First aid strategies of rare Ancient Egyptian Textiles in Excavation

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Introduction

The excavation of Tuna el-Gebel was a scientific joint venture between the Institute of Egyptology of the University of Munich, Germany and the University of Cairo, Egypt. The ibis burial place at Tuna el-Gebel, located at west of the ancient city of Thermopolis Magna, has been the first, and for a long period, the only ibis and baboon animal cemetery during the reign of Pharaoh Pasmetkhos (664-619 BC). Among the findings of the excavations several pieces of rare textiles were unearthed. These textiles were found in poor conservation state and risked further deterioration if left untreated.
A close examination of the textile was followed by various Nan- distractive analyses in order to develop a plan of conservation treatment. This research shows the practical strategies which have to be followed in maintaining and conserving textiles. The effects of cleaning materials on the natural dyes were tested. Dry cleaning was used to remove resistance stain and dirt. The process of maintenance and restoration has been recorded step by step beginning from the historical record of the textile to the cleaning process with its different kinds. Add to this, the processes of fixing pieces on new holder as a preparation for displaying or storage in museum [1- 4].

The excavation of Tuna el-Gebel

The number of ibises deposited in the extensive subterranean galleries network clearly exceeds one million individuals in total. In addition at least 115 other vertebrate taxa could be found in the galleries. The archaeological zone of Tuna el-Gebel (Fig. 1) is situated in a flat desert landscape at west of the cultivated Nile valley, 5 km to the south of the modern village, opposite to a wide desert valley

Fig. 1. General map of Egypt: A - Tuna el-Gebel in Middle Egypt (red triangle); B – Detailed map of Tuna el-Gebel (black color) and C) The plan of the galleries: subterranean animal necropolis at Tuna el-Gebel, Middle Egypt (entire scale = 50m)

Description and Condition

The textiles that found in excavation has dark stains of unknown source that were difficult to remove. There are also other unclear parts. The textiles has weak or missing parts in the irregular edges. Considering its poor conservation state, the textile object required conservation intervention, especially cleaning for the removal of foreign material to avoid further damage.

Fig. 2. Textiles found of Tuna El-Gebel excavation

Investigations and Analysis

- **Visual Study.**
- **Dyes Stability Test**
- **SEM.** The results showed that both warp and weft yarns were composed of linen fibers. In particular, it can be seen that the fibers are roughened, damaged, broken with transverse cracking and longitudinal splitting characterized by scratches, slits and holes in the fibers. These damages are the effects of degradation induced by biological deterioration, light, relative humidity and soiling and stain.

Fig.3. Show SEM images of linen fabrics

Mechanical cleaning

The object was covered with dirt, namely dust, lose sand particles and calcified and compact sand deposits, that was removed with the use of different types of smooth and rough brushes. To help the removal of the calcified sand, an air blower together was also used with the brushes.

Wet Cleaning Process

- **Temporary Support Reinforcement**
- **Wet cleaning:** This cleaning procedure used water with detergent agents (Synperonic N). The water was agitated by the hand to allow it to penetrate between the fibers to release the dirt particles, for 15 minutes. The bath temperature was 30ºC. Then a second and third cleaning bath with distilled water only was applied for 10 minutes. It also reduced the soiling, relaxed the fibers, removed the creasing and brightened the colors. The drying process was applied . See Fig 4 and 5.

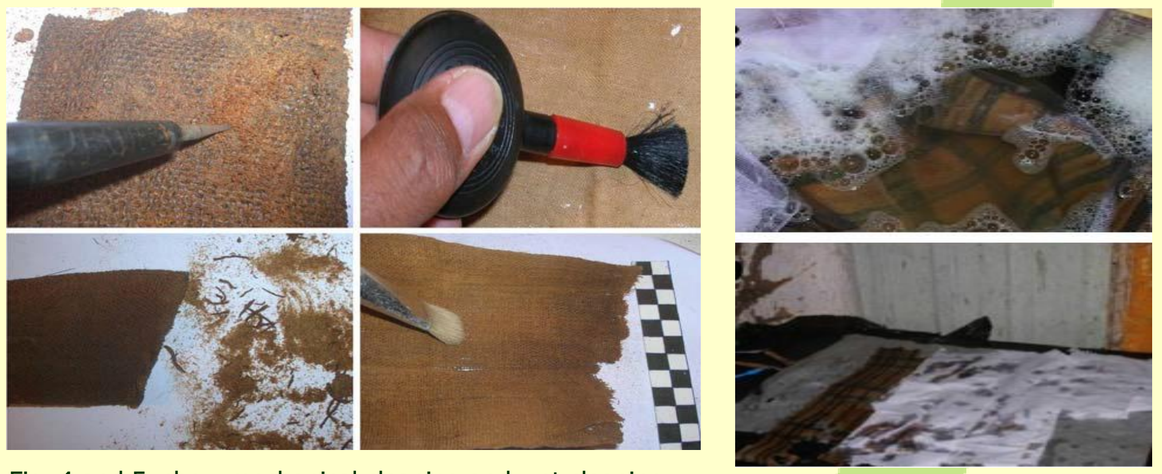

Fig. 4 and 5. show mechanical cleaning and wet cleaning

Dry Cleaning

Fig. 6. Dry cleaning process

Alcohol was used as localized way for the soiling parts by using smooth brushes to help remove spots after 15 minutes. Two baths of Toluene (the available solvent in excavation) were used for 15 min with smooth brushes to remove soiling, the result is very effective. A bath without soap for five minutes to remove any undesired remnants and for equalizing the effect of Toluene on fibers was done

Final support

To prepare the textile for storage and display, it is necessary to provide the fabric with a new support to increase its strength. A new undyed linen support was prepared and washed, then attached to the wooden frame with tacks. The object was fixed in the linen support with stitches. These stitches ensured that the mounted textile was not strained, although they were tight enough to prevent movements or abrasion on the mounting. The mounting is the last stage of the interventions, after which the object becomes ready for storing or display

References

[1] Agens.T.Balazsy , and D.Eastop, Chmeical principles of textile conservation, UK- (1998).
[2] Landi S., The Textile conservator's manual, 2nd edition, London,1992
[3] Harby E. Ahmed "Strategy for preservation of Ptolemaic wrapped Mummy's linen in tuna el-Gebel excavation, Egypt, A case study" International journal of Conservation science, Volume 2, Issue 3 (2011) PP. 155-164
[4] Harby E. Ahmed "First aid of rare Ptolemaic textile in Tuna el-Gabel Excavation, Egypt" e- Conservation magazine, No, 23 (2012), pp 78 – 89.