



**FRENCH-EGYPTIAN
CENTRE FOR THE STUDY OF THE TEMPLES OF
KARNAK
MoA-CNRS USR 3172
ACTIVITY REPORT 2015**



LUXOR, 2016



*Ministry of Antiquities of Egypt
Centre National de la Recherche Scientifique
Ministère des Affaires Étrangères et du Développement International*

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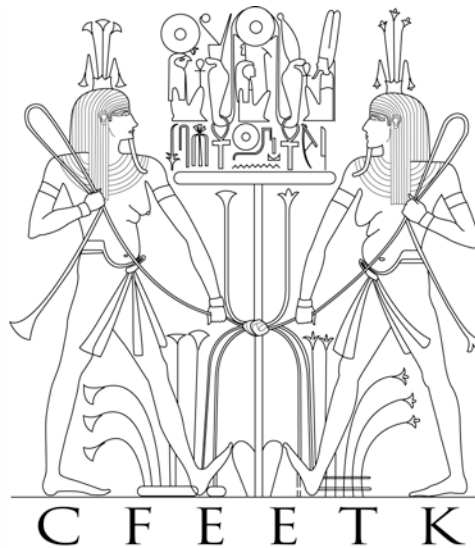


TABLE OF CONTENTS

FOREWORD	4
1. SCIENTIFIC PROGRAMMES	6
1.1. Power and marks of Power at Karnak	6
1.1.1. The Sphinx of Pinudjem	6
1.1.2. The 8th Pylon	7
1.2. Peripheral areas	9
1.2.1. The Ptah Temple area: archaeological investigations	9
1.2.2. The Treasury of Shabaqo	22
1.2.3. The Court of the 9th Pylon	26
1.3. Cults and places of worship	27
1.3.1. The Monuments of Amenhotep I	27
1.3.2. The Osirian sanctuaries	30
1.3.3. The Bark-shrine of Philipp Arrhidaios	38
1.3.4. The Central sanctuaries of the <i>Akh-menu</i> and the “Northern storerooms”	39
1.4. The Karnak project	41
2. RECONSTRUCTION PROGRAMMES	43
2.1. The Calcite chapel of Tuthmosis III	43
3. CONSERVATION-RESTORATION PROGRAMMES	47
3.1. The Chapel of Osiris <i>Wp-ished</i>	47
3.2. The “Northern storerooms” of the <i>Akh-menu</i>	53
3.3. Objects from the Ptah Temple <i>favissa</i>	64
4. ARCHIVES AND SCIENTIFIC DOCUMENTATION	68
4.1. Archives and databases	68
4.2. Photographic department	69
4.3. Topographical department	69
4.4. The scattered blocks survey	71
5. TRAINING PROGRAMMES	72
5.1. Courses, training programmes	72
5.2. Archaeological fieldwork in the courtyard of the 10th Pylon	72
6. PUBLICATIONS AND LECTURES	77
6.1. Selected publications of the CFEETK members and associated missions (2015)	77
6.2. Colloquium and lectures	78
6.3. Press releases	78
7. CFEETK MEMBERS	80
8. ACADEMIC COLLABORATIONS	81

FOREWORD

Work of the French-Egyptian Centre for the Study of the Temples of Karnak in 2015 mostly took place on schedule, in accordance with the four years programme 2013-2016 and the decisions of the Scientific Committee which took place in January 2014. Inside the temple, the activity of the Centre was mainly involved three programmes, as an extension of the work of the previous seasons.

The first concerns the archaeological investigations of the southern and eastern areas of the temple; the main discovery being a *favissa* full of statues and objects dating from the Late Period.

The second one was devoted to the conservation and restoration work in the “Northern storerooms” of Tuthmosis III; this programme is mostly finished and this area will be opened soon to visitors.

The third one concerns the reconstruction of the chapel of Tuthmosis III in the Open Air Museum, which recovered its huge ceiling blocks. The final cleaning will be done in 2016 and the chapel will be opened to visitors.

The epigraphic programme continued at the 8th pylon. At the Philipp Arrhidaeus’ bark-shrine the work is now finished on the field.

Constant work has concerned the documentary database of Karnak, which was enhanced by the addition of photographs (central area, Opet temple,...) and new scans. The website of the Centre reached two million visitors.

The online edition of all the hieroglyphic texts from Karnak (the *Karnak* project) started in January 2013; it is funded by LabEx Archimede (CNRS UMR 5140-Univ. of Montpellier III-Univ. of Perpignan). In 2015, the *Karnak* project reached 3,000 hieroglyphic inscriptions of the temple of Karnak accessible online. More than 2,000,000 visitors accessed the online project.

With the help of Dr. Hisham el-Leithy, the *Cahiers de Karnak* 15 has been sent to the MOA Press at Zamalek for publication. The two first volumes of the Ptah Temple were published at IFAO.

All the work carried out at Karnak has benefited from the constant help of Sultan Eid, General Director of Luxor and Upper Egypt Antiquities, Mustafa Waziri, General Director of Luxor Antiquities, Abdul Raheem Khazafi, Directors of Karnak Temples, Amin Ammar, Director of Karnak temples, Abd al-Satar Badri, Director of the missions of the Karnak Temples, Fawzy Helmi, Mona Fathi and Tayeb Gharib, Directors of the Karnak Temple, Abdel Nasser Ahmed, Chief conservator, Tarek Milad Zikri, Chief architect of Upper Egypt, all the inspectors, the Raïs Mahmud Faruk and the workers of the MOA. It is a pleasure to thank all of them for their kind and constant support.

We would like to extend our grateful thanks to the French authorities of the *Centre National de la Recherche Scientifique* and of the *Ministère des Affaires Étrangères et Européennes* for their constant financial support and interest on the programmes led by the CFEETK.

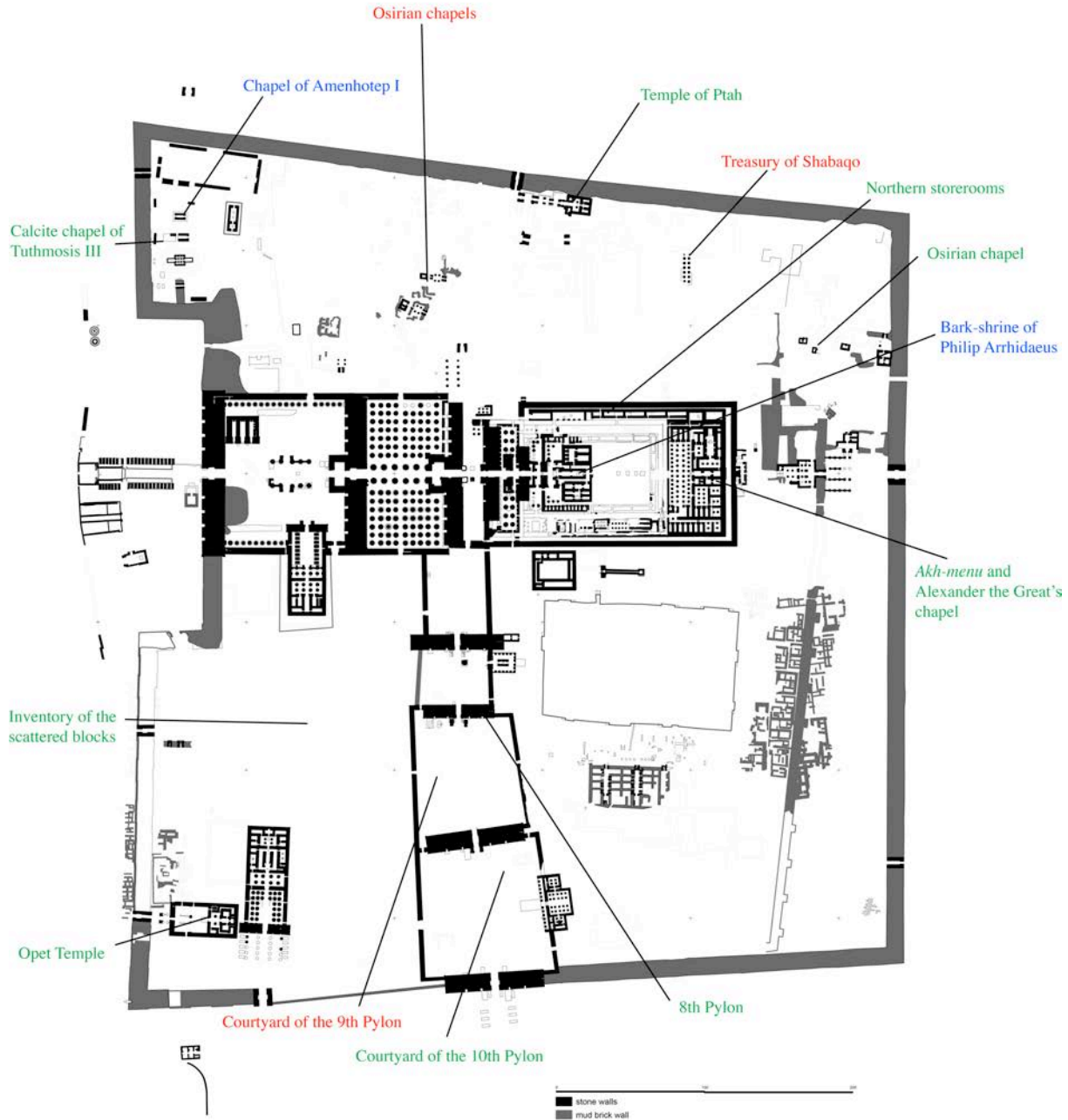
We are always delighted with the excellent relationships between the French-Egyptian Centre for the Study of the Temples of Karnak and the *Ministry of Antiquities of Egypt* led by H.E. Minister of Antiquities Pr. Dr. Mamduh Eldamaty.

Dr. Mohamed Abdel Aziz
General Director of Karnak Temples (MOA)

Dr. Christophe Thiers
Director of the USR 3172 (CNRS)

Amun-Re temple, main fieldwork in 2015

(as submitted at the Scientific Committee in 2014)



temple of Ptah : main CFEETK projects
 osirian chapels : projects hosted by CFEETK
 priests' quarter : projects currently in publication

1. SCIENTIFIC PROGRAMMES

1.1. Power and marks of Power at Karnak

1.1.1. The Sphinxes of Pinudjem I (G. Dembitz, S. Biston-Moulin, Chr. Thiers)¹

The epigraphic documentation of the inscriptions of Pinudjem I, carved on the plinths and bases of the currently ninety-three, originally at least one hundred ram-headed sphinxes that lined the processional route leading to the entrance of the main axis of the temple that begun in front of the actual Second Pylon and ended at the tribune of the quay in the time of the 21st Dynasty, continued in March-April 2015.

The following uniform inscriptions of Pinudjem I that emphasize his accomplishments for Amun-Re in Karnak were documented completely:

PAR.DO.Sp1.n

PAR.DO.Sp2.n

PAR.DO.Sp4.n

PAR.DO.Sp20.n

PAR.DO.Sp17.s

The following variations of the above mentioned formulae were documented:

PAR.DO.Sp2.s detail

PAR.DO.Sp3.s detail

PAR.DO.Sp5.s detail (unfinished inscription)

The survey and the epigraphic documentation of loose blocks currently stored in the Great Court of the Karnak Temple, and originally belonging to the processional avenue during the time of Pinudjem I, has begun.

The following blocks were documented:

3676

3681

3702

GCR.BS1

GCR.BS2

GCR.BS3²

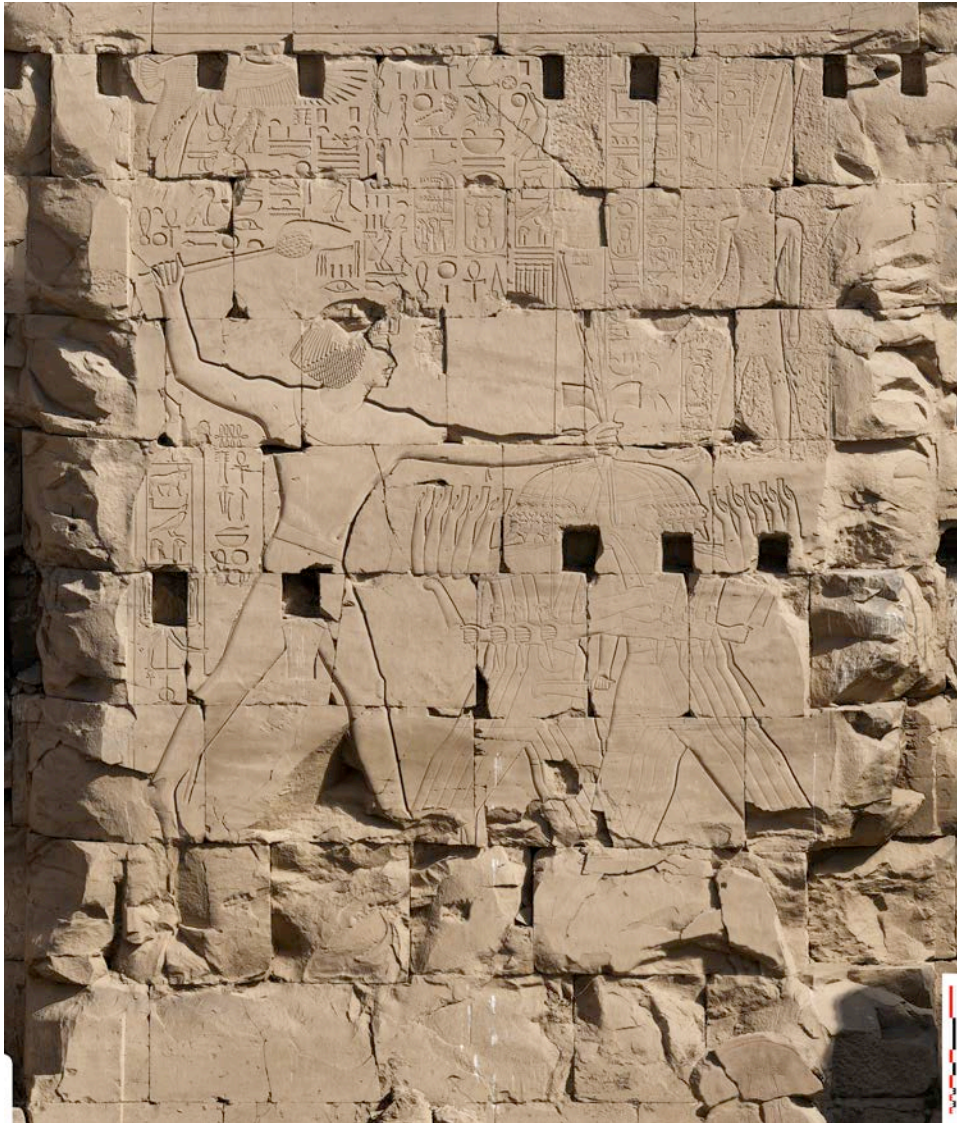
¹ With Mamduh Abd el-Ghassul (MOA-CFEETK).

² BS designates blocks currently without registration number.

1.1.2. The 8th Pylon (S. Biston-Moulin, E. Frood)³

Epigraphic and orthophotographic survey

For this second season, the first objective was to complete the photographic documentation realized with the photogrammetry to produce very high resolution documents allowing a vector drawing from digital files.

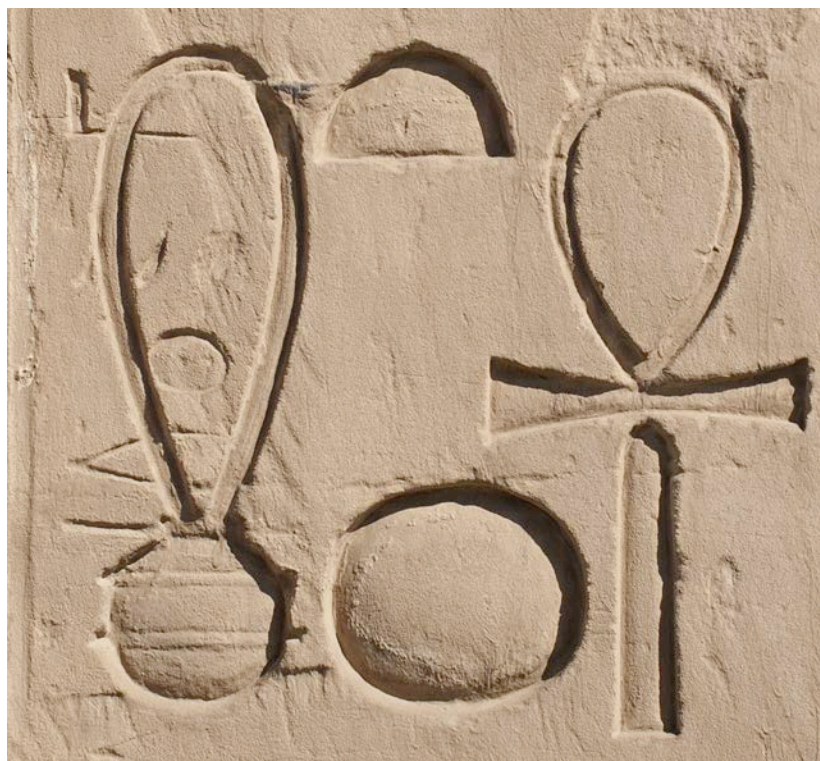


Example of an orthophotograph of the central scene of the south face of the western tower of the 8th pylon
© CNRS-CFEETK/Ph. Soubias.

Photographic survey of the southern part of the tower was completed in the spring 2015. The quality of the photographs in terms of resolution and lighting has enabled us to complete almost all the epigraphic drawings of the last state of decoration of the pylon. These drawings will be checked *in situ*. Part of the

³ With Ch. Salvador (univ. Oxford), P. Calassou (Labex Archimede-CFEETK), Mamduh Abd el-Ghassul (MOA-CFEETK), E. Froppier, Fl. Pirou, J.-G. Olette-Pelletier (CNRS trainees).

decoration was also recorded with plastic films, especially in the lower parts of the pylon or for the inscriptions of the high priests of Amun on the eastern side of the wall of the 8th pylon courtyard. These records have been digitized, and will be systematically compared to the original. We will concentrate this year on the completion of epigraphic records of the western side of the wall of the 8th pylon courtyard. The progress on facsimiles of the pylon allows to begin the work on the many alterations in the carvings of the initial state of decoration of the queen Hatshepsut.



Close up of an orthophotograph of the central scene of the south face of the western tower of the 8th pylon © CNRS-CFEETK/Ph. Soubias.

In spring 2015, E. Frood, continued the work of identification and record of the 8th pylon graffiti. Particular attention has been given to the stairway of the pylon where the largest concentration of graffiti is present. A careful examination of the wall revealed the presence of *depinti* which were rarely identified at Karnak. The inventory of the graffiti was used to complete the photographic documentation of the pylon.

All the inscriptions of this epigraphic survey and the high resolution photographic documentation have been integrated into the *Karnak* project.

1.2. Peripheral areas

1.2.1. The Ptah Temple Area: Archaeological investigations (G. Charloux, M. Abady, B. Durand & A. Nasseh)

In 2015, the archaeological investigations were carried out⁴ in the eastern part of the complex of Ptah, a sector that had remained relatively untouched since the beginning of the research in 2009.⁵ The aim was threefold:

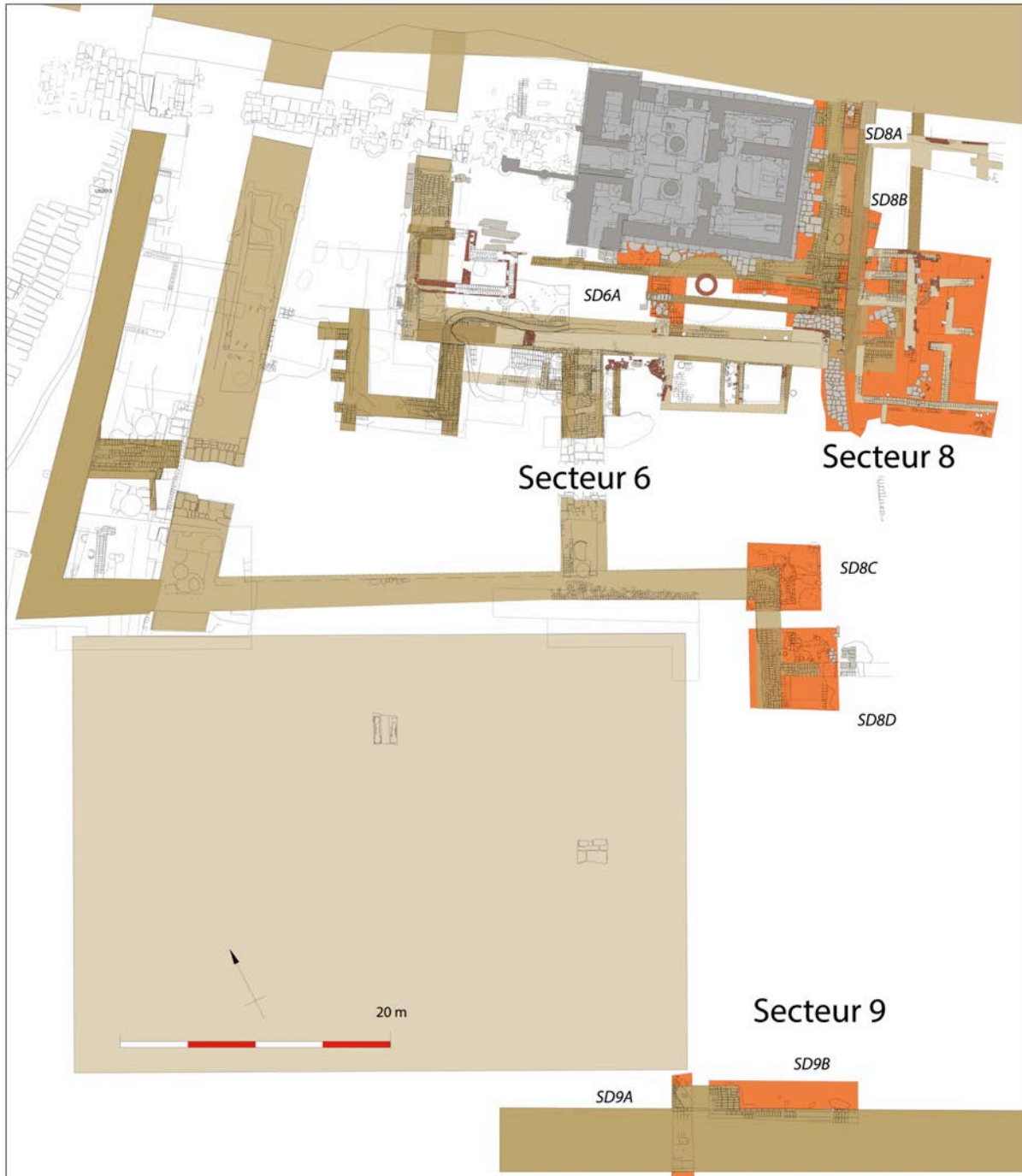
- First to re-contextualize the Ptah temple by excavating its immediate surroundings. It was, in this respect, to better understand the choice of location of the temple at this site and its relationship with surrounding buildings that have succeeded it. This step aims at a further understanding of the environment of the temple in a diachronic way, and at better interpretation of the mudbrick remains found in previous seasons in sectors 3-4 and 6, further west.
- Second, it was necessary to continue the research of the extension of the so-called “Ptolemaic” enclosure towards the east, in order to identify the limits of the precinct during its last major stage of use.
- Finally, an extensive study of upper occupations sought to better understand the layout of the late Roman period structures around the building of Tuthmosis III.



General view of the eastern sector © CNRS-CFEETK.

⁴ Under the responsibility of G. Charloux. Surveyor: Kévin Guadagnini; Conservator: Camille Bourse.

⁵ These field operations are supported by the Labex Archimede (IA-ANR-11-LabX-0032-01) as part of a new research program entitled *Expressions of royal power at Karnak* directed by G. Charloux and Chr. Thiers.



General Plan and location of interventions in 2014-2015 © CNRS-CFEETK.

Searching the limits of the temple enclosure (soundings SD8c-d, SD9a and b)

Continuing the research initiated under the responsibility of Pierre Zignani since 2009, it was necessary to seek the extension of the Ptolemaic enclosure eastward. Four soundings were opened with this objective in the southern part of the eastern sector. We set a common procedure for each operation: perform a

shallow cleaning without going deep, if possible, in the neighboring occupations and layers, in order to go as fast as possible and to limit the amount of material and context to study.

Sector 8



Overview of soundings SD8C and SD8D © CNRS-CFEETK.

The soundings 8C and 8D were implemented in the eastern extension of the enclosure (8019) which was unearthed in previous campaigns, at the location of its supposed return to the south. The area had previously suffered from clearings conducted in the early 20th century. A slope towards the north delineated the modern trench while embodying the corner of the mudbrick wall.

We discovered the corner of the enclosure towards the south as expected but with an originality since the wall extends further south beyond gate C'. This small gate C' mentioning a Ptolemaic ruler was cleared and restored by Chr. Thiers in 2014 and probably materializes a small precinct for an unknown deity.

As in almost all other excavation windows, it appeared that the sides of the mudbrick enclosure were eroded or had been intentionally cut during the late stages of occupation of the sector, notably to install wide structures and to enlarge the occupation spaces, probably dating back to the Late Roman-Byzantine period.

Sector 9

The choice of location of soundings 9A and 9B was the supposed point of contact between the enclosure of the New Kingdom (known to the south by geophysical surveys and a sounding to the east by Nadia Licitra) and the extension of the Ptah temple enclosure wall 8019 in a straight line. This sector 9 is therefore located 28 m south of the 8D sounding. The assumption was that the 8019 wall is more or less perpendicular to the walls of the New Kingdom in a pattern observed for the eastern wall of the treasury of Shabaqo. There were unfortunately large amounts of earth and rubbish in this area. Therefore, we started the search by conducting a sounding, called 9B, away from this rubbish hill, in the north-south axis, to ensure the location of the New Kingdom enclosure wall. The NK enclosure (9005) was discovered almost 2 m south of the northern edge of sounding 9B.



Soundings 9A and 9B © CNRS-CFEETK.

The SD9A trench (11 x 3 m) was opened fifty centimeters at the back of the northern side of the NK enclosure wall (9005). However, no trace of a contact with Ptah temple enclosure 8019 was observed. Traces of late occupation, probably Ptolemaic, were unearthed, comprising light, powdery often ashy layers. They are associated with many tiny faience beads (approx. 3-4 mm dia.), suggesting the existence of a workshop here.

Study of the surroundings of the temple of Ptah (sd8a, b, e, sd6a)

Four archaeological soundings were carried out on the eastern and southern sides of the temple of Ptah, in addition to the cleaning and the study of the foundation pit of the monument of Tuthmosis III and the clearing of the upper surface around the temple.

Following the discovery by Chr. Thiers in 2014 of a mudbrick wall destroyed by the temple, it seemed indeed important to continue research in this direction, by removing the recent sand placed here by P. Zignani and by examining the stratigraphy of the area without unnecessary destruction. This analysis was then completed by the opening of three soundings on the East side: 8A, 8B and 8E, the latter located at the southeast corner of the temple. Sounding 6A was implanted in the southern side.

The excavation has generally concentrated in the area bounded on the south by a large wall attributed to Shabaqo and on the East by the berm created by modern cleaning of Chevrier. The study of remains and fillings revealed nine phases. The deepest levels have not been reached. The stratigraphy is established from Phase 9 the highest, which is modern, to Phase 1 the lowest, pre-tuthmoside. Stratigraphic study does not seem, in fact, to indicate hiatus or break in the occupation of the sector, each phase having at least been partially reused in the next phase.



View of the site at the rear of the temple of Ptah, south-west
© CNRS-CFEETK.

Phase 1: the pre-tuthmoside building

Excavations during the previous seasons revealed the presence of mudbrick foundations anterior to the reign of Tuthmosis III (sectors 5, 7 & 8: Fl. Pflingsttag, M.-C. Livaditis & Chr. Thiers). They are indeed systematically leveled by the foundations of the temple. Given the difference in orientation of the walls, the study of the pit of the temple had to deliver a more complete picture of the pre-tuthmoside structure.

The three newly discovered mudbrick walls found in the foundation trench are all of the same thickness (1.30 m), with the notable exception of 8001, which is 1.20 m thick, and are regularly implemented. Considering the remains discovered in 2010 inside the Ptah chapels, we can assert the presence of a coherent architectural structure which demonstrates a previous building to the temple of Ptah, but with an orientation that follows the axis of the temple of Amun (not the orientation of Ptah temple), and a slight shift of its implantation. The dating of the monument is underway.

Phase 2: the walls of the Second Intermediate Period

A large mudbrick enclosure 8059 was erected on the southern half of wall 8051 of the previous phase. At first glance, one might conclude the complete destruction of the previous building. However, as it appears at the precise reading of field data, the “primitive” building was preserved. This would explain both the orientation of the enclosure and the absence of other intermediate remains.

A fragmentary stele of the end of the SIP or the early New Kingdom (8055-1), was laid flat at the base of a sand layer in the foundation of the early building, during a probable restoration stage.



The mud-brick enclosure during clearing. The sounding 6A seen towards the south © CNRS-CFEETK.

Phase 3: the implementation of the New Kingdom temple

During Phase 3, the early building is destroyed and the temple of Tuthmosis III is elevated. The most convincing clue comes from the orientation of the new boundary mudbrick wall 8015 built to the east of the temple above the previous remains. It corresponds well indeed with the orientation of the rear facade of the New Kingdom temple. It seems very likely that enclosure 8059 functioned contemporaneously with the temple of the New Kingdom.

Phase 4: expanding around the TIP and the early Late Period

Phase 4 corresponds to an important architectural intervention during the end of the TIP or the beginning of the Late Period. The surroundings of the temple are completely renovated, with the main aim of broadening spaces around the NK temple. The southern enclosure is leveled, and a new mudbrick enclosure (6077) is erected to the south. It is probably during this phase, or the next one, that two large pits were dug in the masonry of the eastern enclosure of the New Kingdom: 8041 and 8068 in SD8A.



The wall 8015 abutting the northern side of the mudbrick enclosure © CNRS-CFEETK.

Phase 5: the so-called “enclosure of Nectanebo I”

The building of the main enclosure wall of Karnak under Nectanebo I constitutes a fundamental change in the layout of the temenos of the temple of Ptah, which is then divided into two parts, the northern part being probably destroyed. The clearing of a short segment of the foundation of the enclosure named 8014, and its pit 8039 observed in sounding 8A allowed to highlight its original location, which destroyed the early mudbrick remains on their whole height.

Phase 6: sandstone pavement, its prior masonry and the *favissa*

Phase 6 is characterized by a new redevelopment in the vicinity of Tuthmosis III’s building, probably during the Ptolemaic period. Two construction stages can be distinguished:

The first stage includes the installation of a sandstone pavement above a preparation grid of mudbrick walls. Two 14 m long north-south oriented walls (8025 and 8034) are indeed built at the rear of the temple. Their interval is divided by partition walls and the space is filled with earth. To the south, a long mudbrick wall chained with 8025 also delimitates the southern side of the temple.

Between partition walls near the north-east corner of the Ptah temple was dug the *favissa*, a repository pit for cultic objects, the discovery of which is the major event of the 2014-2015 season.



The discovery of the *favissa* at the rear of the NK temple, looking south © CNRS-CFEETK.

Excavated between December 2014 and January 2015,⁶ the pit comprised 38 statues, statuettes and precious statuary elements, making this an exceptional discovery, both for the quantity and quality of the religious artifacts brought to light. The cultic objects are made of limestone, greywacke, copper alloy and Egyptian faience, sometimes covered with gold. These objects had been placed around the lower part of a seated statue of the god Ptah at the bottom of the pit. The find notably includes:

- 14 statues, statuettes and figurines of Osiris,
- 3 statuettes of baboons,
- 2 statuettes representing the goddess Mut, including one covered with hieroglyphic text,
- 1 head and fragments of a cat statuette (Bastet),
- 2 unidentified statuette bases,
- 1 small plaque and the upper part of a small faience stele dedicated to the god Ptah,
- Several inlays (iris, cornea, beards, headdresses, etc.)

A sphinx statue and a small statue head were also discovered in the upper part of the pit. Although most statuettes date back to the 8th-7th century BC, the sphinx and the context show that the cultic objects were probably buried during the Ptolemaic period, contrarily to what was said in preliminary announcements.

⁶ http://www2.cnrs.fr/sites/en/fichier/cp_karnak_vf_en.pdf



Workers sieving the filling of the *favissa* © CNRS-CFEETK.

Conservators of the Centre, consolidating the plaster that covered a small statue probably in wood © CNRS-CFEETK.

The *favissa* reflects both the removal of statues from the temple of Ptah, and a broader contemporary architectural redevelopment, leading to the implementation of the sandstone pavement around the temple during a second stage. Only scattered remains of the pavement were preserved due to the many disturbances consecutive to subsequent phases of use and destruction. The largest preserved pavement remain was unearthed in the upper part not far from the southeast corner of the temple. The installation of this structure, and its return to the south towards gate C' required the digging of an opening in the enclosure wall 6077. This discovery was widely reported in the press.⁷

⁷ - <http://www2.cnrs.fr/presse/communiqu/3939.htm>

- <http://www.cnrs.fr/fr/pdf/cim/37/index.html>

- <http://www.lefigaro.fr/culture/2015/03/04/03004-20150304ARTFIG00305-karnak-decouverte-de-38-objets-de-culte-au-temple-de-ptah.php>

- <http://www.sciencedaily.com/releases/2015/03/150306073818.htm>

- <http://www.la-croix.com/Archives/2015-03-10/Karnak-decouverte-de-38-objets-de-culte-au-temple-de-Ptah-2015-03-10-1289785>

- <https://www.connaissancedesarts.com/archeologie/karnak-decouverte-de-38-objets-de-culte-au-temple-de-ptah-115493/>

- <http://www.monedelabible.com/un-nouveau-sphinx-a-karnak/>

- <https://youtu.be/9OhmodqNwdg>

- <https://www.youtube.com/watch?v=n0MA1WnFkpg>

- <https://www.youtube.com/watch?v=DArglBiUkgc>

- <https://www.youtube.com/watch?v=IIatWR1frSU>



Statue of Osiris in graywacke after restoration © CNRS-CFEETK/J. Maucor.

Detail of the statue of Osiris after restoration © CNRS-CFEETK/J. Maucor.



Orthophoto of the southern pavement which probably leads to gate C' © CNRS-CFEETK.

Phases 7-8: the Roman-Byzantine occupation

The sector here in question is located to the east of the area beyond the immediate surroundings of the temple. The fieldwork measures 13 m from north to south and 10 m from east to west, an area of about 130 m². The area has a homogeneous surface, as G. Legrain did not work in this sector. Here it is possible to distinguish two periods of occupation so far gathered under the sole name of the Roman-Byzantine period.



View of the eastern sector © CNRS-CFEETK.

Traces of occupation of the site for Phase 7 are isolated at this point, making it currently impossible to draw up a plan, and it is legitimate to ask whether this eastern sector is occupied between the Ptolemaic period and Byzantine occupation.

The plan and archaeological assemblage from Phase 8, the latest before modern disturbances (Phase 9), seem to show a large and well organized residential unit for this period. Small perpendicular walls create life spaces, with little material for the moment but with a clear north-south east-west axis following the orientation of the temple.

Research Perspectives

Given the very positive results achieved during the 2015 campaign, three lines of research seem appropriate for the next campaign.

- The first one is to open a deep trench near the foundation of the primitive building with the aim of reaching the lower levels, and if possible the substrate of the sector. It is indeed important to understand the choice of the location for this building and maybe to identify its function.
- The second research will focus on the “Ptolemaic” enclosure wall by continuing the excavation of its extension towards starting from sounding 8D.
- The final objective will be the extensive excavation of late occupations in the eastern area, in order to better understand the plan and the function of the residential quarter and to date the previous developments.

Annex

To the scientific results one must add the realization of multiple time-consuming complementary activities in 2015.

These include the training of two Egyptian inspectors (M. Abady and A. Nasseh) for one whole year. This training concerned not only the field practice but also all aspects of management and recording of an archaeological site. A second year should enable them to obtain the necessary autonomy to conduct excavations and the writing of archaeological reports to the required level.

Both motivated inspectors have contributed to the survey of archaeological remains excavated in previous years but also to the recording of the US, objects and pictures in the new FMPro database of the Temple of Ptah excavations. Note also that a systematic recording of structures was done using photogrammetry realised by surveyor Kevin Guadagnini. Nearly 4,000 pictures have been recorded in 2015. During this operation, we cleaned up previous recording works and homogenized the data. Renumbering some excavated areas, soundings and US was sometimes needed.

Finally, it is important to mention that the soundings opened in previous seasons and all remains discovered in 2015 were buried or covered by sand at the end of the field season.

Demotic graffiti (D. Devauchelle, G. Widmer)⁸

The aim of our short mission was to study Demotic graffiti engraved on the walls of the temple of Karnak. We started our work in the temple of Ptah, where we had located eight graffiti left by visitors from the Ptolemaic and Roman periods. We could check the drawings made in 2010 and 2011 which had been vectorized in Lille, such as the following inscription mentioning a man named Sheshonq.



Some time was also devoted to Demotic graffiti located in the area enclosed by the 7th and 8th pylons, in collaboration with Chiara Salvador who is working on the Hieratic and figural graffiti of the cachette court. We studied about 20 different inscriptions some of which are very erased and difficult to read. The name Sheshonq was encountered once again, this time belonging to a man who was the grandfather of two brothers, one of which was called Pasherkhons.

Finally, we spent some time looking for graffiti in other parts of the great temple, some of which had been located by Claude Traunecker in the 1970s, in particular one on the roof of the temple of Ramses III (accompanied by a standing figure) and one on the Bubastide wall (a list of numbers). As occasional collaborators of the Karnak temples inscriptions project, we also had the opportunity to discuss our work with Sébastien Biston-Moulin.

⁸ We are very grateful to all the persons who helped us during our stay and made our work easier, in particular Dr. Mohamed Abdel Aziz, General Director of the Karnak Temples, Abder Rahim Khazafy, Director of the Karnak Temples, Mona Fathi, Director of Karnak, as well as Dr. Christophe Thiers, Director of the USR 3172 CNRS and Dr. Sébastien Biston-Moulin, Egyptologist and archivist.

1.2.2. The Treasury of Shabaqo (Nadia Licitra)⁹

The twelfth season of fieldwork on the site of the Treasury of Shabaqo took place from March 2nd until May 14th 2015.

The first part of the campaign (March 2nd- April 9th) has been a study mission: during six weeks several assemblages collected during the previous campaigns have been studied. Our attention has focused particularly on the pottery linked to the destruction layers of the Treasury. About 200 diagnostic shapes have been recorded and drawn (by N. Favry and Mahmud Mustafa Abd el-Hafez): most of them date back to the kushite and saite period, but some Ptolemaic vessels are also present. This later material has to be linked to the Ptolemaic settlement set up north of the temple of Amun at the end of the Later Period and partly brought to light on the site of the Treasury in 2010-2011 campaigns.

On April 11th, the excavation started with the opening of two excavation areas: the first one west of the room of the benches of the Treasury and the second one north of the room of the niche.

In the western area, a Ptolemaic house, partly dug in 2009, has been completely brought to light. The elevation of this building, covered only by the surface layer, was completely destroyed and only the foundation and the floor were preserved. Nevertheless, it has been possible to understand the general plan of this house made up of three rooms and a staircase. The presence of a staircase is proved by the remaining platform of foundation made of red bricks.



The Ptolemaic house discovered in the western area of excavation © Mission Trésor de Chabaka/S. Marchi.

⁹ I want to thank Mr. Sultan Eid, General Director of Luxor and Upper Egypt, Mr. Mostafa Waziri, General Director of Luxor antiquities, Mr. Mohamed Abdel Aziz, General Director of the Karnak temples, Mr. Amin Ammar, Director of the Karnak temples, Mrs. Mona Fathi, Director of Karnak and Mr. Christophe Thiers, Director of CFEETK, for the support and the assistance they gave me during the carrying out of the mission.

The mission has been led by Nadia Licitra (UMR 8167, Paris IV Sorbonne University, Labex Resmed) with the participation of Nathalie Favry (egyptologist, Paris IV-Sorbonne University), Séverine Marchi (archaeologist, CNRS – UMR 8167, Paris IV Sorbonne University), François Delahaye (archaeologist, Inrap), Stéphanie Boulet (Fnrs, Université Libre of Brussels), Hassan Mohamed Ahmed (conservator, Ifao), Mahmud Mustafa Abd el-Hafez (draughtsman) and Mona Ali Abady, Amira Faouzy, Mai El-Husseney Mohamed Faried, Aisha Mohammed Montaser, inspectors of the Ministry of Antiquities.

After having drawn and carefully documented the plan of this building, its eastern wall has been removed in order to bring to light the underlying storeroom of the Treasury of Shabaqo. The Ptolemaic house, in fact, has been founded directly on the destruction layer of the Kushite building.

During the removal of the destruction layer of the Treasury, some fragments of the vault covering the storeroom have been discovered. At the end of the last week of excavation the southern half of the storeroom parallel to the room of the benches has been completely excavated.

Inside the storeroom only two rectangular sandstone blocs were found. No objects were discovered on the floor of the room and the pottery was very scarce: like already observed in the other rooms of the Treasury, the building had been carefully emptied before it was abandoned.

The eastern and the western walls of the storeroom are covered with white plaster, which is in good condition. After the discovery, Camille Bourse (conservator, CFEETK) and Ashraf Moustafa Ali (conservator, MOA) consolidated the plaster using Ammonium oxalate. The walls are now covered with cloth.

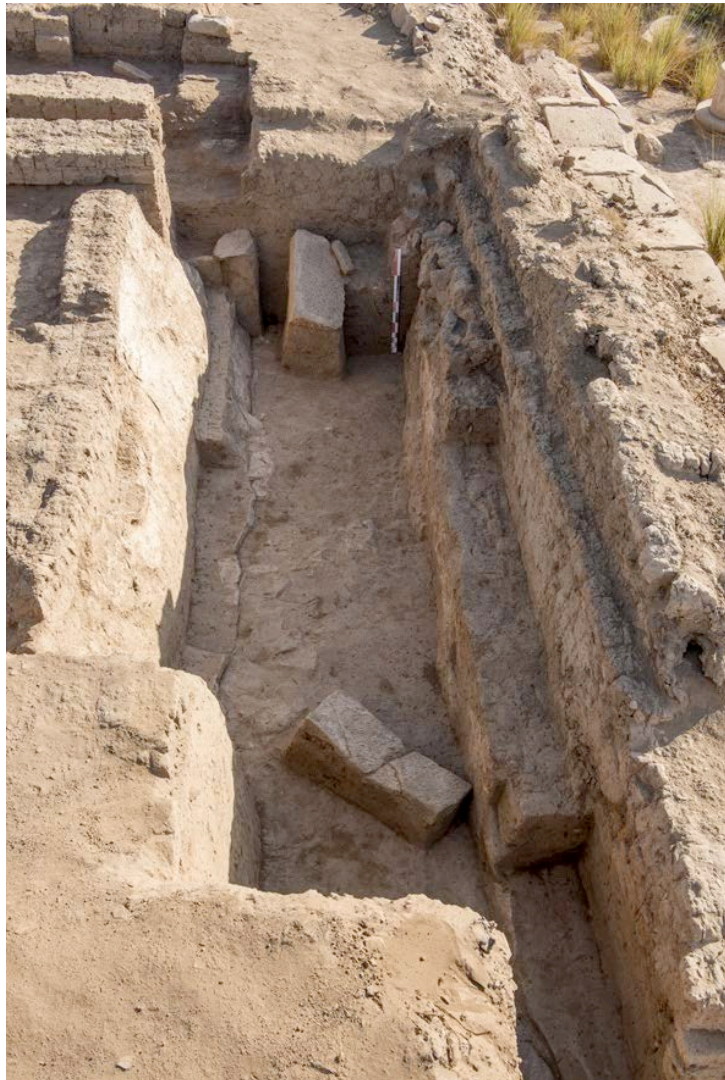
In the northern area of the excavation, only a few superficial layers have been removed.

Immediately below these layers there was a large wall, partly destroyed (3 cm preserved) which seems to be the eastern wall of the Treasury.

Some Ptolemaic constructions are also preserved in this area such as three mudbrick walls and a well.

The well, built in red bricks, as well as the mudbrick walls, have to be linked to the Ptolemaic settlement of the northern area of the precinct of Amun.

During two weeks, Hassan Mohamed Ahmed (Ifao) worked on the restoration of a severely damaged cornice (Arch. 178-25) discovered in 2010. He also reassembled three sandstone elements of the doorframes discovered in 2010 and 2011 (Arch. 178-24, Arch. 178-27 and Arch. 178-47).



The storeroom of the Treasury © CNRS-CFEETK/J. Maucor.

On May 11th, these three blocks and three others (Arch. 178-28, Arch. 178-46 and Arch. 178 48) have been carried into the storeroom Sheikh Labib A by the rais Mahmud Farouk and his team.

Six more blocks, broken in two parts, will be reassembled during the next season: they have been put under a tent close to the site.



The northern area of excavation © CNRS-CFEETK/J. Maucor.

Ceramological Report (St. Boulet)

The ceramological study took place between the 12th and the 30th of April 2015. During this time, the pottery sherds were subject to a rigorous examination for their datation and the understanding of their archaeological contexts. Mahmoud Moustafa Abd el-Hafez was in charge of some of the drawings.

In the northern area of the excavation, the levels located directly under the surface, are composed of pottery sherds dating back to the end of the Ptolemaic period, more specifically to the 1st century BC. Other levels comprise ceramic productions from the Ptolemaic period, more specifically from the second part of this period.

In the western area of the excavation, the extension towards the west of the Ptolemaic house reveals pieces dating from the 2d part of the 2d century to the 1st century BC. Amongst the material are cups with burnished black surface in Nile clay (fig. 1-2), jars with short necks in marl clay (fig. 3), and a cup with an everted rim (fig. 4). A great quantity of pottery sherds were found in a large pit under the house which seems to belong to the Ptolemaic period, more specifically to the second part of the period. Amongst the material have been found some Bes vases, jars in Marl clay with vegetal decoration and various types of small cups. This ceramic set will be studied in a future mission.

The upper level of the demolition of the storeroom of the Chabaka Treasure is partly composed of elements dating back to the Ramesside Period and the Third Intermediate period. This collection includes some cups with red rims (fig. 5), some fragments of beer jars, some jars with everted rims (fig. 6) and

also, some carinated cups with black decoration (fig. 7). In addition to this material, there are elements from the 7th century BC, probably associated to the time of the destruction of the storeroom.

The analysis of the ceramic material from the excavation of the Chabaka Treasury is primordial so as to better understand the evolution of the ceramic industry in the Theban area during the 1st Millennium BC. Thanks to a rigorous stratigraphical analysis, it will be possible in the future to complete and to precise the typology of the local production, but also to associate this important documentation to a larger study on the economic history of the Theban area in the Late period.



Fig. 1

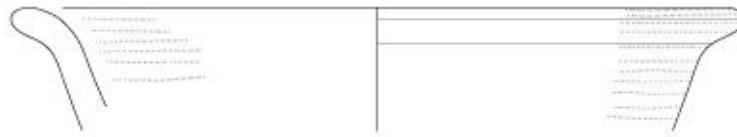


Fig. 2

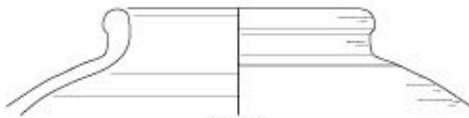


Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



1.2.3. The Court of the 9th Pylon (Ch. Van Siclen)

Excavations in the Court of the Ninth Pylon, under the direction of Charles Van Siclen, took place between 11 and 29 January 2015. This short season of work was devoted to photography of pottery and miscellaneous small finds. Most of the photographs were of selected pieces of pottery or pottery fragments showing details of decoration. Other objects photographed included gaming pieces, shells and some iron fragments. In addition, bags containing bones and stone and flint artifacts were collected.

Due to technical problems, the photographs may need to be redone.

1.3. Cults and places of worship

1.3.1. The Monuments of Amenhotep I (J.-Fr. Carlotti, L. Gabolde)¹⁰

This 2015 mission had various objectives :

1. To check the validity of the hypothesis of two gates of Thutmosis II framing the bark shrine;
2. To check the presence of grooves for a wooden frame along wall E (south end of the *sebekhet* wall);
3. To check the layout of the small entrance pylon;
4. To determine the different modification stages of the monuments of Amenhotep I down to their destruction.
5. To attempt to precise the two building campaigns of the monuments of Amenhotep I and to try to fix precisely the location of the chapels with torus but without frame of the first phase of constructions. These chapels were then dismantled by order of the king during the second phase of work.
6. To attempt to determine the state of Amun's temple before Amenhotep I undertook his building campaigns.

Tasks accomplished :

- The hypothesis of two gates of Thutmosis II framing the bark shrine could not be validated; but the possibility of *sebekhet* in wood was verified, though the traces are scarce. The presence of grooves along wall E was confirmed by close observation of the traces on the blocks.
- J.-Fr. Carlotti has checked the reconstructed dimensions of the gate of the small entrance pylon from the lintel rebuilt in the open air museum. The metric dimensions have been slightly modified (3.42m x 6.83m) and have been converted into cubits : 6 ½ cubits x 13 cubits)
- Different phases of modifications of the monuments of Amenhotep I under the reigns of his successors have been precised.
- The layout of the two successive building campaigns of Amenhotep I have been clarified and the location of the chapel without frames but with torus, belonging to the first phase, has been definitely fixed.
- During the year 2014, the hypothesis of the location of the calcite chapel has been revised and confirmed. Subsequently, few modifications were done on the text and three figures were drawn during the mission for the manuscript of *Les monuments d'Amenhotep I^{er} à Karnak I, La chapelle en calcite aux noms d'Amenhotep I^{er} et Thoutmosis I^{er}*.

Progress of the program

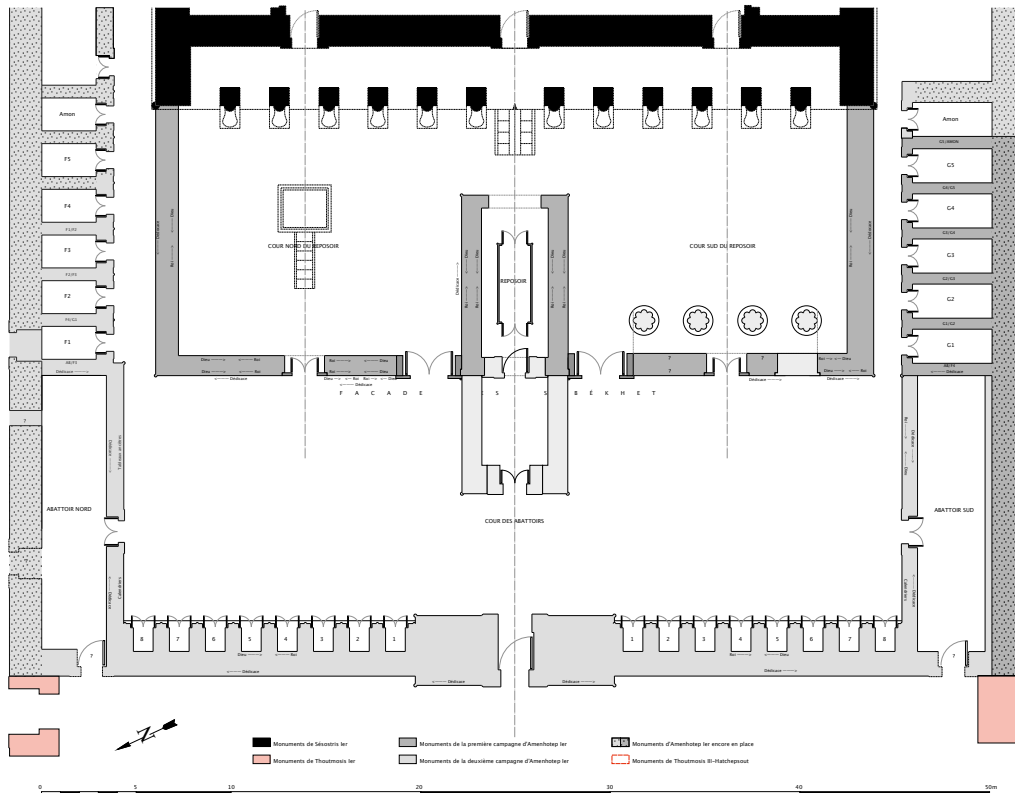
The progress of the program reaches 90% (without the epigraphical drawings). Work is in progress concerning the epigraphical plates: the drawings are currently being vectorized. The volume II of *Les Monuments d'Amenhotep I^{er} à Karnak*, which shall be devoted to the architectural study of the buildings, shall be delivered for edition in 2016.

¹⁰ Acknowledgements : Dr. Mohamed Abdel Aziz, General Director of the Temples of Karnak, and Abdul-Raheem Khazafi, Director of the Temples of Karnak, have welcomed us in the name of the Ministry of Antiquities and favoured our work on the spot with a very kind attention for which we are very grateful.

The CFEETK, represented by the director of the USR 3172 of the CNRS, Christophe Thiers and by its administrator, Veronique Puelle, provided us with an efficient logistical help, and its documentalist, Sébastien Biston-Moulin, opened to us the resources of the library and of the archive.

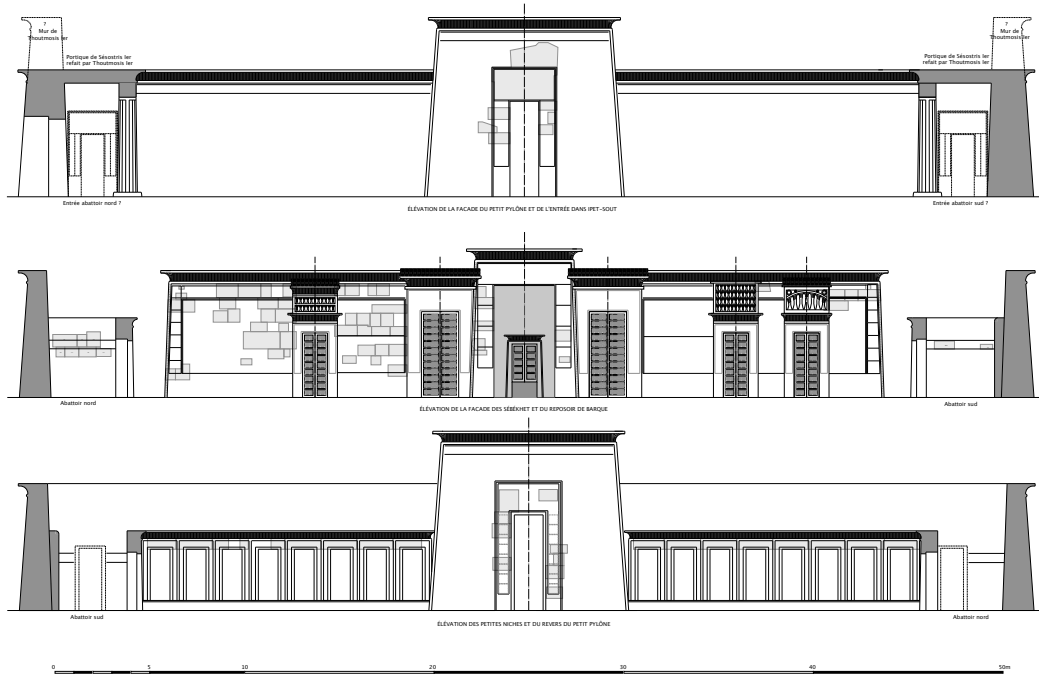
The first volume of the series, dealing with the calcite chapel, has been accepted for publication at IFAO. A grant from the Labex Archimede of the University Paul-Valéry Montpellier has been obtained for this publication.

When the assemblage schemes shall be delivered, a rebuilding of the monument will possibly be planned. However, taking into account the state of the blocks, hewn out in a variety of local limestone full of micro-cracks, it seems by far preferable to rebuild the monuments on the spot, at Karnak.



Plan, hypothetical restitution of the monuments of Amenhotep I at Karnak.

COUPES TRANSVERSALES SUR LES MONUMENTS D'AMENHOTEP Ier À KARNAK



Sections, hypothetical restitution of the monuments of Amenhotep I at Karnak.

1.3.2. The Osirian Sanctuaries (L. Coulon, C. Giorgi)

The fourteenth campaign of excavation and restoration of the chapels of Osiris to the north of the Great Hypostyle Hall, coupled with a campaign on the chapel of Osiris Ptah Neb ânkh, was undertaken with the support of the CFEETK, the French Institute in Cairo (IFAO), the INRAP, and the research teams HiSoMA (Maison de l’Orient et de la Méditerranée, Lyon) and Orient & Méditerranée - Mondes pharaoniques (Paris-Sorbonne), between February 1st and March 6th 2015.¹¹

A. The chapel of Osiris Wennefer Neb djefau

I. Excavation of the chapel and its surroundings

Several soundings were undertaken, under the supervision of C. Giorgi, inside or next to the chapel of Osiris Wennefer Neb Djefau, in order to pursue the systematic analysis of the chapel, and his main components. More than ten sectors were excavated this year, which allowed to refine the data collected during the previous seasons, concerning not only the 26th dynasty building, but also the earlier occupations (Third Intermediate Period) or later levels (Ptolemaic and Roman period).

Stone architectural structures

In addition to the on-going study of the stone elevations of the chapel and the recording of various reused blocks, notably in the pavement and the later walls, two badly weathered columns (C3 and C4) located in the southern part of the hypostyle hall were temporarily dismantled in order to study them and to restore their bases and drums. The bases of these fasciculated papyriform columns with closed capitals are made of two semicircular sandstone blocks, interlocked by two dove-tail locks (probably in wood) covered with mortar. The bases are directly settled in a square pedestal (made of several squared blocks and a circular central portion). These “pedestals” are integrated into the pavement of the hypostyle hall, at the same height. This pavement is partly made of reused blocks, datable to the 26th dynasty or perhaps sometimes of later date.

¹¹ The members of the team were Laurent Coulon (egyptologist, University of Lyon 2-CNRS, HiSoMA, director of the mission), Cyril Giorgi (archaeologist, INRAP, co-director of the mission), Catherine Defernez (ceramologist, University of Paris IV-CNRS, UMR 8167), Frédéric Payraudeau (egyptologist, University of Paris IV, UMR 8167), Stéphanie Boulet (ceramologist, Research Fellow FRS-FNRS, Université libre de Bruxelles), Laurent Vallières (topograph, INRAP), Anna Guillou (archaeologist and egyptologist), Alexandre Rabot (archeologist, university of Lyon-2/HiSoMA); Thomas Faucher (archaeologist, numismat, CNRS), Aleksandra Hallmann (egyptologist, University of Warsaw / Oriental Institute, Chicago); Hassan el-Amir (conservator, IFAO), Sylvie Marchand (ceramologist, IFAO) and Camille Lemoine (artist, IFAO).

The objects were photographed by Jessie Maucor (USR 3172/CFEETK) and her team.

The restoration of the naos was undertaken by Salah Salem Sayed (conservator, MOA Karnak), under the supervision of Mr. Abd Al-Nasser (head of restoration service at Karnak).

Five inspectors of the Supreme Council have attended the training session which took place between February 15th and 28th, 2015 : Mrs Asmaa Farouk Mohamed (two weeks), Mr Adel Tohami, Mrs Rasha Ahmed el-Amin, Mr Yasser Farouk and Mr Mohamed Ibrahim Abd el-Aal (one week).

Mr. Abu al-Hassan Ahmed Ibrahim, Mr. Mohamed Badawy (excavations) and Mr. Mohamed Wahabi and Mahmoud Sayed (Evergete storeroom) were representing the Supreme Council of Antiquities under the supervision of Mr. Mohamed Abdel Aziz, Mr. Amin Amar, Mr. Abder Rahim Kazafy, Mrs. Mona Fathi and Mr. Abd Al-Sattar Badri.



Foundation of one of the columns of the hypostyle hall © C. Giorgi.

The foundations of the first gate were also excavated, which allowed to record the dimensions of the threshold, being made of a large block of red granite (57,6 x 250 x 77,5 cm) and its door socket, being made from a reused block of red granite perfectly squared and polished (perhaps a statue plinth). Under these elements, a thin layer of sand, gypsum and sandstone fragments was found.

The analysis of the access ramp to the chapel was also resumed, with a special focus on the lower part. The irregular stone blocks of which it is made of (fragments of obelisks, statues, reliefs and column...) form a secondary extension of the upper part of the ramp, settled on a leveling layer, which can be dated to the end of the Late Period and the beginning of the Ptolemaic Period. Among the reused inscribed blocks recorded this season, a fragment of relief belonging to a small gate of the 26th dynasty chapel is to be mentioned. The extension of the ramp covers a circular structure, found in 2014, which was fully excavated this season.

Brick architecture

Building on previous data concerning the foundations of the first gate, several soundings were undertaken in the hypostyle hall to better understand the connection between the northern pylon (MR 505), the first door and the southern pylon (MR 506). A large platform foundation of mudbrick connected with the foundations of the two sides of the pylon was found. This foundation seems to be built in only one process, although architectural variations can be observed in the foundation of the southern part.

Additional excavations inside and outside the chapel allow to understand the connection between the southern pylon and the precinct wall (MR 513) connected to the service rooms.



Mudbrick foundation of the southern part of the pylon and the first gate © Giorgi.

Excavations were also continued this season at the southeastern corner of the precinct wall: additional orthostats were found, which showed that, as had been previously supposed, the alignment continues towards the neighboring sanctuary. We have refined the stratigraphy and discovered additional walls to the west. This set of orthostats seems to be installed on a solid mudbrick floor of the 22nd dynasty.



Baked brick orthostats at the southeastern corner of the chapel © C. Giorgi.

Levels predating the construction of the chapel

To the north of the naos, the foundations of a pavement made of large sandstone and limestone slabs, discovered in 2013, were excavated. The ceramic material found on each side of this pavement and into the foundation dates back to the transitional phase between the end of 22nd dynasty and the beginning of the 25th dynasty (see *infra*). The study of each part of this pavement allowed to observe that many slabs are made from reused blocks, inscribed or not.

In the lower levels, we found many pits and burned layers, several artefacts (seals, ceramics, etc), similar to those found during the excavation of the foundations of the hypostyle hall. A Ramesside jar handle with a hieroglyphic stamp was also found there: the stamp reads *hwt-Mn-M3 ʿ-[Rʿ] m 3 bdw*, “temple of Menmaat[rê] at Abydos”, and was therefore applied to an oil or wine jar coming from the Abydos temple domain of Sethy I. Many similar jars were found in the storerooms of the Ramesseum.

The Ptolemaic and Roman levels

Though only scattered ruins can indicate now how the sanctuary was reorganized at later times, it is possible to single out and record some restorations and reoccupations of this building. Thus, on each side of the northern pylon (MR 505), inside and outside the chapel, different phases of restorations and reoccupations are visible. Several soundings were undertaken to distinguish the different phases of reconstruction in this area, which radically modified its structure. Next season, an additional sounding will be undertaken to complete the stratigraphic analysis. In the northeastern corner, into the walls MR 504 and MR 505, a ceramic deposit from the Ptolemaic period, locked inside a reused blocks arrangement, covered by a mud brick wall, was found.



Ptolemaic jar buried as a deposit at the northeastern corner of the northern part of the first gate's pylon © C. Giorgi.

Outside the chapel, a large platform, leaning on the eastern façade of the northern part of the pylon, was partially excavated. In its western part, it is composed of a succession of landfills, floor levels made of mud bricks, and several walls forming small spaces, in which ovens have been identified. The ceramic material found in this sector is mainly composed of domestic pottery of Greek and Pharaonic tradition,

which is dated from the 3rd and 2nd cent. B.C. This area could be directly associated with the Ptolemaic workshop area located between the alley of Ptah and the façade of the chapel, found in 2008.

In the upper part of this large platform, additional occupation levels were identified through ash landfills, where many complete ceramics (dated from 1st and 2nd cent. AD) have been found (see *infra*).



“Platform” made of Ptolemaic and Roman layers at the northeastern corner of the chapel © C. Giorgi.



Ceramics of the early Roman Period found on the large mudbrick platform at the northeastern corner of the chapel © C. Giorgi.

Restoration and recording of objects

Besides the restoration of the pavement and two columns of the hypostyle hall, the interior walls of the naos were treated and consolidated. Moreover, the objects found in 2014 and 2015 have been restored by Hassan el-Amir in the so-called Evergete storeroom (bronze objects, coins, statuettes, etc.). The conservation process has accompanied the systematic recording of the objects by Fr. Payraudeau and the study of the coins by Th. Faucher.

II. Ceramological studies

Third intermediate Period and Late Period (S. Boulet, C. Defernez)

Several archaeological layers revealed important ceramic testimonies, in particular in the levels pre-dating the construction of the Saite chapel. Indeed, these date back to the end of the Ramesside and the Third Intermediate period. These layers are important for the current ceramological studies, as the ceramic industry of the Third Intermediate Period remains poorly documented for the Theban Area, and more broadly for Upper Egypt. The discovery of these artefacts is very important to establish in the future chronological sequences on the basis of stratified archaeological contexts.

As for the layers excavated under the pavement found to the north of the naos, the pottery sherds mainly belong to the local ceramic industry of the 8th century BC, with some later sherds dating from the end of the 8th to the beginning of the 7th century BC. The Marl Clay (*Marl A4 Variant 2*) pottery collection comprises some flared cups, with direct and convex rim, neckless jars with *S* – profiled rim or

also large bowls with modelled rims. With such an observation, the construction of this paving seems to be dated to the 25th Dynasty.

As for the underlying levels, they reveal interesting data concerning the earlier ceramic industry. Although the layers are composed of very fragmentary and badly preserved pottery sherds, some diagnostic elements have been observed as well as flared cups with red rim, sherds from large jars in *Marl A4 variant I* and some sherds with orange slip applied with a brush, characteristic of the ceramic production for the 20th and 21st Dynasties. As a complement to this previous information, a fragmentary stamped handle of amphora of *Marl D* has been brought to light (see *supra*). This kind of amphora was made in the Delta and is frequently found in Egypt during the Ramesside Period.

Others testimonies of ceramic industry dating from the Third Intermediate Period to the Late Period have been uncovered in others surveys made during this mission. The ceramic material from the Chapel of Osiris *Wennefer Neb-Djefau* is very extensive and essential in the understanding of morphological and technical evolution of the local ceramic industry during the first millennium BC in the Theban Area. Using these stratified assemblages, it is now possible to present a typological study of Theban ceramic production from the 8th to the 6th century BC.

Ptolemaic and Roman Period (S. Marchand)

A special attention was paid to the storage jar discovered inside an assemblage of blocks to the northeast of the hypostyle hall of the chapel. Made of local marl clay (late BE 1) and covered by a light-orange engobe, its decoration, painted in red, is made of several registers separated with red horizontal lines. The registers alternate floral motifs (palms, large leaves) and a geometric pattern of crossed lines. This jar belongs to a ceramic repertoire which is commonly found in Upper Egypt but also in areas under Theban influence, such as the southern part of the Kharga Oasis. The form of the jar and its decoration are characteristic of the end of the Late Period and the beginning of the Ptolemaic era (4th-3rd cent. B.C.).

The second archaeological context which has been carefully studied is the deposit of complete pieces of tableware of the 1st cent. A.D., discovered on the platform leaning on the northern part of the first gate's pylon. Seven intact pots were discovered, randomly disposed in an ash landfill. They were found with 28 pottery sherds, some of them being quite large. Obviously, this layer is homogeneous, as almost every piece can be ascribed to the beginning of the Roman Period. Most of them belong to the family of tableware of open shape and small size (plates, convex bowls, etc.), commonly found in Karnak and especially in our site. It includes a group of three miniature vases imitating baskets. The sherds found with the complete vases (including the fragments of Egyptian wine amphoras AE3 made of silt ware) confirm the datation of this assemblage to the beginning of the Roman Period. We have here the first attestation of an amphora made of Aswan ware. The cooking ware is also attested in this assemblage through the presence of a rim from a cooking pot and a second one from a cooking dish with curved sides.

III. Epigraphic studies

In order to complete the final publication of the chapel of Osiris *Wennefer Neb Djefau*, additional observations were made by A. Guillou, A. Hallmann, L. Coulon. A graffito of Osiris, which can be seen only when illuminated by the rising sun, has been discovered at the foot of the southern doorjamb of the

first gate of the chapel. A photogrammetric recording of the reliefs was undertaken to improve the accuracy of the drawings.

The blocks found during this season were also fully recorded.



Graffito depicting Osiris at the entrance of the chapel © L. Coulon.

A. Hallmann's work concentrated on further analysis of the iconography of the chapel with special attention to the style of portrayals of human figures such as Ankhnesneferibre, Amasis, and Sheshonq (A), High-Steward of the Divine Votaress. The study encompasses analysis of anatomical features of rendered figures, their costume and attributes, as well as the relations between figures. A special attention was also paid to the scale of represented figures.

Additionally, A. Hallmann has focused on preserved colors in the chapel decoration. The traces of colors survived on some figures, as well as on many glyphs, although in very limited condition. The color analysis shows, for example, that some elements of the figures' costumes were only painted and not carved. This is the case with Sheshonq's sandals that were added in paint on the Scene 19. The dominant color of glyph decoration is blue. The larger in scale glyphs survived also with decoration in red or in two colors, namely red and blue.

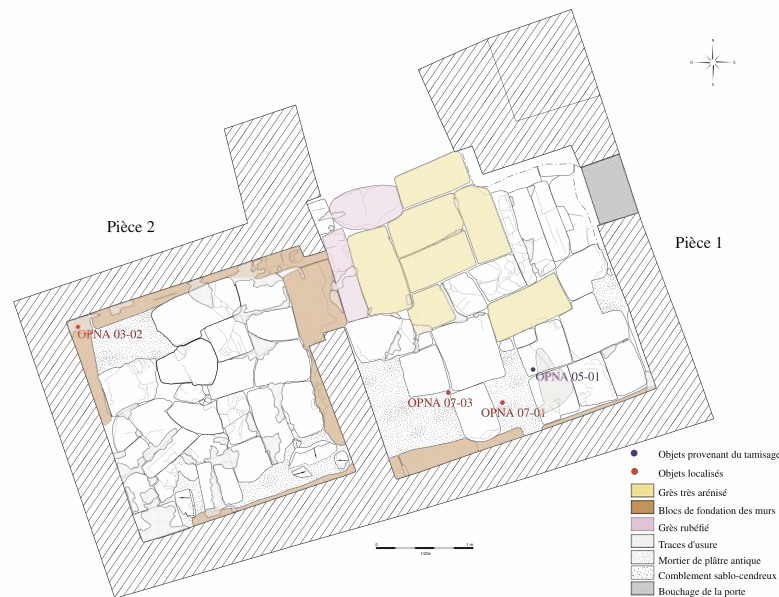


Sandals of Sheshonq (A) added in paint (Scene 19) © A. Hallmann.

B. The chapel of Osiris-Ptah Neb ânkh

During this campaign on this chapel located between the temenos of Amun and Mut, to the south-east of the 10th pylon of Karnak, we had two aims: firstly, to clean and record the pavement of the two rooms and, secondly, to cross-check of the epigraphic survey, in order to complete the plates of the publication.

The first operation was led by Anna Guillou. Excavation of the circulation levels (floors) has shown that the pavement was made of reused blocks, like the walls of the chapels (wall blocks or columns). The whole pavement seems to have received a protection layer during Antiquity. Indeed, several slabs show remains of a lime milk (this whitewashing has been also found between the slabs).



Drawing of the pavement of the chapel of Osiris Ptah Neb ânkh (A. Guillou).

The drawing of the pavement was made using an orthoimage obtained by photogrammetry. The cleaning has allowed to observe parts of the foundations of the walls, made of long sandstone blocks extending from the walls by 10 cm inside the rooms.

The material discovered during this operation includes some fragments of bronze objects, notably a head of an Osiris figure (OPNA 07.01) and the crown of a feminine figure (OPNA 05.01).

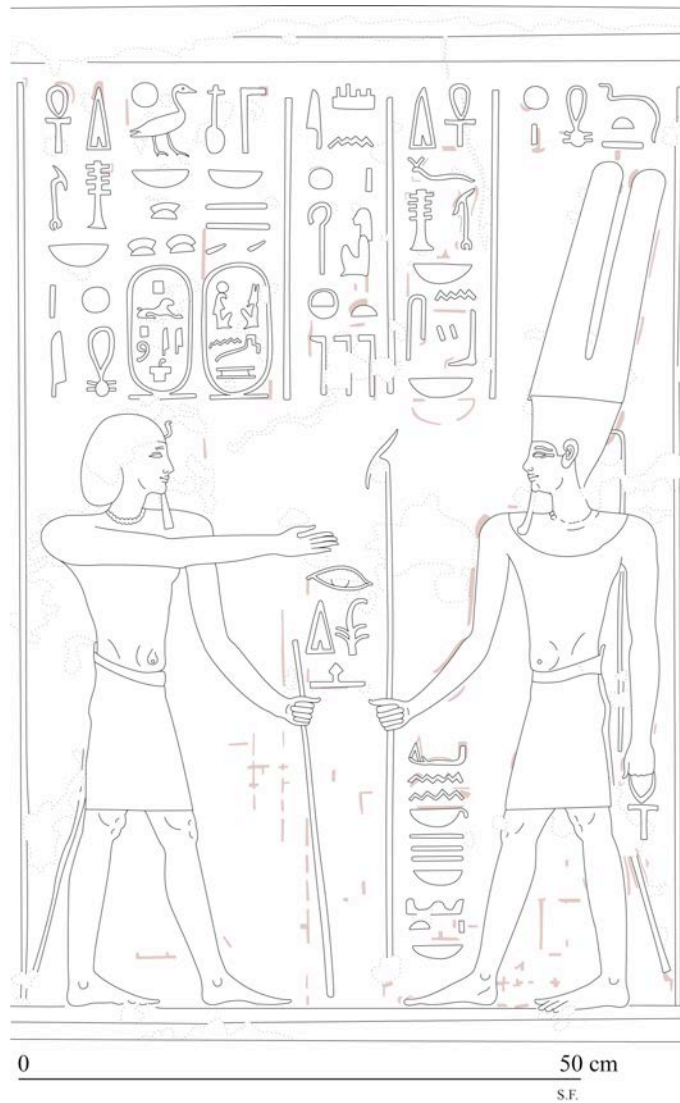
Besides the checking of the epigraphic drawings, A. Hallmann has undertaken the study of the iconography of the reliefs, with a special focus on human figures (anatomical features, costumes, attributes) and the distribution of colors.

1.3.3. The bark-shrine of Philipp Arrhidaeus (Chr. Thiers, A. Tillier)¹²

Part of the 2015 season aimed at checking the drawings of the scenes for the publication. The facsimiles of the scenes of the first room were verified. The scenes are painted in green, for both texts and figures. The checking of the drawings of the second room is currently ongoing.

A preliminary inventory of loose blocks belonging to the chapel and lying upon benches was realized. The location of few blocks was identified.

In October-November 2015, the presence granite will be studied, in order to differentiate the blocks of Tuthmosis III from those of Philipp Arrhidaeus bark-shrine.

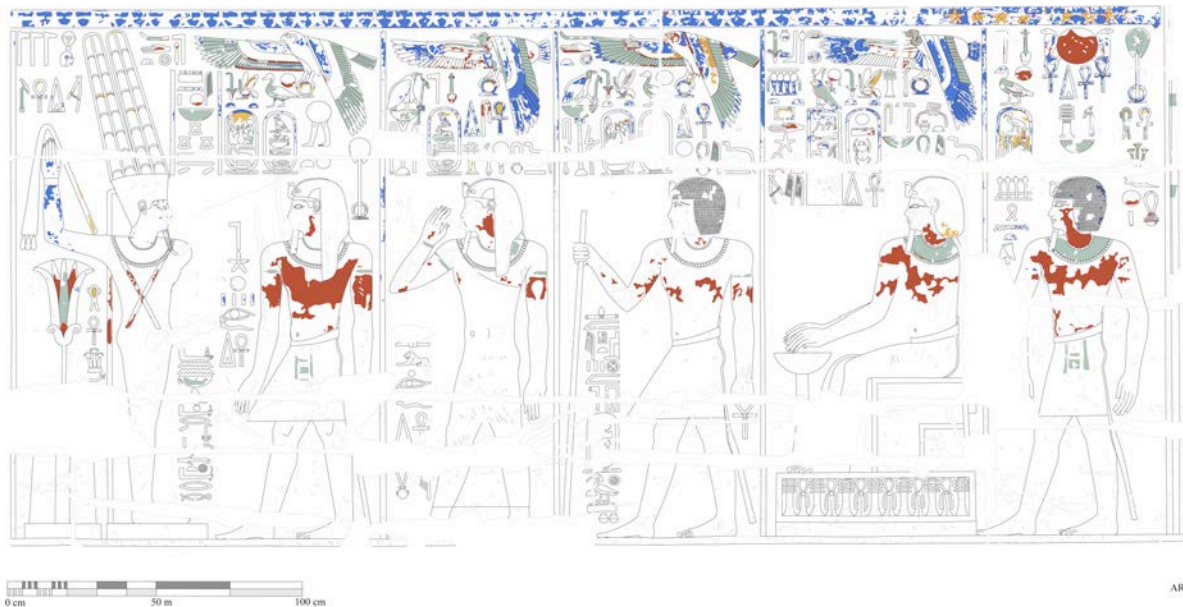


Philipp Arrhidaeus in front of Amun, north wall of the first room.

¹² With Pauline Calassou (LabEx Archimede).

1.3.4. The Central sanctuaries of the *Akh-menu* and “Northern Storerooms” (Chr. Thiers, Chr. Leitz, S. Biston-Moulin)¹³

This epigraphic and conservation (see below) programme is led in partnership with the University of Tübingen (Prof. Chr. Leitz). For the area studied by our German colleagues, J. Maucor (photographer USR 3172-CNRS) and K. Guadagnini (surveyor VI MAEDI) have provided high resolution ortho-photographs allowing to draw the scenes and texts on the computer.



Drawing of the southern wall of the Alexander' Chapel, first register, western part © A. Rickert.

This season, the first verifications of the drawings were undertaken, in particular to complete the drawings with traces of colors which appeared after the important cleaning and conservation work.

All the hieroglyphic texts were typed on computer to be proposed on our website in the future.

A complete survey of the Eastern chapel of Tuthmosis III, rear to the *Akh-menu*, was also carried out, including the 30th Dynasty and Roman Period decoration.

Our German colleagues came in september 2015. The aim of the mission was to check the drawings of Alexander's chapel. Between November 2014 and September 2015, the remaining drawings of the northern wall as well as all the drawings of the southern wall and half of the western wall of the sanctuary of Alexander (SX 5) have been finished in Tübingen, using the photographs kindly provided by the CFEETK. Additionally, the western wall of SX 4 and parts of the axial sanctuary SX 3 have been drawn.

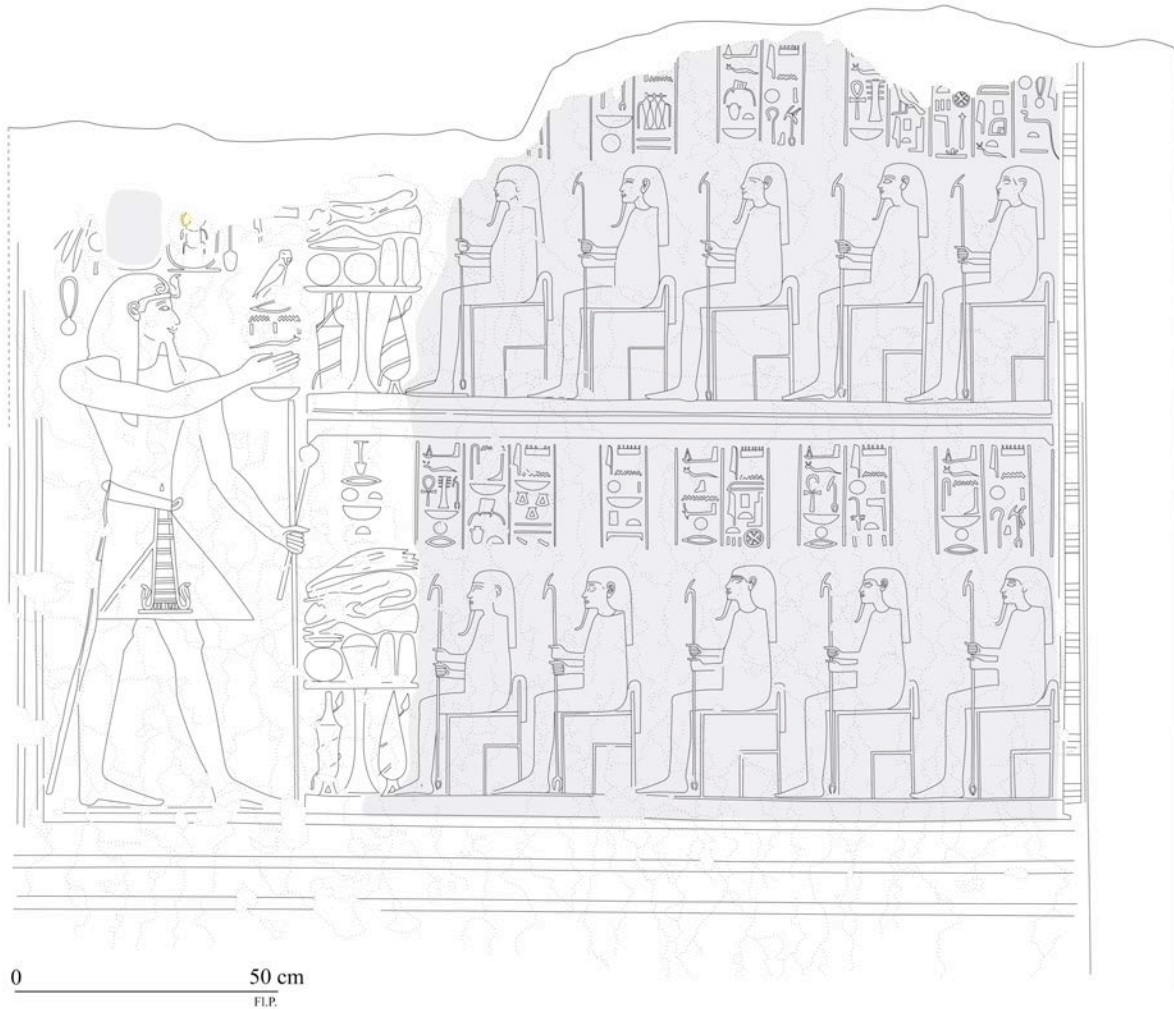
During the campaign in September 2015, those new drawings were collated, but also all the other drawings of the northern wall of the sanctuary of Alexander were verified once again. This was necessary as this year for the first time we brought a special lamp to be able to identify better the different colors used on the wall. By means of this tool, we discovered even more details than last time. As last year, it

¹³ With P. Calassou (LabEx Archimede), M. Abd el-Ghassul (MOA-CFEETK), D. Mendel, A. Rickert (univ. Tübingen), E. Froppier, Fl. Pirou, J.-G. Olette-Pelletier (CNRS trainees).

was necessary to use a scaffolding for the scenes in the first and second register, because of the height of the room SX 5.

As the members of the conservation team were working (and are continuing to work) in the vestibule of the sanctuary (SX 4), we could – thanks to them – clarify the situation and the origin of some blocks which do not seem to correspond to the rest of the decoration.

In addition to the work on the reliefs, we made a survey of the whole area to make sure that the documentation is complete, and discussed some architectural problems (e.g. the original layout of the elevated entrance in the northern wall of SX 3).



CAE, Chapelle Centrale
Statue de calcite, Face Nord

Drawing of the Eastern Calcite Chapel of Tutmosis III, northern inner side © Cnr-Cfeetk/Fl. Pirou.

1.4. The *Karnak* project (S. Biston-Moulin, Chr. Thiers)¹⁴

Initiated in January 2013, the *Karnak* project (CNRS, USR 3172 - CFEETK / UMR 5140, Équipe ENiM - Programme “Investissement d’Avenir” ANR-11-LABX-0032-01 Labex ARCHIMEDE) aims to organize and make available textual documentation from the temples of Karnak.

In 2015, the *Karnak* project reached 3,000 hieroglyphic inscriptions of the temple of Karnak accessible online with permalink providing access to the full records (hieroglyphic text, photographs, facsimiles, bibliography, etc.).

The *Karnak* project is already at this stage one of the largest freely accessible hieroglyphic databases on the internet.



Green: online or partially online; orange: completed in the reviewing process; purple: in progress.

¹⁴ <http://www.cfeetk.cnrs.fr/karnak/>, <https://karnak.hypotheses.org/>; with Dr. A. Tillier, Dr. C. Larcher, Dr. G. Dembitz, P. Calassou (LabEx Archimede), Dr. Ali Abdelhalim Ali, Dr. Mohamed Raafat Abbas, Dr. Mohamed Gamal, Dr. Eman Aboozaid, Dr. Dina Metawi (CNRS missions), M. Claude, E. Fournié, Ch. Salvador (CNRS trainees).

Slightly less than 7,000 hieroglyphic inscriptions are now integrated into the project. These entrees are gradually released online after reviewing and approval by the project members.

A special attention was also given this year to the hieratic and hieroglyphic graffiti of the Karnak temple with the addition to the team for six months of a Ph.D. student working on the Karnak graffiti project directed by Elizabeth Froom at Oxford University as the result of the workshop held in Oxford in January 2014 regarding the development of joint *digital humanities* project. This work focuses on the southern axes of the temple of Karnak which concentrated most of the graffiti material. The addition of this very specific textual and iconographical material led to several modifications of the interface of the *Karnak* project including an iconographical index.

A new way to distribute photographs and other resources of the Archives of CFEETK was also implemented this year by the *Karnak* project with the systematic deposit of high resolution photographs from the Archives on the Nakala repository from TGIR Huma-Num (<https://www.nakala.fr/>) to ensure both data accessibility and quotability in time. The Nakala repository also include the ability to make interoperable metadata, that is to say the possibility to connect directly the *Karnak* project to the high resolution photographs without hosting them on our servers. A specific tool was also developed to access specifically the Archives of CFEETK as a by product of the *Karnak* project using the Nakala hosting system (see Archives and documentation of the CFEETK).

More than 2,000,000 visitors accessed the online project during its two first years of existence (65% this year).

In order to strengthen the French-Egyptian scientific cooperation at the CFEETK in Luxor, the USR 3172 of CNRS offers five scientific missions for the season 2014-2015, from one to two months. The aim of these missions is to integrate young Egyptian researchers in the scientific programmes of the CFEETK by including them in the *Karnak* project team.

The work on the *Karnak* project also allows identifying insufficiency in the photographic documentation kept in the archives of the CFEETK. A programme of photographic survey based on the inventory of the *Karnak* project was accordingly established with the photographic service of the CFEETK. The orthophotographic technique (AgiSoft PhotoScan software) also allows obtaining within a reasonable time the large number of photographs necessary for the progress of the project and to regularly add online new documents.

Work this year also focused on the next major evolution of the interface and of the project itself which will give access to the indexes of the inscriptions of the temples of Karnak. The indexes were built by Sébastien Biston-Moulin as a subproject using a specific tool (Système d'Indexation des Textes Hiéroglyphiques) developed in 2015 to create the indexes of the textual material of the project and to provide access to it. This work is carried out in partnership with the *Dictionary* Project of the University of Montpellier (VÉgA: <http://vega-vocabulaire-egyptien-ancien.fr/>). Several meetings have been conducted in 2015 to define and implement communication between both tools. A joint presentation was organized in Montpellier in May 2015. Work on this part of the project and collaboration with the *Dictionary* project will continue and increase this year.

2. RECONSTRUCTION PROGRAMMES

2.1. The Calcite chapel of Tuthmosis III (Antoin Garric)¹⁵

This work was the main activity of this season. The ceiling stone - broken into six fragments whose main one weighs 51 tons - was completely reassembled. Each “small” fragment (with a mass of 6.7t, 2t, 6.9t, 3.7t and 4.9t) was lifted by crane and presented as close as possible to its final position on the principal fragment to be adjusted and sealed. 20mm diameter fibreglass dowels and injections of liquid epoxy resin provide very strong permanent seals. The ceiling stone after full assembly thus reaches a mass of 75.2 tons.

Prior to its lifting at the summit of the chapel, we had to move the stone to present it in front of the chapel, properly oriented and centered to its final position. Thus, the ceiling slab had to be turned 90° using a turntable and a hoist pulling on a side face. It was then towed 5m eastward and pushed 3m south with metal rolls. All lifting operations (for the installation of the turntable and rolls) were conducted manually, the crane only allows us to tow or push the block. The CFEETK crane was not powerful enough to lift this weight. So this operation was also performed manually using powerful hydraulic jacks operated from structural walls temporarily constructed below the stone. Those walls are elevated each time we lift the ceiling stone until we reach the chapel top, 4.38m. On 11th January 2015, the 75 ton ceiling stone was finally pulled to its final location by two manual hoists. The stone has been moved on metal tubes rolling upon the temporary walls. Garric Antoine and his team have now done the final adjustments: the ceiling stone is perfectly set in place on the chapel top.

After removing the temporary lifting walls, we will lift and install the last chapel’s stone: the 18 tons lintel.



Manual lifting (with hydraulic jacks) of the ceiling stone © CNRS-CFEETK/A. Garric.

¹⁵ With Ramadan Yassin, Jamal Salem, Hashem Abd El Hamid, Ahmed Youssef, Hamdi Adli, Ashraf Jamal, Samir Ahmed, Mohamed Abd El Sid, Girgis Ernest, Saadi Saadek, Mohamed Khalil, Walid Mohamed, Mohamed Abbadi, Salah Fahim (MOA-CFEETK).



The main ceiling stone being pulled on the chapel top on January 11th 2015 © CNRS-CFEETK/A. Garric.



The chapel with the ceiling stone set in its original position and after dismantling of the lifting walls © CNRS-CFEETK/A. Garric.



The 18 tons lintel being consolidated with 2.5m long stainless steel dowel © CNRS-CFEETK/A. Garric.



The lintel being lifted by the CFEETK crane © CNRS-CFEETK/A. Garric.



The connection joint between the lintel and the ceiling stone © CNRS-CFEETK/A. Garric.



The ceiling stone and the lintel adjusted on the top of the chapel © CNRS-CFEETK/A. Garric.

3. CONSERVATION-RESTORATION PROGRAMMES (Camille Bourse)¹⁶

During the 2015 season, conservation-restoration projects took place on four geographic areas of the temple. They will be presented here in order of increasing interest.

To the east of the temple, the Chapel of Osiris required two types of interventions: first, the treatment of particularly powdery sandstone blocks, and secondly the establishment of healthy terracotta brick and earth mortar foundations. Moreover, an emergency response was needed to consolidate the fragments on to the east of chapel.

South of the temple, the marriage stele of Ramses II on the ninth pylon and the scene of Djehoutymose were also given emergency response to prevent permanent loss of information. Specific interventions were also carried out, such as rebonding of a fragment of the southern wall of the courtyard of the temple of Opet and consolidation of a block in the courtyard of the ninth pylon.

In the northern area, east of the temple of Ptah, the archaeological objects discovered by G. Charloux were restored. Furthermore, blocks from the cavetto cornice of the Ptah Temple Gate A, stored on a bench south of Ptah Temple, were silicated and various stones were reassembled. Finally, the ceiling slab 2527, on which work began in 2011, has been fully reassembled. This work required the assembly of different fragments.

Finally, the main working area revolved around the seven storerooms located in the central area. Five storerooms have been totally restored. The work enabled the consolidation of foundations, the replacement and preservation of carved sandstone blocks and conservation of wall paintings.

3.1. The chapel of Osiris *Wp-ished*

When we began working on the chapel, it was in a very critical condition, being almost completely destroyed. We tried to save the maximum of elements and information despite of a particularly advanced and sometimes complete arenization of the sandstone blocks. Under some circumstances collecting items for the process was simply impossible because of their friability.

The upper part of the sandstone blocks presented significant alterations such as:

- The collapse of the north-western part of the wall
- Significant gaps
- An advanced arenization of some blocks
- Peelings
- Many fractures and cracks in the blocks

¹⁶ The work was supervised by Camille Bourse (International Volunteer conservator, French Ministry of Foreign Affairs) and Abdel Nasser Ahmed, Egyptian chief of conservation. Many thanks to *rais* Mahmud Faruk for his technical assistance. This season, the team was composed of ten Egyptian technicians and workers: Abdou Mahmoud Quoraïem, Ashraf Mostafa Ali, Nagwa Abd El-Ghafur, Fatma Ahmed Mohamed, Abdelnasser Mahmud, Mahmud Said Ahmed, Ghaad Nubi Hussein, Mohammed Zaki Masud, Said Abdel Hamid, Ahmed Hassan Fuli and two students, Claudine Miserez et Mohamed Mahmud Abdin. Agnès Asperti (painting conservator) was also on the site for three months (October-December 2014) and participated in the conservation of Storeroom 6.



On the left picture, the block arenization is so advanced that it broke into fragments. The photo at right shows the state of the sandstone under the cement mortar © CNRS-CFEETK/C. Bourse.

Past restoration work using black cement had been carried out on walls. Today, these interventions damage the structure of the chapel since cement is stronger than stone, and mud (*muna*) used as mortar. In addition, we noticed during a partial dismantling, that the upper course of the blocks, caught in the concrete masonry, were particularly powdery. This is due to significant capillary infiltration through the mud masonry that cannot be drained out of the stone because there is little or no exchange at all with the masonry. The salt therefore crystallizes inside the stone, destroying its structure.



On the left picture, the block arenization is so advanced that it is broken into fragments. The photo on the right shows the state of the sandstone under the cement mortar © CNRS-CFEETK/C. Bourse.

Underneath the mud bricks and the red bricks, the following damages could be noticed:

- Collapse of the *muna* mortar due to weather action and animals holes
- Growth of plants within the mortar and red bricks
- Collapse of entire areas built of red bricks
- Fracture and fragmentation of red bricks

Superficial changes are identical for the three materials (red brick, sandstone and *muna* mortar), with deposits such as birds droppings, salt efflorescences and the presence of plants such as shouks (camel thorns).



State of the chapel before removing shouks © CNRS-CFEETK/C. Bourse.

Conservation-restoration operations

The architecture of this chapel was not originally designed to be unearthed. It was partly buried in the ground thus distributing its weight upon its red brick foundations and mud embankments. In addition, the *muna* mortar was continually moistened, optimizing its binding properties. In fact, this semi-burial preserved the chapel from climatic aggressions. Its release by H. Chevrier, in 1950, broke the balance between the materials and their environment, impeding the exchange of salts. These are now concentrated in the stone and are subject to cycles of crystallization, which weaken the sandstones.

Objectives of intervention

A minimal emergency response was necessary. Our goal was to stabilize the arenization of the accessible blocks (not caught in the cement masonry) and prevent collapse of walls.

A further restoration of the chapel would require the opening of a major project with significant work.

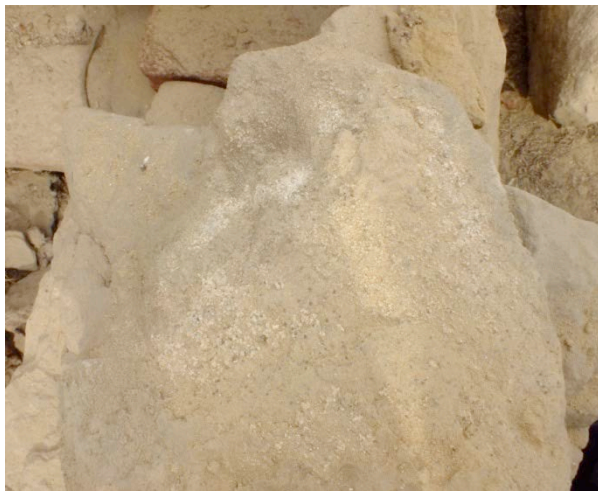
Proposed treatment

It was therefore decided to clear the powdered blocks and to silicate them. Then, once silicated, the dissociated fragments were stuck together in order to reposition the blocks to their original position. The foundations were also filled and assembled using new materials compatible with the original ones.

Treatment

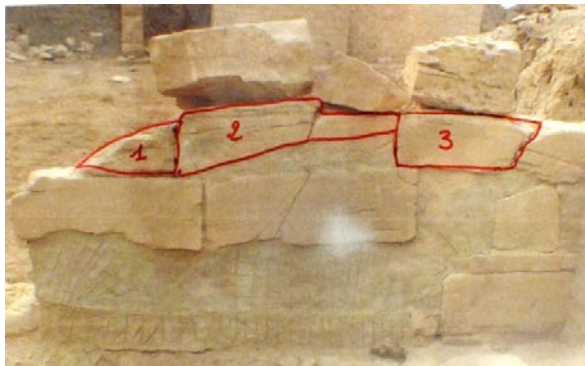
1. Treatment of the sandstone blocks

To reach the surface blocks, we moved the stones stored on them. Then we cleared these blocks of their cement mortars. This was difficult because the stones below the mortar were in very poor condition. In some cases, the stone had become sand and important fragments had come off. At this stage of the work three small fragments of the west wall were lost: they were too fragile so they disintegrated like dust.



Important salt traces on the stones, signs of their fragility and powder © CNRS-CFEETK/C. Bourse.

Six blocks have been treated. Two of them (3 and 6) have been dismantled from the masonry and four (1, 2, 4 and 5) treated in situ.





Localization of silicated and reassembled blocks on the first three pictures. The fourth picture shows the three small fragments too powdered and now lost © CNRS-CFEETK/C. Bourse.

Ethyl silicate was mixed with 50% Toluene. The implementation was done in two ways:

- The small fragments were placed in a bath with deep silicate and toluene mixture in order to be impregnated with silicate by capillary rise.
- Because of wet soil the blocks left in place were been first purged. After this first step, we pierced holes in the blocks every 15 cm to allow a good penetration of the silicate, which we applied with a drip for four hours. The blocks were then wrapped in sheets for three weeks. As the temperature was high, watered swabs were applied to optimize the reaction of the silicate and increase of the relative humidity.



After having been pierced, the blocks are consolidated with ethyl silicate © CNRS-CFEETK/C. Bourse.



Two methods were used to silicate the blocks: infusion drips and baths © CNRS-CFEETK/C. Bourse.

Once discovered, the blocks still remained three weeks in the open air for a total period of one month and a half, from the beginning of the reaction of silicate until any new intervention.

The fragments were then reassembled and glued with Araldite 2015 after applying a protective layer in 5% Paraloid B72 mixed in acetone.

For the column drum, piercing and placement of two studs fiberglass bonded with Araldite2015 was necessary to consolidate the first assembly and bonding work of the small fragments. A mortar of lime and sand (1.3) has been temporarily laid to partially fill in the gaps and allow the possibility to reposition and pick up new fragments.



The small fragments were glued together to recompose the block © CNRS-CFEETK/C. Bourse.



The set of blocks has been repositioned to its original location except one that had collapsed and broken in two pieces on the west wall. It has been placed on a corner at the base of the wall.

2. Treatment of mud mortar and red bricks

This work concerns the outer wall of the chapel. The aim was to stabilize the weight in order to restore the consistency of the foundation stone and avoid future collapse.

The first step allowed the clearing of the foundations of the chapel to sit the new masonry on solid foundations.



A new masonry, based on mud and reused red bricks, was established © CNRS-CFEETK/C. Bourse.

For compatibility of materials, ancient red bricks scattered around the chapel were collected to be reused. The composition of the new mud mortar was determined from tests that had been performed at Ramesseum during reconstruction and restoration of the mud bricks stores. Its final composition is as follows: 60% of *muna*, sand and straw 20% to 20%.

However during drying, cracks appeared along with extensive salts. If restoration work is taken up again, we suggest renewing our coatings soaked with salts and increasing the proportion of sand.

3.2. The “Northern storerooms” of the *Akh-menu*

Since the time of H. Chevrier (1926-1951), six procedures were performed in the “Northern storerooms” of the *Akh-menu*:

- The first one would have begun in the 1940s under the supervision of Dr. Abdallah Abu Naga. Photographs show that blocks were removed in the northern storerooms and the false ceilings were reassembled with provisional implementation of supporting pillars in steel beams to support the slabs. A photograph of P. Barguet taken between 1947 and 1951 shows a partial completion of the false ceilings reassembly. The temporary pillars used to achieve this work are still in place.
- The second restoration operation took place in 1967-1968 conducted by J. Lauffray: “The storeroom (XLI Nelson = MN7) which is adjacent to the west sun room was searched. A slab of the mezzanine floor regained its location and the right foot collapsed west of the front door has been restored.”
- In 1980-1981, “the CFEETK undertook the cleaning and restoration of all structures located north of the rooms of Hatshepsut.” This work was implemented by “Mr. Azim, in order to save a large number of scattered blocks which were deteriorated and gave the rooms a cluttered appearance damaging the good presentation of the most visited part of the site. (...) The scattered boulders that littered the halls were evacuated after being numbered and stored in water tight benches north of Khonsu temple.” A coating of

pebbles was laid across the central area of the temple improving access to public and draining salts outside of the bases.

- In 1989, G. Martinet began an epigraphic campaign in which he continued the evacuation of scattered blocks. There are still photographs of this work dating from 1990.

- In 1997, the conservation-restoration of wall paintings of the magazines 6 and 7 was undertaken by Fr. Vasques and C. Bidat. They reused the method of D. Le Fur used in the restoration of the hall of the *Akh-menu*: dust removal with soft brushes, micro abrasion cleaning with an oxide alumina powder calibrated to 29microns, consolidation of polychromy with a spray gun of ParaloidB72 diluted in 2.5% P-Xylene, and fixation of the original coated with injections of PrimalAC 33. On the other hand no treatment was carried out on the sandstone despite a loss of cohesion and a visible presence of a saline concretions area located 2 meters from the current ground level.

Finally in 2004, G. Charloux conducted an archaeological sounding in storeroom 2.

In order to get a better global understanding of the situation, the different types of alterations found in all the storerooms were recorded and compared.

Three types of structural alterations can be distinguished: Those of the sandstone foundation blocks which are particularly powdered. They are part of a coherent whole, which received the same conservation treatment. Those of the sandstone blocks laid in height, engraved and bearing polychromy. And eventually, those with the polychromy and the original coating on which it is laid.

The sandstone foundation had:

- Many gaps
- An advanced arenization
- Significant marks of salts
- Ancient masonry cement and baked bricks.



This photo was taken before the withdrawal of the colored cement layer. Significant water stains are observed and some blooms © CNRS-CFEETK/C. Bourse.



These photos were taken in the MN7. On the left picture, the ancient masonry made of cement and baked bricks is on the left while the new one made of stone and lime is visible to the right. The photo to the right shows the importance of the alteration of sandstone after withdrawal of the old masonry © CNRS-CFEETK/C. Bourse.

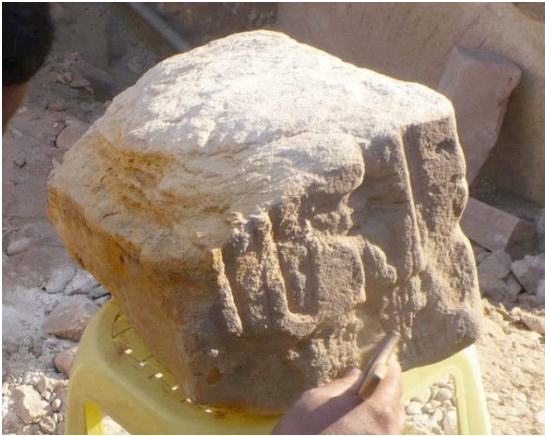
The upper carved blocks and the polychrome surface showed:

- Many gaps
- Arenization
- Powdery surface
- Chips
- Some fractures and cracks
- Salt marks

We can also note that all the seals or gaps have been closed with colored cement.



These photos taken in the MN5 show: left, a fractured block with a significant scaling and a gap at the bottom of the image. On the picture at the right, a brown moisture mark with salts is visible on the top block © CNRS-CFEETK/C. Bourse.



Some powdery blocks of the west gate MN3 were treated with silicate. On the right, an arenized area is observed at the joining of the blocks © CNRS-CFEETK/C. Bourse.

The polychromy and coating showed:

- A loss of cohesion
- Salts marks
- Cracks
- Uprising cracks.



The left photo (MN7) shows cracked and raised polychromy. Over time, it may detach itself from the block. The right photo (MN7) reveals salts: with time, they were pushed and then mixed with the white preparatory layer. After several cycles of crystallization, they now make up this white granule layer © CNRS-CFEETK/C. Bourse.

As for the surface alteration, the sandstone foundation had:

- Splashes
- Staining
- Cracks caused by the growth of plants (shouks)



The shouks grew in the stone, breaking its molecular structure and strengthening the capillary rise (Photo of the outer corridor to the stores) © CNRS-CFEETK/C. Bourse.

Carved blocks and polychromy showed:

- Thick dust deposit,
- Hammerings,
- Bird droppings
- And higher plants (dried roots of shouks)



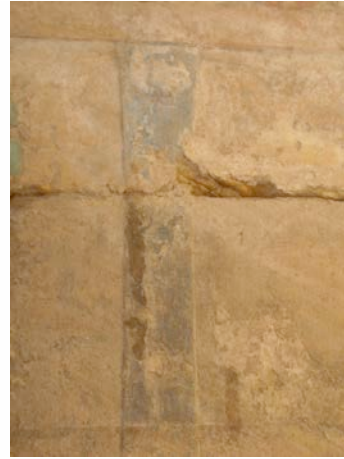
Photos of the MN 5 illustrating hammerings and presence of bird droppings © CNRS-CFEETK/C. Bourse.



The polychromy and coatings showed:

- Dust with drips, splashes or deposits of droppings
- Old conservation marks (sticking...)
- Intrinsic patina.

Eventually, during the epigraphic records, scattered blocks belonging to the store 7 were located and a reassembly was proposed.



The left picture presents the MN 5: it shows the dust. The photo on the right was realized during cleaning tests. The upper part has been cleaned in blue while the lower part is intact © CNRS-CFEETK/C. Bourse.

Conservation-restoration

Several explanations can be provided regarding the poor condition of those storerooms:

On one hand, the “Northern storerooms” are eccentric in regards to the main circulation axis. Therefore their restoration was not a priority. Thus when the project started, they were being used as toilets.

Furthermore, the past restoration campaigns were partial and very selective: thus as noted in the history of interventions, during the 1997 campaign only storerooms 6 and 7 had been treated and treatment focused exclusively on the polychromy. To summarize, the heterogeneity makes the places unreadable for visitors.

The first goal was to reduce the alteration process in the foundations by removing the cement masonry and exposing the sandstone blocks so as to let out the salts out gradually.

We then had to opt for a conservation-restoration treatment that would be compatible with the environment and the previous treatments of the “Northern storerooms”, namely, the proximity of the nilometer and the consequent capillary rise, and the development and consolidation of polychromy which is constantly under the sunlight. The third goal was to reposition a maximum of scattered blocks. Ultimately, the goal of this intervention was to open those rooms to the visitors.

Treatment

1. Treatment of foundations

The entire masonry of red brick, sand and cement was removed to uncover the sandstone blocks particularly damaged. As they were foundation stones supporting the building, they have been purged of all powdered parts. Then a healthy masonry, made of sandstone blocks, lime and sand (1.3) has been laid to fill the gaps.



The old masonry was removed in sections and replaced with a new and healthy masonry made of stone, lime and sand © CNRS-CFEETK/C. Bourse.

To improve its quality, the Egyptian lime was sieved to remove unburnt limestone blocks and then immersed in water for a minimum of 10 days in order to extinguish all the lime particles. Gradually, as work progressed, the quality of the mortar was optimized by adding a quarter of crushed bricks to hydrolyze the lime.



The new masonry with three layers of plaster: the first one, rich in lime whitewash (left photo) on which is placed the coated sided (right). Finally a colored coating covers the whole to fit better to the color of the stone © CNRS-CFEETK/C. Bourse.

A high lime wash was then applied on the new masonry to hang a sided coating, made of lime and sand (1.3). Eventually, a top coating was applied mixing colored pigments and sand (1.3).

2. The conservation of scattered blocks was carried out only in the storeroom 7.

The eastern broken slab, west of the false ceiling, was falling over towards the front with the risk of a future collapse. It was therefore dowelled on the lower block so as to exert a pulling force. The stud was sealed with Araldite liquid Kémapox (1.10) and the upper seal cleaned and filled with a mortar of lime and sand-cement (0.5 / 0.5 / 3).

The two sides of the door were removed to be upgraded. In carrying out this work, it appeared that the foundations were powdered and that the corners dissociated themselves: so they have been glued with Araldite liquid Kémapox and a stud fiberglass.

The scattered blocks stored on the top of the walls of MN7, MN6 and MN5 have been laid upon benches to the north. They were assigned a number to identify their origin. All these operations were carried out using a crane.

3. Treatment of the upper parts made of sandstone

All the plaster and cement joints were systematically removed in order to uncover the stones and see their degree of alteration, and also to pull out the shouks between the blocks. In addition, herbicide was sprayed in all storerooms to prevent plants from growing again.



In MN7, there was a gap between the blocks due to shouk growth. After pulling off the shouk, the door was dismantled and the blocks properly repositioned © CNRS-CFEETK/C. Bourse.

The powdered stones were treated *in situ*. The blocks have been purged of peels. Then holes have been drilled every 15 cm to allow a good penetration of the silicate mixed with white spirit (50.50) applied by drip for 4 hours. The blocks were then wrapped in sheets for three weeks.



The blocks of the west gate of MN3 were dismantled and silicated © CNRS-CFEETK/C. Bourse.

In the case of early surface arenization, a solution of nanophasic calcium hydroxide, dispersed in isopropyl alcohol was applied. It seems able to plug the holes caused by the arenization of sandstone.

In addition, peelings of three types could be noticed in many places:

- Small pieces easily stuck again with Araldite 2015 after an application of a protective layer in 5% Paraloid B72 mixed in acetone.



Fragments in MN4 were glued with Araldite 2015 © CNRS-CFEETK/C. Bourse.

- Fragments simply raised from the wall: after having blocked all cracks, a lime milk or injections of PLM-M was carried out to fill the empty spaces.



Filling an empty space with a PLM-M grout in MN5 © CNRS-CFEETK/C. Bourse.

- Ancient plugs removed and then replaced with a lime and sand mortar (1.3).



On the left picture, during the removal of the fragment, we discovered the original coating. The part in contact with the stone fragment was cleared in order to apply a new lime plaster (MN5) © CNRS-CFEETK/C. Bourse.

In the MN4 and MN5, uprisings of the stone surface were further detected. To avoid a complete detachment, injections of liquid Araldite, Kémapox (1.10) were performed.



When cracks are particularly fine and do not allow the injection of PLM, they are filled with liquid Araldite (MN5) © CNRS-CFEETK/C. Bourse.

Eventually, in MN3, MN6 and MN7, small fragments were dowelled with fiberglass rods glued to liquid Araldite Kémapox(1.10).

4. Treatment of plaster and polychromy

To make things clearer, the treatment of plaster and of the polychromy will be presented separately. The plaster coating was first cleaned with brushes and blow guns and three types of operations were performed:

- A surface consolidation with ammonium oxalate (Amox) diluted to 5% in water and applied by brushes or syringes. This work was performed in all the “Northern storerooms”.



The original plasters were consolidated with ammonium oxalate in all stores (MN6) © CNRS-CFEETK/C. Bourse.

- The filling of large risings was treated by injection of PLM-M and the fine cracks by the Paraloid B72 at 3% in acetone. This work was carried out in MN4, MN5 and MN7.



On the left picture, a facing was temporarily bonded to keep the fragment in place. On the right one, the joints were sealed with cyclododecane to allow injection of Paraloid B72 (MN6 and 5) © CNRS-CFEETK/C. Bourse.

- Eventually, the reattachment of fragments was performed using 33 Acril in MN4.

The cleaning of the polychromy was first performed mechanically with brushes and scalpels then supplemented, when necessary, chemically, with 3% ammonium bicarbonate in water. The solution was applied to a paper towel and left 3 to 5 min. It was then rinsed with deionized water.



On the right picture, the square above is being cleaned revealing the green colour © CNRS-CFEETK/C. Bourse.

To dissolve bird droppings, EDTA dissolved to 3% was added to this solution, the application remained the same.

After a previous consolidation with spray gun Paraloid B72 diluted to 2.5% in P-Xylene, we opted for another consolidating since, with hind sight, the conservators found that Paraloid tended to turn yellow with age. Although the polychromy treated with Paraloid in MN6 and MN7 presents no notorious yellowing, this choice was favored because the polychromy of the “Northern storerooms” is exposed to the sun, which enhances and accentuates this phenomenon.

We considered using natural Arabic gum as a safer aging consolidating. But for ethical concern, we gave up because it is likely that Arabic gum is the original fixative used by the ancient Egyptians.

Our choice finally fell on synthetic consolidating: Klucel G which is a nonionichydroxypropyl cellulose. It is both soluble in various polar solvents and in water, which makes it compatible with previous conservation treatments. Its softening temperature is between 100 and 150° C which is well above local temperatures, it is reversible with water and it keeps a matt colour.

So it is a consolidation Klucel G dissolved to 3% in water-ethanol that was applied upon all rests of polychromy.



Consolidation of polychromy in the MN5

Areas with few salt marks were desalted using papers and demineralized water whereas places with significant traces of salts were cleaned with *hiba*.



On the left picture, there are two areas: one cleaned with *hiba* and demineralized water and the other with a paper towel (MN5) © CNRS-CFEETK/C. Bourse.

Finally a colored final coating was applied in all storerooms to fill the joints.



The left photo shows the tests for determining the ideal color coatings © CNRS-CFEETK/C. Bourse.

3.3. Objects from the Ptah Temple *favissa*

All the items found during the excavations have been cleaned and consolidated. In this set, the objects found by G. Charloux on December 2014, which were of exceptional interest have required further treatments. They can be gathered according to their compositions, namely many copper alloy statues, Egyptian faience objects, limestone sculptures, others made of graywacke, and eventually the remains of a polychromy sculpture.

The metal statues had similar alterations: above the original surface, a first layer of copper oxide (Cu_2O) on which we observed a second layer of copper carbonate (CaCO_3) and finally concretions. In addition, some parts of the sculptures were active corrosion pockets.

The concretions and excess of copper carbonates were treated with a first mechanical cleaning using scalpels. Then to remove the oxides of copper, a second operation combining mechanical and chemical cleaning was necessary: thus, the most corroded objects were left for some hours in EDTA disodium bath to 5% mixed in water then rinsed with deionized water to finally be cleaned with a micro drill. Once this work was completed, the objects were cleaned with ethanol and then with acetone and a protective layer of Paraloid B72 at 3% was applied.

Egyptian faience objects have been consolidated with ammonium oxalate (Amox) to 5% mixed in water and glued with Acril33.

Limestone statues presented strong fouling, gaps, fragments to pick, fractures, cracks and surface chalking. Some of them preserved traces of color.

After allowing them to dry slowly, they were cleaned mechanically using brushes and scalpels. Then the fragments were glued with Araldite 2015 after being bonded with a protective layer of Paraloid B72 at 3% mixed in acetone. The cracks were strengthened by injecting liquid Araldite, Kémapox (1.10). Finally, non colored surface was cleaned with deionized water and then consolidated with Oxalate Ammonium of 5% in water. As for polychromy, it has been consolidated with 3% Klucel G in water.



Osiris statuette in copper alloy, before and after restoration © CNRS-CFEETK/C. Bourse, J. Maucor.

One of the two graywacke statues was broken in two parts. The two fragments were reassembled by drilling a fiberglass bolt that was then glued with liquid Araldite, Kémapox (1.10). In the next step, a layer of Paraloid B72 protection to 3% in acetone was applied to their contact surfaces and the fragments were stuck together with Araldite 2015 glue.

The remains of a wooden statue had also been discovered. In fact, only the preparation plaster layer bearing painting remained. As soon as it was unearthed, the surface of the statue was strengthened by applying a paper towel pasted with Acril 33 diluted in water. Then, during processing, we first worked on its back in order to create a solid foundation. The earth and pieces of ceramic sherds were removed to apply a mortar made of mud and sand (1.3) reinforced with a few drops of Acril 33. The statue was then turned over and the surface was cleaned: the paper towel was removed using a water-soaked brush and the area was cleared with a scalpel. The colored fragments were consolidated with Acril 33 diluted in water.

6.4. Blocks from the cavetto cornice of Gate A (Ptah Temple)

Blocks 2861, 2862, 2863, 2864 and 2865 from the cavetto cornice of the Ptolemaic gate A of the Ptah temple showed arenization. They were therefore silicated. After drilling every 15 cm to ensure a proper penetration of silicate in the stone, the blocks were cleaned and silicate with ethyl silicate mixed with white spirit (1.1) was applied drop-by-drop during four hours. They were subsequently wrapped in sheets for three weeks.

4. ARCHIVES AND SCIENTIFIC DOCUMENTATION

4.1. Archives and databases (S. Biston-Moulin)

Work on the photographic archives continued in 2015. The annual photographic documentation of the Centre was integrated into the archives, with more than 20,000 new documents added this year. Work on the *Karnak* project (*supra*) facilitates the reorganization of the CFEETK's archives connecting the *Karnak* project's scientific information directly to the photographic database "ArcheoGrid *Karnak*" – legacy of the documentary work done at the CFEETK since its foundation. The inventory work of the *Karnak* Temple inscriptions also allows to complete the archives through identification of the objects and scenes of the monuments for which the photographic documentation kept in the CFEETK's archives is insufficient. A programme of photographic campaign based on this inventory was therefore established with the CFEETK's photographic service in 2014 and continued this season.

The documentation department of the Centre also collaborates with a team of inspectors from the scientific department (see below) for the implementation of the "Karnak Inventory Project" which aims to reference and document all objects and blocks kept in the temple. A dozen booklets organized by sectors of the temple were realized based on the information of the archive and *Karnak* project to serve as a starting point for this project.

In 2015, more than 20,000 photographs from the archives of CFEETK were distributed online with all metadata and scientific information related to the monuments, objects and inscriptions directly from the *Karnak* project.

The CFEETK has also opened a Nakala repository, service proposed by Huma-Num (<https://www.nakala.fr/>), to store digital data of the Centre in a secure server that ensures both data accessibility and their quotability in time. The Nakala repository provides interoperable access to the metadata of photographs, that is to say the ability to associate the photographs directly to other projects of the Centre or external projects.

Archives du CFEETK

Rechercher

Statue Louqsor J. 34 (Sésostris III)

LOCALISATION DE DÉCOUVERTE : ZPC.CR3.11 - Zone des pylônes centraux, cour nord du troisième pylône LOCALISATION ACTUELLE : Musée de Louqsor

Partie supérieure d'une statue de Sésostris III découverte devant la face ouest du môle nord du IVe pylône lors de l'opération 40. La tête a été découverte le 25 février 1970, entreposée au Caracol, elle est aujourd'hui conservée au Musée de Louqsor (J. 34). Le reste du buste a été mis au jour en 1980. Des fragments découverts en 1970 complètent la partie inférieure de l'inscription du pilier dorsal qui semble très proche des statues CG 42011 et 42012.

Voir toutes les informations concernant ce document dans le projet *Karnak*

date ▼ photographe ▼ format ▼ type ▼

← 1 2 3 4 →

Cfeetk 27921 Cfeetk 27922 Cfeetk 27923 Cfeetk 80371

Cfeetk 80372 Cfeetk 80766 Cfeetk 80767 Cfeetk 80768

Topographic exploration of the archives of the CFEETK.

The outcome of the work on the photographs in ArcheoGrid Karnak with the addition of scientific information from the *Karnak* project helped to develop a new interface to access the high-resolution photographs (a little more than 10,000) from the CFEETK website (<http://www.cfeetk.cnrs.fr/archives/>) to more effectively distribute research data material.

Topographic exploration of Karnak (temple areas, monuments, objects, etc.), date or author of the photograph are provided to access the Archives database. A search engine completes these tools, to provide a chronological access to the photographs.

4.2. Photographic department (J. Maucor)¹⁷

The activity of the photography department was primarily focused on finalizing the photogrammetric surveys of the 8th Pylon. In addition to completing the views of the South face of the Pylon, we also completed those of the door and the west and east facades. In close collaboration with E. Frood, we photographed the graffiti on the outside facades of the pylon and the staircase in the corridor to the east.

In continuation, the photographers also worked on the colossus to the south of the pylon, and on the walls of the courtyard.

At the Temple of Ptah, our team accompanied the archaeologists throughout the excavations, particularly at the moment of discovery of the *favissa* in December 2014. The collection of objects and statues found during this period led to an important photographic campaign in studio during the months of May and June.

In addition, we completed the photographic data available to the Centre in the courtyard of 4th Pylon, and initiated a survey of the “Northern storerooms” in the *Akh-menu*.

Finally, we keep an important activity in collaboration with the documentation department, and with visiting missions (L. Coulon, N. Licitra), and are pursuing the project of digitalization in high definition of all the CFEETK’s film archives.

4.3. Topographical department (K. Guadagnini)

The activity of the surveying department this season is in the line with the activities that had been initiated and unfinished last year, namely:

- Improving the process of orthorectified images for facsimiles, and monitoring archaeological excavations
- completing the very high resolution photography survey of all the inscribed walls of the 8th Pylon (one pixel = 0.2mm) using photogrammetry

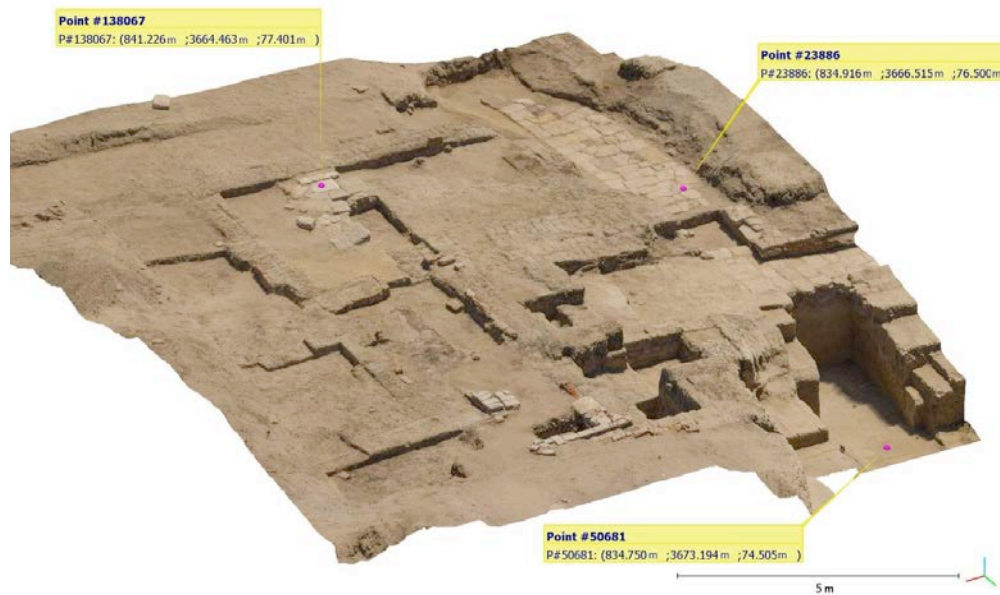
Having gained strong experience in 2014, I was able to initiate many French and Egyptian colleagues as well as members of external missions to the techniques of photogrammetry and topography applied to archeology.

Moreover, the arrival of two archaeologists in our department clearly boosted the activity. Internally, we gathered and reorganized all the topographic data archives concerning excavations in the temple of Ptah. This allowed us to sort the structures by construction phase and/or construction materials, and has

¹⁷ With K. Dowi Abd al-Radi and A. Ruby (MOA-CFEETK).

led to a better understanding of their spatial and chronological connections. This has also helped to prioritize and coordinate the work to be done around the temple.

Almost all of the topographical surveys this season were performed using photogrammetry. This method offers a double documentation; with metric georeferenced images and a rich 3D model containing both geometric information (with the coordinates and altitude at any point of the model) and information on the nature of the materials through the photographic texture.



3D model example, eastern Ptah temple area © CNRS-CFEETK/K. Guadagnini.

This method has improved the quality and the efficiency of the past procedures. In particular, we designed and created a five-meter long telescopic rod to mount the camera and shoot from above.

This rod was made by A. Garric from the anastylosis department, using second-hand equipment from the photography department, and a topography pole.

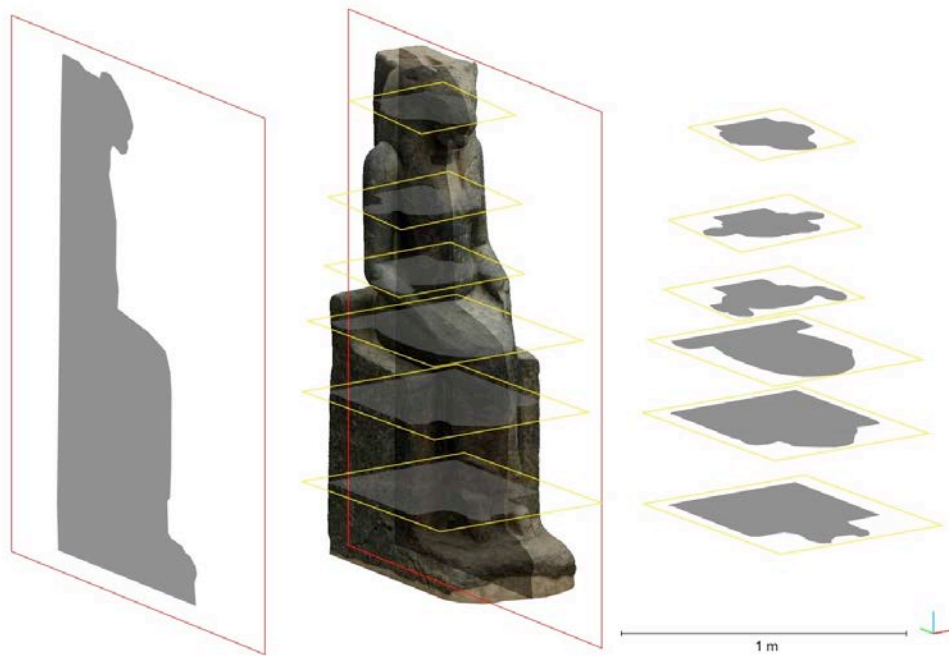
This method allows us to work in safer conditions, as it is no longer necessary to climb on a ladder 4 or 5m above ground level to perform image acquisition of the field. Although we cannot directly pre visualize the images, we have determined the relationship between the position of the camera and the ground surface that will be represented. It is therefore quite easy to plan and carry out the shooting session.

In addition to these benefits for image acquisition, processing is also facilitated. A better control of the photo shoot through this technique has enabled us to reduce the number of images and therefore the computation time. Furthermore, residues at the end of the “aerotriangulation” process (estimation of the position and orientation of the images) are lower. Ortho-images and 3D models and products are therefore more reliable.

The biggest workload this year concerned the *favissa*, located to the east of Ptah temple. The excavation work in this area was carried out from mid-December 2014 till January 2015. Twenty four orthophotographs were taken at each important phase of the excavation. This allowed us to record the

position and the orientation of each of the figurines *in-situ* for future study. After restoration, each object was re-integrated in a 3D model by photogrammetry, as in its original orientation and position inside the pit with an accuracy of a few millimeters.

This project revealed how 3D modeling can contribute to the protection and the preservation of the architectural heritage of the temple and statuary; and the power of this tool for the study of complex shapes. Several examples were carried out on various sized statues and monuments (White Chapel of Senwesret I, for example).



Sections (grey) of a statue of Sekhmet © CNRS-CFEETK/K. Guadagnini.

4.4. The scattered blocks survey

The inventory work of the loose blocks lying upon benches has continued, using the same protocol as in the previous years: numbering on a piece of metal, schematic drawings, photography and incorporation into a database.

A team of Karnak inspectors (scientific department),¹⁸ using booklets made by S. Biston-Moulin, is currently working on a complete survey of the blocks, statues and steles present inside Karnak temples. This documentation team successfully made the inventory of the blocks from the first courtyard till the central area of Amun-Re temple. This work will continue next season.

¹⁸ R. Mohamed, R. Sabri, A. Fawzy, A. Hassan, M. Ali, A. Mohaamed, A. Mohammed, M. Ahmed, B. Fady, M. Ramadan, S. Nur Eldin, M. Nur Eldin, S. Mohamed (MOA-CFEETK).

5. TRAINING PROGRAMMES

5.1. Courses, training programmes

The training programmes mainly focused this season on archaeology and documentation work for Karnak inspectors.

A two-week training in field epigraphy was provided (facsimile of scene at scale 1:1 on plastic film) by Pauline Calassou (LabEx Archimede) for inspectors of the Documentation team (see above), in order to allow them to draw the blocks they surveyed in the court of the 1st Pylon.

Upon the request of the inspectors of the Documentation team, K. Dowi from the photography department a group of inspectors to the use of Adobe Photoshop software.

At the Ptah Temple (see above), the work of G. Charloux included training two Egyptian inspectors during the complete season (field practice, management and recording of an archaeological site). He also led a field school on archaeology in the courtyard of the 10th pylon (see below).

Upon the request of Dr. Khaled el-Enany, Director of the National Museum of Egyptian Civilization (NMEC), two conservators from the NMEC spent 10 days at Karnak, and participated in conservation programmes of the Centre, under the supervision of Camille Bourse.

Concerning French courses, due to administrative delay, the French Cultural Centre in Cairo was only able to send a teacher for one week, which is clearly insufficient. In order to fill this gap, since October 2015, French courses are held every Sunday morning for Karnak inspectors.

5.2. Archaeological Field school in the courtyard of the 10th Pylon (G. Charloux, Hoda Kamal [MOA], Ahmed Barkat [MOA], Eid Nagy Eid (Cairo University), Yehia Zidan [MOA], Mona al-Abady [MOA], Ahmed Nasseh [MOA])¹⁹

Within the framework of a Ministry of Antiquities-IFAO programme, the CFEETK hosted an archaeological field school at Karnak in January 2015. The training has concerned four Egyptian MOA inspectors (Hoda Kamal, Ahmed Barakat, Yehia Zidan) and Eid Nagy Eid (Cairo Univ.). Twelve workers also participated to this field work.

The area chosen for this one week training was the courtyard of the 10th pylon, where Michel Azim excavated between 1975-1977 (Cfeetk fieldworks nos 112, 114, 115) but the results remain unpublished. A publication of this documentation, under the responsibility of Dr. Guillaume Charloux and Raphaël Angevin, is expected in order to complete the database of the French-Egyptian Centre at Karnak.

As previously explained to the Egyptian-French Commission in January 2015, this publication project required the opening of a small archaeological trench at the northern side of the excavation trench in the 10th pylon courtyard in order to check and precise Azim's sequence. Therefore the goal was twofold: collecting items for dating (ceramic and C14 samples) and clarifying the stratigraphy established by the archaeologist in 1977.

¹⁹ Surveyor: Kevin Guadagnini (MAEDI); Inspector: Osama Mohammed Mostafa (MOA); Chief Inspector: Tayyeb Gharib (MOA). Institutions: CFEETK (MOA/CNRS USR 3172), MOA (Ministry of Antiquities), CNRS (Centre National de la Recherche Scientifique), IFAO (Institut Français d'Archéologie Orientale), MAEDI (Ministère des Affaires étrangères et du Développement international).

In parallel with this programme, the field school was a good opportunity for the MOA inspectors to enhance their knowledge on excavation and recording of data.



MOA archaeologists and workers during fieldwork © CNRS-CFEETK.

The new trench (10 x 5 m) was opened at a strategic location, north of Azim's 1977 (CSX2) unpublished trench (square VII M 81). This location had no bench for blocks and did not require the removal of any modern structure. Unfortunately, authorizations were granted for only one week of excavation (from 1st to 7th February), which is far from being sufficient to get a clear view of the whole sector. However, we hope that the study of Azim's trench and the material collected will provide sufficient information to compare and better understand Azim's original documentation.



Trench 188 during excavation © CNRS-CFEETK/Q. Dufour.

Method

Due to the lack of time, the chosen strategy aimed at reusing as much as possible the ancient trenches to obtain comparative data.

After having precisely mapped Azim's 1975-1977 excavations on software and reported it on the field, we decided to clean the southern part of square VII M 81. We reached the bottom level of the previous excavations and leveled the sections. At the same time a new square was opened to the north in order to get more visibility on the upper archaeological structures.

Three narrow soundings were then dug at three different levels in the new trench, one on top of the stratigraphy (SD1), an other sounding in the top/middle (SD2) and the last at the bottom of Azim's excavations (SD3). We therefore collected material from all previously observed levels.

All identified layers and features were numbered according a continuous numbering system (188XXX). All identified layers and features were numbered following Azim's original sequence (188XXX). The layers were systematically sieved and sampled (2 large bags, around 10 kgs). Each sample was treated to obtain macro vegetal remains.

The archaeological plans and sections were made on the field by archaeologists based on orthophotos readjusted with the total station as provided by the topographer of the Centre.

Results

Six levels have been identified, corresponding to almost 2000 years of occupation, ranging from the Middle-kingdom (Level 6) to the Byzantine Period (Level 1). In the future, the full study of the material should help us to be more precise in the dating.



Left: The trench at the end of the excavation.

Right: Orthophotograph of trench 188 with main archaeological structures.



Final word

The goals seem to have been achieved during this short campaign and the study should allow us to clarify the sequence of Michel Azim. This short sounding was a good opportunity for the MOA inspectors to actively participate to an archaeological programme of the CFEETK, excavating, drawing plans and sections, recording the photographs, the objects and ceramic which were found.

A main interrogation remains concerning the deep levels not reached in the 1970's. It would be indeed useful in the future to expand and deepen sounding 3 to find the first traces of occupation in this sector of Amun temple precinct. This will be a major clue in the reconstitution of the early days of Karnak, compared with what was found in recent excavations (Opet temple, Amun temple, east of the sacred lake, Ptah temple). But time will tell if excavating at this place will be possible in the future.



Sounding 3 at the end of the excavation.

6. PUBLICATIONS AND LECTURES

6.1. Selected publications of CFEETK members and associated missions (2015)

A short activity report of the CFEETK is published every sixth months in the revue *Egyptian Archaeology* (“Digging Diary”).

- BISTON-MOULIN S., THIERS Chr., *Le temple de Ptah à Karnak I. Relevé épigraphique (Ptah, n^{os} 1-191) ; II. Relevé photographique* (J.-Fr. Gout), *BiGén* 49, Cairo, 2016.
- JORDAN M., BICKEL S., CHAPPAZ J.-L., *La Porte d'Horemheb au Xe pylône de Karnak*, *CSÉG* 13, Geneva, 2015.
- BICKEL S., « Religion and Economy. Fuzzy Boundaries around Karnak », in H. Amstutz, A. Dorn, M. Müller, M. Ronsdorf, S. Uljas (ed.), *Fuzzy Boundaries. Festschrift für Antonio Loprieno II*, Hambourg, 2015, p. 537-545.
- DEVAUCHELLE D., WIDMER Gh., « La rencontre d'un graffite et d'un ostracon sur un quai de Karnak », in F. Haikal (ed.), *Mélanges Ola el-Aguizy*, *BdE* 164, 2015, p. 113-119.
- HERCZEG V., « Karnak yields more treasures », *Cnrs International Magazine* 37, 2015, p. 13.

- *Cahiers de Karnak* 15, 2015, in press:
- AZIM M. (†), GABOLDE L., « Le dispositif à escalier, puits et canalisation situé au nord-ouest du lac sacré : une *dꜣdꜣ.t* ? », p. 1-21.
- BISTON-MOULIN S., « Un nouvel exemplaire de la *Stèle de la restauration* de Toutankhamon à Karnak », p. 23-38.
- BISTON-MOULIN S., « À propos de deux documents d'Ahmosis à Karnak. *Karnak Varia* (§ 1-2) », p. 39-49.
- BORAİK M., THIERS Chr., « Une chapelle consacrée à Khonsou sur le dromos entre le temple de Mout et le Nil ? », p. 51-62.
- BOULET St., « Étude céramologique préliminaire des campagnes de fouille de la chapelle d'Osiris Ounnefer Neb-Djefaou 2013-2014 », p. 63-79.
- COULON L., LAISNEY D., « Les édifices des Divines Adoratrices Nitocris et Ânkhnesnéferibrê au nord-ouest des temples de Karnak (secteur Naga Malgata) », p. 81-171.
- DEMBITZ G., « Une scène d'offrande de Maât au nom de Pinedjem I^{er} sur la statue colossale dite de Ramsès II à Karnak. *Karnak Varia* (§ 3) », p. 173-180.
- DURAND B., « Un four métallurgique d'époque ptolémaïque dans les annexes du temple de Ptah à Karnak ? », p. 181-188.
- MASSON A., « Toward a new interpretation of the fire at North Karnak? A study of the ceramic from the building NKF35 », p. 189-213
- PAYRAUDEAU Fr., « The chapel of Osiris Nebdjet/Padedankh in North Karnak. An Epigraphic Survey », p. 215-235.
- PIETRI R. « Remarques sur un remploi du temple de Khonsou et les hipponymes royaux au Nouvel Empire », p. 237-242.
- RAFAAT ABBAS M., « The Triumph Scene and Text of Merenptah at Karnak », p. 243-252.

- REVEZ J., BRAND P., « The Notion of Prime Space in the Layout of the Column Decoration in the Great Hypostyle Hall at Karnak », p. 253-310.
- SOUROUZIAN H., « Le mystérieux sphinx de Karnak retrouvé à Alexandrie », p. 311-326.
- TERRIER A., « Ébauche d'un système de classification pour les portes de temples. Étude de cas dans l'enceinte Amon-Rê à Karnak », p. 327-346.
- THIERS Chr., « *Membra disiecta ptolemaica* (III) », p. 347-356.
- TILLIER A., « Un linteau au nom d'Auguste. *Karnak Varia* (§ 4) », p. 357-369.

To be published

- DAVID R. (ed.), *Céramiques ptolémaïques de la région thébaine. Actes de la table ronde Theban Ceramics in Hellenistic Context, Karnak, les 28 et 29 septembre 2014, CCE 10, IFAO.*
 - DAVID R., « La céramique ptolémaïque d'une zone annexe du temple de Ptah à Karnak ».
 - DAVID R. *et al.*, « Theban ceramics in Ptolemaic context - Fabrics classification ».
 - LICITRA N., DAVID R., « L'évolution des céramiques ptolémaïques à Karnak d'après la documentation du Trésor de Chabaka ».
- DAVID R., « Quelques pratiques potières de l'Égypte ptolémaïque d'après la documentation de Karnak », in *Actes du colloque international l'objet égyptien, source de la recherche, École du Louvre, les 17, 18, 19 juin 2015*, to be published.

6.2. Colloquium and lectures

- 3.01.2015, *Journée d'études, ateliers de potiers : savoir-faire et espaces de l'archéologie à l'ethnologie, Poitiers* : R. David, « La contribution de l'ethnoarchéologie à la compréhension des techniques de production dans l'Égypte ancienne. Le cas d'un atelier de zîrs en région thébaine ».
- 27.02.2015, *Séminaire jeunes chercheurs du Labex Archimède, Montpellier* : R. David, « La mise en place d'une typologie de référence pour les céramique ptolémaïques de la région thébaine ».
- 17-19.06.2015, *International Colloquium, L'objet égyptien, source de la recherche, École du Louvre, Paris* : R. David, « La céramique comme objet culturel : l'exemple des productions de la région thébaine à l'époque ptolémaïque ».
- 27-28.10.2015, *International Colloquium, Au-delà du toponyme. Approche interdisciplinaire de la territorialité Égypte & Méditerranée anciennes, Montpellier* : G. Dembitz : « La liste géographique de Pinedjem I^{er} à Karnak. Résultats préliminaires sur l'allée des sphinx de Karnak-ouest ».
- 9.12.2015, *Les cahiers de l'égyptologue. Notes et journaux de Georges Legrain (1895-1916), Musée du Louvre, Paris* : Chr. Thiers, « “25.XII.(18)99. La voie ferrée étant prête on commence le déblaiement du temple de Ptah neferher”. Les fouilles de G. Legrain dans le temple de Ptah à Karnak ».

6.3. Press releases (for the discovery of the favissa at the Ptah Temple)

- <http://www2.cnrs.fr/presse/communiqu/3939.htm>
- <http://www.cnrs.fr/fr/pdf/cim/37/index.html>
- <http://www.lefigaro.fr/culture/2015/03/04/03004-20150304ARTFIG00305-karnak-decouverte-de-38-objets-de-culte-au-temple-de-ptah.php>
- <http://www.sciencedaily.com/releases/2015/03/150306073818.htm>

- <http://www.la-croix.com/Archives/2015-03-10/Karnak-decouverte-de-38-objets-de-culte-au-temple-de-Ptah-2015-03-10-1289785>
- <https://www.connaissancedesarts.com/archeologie/karnak-decouverte-de-38-objets-de-culte-au-temple-de-ptah-115493/>
- <http://www.mondedelabible.com/un-nouveau-sphinx-a-karnak/>

- <https://youtu.be/9OhmodqNwdg>
- <https://www.youtube.com/watch?v=n0MA1WnFkpg>
- <https://www.youtube.com/watch?v=DArglBiUkgc>
- <https://www.youtube.com/watch?v=IlatWR1frSU>

7. CFEETK MEMBERS

MoA permanent members

- EID S.	General director of Luxor and Upper Egypt
- Dr. WAZIRI M.	General director of Luxor antiquities
- Dr. ABDEL AZIZ M.	General director of Karnak Temples
- AMMAR A.	Director of Karnak Temples
- ABD AL SATTAR B.	General director of scientific research
- HELMI F.	Director of Karnak Temples
- KHAZAFI A.R.	Director of Karnak Temples
- FATHI M.	Director of Karnak Temples
- IBRAHIM GH.	Chief inspector
- GHARIB T.	Chief inspector
- MILAD ZIKRI T.	Chief architect of Upper Egypt
- ABDEL NASSER A.	Chief conservator
- AHMED H.	Inspector
- ELTAWAB H.	Inspector
- AHMED AB.	Translator
- MOHAMED R.	Inspector
- SABRI R.	Inspector
- FAWZY A.	Inspector
- HASSAN A.	Inspector
- ALI M.	Inspector
- MOHAAMED A.	Inspector
- MOHAMMED A.	Inspector
- AHMED M.	Inspector
- FADY B.	Inspector
- RAMADAN M.	Inspector
- NUR ELDIN S.	Inspector
- NUR ELDIN M.	Inspector
- MOHAMED S.	Inspector
- MOSTAFA Y.	Inspector
- MOSTAFA A.	Inspector
- ABDEL HARESS E.	Inspector
- ABD EL GHASSUL M.	Draftman
- LOUIZ M.	Documentation officer
- DOWI ABD AL-RADI K.	Photographer
- FOUAD E.	Secretary
- RUBY A.	Assistant photographer

CNRS permanent members

- Dr. THIERS Chr.	Director of the USR 3172, co-director of the CFEETK, Egyptologist
- Dr. BISTON-MOULIN S.	Documentalist-egyptologist
- Dr. CHARLOUX G.	Archaeologist
- GARRIC A.	Stone-cutter
- PUELLE V.	Administrator
- MAUCOR J.	Photographer
- BOURSE C.	Conservator

USR 3172, LabEx Archimede, programme « Investissement d'avenir », ANR-11-LABX-0032-01

- CALASSOU P. Epigraphist
- Dr. DAVID R. Ceramologist
- Dr. DEMBITZ G. Egyptologist
- Dr. DURAND B. Archaeologist
- Dr. LARCHER C. Egyptologist
- Dr. TILLIER A. Egyptologist

Volontaires internationaux MAEDI 2015

- GUADAGNINI K. Topographer (till september 1st 2015)
- MEGARD P. Surveyor (from november 1st 2015)
- DE OLIVEIRA C. Conservator (from october 4th 2015)

CNRS trainees and missions 2015

- Dr. ALI ABDELHALIM A. Egyptologist
- CASSOR-PFEIFFER S. Egyptologist
- CLAUDE M. Egyptologist
- DUFOUR Q. Photographer
- Dr. DURAND B., Archeologist
- FOURNIE E. Egyptologist
- FROPPIER E. Egyptologist
- Dr. GAMAL M. Egyptologist
- Dr. METAWI D. Egyptologist
- OLETTE-PELLETIER J.-G. Egyptologist
- PERROT A.-H. Egyptologist
- Dr. RAAFAT ABBAS M. Egyptologist
- SALVADOR C. Egyptologist

8. ACADEMIC COLLABORATIONS

France:

- UMR 5140 – Univ. Paul Valéry Montpellier (Labex Archimede)
- UMR 5189 – HiSoma Univ. Lyon II
- UMR 8164 – Halma Univ. Lille III
- UMR 8152 – Univ. Paris IV Sorbonne
- USR 3134 – Centre d'études alexandrines (CeAlex)
- Institut français d'archéologie orientale (Ifao)

Other countries:

- American Research Center in Egypt (ARCE)
- Chicago House (Luxor)
- Univ. of Tübingen
- Univ. Libre de Bruxelles
- Univ. of Quebec (Montréal)
- Univ. of Memphis (Tennessee)
- Univ. of Oxford
- Univ. of Basel