ACCU Nara International Correspondent Vol.28 2022 The Twenty-eighth Regular Report

公益財団法人 ユネスコ・アジア文化センター文化遺産保護協力事務所 Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU)

ACCU Nara International Correspondent

The ACCU correspondents periodically send reports on cultural heritage protection activities in which they have been recently involved. This is a collection of ten reports submitted by international correspondents in the Asia-Pacific region.

The Twenty-eighth Regular Report

Contents

Cambodia Chan Vitharong Primary Results of the Survey at Prasat Khnach Tol in Sambor Prei Kuk, Ishanapura	1
India Maulishree Mishra An Effort to Conserve Himalayan Heritage by Empowering the Local Community with Knowledge and Opportunity	6
Indonesia Yosua Adrian Pasaribu Designation of Tanjung Tanah Code of Law Manuscript as a National Cultural Heritage	14
Kazakhstan Gulnaz Kulmaganbetova Some Results of Research Work on the Settlement of Aktobe-Stepninskoe	18

Lao PDR 25 Sommay Singthong The Protection and Promotion of That Foun in Seephom, Khoun District, Xiengkhouang Province, Laos

MalayS1a A Ghafar Bin Ahmad Dilapidation Survey of Rumah Sri Aman, Sarawak, Malaysia	— 28
Mongolia ^{Munkhtulga Rinchinkhorol} A Newly-Found Uighur Period Runic Inscription from Eastern Mongolia	— 37
Sri Lanka R. Nishanthi Ranasinghe A New Approach towards the Documentation of Ancient Wall Paintings in <i>Kelaniya</i> Temple	— 43
Uzbekistan Akmaljon Ulmasov Analysis and Methods of Conservation of Ancient Khorezm Wall Paintings (based on scientific litera	— 52 ature)

- 57

Viet Nam Tran Thanh Hoang Phuc The Japanese Covered Bridge Conservation Project

Cambodia

Primary Results of the Survey at Prasat Khnach Tol in Sambor Prei Kuk, Ishanapura

Chan Vitharong, Director

Department of Site, Archaeology and Conservation, National Authority for Sambor Prei Kuk, Ministry of Culture and Fine Arts

1. Background

The Prasat Khnach Tol Complex, with the registered number M 103, (UTM) X: 501810 and Y: 142213, is a group of temples located within the ancient moat city of Isanapura, modern Sambor Prei Kuk archaeological site [Figure 1]. I have previously written about this site in a number of reports, so I will not go into further detail here. This complex was constructed on the southern edge of the natural water reservoir Beong Khnach Tol. This complex illustration has an important connection with the traces of the northern ancient city road (?) [Figure 2]. This complex is surrounded by moats to the east, south, and west, but in the east it functions as a wide plain area or channel to the southern area of the city. This complex consists of four mounds in total, one of which has an octagonal plan design, enclosures with rectangular-shaped tracing mound enclosure wall structures (118 × 77 meters), a lateriteembankment pond in the northeast corner with a square shape $(43 \times 43 \text{ meters})$, and an indeterminably-shaped reservoir in the northwest. The majority of the structures were covered with plants, accumulated earth, and damaged architectural materials [Figures 3 & 4].

So far, fragments of ceramics, architectural elements, art objects, and some fragments of pre-Angkor inscriptions have been found [Figure 5]. In March 2022, the National Authority of Sambor Prei Kuk (NASPK) initiated a project to examine, research, and raise the significance of sites based on the potential of heritage through the study and analysis of the site setting with the most recent surface collection results as mentioned in the Twenty-seventh Regular Report (2021: 14-16).

2. Aim of the Project

Two primary goals drive this project. In order to identify the chronological structures, the study first concentrated on the structural and architectural forms of Tower 1 (KT1) and Tower 2 (KT2), together with the complex's master plan design. Second, the project aims to enhance the monument's worth by keeping a balance between its restoration and conservation, and presenting the original structures to the public, which helps people comprehend the surrounding architecture, urban planning, and ancient landscapes within the moat city of Ishanapura. Additionally, this project plans to lengthen and enhance the new visitation route, which runs parallel to the master plan of the conservation and development of NASPK.

3. Results of the Project

The results of the excavation research and clearance work of this complex show the architectural structures which are buried beneath the ground surface. Due to the factors of age, nature, and humans, the remains of two temples consisted of only the basement mounds below the walls. However, at least we understood that this complex was built within the enclosure walls and the current research shows that there are two gate structures, one from the south and another one from the north [Figures 6, 7 & 8].

The primary conclusion is that this complex probably exists within three main stages of construction. Moreover, the evidence of decorative arts [Figures 9 & 10] and architecture can lead to proposed dates between the 7th and 8th centuries CE (from Sambor Prei Kuk to Prei Khmeng styles) [Figures 11 & 12]. In addition, we can compare the two structures, found through the excavation, to some towers in Sambor Prei Kuk (e.g., especially the Prasat Yeay Poan and Prasat) and some pre-Angkor temples in Cambodia (e.g., Prasat Srei Krup Leak – Phnom Baset in Kandal Province (see The Sixteenth Regular Report 2016: 5)). Meanwhile, during this investigation, some Khmer stoneware from the Angkor period was also discovered. This project will be completed with consolidation and restoration works [Figures 13 ~ 16].

With the intention to increase the participation and awareness of all researchers, the NASPK was pleased to permit any requests for scientific studies of this temple such as a petrological and chemical analysis by the Institute of Technology of Cambodia, and provide an on-site training course on archaeology and conservation of cultural heritage to architectural and archaeological university students with the cooperation of the University of Tsukuba and the Royal University of Fine Arts, funded by the Agency for Cultural Affairs, Government of Japan.

Remarks: This report is published based on the results of archaeological surveys and conservation work of the Department of Archaeology and Conservation of the National Authority for Sambor Prei Kuk (NASPK). Members of the survey teams: Chan Vitharong, Khann Mony, Seang Sopheak, Em Phearak, and Chbun Reaksmei. The LiDAR image was taken in 2015 under the CALI project with the collaboration of APSARA, Ministry of Culture and Fine Arts and École française d'Extrême-Orient.



Fig. 1. Map of the archaeological features of Sambor Prei Kuk and Prasat Khnach Tol location



Fig. 2. LiDAR hillshade of the archaeological features of Sambor Prei Kuk and Prasat Khnach Tol location



Fig. 3. LiDAR hillshade: Prasat Khnach Tol location



Fig. 4. Scene of the complex prior to the excavation survey, which was covered with plants and accumulated soil.



Fig. 5. Pre-Angkor inscription fragments discovered in 2005 by SCP at Prasat Khnach Tol (Photos: NMPP via CISARK)



Fig. 6. Primary layout of Complex of Prasat Khnach Tol



Fig. 7 (left) & 8 (right). Unearthed structures of the northern and southern gates



Fig. 9 (left) & 10 (right). Lintels from KT1 and KT2 dating from the 7th century



Fig. 11 (left) & 12 (right). Ruins of KT1 and KT2 structures from the 7th to 8th centuries (to be verified)



Fig. 13 (left) & 14 (right). Before and after excavation work on the KT1 and KT2 ruins



Fig. 15 (left) & 16 (right). Conservation activities on the KT1 and KT2 structures

India



An Effort to Conserve Himalayan Heritage by Empowering the Local Community with Knowledge and Opportunity

Maulishree Mishra, *Architect & Co-Founder / Visiting Conservation Architect* Artefacts and Habitats Sustainable Solutions LLP / Tibet Heritage Fund

Introduction

India is a land of cultures and languages (Fig. 1). It is difficult to say how many there are and how old they are, but each with its unique attributes is important. Carefully identifying these unique cultures and preserving them in this era of globalisation is a challenge as they are now threatened due to changing patterns of human life and migration.¹ Further, as we move faster and faster towards urbanisation and globalisation, there is an increasing risk of accelerated climate change triggering a chain reaction of food shortages, poverty, and hampered access to basic life necessities like clean drinking water and hygienic living conditions amongst innumerable others. Therefore, the identification and preservation of communities living closely with nature practicing agriculture and local crafts as their primary livelihood is now more important than ever in an attempt to strike the right balance for a sustainable future.

The relationship between indigenous communities, migration, urbanisation, and climate change can be easily understood as a one-way pattern of consumption which is resource exhaustive and irreversible by nature as indicated in Fig. 2^2 .



Fig. 1. Elderly Ladakhi woman separates apricot pulp and seeds for preparing local jam



Fig. 2. Shift from a sustainable to resource exhaustive way of life poses a big question on the survival of the human race

The long-term impact of this unidirectional progress is climate change, the results of which are now becoming more visible than ever before. In such a scenario, empowering local communities in rural, indigenous locations and semi-urban settings becomes more and more important. This is how Tibet Heritage Fund's (THF) role can be understood over the many years of their dedicated conservation practice.³ THF makes a broad contribution towards the conservation of traditional architecture in Tibet and Mongolia, amongst other places, however, the focus of this particular article

shall be the northern-most part of India, i.e. the cold desert of Ladakh (Fig. 3). I have been fortunate to have had the opportunity to be a part of THF's team a few times over the last decade and understand the real meaning of conservation under the mentorship of Mr. Yutaka Hirako and his experienced team of craftsmen. This article tries to highlight the role of dialogue, the right knowledge and guidance, documentation, community participation, and perseverance in conservation of a cultural landscape, spanning over a decade.



Fig. 3. Google Image indicating the location of the Ladakh region (Source: https://earth.google.com/)

Brief introduction to Leh Old Town, a Tibetan settlement in the High Himalayas, which served as the royal seat for the region of Ladakh in the 16th and 17th centuries

As per international research teams and scholars, their studies over the years indicate that the first royal temples and stupas in Leh were constructed sometime between the 14th and 16th centuries, of which Leh Palace, a nine storey high structure in stone, wood, and mud was built as the seat of the Namgyal kings and is a well-preserved example overlooking the Historic Old Town of Leh. Geographically, the positioning of the palace at the top with a settlement surrounding it below, housing the most influential families of the region, guarded with a fortification wall all around, with four stupa gates forming the guarded entrances to the settlement, is significant in understanding urban planning according to cultural beliefs and climate responsiveness, as well as considering the security of the settlement. The fortification (Mani) wall during those days marked the edge of the settlement and beyond it were situated the agricultural establishments, however, in the later years extensive building activity took over most of the portions lying outside the Mani wall, and now only the four stupa gates*(Figs. 4 & 5), with few portions of the Mani wall can be found standing guard over this historic part of the Leh town. The Leh Palace was identified as a monument of national importance in 1982 and has since been taken care of by the Archaeological Survey of India. However, the Old Town, which forms the context to the palace, invited little attention until 2003 when Mr. Andre Alexander a German researcher and one of the founders of THF travelled to Leh on the recommendation of a friend.

On his arrival in Leh, finding the entire site of the Old Town in poor sanitary condition and in need of urgent repairs, he immediately initiated a building identification and condition survey to understand the exact situation of this dusty settlement of a royal lineage. Almost 200 traditional structures built of mud, stone, and wood were listed, indicating the existence of one of the biggest clusters of Tibetan households and temples he had ever seen, existing until the 21st century with many of its cultural features still intact. The study revealed that more than 60% of the Old Town structures were inhabited by the owners, 30% were occupied by tenants, and 10% were vacant. It also pointed out that more than 50% of the existing structures had major damage and were in need of urgent repairs, the drainage and sanitation of the area was in a poor state, and the historical settlement showed signs of becoming a slum. The survey laid the foundations for community-based conservation to be attempted to restore and revive this old settlement with traditional materials and techniques, and with an approach of *with the community and for the community*.



Fig. 4. Diagram indicating the four stupa gate entrances to Leh Old Town with respect to the Leh Palace

Fig. 5. West Stupa Gate or 'The Nub Kagan Chorten' after restoration in July 2022

*Each of the four stupa gates have been restored by the Tibet Heritage Fund over the years with the help of local craftsman and their respective sponsors, making use of traditional materials and techniques.

Listing the major areas of concern and bringing the community together to work towards solving them

First, the major areas of concern were listed as follows:

- 1. Poor living conditions
- 2. Slow deterioration of the historic settlement due to negligence and no maintenance
- 3. Loss of cultural identity due to loss of traditional knowledge and skills
- Rapid economic shift from being agriculture-based to becoming tourism-based
- 5. Changing demographics due to migration of actual residents

To carry forward the mission, a search was carried out to find the best craftsman of the region who still retained their skills and the traditional knowledge systems of the region, bringing together a team of master craftsman, chief masons, translators, and local historians from the local

community. A sister branch of the organisation for the pilot project was registered locally and marked the beginning of LEH OLD TOWN INITIATIVE "LOTI", the intention being that in future, the community takes over the mission and becomes self-sufficient in the process while gaining the required knowledge and experience at the beginning. Along with the community, THF/LOTI constantly dialogues with the local government and local development authority, as well the various NGOs/NPOs working in and around LEH to add more solidarity to this mission at the local level. It is because of this close social networking created as part of the action plan that in 2012 this historic precinct (Figs. 6, 7 and 8) was saved from being identified as a slum and being redeveloped under slum rehabilitation regulations which if implemented would have eliminated the centuriesold heritage and its indigenous way of architecture and living, replacing it with standardized tiny concrete boxes.



Figs. 6 & 7. Leh Palace, as viewed from Leh Old Town in May 2013

Fig. 8. Traditional Dwellings, Leh in May 2013

One Structure at a Time- Reviving the Old Historic Dwellings in one of the highest human settlements in the world

1. Model Conservation Street Project:

Installing proper drainage and paving on streets (Fig.9) to provide a cleaner environment to the residents of the old town.



Fig. 9. Drawing of the conservation plan

The model conservation street project began in 2005 with the hope of having the people of Leh town understand how a historical setting can be restored in an efficient way and why proper infrastructure was as important as the historical buildings. The beginning of this project targeted a particular precinct of Stagophilok (adjoining Stagophilok stupa gate) which is very often used by the locals coming to the old town, which, along with a historical entrance stupa gate, also has historical structures on either side of the street. The project execution required at least one member from each family in the precinct to be part of the team, along with the craftsman, so that the community would remain committed to the upkeep of the improvements. The technical details for the drain and paving were prepared by THF, keeping in mind the regular cleaning, freezing, and thawing of drain water during the extreme winter months, the steep terrain, the carrying capacity during different seasons, the uniformity of the paving and its slope towards the drain so water clogging the street could be prevented, ensuring longterm maintenance by the community. The intention was also to keep the detail as simple as possible so that it could easily be replicated in the entire old town in the years to come.



Fig. 10. Construction of drain in progress in May Figs. 11 & 12. Life in different parts of the old town after the infrastructure addition in May 2013

The project did better than imagined, as the community came closer in the process, convincing residents in other parts of the town for infrastructure improvements as they had already witnessed the Stagophilok Model Street Conservation Project. The local government became more interested as something they could never undertake or attempt was nicely executed and working well. THF's efforts for Stagophilok Street conservation were well recognised by UNESCO and awarded an honourable mention for cultural heritage conservation.

Following the example of Stagophilok, most of the streets of Leh Old Town have now been built with proper drains and paved with cut stones by THF (Figs. 10, 11 and 12) with support from the community and sponsors over the years, and better living conditions prevail in the precinct as the streets are no longer flooded with drain water and filth because of choked drains. The enormous task of building infrastructure in a historic setting could be accomplished well with the dedicated efforts of the community when provided with the right kind of technical knowledge and motivation.

2. Building conservation: Restoration of Old Historical Structures included residences, Buddhist temples, a mosque, and community spaces.

As per the initial surveys of the Old Town there were around 200 historical structures in the precinct, of which at least 50% needed major repairs while the others required minor or part repairs. Almost 50 structures both big and small have been restored within the precincts of the Old Town, all of which are now occupied as residences or being adaptively reused as homestays or cafés, while 15-20 major restorations for conservation of old Buddhist temples and palaces have been carried out in the surrounding region of Leh, many of which otherwise would have been lost a long time ago.

One such restored structure in Leh Old Town is LALA's café (Fig. 13). Originally known as the Sankar house, this tiny but important landmark at the beginning of the Old Town was formerly the residence of a monk who took care of the surrounding temples. Later on, for many years the structure lay abandoned and deteriorated due to neglect, following which the monastery to which it belonged decided to demolish it and build a new concrete frame structure. After many requests by the THF team to not demolish the historical structure as this would drastically impact the historical context, the monastery decided to let THF retore it and use it as a gallery to showcase a model restoration for the coming few years. In 2006, the restoration was carried out using traditional materials and techniques with the help of craftsman guided by Mr Andre Alexander and Pimpim De Azevedo, founders of the THF. The conservation of the structure involved strengthening the structure on the ground floor and replacing the timber on the first floor, along with repair and reconstruction of the traditional ceiling with "dungmas" wooden beams, "taloos" wooden purlins, "yagzas" grass, and mortar prepared from local clay (Fig. 14). Since the restoration it has been serving its purpose as an exhibition gallery, café, and community gathering space where people of the Old Town gather from time to time to discuss important matters concerning the future of the town (Figs. 15 and 16).



Fig. 13. A view of Lala's café in June 2022



at Lala's café in May 2006. Source: https://www.tibetheritagefund.org/



Fig. 14. Restoration works in progress Fig. 15. Bright and cosy interiors of LALA's café In June 2014



Fig. 16. Community meeting in progress on the terrace of Lala's café in June 2014

Bailay House is another such example of the ongoing building restoration projects of THF/LOTI in the Old Town that has recently been completed and saved from slow deterioration and decay. Bailay House, a three storey structure, was documented in 2015 in detail by myself as part of the Old Town building survey by THF. It took four years to find funds for its complete restoration as it

showed signs of major damage (Figs. 17 & 19). In 2019, the restoration was finally started as per the restoration plans prepared by Mr. Yutaka Hirako, Project Architect for THF, and in 2022 it has been brought back to life with improved spaces, structure, sanitation, and water supply in various parts of the house (Figs. 18 & 20).



Fig. 17. Front elevation of Bailay House facing the Leh Palace before restoration in July 2014



Fig. 18. Front elevation of Bailay House facing the Leh Palace after restoration in July 2022



Fig. 19. Staircase area before restoration in July 2014

Fig. 20. Staircase area after restoration in July 2014

3. Capacity Building and Innovation:

AAA House or The Artisans, Artists and Architects House (Fig. 21)

After years of working towards community building, building restoration, and infrastructure development, THF understood that there was a growing need for local craftmanship in LEH but the craftsmen were slowly decreasing and losing touch with their skills due to lack of opportunities, lack of proper training centres, absence of modern machines, etc., and it was therefore felt there was an urgent need for a centre that could save the crafts of the region from disappearing.



Fig. 21. Entrance to AAA House

In 2018, THF approached a family who owned a historical house in the Old Town and was not using it as the house had lain abandoned and dilapidated for many years. Requesting the owners' permission to restore the house and use it as an artisan centre proved to be successful in many ways, as the historical house could be restored and put to use to help artisans use their skills in making a livelihood. **Gotal Rigzin House** was restored and brought under use in 2021 holding workshops for people interested in learning as well as giving space to artisans to use their skills in making local crafts, thus marking the beginning of the Himalayan Bauhaus, as Mr. Hirako chooses to refer to it (Figs. 22 & 23).



Fig. 22. Ladakhi woman weaves on the AAA machine as the winter Fig. 23. Mr. Hirako and Ms. Dolkar explain the design to craftsmen at the AAA Jun. 2022. sets in Oct. 2021.

Apart from artisan training, AAA House is also a place of creativity and innovation. One innovation of AAA House is the Dry Toilet, which has been designed by keeping in mind climatic factors, ergonomics, hygienic living, and sustainability (Fig. 24). It is a blessing for the local people as well as tourists, as water in the high altitudes of Ladakh is extremely limited and the climatic conditions here do not allow usage of water for around 4-5 months as it is at sub-zero temperatures.

Challenges for the coming times!

The entire project has been a continuous challenge, but as a team THF/LOTI has dealt with it step by step. However, solid government support in terms of active participation in local development in order to carry the project forward at the required pace —physically, financially, and in policy making—remains a big challenge as THF has limited resources to keep the project moving. The other major challenges as observed include:

- a) Lack of heritage laws to protect this historical precinct.
- b) Lack of regular maintenance from the owners of the restored structures, which is very important to maintain them in good shape.
- c) Lack of interest and active participation by the youth in the restoration process, as it is important that they learn the skills to carry them forward.
- d) Lack of funds to involve more professionals and craftsmen in the process.



Fig. 24. Dry Toilet, designed by Mr. Yutaka Hirako in July 2014

Conclusion

Owing to the architectural, cultural, and aesthetical homogeneity of the Leh Palace and Old Town, in its context the entire precinct shows absolute potential in becoming a UNESCO World Heritage Site as a cultural landscape as it very well fulfills criteria ii, iii, iv, v, and vi for assessing OUV or outstanding universal value. However, due to the lack of funds for research, local interest, and political support, the same has not yet been accomplished. Meanwhile THF/ LOTI has slowly worked towards this community-based restoration with financial help from the house owners as well as part support from its sponsors. Such efforts of THF make visible what can be made possible if the right vision, correct guidance, and right support is present for indigenous communities. At the same time, this also shows a way forward for the sustenance of historic settings and the indigenous communities living in historic precincts.



Fig. 25. Team members of THF during a tea break (left); Ms. Stanzin Dolkar and Mr. Yutaka Hirako at the Kushu House Studio (right)

References:

1. UNESCO. (2020) UNESCO list of endangered languages in India.

https://www.universal-translation-services.com/unescolist-of-endangered-languages-india/#1648557978373-6565223a-e946

TOI. (2013) Times of India. *India lost 220 languages in last five decades*

https://timesofindia.indiatimes.com/india/India-lost-220-languages-in-last-50-years-survey-finds/ articleshow/21720601.cms

2. DowntoEarth. (2021) India's Urban-Rural Conundrum. https://www.downtoearth.org.in/blog/urbanisation/ census-2021-india-s-urban-rural-conundrum-67221.

Mishra, Maulishree. (2021) "Quest for Urban and Life in the Unliveable Urban." *Quest for Urban and Life in the Unliveable Urban*, Copal Publishing Group *https://jpad.copalpublishing.com/index.php/cu/article/*

view/6/6 3. THF. (2015) Tibet Heritage Fund. Orientations. Vol.46

5. THF. (2015) Thet Hendage Fund. Orientations. vol.46 No.6, Standing at a Crossroads: The Struggle to Preserve Leb Old Town. https://www.tibetheritagefund.org/ Acknowledgements: Ms. Pimpim De Azevedo (Programme Director and Co-founder THF/LOTI); Mr. Yutaka Hirako (Project Architect THF/LOTI); Ms. Stanzin Dolkar (Project Manager THF/LOTI); Ar. Siddhartha Mukherjee; Team Members Tibet Heritage Fund; Sponsor's Tibet Heritage Fund, Local Community of Leh Old Town; LAHDC; the local people of Ladakh, whose support, no matter how small, has helped this initiative, and the late Mr. Andre Alexander, who continues to inspire the THF team in all their efforts.

Indonesia

Designation of Tanjung Tanah Code of Law Manuscript as a National Cultural Heritage

Yosua Adrian Pasaribu, *Junior Heritage Expert* Directorate General of Culture, Ministry of Education and Culture

The Tanjung Tanah Code of Law Manuscript in Kerinci, Jambi is a seven-hundred-year-old code of law manuscript which is written in the Ancient Malay language with the Ancient Sumatra script. This manuscript is the oldest written law in the Malay world before the spread of Islam. This late 14th century manuscript is one of many sacred heirlooms of the people of Tanjung Tanah Village, Danau Kerinci, Jambi. Traditionally, the people of Tanjung Tanah Village are called Tiga Luhah Tanjung Tanah and are led by the Depati Talam Tuo, who is helped by the Depati Sikumbang (similar to a secretary) and the Depati Bumi (similar to a prime minister). Figure 1 shows a map of the location of Tanjung Tanah.



Fig. 1. Tanjung Tanah Location Map (Source: Ulrich Kozok, Cambridge, 2004)

The Tanjung Tanah Manuscript and heirlooms of the Kerinci people were first recorded in modern science by Petrus Voorhoeve and Poerbatjaraka in 1941. They recorded, described, and published 261 old manuscripts found in Kerinci. The majority of the manuscripts were written on buffalo horn or paper. The Tanjung Tanah Code of Law is the one and only manuscript that is written on a kind of paper manufactured from the bark of the paper mulberry tree (*Broussonetia papyrifera Vent.*), which under the name dluwang, was a common writing medium in Java. This ancient manuscript is called "Tambo Kerinci 214" by Voorhoeve and Poerbatjaraka. They identify this manuscript as clearly pre-Islamic. A photograph of this manuscript is shown in Figure 7.

Ulrich Kozok updated the record and dated the manuscript in 2002. He wrote that "the manuscript measures 10×15 cm and consists of 17 leaves of bark paper, sewn together and written on both sides. Each page consists of seven lines of text, some of them are not legible due to some damage by moisture. The book is not bound, and does not have a cover page. It is not illustrated and simply consists of text written with black ink on the bark paper." The manuscript was written in the late 14th or early 15th century, according to the dating.

In 2006, Hasan Djafar, Ninny Susanti, and Waruno Mahdi translated the Tanjung Tanah Code of Law. This code of law was written at the request of Maharaja Dharmasraya for the people of Kerinci. Dharmasraya, located 315 km north of Tanjung Tanah, was the Malayu Kingdom's most important city. In 1286, a gigantic statue of Amoghapasa was sent to Maharaja Dharmasraya by Kertanagara, the Javanese king of Singasari. The statue is now displayed at the National Museum, Jakarta (Figure 2). At that time, Malayu and Singasari were cooperating to prepare for a defensive move against Kublai Khan's invasion of the archipelago. The manuscript says that it was written by someone named Dipati Kuja Ali. The manuscript says that the people of Kerinci should obey their depatis and follow the code of laws written in this manuscript.

The manuscripts and other heirlooms of Tiga Luhah Tanjung Tanah have been preserved in the traditional method for many generations. These heirlooms, known as *pusaka*, are kept in their homes' lofts and only see the light of day once every five years. These heirlooms from their ancestors play an important role in the lives of the people. These *pusaka* are objects of immense spiritual wealth and are eagerly guarded because they are believed to protect the community. This traditional preservation method has ensured that the Tanjung Tanah Code of Law has survived the centuries.

Nowadays, the people of the Tiga Luhah Tanjung Tanah and their surroundings cannot read their manuscript, but they still practice the traditional law that is written there. The manuscript, along with other manuscripts and other heirlooms, is shown to the people and cleaned in a ritual called "Kenduri Sko" every five years. This year, the ritual was held from May 11–14. The opening and cleaning of the heirlooms is shown in Figure 4 and Figure 5. Traditional arts such as welcoming dances are also performed as part of this ritual (Figure 3). I was with the team from the Ministry of Education, Culture, Research, and Technology and the National Library, Republic of Indonesia at the ritual to support the people and document the ritual and the ancient manuscript.



Fig. 2. Massive statue of Amoghapasa from Dharmasraya, National Museum



Fig. 3. Kerinci women dressed in traditional attire in Kenduri Sko



Fig. 4. The Depati Talam Tuo opens the jar where the Code of Law is kept.



Fig. 5. The Depati Talam Tuo symbolically cleans the manuscript in the ritual.



Fig. 6. Tanjung Tanah Code of Law Manuscript and other manuscripts at the ritual



Fig. 7. Page from the manuscript (Source: Ulrich Kozok, Cambridge, 2004)

The Kenduri Sko ritual shows the continuity of the history of people in the Malay world as it is written in the ancient manuscript. The *depatis* of Kerinci are still the traditional leaders of the people and the Dharmasraya king (now represented by the Regent of Dharmasraya) is still respected and present in the Kenduri Sko ritual. In 2018, the Kenduri Sko ritual was designated as a National Intangible Cultural Heritage. The designation of cultural heritage is the first step for the Tanjung Tanah Code of Law Manuscript to be managed according to the Law of Cultural Conservation. This manuscript is very sacred and important to the people of Tiga Luhah Tanjung Tanah, the Malay people internationally, and Indonesia legally. Designation of the manuscript as a National Cultural Heritage is still ongoing and planned to be signed this year.

Kazakhstan

Some Results of Research Work on the Settlement of Aktobe-Stepninskoe



Gulnaz Kulmaganbetova, *Chief Researcher* Kazarchaeology LLP

Today, Kazakhstan is carrying out a set of measures aimed at preserving our cultural heritage, which was created over a long period of time through the efforts of our ancestors. The preservation and enhancement of this historical and cultural heritage, the promotion and popularization of monuments that reflect the roots of our people and statehood, is the most important task of our country. These activities include the search for and discovery of new monuments of history and culture, scientific research, work on conservation, restoration of monuments, and the creation of open-air museums and museum reserves.

Archaeological monuments are of particular interest to researchers. These cultural heritage sites have played a special role in the development of society for many centuries. The ruins of the ancient cities of our country reflect the heyday of the ancient tribes of the Kazakh steppes, the stages of formation and development of statehood. In this era, the formation of the most important elements of the material and spiritual culture of the population of the Kazakh steppes took place.

Among the surviving and most significant monuments is the settlement of Aktobe-Stepninskoe. The city is known for its identification with Balasagun. The ancient settlement of Aktobe is on the UNESCO World Heritage List as part of the Tien Shan Silk Road Corridor, located 3 km southeast of Aktobe village, Shu district of the Zhambyl region.

The monument was studied for several decades by the expedition of the Kazakh National University named after Al-Farabi (then KazNU) (Shalekenov U.Kh., Eleuov M.E., Aldabergenov N.O.). The ancient settlement has been known to science since the time of the summary works of V.V. Bartold. In 1941, G.I. Patsevich carried out exploration work, made measurements of the ancient settlement of Aktobe. In 1954, Kyrgyz archaeologists led by P.N. Kozhemyako carried out reconnaissance excavations at the settlement. In 1965, research was carried out by the Institute of History, Archeology and Ethnology led by Ch.Ch. Valikhanov of the Academy of Sciences of the Kazakh SSR (IHAE). Since 1974, research has been carried out on an ongoing basis for 46 years by archaeologists of the Kazakh National University named after Al-Farabi (KazNU). During this period, a huge amount of scientific material was obtained, on the basis of which archaeologists led by Professor W.Kh. Shalekenov identified the ruins as the historical capital of the Karakhanid state, the iconic city of Central Asia, Balasagun.

In recent years, Akymbek E., an archaeologist of the Kazakh National University named after Al-Farabi, has been fruitfully engaged in researching the monument. Since 2020, the team of Kazarchaeology LLP has been working to study the design of the settlement with further conservation of the studied objects. For study and conservation work, an object was chosen, interpreted by G.I. Patsevich in 1941 as "tortkul," designated in the works of archaeologists of KazNU as "Tortkultobe." For three years, archaeological excavations were carried out here by the KazNU expedition (Shalekenov U.Kh. Scientific works V. 1: the city of Balasagun in the V-XIII centuries, 2014, pp. 416-418).

Thus, the monument we have chosen entered science under the name "Tortkul." However, this term is used by researchers to designate settlements, primarily Zhetysu, the foothills of Tanir tau, the Issyk-Kul basin, Central Kazakhstan, Tuva, Mongolia, as areas fenced with a rampart with towers along the perimeter, called citiesrates, shelters, etc. According to K.M. Baypakov, this term is translated from the Turkic languages as "like four lakes" (Baypakov K.M. Settlements of the "tortkul" type // Archaeological monuments of Kazakhstan. Alma-Ata: Nauka, 1978, p. 80-96). In turn, there is a more appropriate interpretation by S.E. Azhigali. According to S.E. Azhigali, the ancient Turkic word "tortkil" means "quadrangular" [Azhigali S.E. Nomadic architecture is a phenomenon of the history and culture of Eurasia (monuments of the Aral-Caspian region)].

Our examination of the territory of the settlement confirmed the conclusions of U. Kh. Shalekenov that it was a huge city, occupying a significant territory. Shafts enclose the area of almost 5×10 km. Tortkultobe, chosen for research and conservation, has the most promising architectural component—the walls of the monument have been preserved to a height of up to 7 meters. The structure consists of a number of rooms, passages, and design features.

Studying the town-planning structure of the settlement, we revealed that the settlement arose on a site featuring a concentration of fortified castles from ancient times. Here, on the territory of the settlement, several hillocks were identified, which we identified with ancient castles. Research on tortkuls confirmed our assumptions. Under a small cultural layer of the Middle Ages, the structure of ancient times was revealed.

The tortkul is not connected with the shahristan of the settlement and is located separately, on the eastern side of the citadel, 600 m from the central part of the settlement. It has the shape of a quadrangular hill in plan. Its total size is 50×70 m, with a height reaching 8 m. The monument is surrounded by a pakhsa fortification. The width of the fortress wall is 4 m. The fortress wall was cleared from the outside—from the eastern, northern, and western sides. From the inside, 8 rooms were opened. Their eastern wall is made up of pakhsa blocks facing the outside, and there are no windows. The doors face west, inside the fortification. The fortification gate is on the eastern side (Fig. 1).



Fig. 1. General view of the tortkul - an aerial photo

Pakhsa is a building material (broken clay) that was widely used in Central Asia in ancient times and the Middle Ages, often with raw bricks. When clearing excavations for restoration work, we identified two cultural layers. The lower, main layer is the remains of an ancient corridorcomb-type castle. This castle was built from pakhsa and had powerful walls. It can be assumed that this building was rectangular in plan with single-chamber adjacent rooms attached to the fortress wall from the inside. Judging by the thickness of the interior walls (4-5 m) and fragments of the vaulted ceiling, these are probably the remains of the first tier of the castle. Despite the presence of dozens of similar corridor-comb-type monuments located in the basin of the Shu and Talas rivers, two-tier fortified castles of this type have been little explored.

The Less significant cultural layer belongs to the Middle Ages. During this period, the elevated ruins of the ancient castle were used as dwellings. A large number of millstones and tandoors suggests that the dwellings of farmers were located here. As already noted, the works were envisaged mainly for conservation, and were aimed at strengthening the surviving structures of the monument and the original parts and elements with partial restoration of areas that are beyond doubt and play one role or another in the preservation of the original (Fig. 2).

Conservation works of the fortress wall

During the conservation of the fortress wall, a complete examination of the walls for damage was carried out and a complete fixation was performed with instrumental measurement of the steepness of the walls. The area at the base of the wall was cleared for conservation work and the area was compacted manually (Fig. 3).

Mechanical sealing is aimed at eliminating the subsidence properties of the base. Mechanical sealing was carried out in compliance with several stages:

- Stage 1 moistening the site before tamping;
- Stage 2 tamping was carried out over the entire area of the structures (Fig. 4).

Stone foundation device: The stone foundation was used, firstly, to create an elevated compacted zone, secondly, to reduce pressure on the foundation and, thirdly, to prevent capillary suction of groundwater into the conservation structure. Stone slabs are laid on top of the compacted layer (Fig. 5).

Arrangement of buttresses from masonry with raw bricks: The buttresses are set on top of a stone base to fill the weathered niches in the pakhsa walls (Fig. 6).

The pre-strengthened surface was cleaned of weakly adhering fragments. The dimensions of the raw brick were $40 \times 20 \times 10$ cm (Fig. 7).

To create a connection between the lining and the wall, connections were made from wooden rods with a step of 1-1.5 m in a checkerboard pattern. Wooden rods are buried in the walls as deep as possible (Fig. 8).



Fig. 2. Aerial photo of the tortkul before and after restoration

Fig. 3. Process of clearing the fortress wall, the northwestern part of the object



Fig. 4. Wall foundation tamping



Fig. 5. Stone foundation device





Fig. 6. Device of buttresses from masonry with raw bricks





Fig. 7. Raw brick production



Fig. 8. Installed wooden rods

During the conservation work, building materials such as mud bricks and stone slabs were abundantly wetted with water to improve the adhesion between the mortar and the material. In the eastern part of the tortkul, traces of fortress walls were cleared, following the traces of which a wall up to 2 m wide and up to 1 m high was reconstructed. The walls were laid using the well method, with the inside being filled with soil from archaeological dumps. Each 6th and 7th row of masonry is made of solid brick masonry. All brick surfaces are plastered with clay mortar (clay + straw) in a ratio of 1:1. The top of the plaster mortar is coated with a protective solution (clay + rice husks) in a ratio of 1:1 (Figs. 9-16).



Fig. 9. View of the fortress wall of the tortkul from the west



Fig. 10. Southwest corner of the property



Fig. 11. West facade before and after restoration



Fig. 12. Aerial photo of the tortkul from the west



Fig. 13. Photo of the eastern facade after restoration



Fig. 14. Aerial photo of the tortkul from the east



Fig. 15. Aerial photo of the tortkul from the south

Conservation work on the walls of the tortkul rooms

In order to clarify the layout of the monument, work was carried out to study rooms 3, 4, 5, 6, 7, 8, and 9. After cleanup work, the interiors of rooms 3, 4, 5, 6, 7, 8, and 9 were revealed and work was continued to determine the floors of these rooms.

First, the walls of rooms 3, 4, 5, 6, 7, 8, and 9 were cleared of slush and blockages, and weak and destroyed layers were removed (Figs. 17-20). Further, laying of the lost parts of the walls of the premises of the tortkul was carried out. To prevent subsidence of the brickwork, foundations were made of stone blocks. To create a connection between the old masonry and the new, wooden rods were installed.

All brick surfaces were plastered with clay mortar (clay + straw) in a ratio of 1:1. The top of the plaster mortar was coated with a protective solution (clay + rice husks) in a ratio of 1:1. Gulleys and weathered niches, such as animal



Fig. 16. Aerial photo of the tortkul from the north

burrows and karsts in adobe walls, were also patched up. Depending on the types of gullies, various methods of sealing were used. In areas of small gullies with a depth of 5 to 15 cm, the method of sealing the canals with liquid clay mortar was used.

With a ravine depth of more than 15 cm, two methods of sealing were used:

- A. Guvalak, i.e., clay balls were used. Round balls up to 10 cm in diameter were fashioned from clay of dough-like consistency, and walls were fashioned from them. This method of building adobe walls has been used in Central Asia since ancient times.
- B. For large gullies more than 15 cm wide, a brick lining was made, followed by plastering on horizontal sections with greasy clay, and on vertical sections they were plastered with a protective solution with the addition of rice straw.



Fig. 17. Excavations of rooms 3, 4, 5, 6, and 7

Fig. 18. Object corridor



Fig. 19. Room 5. The burnt brick threshold

The discrepancy between the initial data of the designers and the actual architecture of the monument prevented the authors of the project from performing some restoration tasks. In this regard, the chief researcher of Kazarchaeology LLP, Doctor of Architecture Turganbayeva L.R., prepared an analytical article on architectural monuments of the corridor-comb type. These data can be used in further scientific and restoration work at the site.

Basic materials for restoration:

Clay - mined in a quarry outside the fortress walls;

Water - low mineralized water from the Aksu River, which is a mountain river, was used;

Rubble stone - Buryl quarry, Taraz city;

Straw - barley, local;

Rice husks - rice processing enterprise in Zhanakorgan district, Sunakata village;

Wood - round pine timbers with a diameter of 10-15 cm.

For restoration work, raw bricks were made with dimensions of $40 \times 20 \times 10$, by stuffing into molds. Thus, primary conservation work was carried out, which made it possible to preserve the studied archaeological structures for further



Fig. 20. Room 4. The adobe threshold

study of the unexcavated sections of the tortkul—a corridor-comb-type castle. Further archaeological research on the tortkul will reveal the spatial arrangement of the tortkul, the location and nature of its constituent premises, their dimensions, the design of the vaults, etc.

In conclusion, I would like to note that every year, the understanding of the importance of preservation, and a careful and respectful attitude towards cultural heritage objects is increasing. This inspires firm confidence that the protection and preservation of living evidence of the ageold traditions of our civilization will become a common cause of all the inhabitants of our country.

References

Shalekenov U.Kh. Scientific works V. 1: The city of Balasagun in the V-XIII centuries. 2014: pp. 416-418

Baypakov K.M. Settlements of the "tortkul" type // Archae ological monuments of Kazakhstan. Alma-Ata: Nauka, 1978. pp. 80–96.).

Azhigali S.E. Nomadic architecture is a phenomenon of the history and culture of Eurasia (monuments of the Aral-Caspian region). Almaty, 2002. p. 654.

Lao PDR



The Protection and Promotion of That Foun in Seephom, Khoun District, Xiengkhouang Province, Laos

Sommay Singthong, Lecturer

Department of History and Archaeology, Faculty of Social Sciences, National University of Laos

1. Introduction

Cultural remains are valuable cultural resources whose precise value is hard to determine. However, the economic development of a country effects rapid change to the way of life and this can affect the cultural value of the past, while the standard of protective management is insufficient and enforcement action is also not strongly implemented and so the future will put cultural heritages in danger. Regarding those significant cultural heritage issues, the Decree of the President of the Lao People's Democratic Republic on the Preservation of Cultural, Historical, and Natural Heritage was issued and promulgated in 1997¹, after which the Law on National Heritage was developed and issued in 2005², and after that it was continuously improved before the Law on National Heritage was issued and promulgated in 2014³, involving all types of properties. Currently, the Lao government has also taken cultural heritage protection and promotion into account in terms of the country's development as mentioned in the 8th Five-Year National Socio-Economic Development Plan⁴.

This report aims to briefly highlight a case study of cultural heritage management at an ancient stupa, a local heritage site in northeastern Laos called "That Foun." This stupa is one of the oldest remaining structures demonstrating the arrival of Buddhism in this region. It became a representative of Buddhist belief that contributed to the solidarity of the people in the region. After the tourism promotion campaign "Visit Laos Year" in 1999, That Foun became a famous tourism destination of a cultural site that has contributed to the socio-economic development of Xieng Khouang province to the present.

The research on the conservation management of That Foun in Seephom village, Khoun district, Xieng Khouang province has two objectives: 1) Identification of the management conditions of That Foun and 2) Examination of various approahes for the management of That Foun. The qualitative research method and an archaeological survey were also applied. The population sample targeted the local authority, related stakeholders, and local people by observation, field in-depth interviews, and general interviews, and an archaeological survey was also conducted to obtain crucial information.

2. Site location

That Foun is located on top of a hill with a great view in Seephom village, which is in the center of Khoun district, Xieng Khouang province (the site covers around 11,534 hectares). This stupa has specific characteristics of architecture which distinguished the Buddhist art of the Phouan ethnic group. That Foun was constructed in consideration of various factors, particularly the location, viewpoint, and artistic styles that highlighted the artistic style of the northeastern region of Laos, which is known as ancient Lao Phouan artistic style. That Foun was constructed with bricks and Pathayphet (elements to construct pagodas or holy sites in ancient times which involved sandy cement and natural rubber, etc.).

3. History

At the beginning, That Foun was constructed as a small stupa in 945 AD for preservation of the remains of Buddha to promote Buddhism to the Phouan ethnic group⁵ and it became a symbol that demonstrated the arrival of Buddhism in this region. In 1379 AD, the king of the Phouan Kingdom led his people to build a bigger stupa to cover the original one, and established an annual festival. In 1874, That Foun was dug up during the war of Hor and the properties inside the stupa were stolen, which effected a great amount of damage, before Saykham, the governor of Meuang Phouan, led his people to reconstruct it. In 1969, this stupa was destroyed during the American war, and was dug up several times by treasure hunters.⁶

Moreover, the stupa was also destroyed through the passage of time, due to environmental factors such as natural phenomenon including deterioration of the raw materials inside the stupa, plant growth, animals, etc. (Fig. 1). Human activities and the unawareness of visitors and local communities were also involved in the destruction.

However, That Foun was restored in 2017-2018 to protect against the destruction (see Fig. 2) under the funding support of New Zealand, which aimed to promote the sustainable development of tourism in Laos in collaboration with the Department of Information, Culture, and Tourism and Khitthavy restoration company. The restoration also considered the use of similar materials as the original elements as much as possible, such as white cement, buffalo skin, non-timber forest products, etc.⁷

¹ Nouhak Phoumsavan (1997). Decree of the President of the Lao PDR on the Preservation of Cultural, Historical, and Natural Heritage, Article 6 Immovable National Heritage.

² National Assembly (2005). Decree of the President of Lao PDR on the Promulgation of the Law on National Heritage: Chapter 2 Historical Heritage.

³ Ministry of Information, Culture and Tourism, (2014). Law on National Heritage No. 44/NA, Article 2 National Heritage.

⁴ Ministry of Information, Culture and Tourism (2016). Law on Heritage Amendments to the State Policy on National Heritage.

⁵ Kaenchan Sithanonxai (2010). History of Meuang Khoun. Department of Information, Culture and Tourism of Khoun District, Xieng Khouang Province.

⁶ Department of Information, Culture and Tourism of Xieng Khouang Province, 2010. Unpublished reports.

⁷ Department of Tourism Development, Ministry of Information, Culture and Tourism (2012-2020) Strategic Plan for Tourism Development and Promotion of Lao PDR, Government Policy on Tourism Promotion.



Fig. 1. That Foun stupa before (left) and during the restoration in 2017 (right)



Fig. 2. That Foun after the restoration (Mao Nanthana, 2021)

4. Protection management

The task of conservation involved various stakeholders including government offices (central and local levels) and local communities. The results revealed the following:

- 1) The protection management of That Foun began in 1994 by the district and local community and slightly improved through practical tasks such as site management, security, cleanliness, and guardianship etc. Then, several facilities were developed to make it a tourism destination of the district. This ancient stupa site has also been developed to be a place for religious activities.⁸ In addition, after development of the regulations and law on cultural heritage protection the implementation of management tasks had crucially improved. However, several issues still exist and are required to be solved in the future, especially the process of management so that it remains an attractive tourism destination site, human resources, local community awareness, etc.
- 2) Regarding the protective management approaches for this historic site, even though there were management guidelines for the years 2012-2014 and after the restoration, a proper system should be adopted for various issues especially preservation, tracking, security, event management, cleanliness, location management, and information dissemination. Moreover, other factors also required to be developed include the human resources to upgrade and maintain precise and accessible information on the site. Improving the awareness of the local communities who live nearby the historic site is another significant issue to be solved.

5. Protection condition and issues

Cultural heritage management in Laos is largely concerned with the management of monumental sites, historical architecture, and more recent sites or objects. Lao heritage management has its roots in the time when Laos was part of French Indochina with additions from Buddhism, communism, and the currently growing business of alternative tourism. The That Foun management included various processes such as maintenance, registration, monitoring activities cleanliness, location management, and dissemination of information, as well as security, event management, infrastructure, information promotion, and management evaluation.

There remain several issues regarding the preservation of this ancient site, especially the gap between the actual regulations or law and practical implementation, and cooperation among stakeholders and the local community. Meanwhile, natural factors such as environmental change are also involved. The solution to site management can be the introduction of practical standard, and capacity building for the local community, especially regarding the values of the cultural heritage site for the future. In addition, infrastructure, facilities, and services are also required to be developed alongside cultural heritage protection as well.

⁸ Department of Heritage (2017). Report on the achievement of Wat Phia Wat and That Foun reconstructions in Khoun district, Xieng Khouang province; National Tourism Organization

Malaysia



Dilapidation Survey of Rumah Sri Aman, Sarawak, Malaysia

A Ghafar Bin Ahmad, Professor Dr.

School of Housing, Building and Planning, Universiti Sains Malaysia

Introduction

Surrounded by lush vegetation and tall tropical trees, Rumah Sri Aman is a heritage building located in the town of Sri Aman, about a 3-hour drive east of Kuching, the capital of Sarawak. "Rumah Sri Aman" literally means House of Peace in the Malay language. Rumah Sri Aman (formerly known as Rumah Simanggang) was once the official abode of the British Resident of Simanggang under the Brooke administration in Sarawak during the 19th century. Built in the late 1920s, the two-storey Rumah Sri Aman was designed in an octagonal shape (locally recognised as Rumah Segi Lapan) featuring a hybrid architectural fusion of European and vernacular styles. This is observed in its wide openings, porch, windows, high ceiling at first floor, and a jack-pitched roof with a rooster wind vane at the top. The first floor, ceiling, and roof trusses were built in timber, while the ground floor was constructed in brick, concrete, and lime plaster. All the windows, doors, and staircases are of timber. The building is characterised as modest yet functional with simple ornamentation and decoration depicting the vernacular architecture of the early 20th century. Rumah Sri Aman has witnessed several historical events during its heyday. In September 1963, Rumah Sri Aman was used as the official meeting place and guest house for government officials and their guests when Sarawak together with Malaya, Singapore, and Sabah (North Borneo) formed the Federation of Malaysia. In October 1973, Rumah Sri Aman was chosen as the venue for signing a Peace Declaration between the North Kalimantan Communist Party (NKCP) and the Sarawak government. The NKCP was then dissolved, which ended the communist insurgency in Sarawak. Simanggang was renamed Bandar Sri Aman to commemorate this significant event. In March 1974, Rumah Simanggang was renamed Rumah Sri Aman by the Sarawak government. Due to its historical, social, and architectural significance, on 21 March 2022, Rumah Sri Aman was declared in the Sarawak Government Gazette Part II (2022) as a Historical Monument and Historical Site under the Sarawak Heritage Ordinance 2019 (Chapter 7). This article is focused on the dilapidation survey of Rumah Sri Aman before conservation work in 2021-2022. It highlights the dilapidation survey, building defects, and proposed conservation works or treatments for Rumah Sri Aman.

Dilapidation Survey

During the 1960s-1990s, Rumah Sri Aman underwent a series of renovation works which resulted in major changes and modifications to its interior building plans, roof structures, roofing materials, and fittings. In 2020-2021, the Government of Sarawak through the Land Custody and Development Authority, Sarawak (LCDA) (Lembaga Pembangunan dan Lindungan Tanah, Sarawak) allocated a contract sum of RM3.53 million (USD761,514) to conserve Rumah Sri Aman. The conservation project of Rumah Sri Aman began on 16 August 2021 with a construction period of 12 months. Fifty years after the Peace Declaration, in

2023, Rumah Sri Aman is planned to be converted into a museum or heritage gallery showcasing the rich history and culture of Simanggang, Sarawak. Prior to the commencement of conservation works, a dilapidation survey of Rumah Sri Aman was conducted by a consultant team led by consultant architect Konsortium Bumi Consultants and Services Sdn Bhd, based in Kuching, Sarawak, and a registered conservator. The main purpose of the dilapidation survey was to document the existing conditions of Rumah Sri Aman including its historical background, architectural significance, levels of building defects, and proposed conservation works. Extensive research was carried out by the consultant architect to document the historical background of Rumah Sri Aman, the development of Simanggang town during the Brooke administration until the present time, and the colonial architecture of Sarawak during the 1920s-1940s. In January 2021, the dilapidation survey report prepared by the consultant architect was completed and submitted to the Land Custody and Development Authority, and the Sarawak Museum Department for their records and for future reference. The dilapidation survey report is presented in seven (7) sections as follows: introduction, historical background of Simanggang and Rumah Sri Aman, architectural significance, building defects, proposed conservation works, conclusion, and references.

The dilapidation survey of Rumah Sri Aman began by identifying and recording the building defects by adopting non-destructive methods including observation, inspection, examination, identification, and photo documentation using tools such as a moisture detector, Schmidt hammer, scrapper, and high-density camera. Measured drawings were carried out conventionally on site using a measuring tape, scaled ruler, or distance meter. The measured drawings consisted of a site plan, location plan, floor plans, elevations, sections, and architectural details. Building plans were produced digitally using the AutoCAD software. The dilapidation survey of Rumah Sri Aman was instrumental in providing the consultants, clients, and government agencies with key information as follows:

- i. Understanding of the common building defects and their level
- ii. Determination of the causes of the building defects
- iii. Identification of appropriate methods and techniques for building conservation
- iv. Estimate of the cost of building repairs and conservation works
- v. Provision of additional building information in the tender documents
- vi. Provision of reference materials to those involved in the conservation project including the building contractor

During the dilapidation survey, several site visits and technical meetings were conducted on site between the client, registered conservator, and consultant team members including the architect, structural engineer, electrical and mechanical engineers, and the quantity surveyor. Despite the movement restriction order (MCO) imposed throughout the country due to the COVID-19 pandemic in 2020-2021, the dilapidation survey was successfully carried out on site under a special permit for inter-district travel, health regulations, and standard operating procedures (SOPs). Historical records, periodicals, documents, books, newspaper cuttings, and printed floor plans of Rumah Sri Aman were sought by the consultant architect from various sources including the Public Works Department, Sarawak, Borneo Post website, Sri Aman District Office, and Sri Aman Resident Office as supporting evidence for verification.

Common Building Defects

The dilapidation survey report prepared by the consultant architect revealed that Rumah Sri Aman faced several common building defects. Each building defect was carefully analysed to determine the possible cause. No structural examination was carried out on the existing building and no material testing was conducted outside the premises. All building defects were identified and categorised according to the level of defect, and indicated on the building plans in the dilapidation survey report. This practice is vital for the purposes of determining quantity and cost estimates for future reference. Some of the common building defects found at Rumah Sri Aman are leakage, cracks, peeling off or faded paint, stains, corrosion, plant and fungal growth, and defective floors. The main causes of these building defects were lack of maintenance, ageing of building materials, climatic or environmental conditions, and soil settlement or slope instability. Rumah Sri Aman also faced issues of ineffective building services including poor air conditioning, fire protection, electrical wiring and conduits, and water pump system. Table 1 shows the common building defects of Rumah Sri Aman and their respective locations. Leakage, cracks, and peeling off or faded paint are the most common building defects observed at Rumah Sri Aman.

Table 1: Common building defects at Rumah Sri Aman in 2020-2021

No.	Types of Building Defect	Locations
1	Leakage	Roof, porch ceiling, ground floor ceiling
2	Crack	Building apron, dry walls, columns, perimeter drain
3	Peeling off or faded paint	External pilaster, RC column, timber panels at porch, doors and window
		casements, fascia board
4	Stain	External walls, plastered ceiling
5	Corrosion	Air-conditioning compressors, roof gutters, water pipes, water pump
6	Plant growth	Building apron
7	Fungal growth	External walls
8	Uneven surface	Building apron, bedroom walls
9	Squeaky floor	Floorboards
10	Damage	Kitchen top, toilet cabinet, sanitary fittings, external timber cover at
		porch beam
11	Blockage	Roof gutters

(Source: Konsortium Bumi Consultants and Services Sdn. Bhd. Dilapidation Survey Report, 2021)

The dilapidation survey of Rumah Sri Aman included the categorisation of building defects as either minimal (M), moderate (Md), or severe (S). A minimal condition indicates a minor defect requiring less repair work, still in good condition, and able to function as intended. A moderate condition refers to a sensible defect with planned repair and corrective maintenance programme, but still functioning. A severe condition implies a major fault or a serious stage that requires urgent repair or replacement. Various inputs from a civil and structure (C&S) engineer, mechanical and electrical (M&E) engineer, architect, and registered conservator were consulted in assessing the level of building defects on site. Table 2 shows some examples of building defects and their level of defectiveness on the ground floor of Rumah Sri Aman.

Based on Table 2, the building defects of Rumah Sri Aman were generally within the range of minimal and moderate conditions. Nonetheless, the moderate defects of building structures and elements were given considerable attention during the conservation works, including problems of leakage, cracks, harmful growth, corrosion, and stains. The consultant architect had proposed conservation works or treatments for each building defect in the dilapidation survey report for record and reference. These proposed conservation works or treatments were clearly explained in the bill of quantities (BQ) during the tendering stage.

Proposed Conservation Works

Upon a series of technical meetings and discussions among consultants, representatives from the Land Custody and Development Authority, Sarawak Museum Department, and registered conservator, the consultant architect proposed detailed conservation works or treatments in the dilapidation survey report. For clarity and easy crossreferencing, the proposed conservation works or treatments were divided into three components, which are architecture (external and internal), civil and structural, and mechanical and electrical. The architectural component focused on floors, walls, fenestration, drainage, ceiling, roofing, fixed furniture, and sanitary fittings. The civil and structural component covered columns and walls, and flooring, whilst the mechanical and electrical component included airconditioning services, fire protection services, cold water services, and electrical services. Table 3 summarises the proposed conservation works or treatments for Rumah Sri Aman.

Table 2: Some building defects and levels of	defect on the ground floor, Rumah Sri Aman
--	--

No.	Building Structure and Element	Type of Building Defect	Level of Defect
1	Building apron	Crack/Plant growth	Md
2	External wall	Stain/Fungal growth	Md
3	External column	Stain/Corrosion	М
4	External timber cover at porch	Slightly damage	М
	beam		
5	External doors	Slight damage	М
6	Perimeter drain	Damage	Md
7	Porch ceiling	Stain	М
8	Internal dry wall	Crack	Md
9	Internal brick wall	Crack (hairline)	М
10	Internal column (RC)	Peeling off paint	Md
11	Internal ceiling	Stain	Md

* Note: Minimal defect (M) / Moderate defect (Md) (Source: Konsortium Bumi Consultants and Services Sdn. Bhd. Dilapidation Survey Report, 2021)

No.	Building Structure and Element	Proposed Conservation Works / Treatments
1	Roof	To replace the whole roof structure including roof beams, battens, and
		insulation. To replace roofing with new Belian shingles.
2	Floor	Ground Floor:
		Floor structure to be maintained and to install new floor finish using polished
		brown ceramic tiles to match the original tiles.
		First Floor:
		To maintain floor structure but allow 30% to be replaced (joists).
		Floor finish to be replaced 100% with new hardwood floorboards, varnished
		to appropriate colours. Bathroom floors to be replaced with brown non-slip
		tiles.
3	Ceiling	Ground Floor:
		The existing plaster and UAC ceiling to be replaced 100% with a new plaster
		ceiling.
		First Floor:
		The whole ceiling to be demolished and replaced with a new plaster ceiling.
4	Wall	Entire walls to be made good. Scrape off existing paint, patch up uneven and
		damaged surfaces, and paint with new appropriate paint.
		Ground floor brick walls to use appropriate plaster (lime plaster) as approved
		by the specialist.
		The wall boards on the first floor to be made good. Anticipate 30% to be
		replaced with new boards.
		Existing boards to be scrapped of old paint and repainted using new paint.
		The wall board tongue and groove to be sealed to prevent water penetration.
5	Fenestration	All existing timber window and door frames as well as panels are to be made
		good. Anticipate 30% to be replaced using new materials. Paint according to
		specialist recommendations.
6	Sanitary fitting	All fittings to be replaced with new fittings.
7	Wiring	All existing wiring to be dismantled and replaced with new wiring.
8	Plumbing	All existing plumbing to be replaced with new pipes and accessories.
		New air-conditioning pipes to be installed in all rooms.
9	External work	New septic tanks to be installed. Drains and aprons to be demolished and
		replaced with new ones.
		Landscape to be entirely new but minimal.
10	Internal work	Interior works to be redesigned to suit new functions.
		Partition walls to be repositioned and use new dry walls according to new
		room layout.
		For gallery spaces, special lighting for exhibition to be installed.

Table 3: Proposed conservation works or treatments for Rumah Sri Aman

(Source: Konsortium Bumi Consultants and Services Sdn. Bhd. Dilapidation Survey Report, 2021)

Conclusions

The conduct of the dilapidation survey of Rumah Sri Aman presented in-depth information and knowledge to those involved in the conservation of the building, particularly on its historical narration, architectural significance, building defects and proposed conservation works or treatments. The dilapidation survey required the consultants to analyse all building defects, the probable causes, and proposed remedial measures, methods, and techniques, which are subject to proper valuation, cost estimation, and a comprehensive bill of quantities in the tendering stage. The dilapidation survey report prepared by the consultant architect concluded that Rumah Sri Aman was in relatively good condition and safe for occupancy. The level of building defects discovered at Rumah Sri Aman, which ranged from minimal to moderate condition including roof leakage, cracked building apron, and plant growth on walls, did not affect the structural integrity of the building. Nonetheless, in the interest of future building condition, few structures and elements of Rumah Sri Aman were recommended by the consultants to be replaced by new items of the same materials or to the closest possible material. This is in reference to the principle that the conservation of Rumah Sri Aman was based on its original known state. The dilapidation survey of Rumah Sri Aman posed many challenges to the consultant team members as it was conducted during the imposition of the movement restriction order due to the COVID-19 pandemic in the country in 2020-2021. The consultants faced difficulties not only in conducting research and oral interviews with the authorities involved, but also in assessing the building structures and elements during the pandemic control. Since Rumah Sri Aman is a gazetted heritage building, all proposed conservation works or treatments had to be presented to the Director of Sarawak Museum Department in Kuching for approval prior to construction on site. It is imperative that the adaptive re-use of Rumah Sri Aman from an official residence of the British Resident into a museum or heritage gallery is able to instill greater awareness and inspire new interest in heritage conservation among the local communities, tourists, and future generations.

Acknowledgements

The author wishes to thank the School of Housing, Building and Planning, Universiti Sains Malaysia (USM), Land Custody and Development Authority (LCDA), LCDA Real Estate Sdn. Bhd., Sarawak Museum Department (JMS), Konsortium Bumi Consultants and Services Sdn. Bhd., DT Jurutera Perunding Sdn. Bhd., Sarahill Consulting Sdn. Bhd., PEB Consulting Sdn. Bhd., Setia Gaya Sdn. Bhd., Davidran Somasundiram Prakasam, Allan Micheal Rimong, Joehari Iskandar Effendi, Adi Dewanto, Tazudin Mohtar, Dayang Morzanah Awang Haddy, Yasmin Khalid Nicholls, Iswandi Junaidi, Nicholas Daby Anak Henry Atie, Seellren Anak Anthony, Nur Shafrina Shafri, Siti Hazirah Wasli, Muhammad Adib Yusuf, Bong Ah Khan, Mohd Sherman Sauffi, Ar. David Hollis Tini, Edner Patrick Stephen, Nick Mattaari Matia, Stanley Gita, Jimmy Anyi, Raina Tini, Ir. Voon Kuok Sen, Derek Yeo Boon Sing, Go Yong Khiang, Ir. Alphonsus Dorhat Rahani, Muhd Irysad Ismail, Nur Figra Ameera Rosli, Sr. Lydia Chiong Chew Lian, Litty Ho, Associate Professor Ar. Haris Fadzilah Abdul Rahman, Nur Zubaida Madon, Lazarus Capirosy, Churchill Yahya, Nicholas Ling, Dennis Tiong Ing Ching, Chua Kok Kwang, Chua Kim Hoong, and Chai Chiang Pore for making this article possible.

References:

A Ghafar Bin Ahmad. 2021. "The Practice of Heritage Building Conservation in Malaysia. ACCU Nara International Correspondent: The Twenty-sixth Regular Report, Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO (ACCU), Nara, Japan. Vol. 26. p. 22-31.

Konsortium Bumi Consultants and Services Sdn. Bhd. 2021. *Dilapidation Survey Report: Proposed Restoration of Rumah Sri Aman on Lot Part of 726 and Part of 1786, Block 2, Simanggang Town District, Sri Aman, Sarawak* (unpublished).

"Rumah Sri Aman Bakal Dijadikan Muzium Sri Aman Tahun Depan". Sarawak Voice, 16 July 2022. https://sarawakvoice. com/2022/07/16/rumah-sri-aman-bakal-dijadikan-muziumsri-aman-tahun-depan/ (accessed on 2 October 2022).

"Rumah Rehat Sri Aman Bakal Diubah Menjadi Muzium". UKAS Portal. 11 September 2022. https://ukas.sarawak. gov.my/2022/09/11/rumah-rehat-sri-aman-bakal-diubahmenjadi-muzium/ (accessed on 2 October 2022).

Sarawak Heritage Ordinance. 2019. *Laws of Sarawak: Chapter* 77.

Sarawak Government Gazette. 2019. *Part II.* No. 83. Vol. LXXIV, 1 November.

Sarawak Government Gazette. 2022. Part II. No. 23. Vol. LXXVII, 11 April.

"Sejarah Sri Aman". Pentadbiran Bahagian Sri Aman. https:// sriaman.sarawak.gov.my/page-0-85-7-tid.html (accessed on 2 October 2022).

Wilfred Pilo. 2013. "The day the insurgency ended". *The Borneo Post.* 3 November.

https://www.theborneopost.com/2013/11/03/the-day-the-insurgency-ended/ (accessed on 2 October 2022).



Location of Sri Aman, Sarawak, Malaysia



Surrounded by lush vegetation and tall tropical trees, the two-storey Rumah Sri Aman was designed in an octagonal shape (locally recognised as Rumah Segi Lapan) featuring a hybrid architectural fusion of European and vernacular styles.



In October 1973, Rumah Sri Aman was chosen as the venue for the signing of a Peace Declaration between the North Kalimantan Communist Party (NKCP) and Sarawak Government. (Source: The Borneo Post, https://www.theborneopost. com/2013/11/03/the-day-the-insurgency-ended/)





replica of the table used for the signing of the Peace Declaration is put on pitched roof with a rooster wind vane at the top. display at Rumah.

Sri Aman. The original table is kept intact at the nearby Fort Alice in Sri Aman. A Side view of Rumah Sri Aman showing its front porch, windows, doors, and a jack-





conservation in 2021-2022.

Interior view of the living area on the ground floor of Rumah Sri Aman before Interior view of the master bedroom on the first floor of Rumah Sri Aman before conservation in 2021-2022.



During the dilapidation survey of Rumah Sri Aman, several site visits and technical Despite the movement restriction order (MCO) due to the COVID-19 pandemic in meetings were conducted on site between the client, registered conservator, and the consultants.



Malaysia in 2020-2021, the dilapidation survey was successfully carried out on site under a special permit for inter-district travel, health regulations, and standard operating procedures.



Structural inspection of the existing exterior walls of Rumah Sri Aman was conducted by the consultant team.



The dilapidation survey of Rumah Sri Aman began by identifying and recording the building defects by using non-destructive methods including observation, inspection, examination, identification, and photo documentation using tools such as a moisture detector, Schmidt hammer, scrapper, and high-density camera.



Examples of common building defects of Rumah Sri Aman including peeling off paint (left) and leakage, stains and plant growth (right).



Detailed inspections of Rumah Sri Aman, particularly of its squeaky floorboards (left) and porch structures (right).



Cracks were found in the building apron, dry walls, columns, and perimeter drain, while the timber doors, windows, and wall panels were damaged.



View of Rumah Sri Aman during conservation works in 2021-2022.



Front and rear elevations of Rumah Sri Aman showing the jack-pitched roof. (Drawing courtesy of Konsortium Bumi Consultants and Services Sdn. Bhd.)



Left and right elevations showing the porch of Rumah Sri Aman. (Drawing courtesy of Konsortium Bumi Consultants and Services Sdn. Bhd.)



Ground floor plan showing the main entrance, living area, and kitchen of Rumah Sri Aman. (Drawing courtesy of Konsortium Bumi Consultants and Services Sdn. Bhd.)



First floor plan showing the bedrooms of Rumah Sri Aman. (Drawing courtesy of Konsortium Bumi Consultants and Services Sdn. Bhd.)



Sectional elevations showing the staircases and floorboards on the first floor of Rumah Sri Aman. (Drawing courtesy of Konsortium Bumi Consultants and Services Sdn. Bhd.)



Roof plan showing the octagonal shape of Rumah Sri Aman. (Drawing courtesy of Konsortium Bumi Consultants and Services Sdn. Bhd.)

Mongolia



A Newly-Found Uighur Period Runic Inscription from Eastern Mongolia

Munkhtulga Rinchinkhorol, Researcher

Institute of History and Archaeology, Mongolian Academy of Sciences

In March 2020, a Runic inscription was discovered in Eastern Mongolia by Ya. Batjargal, a herder of Bayandelger soum, Sukhbaatar aimag, along with his wife and son. Between April 1 and 10, 2022, art researcher D. Amaraa, as part of the "Agtana Khureet" project, realized the first documentation of this cultural heritage. The decoding and first historiclinguistic interpretation of the inscription were done between May and June 2022 (Munhktulga et al. 2022).

Location

There are hills called Tavan Tolgoi in the middle of the plain, 22 km west of the center of Bayandelger soum, Sukhbaatar aimag (Fig. 1). These are situated in an east-west orientation and their five hilltops are connected by a narrow linear sequence of rocks (Fig. 2). There are an inscription and some tamgas (stamp, seal) in the middle of these five hilltops, or more precisely, on one of the granite rocks extending from southwest to northeast, in the western part of the middle top (Figs. 3 and 4). The surface of this granite rock has cracks and is partially deteriorated with lichen.

General description

The height of the granite rock with the inscription is 140 cm on the northeast side and 70 cm on the southwest. In other words, this rock is inclined from northeast to south west. The top surface on which the inscription is written is relatively flat, its length is 106 cm, and its width 35 cm (Fig. 5). The inscription is engraved along the length of the top surface of the rock, close to its western (left) edge. The inscription begins in the northwest corner and continues along the western edge of the surface, following the slope of the stone. The head of the letters in the line is oriented to the west, to the western (left) edge of the surface (Figs. 6-8).

There are also some tamgas engraved on the left and right sides of the inscription, as well as on the front or bottom (Figs. 6 and 7). The tamgas are on the top surface of a rock that adjoins the north or upper side of the rock with the inscription, and on the right and upper surface of a vertical boulder that stands like a wall on the right side of the aforementioned rock with tamgas (Figs. 5). As with some Turkic and Uighur period stelae and rock inscriptions, it is clear that the inscription and tamgas of Tavan Tolgoi were deliberately engraved in the same place and at the same time.

The rock engraved with the inscription and tamgas resembles a lying stele with an inscription on its front side (Figs. 6 and 7). In other words, the surface of the rock adjoining the upper (north) side of the rock with the inscription is indeed the top side of the inscription, like a stele of the Turkic and Uighur periods. On the other hand, as mentioned above, the surface of the inscribed rock is inclined towards the front from this part.

Moreover, while the heads of almost all tamgas are in the same direction, orienting to the upper side, the head of the letters of the inscription faces left (west) (Figs. 6 and 7). In this manner, this inscription is the same as for some Turkic stelae, in which the lines run from left to right. Moreover, the head of the letters in most Turkic and Uighur stele is directed to the left.

Engraving a large tamga at the top of the inscription is a tradition of the stelae of the Second Turkic Khaganate, and it can be seen from the famous monuments in Mongolia that it was followed in the Uighur period as well. In addition, it should be mentioned that in the stelae of the Dongoin Shiree complex of the Second Turkic Khaganate, and the human-figure stone statue of the Talyn Khöshöö complex, the tamgas of the main aristocrats are depicted in a large size in the upper part, and other small tamgas are carved in a row from top to bottom, along with the inscription (Munkhtulga / \bar{O} sawa 2015: 42-46; Munkhtulga et al. 2019: 10-12, 24, 26, 31-34).

Therefore, it is obvious that the writer(s) who made this rock inscription tried to reflect and adhere to the tradition of the Turkic and Uighur aristocratic stelae.

Inscription

The inscription is 63 cm long and is a single-line inscription engraved from top to bottom using the "pecking technique". It consists of 2 sentences with a total of 29 letters and 7 words, and 18 letters of the Runic alphabet including 4 vowels and 14 consonants were used. The letter for the front consonant 'n' is written in two variants. The letter 'a' 1 has been substituted for the special mark "two dots" (:), a symbol used to separate words, phrases, and sentence parts. The stroke of the letters is 0.2-0.4 cm wide and 0.2 cm deep. If we take the letter 'm' **>** as an example, the height of the letter is 4.5 cm, and the width is 2 cm (Figs. 6-10).

Transcription: yegän irkin orun a olurtïm a törtinč ay olurtïm a.

Translation: I, Yegän Irkin, sat on the seat. I sat in the fourth month.

Text contents

In the text, a person with the title Yegän Irkin has written as a memory which month he succeeded to the position. When the inscription was initially read, the word 'olurtïm' ('I sat') seemed to mean that the writer mentioned he dwelt in a certain place. In other words, the first thought was that the inscription was not written by a traveler who passed through Tavan Tolgoi but by a person who temporarily lived in this area. Now, it seems that someone wrote about when he succeeded to the position.

Mongolia

Characteristics of letter

It is well known that the form \bigstar of the back consonant T' in the Tavan Tolgoi inscription appears only in inscriptions dating after the middle of the 8th century AD. The front consonant 'n' has two allographic versions in the inscription: H_{A} and H_{C} .

Linguistic features

The Tavan Tolgoi inscription is written in the Old Turkic (or Old Uighur) language. Although it has only two sentences and a few words, it can be said that it is unique among the Runic monuments of the Turkic and Uighur periods, as it contains the word 'orun', which means 'seat' or 'throne'. The other five words, 'yegän', 'irkin', 'olurtïm', 'törtinč', and 'ay', occur frequently in Runic texts of the Turkic and Uighur periods, so there is no need to explain the meaning and form of these well-known words. The word 'orun' occurs in the Uighur manuscripts of Eastern Turkestan only from the 9th century AD onwards (DTS 1969: 372; Clauson 1972: 233), and from the fact that its Runic form first appears in the Tavan Tolgoi inscription, it seems that it was used in the sense of 'seat' or 'throne' from the time of the Uighur Empire in Mongolia.

Tamgas

Around the inscription, there are at least 20 types of tamgas (Figs. 5-7). Of course, this is not the complete number of tamgas at the site, and if we look carefully, we can find many more tamgas. Perhaps all tamgas at the site are related to the inscription in some way. In particular, the tamgas near the inscription should have been engraved at the time the inscription was written. These tamgas of the Tavan Tolgoi inscription are quite common in the monuments of the Second Turkic and Uighur Khaganates. Comparing these tamgas based on where they were placed on the inscription and how large they were engraved; it can be said that the most important tamga for those people who left the monument was the 'snake' tamga. It is most likely the tamga of Yegän Irkin, whose name appears in the inscription. It is now clear that there are at least four versions of the 'snake' tamga.

Date

As mentioned above, the grammatological and linguistic characteristics of the Tavan Tolgoi inscription indicate that it was written in the Uighur period. Although the year of engraving of the inscription and tamgas is not written on this monument, the month is mentioned. This is a hint to clarify the time period. The "Fourth month" is the first month of summer, and by today's reckoning, it is generally May. The "Fourth month" is rarely mentioned in the Runic monuments of the Turkic and Uighur periods. It seems that the month was important to the writer, as the month was written but the year was not mentioned. As noted in the inscription, a ceremony of "sitting on the seat" or "ascending the seat" may have taken place in the "Fourth month", the first month of summer.

Another piece of evidence that can help to determine the date of the Tavan Tolgoi inscription is the tamgas that have been engraved along with the inscription. In particular, how the tamgas are combined and which tamgas are placed where may give us important clues. The tamgas

seem to show that the time of powerful Uighur rulers like Bayanchur Khagan, Bögü Khagan, and Tung Baga Khagan from the Yaglakar clan had already passed and the power of the Yaglakar was only nominal. The year when the power of the Yaglakar dynasty deteriorated and the Ädiz had not yet come to power, a turbulent and critical period, was 790. In the same year, Zhongzhen Khagan (忠貞可 汗), the son of Tung Baga Khagan, was poisoned by his younger Khatun, the granddaughter of the famous Tang general Pugu Huai-en. Instead, the Khagan's younger brother was enthroned. Soon after, however, courtiers together killed this new Khagan. Then, in the Fourth month, the first month of summer, of the year of the Horse (790), the 15 to 16-year-old son of Zhongzhen Khagan, Achuo succeeded to the throne as Fengcheng Khagan (奉誠可 汗) in the Uighur capital, present-day Khar Balgas (Mackerras 1972: 100, 105). In 790-791, the Uighur army was defeated by the allied army of the Tibetans and Karluks at Beshbalik and lost the Silk Road to the Tibetans (Malyavkin 1992: 215). In 795, when Achuo or Fengcheng Khagan died, the minister Kutlug, who was of the Ädiz clan, was enthroned. Thus, from that time onwards, the Ädiz became the ruling clan of the Uighur Empire (Mackerras 1972: 107).

The aforementioned situation at the time suggests that the Tavan Tolgoi inscription may have been written after Fengcheng Khagan was enthroned in May 790, but within that year.

Writer of the inscription

Yegän Irkin is the title of the person who wrote or issued the order to write the inscription. The name Tun Yegän Irkin, which is very similar to this title, also appears in the Choir inscription, along with the 'snake' tamga (Malov 1936; Klyashtorny 1969: 46; Klyashtorny 1971: 254; Klvashtorny 1980: 96-97; Sertkava 1996: 5; Bazvlkhan 2005: 127; Özönder 2006: 113; Suzuki 2009: 421; Şirin User 2009: 467; Kormushin 2011: 212; Ölmez 2012: 211; Şirin 2016: 643; Battulga 2020: 197; Battulga 2021; Battulga 2022: 42-57). This person whose name or title appears in the Tavan Tolgoi inscription is an Irkin of the Tungra (乳粉)\$; 同罗) people, one of the Nine Oguz. Since the name of the Tungra occurs once in each of the inscriptions of Kültigin, Bilge Khagan, Tonyukuk, and twice in the Uighur period Tariat inscription (Sirin 2016: 244), it can be considered as a group that actively participated in the political events of Mongolia at that time. It is also mentioned in Chinese annals. (Kirilen / Kirilen 2022: 124-125). It fiercely fought with the Äshir Turks, being always on the side of Oguz, a constant rival and powerful enemy of the Turks.

It seems that the writer of the Tavan Tolgoi inscription, the son (or grandson) of the chief of the Tungra, received the title Yegän Irkin most probably from Fengcheng Khagan, the Uighur ruler of that time, and ascended to the seat under the Khagan's patronage.

Type of the inscription

We suggest that the Tavan Tolgoi inscription may belong to a recently defined type of rock inscription called "road inscription" (Munkhtulga 2022). It is logical from the tamgas at the site that the writer of the inscription might have been accompanied by different groups, or by some people representing different groups. Judging from the location of this inscription, the road from the Kherlen Basin through Dongoin Shiree probably used to go from Tavan Tolgoi to the south-west, to Darkhan Muumyangan Banner, from there to the Ordos, and then to Chang'an, the capital of the Tang Dynasty.

The number of "road inscriptions" of the Turkic and Uighur periods in Mongolia, comprising only Runic inscriptions, amount to more than 80, and most of them belong to the Uighur period (Munkhtulga 2022: 80). Based only on these inscriptions, we have identified seven main routes of the Turkic and Uighur periods (Munkhtulga 2022: 81). The Tavan Tolgoi inscription indicates that in addition to these seven, there may have been an eighth route from the Kherlen Valley through the Tavan Tolgoi to the Ordos, and then Chang'an city. It should also be noted that the horse and silk trade between Uyghur and China was still very active at this time.

Conclusion

Since the Uighur period, the practice of engraving or writing in ink on the rocks near roads in Mongolia has spread and evolved in many ways. Thus, the ancient "road inscriptions" appear to be the most reliable source (as of today) of how the roads from Mongolia reached the historical Silk Road.

The Tavan Tolgoi inscription imitates the general planning of the stelae of Turkic and Uighur aristocrats. The vocabulary and typology of letters in the text reflect the characteristics of the last quarter of the 8th century AD. Also, around the inscription are about twenty tamgas, including four variants of the 'snake' tamga. The tamgas may have been engraved by different people, but they are inextricably linked to the inscription, and most of them were made together as one complex at one time.

The Tavan Tolgoi inscription was written by a man named Yegän Irkin, an aristocrat of the Tungra people. This monument is a "road inscription" that was left along the route from the Kherlen Valley through Tavan Tolgoi to Chang'an, the capital of the Chinese Tang Dynasty.



Fig. 1. Location of the Tavan Tolgoi inscription



Fig. 2. Tavan Tolgoi hills, from the south



Fig. 3. Middle top of the Tavan Tolgoi hills, from the south



Fig. 4. Inscription at Tavan Tolgoi



Fig. 5. Location of the tamgas at Tavan Tolgoi



Fig. 6. Tavan Tolgoi inscription from the above



Fig. 7. Tavan Tolgoi inscription



Fig. 8. Upper part of the Tavan Tolgoi inscription (©D. Amaraa 2022).



Fig. 9. Middle part of the inscription (©D. Amaraa 2022)

References

Ваttulga 2020 – Ц.Баттулга. Монголын руни бичгийн бага дурсгал. - Монголын археологийн өв. XII боть. Уб. Ваttulga 2021 – Ц.Баттулга. Чойрын хүн чулууны бичээсийг дахин нягтлах нь. // Altaica. Vol. XVII, fasc. 3. Уб.: 37-54 Ваttulga 2022 – Ц.Баттулга. Монголын руни бичгийн дурсгалын шинэ судалгаа. III боть: Монголын зүүн, өмнөд бүс нутаг дахь руни бичгийн дурсгал. Уб.: 42-57

Bazylkhan 2005 – Н.Базылхан. Қазақстан тарихы туралы Түркі деректемелері. ІІ том. Алматы

Clauson 1972 – Sir G.Clauson. An Etymological Dictionary of Pre-Thirteenth-Century Turkish. Oxford

Fig. 10. Lower part (©D. Атагаа 2022) DTS 1969 – Древнетюркский словарь. Л. Kirilen / Kirilen 2022 – Melike Kirilen, Gürhan Kirilen. Çin Kaynaklarında Tongra Boyu. // Uluslararası Toplumsal Bilimler Dergisi. Cilt 6, Sayı 1: 123-145

Кlyashtorny 1969 – С.Кляшторный. Руническая надпись на каменном изваянии из Чойрэна. // Письменные памятники и проблемы истории культуры народов Востока. Л.: 46-47 Klyashtorny 1971 – С.Кляшторный. Руническая надпись из Восточной Гоби. - Studia Turcica. Budapest: 249-258 Klyashtorny 1980 – С.Кляшторный. Древнетюркская надпись на каменном изваянии из Чойрэна. // Страны и народы Востока. Вып. 22. М.: 90-102

Когтиshin 2011 – И.Кормушин. Новое в чтении и толковании Чойренской рунической надписи конца VII в. из Монголии. // Тюркологический сборник (2009-2010). М.: 202-213

Mackerras 1972 – C.Mackerras. The Uighur Empire According to the T'ang Dynastic Histories. Canberra

Malov 1936 – С.Малов. Новые памятники с турецкими рунами. // Язык и мышление. Вып. VI-VII. Л.: 259-267

Malyavkin 1992 – А.Малявкин. Борьба Тибета с Танским государством за Кашгарию. Н.

Munkhtulga 2022 – Р.Мөнхтулга. Монгол улсын нутаг дахь эртний замын бичээсүүд. Гэрэлт хөшөө, хад чулуун дээр хадгалагдсан соёлын баримтат өвийн өнөөгийн байдал" эрдэм шинжилгээ-онол практикийн хурлын эмхэтгэл. Уб.: 67-83

Munkhtulga / Ösawa 2015 – Р.Мөнхтулга, Т.Оосава. Донгойн Ширээн дурсгалын гэрэлт хөшөөний бичээсийг анхны удаа уншсан нь. - Эртний Түрэгийн түүх, соёл. Олон улсын эрдэм шинжилгээний хурлын эмхэтгэл. Уб.: 21-55

Munkhtulga et al. 2019 – Р.Мөнхтулга, Г.Бүрэнтөгс, Б.Арьяажав. Талын Хөшөөний тахилын онгон. Уб.

Мипhktulga et al. 2022 – Р.Мөнхтулга, Д.Амараа, Г.Бүрэнтөгс. Таван толгойн бичээс. // Нүүдэлчдийн өв судлал. Тот. XXIII, fasc. 4. Уб.: 26-50

Ölmez 2012 – M.Ölmez. Orhon Uygur Hanlığı Dönemi Moğolistan'daki Eski Türk Yazıtları. Metin-Çeviri-Sözlük. Ankara

Özönder 2006 – B.Özönder. Çöyr Yazıtı. // Modern Türklük Araştırmaları Dergisi. Cilt 3, Sayı 3 (Eylül 2006): 108-124

Sertkaya 1996 – O.Sertkaya. Göktürk harfli Çoyr Yazıtı. // Permanent International Altaistic Conference XXXIX. Szeged

Suzuki 2009 – K.Suzuki. Revision and Reinterpretation of the Choir Inscription. // Bonn Contribution to Asian Archaeology. Volume 4: Current Archaeological Research in Mongolia. Papers from the First International Conference on "Archaeological Research in Mongolia" held in Ulaan baatar, August 19th-23rd, 2007. Bonn: 417-425

Şirin 2016 – H.Şirin. Eski Türk yazıtları söz varlığı incelemesi. Ankara

Şirin User 2009 – H.Şirin User. Köktürk ve Ötüken Uygur Kağanlığı Yazıtları. Söz Varlığı İncelemesi. Konya

Sri Lanka



A New Approach towards the Documentation of Ancient Wall Paintings in Kelaniya Temple

R. Nishanthi Ranasinghe, *Archaeological Research Officer* Promotion Division, Department of Archaeology

Introduction



Fig. 1. Mural painting - Kelaniya Temple

The first photographic documentation in the history of Sri Lankan archaeology was done in 1871 by J. Lawton. This was a collection of black and white photographs of the ruined cities of Anuradhapura, Polonnaruva, and Sigiriya. This incidentally was the first photographic recording of Sri Lankan archaeology. By this time the practice of documenting architectural features of archaeological monuments and the cataloguing of movable and immovable objects had already been established. A systematic method to document ancient paintings had still not been established. Although there were methods such as written descriptions, sketches, copying, etc., however, those methods also had many weaknesses. Even photographic documentation-black and white and later color-presented some problems. Thus, the documentation of paintings, especially those in danger of immediate decay or destruction remains a crucial task. Owing to this need, we attempted the documentation of the paintings of the Tivanka Image House in 2006.

For this task, we divided the painting surface into grid sections and photographed each grid section digitally. In order to divide the painting surface into manageable grids, we first cleaned the surface, then with the aid of a level and twine, created a grid to encompass the painted area. After photographing each section, we used computer software technology to piece together the photographed sections to form a single image of the entire painting. Using this method, we documented the paintings of *Kelaniya* Temple from 2012 to 2013. This technique allows us to enlarge the images and observe them in minute detail and to identify the instances of decay and damage. This method also helps us to obtain correct measurements of the painted surface. The development of this photographic documentation method is a milestone for this form of documentation in Sri Lankan archaeology.

Objective

The initial stage of this process is the photo documentation of such paintings as they exist as the first stage of the conservation of ancient paintings and sculptures. The main objective of this project is, even though it involves intervening to a certain extent when they are subjected to conservation, to photograph such paintings which are on the verge of destruction exactly as they exist. At this stage, the antiquity of such paintings, their archaeological value, and their aesthetic importance are especially considered. Accordingly, this photographic documentation includes all aspects such as selected ancient cave temples, image houses and *tempita vibaras* (temples on pillars), with paintings representing different periods. As a result of that measure, it was possible to complete the photo documentation of wall paintings at *Kelaniya* Temple in 2012 (two year project). The most important object of this exercise is to protect and conserve the photographs taken by the Department as a collection for future generations. Similarly, it will be of immense help in future conservations too. Furthermore, a series of publications containing a collection of very rare paintings so obtained has also been printed.

- Height of wall: Between 8 m and 12 m
- Painting area with sculptures (walls and ceilings): 1800 m²
- Number of photographs: Around 30000
- Team members: 7 (photographers, archaeological research officers, exploration officer, painter, and electrician)

Ancient Temple of Kelaniya (location)

This Buddhist temple known as *Kelaniya Rajamaha Vibara*, stands on a slightly elevated plot of land not far from the west bank of the *Kelani Ganga (Kelani River) in Kelaniya*, a village in the *Gampaha* District (western province) administered by the *Kelaniya* Divisional Secretariat. The temple can be reached by traversing 6 km on the road to *Biyagama* at the right turnoff near the 4th km post along the *Colombo–Kandy* Highway or by turning to the right at the 5th km post on the same highway and traversing 7 km towards *Biyagama*.

Historical Background

Kelaniya is ingrained in the history of Sri Lanka as an ancient city sanctified by much veneration. Ancient Buddhist and literary sources and classical literature describe its antecedents dating back thousands of years. In the opinion of scholars of bygone days, the *Kelani (Kalyani)* river basin was the genesis of ancient human settlements and commercial centres.

The name *Kelani* was mentioned for the first time chrono logically one thousand years after the passing away of the Buddha in chronicles such as *Dipavamsa* and *Mahavamsa* (*Dipavamsa*, Chapter II pp. 48-49 and Sinhala *Mahavamsa*; Chapter I v. 73-75) In the *Valabassa Jataka*, one of the *Jataka* stories found in the Buddhist epic known as *Pansiya Panas Jatakaya* mentions traders who lived in the city of *Kalyani*, situated on the west coast of the island of Sri Lanka.

Layout of the Temple Building

What is presently known as the Temple Building is composed of two buildings known as the Old Temple Building and the New Temple Building. Here, the Old Temple Building had been built in the early 19th century. The Draon Arch at the entrance to the Old Temple Building has 2394 BE etched on it, signifying that its image house was built in the year 1851 CE. Connected to it is the New Temple Building built in the 20th century. The latter structure, which had been adorned by the innovative style of paintings of maestro painter *Soilias Mendis*, was constructed by covering three sides of the Old Temple Building. The enclosure known as the *Bera Mandapaya*

or the Drum Beating Hall appears at the entrance to the Temple Building. The Bera Mandapaya, with its main entrance facing the east, has two small side entrances, one on each side. In here, columns decorated with floral capitals are seen. Its ceiling is decorated with floral motifs and geometrical designs. Access to the inner sanctum of the Temple is from the Bera Mandapaya, which has two beautifully molded guardian images on either side of it. The entrance to the inner sanctum of the temple leads to the ancient Raja Pilimage (Kingly Image House), which in bygone days would have had two entrances, one to the east and the other to the west. This enclosure, in the shape of a rectangle, has two compartments. The compartment to the left is called the Raja Pilimage or the Kingly Image House and the one on the right is the Oth Pilimage or the Image House of the Recumbent Buddha. Both sections are adorned with paintings and sculptures of the 19th century tradition. The right wall of the Raja Pilimage or the Image House of the Kings has many sculptured images including the main figure of King Maniakkhika of the Naga dynasty. Two entrance doorways to the Oth Pilimage are also integral parts of this wall. The remaining three walls and the ceiling have paintings of the panel type. The Oth Pilimage has a colossal Buddha statue in the recumbent posture with a pair of statues of the Buddha in the seated posture exhibiting the Dhyana Mudra, one on either side of it. Another important item in the interior of the Temple Building is a Devale (shrine) dedicated to the gods, where the three sculptured statues of the gods Vishnu, Kataragama, and Natha are placed. The part that was added to the Temple Building is presently known as the New Temple Building. An image house with a statue of a seated Buddha is in the northern sector of the Temple to facilitate the devotees who gather there to worship. The columns of this structure are octagonal in shape. On either side of this image house and to the front of it are two more chambers with paintings. One on the right has the renowned painting of the ushering of the Buddha's Tooth Relic, while one on the left has the painting of the advent of the Jaya Sri Maha Bodhi or the Sacred Bodhi Tree to Sri Lanka. These parts of the Kelaniya Temple are named Ran Pilimage or the Gold Image House. From the Raja Pilimage to the New Temple Building, which is on the left, are two entrances and two exits. To enter the Ran Pilimage from the side part of the New Temple Building is an access door. This chamber is identified as the Dhatu Mandiraya or the Relic House where the Relic Casket is deposited. Its walls are adorned with paintings of the painter Walimuni Soilias Mendis. The top and bottom of the outer surface of the New Temple Building wall have mouldings of delicate character and beauty with the lowest strip adorned with exquisitely sculptured figures of elephants, swans, and dwarfs in various postures. In alcoves designed in the mid-section of the upper half of the wall surface, figures of the god Kataragama, the god Natha, Ananga or the cupid, King Maniakkhika of the Naga dynasty, the god Ganesha, Gangadevi, the god Vishnu, the anointing of Vibhishana, Maitri Bodhisatva, an imprinting of the Buddha's Foot Print, and the god Saman are sculptured in semi relief.

Temple Paintings

The paintings of the interior walls of the Temple Building



Fig. 2. Front view of Kelaniya Temple Image House



Fig. 3. Ground plan of *Kelaniya* Temple Image house: Old Temple Building: Block B and C; New Temple Building: Block A, D, E, F, G, H, I, J, K and L

executed in two historical periods have yielded two styles of paintings. While paintings of the Old Temple Building are clearly of the 19th century style, the paintings that adorn the New Temple Building walls are of a tradition typical of the painter *Soilius Mendis*, who was influenced by the ancient classical artistic styles of painting.

Methodology

After identifying certain weaknesses in the methodologies initially adopted by the Photography Division of the Department, subsequent projects were undertaken in a more systematic and efficient manner using easier methodologies and modern technology.

The methodology of the adopted procedure

- 1. Skillfully clean the painted layer of the painting.
- 2. Mark the level line of the wall containing the painting using a water level.
- 3. Prepare a grid system with the ratio 3:2 using thread covering the painted surface.
- 4. Light up the whole surface of the painting with an evenly installed illumination.
- 5. The camera is to be placed equidistant, both vertically and horizontally.
- 6. When alternate photographs are required to overlap each other with the second picture having one third of the first picture, overlapping should be done both vertically and horizontally.
- 7. The photograph obtained should be checked in the field with the use of a computer to ascertain whether it tallies with the actual object being photographed.

- 8. Photographs to be numbered systematically.
- 9. Finally, the photographs taken in parts are to be merged to form a single picture by the use of suitable

software.

10. The photographs thus obtained should be stored on labeled compact disks and external hard drives.



Fig. 4. Painted layer being skillfully cleaned by using a soft brush



Fig. 5. Painted layer being skillfully cleaned by using a soft brush



Fig. 6. Preparing castor-wheeled scaffoldings



Fig. 7. Preparing castor-wheeled scaffoldings and lights



Fig. 8. Preparing castor-wheeled scaffoldings



Fig. 9. Taking the water level



Fig. 10. Numbering and Recording the photographs taken





Fig. 11. Taking photographs

Fig. 12. Taking photographs

First, the paintings were cleaned to the same level and the size of the paintings was measured. The wall paintings were measured (height, length and width) and sketches were made of all the details. Subsequently, we ensured that the walls were of the same standard.

In documenting the wall paintings of the *Thivanka* Image House in 2006, the grid was prepared by making a wooden frame and driving small nails into it at the required distances and by attaching threads to those nails at the ratio of 3:2 so that no harm would be caused to the wall containing the paintings. But in documenting at *Kelaniya* Temple, the grid was made by fixing threads to the wall using seasoned clay (outside the layer of paintings) so as not to cause damage to the paintings. We ensured that the following conditions were met.

- 1. The vertical and horizontal movements of the camera were uniform.
- 2. The distance from the painting to the focal plane of the camera was the same.
- 3. The lighting conditions were the same.
- 4. The photographs taken were numbered, recorded, and computerized.

Next, each grid was illuminated and then photographed under the same lighting conditions. We maintained the same distance from the painting to the focal plane of the camera and in parallel to the wall. The same aperture was used in all the photographs. We photographed with 1/3 overlap for each photograph. These are some of the photo graphs taken according to the above-mentioned method. This photograph is a combination of the grid of photographs taken. The quality of these photographs is extremely high. However, due to problems in the software used to compile the different photographs together, minute changes were observed.

These photographs are taken at a high resolution and can be enlarged to a size larger than their normal size. This helps us to study the levels of deterioration, any rapid increase in deterioration in specific areas, etc. These photographs are used to measure deterioration and damage.

Castor-wheeled scaffoldings were used for horizontal movement as it was a more correct and easier method. In taking photographs, techniques such as the position of lighting, distance from the camera, focus distance, vertical and horizontal movements etc. were used in the same manner, and the computer software, camera, lens, and source of lighting were controlled by modern technology. Thus, it was possible to obtain more accurate and successful photographs.

This was an extremely successful exercise. Having overcome the technical drawbacks existing then using digital cameras with modern technological facilities and software in 2012, the paintings of *Kelaniya* Temple was recorded photo graphically. This marks the first step that we have taken in the field of conservation of paintings.

Conclusion

In the Kelaniya Temple painting documentation project in 2012, we were able to achieve successful results by using the above mentioned methodology. By the previously mentioned technique, a flawless methodology of documentation of paintings surmounting the weaknesses and shortcomings so far known in the field has been clearly achieved. By this method, all characteristics of the paintings including deterioration could be delicately ascertained. The availability of the dimensions of the paintings resulting from this method is of special significance. While the camera captures all the data and the features of the targeted physical object, it is able to bring to light the value and the glory of our heritage as well. The photographic documentation of any object that takes place today will not only be in immediate demand, but will also be priceless in times to come owing to its uniqueness. The physical features of the Ruvanveliseya Stupa (pagoda) captured in Lawton's camera have not seen by us in real life. Our desire to imagine how the stupa looked in the past is only through the photographs taken back then.

Here lies the importance of photographic documentation. Impermanence is a universal norm. Change occurs every moment. It occurs both imperceptibly slow and imperceptibly fast. These changes could occur due to natural causes, enemy incursions, animal activity, human intervention, or modernization. Hence, it is imperative that the grandeur, exquisiteness, preeminence, and value of our past have to be sustained into the future. Ancient paintings that can be compared to a mirror, displaying the identity of the era in which they were created, are being damaged incessantly due to the abovementioned reasons. Therefore, we are



Fig. 13. About 40 photographs taken of parts of the painting have been combined to form this complete picture.

morally obliged, and duty bound to protect the uniqueness of these ancient paintings for posterity. Here we are delighted at the result of a successful conservation effort that attempted the task of grasping these paintings in an instant, which are deteriorating with time at an alarming rate, and delivering them to the future.

Taking into consideration this collection of paintings, existing as an invaluable gift from the present generation to future generations, it is our obligation to present it in an effectively preserved state.



Fig. 14. About 40 photographs taken of parts of the painting have been combined to form this complete picture.



Fig. 15. About 55 photographs taken of parts of the painting have been combined to form this complete picture.



Fig. 16. In Ground Plan Block D, the full image of the entire wall. About 1450 photographs taken of parts of the work have been combined to form this complete picture.



Fig. 17. About 55 photographs taken of parts of the painting have been combined to form this complete picture.



Fig. 18. In Ground Plan Block C, the full image of the ceiling



Fig. 19. Relief on outer wall



Fig. 20. Photograph of the walls, ceiling, and floor made by combining pictures taken of parts of the work. Block D in Ground Plan



Fig. 21. Published book "The Wonder of Heritage *Kelaniya*", Volume 1 & 2 includes all photographs taken from photo documentation.

Acknowledgements:

The team members of the photo documentation project (Mr. Arjuna Smaraweera, Ms. Sumedha Deepthi Kumari, Mr. Palitha Herath, Mr. I.P.S. Nishantha, Mr. Lasntha Athukorala, Mr. Sekara)

References:

- 1. Wicramasinghe, D.M.de Z. (1912-1927). *Epigraphia Zylanica volume IV.*, Oxford University Press.
- 2. Kahandawaarachchi, C. (2006). *Sinhala Deepavamsaya* (*Sinhala Medium*). S. Godage Brothers, Colombo.
- Chutinwongs, N. Premathilake, L. Silva, R. (1990). *Paintings* of Sri Lanka Kalaniya. Central Cultural Fund, Colombo.
- Bandara, S. (2004). *fidhs, shia fukaÈia fn!oaO is;=ji l,dj* (Soilius Mendis Buddhist Paintings) (Sinhala Medium).
 S. Godage Brothers, Colombo.

5. Samaraweera, A. Herath, P. Deepthi Kumari, S. Ranasinghe, N. Nishantha,

I.P.S. Athukorala, L. (2018). *Wreuhl wreuh le, Ksh fj¿i 1 yd* 2 (The Wonder of Heritage Kelaniya volumes I and II) (Sinhala Medium). Department of Archaeology, Colombo.

- 6. Gunasekara Rajawasalamudali, D. (1911). *Raajavaliya* (Sinhala Medium). Government Press, Colombo.
- 7. (1979). *Sinhala Mahavamsaya* (Sinhala Medium). Buddhist Cultural Center.

Photo Credits: Arjuna Samaraweera

Uzbekistan



Analysis and Methods of Conservation of Ancient Khorezm Wall Paintings (based on scientific literature)

Akmaljon Ulmasov, PhD, Head

Department "Unique objects", Fine Arts Institute, Academy of Sciences of Uzbekistan

Introduction

Ancient Khorezm (Khwarazm, Chorasmia) was one of the first cradles of civilization not only in Central Asia, but also in the entire ancient world. This historical and cultural region has left a worthy mark in world history over the centuries, as either part of various state associations, or as part of a single state. The passage of the Great Silk Road in the region led to the harmonization of various religious beliefs, culture and art, and handicraft traditions on this land. In ancient Khorezm, urban planning also gradually developed. Later, the Achaemenids built many cities in the area in ancient times. Today, the ruins of the cities have survived in the form of hills Kalali gyr, Koi krylgan kala,¹ Dzhanbas kala, Ayaz kala, Gyaur kala, Kyzyl kala, Elkharas, Akshakhan kala (or Kazakli Yatkan), and many others (Fig. 1).

As a result of large-scale archaeological excavations at these monuments, constructive parts and architectural decorations, household items, and works of art belonging to many architectural structures of different periods were revealed. Among them, a majestic work of fine art-the wall painting-is of particular importance. This is due to the fact that wall paintings not only evoke the interiors of buildings and structures of the particular period, but also serve to fill the unopened pages of history with the images and plots depicted in them. In this regard, it becomes clear how important it is to find murals and preserve and conserve them. The historical and artistic aspects of the paintings found on the archaeological sites of ancient Khorezm are sufficiently covered in the scientific literature (Tolstov, 1948). Therefore, in this report we will focus on issues directly related to murals and their conservation.



Fig. 1. Archaeological sites of Ancient Khorezm (Source: www.wikimedia.org)

Survey of Wall Paintings

A brief analysis of ancient Khorezm paintings showed that they had both common features and differences in periodicity, interpretation of images, processing techniques, colors, and characteristics of raw materials. Most of the monuments at which murals were found (Kalali gyr, Gyaur kala, Koi krylgan kala, Elkharas) belong to an earlier period (the 5th to 4th century BC), and some (Toprak kala, Akshakhan kala) belong to the 2nd to 1st century BC. Of course, these dates are arbitrary and are determined mainly by the analysis of coins and pottery on the monuments. After all, murals in ancient Khorezm appeared before frescoes in the territory of other ancient historical and cultural regions of Central Asia, such as Sogdia (Sogdiana), Bactria, Fergana, and Chach (Tashkent region). Researchers attribute this to the influence of Parthia.

Preservation of the paintings and their fragments at different monuments is improved both in terms of condition and size. At Toprak kala and Akshakhan kala, the murals are well preserved, at others (for example, Elkharas) they are satisfactory, and the rest are in poor condition. This is possibly due to damage as a result of weather or various conditions at the monuments: from natural disasters (fires, floods) or human factors (war, invasion), etc. The safety of the wall paintings after they were found depended on the quality of conservation. Another important aspect related to murals is the function of the room, building, or structure in which they were painted, as well as the location of the images. Many paintings were placed in palaces, in fortified monumental buildings, in temples and shrines, or ceremonial halls, which were usually located in cities. However, sometimes they were found in suburban complexes (such as Toprak kala, Elkharas, Katta Kyrk kyz kala, etc.).

The paintings were usually located in monumental architectural structures, consisting of an altar or niches, probably associated with ceremonies. In Akshakhan kala, paintings were also found in the bypass ceremonial corridors. This suggests that the corridor was also associated with activities taking place in the central building (Kidd, Negus-Cleary, Yagodin, Betts, Baker, 2008).

The painting technique is the same as for paintings found in other similar monuments of Central Asia. That is, a wall made of raw brick or pakhsa (sometimes with a mixed technique using both) is plastered with clay mixed with straw (sometimes reed). A thin second layer is applied on top of the clay plaster layer, which serves as the base. White paint is applied to a smooth surface, consisting of a mixture of chalk and natural glue (or ganch), and this layer serves as a background. The researchers described in detail the composition of the glue added to the dyes, noting that it is obtained from the root of the eremurus plant, common in Central Asia. The author also established that the plaster was applied in two layers: the first (black plaster) was applied directly in a thick layer on the wall, and the next (white plaster) was applied on top of it. The last layer was carefully sanded with clay to obtain a smooth surface. Next, a thin white primer was applied to apply the pattern (Fig. 2).



The composite structure of the wall painting of ancient Khorezm (on the example of Toprak kala) (Source: Kovaleva N.A., Rapoport Yu.A. Funeral scene in a wall painting from Khorezm // VDI,1991, No 2. – P. 198-224)

A.Ulmasov, 2022

Fig. 2. Structure of Ancient Khorezm Wall Paintings (by author)

Methods of Conservation

Wall paintings are important because, as architectural and artistic decor, they decorate interiors, and the content and plots determine the function of the room or building in which they are located, and often being associated with religious or secular ceremonies. The scenes, images, and patterns depicted in the paintings are an important source for understanding the social life of our ancestors of that time. In this regard, it is also important to study the methods of image processing, and the composition and properties of the raw materials used. Analyzing the scientific literature, we can say that not all monuments of ancient Khorezm paid enough attention to the technique of painting, analysis of raw materials, and conservation. Among the monuments described above, the paintings of Toprak kala, Elkharas, and Akshakhan kala were carefully studied and illuminated. In particular, archaeologists note that when removing Toprak kala paintings, a mixture of BMC-5 glue in different solvents was used. The paintings were divided into several parts and separated from the ground. In the laboratory, the processed

nt source black color is from the burn rs of that that adhesives of natural o substrate in paints (Yarosh, perties of literature, Chemical consolidation of removal from the walls, ar nalysis of conservation were carried o burnents due to the nature of this o preservation, and the possible

fragments were reinforced on a foam base and the cracks were filled with a special mixture – mastic. A study of raw materials used in the paintings of country palaces from Toprak kala showed that the red color was made from iron oxide or cinnabar, and orange from a mixture of red and ocher. If the green color is based on malachite, then the black color is from the burnt wood charcoal. It was noted that adhesives of natural origin were used as a binding substrate in paints (Yarosh, Fedotova, 1982).

Chemical consolidation of the paintings in place, their removal from the walls, and subsequent stages of their conservation were carried out in various ways. This was due to the nature of this or that monument, the state of preservation, and the possibility of expeditions. If in earlier periods the paintings were studied at the level of the archaeological context, then as a result of the development of technology, all scientific aspects began to be studied. In particular, special attention is now paid to such aspects as painting technique, pigment composition, and the effect of chemicals on images. Through various chemical analyses and experiments, it was determined which adhesives were used as binders for natural dyes. In particular, the chemist-restorer V.Ya. Birshtein analyzed organic and inorganic substances in the primers and paint pigments of the paintings of some monuments in Central Asia. Among them were the monuments of Kara tepa, Ajina tepa, Penjikent (Tajikistan), as well as paintings from Toprak kala. Birshtein managed to separate polysaccharides from the picturesque layer and from the soil layer. That is, the infrared rays (IR) of the isolated polysaccharides were similar to the infrared rays of fruit trees belonging to the cultivated families of roses or rosacea (lat. Prunoideae). Comparison of the composition of polysaccharides and their IR showed that in the preparation of a binder (glue) for dyes, craftsmen used apricot or cherry glue (gum arabic) (Birshtein, 1976).

In the murals of Akshakhan-kala, the restorers noted some differences in the addition of wood glue to bind natural dyes when cleaning the fragments of the murals.

Due to the fact that over time the organic binder broke up and disappeared, the paint remained only in the crystal structure of the mineral pigment grain and in the layer of gypsum plaster. Therefore, it is advisable to clean the brittle and thinned surface of the painting only mechanically (Fig. 3). Lumps of soil adhering to the colorful surface of the painting are moistened with alcohol and a mixture of water purified from minerals. Excess mud mass after drying can be removed with a sharp wooden stick or scalpel. Before the conservation of the paintings, the restorers sketched the images with an ink pen on a reflective transparent film. At the next stage, they were photographed in high quality. The images on the murals were reconstructed on a graphics tablet. In this case, the missing parts of the drawings (up to 3 cm) were drawn in pencil. Thus, first small and then larger fragments were restored. After consultation with archaeologists, additional reconstructed images have revealed many details (Betts, Yagodin, Grenet, Kidd, Minardi, Bonnat, Khashimov, 2009).



Fig. 3. Fragment of the wall painting from Akshakhan kala site in situ (Source: https://karakalpak-karakalpakstan.blogspot.com)

Specialists have used various methods and polymers in the process of conservation of livestock in the field. In particular, Toprak kala paintings were fixed with a solution of acrylic resin (PBMA) in xylene and acetone. During the initial gluing of the paintings, a 10% PVC solution was used. This unique, universally recognized method was developed at one time in the laboratory of the Hermitage Museum and was widely used in the practice of field conservation, restoration, and chamber processing of murals. The complexity of this method and the toxicity of the reagents used in its application do not satisfy the specialists, and they have been testing the new BMC-5 copolymer. That is, the painting is fixed before removal with a 2.5-4% solution of a mixture of BMC-5 in isopropyl alcohol (IPA). In some cases, a solution of BMC-5 can also be used in combination with solvents such as IPA, methyl ethyl ketone (MEK), and White Spirit (Kovaleva, 2013).

In some cases, due to a lack of specialists, the expedition members themselves carried out the work of fixing, conserving, and removing the paintings. In particular, there was an attempt to fix the paint layer of the paintings found in the field at Elkharas with an aqueous solution of PVA. However, the color layer on the surface of the image darkened and the texture changed, and it was abandoned. The next painting and sculpture found was then wrapped in soft sheets of papyrus paper, gauze, and cotton wool and placed in boxes without any initial fixing. Some fragments were wrapped in paper and covered with plaster. This allowed them to be safely removed from the ground and transferred to remote places. The painting was fixed with a solution of fluoropolymer (F-42L), developed in the laboratory of the Russian State Hermitage Museum. According to an expert, such processing made it possible to better strengthen the surface of the image, which is fragile and delicate, and to fully preserve the technical and technological properties of these images (Sokolov, 2001).

Restorers

When it comes to murals, it is always necessary to remember the work of restorers who, together with archaeologists, uncover the murals and do all the necessary procedures from fixing them to removing them from the walls. They have to work on the murals for a long time in the laboratory and, in the end, obtain exhibits from them. In Khorezm, as in other historical and cultural regions of Central Asia, the issue of preserving murals is very acute. Due to the lack of local personnel, specialists from large scientific centers in Moscow and St. Petersburg were previously involved in the project. Initially, specialists came as part of expeditions, but later they were specially invited from scientific centers. In particular, expeditions to Khorezm in 1939-1940 involved the participation of the architects V.A. Lavrova (IHMC RAS) and V.I. Pilyavsky (SPSUACE), and the artist N.P. Tolstov (IHMC RAS) (Tolstov, 1948: 31-33).

A great contribution to the conservation of Central Asian wall paintings, including those of Khorezm, was made by the employees of the Central Restoration Laboratory (now GOSNIIR). The first representatives of the laboratory were G.A. Koshalenko and L.A. Lelekov, who took part in the excavations of the palace in Toprak kala in 1969. In 1980-1990, their ranks expanded significantly, with the addition of V.A. Solovyov, N.A. Kovaleva, V.P. Buriy, A.D. Dorofeev, G.E. Veresotskaya, E.I. Zheltov, E.A. Vinogradova, and many other restorers. The study of soils and pigments used in the paintings was carried out by employees of the chemical-technological laboratory of the Institute, including L.G.

Druzhinina, Z. Elninskaya, V.N. Yarosh, L.G. Fedotova (Buzkova), and M.N. Filimonova. The scientific literature mentions the names of the architect A.S. Dubovsky and the artist G.M. Baev, who were assisted by the expedition leader B.I. Vainberg (Vainberg, 2004).

Conclusion

It can be argued that in ancient Khorezm, wall paintings appear much earlier than in other Central Asian historical and cultural regions of Central Asia. The murals of almost all monuments are closely connected with monumental structures, their architectural parts, and wall sculptures. As for the subject matter, it is diverse and colorful: from the scene of religious ceremonies to the palace elite and everyday genres, you can also encounter geometric and floral patterns. When compared with paintings from other historical and cultural areas, in Khorezm, a more diverse color palette was used to apply images.

Thanks to the painstaking work, patience, and perseverance of the restorers, and most importantly, their dedication and love for their work, wonderful works of ancient artists have been preserved and museumified. Among them are "Womanharpist" at Toprak kala, "Woman with a wreath," "Scene of mourning," "Archer" at Koi kirilgan kala, "Horseman" at Kalaly gyr II, and "Portrait Gallery" at Akshakhan kala. In a word, many monumental paintings and other art artifacts are still found in this ancient land, which enriches the history of ancient Khorezm and Uzbekistan in general.



Fig. 4 a, b. Fragments of wall paintings from Toprak kala (Source: http://kungrad.com; https://art-blog.uz)

References:

Тоlstov (1948) – Толстов С.П. Древний Хорезм. Опыт историко-археологического исследования. – Москва, «МГУ». – 352 с. + 87 табл.

Tolstov (1948) – Толстов С.П. По следам древнехорезмийской цивилизации. – М.-Л.: Изд-во "АН СССР". – С. 328.

Birshtein (1976) – Бирштейн В.Я. Исследование органических и неорганических компонентов красок и грунта стенных росписей некоторых памятников Средней Азии // Реставрация, исследование и хранение музейных художественных ценностей. Вып. 1. – Москва. – С. 7-8.

Vainberg (2004) - Вайнберг Б.И. (отв. ред.) Калалы-гыр

2: Культовый центр в Древнем Хорезме IV-II вв. до н.э. – Москва, «Восточная литература». – 286 б.

Коvaleva (2013) – Ковалева Н.А. Работы реставраторов отдела монументальной живописи ВЦНИЛКР-ВНИИР в Хорезме. Исследования, консервация и реставрация фрагментов монументального декора // Приаралье на перекрестке культур. – Самарканд, МИЦАИ. – С. 59-72.

Yarosh, Fedotova (1982) – Ярош В.Н., Федотова Л.Г. Исследование материалов живописи Северного комплекса городища Топрак-кала // Реставрация, исследование и хранение музейных художественных ценностей. Вып. 4. – Москва. – С. 12-17. Sokolov (2001) – Соколов В.М. Росписи и скульптура Элхараса // Древнехорезмский памятник – Элхарас. Москва, «Качество жизни». – С. 270-271.

Betts A., Yagodin V.N., Grenet F., Kidd F., Minardi M., Bonnat M., Khashimov S. (2009) The Akchakhan-kala Wall Paintings: New Perspectives on Kingship and Religion in Ancient Chorasmia // Journal of Asian Art and Archaeology №7. – P. 129.

Kidd F., Negus-Cleary M., Yagodin V.N., Betts A., Baker-Brite E. 2004 (2008). "Ancient Chorasmian Mural Art" // Bulletin of the Asia Institute, 18. – P. 69-95.

Abbreviations:

IHMC RAS – Institute of the History of Material Culture, Russian Academy of Sciences

RAACS – Russian Academy of Architecture and Construction Sciences

SPSUACE – Saint Petersburg State University of Architecture and Civil Engineering

GOSNIIR – The State Research Institute for Restoration

BMC-5 – Butyl methacrylate

IPA – Isopropyl alcohol MEK – Methyl ethyl ketone

DDMA Dala talanth

PBMA – Polybutyl methacrylate PVA – Polyvinyl alcohol

Viet Nam



The Japanese Covered Bridge Conservation Project

Tran Thanh Hoang Phuc, *Conservation Architect* Division of Heritage Management, Hoi An Centre for Cultural Heritage, Management and Preservation

I. Brief information about the project:

Hoi An used to be an important international trading port from the 16th to the 19th centuries. During this time, foreign merchants from Japan, China, and Europe settled and traded here. Hoi An ancient town includes many building types such as shophouses, communal houses, temples, assembly halls, etc., and the bridge. The Japanese Covered Bridge is located in the center of the town, and is also known as Chùa Cầu, Lai Viễn Kiều, and Pont Japonais. Up to now, the exact construction date and original architectural form of the monument have not been determined. However, based on its stone steles and other old documentation, the bridge could have been built around the end of the 16th century or the beginning of the 17th century. It is said that the bridge was constructed by Japanese who lived in Hoi An in that era. Around 1653, the Japanese merchants had left Hoi An because of the isolationist foreign policy (Sakoku) of the Japanese Tokugawa shogunate. The Chinese took over this bridge and built an additional temple to worship Båc Dế Chân Vũ (北帝真武 - "A God for land, storm and flood protection according to legend") to form the whole architecture of the monument. In 1719, Lord Nguyễn Phúc Chu visited Hoi An, and named it Lai Viễn Kiêu (來遠橋, literally "The bridge of guests from afar"). Besides its traffic utility and religious function, it is said that the monument also has a Namazu-exorcising purpose.

The monument has been in existence for almost 400 years, and has been repaired and renovated several times. Its decorations have typical architectural expressions of the Nguyễn Dynasty (1802 – 1945). It is hard to find traces of Japanese architecture. However, with its name, the monument reminds us of the golden age of Hoi An in the role of an international trading port, with the presence and residence of the Japanese merchant community. It also reminds us of the volatile military, political, and commercial relations between the feudal dynasties of Vietnam, Japan, and China. Thus, it has special values in terms of architecture, art, history, and culture. It has become a unique architectural work in Vietnam, and is recognized throughout the world.

Over time, because of many factors, the Japanese Covered Bridge has been deteriorating, even with the preservation efforts of many generations in Hoi An. Since 1997, Hoi An Center for Cultural Heritage Management and Preservation (HACCHMP) has raised the issue of conserving the monument. In August 2016, the People's Committee of Quang Nam Province and Hoi An city held an international conference on conservation of the Japanese Covered Bridge with the participation of many experts and management agencies from Vietnam and Japan. Some viewpoints and solutions for this conservation project have been proposed, but there was still no consensus at that time. To date, the issues related to this conservation project are more pressing than ever, and have been attracting special attention from the competent authorities, scientists, and Hoi An lovers. Currently, urgent action is required to conserve the monument in order to maintain its values in a complete and durable manner. As the agency responsible for the implementation of the project, HACCHMP has recently been coordinating the survey and study of the monument's current status, and based on the viewpoints of the scientists, history of monument renovations, and various other perspectives, solutions for the Japanese Covered Bridge's conservation project have been proposed, and will be carried out in the near future. The project has received part of its funding from the Sumitomo Foundation, Japan. In addition, the Japan International Cooperation Agency (JICA) has committed itself to supporting conservation experts participating in this project.

II. Architecture of the monument:

1. Current architecture of the monument:

The monument consists of two parts: the bridge and the temple (Figs. 1 and 2). The bridge is covered by yingyang roof tiles and, linked with the temple on the north side, creates a " T " shaped plan. The temple and the bridge are partitioned by a wooden wall, which is the most richly decorated space of both the temple and the bridge. The entrance of the temple is in the middle of the bridge. The main bearing structure of the monument includes the stone foundations, abutments, and piers below, and the wooden beams and frameworks (pillars, rafters, main beams, joining beams, etc.) above. The floors are paved with wooden planks. The two bridgeheads are built with bricks where the altars are arranged to worship two dogs (east bridgehead) and two monkeys (west bridgehead). Stone steles have been placed to record the restorations and renovations of the monument through the periods. The east wall is decorated with Buddha's hand citron pattern, and the west is decorated with a pomegranate pattern. On both sides along the bridge are walkways where the floors are raised higher than the transport access path in the middle. Nowadays, vehicles are not allowed to access the bridge in order to protect the monument and to serve tourism.



Fig. 1. General plan of the Japanese Covered Bridge



Fig. 2. Front elevation of the Japanese Covered Bridge

2. Former architecture of the monument through documentation:

Based on documentation and old photos, it can be affirmed that there are some differences between the current architecture of the Japanese Covered Bridge and its former architecture through the periods.

In a picture of the Japanese Covered Bridge in 1901 - 1903 (Fig. 3)¹, the walls were limewashed in yellow. The southern

wall had some decorative details. The bridge piers stood independently. The barriers seemed to be covered with wooden planks and railings.

In a photo² of the monument taken before 1915 (Fig. 4), viewed from the East (now Tran Phu Street), it shows that the two sides of the eastern wall were decorated with the pattern " *壽* " *(longevity)*. In particular, the photo shows that the transport access path was probably flat and as high as road level.



Fig. 3. Japanese Covered Bridge in 1901-1903. Source: gallica.bnf.fr



Fig. 4. East view of Japanese Covered Bridge. Source: HACCHMP



Fig. 5. Japanese Covered Bridge. Source: BAVH.



¹ Brossard (1906). Colonies Françaises. Gillot. Paris. Page. 459. Source: gallica.bnf.fr / Bibliothèque nationale de France.

² Photo offered to People's Committee of Hoi An city in 2014 by Dominique Foulon – A journalist of *Carnets du Vietnam* (a French magazine). Source: HACCHMP.

In an article³ by Albert Sallet, a French ethnologist, published in 1919, there was a fairly detailed description of the monument's architecture. Accordingly, the bridge was completely renovated in 1915, and decorated with fruit patterns (pomegranate, Buddha's hand citron) on both bridgeheads, which replaced the previous " 壽 " (longevity) pattern motif. The temple was damaged by a storm, and was rebuilt in early 1917. In this description, there was no mention of changing the height of the transport access path. Thus, it can be clearly seen that after the renovation in 1915, the architecture of the Japanese Covered Bridge has some significant changes compared to its former architecture in some pictures taken before this time, and is quite similar to its current architecture. The photos in this article (Fig. 5) show that the southern wall was blank, with no decorative details. The bridge piers were linked by an arch structure. The barriers were built with brick and mortar and decorated with a row of ventilation blocks in the middle span, with wooden railings remaining. The photo also shows very clearly that the transport access path was flat, and as high as road level.

In 1986, the monument was renovated by the Centre for the Design and Repair of Monuments (now Institute of Conservation of Monuments) in collaboration with the local government (Fig. 6). The transport access path was raised (Fig. 7) in the middle, creating the curved shape as it appears today. According to the report on renovation results, a community consultation was held with some local people aged 65 - 85 to ask for their opinions on the curvature of this path. They enthusiastically participated and contributed many comments, and agreed that the transport access path should be raised.

Although there were some changes in architectural form through numerous renovations in the past, the monument still retains a harmonious and balanced appearance, with softness and elegance in its decorative details. The beauty of the monument does not only come from the carved details, but also from the elegant wooden bearing frames with some unique differences in technical structure.

III. The current condition of the monument:

- The abutments and piers have some small cracks. The bottom of the pier's foundation is eroded. Girders and beams supporting the floor have rotted, rusted, and broken, reducing bearing capacity (Fig. 8).
- The load-bearing wooden frames are still capable of supporting the structure under normal conditions. However, there are some positions and structural parts that are rotted, cracked, especially at the top and the base of pillars, at the head and tail of rafters, framework mainbeams, etc. Mortise and tenon joints are warped, loosened, or detached. Especially at the intersection between the bridge and the temple, there is a position that is separated by up to nearly 20 cm (Fig. 9). This position has been temporarily reinforced. However, this is just a temporary solution. After each rainy and stormy season, the deterioration of the monument is very evident.
- The yin-yang tiled roofs: The tiles are damp and mossy. Some positions have leaks. The decoration details on the roof ridges and gable ridges are also faded, peeled, and deformed.
- The brick walls are damp and some small cracks have appeared (Fig. 10). The parallel sentences at the entrance of the bridgeheads are lost or peeled off. Decoration details on the east wall and west wall of the bridgeheads are also worn.

IV. Viewpoints and solutions for the Japanese Covered Bridge conservation project:

Conservation viewpoints: Up to now, the original architectural form of the Japanese Covered Bridge has not been determined. The available documentation only helps us to determine some changes in architectural form of the monument before and after the two great renovations in 1915 and 1986. By comparison, the only major difference in architecture of the monument in the 1986 renovation compared to the 1915 renovation is that the transport access path was raised. Since 1986, the architecture of the monument with the curved access path has become an imprinted image in the memories of local residents, Hoi An lovers, and tourists. Therefore, 1986 can be considered as the "optimal date" of the monument. Therefore, temporarily, it can be



Fig. 6. Japanese Covered Bridge during renovation in 1986. Source: $\ensuremath{\mathsf{HACCHMP}}$



Fig. 7. Japanese Covered Bridge after renovation in 1986. Source: HACCHMP

³ Albert Sallet (1998). 'Những người bạn Cố đô Huế' (Bulletin des Amis du Vieux Huế - BAVH), Hội An cổ (Old Hoi An). Thuan Hoa Publishing House. Volume VIB (1919). Page 364-386.



Fig. 8. Girders and beams have rotted, reducing bearing capacity.



Fig. 9. Wooden frame joint between the bridge and the temple has separated.

determined that the conservation viewpoint for this monument is to maintain the architectural form of the "optimal date", which is similar to today's architecture. However, after dismantling, we will carefully study the traces of the floors, consult with domestic and foreign conservation experts, and the local community. From that, the final decision whether to maintain the access path with the curved floor as it is, or to restore the flat floor as before will be made.

In addition, when carrying out the conservation, the authenticity of each construction detail and the whole building should be strictly ensured. Treatments related to the structures must thoroughly solve the problems to ensure the long-term stability of the monument. Building components which are still usable should be used to retain their old appearance and historic value.

In my opinion, I would like to restore the flat transport access path as before, because there is much documentation as mentioned above, showing that this access path had been flat for a long time. Besides, part of the stone stele's description which recorded the conservation of the monument in 1817 that literally states "... the bridge has covered roofs, and the wooden floor is calm as if moving on flat ground. The passengers can sit and take a rest here if they feel tired. It's convenient for walking and riding horses." According to this description, it can be understood that the access path was flat. In addition, the raising of the



Fig. 10. Wall is cracked. Mortise and tenon joints have loosened.

access path in the 1986 renovation did not have a solid scientific basis.

About conservation solutions: The study of the Japanese Covered Bridge needs to be approached in multiple ways. The conservation will be based on the evaluation of technical methods and with a specific scientific basis; not only based on the preliminary external survey. Therefore, it is required to carry out the dismantling to check and evaluate accurately and comprehensively the current status of each item. We will carry out a partial dismantling to check and evaluate the current state of each component. Depending on the results, specific treatments will be proposed. It is planned that the tiled roofs, wooden frames, and floors will be dismantled. The abutments, piers, and brick walls will remain to be studied, in order to apply reinforcement measures.

Up to now, the investment policy for the conservation project of the Japanese Covered Bridge has been approved by Quang Nam Provincial People's Council. The feasibility study report has been appraised and agreed to by the Ministry of Culture, Sports and Tourism. Some works of the project have been carried out:

- The survey and drawing of the current status of the monument have been completed. The degradation status of all items has been preliminarily assessed. Damaged wooden structures have been checked.
- Many conferences have been organized and extensive

research has been conducted on the historical, cultural, architectural values, and technical status of the Japanese Covered Bridge.

- Vibration of the structures and the foundation of the monument have been measured to analyze and evaluate their current status (Figs. 11 and 12).
- The geology of the site has been surveyed by using 2D electrical imaging method (Fig. 13).
- The whole monument has been 3D scanned to create three-dimensional digital data, and to fully retain the current image, especially the architectural details (Fig.14).

This is a unique monument; thus, the study will be given top priority, and the construction time is expected to be longer than normal. Therefore, an enclosed scaffolding will be built to ensure that the study and conservation process of the monument will not be affected by the weather, and the components after dismantling will be preserved in optimal condition. Together, a temporary



Fig. 11. Geological exploratory drilling at the site



Fig. 13. Surveying the geology of the site

walkway will be installed close by the site on the river side (the south) a certain distance away, which will allow local people and tourists to observe part of the conservation activities. In addition, a temporary worship space will be set up, so that people can come to worship and ensure that religious activities at the monument will not be interrupted.

V. Conclusion:

Soon the Japanese Covered Bridge conservation project will be implemented. Hopefully, with the meticulous research and utmost care given to conservation viewpoints and solutions, together with the support of domestic and foreign conservation experts, especially those from Japan, and with the attention and encouragement of Hoi An lovers, this conservation project will achieve the expected results, and maintain the maximum architectural, historical, and cultural values of this very special monument.



Fig. 12. Measuring vibration of the structures and the foundation of the monument



Fig. 14. 3D scanning the whole monument

Published by

Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU) 437-3, Somanouchi-cho, Tenri, 632-0032 Japan E-mail: nara@accu.or.jp URL: https://www.nara.accu.or.jp

[©] Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU) 2023

公益財団法人 ユネスコ・アジア文化センター 文化遺産保護協力事務所

Cultural Heritage Protection Cooperation Office, Asia-Pacific Cultural Centre for UNESCO (ACCU)