underpinning the hypotheses. It was also expected that the history of repairs to the repository would be better understood.

The author has performed dendrochronological analyses of the Shoso for three times in 2002, 2005 and 2012. As a whole, 67 construction materials were selected for the study, among which dendrochronological dates were determined in 47. In the first investigation in 2002, it was found that the *daiwa* (architrave) of the Middle Section, which retains its sapwood for 2.8 cm, was from circa 741 plus some additional years. This corresponds with a possible building date of the Shoso suggested by historic manuscripts, sometime between the Consecration Ceremony of the Great Buddha in Tenpyō Shōhō 4 (752) and the demise of the Emperor Shōmu in Tenpyō Shōhō 8 (756). Furthermore, the timber could have been cut down around the same time when construction materials were obtained for the Great Buddha Hall of the Todaiji Temple in Tenpyō Shōhō 1 (749). During the analyses in 2005 and 2012, a number of original construction materials were identified in the Middle Section. From these, it is most likely that the North, Middle and South Sections had all been constructed as part of the integral plan. Materials from the repairs of the Heian and Kamakura periods were also found through this study, and these correspond to historical records about the Shoso repairs.

# History of Repairs to the Shosoin Repository Related to Natural Disasters

Takehiko Iida

The Shosoin Repository is a representative example of wooden architectures from the Nara period, and has kept over 9,000 artifacts, currently known as the Shosoin Treasures. Historical documents suggest that the repository had been repaired for a number of times. This paper provides an overview of history of repairs to the repository in earlier periods, and looks into the background, scale and particularly any occurrences of disasters to be the cause.

The Shosoin Repository had been managed under imperial seal, although it was located within the precincts of the Todaiji temple. The Todaiji had been required to obtain permission for any access to the repository, even for a repair. The Todaiji had played an actual and key role for ensuring the safety of the repository as well as treasures.

Surprisingly, many of the repairs had been carried out not in direct relation to disasters, and the exceptions are a few: repair in Chōgen 4 (1031) due to wind damage, and in Kenchō 6 (1254) after a lightning strike. In other words, the Shosoin had almost never exposed to damages by natural disasters to the extent that its existence was threatened. Rather, repairs to the Shosoin had been normally performed as a part of restoration to the buildings within the Todaiji precincts. Therefore, the maintenance of the Shosoin had been greatly influenced by political and financial situation of the temple at all times.

The author particularly focused on the repair of Kōwa 2 (1100). At the time, the Todaiji temple was unable to undertake any large-scale repair to its buildings primarily due to its financial difficulty. At the end of the 11th century, a sense of crisis arose while confronting frequent major earthquakes. With a support given by the imperial court, the monk Yōkan 永観 (1033-1111) was appointed to the chief administrator of the Todaiji in Kōwa 2, and was in charge of the restoration project. In this project, with the intention of emphasizing the continuation of close relationship with the imperial court, the temple had chosen the Shosoin Repository as the first building to be repaired since it housed treasures attributed to the Emperor Shōmu who was the founder of the temple.

Although the significance of the Repository had to some extent changed over time, the imperial court, the Todaiji and rulers at the time had acted in their respective roles to perform a necessary and sufficient maintenance since ancient time, and contributed greatly to the preservation of Shosoin Treasures that one sees today.

# The Guardian Shrine of the Shoso

Michihiko Kasugai

Adjacent to the *Shoso* (Shosoin Repository), in the northeast direction – superstitiously considered as demon’s gate “*kimon*”, there is a small guardian shrine built in the architectural style of *Kasuga-zukuri*. It stands facing south, towards the Shoso, with a *torii* gate at the front, and is surrounded by *tamagaki* (timber fencing).

This shrine is presently called *Sugimoto-jinja* (“Sugimoto Shrine”). Until today, little has been known about its origin and history. During the recent conservation project of the Shoso, the shrine was also repaired, and the concurrent investigation looking into the relevant historical documents has revealed its relatively long and intriguing history, as well as periodic reconstructions it had undergone.

The earliest record assuring the existence of the Sugimoto shrine dates back to Kenkyū 4 (1193). A written record from Genroku 6 (1693) in the *Mitsukura-nikki* [Record of Three Storages] (Nara: Todaiji Library) suggests that the shrine had been reconstructed through its history in conjunction with restorations of the Shoso. The current sanctuary is from a periodic reconstruction of Tenpō 7 (1836) according to the inscription written on a piece of wood that was discovered in the shrine during the recent repair.

In a historic document written in Kōan 11 (1288), the name of the shrine already appears as “*Sugimoto-myōjin-hōden*”, indicating that the shrine had been called “Sugimoto (literally ‘under *sugi* (Japanese cedar) tree’)” from old times. A *sugi* tree after which the shrine was possibly named was certainly recognized as the sacred tree of the shrine by the Edo period. In Meiji 35 (1902), an eight-lobed mirror with flowers and insects design from the Nara period was discovered under the floor of the shrine.

Through this project, it also became clear that the Sugimoto shrine had served as the guardian of the Shoso since old times.