

SPECIALIST REPORTS

Dr. Nicholas Warner

“Conservation and Documentation of the Wall Paintings at the Red Monastery, Sohag”

The Egyptian Antiquities Conservation Project (EAC)
USAID Agreement No. 263-A-00-04-00018-00

Awarded to

THE AMERICAN RESEARCH CENTER IN EGYPT (ARCE)

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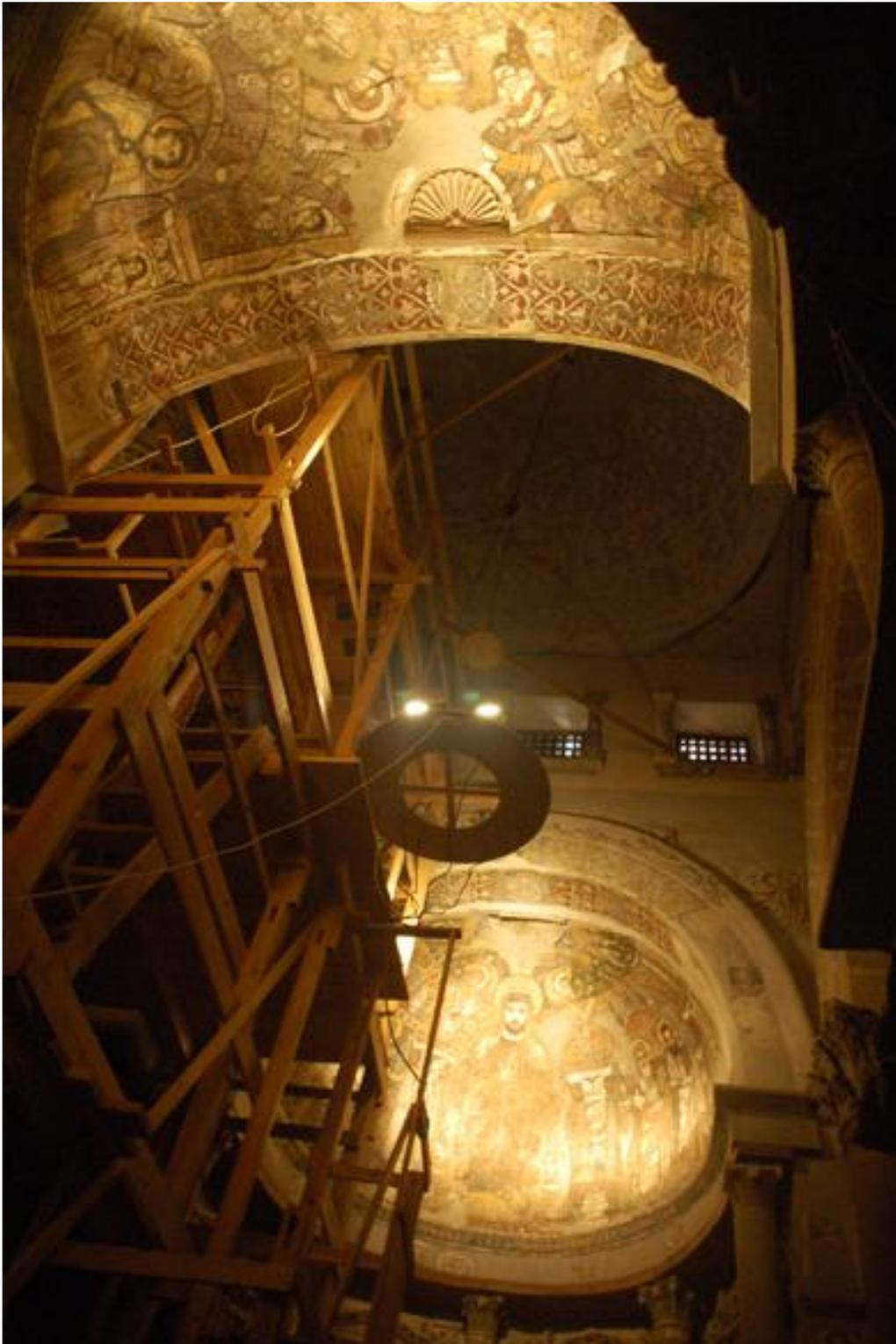
October 2011 – February 2013

In collaboration with the United States Agency for International Development and the
Egyptian Ministry of State for Antiquities



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Red Monastery: Report on Consulting Agreement under USAID Cooperative Agreement No. 263-A-00-04-00018-00

Lighting Test

October 13, 2011

Report on Lighting Test carried out on 13 October 2011

Present: Micheal Jones, Father Maximous, Nicholas Warner, Mohamed Khamis and Ramez (Phillips), Laural Hackley.

The lighting test at the Red Monastery was successful, and a number of significant decisions were made during the course of the test which was made using the trial lighting rig and Phillips LED fixtures. Inspectors Essam and Nour from the SCA presented themselves but did not remain for the test.

1) Sanctuary lighting

Upper level: Working within the limitations imposed by the present scaffolding, a test was run using 4 fixtures with different optics for the semidomes of the north and south conches. This was carried out with and without light from the clerestory windows. It was the opinion of those present that the fixtures and fittings lighting the semidomes, supported on a single ring at a height of 6.2 metres, were more than satisfactory, giving an even spread of light.

The initial proposal using a double ring (the lower for lighting the upper tier of the conches) was felt to be overly intrusive within the space, but the single solid ring was not overly obtrusive and also concealed the light fixtures very effectively when seen from below. A single 3mm thermoplastic cable running to the top of the dome would supply the power for this solution.



Test lighting for semidomes using central ring

Two further lights of the same design were proposed to light the clerestory and dome from the ring. A manual test of this was performed to satisfaction. This light would also provide additional ambient light for the whole space, and balance the direct sunlight entering from the clerestory windows. It should be noted that it may be advisable to screen the sunlight entering from the clerestory's east and south sides using an externally mounted mesh. [NB the UV resistant acrylic sheet on the windows currently has its protective adhesive plastic layer still on it]. This solution means that a total of eight lights will be mounted on the upper ring, 2 in each quadrant, balancing the weight distribution on the ring.

Upper tier

It was the opinion of all attending the test that the niches and columns of the upper tier of all conches would be best lit using a narrow cove lighting attached to the top of the cornice, set back from the edge of the cornice. This would also allow the outermost niches with each conch to be evenly lit. Fixtures to test this proposal were not available, but similar lights were used in the lighting of the Tomb of Menna for ARCE by Nicholas Warner in 2009 and were very satisfactory. These lights would be wired in series, with a single 3mm thermoplastic cable inside a buried conduit, and this conduit should be **installed by the conservators** as

soon as possible on a route that avoids all decorated plaster, leading to the ground from where it can run under limestone flooring to a pre-agreed position for a new electricity distribution board. The route should include junction boxes and it is recommended that 10 high quality steel boxes with steel covers be purchased in Italy and brought in by the conservators.

Ground level

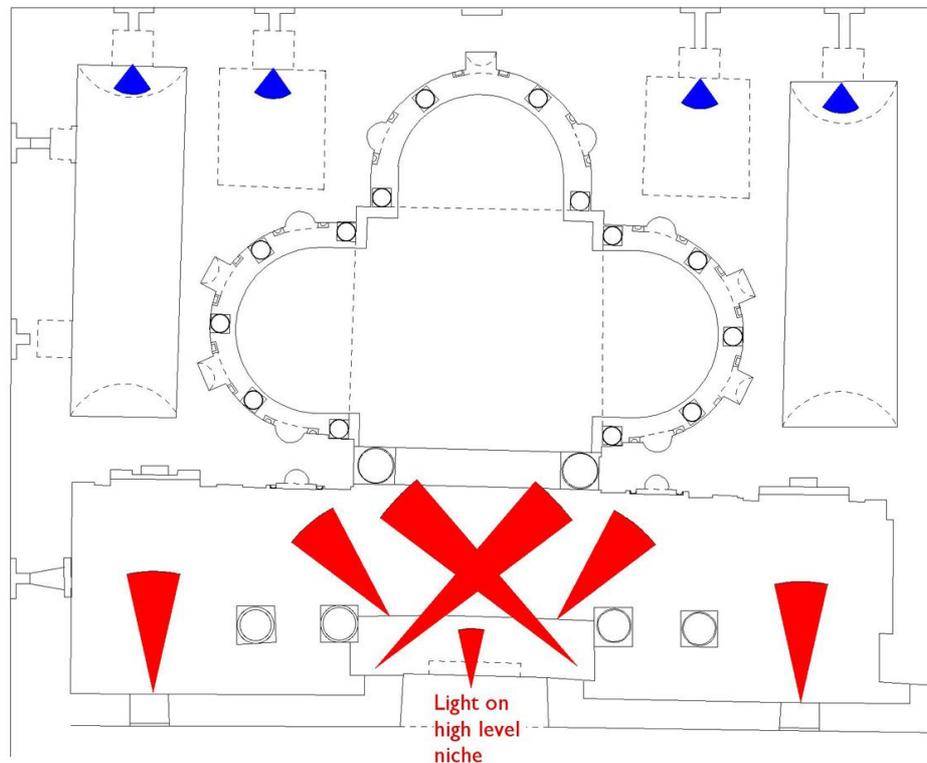
No directed light fixtures are proposed at ground level. This area will be solely lit by ambient light from upper levels. The position of the altar was discussed, as well as the possible use of a ciborium to mount light fixtures. It was agreed that the lighting solution be made entirely independent of decisions related to future liturgical emplacements.

Father Maximous's main concern was what the lighting ring at high level would look like, both in detail and from a distance from the nave assuming the removal of the wall presently in front of the sanctuary. It was stressed that the level of the ring was adjustable, and that the lighting solution was for this phase of work only, not taking into account a future reinstated church in the nave. He was also of the opinion that the ring should be a decorative object. It is the opinion of the author that the ring should just be a simple flat, painted metal sheet 'donut', dimensioned to a minimum to conceal the light fixtures when seen from below. Father Maximous was also of the opinion that additional highlighting spotlights should be introduced, but the additional wiring required and negative aesthetic impact of these lights make this inadvisable.

2) Sanctuary Façade

Scaffolding prevents any test lighting of the sanctuary façade at present. A discussion was had with Phillips engineers, and the following proposal was made for this area. This relies on light fixtures mounted on the central brick ledge above the central door in the outer wall, and on the inner face of the wall. A total of seven lights were proposed: 2 lights for the columns under the chancel arch, highlighting the capitals; 2 lights for the niches at high level and the area to either side of the large columns; 1 light for the high level central niche, and 2 lights mounted in window embrasures to the north and south to light the openings into the pastophoria.

RED MONASTERY CHURCH: OCTOBER 2011



LIGHTING DIAGRAM: SANCTUARY FACADE AND PASTOPHORIA
plan level +3.25

3) The Pastophoria

These are in many ways the most difficult spaces to light. It was felt by all that the proposed track lighting system would be too obtrusive in the space. A further proposal will be made by Phillips, using the idea of mounting lights on the west wall of the sanctuary, in both the small domed chamber and the barrel vaulted space above eye level (see diagram above). The lighting needs to be relatively diffuse in quality, avoiding cones of light that are typically associated with uplighters. Once again, the issue of installing conduit runs in areas of modern plaster is a matter to be carefully considered by the conservators at this stage.

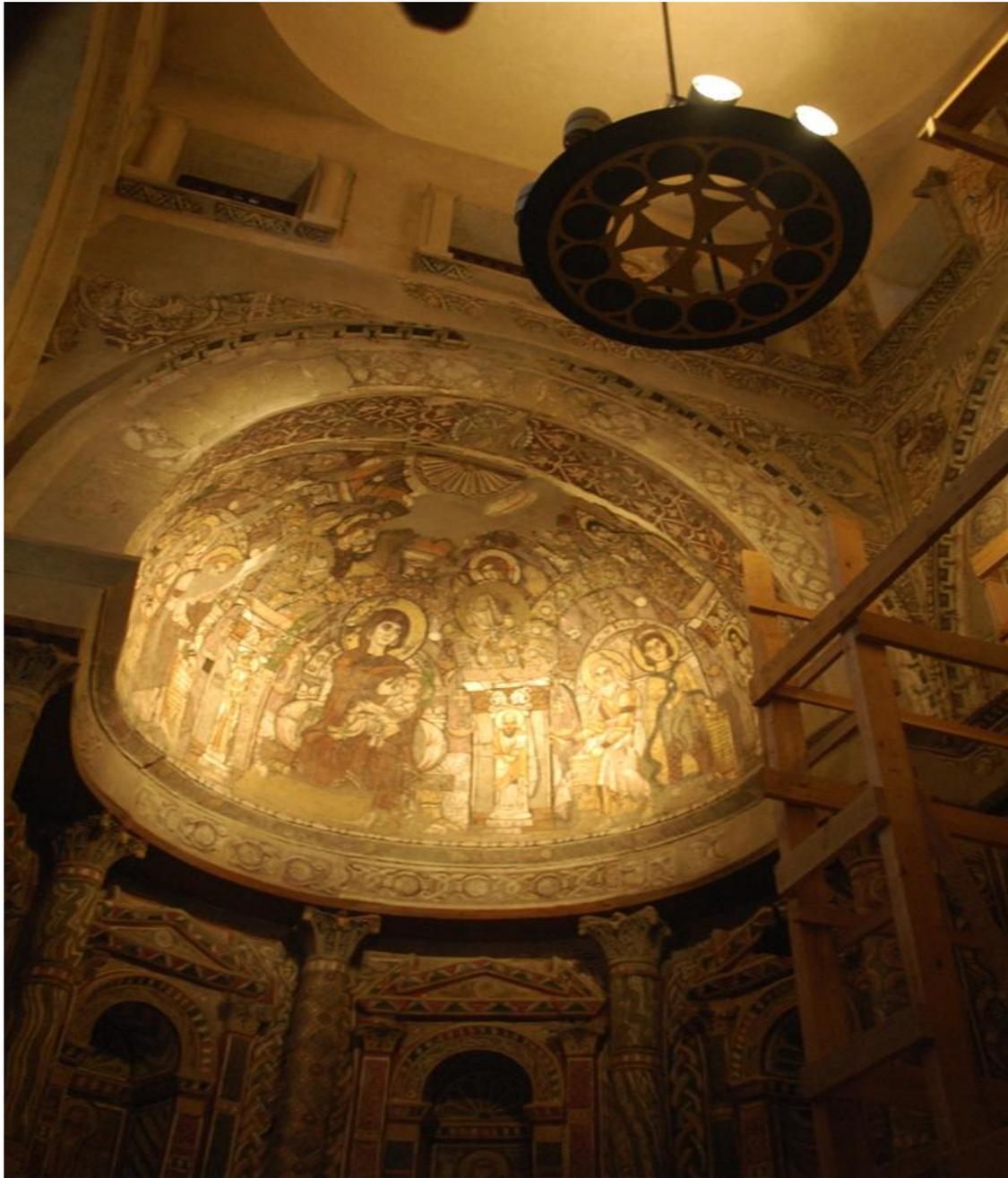
4) General questions for consideration

Who will execute the installation of the new electrical system and when?

Are surface mounted fans still a requirement?

Are power points a requirement?

The technical specifications and costings for the proposal will be forthcoming from Phillips shortly, and the lights need to be ordered a minimum of 3 months before installation.



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Lighting and Associated Work

September 2012

1. Electrical Power Distribution and Lighting

Drawings, a specification and bill of quantities were prepared in consultation with a qualified local electrical engineer. This is ready for costing subject to agreement on the final scope undertaken by ARCE/USAID and the Church respectively.

Status: Documents with ARCE

Recommendations: Pricing and purchase to proceed upon agreement of cost share and who is chosen to execute the works.

Lighting:

All lights ordered from Phillips Egypt were delivered to ARCE in August 2012. The lights will be shipped to the contractor, Mahmud al-Taiyyib, who will transport them to site together with the chandelier fixing for installation in December 2012.

Status: Order fulfilled

Recommendations: Installation to be carried out first week of December 2012 with fixing of all lights in triconch and for sanctuary façade, testing with Phillips Egypt, and final wiring executed in 2013 after SCA full approval.

Chandelier light fitting:

A laser cut stainless steel pendant support to be hung from under the dome has been designed, manufactured, and pre-drilled for mounting of LED light fixtures obtained from Phillips Egypt. The underside of the chandelier ring has a separate laser cut brass sheet, decorated with open laser cut designs.

Status: Work completed. Chandelier with contractor pending installation.

Recommendations: Installation to be carried out first week of December 2012



Stainless steel and brass laser cut disks of chandelier prior to assembly

2. Masonry work

Replacement masonry elements in the clerestory and sanctuary façade have been installed with a mason and fitter from Cairo.

Status: Work completed April 2012.



Replacement limestone elements in clerestory

3. Window replacements

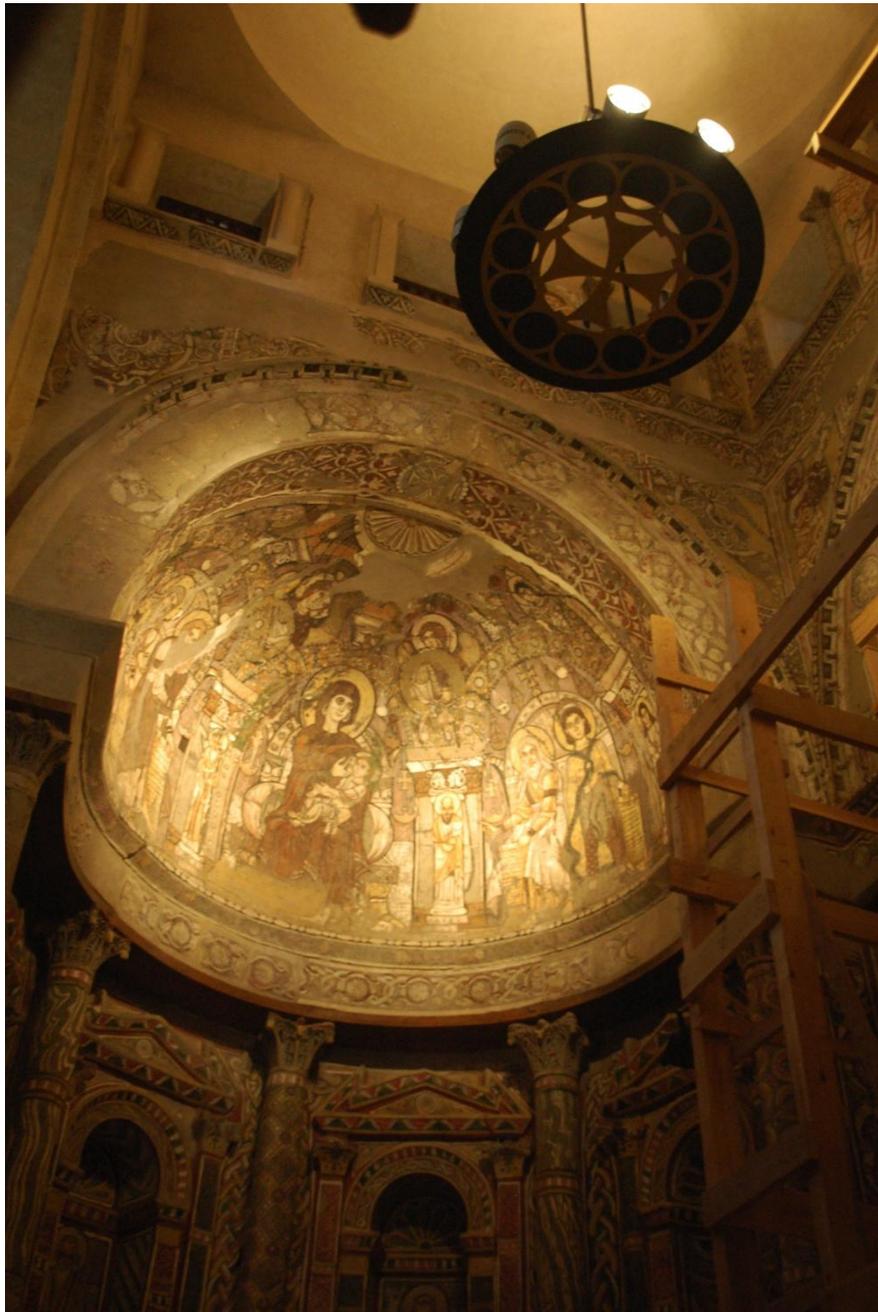
Timber replacement windows corresponding to the schedule provided in Annex A of the agreement were fabricated in Cairo and installed on site.

Status: Work completed May 2012.

Recommendations: Substitution of Perspex in clerestory windows with 6mm UV resistant polycarbonate is recommended to reduce solar gain.



New secondary glazing and mesh in new pitch pine frame for opening on sanctuary façade



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Lighting Installation and Associated Works

1-5 December 2012

1) The chandelier and all specified lights for the tri-conch and sanctuary façade were installed to the satisfaction of those present. The conservator team expressed a preference for painting the colour of the black base ring a lighter colour to decrease the contrast with the architectural background. A full lighting test, with temporary connections to existing power supply, was made with the assistance of Philips lighting engineers.

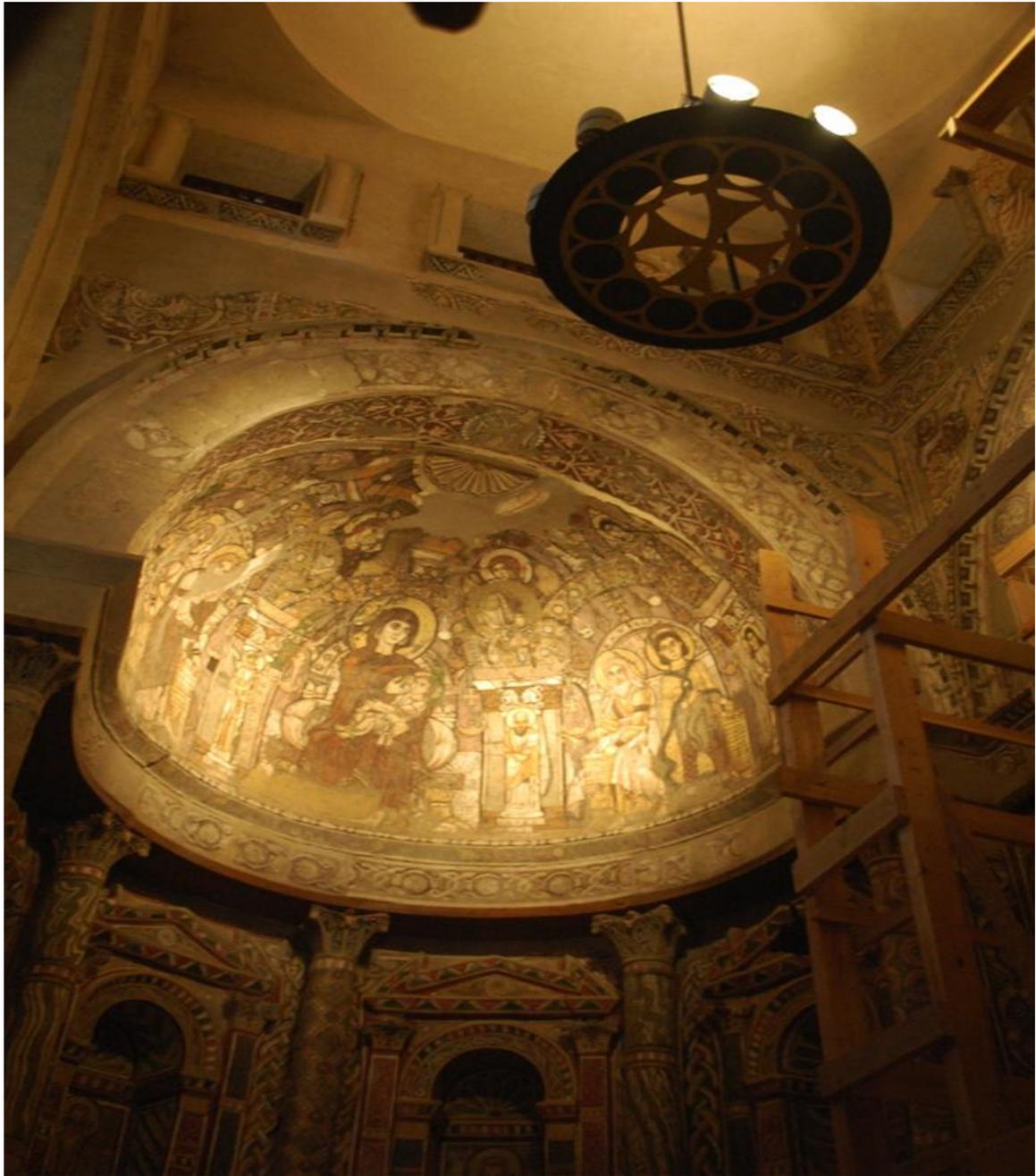


Note: It was agreed at a site meeting on 5.12.12 with Italian Conservators, Father Maximous, Janie Abd al-Aziz, Michael Jones and Dr. Elizabeth Bolman that Philips would be asked to provide 1: sample recessed floor mounted LED uplights for trial lighting of the triconch columns at ground level (to increase accent lighting and ambient light levels); 2: sample spotlights to light the high level niches in the sanctuary façade to either side of the central arch. NW will liaise to achieve this objective in February 2013.

2) Polycarbonate windowpanes to nine clerestory windows were installed.

3) A visitor information panel was designed and a temporary print out of this sign mounted on foamcore was placed outside the entrance to the church pending the installation of the final anodized aluminium panel from Switzerland. This was delivered to the Consultant in Cairo on 9.12.12.





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Lighting and Structural Work

19-21 February 2013

1) Lighting:

The two additional high-level spotlights ordered from Phillips Egypt were installed on a new purpose-made painted steel frame (see photos). It was impossible to carry out the lighting test with Phillips personnel, however, owing to delivery problems associated with the test lights and it will therefore be necessary to reschedule this activity.



2) Visitor information panel:

The anodised aluminium visitor panel was installed in the same position as the temporary sign beside the entrance to the church.



3) Co-ordination with Structural Engineer and Archaeologist:

The effects of the removal of the floor were studied from both archaeological and structural perspectives. The new discoveries will have to be incorporated into existing survey drawings and texts for the intended publication will also have to be revised. Most importantly, the presence of significant remains of the flooring and steps leading to

the sanctuary will affect the design of the electrical distribution net, replacement limestone elements, and any future floor.

It was agreed that the Structural Engineer would additionally consider the effect of the removal of the floor in the triconch in his report and that the structural issues raised by the possibility of a new roof construction over the nave would be addressed through the provision of a set of general parameters controlling such construction. As Father Maximous was not present during the Mission, it remains the responsibility of ARCE to communicate the Structural Engineer's final report to him and other concerned parties.

4) Co-ordination with SCA:

Though not part of the planned mission activities, a schedule of proposed architectural conservation and finishing work was drawn up at the request of local SCA representatives in consultation with the Project Manager and submitted to them (see attachment) in the person of Inspector Ahmed Mitwalli.

5) Recommendations:

It is recommended that:

- A lighting test to assess the impact of the proposed lighting of the lower columns in the triconch be carried out in conjunction with an inspection visit by the electrical engineer to familiarize him with the site. This could be executed in March, as the test lights are now in Egypt.
- Work on the floor and additional elements indicated in the proposed schedule of work can only be carried out with an additional permission, and following a detailed costing. An application to the MSA for this work should be made immediately.
- If ARCE wish to employ Nicholas Warner and his team to execute the work indicated in the schedule it will be impossible for them to do so before the beginning of May due to other commitments. The length of time required to execute the full scope of proposed work is one month, although reductions or phasing in the work may shorten this time.