

US Ambassador's Fund for Cultural Preservation Tombs of Sultan Ibrahim & Amir Sultan Muhammad at WHS Makli, Thatta Progress Report No - 2017/7-9 July - Sept 2017



Cleaning and consolidation of original glazed tiles..

TOMB OF SULTAN IBRAHIM

In this quarter the focus was on the placement of glazed tiles while further production of glazed tiles was continued. The previous report has outlined the elaborate arrangements that were needed to be made in order to produce the number and quality of tiles required.

The placement of tiles had its own challenges. Since it was important to retain all original evidence even though in a highly damaged condition. A protocol was worked out in order that the original character of the glazed tile work could be maintained. In order to follow the requisite procedures, each tile had to be examined carefully before it could be placed in its location. Among important aspects was the preparation of ground surface, which in many cases was found to be in a highly damaged state.

The placement of glazed tiles was carried out according to the following intervention principles:

1. All evidence of extant glazed tiles, terracotta brick or bisque body, even if in a highly damaged condition, has been carefully maintained.
2. Intervention of new glazed tiles to be made only in areas where evidence of pattern, design, size etc. was available.
3. All new glazed tiles that are fixed should be distinguishable and delineated with coloured mortar joint and inscribed date "HF 2017."



Glazed tile replicas being checked for size and pattern on interior panels carrying hexagonal vegetal interlacement.



Saving all evidence of original extant kashi, even when in a damaged condition.

4. All interventions should be reversible i.e. new glazed tiles can be easily removed.

The establishment of the kashi production centre at Makli, although created a huge amount of pressure for setting up along with developing the expertise on the one hand, on the other being in the vicinity of the subject tomb it facilitated the activity. At the time that we learnt that the established workshops in Hala and Nasrpur were not willing to follow the rigorous methodology to achieve improvement in quality, and HF would have to set up its own facility, it appeared a daunting exercise. However, it seems in hindsight that it was a blessing in disguise. The rejection rate alone was astounding since only the perfect tiles matching in colour, design and texture were finally allowed to be utilized in the monument. Since the production was in our hands and the tiles were being produced in Makli, it was comparatively easier to quickly produce new ones and use them instead.

The building of several small kilns with different production capacity provided flexibility to keep pace with production and painstaking painting of various kinds of tiles. The 7 kilns of different capacities that had been built, allowed for extensive experimentation and production of small number of tiles as and when these were required.

The required quality could be achieved as strict instruction were given to the kashi production centre personnel:

- Each batch from each kiln should be examined carefully for defects, before giving approval for it to be installed in the monument.
- Only those tiles would be accepted if they were free of blisters, bubbles & uneven surface finish, over run of colours, and would match the colouring of the tiles where these were to be placed.



Visit of HE Ambassador of Netherlands.



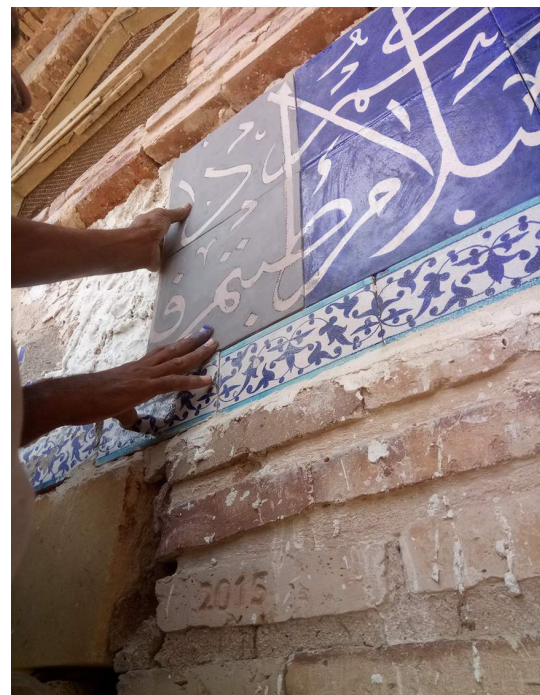
Checking for matching and compatibility of glazed tiles with extant original tiles.



- All those, which were even slightly chipped would be rejected and not allowed to be utilized in the monument.
- Tiles which were without the defined flaws would be taken close to the place of installation and matched carefully. Whenever it was found that even after installation they did not match the colouring of the original tiles, and were not in uniformity with them, they would be removed even after they were installed.

The matching of the calligraphy tiles was extremely challenging and had to be taken up with even greater care. The production of calligraphy tiles was based on the evidence of the Quranic verse found in the northern iwan alcove. The panel is two-tile high and the letters would continue on two-tile height. These also overflowed from one tile to another, thus, making it imperative to ensure that even the slightest extension of a letter to the next tile was carefully maintained. Also, being a Quranic verse, utmost respect was required in transferring the CAD drawing inscription to each tile for which elaborate arrangements had to be made. The task was comparatively easier where the entire verse had to be made up of tile replicas. However, on the west and east facades, the difficulties were compounded as portions of the calligraphy were extant and some tiles were in a highly damaged state. It required a huge amount of skill and care in order to maintain the continuity from the old to the new, at the same time seeing that the integrity of the panel was maintained. In some cases the tiles had to be removed three or four times at the time of installation, whenever even slight variation in script or colouring would be found.

Preparatory work for installation of glazed tiles was first careful cleaning of the original tiles, and preparation of surfaces where replicas would be installed. While this was the case at all places carrying original kashi, the issue was compounded in internal panels carrying hexagonal tiles with interlacement pattern bordered by border tiles carrying vine-like features.



Challenges in production and placement of calligraphy tiles for matching with original extant tiles. Tiles being checked before firing to ascertain continuity with existing calligraphy.



Checking drawings to assure continuity with original extant calligraphy.

Boundary wall being completed.



There were only two panels i.e. North Left and West Right panels, where all the glazed tiles had been lost where it was decided that the entire panels could be covered with replica tiles. However, in all other panels, tile evidence was extant to varying degree, at the same time there were also the remains of the body, its bisque or terracotta or original base for fixing the tiles. Since the protocol worked out for the treatment required that all evidence must be maintained; there were difficulties as these were found in an extremely untidy and rough condition. Considerable amount of effort was expended to smooth out the surfaces and careful repairs to fragile surfaces to consolidate the remains in order to provide a neat appearance.

(Above Left) Tile panel showing remains of original glazed tile, bisque and terracotta body as well original preparatory surface for placement. All the original evidence has been carefully maintained.
(Above Right). Consolidating all edges of original extant tiles to provide protection from further loss.

Since sufficient evidence of spandrel tiles was found when remains of four spandrels above calligraphy were compared, the lacunae according to available evidence in all the four spandrels has been filled. Its floral interlacement overflowed from one tile to another, and considerable expertise was needed in the production of these tiles in order that they would match with each other and with the remains found in the original tiles.

(Below) Views of spandrel tiles. The left is original while matching tile replicas are on the right.





Work in progress on restoration of stucco layers in internal squinch alcoves.

In this quarter the work on repairs and consolidation of damaged and detached surfaces of interior stucco work was continued. This had to be taken carefully as all evidence of the original stucco, even though fragile and detached, had to be maintained. It had been decided that the repairs must be handled very carefully, in order that no evidence of the past is lost. This also required that the bare surfaces as found should not be rendered over, as these provided evidence of structural methods and the wear and tear the monument has gone through over several centuries.

Also taken up was the cleaning of the flooring. The terracotta tile floor had been installed as an intervention carried out possibly during the last century. Some of the tiles were in a damaged condition. This required very careful cleaning and repairs in order to maintain the flooring, without replacing any of the tiles.

The stamping of arrows and date of execution of intervention was taken up seriously after major part of the tilework had been completed. This is an important requirement for conservation in order that the new can be distinguishable from the original. Special stamps were made after several experimentations, which would provide a discreet identification of the extent of kashiwork carried out both externally and internally.

In addition to the cleaning carried out around the site, major effort went into the construction of a roof over the open-to-sky staircase. This void in the roof had created a havoc with the internal conditions of the chamber, as it allowed unrestricted flow of water during rains. The water ingress in the walls of northwest corner were instrumental in retaining dampness in the wall due to which all the glazed tiles in the corner had been lost. Several drawings for alternatives for the profile of the roof and accessibility to the top were prepared. It was finally decided to build a bamboo flat roof, which was easily reversible at the same time it was light and in-



Repairs to window soffits.



Bamboo roof and trapdoor under construction to prevent water seepage in the stairwell.



View of monument after removal of scaffolding.

flicted only very light load on the walls of the monument. Since an opening was a pre-requisite for access to the roof for maintenance purposes, a trap door like solution was developed in order that the skyline of the monument would not be affected, which would have been the case in case the new bamboo roof was constructed higher than the parapet wall.

As all the work on the dome had been completed, the bamboo scaffolding that was constructed in 2016 was dismantled and taken down. This was a major operation as the entire scaffolding which had been constructed to withstand the wind pressure and would provide security to workers while conserving the dome area, was dismantled section by section. The entire bamboo pieces had to be carefully brought down ensuring that there was no damage to the conserved walls of the staircase.

The removal of the scaffolding finally made it possible to see the hard work that had been expended on making the dome presentable once again.



View of monument during removal of scaffolding.

US Ambassador's Fund for Cultural Preservation

Tombs of Sultan Ibrahim & Amir Sultan Muhammad at WHS Makli, Thatta

Progress Report No - 2017/10-12 Oct - Dec 2017



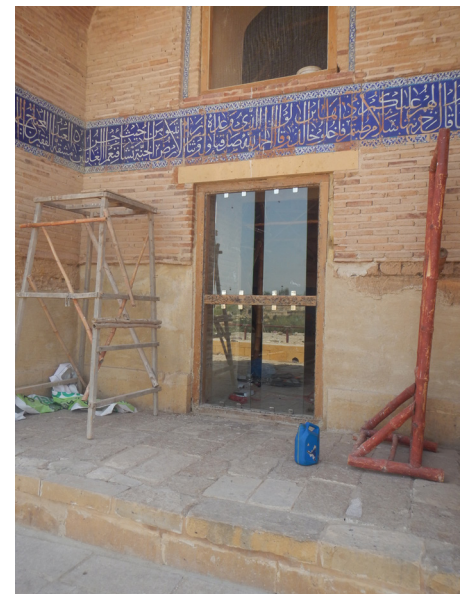
General view of tomb of Sultan Ibrahim and Amir Sultan, podium pavement and the environs after completion of work.

TOMB OF SULTAN IBRAHIM

The month of October was utilized to finish off all the works. It was decided to maintain the wooden frames that had been placed at some later time but which were in an excessively bruised condition with many nails and screws. The surface had become highly damaged and required repairs to make place them into a presentable condition. The paint had blistered and was in a highly blemished state. The entire paint was removed, the holes were filled in and the entire surface were provided natural polish.

The other important addition was the fixing of thick plate glass doors and fixed glass in the openings to prevent entry without concealing the interior view. For this purpose special arrangements were made to install stainless glass fastenings and locks to secure the glass in as firm a position as possible.

Although the glass panels could have been fixed to close the openings entirely. However, in view of the strong winds that blow in the exposed position of the monument and also the need for air movement inside the chamber, the glass panels were specially designed to provide free air movement. The glass panels were fabricated by a specialist firm in Karachi and transported to arrive safely in Makli. The fixing of glass without damaging the original structure had to be taken up very carefully. The installation was carried out by the vendor's experts in the presence of senior HF staff.



View of glass panels in openings. The use of glass prevents entry of visitors, animals and birds. It allows viewing of the interior without the need for entry. Wooden frames installed at some later date have been retained after a thorough cleaning and polishing.



Entrance Archway

The Entrance archway had suffered from severe degradation. Its archway was at risk of collapse due to loss of masonry and ingress of water. This was a major work that needed to be taken up after the main structures had been conserved. Although much work had been done earlier, during the month of October, the remaining work consisting of consolidation was started. It was a challenging task to ensure that the archway was stabilized, especially as many of the bricks, being soft, were in an extremely poor condition, with many voids in the masonry. The work was carried out carefully by gradually building up the voids in the masonry walls before taking up the restoration of the top part of the arch.

Along with masonry work, the glazed tile work in the spandrels of the archway panels in the east was also taken for completion. The remains of the original tiles of the two archway panels were studied and it was found that the original panels could be completed by utilizing the evidence found on the west side. Thus, special tiles for the spandrels were fabricated, and installed, bringing about a semblance of how the original view from the east could have been.

Work in progress on east side of Entrance Archway. The remains of kashi are visible at extreme right (spandrel of arched panel).



Work in progress on the west side of Entrance Archway.



Marking dates to mark interventions.

(Left) Stabilized and consolidated archway with restored kashi spandrels.

(Below) German Ambassador HE Kolber in discussion with historian Suhail Zaheer Lari.





Group photo at completed tomb of Sultan Ibrahim with chief guest US Consul General Grace Shelton and officials of Sindh Culture Department marking the closing ceremony on 3rd December, 2017.

The date for the closing was originally set for 29th `October 2017. However, when the department was informed they sent a report which showed that their understanding of how the monument was to be conserved was somewhat different than the maintenance of OUV being attempted by HF.

In order to settle the matter, instead of the closing ceremony, a meeting was organized by the Consulate with the Department in which all parties were present. The presence of Dr. Laura Tedesco and her presentation of the requirements of various international charter and guidelines, along with the presence of UNESCO representatives in Sindh, Mr. Ayaz Kazi Mahessar, provided the rationale and arguments for the methodology adopted by HF.

Another joint meeting was held on November 17, when the Department agreed to take over the monument in recognition of completed works.

The closure of the project was carried out on 3rd December. On the occasion HF arranged for a display of 'before' images in order that the extent of work of stabilization could be viewed. The event was graced by US Consul General HE Grace Shelton and her colleagues along with Secretary and DG Department of Antiquities, Archaeology and Culture, several Board members of Heritage Foundation and Senator Nasreen Jalail. The visitors were taken around the monument by CE, HF to show the various aspects of conservation.



Joint field visit by US Consulate General, DG, Department of Antiquities and HF members to carry out the final inspection on 17 November.



UNESCO International Workshop delegates viewing "Befofre" pictures at tomb of Sultan Ibrahim on 24 November 2017.