METHODS OF CONSERVATION AND RESTORATION SOME PHARAONIC INSCRIPTIONS PRESENTED ON SAND STONE WALLS OF LUXOR TEMPLE INSIDE ABU EL-HAGAG MOSQUE, LUXOR- EGYPT

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Abstract

Monumental buildings in various Periods constituted a legacy accumulated and valuable archaeological and architectural point of view, and here we find restorers to repair problem, any of these elements must be restored and displayed, and which can be sacrificed, one of these buildings Luxor Temple is a large ancient Egyptian temple complex located on the East Bank of the River Nile in Luxor today known (Thebes), built the Temple in the era of the modern dynasty in 1400 BC. The temple dedicated to the Triad of God Amun, Mout and Khonso, characterized by accumulation of civilization and temple architecture through the different ages besides elements and spaces added by Hatshepsut, Thutmose III and Ramses II still stands behind the first Coptic Church edifice, Also a Mosque of Abu El-Hagag has been added In the Highest hall of the Temple of Amun Columns.

In mid-2007 due to a fire caused damage to elements of the mosque and the temple inside the mosque of Abu Haggag, implementation Restoration and discovering program was accurate to detect texts and inscriptions that were hidden under layers of plaster which was added in later periods and led to distortion and blur this important archaeological items As part of restoration work carried out in the mosque.

The murals Include on many ornaments and symbols which is characterized by Historical, artistic and religious value and that will

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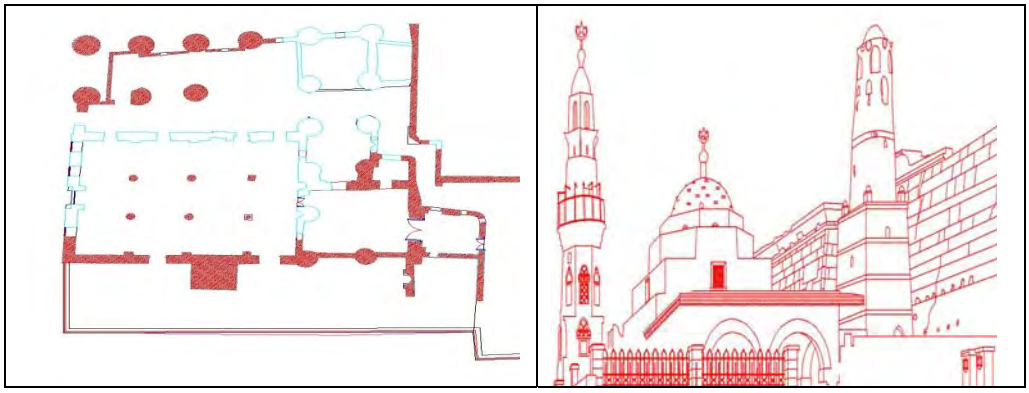
benefit in The History of art and religions, and This research aims to identify the technology of building materials used in the Temple and the effect of environmental conditions on the Architectural, Decorative and Written Elements and present practical methods for restoration and conservation lead to remodeling for discovered elements and realize ability of reading, Through the Tests and Examinations and Tests Materials XRD, SEM, and polarizing Microscope to Identify elements and compounds Consisting of Elements of Materials and Environmental Changes that have Occurred and Assess Physiochemical properties of Materials and that for the work of an information base Useful in how to Develop a Program for the Restoration and Maintenance of building materials and maintain the elements of art, as well as the work of translation of the hieroglyphic inscriptions on the walls of the temple as pregnant woman , Spectacle offerings to the god Amun, and other scenes that have helped the work of mechanical cleaning and chemical detection and easy to read.

Key words: *Luxor Temple, Abu Haggag mosque, rediscovery, Inscriptions, Ornaments, Analysis, Conservation, cleaning, consolidation, restoration.*

1-Historical, structural and architectural investigations

Fig. 1



a- Plan show nesting in structure between temple and the mosque

b- Luxor temple represent base for abu hagag mosque

1-1Survey of the structure between temple and the Mosque

The purpose of the historical survey is to understand the conception and the significance of the building, the techniques and the skills used in its construction, the subsequent changes in both the structure and its environment and any events that may have caused damage. Documents used for this should be noted, and in this case we are in front of a special case of method construction & architectural overlap between components of the temple and the added elements of architecture of the mosque, I really like this view of the minaret of the mosque framed by the papyrus-bundle columns The mosque was built above the ruins of Luxor Temple. The lintels of Ramses II's court of Luxor Temple support the roof of the mosque. They have been hidden under thick cement and plaster until very recently, represent the remaining Part of the vertical columns and horizontal Lintels of 50% of the total walls of the mosque, The old minaret Based on Crossed Lintels, and Mihrab in the Qibla wall engraved in full in the corresponding column.

1-2 Columns construction

Egyptian Columns were formed of three basic Elements a base, a Shaft and a capital. Egyptians Architects Considered bases Primarily a Structural Element of the Column, as they did not Usually Receive the Decorative Treatment Seen on Column Shafts and Capitals, Columns were Constructed to Support Various Types of loads and Their Design and Construction Reflected this Function, the Columns meant to carry Heavy Sand stone and Ceiling, were composed of massive stone blocks(*Fred G.Bell 1999*).[1]

1-3 Ancient Egyptian Decoration Elements

- **Plant Elements** branches of Palm, Lotus and Papyrus, which was characterized by gracefully descent and sculpture.
- **Animal Elements** Draw all agricultural environment animals and birds

([1]) Fred G.B.Karst and cavernous rocks In Engineering And Construction, M.G. Culshaw, Tony Waltham, 1999

- **Geometrical Elements** Egyptian engineering ornaments variants which used the straight-line curve, and the broken and ring.
- **Symbolic Elements** Most of the decoration and symbolic nature of ancient Egyptian drawings, whether religious or logos, for example the Sun, and the winged forms of Egyptian gods.
- **Religious Elements** In addition to the forms of gods, Egyptian Inscriptions Hieroglyphic writing marks.

2- The Principal Deteriorated Factors of the temple

2-1Moisture: moisture contents which have existed since man began constructions. The weathering is generally characterized by three kinds of processes. In fact, the distinction between the physical, chemical, and biological mechanisms is not always obvious, because the alteration of stones(Snethlage,R.,Sterflinger,K.,)[2] may be listed among the general transformation processes of the inorganic together with chemical and physiochemical reactions Chemical reactions always require the presence of water Several agents of deterioration have been identified that influence the lifetime of the temple, in our case The climate is typically Saharan, hot and dry with scanty winter rain and bright sunshine throughout the year. According to the bio-climatic provinces of Egypt, The stones of the temple seriously deteriorated (Stone bleeding phenomenon in the previous decades due to the increase of physiochemical factors effect, A significant moisture content is normal in all porous structural materials due to hygroscopicity, absorption by capillarity from contacting sources of moisture, or accumulation of condensation, but the structural materials are only considered to be damp if their moisture content is excessive, in which damage can occur to materials and decoration. The level at which moisture content becomes abnormal, representing

(2) Snethlage, R., Sterflinger, K., (2011) Stone Conservation, in Stone in architecture, properties, durability, Springer Heidelberg Dordrecht London New York, p.4

unacceptable dampness when moisture enters or is generated in excessive amounts
within the building, it can have a Variety of biological and physiochemical effects on construction materials. (*Ryan G. W. et el 2003*)[3].

2-2Man-made Deterioration: From our point of view, we consider that the man-made deterioration is the main factor of the deterioration processes of the temple The aspects of this factor classified as follow: lack of conservation, which lead to the accumulation of a variety of dirt's, salts, and wild bees nests, together with growth of plants and microorganisms, which well known as a black crusts. Black crusts are the areas where atmospheric deposition accumulates along with the products of the chemical transformation of materials; another reason for the man-made deterioration is the faulty restoration, by using inappropriate materials. Mortar of Portland cement was used for completion works, and Add new loads such as increased ceiling, and
Pooring of maintenance the inability of archaeological maintenance Fire Caused in chemical shifts and metal construction materials from stones and cobs to Ben particularly sandstone and transformed by high temperature and the change in colors and lead fire generally cracked buildings and possibly collapse entirely

2-3 Salts the primary sources of salt and causes that lead to the formation and rapid growth experiments in Egyptian environment, owing to the porous structure of most of the stones used in construction, particularly in Sandstones The damage is due to crystallization of the salts of the most important factors in damaged temple where salts Crystallize in pores and Pores in the Voids gaps, Building materials, whether the supplies Mortars or stones When this pressure is sometimes more mechanical stress leads to the

([3]) Ryan G. W., Simon J. C., Roger M., Andrew H. and John H. A preliminary study of the phycological degradation of natural stonemasonry, Environmental Geochemistry and Health 25:, 2003, pp.139–145.

breakdown of the Surfaces(Rijniers L.A 2003)[4] When increasing the humidity in the atmosphere surrounding. (*Rodriguez, C. et al 1999*)[5].

2-4Loads Vertical loads Are the total fixed and sustained weight loads both for fixed portable component or overloading by pregnant and interfere with that element within this definition the weight-bearing walls and flooring fixtures, **Live loads** are changing and moving loads to any part of origin including distributed loads and shock loads, vibrations and inertia, which include persons users origin loads and weights **Horizontal loads as Wind loads** Are loads resulting from exposure of origin of forces caused by wind, which can be in the form of pressure or pulling, **Seismic loads** Are loads of origin when aftershocks of earthquakes as one of the most influential types of loads on buildings because of their nature, which is characterized by large and small diameters considered for its height it could be damaged as a result of deep soil ground movement due to carrier movement arising from earthquakes

([4])Rijniers. L.A, H.P. Huinink, L. Pel, K. Kopinga, Salt crystallization in porous materials and its implications for stone decay, in: EUROMAT 2003, Symposium P2 Materials and Conservation of Cultural Heritage, EPFL, Lausanne, 2003.

([5])Rodriguez, C., Navarro, Doehne,E., and Sebastian,E., Origins of honeycomb weathering, the role of salts and wind, GSA Bulletin, August 1999, v. 111, no. 8, pp. 1250-1255

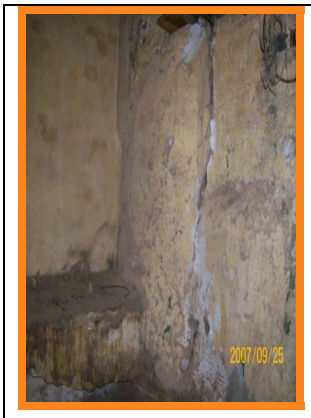
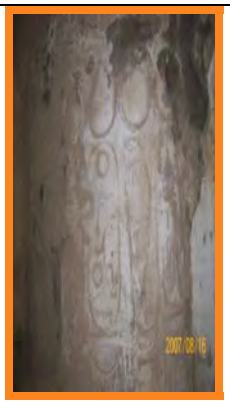
Fig. 2

Classification of the different kinds of action on structures and their materials		
1 - **Mechanical actions acting on the structure** Mechanical actions acting on the structure produce stresses and strains in the material possibly resulting in visible cracking, crushing and movement.	**Static actions** 	**Direct actions** dead loads
1 - **Mechanical actions acting on the structure** Mechanical actions acting on the structure produce stresses and strains in the material possibly resulting in visible cracking, crushing and movement.	**Static actions** 	**Indirect actions** soil settlements Movements shrinkage in mortar
1 - **Mechanical actions acting on the structure** Mechanical actions acting on the structure produce stresses and strains in the material possibly resulting in visible cracking, crushing and movement.	**Dynamic actions** (imposed accelerations) earthquakes, wind and vibration**.**	
2 - Physical Material properties variations in temperature	3 - Chemical the deposition of pollutants	4-Biological actions, acting on the materials

Fig. 3

a- The walls of the temple and mosque disappear under layers of grout

b- Layers of grout block separating the original parts and the added parts

			
c- Layers of grout hide traceability paths cracks in structural elements		d- Texts and Inscriptions columns distorted and blurred the bottom layers of grout	

3-The analytical approach(laboratory testing)

Non-destructive tests should be preferred to those that involve any alterations to a structure

3-1-X-Ray Diffraction :

-A-operation conditions sample prepared and investigated by using Philips Analytical X-Ray B.V. according to:

Generator tension	35Kv
Generator current	25mA
2Θ	3-63°
Temperature	10-70°C
Wave length	1.45 A°
Scanning speed	1.2°/min.

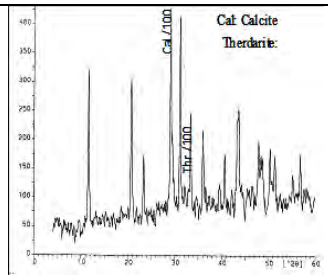
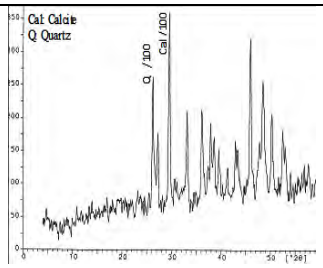
Chart	The Compounds		RI (%)	Percentage (%)	location	no
	**Thenardite**	Na_2SO_4	100 %	50 %	Capital	**1**
	Halite	NaCl	52 %	26 %	Capital	**1**
	Calcite	$CaCO_3$	46.4 %	24%	Capital	**1**
	**Calcite**	$CaCO_3$	100 %	41 %	Mortars	**2**
	Quartz	SiO_2	67.6 %	28 %		
	Gypsum	$CaSO_4.2H_2O$	83.6 %	16 %		
	Dolomite	$CaMg(CO_3)_2$	36.6 %	16 %		

Fig. 4	Forms and tables for x-ray diffraction of different samples

2

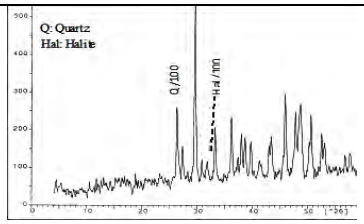
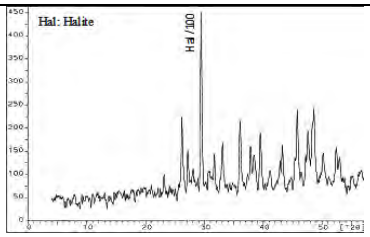
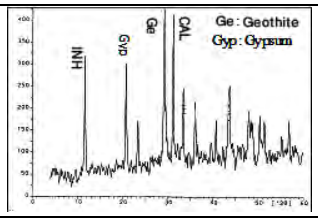
Chart	The Compounds		RI (%)	Percentage (%)	location	no
	**Quartz**	SiO2	100 %	53 %	Stone Columns	**3**
	Halite	NaCl	98 %	47 %		
	**Halite**	NaCl	100 %	100 %	Lintel	**4**
	**Goethite**	FeO(OH)	46.9%		Stone Columns	Yellow occu
	Gypsum anhydrate	CaSo4	21.8%		Stone Columns	Yellow occur
	Calcite	CaCO3	31.3%			

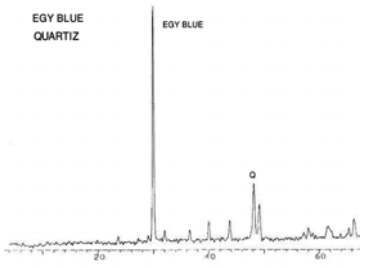
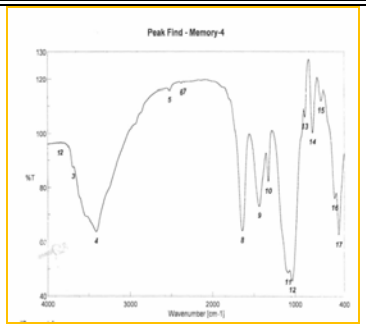
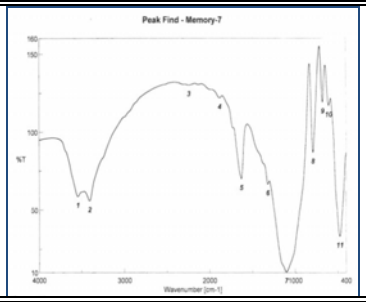
Chart	The Compounds		RI (%)	Percentage (%)	location	no
	**Egyptian blue**	CACUSI4O10	63.40 %		Lintel	Blue
	Quartz	SIO2	36.60%			
	X.R.D RESULTS ▪ Yellow occur pigment is Goethite. ▪ Blue pigment is Egyptian blue. ▪ Rendering and plaster is gypsum					

Fig. 5 Forms and tables x-ray diffraction of different samples

3-2 Fourier Transformed Infra Red (FTIR Analysis)

The Operating conditions

Some samples were selected and studied by infrared spectroscopy using a Perkin Elmer Spectrum One FTIR Spectrometer, in transmittance mode, over a wave number range of 4000 to 400 cm–1 at a resolution of 4 cm–1 on KBr pellets jasco-ft-ir-4100(Japan) (400-4000) Sample(1)-YELLOW-OCCUR pigment. Sample (2)-blue pigment.

SAMPLE	RESULTS	NOTES	
yellow -occur	Animal glue used as (**organic binder**)	The chart explained that there are deterioration in the binder (totally obvious in the group which represent the binder components)	
blue pigment.	Animal glue else	There are group represent malachite and other traces	
Results: animal glue used as a binder in the two pigments. There are deterioration in the binder.			
Fig. 6	Some samples were selected and studied by infrared spectroscopy		

3-3 Scanning electron microscopy (SEM-EDX):

operation condition:

Using	**(S.E.M.) model Philips XL30.**
Attached With	**(E.D.X.) unit, with accelerating voltage 30 kv**
Magnification	**10 X Up to 40.000 X**
Resolution For W.	**3.5 nm**
Coating	**Carbon**

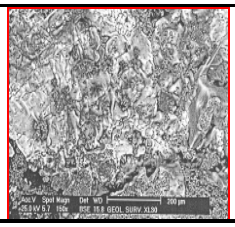
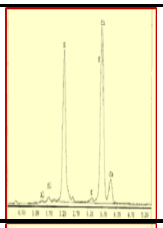
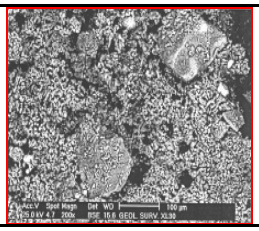
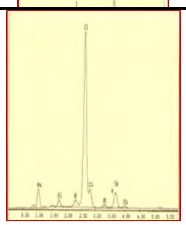
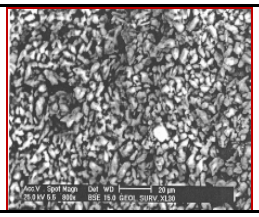
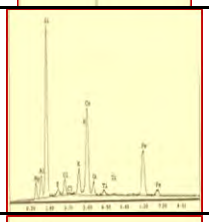
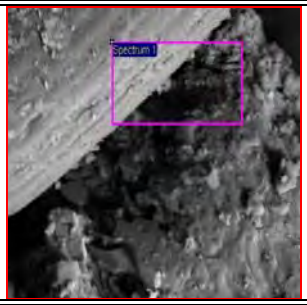
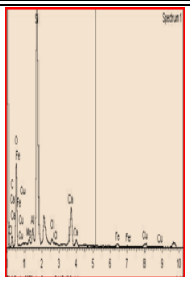
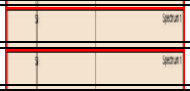
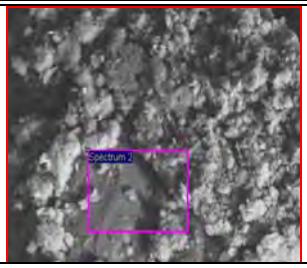
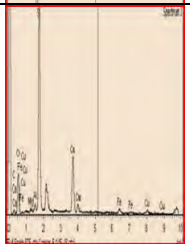
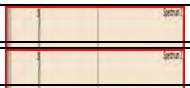
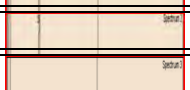
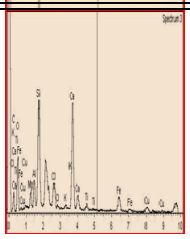
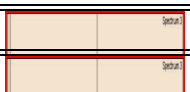
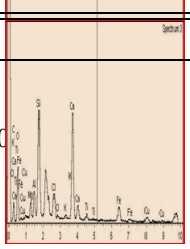
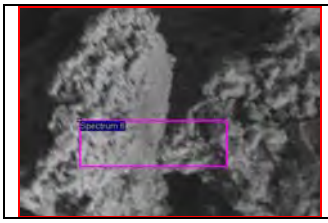
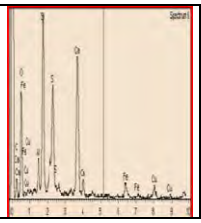
IMAGE	SAMPLE DESCRIPTION	CHART	COMPOUND	ELEMENTS	NO
	Deformation in internal composition		Gypsum	ca	sms1
	Deformation in internal composition		Gypsum	s	sms1
	Deformation in internal composition		Gypsum	k	sms1
	Deformation in internal composition		Gypsum	si	sms1
	the crystal Formation And space Between them		Calcite	fe k	sms1 sms2
	the crystal Formation And space Between them		Calcite	s ca	sms1 sms2
	the crystal Formation And space Between them		Calcite	cl si	sms1 sms2
	the crystal Formation And space Between them		Calcite	mg al	sms1 sms2
	Internal composition Covered by halite		Halite	cl	sms2 sms3
	Internal composition Covered by halite		Halite	na	sms3
	Internal composition Covered by halite		Halite	si	sms3
	Internal composition Covered by halite		Halite	ca	sms3
	Internal composition Covered by halite		Halite	s	sms3

Fig. 7 pigment identification in each color layer

IMAGE	DESCRIPTION	CHART	COMPOUND	ELEMENTS	NO

	Mineral compound To the sample.		calcite	C	o	sms4
	Mineral compound To the sample.		calcite	mg	Al	sms
	Mineral compound To the sample.		Quartz	Si	cl	sms4
	Mineral compound To the sample.		Quartz	ca	fe	sms4
	Mineral compound To the sample.		Quartz	mg	cu	sms44
	the crystal Formation And space Between them		calcite	cu	c	sms44s5
	the crystal Formation And space Between them		calcite	ca	o	sms
	the crystal Formation And space Between them		Quartz	mg	al	sms
	the crystal Formation And space Between them		Quartz	fe	si	sms5
	the crystal Formation And space Between them		Quartz			sms55
	Between them Structure, rendering Formation and elements		Goethite	al	c	sms55s6
	pigment formation, Structure, rendering Formation and elements		Goethite	si	o	sms
	pigment formation, Structure, rendering Formation and elements		Goethite	cl	ti	sms
	pigment formation, Structure, rendering Formation and elements		Goethite	fe	k	sms6
	pigment formation, Structure, rendering Formation and elements		Goethite	ca		sms6s6

	Egyptian Blue and its crystals And metals component s		Egyptian blue.	**al**	**s**	**s m s 7**
	Egyptian Blue and its crystals And metals component s		Egyptian blue.	**si**	**ca**	**s m s**
	Egyptian Blue and its crystals And metals component s		Egyptian blue.	**fe**	**c**	**s m s**
	Egyptian Blue and its crystals And metals component s		Egyptian blue.	**cu**	**o**	**s m s**

Results:.

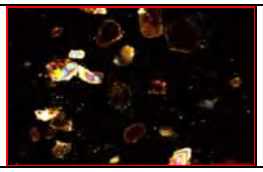
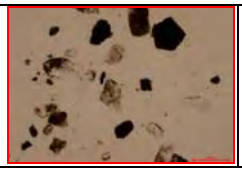
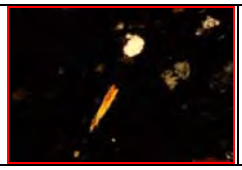
- From the SEM-EDX we know that morphology of the sample surface, find the elements to the sample components which confirm that the yellow occur pigment is goethite and the blue pigment is Egyptian blue. and the rendering is gypsum.

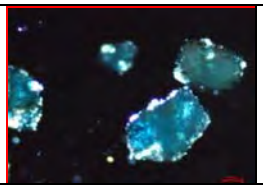
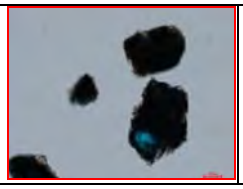
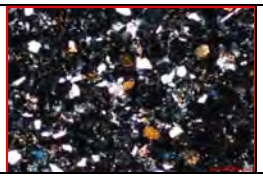
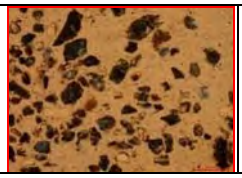
Fig. 8	The elemental composition was determined using carbon coated cross-sections.

3-4 Polarizing-lightening microscope (Operation condition)

Using	thin section samples(red,blue)for the purpose of pigment identification and metallic fabric and formation and crystallization state
Using	digital camera x40enlarge for every metal Properties appear in lightening microscope and others appear with polarizing43

We used lightening and polarizing microscope in order to if there are properties for the mineral components appear in ligtening but others appear with polarizing microscope.(grains,minerals) and ١ Basic phase component

SAMPLE NO.	IMAGE (L/P) MICROSCOPE.	COMMENT
1-yellow-occur	 	Geothite sample under (l/p) microscope. Metals components. Crystal forms
1-yellow-occur	 	Geothite sample under (l/p) microscope. Metals components. Crystal forms

2-Blue pigment.			Egyption blue under (l/p)microscope. The same shape was fond in the ideal forms of egyptian blue pigment.
2-Blue pigment.			Egyption blue under (l/p)microscope. The same shape was fond in the ideal forms of egyptian blue pigment.

Results

- blue- pigment (Egyptian blue) Yellow occur- pigment (goethite)
- Polarizing and lightening microscope explain metals properties Egyptian blue here is the same shape in ideal material references.

Fig.9	Polarizing-lightening microscope

4- Restoration approach

4-1 Remove layers of mortar

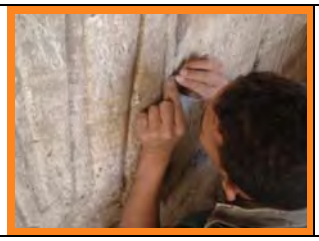
Removal of additional layers of mortars was the main aim to discovering about the hidden inscriptions until they could be studying these texts and inscriptions, as well as showing great form of overlapping facilities of the ancient Pharaonic

4-2 Mechanical cleaning

Using simple hand tools from different brushes for Removal salt and dirt accumulated As handheld Erasers

Fig. 10

a- mud and Lime above murals	**b-** Basing the Lintels	**c-** Inscriptions above Mehrab

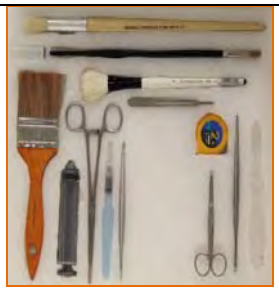

d- Remove of Calcified layers

e- Use the Exact tools in mechanical cleaning



f- Preliminary results of the work of cleaning, mechanical and detect hidden patterns

Fig. 11


a- Number of manual tools (wooden stick and the scalpels)

b- Brushes and knives and measurement tape

c- Hammer and Palette


d- Some of important mechanical cleaning tools and its spray water need the softening

Fig. 12

The most important results of the cleaning showing relationships between items and identifying structural elements and components that helped in drawing features of architectural restoration project after that (Columns, Lintels, Mud brick, Plasters)

Fig. 13

a- Surfacial cracks in sandstone mural Painting appeared after discovering

b- final mechanical cleaning result

4-3 Cleaning using Organic Solvents

applied organic solvents efficiently in case of fragile archaeological and colored surfaces used gum or glue as an intermediate color ,as well as in the case of flat surfaces on soluble salts in water(Calia, A., Lettier, M., and Laurenzi, Tabsso, M)[6].

(6) Calia, A., Lettier, M., and Laurenzi, Tabsso, M.: Documentation and Assessment of the most important conservation treatments carried out on lecce stone monuments, 10th, Inter. Congress on The Deterioration and Conservation of Stone, Sweden, 2004, pp. 284-290.

Fig. 14

a- Sample of chemical cleaning for the layers which mechanical cleaning tools could not remove its

b- applied organic solvents efficiently in case of fragile l and colored surfaces

Practical applications of cleaning work (Ashurst, J. and Ashurst, N.)[7]

Spots of Organisms Use of sodium citrate solution diluted with water in proportion of 1: 6 followed by using sodium sulfate solution

Spots of Candles, stains and oils Mixture of amyl acetate with acetone by 1:1

Spots of soot Using a mixture of water, pure white alcohol, and ammonia by 1000 cm + 10 cm 2, and then washing with water mixture of acetone and Toluene

Fig. 15

a- Parts of Rare color on Lintel that is strengthening and preservation

b- Pre-Consolidation and consolidation of the wall paintings and the deteriorated sculpture and stones, by using the appropriate consolidante material to this case in particular (e.g., MTMOS).

(7) Ashurst, J. and Ashurst, N.: Masonry Cleaning, In: Practical Building Conservation, Vol.1, England, 1998.

(8) Lambropoulos, V., Ghoissi, S, and Karatasis, I.: A Comparative study of mortars containing barium hydroxide (Bu OH)2) Application on Monument's Conservations, 4th, 2000, pp. 351-359.

4-4 Consolidation

Barium Hydroxide Ba (OH)2

Barium hydroxide synthesis relies on the equivalence of the negative impact of major salts(Lambropoulos, V., Ghoissi, S, and Karatasis)[8] becoming barium sulfate first and becoming then by air to the barium carbonate CO2 fixed approaching natural composition of calcium carbonate through the interaction of simple internal using ammonium carbonate (NH4 (2CO3). (Matieini, A. Mohes)[9].

Paraloid B-72

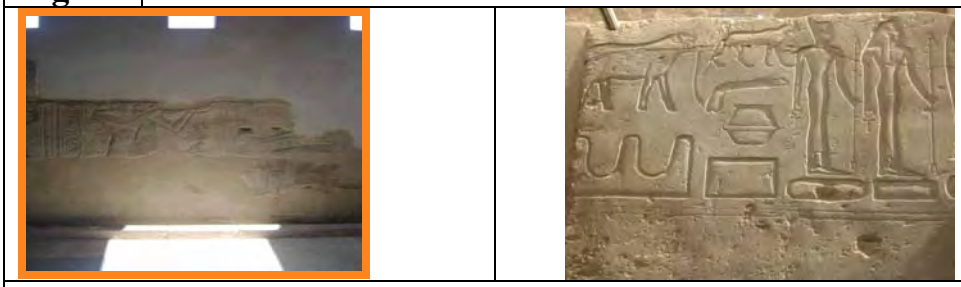
has low reactivity with sensitive pigments to stable surfaces

4-5 Repair of cracks

Cracks in the walls were italic, vertical and separatist, and the Latest was more serious because the slash limit the ability of the wall to carry vertical loads echanical Fillers reconstructs the same structural pieces in rift zone

Chemical Fillers some chemicals improvement in characteristics of mortar to structural role in Filling of gap linking both sides of Crack **simple parts (just cracks and gaps** were filled with broken stone , washed lime, white cement and Coarse sand in proportion 1: 1: 3 and then cover the surface by layer of mortar made of lime white cement + soft washed sand and of 1: 1: 3, with the lower surface .

Fig. 16



Vacuum procedure first stuffing and then cover the surface .

8

([9]) M. Matieini, A. Mohes: Barium Aluminate for the Consolidation of Mural Panting "Iccom Committee for Conservation 5th Trinal Meeting, Zagreb, 1978.

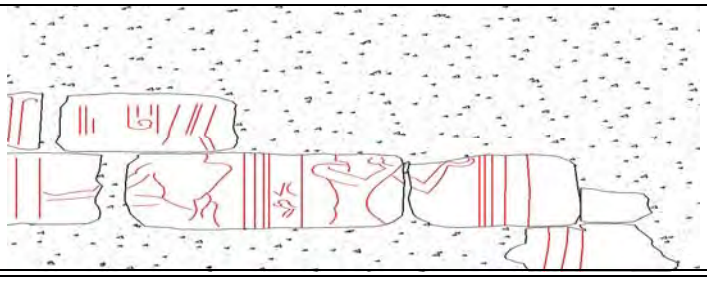
Fig. 17

Interior spaces after restoration and Photos show the beauty of architectural composition of the temple and overlapping structural elements with the walls of the mosque.

Fig.18

Restoration of columns, complete the missing parts, paving of Grounds and protection of Ends

Fig. 19

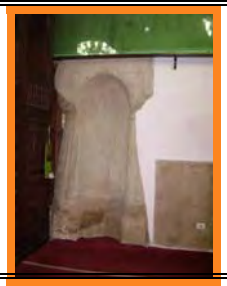


Interior spaces after restoration and Figures show the Rate of spaces between the Original areas and crushed areas.

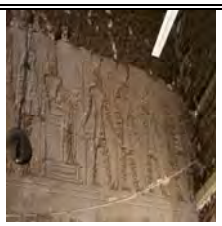
4-6 New method for Temporary hide Inscription

The main aim was realized by remove the grout and the mortars introduction on texts and inscriptions, which had remained hidden for too long, today there is no wrong or worse or than a prayer in environment surrounded by painted walls and there is no creation and graphics return was to appease the interactive civil society with the mosque hide temporary mural linear top iwan of Qibla only during prayer**.**

Fig.20



So found a creative and sensitive solution to expose the pharaonic images for public Lights behind the glass can illuminate the images more clearly on request.



5- Results

- Sand stone was The Primary Stone Type used for Buildings and large Decorative Features at Luxor Temple, and a soft lime mortar was used in the original construction
- Sandstone surfaces had resulted from environmental weathering. The brown sandstone surfaces were darkened considerably in areas of water accumulation on lintels.
- Completely Destroyed Parts, Partly destroyed, Covered Inscriptions, Cracked parts, Decayed Parts, Missed Parts, Erosion parts, Unstable parts, Micro Crack, Big Crack, Structural Moves, Degraded Decorations, Salt Crystals, and Organic Spots were the Important Deformation Marks in this part of the temple.
- There are a relation between louxer temple and abu -el haggag mosque(the mosque parts were taken for building from the temple, the both were paint for same purpose Worship
- There was a fire occurred in the mosque damaged different parts and discovered wall painting proved that ramssis2 was innocent from stealing his ancestor monuments.
- the mud, gypsum was cleaned by dry cleaning) mechanical cleaning) using soft brushes
- Chemical cleaning happened by using (alchol,acetone)with a little concentration after made test for sensitivity of paint layer and pigments.
- Painting fixation for pigments by using barium hydroxide Ba(oH)2 proved a good results.
- Consolidation materials of wall painting by using paraloid B72 and barium hydroxide Ba(OH)2.
- Filling gaps by using (sand, lime)or adding Ba(oH)2 .or add pond with a little concentration to improve the properties.
- It should be preventive conservation and maintenance for the archaeological sites and wall painting.
- Humidity, temperature, lightening, other environmental factors should be under controlled.

- Over painted rendering must be removed if it less historical and artificial value and doesn't held any painting or drawing and the lower layer represent important painting.
- a new method of lightening was used to be suitable during praying.
- Restoration Means any intrusive process aimed at preserving cultural heritage and delivery it to future and make it easier to read and not erase the effects over time, but maintaining the physical Construction of Materials.
- **Relief Sculpture** The ancient Egyptians are most people's as an expression of their users this type of art in three Types High Relief, Low Relief and Bas Relief, Color represents the optical character of the Egyptian Inscriptions in all specific characteristics of color as Value, Hue, Brightness, Intensity and Coating Saturation.
- **Ratio & Proportion** Egyptian artist Search for the perfect proportions such as the ratio of height to width in simple geometric shapes. and the first thing that comes to mind is the descent from the mathematical sciences engineering.
- According to the studyresults *NOW WE CAN SEE* the following:

Fig. 21

a- A part of a damage scene represents a king (the head is disappeared) offers mDt-offering to the god Amun.A part of a friezeThe beloved of Amun-Re who gives life.

b- The two ladies protect10 Egypt and beat down the foreign countries.

Fig.22


a- The very great pylon, the two great obelisks and the offering which the king gives (to) Re and Atum the lord of …….

Fig.23


b- Who beats the foreign countries, the golden Horus, mighty of years, great of power, the king of Upper and Lower Egypt, lord of the two lands (weser-Maat-Re setep-n-Re) he erected his monuments for his father Amun-Re …….. [as] a resting for lord of the gods in his beautiful Opet festival.

Fig. 24


a- Scene represent a king (the head is disappeared) offers mDt- offering to the god Amun a part of frieze the beloved of Amun re who gives life

b- It epresent the name of the king ramsis 11 and on each side upon

Fig. 25

Panel of Entrance design Temple emerged for the first time after removing unoriginal layers

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