Stucco

Research Project on
Stucco Decoration and Clay Statues

Progress Report 2021

National Institutes for Cultural Heritage, Tokyo National Research Institute for Cultural Properties
Japan Centre for International Cooperation in Conservation

Cover: Tamote Shinpin Shwegugyi Temple (Myanmar)

（Provided by Bagan Archaeological Site, Department of Archaeology and National Museum, Ministry of Religious Affairs and Culture）

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Introduction

The various decorations on walls and ceilings in buildings sometimes captivate viewers and not a few decorations receive high commendation for their beauty and venerableness as art pieces. When you focus on such decorations, you will notice that various materials and styles are used, and they assume an important role to transmit the culture fostered by the community from one generation to the next.

A classic technique for decoration is known as 'Stucco Decoration'. In dictionaries, 'Stucco' is explained thus: 'plaster coating for the interior wall of a building. It is also called Stucco. It is made mostly from lime; clay flour, marble flour, sand, and pigments are added for additional strength. It is easily shaped and becomes hard when dried. It is used as materials of statues and glyphs to decorate walls and ceilings' (*Hyakkajiten* Mypedia); 'coating material for walls originally used to imitate marble stones. It is made by adding marble flour and clay to lime. It was widely used for the detailing of Greek, Roman and Islamic architecture' (Encyclopædia Britannica); 'a construction material made of aggregates, a binder, and water. Stucco is applied wet and hardens to a very dense solid. It is used as a decorative coating for walls and ceilings, exterior walls, and as a sculptural and artistic material in architecture' (Wikipedia). Although the explanations are slightly different, the common factors are: 'architectural material that is composed of aggregates, a binder, and water'; 'what is applied wet and hardens to a very dense solid'; and 'It is used as a decorative coating for walls and ceilings'. What meets all the requirements are clay wall, in which fibrous binding material is mixed with sands or clay; sand plaster, in which hydrated lime is mixed with river sand, gypsum, and so on; decorations are developed by utilising materials in different countries and localities from olden days to the present, and they have many commonalities in terms of technique and style. In other words, it seems that Stucco decoration has been diffused through traffic and trade and sometimes through incursion and colonial occupation, and it iteratively has developed and declined to this day.

However, previous studies were limited to certain areas, mostly from the archaeological and art-historical point of view (e.g. Zamperini, 2012), and few studies cover the technique and materials in depth. In fact, in the field of conservation, various methods that are insensitive to the originality of the cultural properties are widespread; some cases show that such methods have caused damage.

Therefore, in this project, we aim to collect information on the materials and techniques used in existing Stucco Decoration and Clay Statues around the world, consider the influence between localities, and enrich our understanding of the structure and characteristics of Stucco. Moreover, as a mid-term goal, we will investigate the methods of conservation and maintenance in each country, and through collaborative research with each researcher, we hope that the outcomes will lead to the enhancement of Stucco's cultural value and technical development in conservation work.

Senior Researcher, Maekawa Yoshifumi
Japan Centre for International Cooperation in Conservation
Tokyo National Research Institute for Cultural Properties, National Institute for Cultural Heritage

Contents

1. Outline of the Project

Font page: Santo Spirito (in Italy)

(from 'Giacomo Serpotta', Wikipedia. https://it.wikipedia.org/wiki/Giacomo_Serpotta)

1-1. Areas under study

One theory holds that Stucco, as a building material, was invented in the east of Iran, and it spread throughout Mesopotamia[1]. This Stucco was thought to be based on lime; its high convenience compared to native asphalt[2], which was used in the region around 3800 B.C. as an adhesive for bricks, was seen as a reason for the spread. In ancient Egypt, gypsum-based Stucco was used at various sites. At times, it was used for smoothing the rough-surfaced stone in excavation. It was also sometimes used as an adhesive for lime stone brocks of pyramids. It was also used as brandering for colouring wooden coffins. Blending sands, straws, or Nile silts were also devised as a better way. In ancient Greece, after Stucco was introduced from Central Asia, research on the adequate blend of hydrated lime and aggregate was carried out to improve its functionality as a building material. Needless to say, there were influences from Egypt, their trade partner. As seen above, in Greece, which further sophisticated the well-established technique, Stucco was utilised not only as a building material but also for decorations and sculptural works like Clay Statues for buildings.

The technique of Stucco Decoration and Clay Statues developed in Greece travelled back to Central Asia and had a huge influence on the various cultures. With this situation in mind, we will conduct surveys in seven areas: the Mediterranean region, the Middle East, India, Southeast Asia, China, Japan, and Latin America.

Figure 1. Areas Under Study

1 R. Ghirshman, “Arte Persiana. Parti e Sassanidi”, (1962) Feltrinelli

2 Miyagawa Toyoaki, Okamoto Takahisa, and Kumano Tomoji. (2015). *Kaiteiban Zusetsu Wakaru Zairyo, doboku, kankyo, syakai kiban shisetsu wo tsukuru* 改訂版図説 わかる材料 土木・環境・社会基盤施設をつくる . Tokyo, Gakugei Shuppansha

1-2. Methodology

As this survey covers an extensive area, we will form a group of researchers from each area. The surveys will be divided into two main themes.

1-2-1. Research on the techniques and materials of Stucco Decoration and Clay Statues

We will conduct a trajectory study on the development and decline of Stucco Decoration and Clay Statues with reference to history and conduct fieldwork and hearing investigations with a mutual agenda. Then, we will analyse cultural diffusion and relationships with each other using a comparative method.
Research agenda: material, production method, style

1-2-2. Research on conservation and maintenance

We will assess the suitability of original materials, focusing on the conservation and restoration techniques in each country. If necessary, we will also conduct scientific research, reproductive experiments, and refurbishing operation, and in the event of problems, we will propose a new method in response to the modern idea of the conservation of cultural properties.

Research agenda: presence or absence of values of Stucco Decoration and Clay Statues as a cultural property, conservation concept, conservation method, conservation materials, methods of maintenance.

1-3. The Team

Members of the 2021 team are as follows. (Members will vary depending on research progress).

Project Manager

Maekawa Yoshifumi*

Japan

Nakayama Shunsuke*
Kuchitsu Nobuaki*
Ushikubo Saaya*
Haga Ayae*
Nakamura Mai*
Shiraishi Asuka*

The Mediterranean region

Switzerland:
Giacinta Jean (The University of Applied Sciences and Arts of Southern Switzerland)
Alberto Felici (The University of Applied Sciences and Arts of Southern Switzerland)
Giovanni Nicoli (The University of Applied Sciences and Arts of Southern Switzerland)

Italy:
Daniele Angellotto (Opificio delle Pietre Dure)

Chiara Piani (Associazione Bastioni)
Daniela Murphy
Stefania Franceschini

Egypt:
Nozomu Kawai (Kanazawa University)
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Turkey:
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Bekir Eskici (Ankara Hacı Bayram Veli University)
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Balkans:
Hirofumi Sugawara (Kanazawa University)

Albania:
Edlira Caushi (Tirana University)

The Middle East

Abe Masashi*

India

Harpreet Tanday (Conservator)

China

Gesa Schwantes (Shanghai University)

Southeast Asia

Myanmar:
Kyi Lin (Ministry of Religious Affairs and Culture of Myanmar,
Bagan branch of the Department of Archaeology and National Museums)

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Andrea Teufel (Conservator)

Latin America:

Gokita Makiha*
Daniela Acevedo (Instituto Nacional de Antropología e Historia)

(titles omitted)

*Tokyo National Research Institute for Cultural Properties

1-4. About the research in 2021

The original plan was to conduct research from the Mediterranean region in line with the track of Stucco Decoration and Clay Statues, but we focused on Japan this year because of the travel restrictions due to COVID-19. In terms of research in the Mediterranean region, we held online conferences several times (29 May, 31 July, and 11 September) with the researchers and discussed the methods of conservation of Stucco Decoration in Europe and a detailed plan for future research. Furthermore, a case study on the conservation of Stucco Decoration was reported to support our project.

2. Japanese Stucco

Font page: *Kotee* street (in Ajimu, Usa)

(Photography by the author)

2-1. Position in the project

Under this category of Stucco Decoration in Japan are *Kotee* (鏝 絵) (literally translated as a 'Trowel-painting'), which used to be produced from the mid-Edo era to the Meiji era, and *Shikkui-soshoku* (漆喰装飾) (literally translated as Plaster Decoration), which was introduced into Japan with western-style architecture. Although categorised as a sculpture, the Clay Statue (*sozou* 塑 像), which was introduced from the Tang dynasty in the Early Nara era, can also be a type of Stucco Decoration because of the common ingredients and techniques.

Although the ingredients and techniques used in *Kotee* and Shikkui-soshoku are similar, presently, we use the term '*Kotee*' to indicate works that were invented 'uniquely' by Japanese plasterers, and the term 'Japanese Stucco' is used as a translation of *Shikkui-soshoku* and indicates influence from European countries on the style.

2-2. History of Plaster in Japan

The underlying reason for the popularity of *Kotee* is the spread of plaster. Plaster is an architectural material that is composed mainly of hydrated lime (calcium hydrate), and new twists have been added to the design to relax the limits such as the brevity of the construction period and the decrease in flexibility resulting from its characteristic of hardening when it dries. As a water retention agent to delay its drying speed and as a bodying agent to increase stickiness, seaweed glue is generally used. However, rice glue was used until the Edo era.

The widely accepted theory is that plaster as an architectural material was introduced from China into Japan when *Asuka-dera* (飛鳥寺) was built. In China, Endocladiaceae was used as glue from old times, and it is considered reasonable that the same technique was introduced. However, Endocladiaceae was designated as a tribute in the Procedure of the Engi Era (*Engishiki,* 延喜式) as a side dish even in Heian era. Given that Endocladiaceae was considered valuable even after 300 years since it was introduced and had a different use, it makes sense that rice glue was used instead of Endocladiaceae until the Edo period. In addition, it might be closely related to the fact that two main capitals, *Heijo-kyo* (平城京) and *Heian-Kyo* (平安京), lie off the coast.

Generating hydrated lime for solidifying plaster involves a complicated process such as calcination and hydration. It is also not easy to obtain limestone as a primary material. For these reasons, it is understandable that the use of plaster did not immediately spread after its introduction and it was limited to special uses such as building Buddhist temples and ancient burial mounds.

2-3. Spread of Plaster

It is said that the explosive spread of plaster in Japan occurred in the Edo era for two reasons. First were frequent fire disasters in a densely populated neighbourhood. To deal with the problem, Tokugawa Yoshimune, the eighth shogun of the Tokugawa shogunate of Japan, encouraged *Dozou-zukuri* (土蔵造り) houses—a fireproof building construction system that employed a timber structural frame and thick mud

walls finished with plaster. This growing construction demand improved the plasterers' skills. Soon after, securing the plastering materials became a problem. Until medieval times, procuring it was not a problem since its usage was limited. Togichi Prefecture was the closest source of lime stone, the main ingredient of hydrated lime during the Edo period. Therefore, 'shell-lime' was utilised instead of lime stones as it was easily available from the outlying sea. As rice was a render at that time, using easily-obtainable seaweed glue instead of rice glue also became a solution to this problem.

The second reason was that *Nurigome-zukuri* (a solid plastered fire-resistant wall) castle architecture (*Nurigome-shiki-jhokaku-kenchiku* 塗籠式城郭建築) was increasingly adopted. The limited usage of the castle architecture in the early modern period—even though it was acknowledged as an ideal-style castle towards the end of the medieval period—was because of, as mentioned earlier, the unavailability of the ingredients and the lack of skilful plasterers who were able to daub not only flat walls but also gables and verges. It is said that 25 *Nurigome-zukuri* castle architectures were built from the Tensho era (1573-1592) to the Keicho era (1596-1615); the Himeji Castle, which was rebuilt by Ikeda Terumasa between Keicho 6-14 (1607-1903), is assumed to be the pioneering figure. From that point onwards, Nurigome-zukuri castle architectures spread widely throughout the nation and it resulted in a string of trends: an improvement in the skills of plasterers in a short term and its spread to rural areas, the development of more available materials for plaster, and its active adoption in the conventional home. Then, the time was ripe for the emergence of one young man from Matsuzaki on the Izu Peninsula, who would later develop *Kotee* as a new style, Irie Chohachi. We will discuss the Japanese *Kotee* in the next chapter.

Column

In 1565, Jesuit Luis de Almeida, who visited Shigisan Castle in Yamato, sent a letter to his native country (‘Cartas do Japão’), which read as follows:

These houses, along with their fences and towers, have walls painted very white and lustrous, which have never been seen in Christendom before today. The walls are so white because lime is not mixed with sand, but with very white paper (snip). When you enter this cottage area (this title is appropriate) and walk along the streets, you will feel that you have entered a heavenly place because it is so clean and white as if it had been completed on the same day. Looking at this castle from the outside, it is so pleasant that I do not believe there is anything more beautiful in the greater part of the world.

This suggests that Japanese paper fibre-mixed plaster, a so-called traditional technique used since the Nara era in Japan, was employed as a building material when castles were built. This is a technique unique to the East and not found in the West. Japanese paper fibre is made by soaking washi (Japanese paper) in water and beating it well to loosen the fibres. Compared to straw fibre and hemp fibre, Japanese paper fibre has finer and tougher fibres and is used for the top coat of high-grade plastering work such as *Honmigaki* (本磨き)[1] and *Otsumigaki* (大津磨き)[2]. The plants used as raw materials for washi used in Japanese paper fibre are moraceous Broussonetia × kazinoki (Moraceae family) Edgeworthia chrysantha, and Diplomorpha sikokiana (Thymelaeaceae family), which are easily cultivated and distributed throughout Japan; therefore, it is thought that washi made from these materials was easy to obtain nationwide.

(Yamada (1981))

1 A method of construction in which the plaster is continuously polished with a trowel to create a mirror finish.

2 A method of applying a material mixed with fibrous binding materials and a small amount of lime to the soil and pressing it down repeatedly with a trowel to create a dense surface. The name comes from the fact that the soil called Goshu Shirado from Otsu, Shiga prefecture, was suitable for polished walls.

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Yamad, K. (1961)*'Nurigomeshiki-jokaku-kensetsu ni tomonau sakan kouji no hatten* 塗籠式城郭建設にともなう左官工事の発展 *'*. In *Nihon-kenchiku-gakkai-ronbun-houkokushu* Vol.69.

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3. Research on Japanese *Kotee*

Font page: *Saio-ji* (in Ooda, Shimane)

(Photography by the author)

3-1. Aim

It is said that Stucco Decoration, which is widespread all over the world, falls into the category of *Kotee* and *Shikkui-soshoku* (Hereafter translated as Japanses Stucco) in Japan. Stucco can be translated as *Shikkui-gesho* (漆喰化粧) (literally translated as 'Plaster-makeup') and defined as 'plastering materials to be applied to the interior and exterior wall of buildings' and 'what marble flour, clay flour, sand and pigments are added in hydrated lime and kneaded' (*Kaitei-shinban Sekai daihyakka jiten* 2007), which match the definitions and materials of *Kotee* and Japanese Stucco as will be described later.

However, it cannot be said that Japanese *Kotee* and Japanese Stucco have aroused academic curiosity; many aspects such as its broad outline, history, and geographical distribution are still unexplored. Furthermore, the preference for *Kotee* and Japanese Stucco along with plaster walls is declining due to the shift in architectural style. In providing a maintenance and conservation programme for Stucco Decoration, it is important to understand its historical orientation and, especially, to explain why cultural assets are precious and the need to pass them down to the next generation; thus, the Study of Humanities plays an integral role in the preservation of cultural heritage. Therefore, this present study aims to clarify the place of *Kotee* and Japanese Stucco in Japanese history by investigating their still unclear history and geographical distribution.

However, as it was difficult to carry out field research this year due to COVID-19, most of the studies discussed in this chapter relied on written materials. Field research and case examples will be conducted after next year.

3-2. What is *Kotee* ?

First, let me discuss the range of what '*Kotee*' signifies. Although there are not many academic books on *Kotee*, authors have provided various definitions. For example, Fujita Yozo, a leading researcher on *Kotee* and a photographer from the Oita prefecture defines it as 'a technique used by plasterers to draw embossed works that was similar to using a trowel to draw reliefs on plaster walls' (Fujita 1996:4). Another author describes it as 'coloured wall paintings that plasterers draw with a trowel on plaster walls of the interior and exterior of buildings' (Sadakane 1996:123), and Watabe (2008:2) defines it as 'sculptures of plaster made by plasterers with a trowel on the walls of *Dozou* houses'. In dictionaries, it is defined thus: 'a drawing of scenery and portrait made using a trowel on plaster walls by plasterers'(*Kojien* 1991:946); 'a collective term for embossed work' (*Kenchiku-daijiten* 1976:524); 'a Stucco and crafting technique that is used to draw plaster reliefs on flat walls' (*Dento-mokuzou-kenchiku-jiten* 2018:244). Carefully re-reading the definitions, it seems that the first characteristic of *Kotee* is an 'embossed work' of 'plaster', and the second characteristic is that it is a 'painting'.

Fresco painting, established in the West, is also drawn on plaster walls, and it uses a similar method as that of *Kotee* (*Bunkacho-bunkazaibu-dento-bunakaka* 2012:67). However, paying attention to the characteristic of *Kotee* as an 'embossed work', one points out that Fresco painting is fundamentally different as it has a plane surface.[1] For the same reason, the wall paintings in *Horyu-ji* are different from

1 For example, Sadakane (1996:127).

Kotee. In contrast, the description of *Kotee* as a 'painting' seems to contradict the assertion that it is different from Fresco paintings or wall paintings. However, the ambivalent attitude regarding a 'painting' and an 'embossed work' might be the most correct way to view *Kotee* because the ambivalent account is not something new but is traditional. In the meritorious mention offered to Irie Chohachi, the father of *Kotee* (for details, see 3-3-1), when he put up a display booth at the 1st National Industrial Exhibition in Meiji 10 (1877), his works were categorised as sculptures known as 'stuccoworks', but, in contrast, he was introduced under the category of *Kotee* (literally translated as a 'Trowel-painting') in a brocade picture (*Nishiki-e,* 錦絵) called '*Toukei-Busou-Taicho-Soroi'* (東京無双富以長揃) by Toyohara Kunichika from the same period (Sadakane 1996:125). Thus, *Kotee* has been reckoned as a sculpture on one hand and as a painting on the other hand depending on the author. *Kotee* is otherwise known as a 'Plaster Sculpture' (Naganoken-Haramura-Kyoikuiinkai 2014:11; Kosugimachi-Kyoikuiinkai 1999:1)[2]; therefore, it is helpful to view *Kotee* as both a picture and a sculpture to capture its uniqueness.

Kotee can also be classified into three categories depending on its doneness or characteristics; the first category is what is done on the exterior of buildings such as *Dozou* and *Ookabe-zukuri* (大壁造り) [a style of constructing a wall, in which the basic framework for plastering is made on the exterior face of the uprights] (Pic.1), the second one is the interior decoration daubed on interior walls (Pic.2), and the third category is *Nurigaku* (塗額) [framed picture] (Pic.3) (*Bunkacho-bunkazaibu-dento-bunakaka* 2012:16). They are different in terms of the crafting techniques and methods that the plasterers use. For example, in the first category, the doneness will be relatively simple because the strength of plaster should be increased to prevent deterioration due to rain, wind, and heat while the second category results in a very detailed drawing like Japanese Painting since it is created inside and more varied colouring is used. *Kotee* in the third category is similar to that in the second category in terms of the techniques used, but the former is cheaper because the base of the plaster is thinner and smaller as it has frames; therefore, many of them were produced for storefront signs (Bunkacho-bunkazaibu-dento-bunakaka 2012:16).

To sum up, *Kotee* can be defined as 'embossed decoration of plaster, which stands between sculpture and painting', and it can be classified into what is done to the exterior of buildings, used in interior decoration and with frames. It has also been mentioned that Kotee was invented by Irie Chohachi[3], I will briefly address the credibility of this view.

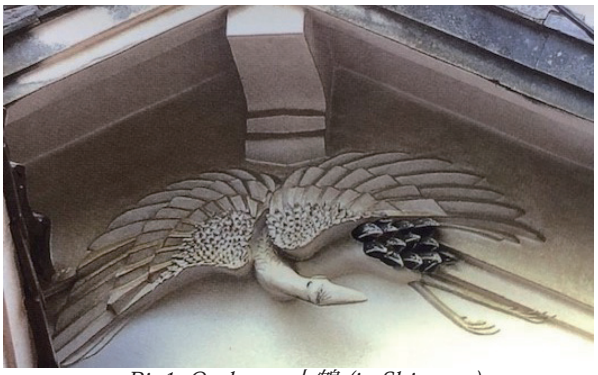
Although Chohachi and *Kotee* are inseparable in their history, the argument that *Kotee* was created by Chohachi has not been established. Some trace the origin of Japanese Stucco/*Kotee* to the display of family crest and shop names, or decorations of fare at some festivals[4]. Recent reports show some *Kotee* works that stretch back to a time before Tenpo 12 (1841), when Chohachi first created *Kotee* (Akitashi-kyoikuiinkai 2004:2) (Pic4,5). In addition, some scholars argue that *Kotee* originated overseas. For example, Fujita Yozo suggests that the technique of *Kotee* can be traced back to China, quoting one of Chohachi's pupils; Ikedo Shojiro (池戸庄次郎), who suggests that Chohachi might have been inspired by *Hase-dera* (長 谷 寺) in Sakurai, Nara Prefecture (first built in the eighth century, rebuilt in Keian 3 [1650]), as its wall paintings were created in a way that is consistent with Chohachi's *Kotee* (Fujita 2001:108). Possibly, Chohachi was inspired by Fresco painting and European architecture; however, the

2 According to *Dento-mokuzou-kenchiku-jiten* (2018), 'Plaster Sculpture' is defined thus: 'a more three-dimensional version of the flat relief stucco decoration known as *Kotee*'

3 For example, Fujita (1996:4,118) and Sadakane (1996:132,125,127).

4 For example, Ishii (1998:159) and *Shinjyuku-kuritsu-rekishi-hakubutsukan*(1996:5).

extent of the influence of his encounter with European design is currently unknown (Saito 2015:146). It might be difficult to prove the uniqueness and establish the origin of Japanese Stucco/*Kotee* from written materials, but it is expected that the information on the techniques and materials of *Kotee* revealed through this project will clarify this.



Pic1. Oodsuru 大鶴 (in Shimane)
(from Watabe (2008))

Pic2. Fenghuang and Ramp (in Shizuoka)
(from Fujita (1996))

Pic3. Susanoo-no-Mikoto 素戔嗚尊 (in Suga Shrine)
(from Fujita (1996))

Pic4. Kotee made in 1807 (in Suwa Shrine)
(from Fujita (2001))

Pic5. Kotee made in 1833 (in Takayama, Gifu)
(from Fujita (2001))

3-3. History of *Kotee*

As mentioned above, the origin of *Kotee* is not yet established, hence, this section outlines the history of *Kotee by* focusing on the period from its spread to its decline. In other words, the section focuses on the personal history of *Kotee*'s inventor, Irie Chohachi and how his pupils were drawn into the demand

for modern architecture in the Meiji era. For more details on the history of plasterers and plaster before Chohachi, see '*Tsuchi-kabe-Sakan-no-Shigoto-to-Gijyutsu*' (土壁・左官の仕事と技術) (Sato Kaichiro & Sato Hiroyuki 2011) and Chapter 2 of this book.

3-3-1. Life of Irie Chohachi (1815-1889) - Maturation period of *Kotee* -

Irie Chohachi was born to a farming family in Matsuzaki town, Kamogun, Shizuoka prefecture on 5 August 1815. In those times, *Ookabe-zukuri*, the demand for roof tiles and plaster grew due to repeated conflagrations in the city of Edo and castle towns. The usage of plaster expanded from castle buildings to tradesmen's houses because the shift from rice glue to seaweed glue as a new material helped in cost reduction. Moreover, the demand for *Souan*-style architecture (*Souan-fu-Kenchiku,* 草庵風建築) increased plastering works with the development of tea culture nationwide (Saito 2015:144). Chohachi was about 12 years old at that time and became an apprentice under the master plasterer, Seki Nisuke (関仁助). During that time, it was customary for children of farming families to become apprentices under carpenters, construction joiners, *tatami* craftworkers, coopers and so on; therefore, Chohachi seemed to have chosen plastering as the craft was widely practised (Zaidanhojin-Shizuokaken-Bunkazaidan 2012:23).

He spent his youth in Matsuzaki and moved to Edo around the age of 19, and he learned painting from Kita Busei (喜多武清)[5] (1776-1856), a Kano school artist while working as a plasterer. Chohachi is considered to have mainly worked in Edo, but his life during his early 30s is not well documented. The sculpture of dragons applied to the poles of a step canopy at the Hall of Bhaisajyaguru (*Yakushi-do,* 薬師堂) in Kayabacho, Nihonbashi, Tokyo is frequently noted as his great work in Edo.[6] It was created in 1841 when he was 26 years old, and this Japanese Stucco became popular. This was a turning point in history and led to the popularity of both *Kotee* and Chohachi (Fujita 1996:50). His works in *Jokan-ji* (浄感寺) at Matsuzaki town are the oldest in existence, and *'Hiten-no-zu'* (飛天の図) was completed when he was 32 years old (Pic.6). It seems that Chohachi was hired when *Jokan-ji* was rebuilt by Seikan-Shonin (正観上人) in Kouka 2 (1845) partly because Seikan-Shonin's wife was from the main branch of the Irie family, meaning that she was Chohachi's relative, and Chohachi used to travel to *Jokan-ji* from his early childhood. However, Chohachi was probably hired as a painter because the *Munafuda* (棟札) (a tag affixed to the inside of buildings such as temples and shrines) says, 'Colouring: Irie Chohachi' and there were other plasterers' names written there (Hibino 2015:131). This is also proved by the fact that the other existent works of Chohachi in Jokan-ji are wall scrolls and a painting on the ceiling called '*Unryu*' (雲竜) (Cloud Dragon).

Pic6. 'Hiten-no-zu 飛天の図' (Photography by the author)

5 A pupil of Tani Buncho (谷文晁)(1763-1841), who was considered one of the greatest painters of the Edo era. Watanabe Kazan (渡辺崋山)(1793-1841) also studied under him.

6 The Hall was destroyed by fire in March Meiji18(1885), and Chohachi's works are no longer extant.

Few works escaped the Great Kanto earthquake and war damages, and the only existing *Kotee* of Chohachi from the Edo era are *'Usu-ni-Tori-no-zu'* (臼に鶏之図) (Pic7.) in *Narita-san Shinsho-ji,* (成田山新勝寺) in Chiba, and *'Honden-Tobira-e'* (本殿扉絵) (Pic.8) in *Hashido-Inari* shrine (橋戸稲荷神社) in Tokyo. The former was completed when he was 42 years old (in 1856) and the latter is when he was 49 years old (in 1863). Chohachi also created many clay statues apart from *Kotee*, and the repaired statue of Acala in *Narita-san Shinsho-ji* is regarded as his first work (in 1856) (Zaidanhojin-Shizuokaken-Bunkazaidan 2012:73). Today, it is unclear which statue was repaired by Chohachi (Hibino 2015:132), but he started creating the Clay Statue around the end of Edo era and his early work that exists today, known as '*Byakko'* (白虎) (Pic.9), was created when he was 49 years old.

Chohachi was 54 years old when the Meiji Restoration happened. His works from that time to the last years of his life, including *Nurigaku*, Clay Statue, and Architectural Decoration, are still extant; the famous one being Architectural Decoration, which is at *Ryutakuji-Inryo* (龍澤寺隠寮) in Mishima (created at 64 years old), the Former *Iwahina* School in Matsuzaki (61 years old and 66 years old) (Pic.10), and *Yoriki* Shrine (寄木神社) in Tokyo (undated). There is also a statue of Acala made of plaster in *Ryutakuji.* At 62, he organised a display booth at the 1st National Industrial Exhibition where he showed *Nurigaku* figure paintings and braziers made of plaster and was awarded a *Kamon* prize medal (*Kamon-shouhai,* 花紋賞牌). This made his name outstanding (Fujita 1996:51), and since then, he began to receive many orders for *Nurigku* and was dedicated to making it (Zaidanhojin-Shizuokaken-Bunkazaidan 2012:60). He died at home in Fukagawa town, Tokyo, at the age of 75, in 1889. His two tombs are in Jokan-ji and Shojo-ji (正定寺) in Asakusa.

The above is a brief overview of Chohachi's life. As mentioned in the previous section, it is unclear whether Chohachi invented *Kotee*; however, he certainly created a buzz in the world of plasterers at pivotal points such as in Kayabacho where he created a sculpture of dragons and at the 1st National Industrial Exhibition, which popularised *Kotee* and Japanese Stucco across Japan. Even though plasterers who decorated buildings using plaster may have existed before Chohachi, he has earned a place in history because of his outstanding artistic taste and is supported by the painting skill he learned at Kano school. What differentiates him from the other plasterers is his painting skills, and statements such as, 'Thanks to Chohachi, *Kotee* was dramatically re-established and was made far more valuable as an artistic work' (Zaidanhojin-Shizuokaken-Bunkazaidan 2012:14) vividly show his place in *Kotee*'s history.

The application of skills that he learnt in other trades also differentiates him from other plasterers. It is said that the practice of adding colour to the white *Kotee* was started by Chohachi and he repeatedly tested clay walls and pigments to create a very artistic *Kotee* (Zaidanhojin-Shizuokaken-Bunkazaidan 2012:3). In addition, he seems to have made a sincere effort to create lifelike works; for example, consider *'Fugakuzu'* (富岳図)—one of the *Nurigaku* that was considered for exhibition at the 1st National Industrial Exhibition—the frame of which was made of plaster to look like real 'bamboo'. This example shows that Chohachi pursued the different identity of *Kotee* from Japanese painting or block prints (Zaidanhojin-Shizuokaken-Bunkazaidan 2012:70), and one could sense his innovative spirit at work since he did not wish *Kotee* to remain just a plastering skill.

In summary, thanks to Chohachi's taste as an artist and his enthusiasm to pursue new things and keep developing, the field of plasterers certainly expanded and *Kotee* was elevated to an art form. However, it seems that the artistic quality of *Kotee* did not develop any further after Chohachi died; it only spread to rural areas. This is because times had changed. Japan was now in the Meiji era and the environment

around plasterers had dramatically changed. The next section demonstrates how *Kotee*, after Chohachi, was overtaken by the demand for modern architecture in the Meiji era, which is labelled as the 'decline period of *Kotee*'.

Pic7. 'Usu-ni-Tori-no-zu 臼に鶏之図'

Pic8. 'Honden-Tobira-e 本殿扉絵' (in Hashido-Inari shrine)

Pic9. 'Byakko 白虎'

(Pic7-10: from Izu-no-chohachi-seitan 200 nensai-jikkou-iinkai(2015))

3-3-2. Demand for modern architecture in the Meiji era – Decline period of *Kotee* –

Japan took a step towards becoming a modern nation at the time of the Meiji Restoration. At the time, the urgent issue was to build facilities for government agencies. The houses of *Daimyo* (大名) (Japanese feudal lords) were used extemporaneously in the beginning and pseudo-Western-style buildings were constructed to compensate for the deficiency in swift succession (Kokudo-kotsusho-kantochihou-seibikyoku-eizenbu 2002:11). *Kobusho* (工部省) (Ministry of Public Works), which laid a foundation for Japanese modernisation, became responsible for government building administration. It established the Tokyo Technical School of Fine Arts as the first art school in Japan in Meiji 9 (1876) to open the way for art education by hiring Italian sculptors and technicians and made a major contribution to bringing modern techniques to Japan (Kurakata 1996:81). Against this background, 'art' in those times was closely related to modernisation, and it was considered as 'westernisation' or western 'technique' (Kurakata 1996:81-82). Needless to say, this trend affected the plastering industry. The current Tokyo Plasterers'

Pic10. 'Senba-dsuru 千羽鶴 '(in the Former Iwahina School in Matsuzaki)

Cooperative Association established a rating system for plasterers in Meiji 19 (1886), and the value of plasterers was measured by the standard of 'art as technique'. For example, a 'first art plasterer' was described as 'a plasterer who can make portraits and shapes of animals' (Kurakata 1996:82). In addition, the Tokyo Technical School of Fine Arts charter was to develop technicians for architectural decorations, and the jobs that most of the sculpture graduates obtained were in architectural decoration (Kurakara 1996:81).

In the sculpture department, 'plaster cast', which became the envy of plasterers, began to be taught. In this method, Japanese agar (*kanten,* 寒天)[7] is applied to the original *Yudo* (油土) (oil-based clay) to create a cast which is then removed and fresh plaster is poured into it. (Suzuki 1996:91). Yoshida Kamegoro, a favourite disciple of Chohachi (See Section 4 (h) for details), actively taught this method to his disciples (Suzuki 1996:92, Ishii 1998:162). It is also from those times that western designs such as acanthus appeared in the drawings that were shared among plasterers (Suzuki 1996:91).

As seen above, the government building administration associated with modernising the nation brought architecture closer to art, or technique, and the trend swallowed up plasterers. As a result, all the things that plasterers had been using until then changed: from plaster to gypsum, from *Kotee* to a cast of *Yudo*, from Japanese design to pseudo-Western design, and so on. Yoshida Kamegoro, a key figure at this turning point, taught Plaster cast to his disciples and produced many distinguished technicians who were credited with building nearly 80% of Japan's modern architecture (Fujita 1996:59). Ito Kikusaburo (1889-1983) and Ikedo Shojiro (1889-1968), who studied under Yoshida, are considered the last creators of

7 Gelatin was usually used in Western Europe, but in Japan it was replaced by agar, which was less expensive and is said to have contributed to the spread of plaster decoration (Kurakata1996:83-84).

Kotee who followed in the footsteps of Chohachi (Shinjyuku-kuritsu-rekishi-hakubutsukan 1996:1) and both engaged with not only constructions of Japanese-style architecture but also many modern buildings such as Matsuzakaya, Mitsukoshi, and National Diet Building. Kumaki Sanjiro (1871-1918) was also a student of Yoshida and he worked in the building department of the Crown Prince's Palace and engaged in the construction of Imperial Household Ministry buildings including Akasaka Palace, Yokohama Specie Bank, and the pillar of Nihonbashi Bridge, as well as the cultivation of human resources (Shinjyuku-kuritsu-rekishi-hakubutsukan 1996:83). He was also a disciple of Kamegoro, Tokita Kamezo, commonly called *Horagame* (ホラ亀), who became the first teacher in the plastering department of the Tokyo Practical Engineering School (*Tokyo-Furitsu-Jikka-Kogyo-Gakko,* 東京府立実科施工業学校), which was established as a professional education policy in Taisho era (Kurakata 1996:84, Fujita 1996:57). Another *Kame*, Araki Kamekichi, commonly called *Ji-game* (ジィ亀), was also Kamegoro's disciple and a teacher of plasterers at the career coaching place in Manchuria (Fujita 1996:57).

Seen in this light, the plastering techniques passed down from Chohachi and Kamegoro underlie the formation of modern architecture decorations, but, ironically, it can also be said that plasterers' techniques and imaginations were drawn into modern architecture decorations and extinguished along with *Kotee.* Furthermore, the 'architect' had the right to make decisions in the construction and design of a building; therefore, the environment surrounding plasterers was changing, as shown in an interview of Ito Kikusaburo in his later life, who said, 'It was a hard time because we couldn't make anything freely by ourselves like we used to make *Kotee'* (Shinjyuku-kuritsu-rekishi-hakubutsukan 1996:94). Thus, *Kotee* was vanishing in Tokyo and most of the remaining *Kotee* at the time was burned down during the Great Kanto earthquake in 1923 (Sadakane 1996:123).

However, in rural areas, *Kotee* became popular after the Meiji era because house construction became a fad as the class system was abolished during the Meiji Restoration (Hijimachi 1986:410)[8]. For example, in Usa, Oita, where rich *Kotee* culture can be found, the Meiji Restoration created industrialisation in marine product processes and *Ebisya* (蝦舎) Co., Ltd was established, and the robust economy resulted in population increase and construction boom (Fujita 2001:138). Thus, liberation from the feudal system led to vitality in rural areas and plasterers who were influenced by Chohachi flamboyantly exhibited their skills, and the culture of *Kotee* flourished. The next section discusses the spread of *Kotee* to rural areas.

3-4. Geographical distribution of *Kotee*

As described above, the culture of *Kotee* in rural areas flourished in the Meiji era while it disappeared in Tokyo. However, it can be said that no *Kotee* exceeded the works of Chohachi in artistic quality. This is because most *Kotee* in rural areas were applied to the exterior walls of houses and storehouses (Ishii 1998:159); therefore, the doneness was relatively simple since the strength of plaster needed to be increased to prevent deterioration by rain, wind, and heat (*Bunkacho-bunkazaibu-dento-bunakaka* 2012:16). It might also be because the artistic quality was not emphasised much since the pictorial materials were mostly deities, animals, plants, and something from folktales, and the purpose of the decoration was productiveness (Oitaken-kyoiku-iinkai 2013:188, Ishii 1998:159) or an expression of the plasterer's gratitude to the client (Sadakane 1996:129). It is not clear how much the *Kotee* in rural areas

8 The production dates of existing *Kotee* in each area are investigated in Ishii Tatsuya *'Kotee-no-Chiikiteki-Bunpu-to-Sakan-Gijyutsu-no-Tenkai'* (鏝絵の地域的分布と左官技術の展開)(1996).

was influenced by Chohachi and some even believe that the *Kotee* in rural areas was developed from a natural plasterer's activity of 'putting designs on the walls by trowel'[9]. However, when we examine the history of *Kotee* in each area more closely, the influence of Chohachi is evident (see Section 4 (g) and (l) for details); Future studies should investigate the degree to which Chohachi has influenced the spread of *Kotee.*

There are few studies on *Kotee* that exclude Chohachi; hence, Chohachi is viewed as a godlike figure in history. However, careful studies on *Kotee* in each region began to emerge since *Kotee* in Oita was designated as an Important Intangible Folk Cultural Property in 1996. The outcomes of the studies are reported in each publication of local governments such as Oita, Tottori, Haramura (Nagano), Shinjyuku (Tokyo), Kosugi (Toyama), and Akita. However, a bird's-eye analysis of *Kotee* in each area is still rare, besides Ishii Tatsuya (1998) and Fujita Yozo. A further review of the history of *Kotee* and Chohachi's place in history is much awaited and this project may be helpful by conducting the fieldwork and research on materials and methods from next year onwards. This section provides a picture of the geographical distribution of *Kotee* using the information in the publications of local governments and by listing the key figures and affairs (Fig.1).

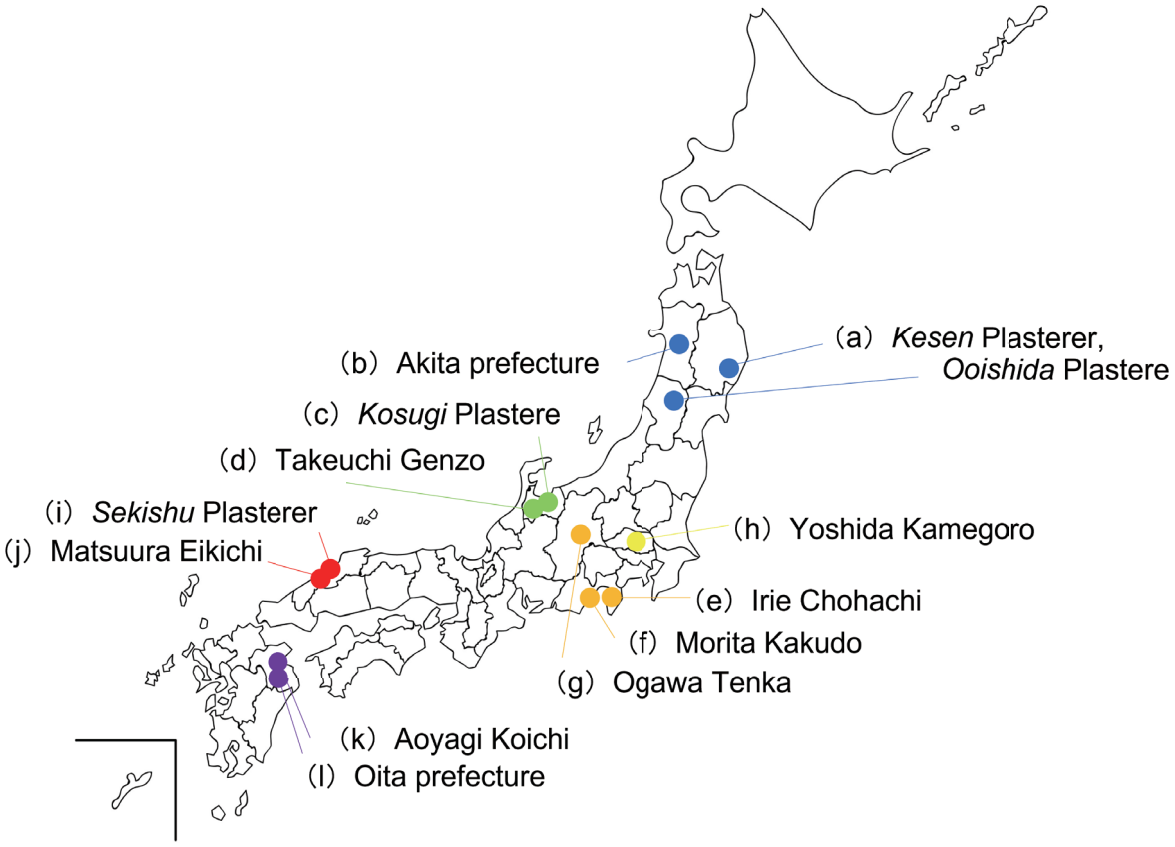


Figure1. Key Figures and Affairs in Hisotry of Kotee

9 For example, Ishii (1998:160).

Tohoku District

(a) *Kesen* Plasterer (気仙左官), *Ooishida* Plasterer (大石田左官)

Carpenters and plasterers in Rikuzentakata, Iwate, were great workmen known as '*Kesen* Plasterer' because many people aspired to become craftworkers as Rikuzentakata lies at the seaside and rice harvest was frequently damaged by cold weather. There were also 'half-fishermen' who worked inland away from home as plasterers when fishing was out of season. There still exist many *Kotee* works in Hanaizumimachi, Ichinoseki, and the southern part of Iwate, including the works of the masters: Yoshida Haruji (吉田春治) and Kinno Seiichi (金野清一) (Fujita 1996:98, Chiba 2016:181-187). 'Oishida Plaster' in Yamagata is also well known in Tohoku District and there still exist some *Kotee* of Goto Gyokusyu (後藤玉舟) (Fujita 2996:6, Akitashi-kyoikuiinkai 2004:1).

(b) Akita prefecture

Kotee is mainly found along the coast of the Japan Sea, in the Omono River basin and around Hachirogata in Akita Prefecture; according to the survey conducted by the local government in 2004, 80 *Kotee* works on 29 buildings were found. *Kotee* is applied to the exterior walls of *Dozou,* interior walls of houses, and on fanlights. The pictorial materials are mainly in the form of a good-luck talisman or a charm against evil, such as carps, dragons, rabbits, turtles, cranes, hawks, and the Seven Deities of Good Fortune, and some scenes from folktales. A copper wire is sometimes used for the barbels of carps and dragons, and wood as the core is used for rabbits' ears. The oldest *Kotee* ever found in Akita was made in Genji 1 (1864) and the newest one is from Showa 10, but most of them are from the Meiji era. The creator of the oldest *Kotee* is unknown, but there is a legend that some family head at the time sent the plasterer to Edo, where Chohachi was actively working, to let him learn the technique of *Kotee,* and it was he who brought *Kotee* into Akita for the first time (Akitashi-kyoikuiinkai 2004:1-5, 31-37).

Hokuriku District

(c) *Kosugi* Plasterer (小杉左官)

Kosugimachi, Toyama, has produced many plasterers since the Edo era and they were collectively called '*Kosugi* Plasterers' because of their skilfulness. Kosugimachi was created as 'Kosugi-shinmachi' (小杉新町) by *Kaga* Domain in Manji 1 (1658) and people there had the privilege of being in contact with high culture because the magistrate's office was located there and exchanges among officers of the domains flourished. Kosugimachi was also a transport hub; therefore, it became a commercial centre and different cultures were brought in from Kanazawa, Kyoto, and Edo. Historical documents show that the techniques of plasterers were graded by an official assay at least in Kansei 2 (1790). There exist many framed pictures as plasterers could not work during winter due to the deep snow and were dedicated to creating framed pictures for offerings at shrines (Fujita 1996:100; Tamura 1999:6-24).

(d) Takeuchi Genzo (竹内源造) (1886-1942)

He is a representative great craftsman of *Kosugi* Plaster. He was born in Kamishinmachi as the fifth son of Takeuchi Heiemon (武内平右衛門), one of the masters of *Kosugi* Plaster, and he took over the family business as a sixth-generation heir when he was 13 years old. He painted the walls of the VIP room in the Imperial Hotel when he was 15 years old. He joined the construction of Chuetsu Bank in Meiji 42 (1909). He was recognised as the 'first creator of plaster figure' (*ikkyu-shikkui-chokoku-shi,* 一級漆喰彫刻士) by the Imizugun-magistrate's office in Meiji 44 (1911) when he was 25 years old. He went to Dalian, China, to work on the construction of the Bank of Joseon with his disciples in Taisho 8 (1919) when he was 34

years old. It is said that Genzo produced 20-30 disciples. There exist many Genzo's *Kotee* in Toyama and his representative work is the 'Dragon' applied to the *dozou* of the Nagoshi family in Tonami City (Fujita 1996:99; Tamura 1999:8-18). Takeuchi Genzo Museum was opened in Kosugimachi in 2002.

Chubu District

(e) Irie Chohachi (入江長八) (1815-1889)

See 3-3-1 in this chapter.

(f) Morita Kakudo (森田鶴堂) (1857-1934)

He was from Sunpu (駿府) and was regarded as equal to Chohachi in the quality of his *Kotee.* His real name was Morita Tajyuro (森田太十郎) and he was a seventh-generation heir of *'Sunpu-hason-bugyo'* (駿府破損奉行) (official order-taker for building administration at Sunpu Castle). He lost his father at 6 and his mother at 11. He was raised by his grandparents and became a plasterer under training at 12. He first created *Nurigaku* at 16. At 17, his grandfather died and therefore, he learnt the skills of plastering from his uncle, Nakamura Matsuzo (中村松蔵). At 18, he created 'Carp' under the 'Wave' that was made by Chohachi's disciple, Kawaguchi Fujibe (川口藤兵衛) on the gable of Shizuoka Teachers' School. He met Chohachi (67 at the time) when he was 25 years old. He frequently went to see Chohachi when Chohachi was staying at Sakurai Tokichi's house to send his works to an art exhibition held in Shizuoka, and he learned the technique of colouring *Kotee* from Chohachi. He conducted an exhibition tour of Japanese Stucco when he was 30 in 1887, and he created 100 pieces of work and travelled to Yokohama, Tokyo, Saitama, and so on. At 33, he met his most important patron, Tezuka Chube (手塚忠兵衛) (1838-1910), who was the landlord of a licenced quarter, *'Horairo'* (蓬莱楼), and he created lots of *Kotee* in the licensed quarter for 33 years.[10] In 1895, when he was 38 years old, he put up a display booth at the 4th National Industrial Exhibition. In his final years, he opened a private academy for plasterers and taught many of his disciples how to make Japanese Stuccos. Ogawa Tenka (explained in the next subsection) was one of his disciples (Zaidanhojin-Shizuokaken-Bunkazaidan 2012:118-144, Hasegawa 1953:20-21).

(g) Ogawa Tenka (小川天香) (1878-1950)

Ogawa Tenka (his real name was Ogawa Zenya) is known as a pioneer in *Kotee* in the submontane district of Yatsugatake Volcanic Group, where many *Dozou* with *Kotee* can be seen. He was born to a farming family in Chino City, Nagano, and he became an apprentice with a plasterer, Kaneko Seinojyo (金子清之丞), when he was 17 years old. Inspired by Chohachi, he went to Tokyo at 18 and visited Chohachi's home town, Matsuzaki, at 22, but Chohachi had already passed away. At 23, in Kajicho, Kyobashi, he started studying under Imaizumi Zenkichi (今泉善吉), who was Chohachi's disciple. At 30, he worked on the wall paintings of the Imperial Theatre, the arabesque design in the VIP room of the Chiba prefectural office building, the sculpture and walls in a hall of the Niigata City office, and the decorations of *Gobenden* (御便殿) (a rest house for an emperor) at Kyoto Station for the enthronement of Emperor Taisho.[11] He retired at 50 and was committed to the development of plasterers in his later years by teaching local plasterers *Kotee.* The *Kotee* Tenka museum was opened in 2013 in Chino City.

10 The brothel was sold as a construction site due to a large-scale relocation of construction work at the end of World War II, and was further destroyed by Bombing of Shizuoka in the war. After the war, the business was completely closed due to the GHQ's order to abolish public prostitution, and no *Kotee* of the brothel have survived(Zaidanhojin-Shizuokaken-Bunkazaidan 2012:132-133).

11 That is no longer in existence due to the earthquake, war damage, and rebuilding.

According to the research conducted by Haramura City in 2014, 1,224 *Kotee* on 469 *Dozou* were found. The oldest *Kotee* was from the early Meiji era. Pictorial materials are mostly good-luck talismans, family crests, and characters (Naganoken-Haramura-Kyoikuiinkai 2014:10-18).

Kanto District

(h) Yoshida Kamegoro (吉田亀五郎) (1844-1922)

See also 3-3-2 in this chapter.

He produced many distinguished technicians who are credited with building nearly 80% of modern architecture in Japan. He was called *'Kutsukame'* (沓 亀), since he was born in a shoe (*kutsu*) store of Shingoro in Yotsuya-mitsuke. He lost his mother at 11 and apprenticed under plasterers. He learned drawing from Kano school and sculpture from Chohachi. He became famous when he made an eye-catching piece, *'Chikyugi-ni-Tatsu-Tengu'* (地球儀に立つ天狗) (a long-nosed goblin standing on a globe), on the roof of a former Matsuya-department store in Ginza, around the age of 30. He often made name boards with plaster for Japanese-style restaurants and licenced quarters and became the pick of the litter in the early days of capitalism in Japan. In the Meiji era, he worked on *Kasumigaseki-rikyu*, Iwasaki House in Shinagawa and the Holy Resurrection Cathedral in Kanda. He can be described as a key figure at the juncture when the skills of plasterers were taken into modern architecture. Ito Kikusaburo, Ikedo Shojiro, Tokita Kamezo, Araki Kamekizhi, and Kumaki Sanjiro were his highly reputed disciples (Kurakata 1996, Suzuki 1996, Fujita 1996:54-59, Fujita2 001:128-134).

(i) *Sekishu* Plasterer (石州左官)

This was a general term used to refer to plasterers from Maji and Yunotsu in Shimane prefecture. They were given important posts to build not only Japanese modern architecture but also construction works during the period of rapid economic growth in Showa era. There were few agricultural lands and industries in these areas; therefore, many were living as migrant workers. Slackness in the silver production from the Iwami Ginzan Silver Mine caused more workers to migrate to Kyushu, Osaka, Tokyo, Korea, and Manchuria, which made *Sekishu* Plasterer a household name. In Meiji '20s, the Orito family (折戸姓) and Shimazaki family, who migrated for work along with their disciples became famous and produced stars of *Sekishu* Plasterers such as Matsuura Eikichi (1858-1927) (See (j)) and Inumada Sukeshiro (井沼田助四郎) (1854-1929). More recently, Maeda Katsuyoshi (前田勝義) (1912-2002) is particularly notable as he established the method for exterior furnishings of buildings in Tokyo and Kasumigaseki. In contrast, the reason fewer people from the Izumo area worked as migrant workers compared to those from the Iwami area was that the area had productive lands and they were self-contained. Regarding the now-existing *Kotee* in the Shimane prefecture, see Watabe 2008 (Fujita 2001:112-127, Watabe 2008:80-86, *Kotee-namakokabe-bunka-suishin-kyogikai* 2010:198).

(j) Matsuura Eikichi (松浦栄吉) (1858-1927)

He is a representative *Sekishu* Plasterer from Maji and was called the 'god of plaster'. When he was working actively in Tokyo as a plasterer, he was hired by the Foreign Ministry and dispatched to China to build the Consulate-General of Japan in Shanghai. There, he learned '*Jyabara'* (蛇 腹) (cornice). After returning to Japan, he worked on the first-ever wooden western-style architecture in Osaka, the post office, and the former Sanyo Hotel in Shimonoseki. In pre-war days, he worked on the wall of the Oriental Development Company in Keijo (current Saul) engraved with Laurcharmus nobilis, the Taikyu post office (大邱郵便局), and *Raikeikan* (頼慶館). In his final years, he offered *'Houou'* (鳳凰) and *'Botan'*

(牡丹) of *Kotee* to the Saishoji temple (西性寺) in Shimane. It is said that he had a relationship with Chohachi's disciples when he was living in Yotsuya (Watabe 2008:81, *Kotee-namakokabe-bunka-suishin-kyogikai* 2010:198).

(k) Oita prefecture

More than 700 *Kotee* works were identified in the Oita prefecture and, as mentioned before, the *Kotee* there was designated as an Important Intangible Folk Cultural Property in 1996. The places where a rich *Kotee* culture was found are Ajimu, Innai, Hiji, Beppu, Usa, and Taketa. It is said that *Kotee* took root in Oita because of the accessibility of lime from oyster shells as the main material of plaster, and the methods for *Kotee* were easily brought from Izu and Edo as there were important shipping routes in Seto Inland Sea. *Kotee* is mainly applied on the exterior wall of *Dozou* or a main house; most designs have a narrative and a meaning for a charm against bad luck. Many of them were created from Meiji 20 to Taisho era, but the oldest *Kotee* in Oita is the one applied to a *sake* [rice wine] brewery built in Ganji 1 (1864) and the pictorial material is a boar propelled by sails. In this region, *Kotee* was introduced by Aoyagi Koichi (1839-1910) (See (i)), who was a personal plasterer of Hiji Domain. Nagano Tetsuzo (長野鐵蔵) (1848-1927), his disciple Yamagami Jyutaro (山上重太郎) (1864-1952), and Sato Bontaro (佐藤本太郎) (1870-1921) are also well-known plasterers from Ajimu and Innai. Each person had around 20 disciples. The relationship between Aoyagi Koichi and Chohachi, or plasterers from Edo/Tokyo is unknown (Sawatari 1982:37-44; Sadakane 1996:128-129; Kishi 2013:188-192; *Bunkacho-bunkazaibu-dento-bunakaka* 2012).

(l) Aoyagi Koichi (青柳鯉市) (1839-1910)

He and a plasterer from Hiji are said to have introduced *Kotee* to Oita.[12] He was born to a plasterer family as the fifth son of Waki Giichi (脇儀市), a sixth negation heir of Hiji Domian's *Fushin-kata* (普請方) (officials of the Tokugawa shogunate in Edo period). In Keicho 5-6 (1600-1601), Koichi was adopted by the Aoyagi family, who are said to have been involved in building the Hiji Castle of Kinoshita Nobutoshi, the first domain head in Hiji. In 1860, when Koichi was 21 years old, in Edo, he became a personal plasterer of Toyoda Shobei (豊田庄兵衛), a master carpenter from Hiji. Although it is unclear if Koichi had contact with Chohachi, Toyoda had a deep connection with *Kuremasa-kai* (榑正会), a plasterer association in which Chohachi was also a member; therefore, it is considered that Koichi was inspired by Chohachi's works and started creating *Kotee.* In 1861, when the last Edo Shogun returned political power to the emperor and domains were dismantled, Koichi returned to Hiji with his real father and brother and became a local plasterer. He learned drawing techniques from a personal painter of Kitsuki Domain and also used to practice reading, writing, music, and dance. Around 30 works including *Kotee,* which were made by Koichi or his son Choichi (長市) are found today. Koichi is recognised as a plasterer in rural areas who made good-luck talismans for farming families while Yoshida Kamegoro (See (h)) was working on commercial shop name boards and decorations in urban areas (Fujita 1996:106, Sadakane 1996:128, *Bunkacho-bunkazaibu-dento-bunakaka* 2012:58-51).

(m) Other (Hokkaido, Kansai, Shikoku, Okinawa)

While Fujita Yozo introduced some *Kotee* of Kansai and Shikoku in his books, it seems that there are remarkably few numbers of *Kotee* in the regions compared to the other regions. There is no book on

12 There is a theory that *Kotee* in Oita came from Nagasaki, and it is thought that the technique and style of *Kotee* in Oita are not necessarily of a single stream (Matsumura1996:119).

Kotee of Hokkaido and Okinawa as far as we researched. It is known that there are plasters called *'Tosa-shikkui'* (土佐漆喰) (Tosa plaster) in Shikoku, which has unique stiffness, and *'Muchi'* (ムチ) in Okinawa, which is made from coral-lime; therefore, we will research the history of architectural decorations which were made of these plasters in the future. Meanwhile, there is an article that explains why *Kotee* was unpopular in Kansai and the reasons are outlined below.
While plastering was valued in Kanto because the good quality of coloured clay cannot be found as it is in the volcanic ash zone, in Kyoto, coloured clays such as *'Yugho-tsuchi'* (遊行土) and *'Jyuraku-tsuchi'* (聚楽土) are producible and the development of a culture of decorating walls with those clays was associated with the demand for *Souan* style architecture that came with the establishment of tea culture. The culture of wall decoration, for instance, walls splashed with straws and the mother-of-pearl walls such as *'Aogai-no-Ma'* (青貝の間) (room of blue shell) of Shimabara-Sumiya, was produced in Kyoto. That the unique culture of walls took root in Kyoto might be one of the reasons for the failure to develop *Kotee* (Sato 1997:10-13).

3-5. Conclusion and outlook for the future

In this chapter, we investigated the history and the geographical distribution of *Kotee* using written materials. Consequently, it was revealed that the definition of *Kotee* is vague and that, although *Kotee* in rural areas started gaining attention after the *Kotee* in Oita was designated as an Important Intangible Folk Cultural Property, a bird's-eye analysis of *Kotee* in each area is still rare, apart from that of Fujita Yozo. In terms of *Kotee*, there has been a tendency to focus on Chohachi; however, further research to review the history of *Kotee* including Chohachi's place in its history is anticipated. This project may help to facilitate fieldwork and research on materials and methods from next year onwards based on the information provided in Sections 3-4.

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4. Field Investigation on *Kotee*

Font page: *Sarutahiko Okami* (in *Yoriki* Shrine)
(Photography by the author)

4-1. *Yoriki* Shrine (寄木神社) – *'Ame-no-Uzume-no-mikoto Kosekizu'* (天細女命功績図) by Irie Chohachi –

4-1-1. About *Yoriki* Shrine

Yoriki Shrine (Photo.1) is a shrine in Shinagawa, Tokyo that was built in Keicho era, where *Chinjugami* (鎮守神) (a god enshrined to protect a certain area of land) of the town of fishers (currently part of the Higashi-Shinagawa 1-chome area) is worshipped. According to *'Shinpen-Musashi-Fudoki-Ko'* (新編武蔵風土記稿) (Published in Bunsei 13 [1830]), the shrine used to be in a residential district near the Minami-Shinagawa-Shuku 3-chome area, but it moved to the current place when the residents migrated. It was worshipped by people who were living primarily by fishing.

Pic1. Yoriki Shrine
(from '寄木神社 / 東京都品川区', 御朱印・神社メモ. https://jinjamemo.com/archives/yorikijinja.html)

4-1-2. About the *Kotee*

The *Kotee* work is seen on the door of the *Dozou-built* main hall in the shrine; *Sarutahiko Okami* (猿田彦命) is engraved on the right door and *Nnigi-no-Mikoto* (瓊瓊杵尊) and *Ame-no-Uzume* (天鈿女命) on the left door (Photo.2). These are the scenes about *Tenson korin* (天孫降臨) (the descent of *Ninigi-no-Mikoto* from heaven), which appears in *'Kojiki'* and *'Nihonshoki'* (both are early Japanese chronicles of myths and semi-historical accounts).

Pic2. The door of the main hall
(Photograpy by the author)

Following his grandmother Amaterasu, the sun goddess, *Ninigi-no-Mikoto* came down from *Takamgahara* (高天原) (High Plain of Heaven) to Mt. *Takachiho-mine* (高千穂峰) in Tsukushi to govern *Ashihara-no-Nakatsu-Kuni* (葦原中国) (word for the country or the location of Japan in the myths) with deities including *Ame-no-Uzume* bringing along the three Imperial Regalia of Japan. There was *Sarutahiko Okami* on the way keeping his eyes peeled but when *Ame-no-Uzume* smiled at him eye-to-eye with bare breasts, he was surprised and cleared the way, and he guided Ninigi-no-Mikoto to Takachiho-mine.

The thickness of the door is around 20 cm; the whole surface around the *Kotee* is plastered; some pattern is applied using Low Relief Technique. It is unclear when it was created.

4-1-3. Its production method

Sarutahiko Okami on the right door (Photo.3)

*Sarutahiko Okami'*s appearance is described in *'Nihonshoki'* thus: 'the length of the nose is 126 cm and 212 cm in height'. He is considered an ancestor of *Tengu* (long-nosed goblin). His eyes are also described as 'blazing like *Yata no Kagami'* (a sacred mirror and one of three Imperial Regalia of Japan) and he can rob someone of their speech by staring. Chohachi artfully presented the characteristics by modelling in thick layers and *Gyokugan* (玉眼) (the method of fitting crystal boards in the parts of the eyes). Different skills of plasterers are used to present bulging veins and costume patterns. Line-drawing with a slender brush is also used for the hair and beards (Photo.4).

The materials and methods to create *Sarutahiko Okami* are classified in five ways.

1. The background is a clay wall on which rough straws are mixed (Photo.5). It has a smooth finish on which a greenish colour was used but most of it is now falling off.
2. It seems that plaster was used for presenting clothes; one is white and the other is grey to show that he dresses in layers. Tthe grey cloth on his upper body has a engraved line pattern (Photo.6) and the ditch has whitish tints. Therefore, this indicates that Chohachi incised on white plaster and grey colour was applied second.
3. The skins of the face, arms, and legs have a shiny finish, which contrasts with the spotted finish that is seen when coloured plasters are applied. It is known that Chohachi was trying many ways to impart shine to the colouration and prevent colour fading by applying Japanese lacquer as an insulating layer. The blackish nose and mouth could be a result of the exposure of the Japanese lacquer as an insulating layer after the colouration was chipped off. It is difficult to clarify further by visual observation, but it is undeniable that a different method was used from other parts to express the texture of *Sarutahiko Okami'*s skin.
4. The wooden-like stick in the left hand is thickly modelled from a rough mixed-sands paste and applying colourations to it. It is partially detached and fallen off.
5. The brandering exposed in parts of the plaster-flaked wall is wholly yellowish, and rough sands are mixed. This colour seems to have come from the material itself, such as clay.

Pic3. Sarutahiko Okami
(Photograpy by the author)

Pic4. Line-drawing with a slender brush
(Photograpy by the author)

Pic5. Rough straws on the clay wall
(Photograpy by the author)

Pic6. Engraved line pattern
(Photograpy by the author)

<u>*Nnigi-no-Mikoto* and *Ame-no-Uzume* on the left door (Photo.7)</u>

Nnigi-no-Mikoto is drawn in the upper part and *Ame-no-Uzume* is in the lower part. *Nnigi-no-Mikoto* is holding *Yata no Kagam* (a sacred mirror that is part of the Imperial Regalia of Japan) in front of his chest and set up *Kusanagi-no-Tsurugi* (草薙の剣) (a legendary Japanese sword and one of the three Imperial Regalia of Japan) in front of his body. *Ame-no-Uzume* is showing off her bare breasts to *Sarutahiko Okami.* It is said that Chohachi made the statue of *Ame-no-Uzume* and put it in the *Dozou* when he was ordered to work there. It is also said that Chohachi intended to make *Ame-no-Uzume* ugly because there was a belief that 'ugly things would become a charm against evil, a protector of possessions and a deity to bring goods'. The Ame-no-Uzume drawn here is not necessarily beautiful; therefore, he might have had an intention to create it as a charm against evil since it is applied on the front door.

The materials and methods to create *Sarutahiko Okami* are classified in 5 ways.

1. The background is a clay wall on which rough straws are mixed. The material is likely to be the same as the one applied to the background of Sarutahiko Okami. They have similarities in the smooth finish and the greenish colour.

2. The cloth that *Nnigi-no-Mikoto* puts on is coated with a paste material mixed with coarse-grained sand. Judging from the colour and texture, the material is likely to be the same as the one that was used for the wooden-like stick in *Sarutahiko Okami'*s hand. The design of chrysanthemum on the cloth is expressed by incision. The blue or white residual materials that can be seen in the ditch and the corrugated surface of the gather suggests that the whole cloth was coloured at first (Photo.8). It seems that the *Kusanagi-no-Tsurugi* was also created using the same materials judging from its smooth finish. Some pattern is expressed with incision on the blade and golden colour is applied to the guard.

3. The cloth on *Ame-no-Uzume* is beautiful white and finished by carefully daubing plaster. A light blue-residual material on the sleeves and the sash and a red-residual material on the cloth peeked out around the breasts indicating that some colours were applied. In addition, traces of *mie-dasuki*（三重襷）-like pattern can be seen near the sleeve of the left arm, which is thought to have been decorated, although it is difficult to determine the extent of the decoration. The same material is thought to have been used for the mirror in *Ninigi-no-Mikoto*'s hand, which is decorated with a line-drawing pattern in red pigment (Photo.9).

4. The *hakama* skirts of *Nnigi-no-Mikoto* and *Ame-no-Uzume* are created with coarse-grained sands paste and the surface is not finished flat but retains a rough texture. Furthermore, the blue-residual material on the *hakama* skirt of *Ame-no-Uzume* suggests that colour was originally applied.

Pic7. Nnigi-no-Mikoto and Ame-no-Uzume (Photograpy by the author)

5. Regarding the skins of *Nnigi-no-Mikoto* and *Ame-no-Uzume*, the one of *Nnigi-no-Mikoto* is in a poor state of conservation and is cracked; therefore, it is difficult to know its original condition (Photo.10). Some information of *Yoriki* Shrine that explains that the face was repaired in the past is convincing because the finishing method and the state of conservation are markedly different from the other parts. Whereas the face of *Ame-no-Uzume* has the same shiny finish as the face of *Sarutahiko Okami.* It is also likely that colour was applied because a residual material of skin tone can be found. The same materials (or similar materials) should have been used on the face and the skin from the neck down of *Ame-no-Uzume*. However, the quality of materials seems different at the boundary above the horizontal crack under the chin and the one below it. Furthermore, a

beautifully daubed layer of plaster, which is clearly different from the other base sheets, can be seen under the flaked-top layer of the right breast. Whether the skin below the crack was recoated by Chohachi after he rethought the form or repaired by plasterers yet unborn just like the face of *Nnigi-no-Mikoto* is unclear.

Pic8 (top left). Residual materials in the ditch and Kusanagi-no-Tsurugi
Pic9 (left). Line-drawing pattern on the Yata no Kagam
Pic10 (above). Cracked face of Nnigi-no-Mikoto
(Photograpy by the author)

4-1-4. The state of conservation

The *Kotee* applied on both doors is relatively in a good condition. The current main hall of the shrine is composed of the *Dozou* on which the *Kotee* was applied and an adjoining-wooden structure which has glass doors on the front. Thanks to the composition, *Kotee* is conserved indoors and is not weathered, which can be one of the reasons for keeping the *Kotee* in a good condition. However, given that the colour of the background clay wall came off and the face of *Nnigi-no-Mikoto* was repaired in the past, it is possible that the *Kotee* had not been placed under the current condition since the beginning.

It was found that the top layer of the plaster in a part of *Sarutahiko Okami*'s cloths was flaked, and the base material was exposed (Photo.11). It is undeniable that the flaking was caused by a big outer shock as there are minute cracks around the flaking. There is another crack on the clay wall at the head of Sarutahiko Okami and some parts are flaked. The damage seems to be progressing; therefore, immediate and proper treatment is needed.

There are also minute cracks, and some parts are flaked on the face of *Nnigi-no-Mikoto*, which was repaired in the past as mentioned before. The black pigment applied to his hair is also flaking; an

adequate measure is needed. It is possible that the cracks under the neck and the flaking on the breasts of *Ame-no-Uzume* are advanced; therefore, reinforcing and grouting are needed.

According to information from *Yoriki* Shrine, a conservation measure to prevent the flaking was taken in November in Showa 58 (1983) with the aid of Shinagawa City. Therefore, the repair of *Nnigi-no-Mikoto* should have been done before that. The stains that can be seen on parts of the flaking and cracks on the left of *Ame-no-Uzume* appear to be traces of the conservation measure. When observing the flaked parts, glazing gel can be seen; it seems that synthetic resin was impregnated (Photo.12). While the part on which a resin impregnation treatment is applied would harden, the usage of the method on clay walls would drastically change the quality of the original clay wall and cause secondary damages. It is impossible to remove all the resins; taking a mitigative method is preferred.

There are other cracks at the upper left corner and the lower left corner (Photo.13). Some cracks measure 5 mm and exfoliations or flaking have occurred around there; adequate treatment is needed.

Pic11. Exposure of base sheet due to plaster removal
(Photograpy by the author)

Pic12. Resin impregnation treatment
(Photography by the author)

Pic13. Cracks
(Photography by the author)

4-1-5. Conclusion

The *Kotee* is a fine job with attention to detail as may be expected of the works by Chohachi. The atmosphere created by the perfect collaboration of methods continues to fascinate people. Improving the present situation where the damage is progressing on this remarkable piece of work is urgent.

The conservation measures taken in the past have the potential to cause secondary damages since the materials are less compatible with clay walls and *Kotee.* Thus, an adequate conservation measure and material should be chosen based on a proper understanding of the state of *Kotee* in the future.

4-2. Zenpuku-ji (善福寺) – *'Nobori-Ryu-Kudari-Ryu, Karashishi* (登り龍下り龍、唐獅子)' by Irie Chohachi –

4-2-1. About *Zenpuku-ji*

It is a temple of *Jishu* sect of Buddhism called *Onkyozan-Densoin* (音響山伝相院), which was set up by *Taa Shinkyo* (他阿真教), a second-generation monk of *Yugyoji* (遊行寺), in Einin 2 (1294). It lies in the former *Shinagawa-shuku* of the 53 Stations of the Tokaido; it has escaped the war damages and is still standing (Photo.14).

Pic14. Zenpuku-ji Main Hall (Photography by the author)

4-2-2. Its production method

Kotee works are applied to *kashiranuki* (頭貫) (horizontal head penetrating tie beams) and walls above the *renjimado* (連子窓) (a window with vertical or horizontal wooden laths or bamboo) (Photo.15). Aside from *Nobori-Ryu-Kudari-Ryu* (the Rising Dragon and the Falling Dragon) (Photo.16) and *Karashishi* (Foo Dog) (Photo.17), some decorations are plastered and applied to the columns and beams. *Nobori-Ryu-Kudari-Ryu* is drawn on a flat wall with a powerful structural outline; the characteristics of the parts of the dragon's body and the atmosphere around the dragon are nicely described using different techniques of trowels. The *Nobori-Ryu-Kudari-Ryu* and *karashishi* were created in a way that is very similar to the Clay Statue, which forms the statue by putting straw-mixed clay material on a timber-framed core and plastering the surface. Straw strings are also coiled on the wooden columns and beams to promote the stick, on which a clay wall 1.5 cm thick is daubed and plastered as a finishing coat.

4-2-3. The state of conservation

There are missing parts due to flaking and traces of a past partial repair can also be observed. A cement-like material is coated on the flaking of plaster on the wall on which *Nobori-Ryu-Kudari-Ryu* was drawn. There are big cracks on the *Karashishi;* a metal net is covered, probably to prevent its falling. Around

the cracks, the plaster as a finishing coat has flaked and some clay materials are exposed. On parts of the columns and beams, ongoing flaking of plaster and clay walls can be observed; the straw strings coiled on wood are exposed and it is under dangerous conditions. Some of those parts are re-plastered as part of the repair work, but the plaster has a different tone of colour, which is disturbing the unity.

Pic15. Kotee on the front of the main hall (Photography by the author)

Pic16. Nobori-Ryu-Kudari-Ryu (Photography by the author)

Pic17. Twin Karashishi (Photography by the author)

4-2-4. First aid suggestions

It is desirable to provide conservation and restoration as the works as a whole are in danger. Even though such an operation is difficult to conduct, first aid measures are necessary to limit further damage.

4-3. *Kina-Saffron-Shu-Honpo* (機那サフロン酒本舗) (Nagaoka, Niigata prefecture) by Kawakami Ikichi – Research on the state of conservation and proposal on the method of conservation –

4-3-1. *Kina-Saffron-Shu-Honpo*, the *Kotee* of *Kotekura* (鏝蔵)

The *Kotee* applied to *Dozou* of *Kina-Saffron-Shu-Honpo* was created in Taisho 15 (1926) by a plasterer, Kawakami Ikichi (河上伊吉), at the request of the founder, Yoshizawa Nitaro (吉澤仁太郎). Ikichi is said to have learned the technique of *Kotee* in Toyama prefecture and returned to Settaya, and he conducted a creative activity after being influenced by Ishikawa Uncho (石川雲蝶), a sculptor who was popular at the end of the Edo era. Seventeen *Kotee* can be seen on the doors and gables of the *Dozou*.

4-3-2. Its production method

Ebisu (a Japanese god of fishermen and luck), *Daikokuten* (a Japanese deity of fortune and wealth), animals, and plants are made using plaster as the chief material under the eaves and on the doors of half-timbered *Dozou* using Low Relief Technique (Photo.18). Various methods are used to compose the scene: polishing, incision, and mixing straight and curved lines after daubing plaster to express the texture of clouds and waves. Some twists are seen throughout the work, such as using a nail as a core for thick parts to stick plaster and embedding glass balls for the animals' eyeballs.

Pic18. Ebisu (The southern side)
(Photography by the author)

Colours are applied to the *Kotee* and the colour contrast produces a stereoscopic visual effect. Judging from visual observations, two methods for colouring appear to be used. One is the method of using Fresco-Secco technique (adding the binder to the pigment) on white lime plaster; the other is using the coloured plaster into which the pigment is directly kneaded.

4-3-3. The state of conservation

No serious damage is observed, and the favourable condition is maintained; therefore, it can be said that the conservation project after the 2004 Chuetsu earthquake and later partial maintenance had an effect. However, observing the *Kotee* individually, some local damages are observed. This section outlines the *Kotee,* classifying it into three categories based on the place where the *Kotee* is applied: the Northern side, the Eastern side, and the Southern side.

The northern side (gable: arabesque design/from top left: boar and Japanese silver grass, tiger and bamboo, mice and rhodea, cow and autumn leaves/from bottom left: horse and cherry blossoms, dog and tree peony, and sheep and sweet flag)

The exfoliation or flaking of plaster and flaking of the colouring using Fresco-Secco technique is seen on the northern side, which is mostly in the shade all day (Photo.19). Local exposure of the base plaster of each component (e.g. animals and plants) on some *Kotee* brings a feeling of strangeness in the balance of colour compared to other *Kotee* in a good condition on the other sides; therefore, the *Kotee* is considered to have been coloured originally.

Some cracks are observed around the doors on which the *Kotee* is applied, and some parts are flaking. There are traces of past conservation on a band of the black pigment applied around the *Kotee.* The pigment, which is thought to have been used at the time for conservation, partially seeps and streaks on the surface of the plaster (Photo.20).

In the thick parts where nails are used as a core, the exfoliation and flaking of plaster finish on the surface is observed (Photo.21). It is under dangerous conditions; therefore, immediate conservation treatment is needed.

There is a trace of conservation in the flaked parts of the *Kotee* on the gable, but the surface finish is different from the original, which disturbs the unity. The treatment with grouting seems to have been done on the cracks caused by the flaking, but it does not help to prevent the damage; on the contrary, it mars the beauty of the building's façade (Photo.22).

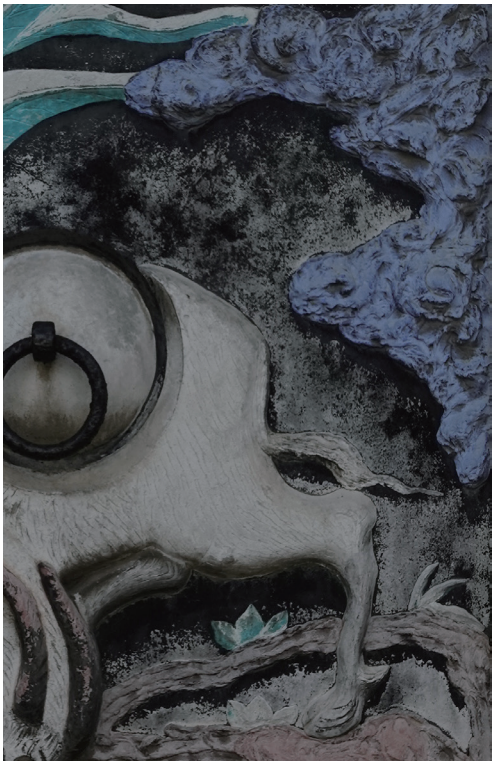
The eastern side (gable: two dragons/ top right and top left: a pair of male and female Chinese phoenix/ bottom left: Qilin/ bottom right: black tortoise)

The condition where blue pigment is partially turning greenish is observed (Photo.23). If that is the case, the pigment made from azurite is likely to have been used. However, since it is also undeniable that the green pigment was intentionally painted over the blue pigment originally, a scientific investigation will be needed to clarify the details. In the blue part, two different pigments seem to have been used. If that is the case, whether both are original or the blue was painted over later is unclear. The colour might have changed due to humidity.

The black pigment applied to the background is slathered and partially flaked. The shape of the flaking shows that a highly concentrated binder was added at the time of application. Some traces of partial repair can be observed on the part of black pigment zonally applied around the *Kotee*. The pigment partially seeps and streaks on the surface of the plaster.

Exfoliation and flaking and fracks of plaster are seen around *Kotee* on the doors of the second floor. From the flaked plaster, dissolved clay wall, presumably because of rain and snow, is seeping into the surface of the plaster (Photo.24).

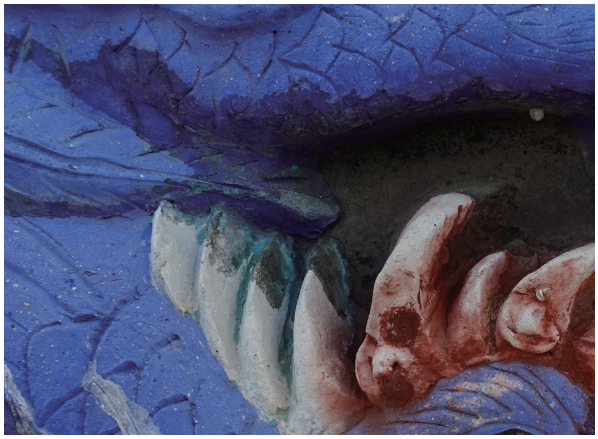
The treatment with grouting seems to have been done on the flaked plaster, but it does not match the original material and mars the beauty of the building's façade.



Pic19 (left). Flaking of colouring
Pic20 (below). Black pigments that have melted and flowed out
(Photograpy by the author)

Pic21 (left). The flaking of plaster finish on the surface
Pic22 (above). Traces of conservation and filling treatments
(Photograpy by the author)

<u>The southern side (gable: arabesque design/ top left: bird and chrysanthemum/ top right: rabbit and pine/ from bottom left: *Ebisu*, *Daikokuten*, crane and tortoise, and a brace of crane and pine)</u>
They are in a near-perfect condition compared to those on the northern and eastern sides as the *Kotee* are mostly in a room. Although some dust can be found on the surface, there is no damage requiring urgent attention on the colouring and plaster.



Pic23. Green pigments and blue pigments with different tones (Photography by the author)

Pic24. Fracks of plaster and flowed-out clay wall (Photography by the author)

4-3-4. Proposal on the method of conservation and restoration

As an adequate basic principle of conservation and restoration for *Kotee* is not yet established in Japan, various techniques are employed with respect to each work. Looking at *Kotee*'s materials, internationally, it can be included in a classification of Stucco Decoration. In Western countries, Stucco Decoration is normally conserved by professional conservators, not by plasterers. This difference is attributed to the basic premise of western people that Stucco Decoration is clearly a 'Cultural Property' or 'Art'. This is true with paintings as they are conserved by conservators, not by painters in western countries.

In Japan, repair works tend to be done by plasterers because there are few professionals such as conservators. However, technical knowledge that is different from plasterers' skills is needed as *Kotee* sometimes has fine expressions and colourings, which is different from a simple repainting of aged walls. In fact, several *Kotee* are damaged by the conservation methods or materials used. In the future, it may be necessary to examine the policy on how to 'conserve', not to 'repair', as the value of *Kotee* is highly likely to be reassessed.

The entire *Kotee*

It is preferable to clear the dust covering the surfaces with a soft brush. A thick layer of dust will absorb moisture, which can cause the deterioration of the surface of coloured *Kotee*.

This work requires sufficient investigation into whether there are exfoliations or flaking on the coloured layer and plaster. In the case that exfoliations or flaking are found, advance reinforcement should be done to ensure safety.

Decoration on the gable and doors

As they are created in a pattern, it is desirable to restore the ross (e.g. the left corner on the southern side) to its original form. It is also necessary to retreat past local mends with due consideration to the joint plane and the facing. With regard to the material used for restoration, a plaster similar to the original is considered appropriate. However, the degree of hardness should not exceed the original to improve the conformableness of the joint planes.

In terms of cracks, if the cracks are more than 5 mm wide, it is preferable to apply a partial fixation

method on the inside of the cracks and the grouting with similar materials on the original plaster. The use grout needs to be adjusted in its degree of hardness so that it will corrupt before the original plaster when it buckles and gets underloaded.

Kotee

The plaster surrounding the *Kotee,* such as frames on the doors were repainted in the past. From this survey, now that it became clear that cracks, exfoliations and flaking are observed around *Kotee* on several doors, it is preferable to scrape off and repaint the parts where the damages are serious. For the parts where the damages are not extensive, it is favourable to reattach the exfoliations through the grouting treatment or to take a wait-and-see approach if the exfoliations are on a plaster that is in a robust condition. The hydraulic lime-based restoration material is considered appropriate as the grout and synthetic resins should be avoided as they hinder the effect of absorption and desorption of moisture, which clay walls and plaster have.

For partially exfoliated plaster observed on the *Kotee* that is created using Low Relief Technique, it is considered appropriate to cure it through Front-facing using Japanese paper, and then grout to reattach. The hydraulic lime-based restoration material is suitable as a grout.

In contrast, for the parts where the plaster is flaked, edging around the remaining plaster is preferable in light of future conservation. In doing so, if the original form is understood, a restoration processing at the same time as applying the materials improves durability. In addition, if the nail head that was used to uphold the stick of the plaster is exposed, it is preferable to put the corrosion inhibitor first to prevent oxide formation. Similar materials to the original plaster should be used on the flaking parts.

In terms of colouring, no serious issue is observed, especially on the parts where the coloured plaster is used. However, there is exfoliation where Fresco-Secco technique was used; therefore, an antistripping treatment is necessary. The work requires sensitivity to the fact that the *Kotee* is placed outdoor and exposed to the climate in Nagaoka.

For the parts on which the colour layers were chipped, retouching could be one of the options as the exfoliation has become a major barrier to appreciating *Kotee.* There are many retouching techniques; given that the *Kotee* is comparatively in a good condition and if the originality should be respected, the method of Neutral Colour is considered appropriate. This method pulls the whole look together by toning down the whiteness on the flaked parts, by applying tones that are lower in brightness and colourfulness than the original. This also plays a role in reinforcing the colour layer around the flaking as the binder is used in retouching. When we consider that many tourists visit to appreciate the *Kotee* today, rebuilding the damaged and unifying the disorganised state of the *Kotee* is a key issue that needs to be addressed.

Column

The work of Ishikawa Uncho, who is said to have influenced Kawakami Ikichi, a creator of the Kotee of Kina-Saffron-Shu-Honpo, can be seen at the Founder's Hall of *Sekijyosan Saifukuji* (赤城山西福寺) in Oura, Uonuma, which is 30 km away from Nagaoka.

The *Kaizan-do*[1] was built from 1852 to 1857. In the same manner, Ishikawa Uncho spent about six years creating the decorations, the panel wall paintings, and Kotee on the poles of a step canopy and in the hall. The pictorial materials are unique. For example: '*Jinmen-sou*' (人面瘡) (Human-Faced Carbuncle), an anecdote transmitted by word of mouth in the region in which a human face appears on the knees of people who waste food, and '*Urabon-kuyou*' (盂蘭盆供養) (the Bon memorial service for the dead)', which describes a son who holds a memorial service to save his mother who is in hell. Those Kotee are coloured, and it seems that two colouring methods, namely Fresco-Secco technique and coloured plaster, were used. These methods are common to the Kotee at Kina-Saffron-Shu-Honpo. Low Relief Technique used to present clouds and rock surfaces is remarkably similar; therefore, it seems that Kawakami Ikichi visited here and consulted Ishikawa's work.

The techniques of craftspersons at the end of the samurai period were taken over and new pieces of work were created in Niigata.

(*Sekijyosan Saifukuji* (2016))

1 A generic name for the hall of a temple where the statue (or remains) of its founder or first priest are enshrined.

The Founder's Hall, which houses artworks by Ishikawa Uncho. (Photography by the author)

4-4. *Uchikocho-Yokaichi-Gokoku* (内子町八日市護国), Preservation Districts for Groups of Traditional Buildings (Kitagun, Ehime prefecture)

Date: 3 December 2021
Interviewee (without honorifics):
Taira Masami
(Assistant Director of Regional Development Division in Uchikocho)

4-4-1. About *Uchikocho-Yokaichi-Gokoku*

Gokoku, Yokaichi, and Sakacho Districts are lined with old houses and compounds of wealthy merchants built from the late Edo era to the Meiji era spanning 600 m, and they have retained a trace of its once-flourishing time in the production of Japanese wax as the basic ingredient in paper and candles (Photo.25). The buildings with the characteristic of faintly yellowed clay walls and whitewashed exterior walls account for more than 70% of the total buildings in the districts. Most are gabled and two-storied buildings and the *Namako* wall, *Kotee*, and *De-gosh*i (出格子) (projecting lattice) are also common. The districts were designated as the first Preservation Districts for Groups of Traditional Buildings in Shikoku in 1982. In 1990, *Honhaga-ke* Residence (本芳我家住宅), *Kamihaga-ke* Residence (上芳我家住宅), and *Omura-ke* Residence (大村家住宅) were designated as national important cultural properties.

Pic25. Uchikocho-Yokaichi-Gokoku (Photography by the author)

4-4-2. The technique of *Kotee* and the state of its conservation

Plastered Namako walls and De-goshi are almost everywhere in the districts as mentioned above. The distinguishing decorations are *Kotee* applied around eaves (Photo.26), and the most unique feature is the Stucco Decorations covering *kumohijiki* (雲肘木) (a cloud-patterned bracket arm), which seems to have been colored on a gypsum plaster surface finished with a stamp technique.

The decoration that exceptionally stands out in Uchikocho is the dragon and crane *Kotee* applied to the *gegyo* (懸魚) (gable pendant) of Honhaga-ke Residence. They are brightly painted in green, red, and light blue (Photo.27). A repair is likely to have been done as two types of red can be seen on the crane. They are well preserved overall, but some local exfoliation and flaking of colour or cracks and losses of plater can be observed; therefore, appropriate treatment should be done considering the future conservation.

Pic26. Stucco Decorations covering kumohijiki (Photography by the author)

Pic27. Kotee applied to the gegyo of Honhaga-ke Residence (Photography by the author)

4-4-3. Efforts towards conservation of Japanese plaster walls

Even when this visual observation was conducted, there were scaffolds to repair the exterior walls of the houses. According to the interviewee in the Regional Development Division in Uchikocho, there is currently only one plasterer in the region, and this is a serious problem in terms of passing on the traditional techniques of repairing plaster and cray walls, which differs from the skills of modern plasterers.

Japanese plaster walls were once popular even for ordinary houses and there were many plasterers with the traditional skills, but the change of architectural style and plastering materials associated with the diversification of lifestyle resulted in the reduction of demand. To preserve traditional skills, it is important to create an environment for plasterers to act. How to create such an environment would be the issue if the streetscape is to remain in the future.

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Sekijyosan Saifukuji. (2016) '*Sousho -Senjin no tsutaeshi oshie to takara. Ima kousei ni mamoriyuku* 相承　先人の伝えし教えと宝　今後世に護りゆく '.

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5. Research on Japanese Stucco

Font page: Children's book gallery (in International Library of Children's Literature)
(Photography by the author)

5-1. Outline of the research

From the end of the Edo era to the Meiji era, Japan constructed many westernised architectures to become modernised and it hit its peak around Meiji 10 (1887). In this research, we verified the condition of the Japanese Stucco applied inside the now-existing western architectures and conducted interviews with people who worked on repair projects.

5-2. International Library of Children's Literature (former Imperial Library) (Ueno Park, Taitoku, Tokyo)

5-2-1. About the building

The building was designed by an engineering official of the Ministry of Education, Science, Sports and Culture, Kuru Masamichi (久留正道) and Mamizu Hideo (真水英夫), who studied under Josiah Conder, a leader in the national construction project in the Meiji era, and it was constructed in Meiji 39 (1906) as the Imperial Library. It is said that Mamizu Hideo designed it based on a library in Chicago after investigating the public libraries with the latest facilities. This building is one of the outstanding works of Meiji-western-style architecture employing Renaissance style and has been placed on the register of Tokyo's select historic buildings.

Integrated with the National Diet Library in Showa 24 (1949), it has been a branch library in the Ueno National Diet Library since then. When its role was reviewed in the 1990s, a proposal was made recommending the usage of the library as a national centre for children's books as a measure against the worrying trend of children moving away from reading books. Major repair work started in Heisei 10 (1998) and the International Library of Children's Literature was partially opened in Heisei 12 (2000) while some parts were still under construction. In Heisei 14 (2002), it was fully opened and has collected, preserved, and offered children's and related books at home and abroad, and has been familiar to everyone as a place for children to enjoy books.

5-2-2. Its Japanese Stucco

Japanese Stuccos are applied on the ceiling and walls in each room. Several techniques are used such as plastered cornice created on-site, stamp techniques, and Low Relief Technique (Photo.2). The fine Japanese Stucco made with great care to detail is one of the highest-quality finished form of existing Japanese Stucco from the Meiji era.

Pic1. 'Children's book gallery'. Japanese Stuccos on ceilings (Photography by the author)

Pic2. Various Japanese Stuccos found in the library (Photography by the author)

5-2-3. Conservation of its Japanese Stucco

The Japanese Stucco was repeatedly maintained and repaired through the application of paint during each repair work. Under the conservation work that started from Heisei 10 (1998), a policy was adopted whereby the paint was removed from the wall to get the top layer exposed, and the surface was re-plastered to revert to its original appearance. Lost parts were restored and, for some parts, the materials used for plaster were the same as in the composition of the original one because of the care taken to preserve the original. At this time, an instructor was called and he lectured on the method of blending the traditional plaster (Photo.3) and techniques to the plasterers who were involved in the repair work (See 5-2-4. Q3 for more information).

Pic3. 'Room to Know the World', restored with traditional plaster. (Photography by the author)

5-2-4. Hearing investigation on the conservation of the Japanese Stucco

We interviewed the people in charge of the design in the construction project to learn about the details of the circumstances at the time when the Japanese Stucco was conserved. This is discussed below.

Date: 5 August 2021
Place: International Library of Children's Literature
Interviewee (without honorifics):
Inoue Taisuke
(Associate Designer of 3D Center Division at Nikken Sekkei Ltd.) (at the time)
Mizutani Takayuki
(Senior Manager of Client Relationship & Management Division at Nikken Sekkei Ltd.)

Q1. Had the techniques and skills for western-style Japanese Stucco been established?

I thought I was in a crisis. I wondered whether we should call experts from Italy, or from Kyoto where the skills of plasterers are high. I did a search and began to think that the Stuccowas created by Japanese people; therefore, Japanese people should be able to repair it. It was a western design in shape, but I thought it might be the same as Kotee in terms of the process. Akasaka Place, which was built two years after the International Library of Children's Literature was constructed, employed the policy of importing gypsum and installing the decoration using a prefab construction method. It must have been the juncture when Japanese Stucco was created using the traditional method but using new materials.

The Stucco was created by Japanese carpenters imitating the western style. This means that that was created using Japanese methods; therefore, it is possible for us to repair them. We knew that we could do the job in Tokyo without calling plasterers from Kyoto, where plastering skills are considered high; therefore, we ordered the job with confidence. The softness of plaster can only be achieved with plaster. I

felt uncomfortable when I saw a case where the original plaster was finished with Glass Fiber Reinforced Gypsum; therefore, I thought that what was originally made of plaster should be repaired with plaster.

Q2. How often are you involved in large repair projects?

There are no other examples of Stucco sculpture repairs. At that time, it was rare to leave the ceiling in place for repair, but when the ceiling was shown to experts, everyone agreed that it was so wonderful that it should be left intact. The amount of money required to preserve everything was calculated to be quite high, but the Ministry of Land, Infrastructure, Transport and Tourism recognised the value of the project and provided a budget for it.

This type of construction method is difficult to use for private projects because, in many cases, the value of the project is not established and not enough money is allocated for it. Without the strong will of the users, such as the will to endure heat and cold and accept inconvenience, it is difficult to implement an ideal repair project for traditional buildings. However, the situation is changing as awareness of the need to preserve the old is gradually growing.

Q3. Was the opportunity to restore the Japanese Stucco something special for the plasterers?

The craftsmen involved in the construction usually use ready-made materials; therefore, this was a special opportunity to use traditional plaster. To learn traditional techniques, a plastering instructor from Kyushu was invited to hold a workshop (plaster and copper plates only). Behind the idea of doing so was the belief that it was also important to consider the transmission of techniques. The course attempted to reproduce traditional materials by boiling glue from red algae and kneading plaster using shell-lime (lime from meretrix lusoria shell) (used only in the Sekai-wo-Shiru-Heya). Plaster in other areas was based on materials that could be prepared by kneading them with water and worked with minor adjustments for ease of use. In the past, oyster ash was the main ingredient used to make plaster in the Kanto region, but at the time of the repair project in Heisei 10 (1998), few places were producing the material. As a result, lime from meretrix lusoria shell was used. We also found a supplier who stocked lime from oyster shells but refrained from using it, believing that the rare and valuable lime from oyster shells should be left for the repair of more valuable cultural properties. This is because the International Library of Children's Literature building at that time had not yet been designated as a cultural property. For example, the Kyoto State Guest House, a national guest facility, was constructed using wood from the stock of a Kyoto lumber company. This happens in projects that are found to have a certain level of value and are likely to be passed on to future generations.

For the plaster preparation, the old mixture amounts were listed in some documents, and the materials were ordered based on these amounts. However, the quality of the materials themselves had changed dramatically compared to when the building was first constructed, and the ratio of the ingredients had to *be changed drastically.*

Q4. Did you think that western-style Stucco Decoration could also be handled with traditional Japanese plastering techniques?

I did not think so, but I thought it should be done using Japanese materials and techniques. I felt that if I adopted something foreign, it would be a 'lie'. In the architectural field, repairs were often done with the

idea that the original material could be replaced by another material if it retains its form, but recently, we have come to believe that the originality of the material should also be taken into consideration. Perhaps it is because we were influenced by the concept of cultural property conservation and restoration.

Q5. In the West, restorations are done with consideration for the treatment of patina (old tones), what do you think about that?

I think the new colour does justice. Nowadays, it is the new colour. I place more importance on new colours, especially since the exterior is deteriorating rapidly. If it is a historical building that needs to be protected for 100 or 200 years, we think it is right to use new colours and let it blend in naturally over time.

'Museum of the Book'. Japanese Stuccos around the Aedicula (Photography by the author)

5-3. The former Hong Kong and Shanghai Bank Nagasaki Branch Museum (Nagasaki, Nagasaki prefecture)

5-3-1. About the building

Designed by Shimoda Kikutaro Architects, the building has a Western architectural style known as 'façade architecture', with rows of arches at the front of the first floor and square columns and Corinthian columns on the second and third floors (Photo.4). It was built as a bank in Meiji 37 (1904), and when the bank was closed in Showa 6 (1931), it was subsequently used as a police station building and the Nagasaki City Museum of History and Folklore. It was designated as a National Important Cultural Property in Heisei 2 (1990), and was opened as a memorial museum in Heisei 8 (1996). In preparation for its opening as a memorial museum, conservation and repair work was undertaken over four years beginning in Heise 4 (1992).

Pic4. Façade (Photography by the author)

5-3-2. Its Japanese Stucco

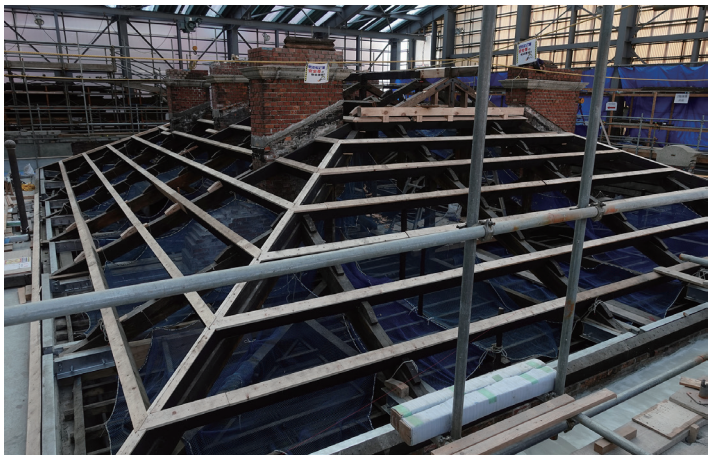
Japanese Stucco can be seen everywhere in the museum, including the ceiling (Photo.5), side walls, and windowsills. The rounded edges of most of its decorations suggest that it was repainted during repair work. One characteristic of the Japanese Stucco is the rear section of the staircase connecting each floor. The surface of the painted plaster is carved with rounded curves about 5 mm wide, creating a unique pattern (Photo.6).

Pic5. Japanese Stuccos on ceillings (Photography by the author)

Pic6. Incision on the back of the staircase (Photography by the author)

5-4. The former British Consulate in Nagasaki (Nagasaki, Nagasaki prefecture)

Date: 28 October 2021
Interviewee (without honorifics):
Tsujita Yoshinori (Director)
Taniguchi Akira, Iriyama Kohei
(Technical staff in the Design and Supervision Office of the Former British Consulate in Nagasaki, The Japanese Association for Conservation of Architectural Monuments)



Pic7. Conservation and repair work in progress
(Photography by the author)

5-4-1. About the building

It was designed in 1906 by William Cowan, Chief Engineer of the Shanghai Office of the British Government Engineering Bureau (Cecile Simpson took over after construction began), constructed by Goto Kametaro (Moritaka Ichidayu took over in the latter half of the construction), and completed in 1908. The building was built in the Queen Anne style, a revival of the late medieval and early modern English house style, and various features can be seen in the building, such as red brick walls accented with granite strips and balconies surrounding the perimeter of the building.

In Showa 20 (1945), after minimising the damage caused by the atomic bombing, Nagasaki City approached the British government about purchasing the building on the condition that it would be preserved as a historical heritage. When the bid was accepted in Showa 30 (1955), the building became a facility of the Nagasaki City Children's Science Museum. In Heisei 2 (1990), it was designated as a National Important Cultural Property. In Heisei 5 (1993), it became a facility of the Noguchi Yataro Memorial Art Museum. Then, due to the ageing of the building, conservation and repair work was initiated and it has been preserved and repaired to the present (Photo 7).

5-4-2. Its Japanese Stucco

Japanese Stucco is applied in each room in the building. The ceiling is finished with plaster on wooden laths, and most of the side walls have a brick base. Around the ceiling, decorations can be seen such as plastered cornice made on-site (Photo.8) and egg and dart decoration with stamp techniques. The specifications of these decorations vary according to the class of the room, and the higher-ranked rooms have more delicate decorations. They have been altered during multiple renovation projects throughout the Showa and Heisei eras, and only about 20% of the original components were identified in the survey conducted prior to the current repair work.

Pic8. Japanese Stucco during repair
(Photography by the author)

5-4-3. Conservation of its Japanese Stucco

Although some of the original plastered cornices will be retained in this conservation and repair work, most of the Japanese Stucco will be dismantled to make way for structural reinforcement work, and even the wooden laths and other underlayments will be replaced with new ones. Construction experiments are also being carried out on site (Photo 9).

It is also planned that the central ceiling ornament and crown molding dismantled by *Oobarashi* (大バラシ)[1] (Photo 10) will be resin-impregnated and partially repaired and reinstalled in their original locations or stored at the site. The joints between the undemolished part and the new Japanese Stucco in the same section will be touched up, and then finished with face coatings. The ornate ceilings will be similarly finished with a pigment containing calcium carbonate.

Pic9. Experimental installation on assembled wooden laths (Photography by the author)

Pic10. Plastered cornice dismantled by the method of Oobarashi (Photography by the author)

1 Method of cutting out part of a cultural heritage building with the aim of preserving it and returning it to its original position after repair.

Bunsyo-kan (in Yamagata)
(Photography by the author)

5-5. *Bunsyo-kan* (文翔館) (former prefectural office building and former prefectural parliament building) (Yamagata, Yamagata prefecture)

5-5-1. About the building

It was rebuilt in Meiji 44 (1916) after the previous prefectural government building was destroyed by the Great Yamagata-Kita Fire in Taisho 5 (1911). The building was designed by Tahara Shinnosuke from Tokyo with Chujo Seiichiro from Yonezawa City as an advisor. It is a three-story fire-resistant brick building, built in the British Early Modern Revival style, with the exterior walls finished in granite. It was used as the prefectural government building until 1975, and after the prefectural government was relocated, it was decided to preserve it as cultural property and it was designated as a national cultural asset in December 1984.

5-5-2. About its repair work

In the repair work that began in Showa 61 (1986), the policy was to minimise the scope of demolition and to make necessary structural reinforcements to restore the building to its original appearance using conventional methods and materials. The construction work lasted 10 years until 1995.

5-5-3. The restoration of its Japanese Stucco

When the building was first constructed, the ceilings of the main office, the guest rooms, and the governor's office on the third floor were decorated with Japanese Stucco, but during the war, they were remodelled to be covered with boards. During the restoration work that began in 1986, it was decided to restore these Japanese Stucco (Photos 11, 12, 13, and 14). The restoration work was carried out using traditional materials, referring to the original Japanese Stucco pieces that had been left under the floor during the previous remodelling and other photographic information. According to Mr. Aoki Masaru, who was the master plasterer, it was extremely difficult to explore the traditional techniques while working under circumstances where the use of commercially available pre-mixed plaster was already common practice. Today, in the storage room on the first floor of the *Bunsyo-kan*, many of the moulds for plastered cornices, experimental samples, stamp stocks, and other materials made during the restoration work remain, showing traces of the 10-year effort.

Pic11. Resotred Japanese Stucco (Photography by the author)

Pic12. Resotred Japanese Stucco (the main office) (Photography by the author)

Pic13. Resotred Japanese Stucco (the main office) (Photography by the author)

Pic14. Resotred Japanese Stucco (other parts of the building) (Photography by the author)

5-6. Aoki Plasterer Co., Ltd (株式会社青木左官) Exhibition room (Nishimurayama-gun, Yamagata prefecture)

Drawing on the experience of the repair work at *Bunsyo-kan*, the ceiling of the exhibition room in one corner of the company is decorated with Japanese Stucco (Photo.15). The decorations, which are more glamorous than those of the *Bunsyo-kan*, are brilliant with the beautiful white plaster, and the detailed forms are fascinating to the viewer. Traditional materials and techniques are used, as in *Bunsyo-kan*. The details of this work will be the subject of future work and will continue to be investigated and researched.

Pic15. Various Japanese Stucco in the exhibition room (Photography by the author)

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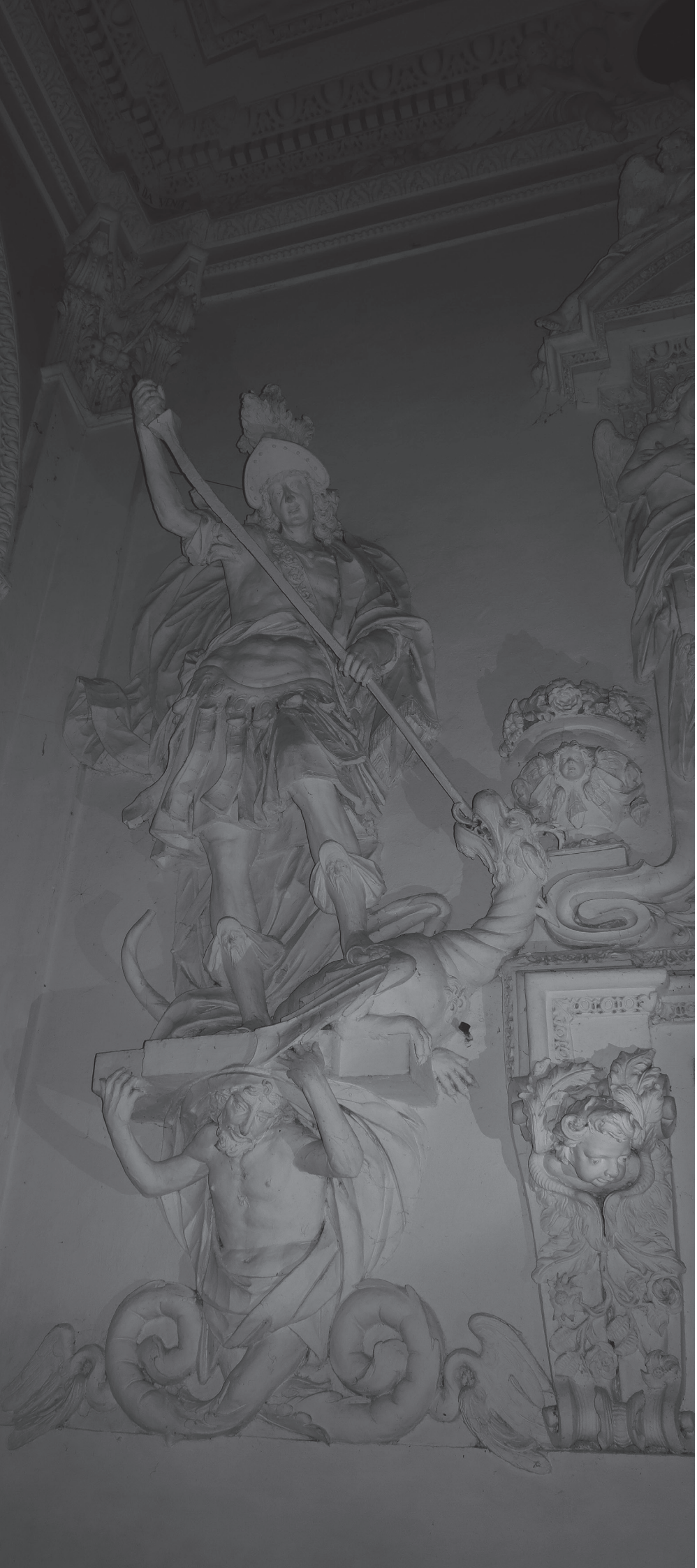

6. Online Meeting

Font page: Santuario della Madonna d'Ongero (in Switzerland)
(Photography by the author)

6-1. Aim

Initially, we had planned to conduct a field survey in the Mediterranean region but cancelled it due to COVID-19; therefore, we held online meetings to exchange opinions with local experts instead. The meetings were held three times this year to confirm the purpose and objectives of the research study and to discuss specific ways to proceed with the study.

6-2. Host the online meeting

6-2-1. The first meeting

Date: 29 May 2021

Participants:

Giacinta Jean (The University of Applied Sciences and Arts of Southern Switzerland)
Alberto Felici (The University of Applied Sciences and Arts of Southern Switzerland)
Giovanni Nicoli (The University of Applied Sciences and Arts of Southern Switzerland)
Daniele Angellotto (Opificio delle Pietre Dure)
Chiara Piani (Associazione Bastioni)

Overview:

At the first meeting for opinion exchange, the purpose of this study was reconfirmed and experts reported on the current status of related research in Europe, which has the largest number of Stucco Decorations and restoration cases in the world. From Japan, we introduced the techniques and materials of *Kotee* and Japanese Stucco made with traditional plaster as well as the current state of maintenance and management.

Summary:

Ticino, located in southern Switzerland, has produced excellent plasterers, architects, and sculptors since the Middle Ages. In the 16th century, with the onset of the Reformation, churches throughout Europe were undergoing major renovations, and many craftsmen and specialists from this region migrated. Their skills quickly became widely known, and their techniques spread. The University of Applied Sciences and Arts of Southern Switzerland conducted a research study focusing on the history and techniques related to Stucco Decoration developed in its hometown, Ticino, and in 2018, a symposium titled 'The Art and Industry of the Ticinese Stuccatori from the 16th to the 17th Century' was held. The book 'Stucchi e Stuccatori Ticinesi tra XVI e XVIII Secolo', which summarises the results of a series of studies, was also published.

'*Kotee*' and Japanese Stucco created from the end of the Edo era to the Meiji era fall into this category as Stucco Decoration in Japan. This background is also related to the spread of traditional Japanese plaster (see Chapter 2), which is now in decline.

6-2-2. The second meeting

Date: 31 July 2021

Participants:

Alberto Felici (The University of Applied Sciences and Arts of Southern Switzerland)
Giovanni Nicoli (The University of Applied Sciences and Arts of Southern Switzerland)
Daniele Angellotto (Opificio delle Pietre Dure)
Chiara Piani (Associazione Bastioni)

Overview:

In the second meeting, we shared information on the findings after the first meeting. The focus was on topics related to Stucco Decoration techniques and materials, and it was concluded that these topics could be the main theme of future research and studies.

Summary:

In Japan, since the Edo era, when the demand for plaster walls increased, seaweed glue and Japanese paper fibre were mixed as additives to adjust the viscosity and control cracking. Some types of Japanese paper used as paper fibre-mixed plaster contain a highly viscous substance, and in such cases, seaweed glue did not need to be added. In the future, we plan to investigate the details of these traditional techniques through interviews with domestic plasterers and construction experiments.

These traditional Japanese techniques are very interesting and might be considered unique to Japan and not found in Europe. This type of addition to materials is also found in Europe, for example, in Italy, where essential oils extracted from flowers and grasses are added as a viscosity agent. It is interesting to see the differences in the materials used in the various regions, even though the purpose is the same. It is also undeniable that the type of additive may have an impact on the conservation conditions. For these reasons, it is worthwhile to conduct comparative studies in the future. However, it would be necessary to limit the survey to the period when plaster was used in Japan. The information obtained should be compiled into a database and shared among researchers in different countries. The scientific effects of additives should also be studied in collaboration with conservation scientists to determine how additives change physical properties and their effects on weathering rates.

6-2-3. The third meeting

Date: 11 September 2022

Participants.

Alberto Felici (The University of Applied Sciences and Arts of Southern Switzerland)
Giovanni Nicoli (The University of Applied Sciences and Arts of Southern Switzerland)
Daniele Angellotto (Opificio delle Pietre Dure)
Chiara Piani (Associazione Bastioni)

Overview:

At the third meeting, we listened to a talk while viewing a video on the restoration experiment of traditional Ticino Stucco Decoration produced by the University of Applied Sciences and Arts of Southern Switzerland in 2007. The presentation clearly introduces the process of material preparation and modelling, and we concluded that it is important to preserve materials and share information in this way

in the future.

Summary:
The University of Applied Sciences and Arts of Southern Switzerland is actively researching the traditional technique of Stucco Decoration in Ticino and restoration methods for its preservation, to train young specialists. It can be said that Japan should particularly emulate the efforts to visually communicate the restoration experiments by preserving them not only in written materials but also in video materials.

Plastering techniques in Japan are very interesting as the materials and tools are quite different from those used in Western countries. Some expressed a desire for future meetings to exchange ideas and opinions among technicians engaged in the plastering of cultural properties. They also requested us to create a documentaryto preserve the traditional techniques.

6-3. After the meetings

After the three meetings to exchange opinions, the objectives and points to be focused on in future research became clearer. This year, we were unable to conduct an overseas inspection; therefore, we focused our research mainly on domestic projects. However, we were able to deepen our knowledge through this opportunity and learned about the traditional techniques and skills related to Stucco Decoration in Japan as well as problems in conservation and restoration. The various conservation efforts discussed by the European experts during the exchange of opinions contained many elements that can be used to improve the current situation in Japan, which is still lagging. In the future, we intend to collect more detailed information through overseas visits and surveys and build a close network with local experts to enhance the cultural value of Stucco Decoration and develop conservation and restoration techniques.

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Japanese Stucco in *Uchikocho-Yokaichi-Gokoku*

(Photography by the author)

Conclusion and Acknowledgment

Through the domestic survey conducted this fiscal year, it became clear that no suitable conservation and restoration method has been established for *Kotee* and Japanese Stucco, which fall under the category of Stucco Decorations. Currently, *Kotee* is produced by plasterers; therefore, in many cases, repairs are also left in the hands of plasterers. However, *Kotee* is similar to a sculptural work such as a clay statue, with three-dimensional expression using Low Relief Technique and using colour. Generally, when Japanese plaster walls are repaired, they are scraped off and replaced with new paint if the damage is severe. This background may have influenced the lack of attention to originality in the *Kotee* with traces of repairs that we saw during our research.

Kotee is sometimes placed as part of plaster walls and is often made of similar materials, but it is clear from its shape that it should be considered as something different from walls. If so, a suitable method should be chosen for repairing the damage. We felt that the hints for this could be found in Western countries that have a long history of conservation and restoration of Stucco Decorations.

Japanese Stucco is not often considered 'of the highest priority' when buildings are repaired because, as the Japanese name implies, their role is to decorate the main object. As a result, they are often sacrificed when various facilities are introduced to improve the safety and comfort of users in the present day when cultural assets are required. However, a person who knows the historical background understands that Japanese Stucco is the fruit of the efforts of the plasterers of the time, who worked hard to catch up with the West through their own efforts during the Meiji era when Western culture was rapidly accepted in Japan. While it is true that efforts are being made to preserve them, even if only partially, in honour of this history, it is also true that the original elegance of the Japanese Stucco that adorns the interior and exterior of buildings has greatly diminished due to the replacement of original materials with modern materials and surface coatings. It is no exaggeration to say that the beauty of the space created by the combination of various elements is a composite cultural asset that the designers and craftsmen of the time created through trial and error.

It is difficult to consider all these factors in building repair projects that are carried out within a limited budget and time frame. However, outside Japan, there are many examples of projects that have been completed under similar conditions while preserving the original beauty of the space. It is necessary to consider the fact that the repairs to Western-style buildings, which are different from traditional Japanese architecture, are far fewer than in Western countries, and that there is a lack of experience in the restoration of Japanese Stucco. However, this is also why there is room for improvement.

While continuing with the domestic survey, this study plans to initiate overseas case studies taking into consideration the COVID-19 situation. This research would be very important in improving the current state of conservation and restoration in Japan.

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