

**Talatat Project, Karnak Temple**  
**Activity Report**  
**(October - December)**

12/10/2008

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In September, Jocelyn Gohary and Rawya Mohamed Ismail assessed the condition of a stack of fragments on each mastaba prior to my arrival on site on October 11, 2008. In addition, all fragments were digitally photographed by Matjaž Kačičnik. Photographs were taken stack by stack as space allowed.

**Workspace:**

The workspace was set up in mid October. It consists of a cement floor along the north western exterior wall of the University of Pennsylvania's talatat storage. This space is covered with canvas shade supported by metal posts. There are tables (150 cm x 70 cm) with their tops covered with cotton and polyethylene sheets. A designated area for conservation was created right outside the entrance door to the storage where each fragment is first brought out. An area for photography was set up at the far end (north) while an Egyptological study area is located between the conservation and the photography areas.

Although fans are occasionally used to blow chemical-contaminated air away, it was found difficult to treat fragile objects with fans on. A portable shade (consisting of wooden posts and a canvas sheet) that can be moved by two people was requested in October and this remains the best solution for a temporary work area since it can be adjusted to accommodate wind direction, sun location, etc. In stead of the portable shade, the conservation work area (consisting of cement floor and canvas shade) was extended to the south of the entrance door. This became useful, yet, does not serve for our purpose of creating a "satellite" work area for health/safety.

**Storage**

Changes were made to the original plan of creating new storage in the ninth pylon. As of first week of December, discussion with SCA about new storage location is in progress.

A compromise was reached, and the current storage is used for holding processed fragments. 3 mastabas with solid cement platforms and lime mortar tops (width: 60 cm x height: 15-20 cm) were built in aisles (between mastabas.)<sup>1</sup>

After witnessing water flooding over fragments stored on the floor, it was decided that mastabas would be built only after clearance of all fragments on the floor in an aisle. At this point, it is uncertain how long the fragments will be held in this storage.

Metal screen was stapled around the barred windows to keep birds and insects out. Quite a few fragments exhibit insect nests adhered to their surfaces and these have proved difficult to remove.

Muddy streaks caused by water leaking from the roof were observed on fragments. They have been stored under the breaks/gaps in the roof. Repair of the roof was recommended in October to avoid this damage. Since the storage is intended to be "temporary" and handling of roof panels bearing potential asbestos should be avoided, it was suggested to cover fragments with polyethylene sheet rather than repairing the roof.

2 wooden shelves (total of 16 shelves; width: 185 cm x depth: 25 cm) were made to hold fragments that are too small to pile on general fragment stacks. One metal shelf was brought for storing tools.

Approximately 10% of processed fragments are designated "no stacking." This means that the fragments could stay on the top of a stack but no fragment should be placed above. In future, it is ideal to keep them on shelves for protection. A simple, low-cost method, shelves made of bricks and wooden boards like those used in Luxor Temple was suggested. Similar shelves can be built along the interior walls of the new storage.

Some fragments are too vulnerable to direct handling. It was recommended to keep them on wooden support covered with polyethylene sheet (i. e., trays). They should be kept on the trays all times. If they are stored on shelves in future, they should be kept on trays that allow us to slide them out from shelves.

A datalogger to record temperature and relative humidity (HOBO Pro) in the current storage was installed. Between 10/15/08 and 12/2/08, maximum temperature was 32.9°C and minimum was 10.9°C while maximum relative humidity was 62% and minimum was 26%. When new storage is built, the datalogger can be transferred.

### **Safety Issues**

In mid October, the possibility that corrugated roof panels might contain asbestos was pointed out by Ed Johnson. This was confirmed at the meeting with Shari Saunders and Fraser Parsons. Although we were told there was no contamination, I requested that air-testing be conducted in the storage. There are a number of broken spots in the roof panels as well as broken pieces of roof panels on the floor in the storage. There is tremendous amount of dust created during the work. Additionally, because of the lack of information about this potential hazardous material during my preparation for work on site, no appropriate protective equipment against asbestos was considered. Assuring health and safety of all staff in the workspace is always a high priority. Proper action should be taken to ensure safety on site depending on the results of air testing on site.

Shari provided us a letter (dated 10/20/08) promising an investigation into potential health risks (such as an air test) and stating her plans to share the results. A copy of the test result on a dust/dirt sample (rather than air sample) by Alex Petro Technical Service

was provided (dated 11/8/2008.) They did not detect any asbestos fibers. Currently, we are waiting for further information requested by myself, such as details on sampling procedure (sampling date, location, amount, etc.), preparation process of samples, detailed result, etc. I have also requested inspection of the structural stability of the roof supports. Currently, a few brick pillars supporting the roof panels (near an unstable stack of fragments between Stack 10 and 13) are stabilized with wooden planks and metal clamps. If the support fails, this part of the roof could collapse.

Other safety precautions were taken such as providing wooden braces (buttress) for unstable stacks of fragments (10 for Stack 4 and 3 for Stack 3.)

First-aid kits, dust masks and hard hats were requested for workmen who handle fragments leaning against the unstable stacks. First-aid kits and hard hats have not yet been provided while dust masks were provided.

#### **Database:**

In October, database was created by Zakaria Yacoab. Each sheet consists of Egyptological survey designed by Jocelyn and Rawya and conservation survey designed by myself. The conservation survey mainly consists of a checklist with dropdown menus to keep consistent terminology. The conservation survey is divided into four sections; general information, condition, treatment and recommendations. The definition of the terminology was also created and shared with Lindsay Vosburg who has been assisting with conservation work. A survey sheet is filled out for each fragment. If a fragment has more than one inscribed face, a sheet is filled for each inscribed face. The form currently in English is verbally explained to SCA conservators. On site, a survey sheet is filled out by hand. Data entry is carried out in the office by Lindsay.

#### **Conservation work:**

Upon discussion, we decided to start with fragments stored or fallen on the floor. This will allow us a safe access to stacks on mastabas as well as space to build temporary mastabas for holding processed fragments.

#### *Conservation staff*

I spent my first two full-time weeks on site to work with Lindsay Vosburg. She learned conservation terminology used in the survey form with various examples. She also learned preparation of conservation materials (resins, solvents, etc.), simple surface cleaning, pigment or stone surface consolidation that most fragments require. Additionally and most importantly, she learned how to assess condition and determine treatment procedure, and thus, she can assign a conservator for treating certain fragments. During my absence on site, she conveys all condition surveys and keeps aside fragments that need to be examined and/or treated by me. With this knowledge, she can also help me to train/supervise SCA conservators. It is often necessary to remind SCA conservators that our task is minimal cleaning and stabilization for Egyptological study/

photography and to process massive amount of fragments since many of them are used to conducting full treatment.

I requested that an SCA conservator named, Saady Zaki Abdalla be assigned to the project. I worked with him in June at Mut Temple and found that he has good conservation knowledge and manual skill at conservation techniques. He is capable of carrying out involved treatment as well as training SCA conservators. He worked with us about 10 days and is currently waiting for formal permission from SCA to work with us. SCA has been providing us one conservator each month (rather than two months.)

We are also in the process of selecting a conservator trained in a western conservation program. This person will work full time on site. Tasks include condition survey, treatment, training Egyptian conservators, etc.

#### *Conservation staff*

Lindsay Vosburg	10/6/08 – present	(full time)
Saady Zaki Abdalla	10/30/08 - 11/30/08	(10 days)
Mohamed Abdallah	10/27/08 - 11/30/08	(1 month)
Saffa Abd El Azeem Amien	12/1/08 – present	(1 month)
Hiroko Kariya	10/11/2008 – present	(approximately 2 days a week except for first two weeks)

#### *Transportation/handling*

A fragment is brought out by workmen by hand or on a wooden cradle under supervision of professional staff. A wheelbarrow and a custom-made cart consisting of wooden platform, metal frame and rubber wheels are also used to carry large fragments.

Extra caution is taken while handling fragile fragments. A conservator is usually consulted for recommendation. Some fragile fragments are supported by a wooden board (30 cm x 80 cm) with two wooden strips attached to the bottom that provide an access for hands to lift. Various sizes of wooden shims were cut to secure fragments.

Fragments that are too fragile to be handled are photographed and stabilized in-situ prior to transportation.

#### *Registration number*

When fragments are brought out on tables, a thick dust layer is cleared with brushes of various hardness.

A registration number is provided according to a location (mastaba or aisle number) plus our serial number. This number can be cross-referenced with the original ATP number. If a fragment has more than one inscribed face, registration number plus an alphabet letter (a, b, c..) are given to each inscribed face.

The number is temporarily written in white chalk<sup>2</sup> in the correct orientation for the inscription if possible.<sup>3</sup> After Egyptological survey, this number is replaced by permanent black oil paint. This number is applied on a rectangular patch of Paraloid B-72 (10% in 1:1 solution of acetone/ethanol.) The number is over-coated with the same solution after drying.<sup>4</sup>

### *Condition survey*

Conservation survey of each fragment is carried out by Lindsay or myself. Treatment procedure is discussed if necessary.

### *Treatment*

Treatment is carried out by SCA conservators, Lindsay or myself.

In order to keep up the pace of work, treatment is kept minimal. All fragments require dusting. Most of them require further mechanical cleaning with various brushes, wooden sticks and/or a scalpel. Many fragments also require pigment consolidation as well as friable stone surface consolidation.

Fragments that require more involved treatment are kept aside. These fragments are treated as time allows.

Fragments that exhibit active disintegration below the surface may require consolidation with an ethyl silicate-based consolidant such as Wacker OH-100.<sup>5</sup> This consolidant requires proper facilities to create a specific environment (microclimate) to promote chemical reaction. It should also be used with proper regard to safety. Its application is an expensive and time-consuming procedure. Thus, it makes sense to determine priority of fragments for such treatment; for example, high priority is given to fragments with deterioration on their inscribed face and/or fragments with high Egyptological importance while low priority is given to fragment with deterioration on an uninscribed face.

### *Storage instructions*

Depending on the condition of fragments, some fragments are recommended for “no stacking,” “keep on wooden tray,” “further treatment,” etc.

### *Post conservation tasks*

After treatment is finished, fragments are brought for the Egyptological survey, photography and application of registration numbers.

### *storing*

At the end of each day, fragments are brought back to locked storage. Some fragments are placed on the ground. Bricks are used to isolate them from dirt on the floor. Fragments are also stored on new mastabas in aisles. They are covered with polyethylene sheets to protect from dust and possible rainfall.

### *Data-entry*

Hand-written survey data are transferred to database.

### **Summary of activity**

Between 10/13/08 and 12/3/08, approximately 1010 inscribed faces of 835 fragments were processed.<sup>6</sup> We have been processing 20 – 40 inscribed faces per day depending on accessibility in storage, condition of stone, etc. As of 12/9/08, conservation data of 843 inscribed faces of 687 fragments has been entered.

610 out of the 687 fragments were surveyed as stable (89%) while 77 (11%) were unstable. About 35 fragments (5%) require further treatment of which about 25 fragments (3.5%) require major to moderate structural treatment, mostly stone consolidation while about 10 fragments (1.5%) require additional surface cleaning.<sup>7</sup> Approximately 70 fragments (10%) were recommended “non-stacking.” They can be placed on top of stacks.

As of 12/2/08, out of approximately 830 fragments, 33 fragments (4%) have been kept aside for further treatment. Of 33 fragments, 20 fragments (2.4%) may require ethyl silicate (i.e., Wacker OH100) treatment. 12 fragments (1.4%) require crack stabilization, 6 fragments (0.7%) require consolidation with acrylic resin, 2 (0.2%) require gap filling.<sup>8</sup> 16 fragments (2%) are recommended to be stored on wooden boards for safety. Please keep in mind that these numbers changes daily as the work progresses. Wooden boards are often used for temporarily holding fragile fragments until stabilized.

### **Conservation materials**

The following materials and equipment are required:

first-aid kit  
hard hats  
respirators (for organic solvent and small particles)  
digital camera (simple point-shoot) – this will be shared with Egyptologists  
portable shade

### **Summary**

Given current number of fragments and current pace of work, we will not complete the survey of the entire collection by July 2009.

This knowledge means that the goals of conservation on site must be redefined given the current timeline. Depending on what must be achieved by the end of the project (July 2009), a major shift in the current procedure may be required.

If completion of the survey of the entire collection is a top priority, fragments should be surveyed in storage without moving them out. There are disadvantages to restricting the project to surveying fragments in storage: no full access would be possible for conservation of the most fragile fragments; if it exists, no access to a second inscribed face, and finally, blocks remain endangered in unstable stacks.

As a result of these concerns, it is ideal to keep the current method. Although it keeps minimal conservation treatment, the survey will provide various information and statistics for designing future needs.

The method could be modified if preferred. We continue the current method for the fragments stored or fallen on the floor. These fragments should be treated and stored in a

stable manner. Once they are cleared, we can determine the method and the goal for fragments stored on mastabas depending on available time. They may be surveyed on mastabas (inscribed and/or visible faces only.) I When a new storage is built and they are ready to be moved, through survey may be carried out.

<sup>1</sup> I recommended a brick framework for the mastaba to facilitate dismantling since they are temporary. Lime mortar finish for mastaba top as an isolation layer was also recommended.

<sup>2</sup> Chalk used for temporary registration numbers does not contain waxy medium, thus, it is easily brushed off.

<sup>3</sup> In some cases, a fragment cannot be placed in the right orientation due to its fragile condition or simply due to the shape of the bottom.

<sup>4</sup> This method is proven to be most archival and durable based on various tests carried out in Luxor temple.

<sup>5</sup> Originally, I suggested these fragile fragments be kept and treated in the Khosu conservation lab. This was rejected due to security reasons. Treatment using Wacker OH100 should not be carried out in the current workspace where a number of people are working. In addition, treated fragments should not be kept in storage while curing for health and safety reasons.

<sup>6</sup> Approximately 160 out of 850 fragments have more than one inscribed face. Each inscribed face is entered as one entry in database.

<sup>7</sup> This number is constantly changing as fragments are treated.

<sup>8</sup> A fragment may require more than one type of treatment.