

A Renewed *Abi* for Urkesh:

Archaeological Conservation at a Distance

S. Ermidoro – Y. Mahmoud*

The *abi* at Tell Mozan is a unique architectural structure. Ever since its discovery, it has appeared as a subterranean building, made of massive stones, with a distinctive plan characterized by a circular and deep main room, which one could access only through a narrow and steep stone staircase. The original structure, built at least in the third millennium B.C., continued to be used throughout the second millennium as well, albeit in a less monumental fashion: it was still in existence in fact, as an open ritual shaft, by 1400 B.C. (Buccellati 2010; Buccellati, Kelly-Buccellati 2001: §2.2, §3.2, §4.4, §5.4; Kelly-Buccellati 2002; Buccellati – Kelly-Buccellati 2004).

The *abi* represents a marker of identity for Hurrian culture, that characterizes the whole site of Mozan: today, it is the only known ‘witness’ which provides archaeological information on the rituals performed by the king and the queen who could, through this, contact the Netherworld. The importance of keeping the structure safe and accessible (by visitors as well as scholars doing further research) was clear from the beginning: thus, a great effort has been put by the archaeological expedition in this respect, and the whole structure has been always covered and protected (Buccellati, Kelly-Buccellati 2001: 93–96).

The preservation of the archaeological remains at Urkesh, particularly the area of the Tupkish royal palace with its fragile mudbrick architecture, has always been an integral part

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of the archaeologists' task (Buccellati 2006). The main goal since the beginning of the site conservation plan has been not only to protect the original walls, but also to give a good idea of what the ancient buildings looked like. The system developed throughout the years is quite simple, mostly relying on local material and workforce. The Turkish Palace is protected by metal trellises placed over each wall, and covered with a tailored tarp. As a result the architectural remains are entirely covered, but it is also easy to lift the tarps and see the original walls. Moreover, it is possible to remove the complete metal structure in order to see the entire original building.

Until 2010, maintenance procedures were assessed and implemented on a yearly basis every time the Expedition went to Tell Mozan, during the summer field season. In 2010 a protocol for maintenance during the archaeologists' absence was set up, with specific tasks assigned to three individuals. One of the guards, Muhammad Omo, was responsible for a general oversight and for minimal interventions, such as the removal of unwanted vegetation; Ibrahim Khellu was responsible for keeping a written record of the situation during the year, outlining particular issues and/or emergencies; Diadin Mustapha, the photographer, was asked to document the situation both on a regular basis and in moments of distress. Photographs and reports would be communicated to Prof. Buccellati via the Internet; with the assistance of Stefania Ermidoro in Italy and Yasmine Mahmoud in Damascus, decisions were taken and instructions were sent back to Mozan, describing on how to proceed with any additional or special work that needed to be carried out.

The simplicity of this protocol allowed the mission to deal with the imperative needs of preserving the architecture even when going to the site became impossible, after 2011, and archaeologists were forced to operate from a distance at Tell Mozan. The effectiveness of this

approach proved to be particularly efficient on several occasions: the work done on the *abi*, described in this article, is a case point.

Because of the simple materials and technologies that it uses, the Conservation Project at Tell Mozan stands out for its high sustainability and presents itself as a model that may be easily transferred to other archaeological sites, especially in those endangered areas where complex systems cannot be put in place.

1. Conceiving a New Covering System for the Dome, 2013

At the beginning of September 2013, we became for the first time fully aware of the urgent need to find a more permanent solution for the *abi* covering system. Until that moment, in fact, this was protected with the same protection system as the rest of the Palace: the *abi* had, thus, a curved, dome-shaped, metal structure above it, and this was covered by a layer of tarp. However, because there was no structure beneath it, giving ample play to the wind, the covering constantly suffered damages caused by the wind and heavy rains, which tore off the textile more severely than with the mud brick walls where the same system had been applied: with the solid mudbrick walls below, the Mozan conservation system – consisting of iron trellises on the sides of which canvas covers were hung – was more resistant.

The possible strategies for covering the *abi* were discussed on September 3rd by Prof. Buccellati and Stefania Ermidoro, and three days later local workmen were also consulted on this topic, thanks to the mediation of a Syrian member of the archaeological staff, Hiba Qassar.

Four possible solutions were identified in this first phase:

1- Replace the old with a new tarp, to be used on the same metal frame that had been in use in the past years, but covering it with mud plaster, in order to preserve it from

atmospheric agents and to avoid the damages caused by water and wind. This would have been the least expensive solution, and it would have maintained the dome-shaped structure which, according to our reconstruction, was atop the *abi* when it was in use (thus giving to modern visitors a clear perception of how it looked in the past as seen from the inside). Moreover, the final result would have been very similar to the rest of the covering system of the Palace. This option had the disadvantage, however, of being once again only temporary, in need of constant maintenance since the natural elements used to cover the curtain could deteriorate very rapidly; in addition, mud plaster would not easily have adhered to such a curved surface.

2- Take the semi-circular metal structure off and cover the *abi* with flat metal plates that had been used in the past for various ad hoc equipment on the excavations, and that possibly were still on the site ready for the workmen to use. The metal sheets would have to be covered in plaster, in order to avoid rusting and water seepage during the rainy season, or on the contrary, over-heating inside the *abi* during the hot months. In this case, the perception of the original shape of the structure as seen from the inside would have been lost, but the materials used would have been more long-lasting and they were already *in situ*, thus providing a quick and almost inexpensive solution to the problem.

3- If the metal plates for the option discussed above were not available any more, wooden beams could have been used in a similar manner, covering the circular perimeter of the *abi*. This would have been a more natural solution and would have avoided over-heating inside the structure; wood is however more vulnerable to water and humidity, and it might have needed frequent replacement. Moreover, given the difficult political and social situation in the country during the Fall 2013, wood was also quite expensive and hard to find.

4- The last possible option that we considered was to cover the *abi* dome entirely with new metal sheets, as light as possible, so that the complete structure could still be moved

without too much difficulty. This structure would then be plastered, or painted in the same color as the Palace bricks, in order to protect it against rust, to avoid over-heating, and so that it would as unobtrusive as possible in the general landscape. This would have been the most expensive solution because of the materials used and the need of hiring a professional smith to perform the task; however, it had the advantage of being the most long-lasting one, and of preserving at the same time the original shape of the covering of the *abi*.

2. Preparatory and Implementation Phases

The last solution, the creation of a new metal dome, appeared from the beginning the most preferable one, because it would have ensured the best protection of the *abi* and at the same time it would have been easier and cheaper to maintain in future years, even without the presence of the expedition staff at the site. Just as importantly, we wanted to communicate to the local communities our resolve to commit resources to the project, and our determination to remain involved in the future of the site for the long term: this was an important factor in helping us make the decision to go for the more expensive solution. A few issues needed however to be discussed with Sabah Kassem, the smith who had worked with Prof. Buccellati in Mozan in the past, contributing to the developing of excavations tools and to the improvement of the structures used within the context of the Conservation Project (Buccellati, Kelly-Buccellati 2001: 93; Buccellati 2006: 77, fig. 3).

We needed to be sure that the metal sheets were light enough to ensure the removal of the complete dome when necessary – possibly with the use of handles, to be placed at the bottom of the structure. Some light needed to reach the inside of the *abi*, therefore we considered the installation of glass or plexiglass panels at the base, that could if necessary also be removed to allow for ventilation in summer.

Almost a month passed between this first planning phase and the beginning of the work: this delay was due to various reasons. First, the Eid and the festivities connected with the end of the Ramadan kept our workmen at home, celebrating with their families. In addition, telephone lines in Syria were often not working, and this made it hard to contact Sabah Khasseem in order to plan the job and to give him instructions for the beginning of the work.

Finally, in the last week of October everything was ready, and the project had been discussed both in its practical and economical terms (concerning the costs of the materials and for the labor); moreover, the former photographer of the archaeological mission Diadin Albek had been contacted, in order to ensure a full photographic coverage of all the phases of the work. We wanted in fact to have a good perception, even at a distance, of the *abi* as it was before the beginning of the work; of the work while executed by Sabah Khasseem; and obviously also of the final structure, both *in situ* and in detail. Moreover, we asked the smith to compile a journal on a daily basis of his work in Mozan, thus providing at the end a complete report. Additionally, Prof. Buccellati sent him some photos indicating the project as it had been discussed in the previous weeks (Fig.1), to make sure that the final result agreed with the approved design.

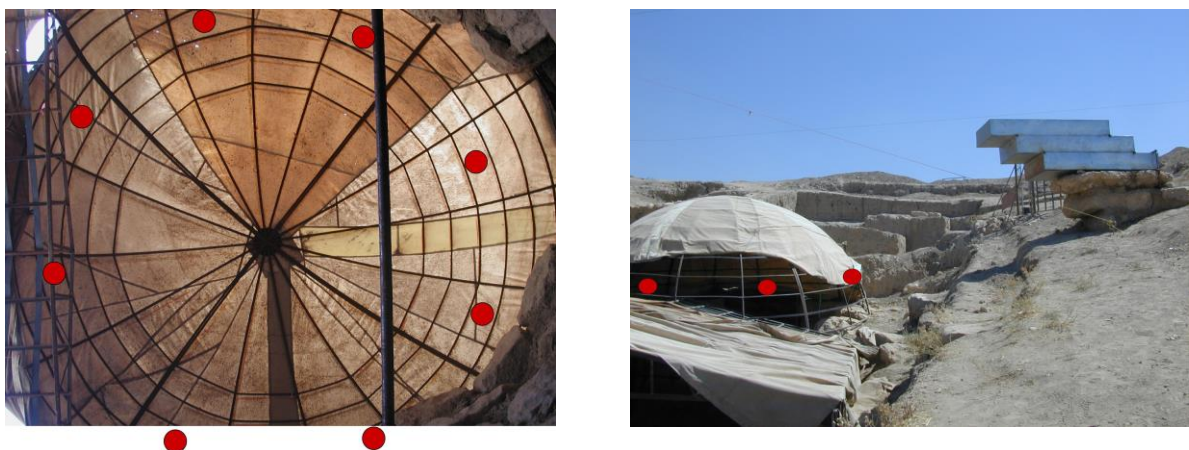


Fig. 1: Photos with the indication of the openings to be created in the new metal dome for aeration and light inside the *abi*

Unfortunately some problems in communication, in particular over the telephone lines, which were often broken thus impeding fast communication to Syria, delayed again the beginning of the job, which then started only December 3rd (the first photograph taken this day can be found here below, Fig. 2).



Fig. 2: First day of work on the *abi* dome

wanted, mostly because of the difficulties in driving from Mozan to Qamishli during the winter. We received, however, a few shots of Sabah working and of the metal dome “under construction”.

Hiba Qassar was able to speak with Sabah on the phone while he was working on the structure and we could thus get a hint of the progress of his work. He initially suggested that, having bought a type of metal which was already in a light color, he could

Once started, the job went very fast: workmen were able to get the material in only one day, and they created the metal sheets to be applied on the existing dome-shaped structure in less than one week. Unfortunately, we did not get a complete day-to-day photographic report as we would have



Fig. 3: applying pitch at the base of the Dome

avoid painting it the exterior surface: he decided instead to paint only the base with pitch - on those parts of the structure that would have been covered again with soil, as shown in the photo on the right (Fig. 3).

Having discussed with Mohammed Omo the project, the smith initially decided to use only metal for the dome, adding openings for the ventilation inside the *abi* but not including the transparent panels that were originally envisaged in the project. However, thanks to the constant communication that we had started with him via the internet and the telephone, it was possible to stress the importance of having some light inside the *abi*, and he changed the structure accordingly (Fig. 4).



Fig. 4: Sabah Khasseem at work (left) and detail of the openings at the base of the new *abi* dome

On December 9th, 2013 workmen had to interrupt their work because of the weather: the dome structure was ready and painted, but a few final details, such as the application of metal nets to the openings, were still needed. Cold and snow however were such that Sabah preferred to cover the entire structure with plastic sheets and wait a couple of weeks before coming back to Mozan, to complete his task. In the meantime, they sent us a complete report with several detailed photos of the work they had done until that moment: this allowed us to

evaluate the first results and to compile an initial record on the effectiveness of our intervention.

The interruption was however longer than originally planned, and we were able to go back to the work on the *abi* only one year later; being completely covered in plastic, throughout this period the structure remained protected even if the project was still not in its final form.

3. Assessing and Improving the System: 2014

The dome was not the only part of the structure that required a new protective system. At the beginning of 2014, when the rest of the structure had just been renovated and was thus well conserved, we were warned that a particularly heavy snow had put the entrance of the *abi* at a risk. Since the dome was reacting well to the atmospheric agents and water did not get in, we started to consider the possibility of modifying the roofing system of the frontal part of the structure, as well.

In May 2014, we asked for a complete assessment of the situation from our workmen in Mozan: after the winter and the spring, it was time to check if the solution we had found was working well, and if we could apply it to other parts of the structure. We received a new complete set of photographs, together with a video in which the local guard of the site, Mohammed Omo, gave us a brief report of the work they had done, his impression on the current situation of the dome, and his personal advice (as a person who could check the situation *in situ*) on what was left to be done.

The ventilation openings for which we had asked in the new structure were working well, preventing overheating and allowing some light inside the *abi*. Three small openings have been left at the bottom of the dome, at its southern and south-western sides: these are

rectangular in shape, and covered by a metal net to prevent animals and any other external elements from entering the structure.

Each one of these openings has a thin metal sheet on its top, which is tilted upwards and slightly longer than the holes themselves: this has been done for a specific reason. As can be seen in the photo, these unobtrusive installations create a kind of small drains, so that rain is channelled and seeps out, preventing the water from leaking into the *abi* (Fig. 5).



Fig. 5: Showing the openings and the drains above the openings

When they had been put in place, the metal sheets of the dome were slightly overlapped each other, and held together with screws. Although this resulted in a very secure structure, there were still some spaces between the junctures; thus, the workmen decided to fill those gaps with silicon, which ensured maximum protection against rain and dirt.

Once the dome was in a very good shape, we paid closer attention to the roofing of the *abi* entrance. We decided to move forward in two directions and, while we began to plan the renewal of this last part of the structure, we also decided to run a test on the finished covering system

Our goals were:

1. To prevent the formation of rust on the metal sheets, minimizing the effect of weather conditions
2. To provide the dome with a more natural look, that could blend with the surrounding structures of the palace as well as with the whole site.

After having discussed it with Prof. Buccellati, Federico Buccellati, Samer Abdel-Ghafour, and Stefania Ermidoro, in June 2014 the team resolved to try two different methods that the workmen put in place right away. The first one was covering the dome with adhesive and then applying a light layer of fine dirt directly above it; the second was to cover the structure with adhesive and then place burlap on it.

The dome was therefore completely covered, but using the two methods – each for one half of the structure: half was covered with dirt (Fig. 6b), the other half with burlap (fig. 6a). Initially, both methods seemed to give the dome a very natural look and to be unobtrusive with regard to the surroundings (Fig. 7). However, we had to observe how the two systems reacted in a longer period: thus, we asked our workmen at the site to look carefully at the dome in the following months in order to check how the covering system reacted to the atmospheric agents and in general to the passing of time.



Fig. 6: Covering half the dome with dirt (6a, on the left) and the experiment with burlap (6b, on the right)

After a period of observation, we determined to use the burlap for the entire dome – substituting the half covered with dust whenever the meteorological conditions would have allowed it.



Fig. 7: The *abi* in June 2014

4. Roofing the Entrance: 2014

It was finally time to face the problem concerning the entrance of the *abi*: its roof was protected by a metal grid similar to the frame used for the whole palace, covered by a layer of burlap and a thicker one made of mud. Moreover, its sides were sheltered by hanging curtains.

During the fall 2013 and winter 2014, this particular system suffered a great deal and was badly damaged due to weather conditions (especially snow), plus it was dented in several places and needed maintenance to ensure an overall full protection. The workers had taken some emergency measures to stop the water from seeping in, by placing pieces of nylon in the brakeage locations. However, a serious structural intervention was needed.

The most immediate and natural suggestion was to place the same metal-sheets-covering system used for the dome also on top of the pre-existent metal frame, removing the tarp and mud. This would have ensured maximum protection and was at the same time a long-lasting solution. In June 2014 we asked for a detailed estimate of the cost, which included all the materials as well as the salaries of two new smiths. Sabah, who had worked on this project the

previous year, was now living in Turkey and could not come back to complete the structure: therefore, we thought we could involve Abu Ahmad and Samih, who cooperated with the archaeological mission in previous years, while it was still possible to work at the site. They both agreed, but then we had several problems in communication, which delayed the beginning of work for several months. Thanks to the mediation of Yasmine Mahmoud, a Syrian student and member of the archaeological staff of Tell Mozan since 2008, in November of that same year work could begin. By then, however, the two smiths we had contacted were no longer available.

The solution came from the workers themselves: Diadin Albek proposed to ask Sabah's assistant, who had already worked on the dome one year before and knew, thus, the kind of work that was to be done. Moreover, thanks to the intercession of Diadin with the employer of Samih (who was working in a mill not far from the tell), he got the permission to be part of the group working on the *abi* entrance, as well: thus, we could have two smiths performing the task, as we had originally planned.

The smiths in Mozan began the project on the December 4th, 2014. They began by removing the plastic cover, the dirt and the fabric. After that, they exposed the metal frame: since its original set up, this was placed atop some dirt bags located on the edge of the entrance top – in doing so, we made sure that the metal did not touch any part of the original stone structure.

At first, the workers removed the whole metal structure, in order to evaluate its condition and fix its damaged junctures. The parts which were dented were straightened using a hammer, and a supporting bar was placed at the central top point of the top and extended to the two bases, welded to provide extra stability and support (Fig. 8).



Fig 8: Different stages of work on the entrance

This metal frame was then placed back over the entrance of the *abi*, partly beneath the dome, and completely covered with metal sheets that were screwed into the metal frame. A small opening was made in the metal sheet, in order to interlace it with the metal frame of the dome and to ensure that it was as close as possible to it, in an attempt to leave the minimum possible space between the dome and the entrance frame (Fig. 9). Whatever opening was left, it was later covered with metal sheets and dirt as well to ensure waterproofing.



Fig. 9: Junction between metal sheets of the entrance covering and those of the *abi* dome

Similarly to what had been done on the dome, the metal sheets used for the entrance cover were placed in an overlapping method, and screwed into the metal frame. Since they were longer than the underling structure, the extra pieces on both edges were not removed, but instead they were bent to form a drain, lower than the metal frame, so that rain water would be channelled away from the stone forming the architectural structure.

Finally, the curtains used on the sides of the entrance and on its façade and doorway were replaced with new ones (Fig. 10).



Fig. 10: The *abi* in December 2014

5. Finalising the System in 2017

In 2017 we proceeded to a general reassessment of the situation, 3 years after the *abi* covering system had been entirely renewed. We wanted to make sure that the structure was still in good condition and, above all, that it was efficient.

We realized that neither of the two previously experimented system with the *abi* dome was efficient: the two halves, covered with glue and dirt or with glue and fabric, did not resist sufficiently the local weather conditions. The burlap was ripped by wind and deteriorated because of the rain and snow, and for the same reason also the dirt layer was not uniform, but patchy. The overall impression was that of a neglected situation which we obviously wanted to avoid. Therefore, we decided firstly to clean the entire dome surface from any leftover dirt or glue, and then to paint it with a color close in shade to the surrounding. This paint coat will also prevent rust form forming.



Fig. 11: Painting the dome in 2017

Our workmen from Mozan, thus, went to a local paint shop and discussed the best shade of color for our purpose: after having found the best blend of two different types of paint, they used it to cover the entire surface of the *abi* dome.

At first, the paint looks shiny but after it dries out it becomes opaque and slightly darker. The result, as shown in the photos on the left taken while the painting was still in progress (Fig. 11), is the closest possible color to the surrounding environment: it is thus unobtrusive and coherent with the rest of the protection system of the entire Palace Area.

So far, this solution has proved to be efficient and has satisfactorily endured the summer and fall months, and after monitoring the dome of the *Abi* for several winter season ever since 2017, we can safely say that the painting method has been very efficient. No repainting has been needed up to this point, which proves that the approach we adopted is indeed the simplest and most cost-effective in protecting the dome of the *Abi*, according to our local staff and the periodic monitoring photos that we receive.

The minimum work that the new dome has required so far has been the refilling of the gaps between the metal sheets with silicon.

Conclusion: 2020, a ten-year assessment

Overall, on the basis of the encouraging and positive results obtained we will keep on relying on the simple yet efficient technique used for our conservation program at Tell Mozan/Urkish.



Fig. 12: The abi in June 2020

This consists of: direct and frequent contacts with the workmen on the site, who send us immediate reports in case of emergency situations but also regular assessments of the entire covering protection system; a bottom-up approach, in which we rely on the expertise and knowledge of local people,

who discuss with us the solutions to be taken and give us their advice on the basis of what they witness *in situ*; the use of local materials and skills, which enable us to ensure a continuous presence on the site even at a distance.

The *abi* represents a great success for the Tell Mozan/Urkish archaeological team: throughout the last years, when archaeologists were not able to go back on the site for excavations, it has been proved that protection and maintenance are still possible.

We were rewarded by images of Syrian tourists and school classes, who regularly go on the site for didactic activities and can therefore enjoy the beauty of the archaeological landscape and walk inside the Turkish Palace admiring its architecture (Fig. 12). Quite surprisingly, the number of visitors even increased in 2018, a year in which we witnessed not only a large number of children on the site, but even the first foreign tourists visiting Syria after years of absence. Visits continued up until 2020, consisting of both isolated families and organized groups.¹ This confirms how our continual commitment for the protection of the cultural heritage at Tell Mozan not only will benefit this area in the future, but has already started to have a positive impact on the everyday existence of those who live around the archaeological site today.

¹ For a list of visitors on the site since the beginning 2018, and for further information with regard to the current activities carried out at Tell Mozan, see <http://www.avasa.it/en/>

Visitors arriving on the tell are invariably welcomed and guided across the site by one of the members of our local team. Ever since the beginning of the excavations, the mission has developed a specific program of site presentation, consisting in simple panels and explanatory notes distributed in several points of the site so as to describe the archaeological evidence that has been so well preserved. Conservation and presentation are indeed inexorably linked, as the act of preservation is done in order to present it to a wide range of audiences.



Fig. 13: December 2017, students from Erbil visiting Tell Mozan, with the renovated *abi* dome in the background.



Fig. 14: July 2018, group of young students visiting Tell Mozan



Fig. 15: May 2018, group of Syrian teachers from Qamishli in front of the *Abi* entrance



Fig. 16: April 2018, students from the Kurdish Roj Ava Orchetra inside the *Abi*



Fig. 17: March 2019, Inhabitants of nearby villages visiting Mozan. Note the entrance to the abi in the background and the panel used for the Site Presentation project in the foreground.



Fig 18: May 2019, Students of a local university organized a seminar on Urkesh at Tell Mozan

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