

# **Khirokitia Archives (Cyprus): A Pilot Digitization and Online Publishing Program of the Archives Service at the Maison Archéologie & Ethnologie, René-Ginouvès, France**

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*In 2007, the Archives Service at the Maison Archéologie & Ethnologie, René-Ginouvès (MAE),<sup>1</sup> France, conducted a pilot project on the digitization of the excavation archives of Khirokitia together with an online program. This project, financed by the CNRS “Adonis TGE” (National Center for Scientific Research), aimed to digitize the entire field documents produced between 1977 and 2007 by the French Archaeological Mission at Khirokitia, under the direction of Alain Le Brun and Odile Daune-Le Brun. The purpose of this project was threefold: scientific, patrimonial and methodological.*

*In order to exploit the digital archives, high-definition images were provided to the directors of the excavations and to the Department of Antiquities of Cyprus. To broaden access to the entire community of archaeologists, the digital corpus was posted in low resolution with associated metadata via the Archives of the MAE website.*

*The archives were of different forms (textual, graphic and photographic), had various types and were kept mostly on fragile media. The project involved a number of technical choices on the scanning terms, on the file naming system and on the recorded metadata. In total, nearly 19.000 archival images are available online, together with their corresponding analysis in the online archival finding aid with various access possibilities.*

The Khirokitia archives document testify of thirty years of excavation (1976-2007) carried out by a French archaeological mission under the direction of Alain Le Brun

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and Odile Daune-Le Brun.<sup>2</sup> The archives, which presently represent 16 linear meters, were transferred to the Archives Service at the Maison Archéologie & Ethnologie, René-Ginouvès (MAE) between 2000 and 2008. The archival fonds include textual, graphic and photographic documents that were generated during field work, as well as other archives produced during study seasons and the preparation of the publications. In 2008, they were the object of a pilot digitization program financed by CNRS “Adonis TGE”<sup>3</sup> (National Centre for Scientific Research) which had three main subjects: science, cultural heritage and methodology. Its aim being to publish online the entire Khirokitia fonds, it comprised of several technical aspects concerning mainly the digitization parameters, the metadata to be included, and the access modalities for the digital archives.

## Main aims of the program

### Improving access to scientific data

The objective was to provide archaeologists an easy access to field data during all the research phases in the short term, as well as in the long term. Digitization, which allows both online publishing and duplication of the archival sources,<sup>4</sup> offers new possibilities for the scientific utilization of the data.

In this way, every member of the Khirokitia team may now dispose of all the digitized data and the associated data, whether he/she is on the excavation or in the laboratory, during field work or study seasons. Online access to the archival data is all the more important for the international team working at Khirokitia, which brings together researchers from different institutions and countries.

Moreover, the availability of digital archives has resulted in developing new search tools for the already existent Khirokitia database, which enhances its potentials. The new opportunity for the researchers to have simultaneous access to their data and the digital images has induced some operations in order to optimize data management: processing image files, vectoring topographic mapping recorded between 1977 and

<sup>2</sup> The French archaeological Mission at Khirokitia is sponsored since 1976 by the National Center for Scientific Research (CNRS) and the French Ministry of Foreign and European Affairs. The excavation of the archaeological site was concluded in 2009. The fonds concerns investigations carried out between 1976 and 2007.

<sup>3</sup> The “Très Grand Équipement Adonis” (TGIR Huma-Num since 2013) is a national research infrastructure which aims at ensuring the safeguarding and access to digital humanities.

<sup>4</sup> A copy of the Archives digitized in high definition (format TIFF) has been given to the directors of Khirokitia archaeological Mission.

1989, linking digital files and database records, the final objective of these operations being to implement an archaeological information system including dynamic and interactive mapping still in progress.

A hard disk containing a copy of the Khirokitia digital Archives was delivered in April 2011 to the Department of the Antiquities of Cyprus, an act that provides the opportunity to have the French Mission (1976-2007) and Porphyrios Dikaïos (1936-1946) field records both available at the Cyprus Museum and therefore to link Khirokitia artefacts and architectural remains with the contextual data of their discovery. Furthermore, the archive provides the Department of Antiquities with high definition photographic material for use in research or heritage programs.

The diffusion of published and unpublished field documents on the web, which expands access to the scientific community at large,<sup>5</sup> constitutes a major asset for present and future research on the late Aceramic Neolithic of Cyprus and more generally on the neolithisation process in insular environments in the Mediterranean and elsewhere.

Finally, each file available online is accompanied by a note on the regulations for third party use. As a matter of fact, while field data are freely available,<sup>6</sup> the reproduction of any published document is authorized exclusively for personal and private use.<sup>7</sup> Nevertheless, the reproduction of text is permitted, albeit only under the “right of quotation” that includes the obligation to quote its complete reference and mention its location.

### Ensuring the long-term preservation of the data/documents

The archival processing focus is clearly on long-term preservation of heritage documents, genuine and digital surrogates.

Field records, pencil sketches and written documents, slides and negative films are mostly fragile, and carry an added risk of degradation that gradually increases over time. Together with the preservation of physical documents in accordance with the relevant standards, digitizing enables us to overcome degradation. The need for preserving is all the more imperative that field records are unique, as they are the only remains of the archaeological context after its destruction by excavating and

<sup>5</sup> 15.962 file are currently online, available for download via: <http://archives.mae.u-paris10.fr/index.php/fouilles-khirokitia-1977-2007>

<sup>6</sup> Access as defined in the Code du patrimoine - L.213-1 to L.213-8.

<sup>7</sup> See Code de la propriété intellectuelle - L.121-1 to L.121-9, L.122-1 to L.122-12, and L.123-1 to L.123-12.

their exploitation is unlimited in time. But digitizing implies also to ensure the long-term preservation of the produced digital files. According to the Heritage Code, archaeological archives are considered as public archives,<sup>8</sup> and therefore will be transferred to an archiving institution at the end of the DUE,<sup>9</sup> a period fixed at ten years after the end of the scientific exploitation of the documents. During these years, the digital files will be safeguarded in secure database servers managed by the MAE Archive Service and maintained by the MAE information System Service. A copy is being transferred to the National Computer Centre of Higher Education (CINES) via the TGIR Huma-Num. At the end of the DAU the archive will be transferred, with the agreement of the records producers, to the Archives de France.

### Using archive processing for documents management

Khrokitia Archives Digitization program is included into the entire document processing chain which elements are defined by the Archival Science. This discipline and the current regulations establish procedures for collecting, preserving and circulating the original documents on physical and/or digital supports.<sup>10</sup> The MAE Archives Service, as all public archives services, is subject to a strict technical and scientific control exercised by the French government (inter-ministerial service of the "Archives de France").<sup>11</sup>

The transfer operation materializes the undertaking of the documents, regardless of their form.

It takes place when the producer considers that he does not use them regularly any more. The transfer of records responsibility imposes on the Archive Service to ensure their management over time that is until their transfer to the National Archives. This management comprises four components: collecting, intellectual processing, material processing and access.

<sup>8</sup> See Code du patrimoine - L.211-4, L.212-1 to L.212-5.

<sup>9</sup> The *Durée d'Utilité administrative* (DUA) is the minimum period during which the preservation of the records falls to the organization producing the documents. At the end of the DUA the final archival processing decision will be applied: preservation, sorting or elimination, with the agreement of the records producers and the inter-ministerial service of the "Archives de France" (see the Records schedule of the MAE archives at the MAE: <http://archives.mae.u-paris10.fr/pages/tabges.html>)

<sup>10</sup> See Code du patrimoine - Livre II.

<sup>11</sup> Archival document management products for laboratory and CNRS researchers in the humanities and social sciences is nevertheless uncommon, as Frank Braemer (1995) already noted in a report specifically devoted to the scientific archives of archaeological teams and researchers from CNRS.

The transferred records are managed in conformity with the organic constitution of the record group.<sup>12</sup> This principle imposes on the archivist to maintain its material and intellectual integrity, without trying to separate the records from each other, without dividing them in artificial categories depending of their subject and without retrieving arbitrarily some records that seem not to be related with the others.

Unlike documentation, the archivistic approach maintains the records in their original context, respecting their source and preserving the initial relations between them. In this way, the archives fonds of a producer is made up gradually according to the flow of his activities and the transfer of the records that he considers as closed.

The preservation of the organic character of the archives allows any researcher to use the documents according to the different objectives of present and future research use. These ways may imply approaches, methods and techniques that may be different and evolve in time.

The archiving allows preserving the identification of the documents that “comprises not only a content (a message) but also an origin, a core reason for existing, a recipient, a context”.<sup>13</sup>

### **Khirokitia field archives: typology and volume**

Textual archives are divided into three categories: the “locus note books” summarize all the spatial and stratigraphic data from each locus recorded season after season; “the excavation catalogues” compile the daily descriptions of the sedimentary context from each excavated area and the inventory of the associated material; the “objects forms” is dedicated to the description of the artefacts. “Locus note books” and “objects forms” associate textual recording and sketches, drawing and photographs.

Graphic documents include plans and sectional drawings of architectural structures, domestic features and tombs; the “graphic journal”, associated with the “excavation catalogue”, reports the daily fieldwork. The photographic archives are of three kinds: black-and-white negatives (24x36 and 6x6), colour slides 24x36 and contact print plates. The table reports the archives volume according to the type.

<sup>12</sup> Definition of an archival fonds: “A set of documents of all kinds, organically created by a producer in the course of his activities and depending on his duties. This notion contrasts with that of a collection.” (Association des Archivistes Français 2007: 261).

<sup>13</sup> Association des Archivistes Français 2007: 51.

*Table 1: Khirokitia archives: types and volumes*

Type	Volume
Locus note book	21 note books (1.443 pages)
Excavation catalogue	96 catalogues (3.812 pages)
Object form	1.478 object forms
Field drawing	1.268 field drawing
Graphic journal	22 journaux (1.822 pages)
Negative 24X36 et 6X6	6.333 negatives
Slide	1.853 slides
Contact plate	686 contact prints
Drawing and transparency	36 drawings

### Digitization and internal metadata

The documents digitization was carried out by an external service provider, specialised in the digitisation of heritage resources. The first step was to draw up the specifications concerning digitization technical details, the electronic files naming system, and the files internal metadata.

All the documents, including the textual records were digitized in 16 million colours, 24 bit, RVB. The selected resolution is 2500 dpi for 24x36 negatives and slides, 2000 dpi for 6x6 negatives and 300 dpi for the other documents. Concerning the framing the following specifications: outside the view, removing unnecessary image edges, processing orientations and inclinations, colour processing of the raw image. Two formats were planned for each scan: TIFF LZW format for preservation, correct quality the JPG/JPEG format for diffusion. In all, 45.625 files are preserved.<sup>14</sup>

The files naming system consists of the physical document reference number followed by the extension according to the format (TIFF or JPG/JPEG).

A stock list including all the identifiers was created to link the physical and digital archives.

Each file is associated with internal metadata divided in five headings, according to the IPTC international norm: description of the image content, document author, conservation site, Copyright, picture and file technical characteristics.

<sup>14</sup> The files repartition is as follow: 18.729 TIFF files; 8.167 raw scan TIFF files corresponding to negatives and slides; 18.729 JPG/JPEG files.

As a result of Adonis tendering and of the service provider choice, the implementation involved controlling of the physical archives (departure and return), motorizing of digitization the testing phases and the production process according to the specifications, generating progress reports.

After having been delivered on hard disks, the digital archives were transferred to a dedicated electronic file server, jointly managed and administered by the MAE Archives Service and the Information Service.

### **Access to digital Archives**

Khirkitia archives are available online via internet: <http://archives.mae.u-paris10.fr/index.php/fouilles-khirkitia-1977-2007> . The access procedure is the same as an archival search tool and reflects the constitution and structure of the producer's fonds. Khirkitia field archives are a subset of Alain Le Brun archives, "Néolithique de Chypre (1970-2007)", the other subset being "Cap Andreas archives (1970 and 1973)". Khirkitia excavation archives consist of three files categories: field records (1976-2007), archaeological material management (1976-1997) and publication production (1976-1994). Field documents are structured according to a documentary typology and, depending on the cases, chronologically, ("excavation catalogue" and "graphic journal", organized season after season) or topographically, according to the village organization (cartographic drawings: habitations, outside spaces etc.) or thematically (slides: village, inside/outside and artifacts). This filing plan is reproduced in the search tool which is structured by level of arrangement, in conformity with the standard archival description ISAD(G).<sup>15</sup> The analysis different levels has been defined by agreement with the director of the excavation varies depending of the files: item-level description (locus note book, catalogues), thematic subfolder (field drawings, contact plates, slides) or chronologic (graphic journal). The archival analysis includes twenty-six description elements divided into six areas. The six recommended cataloguing fields are: unit reference (localisation and reference number), heading/analysis; date or outside dates (dates of the unit of description records creation), level of description or classification, material significance, name of the unit description producer, if not mentioned in a higher level. The digitized records are considered as substitutes and therefore they are classified and conserved in their original context, that of the original document. Consequently, both the original and the digital substitute are object of a sole archival analysis and have one and the same reference number.

<sup>15</sup> International Council of Archives 2000.



• Daune-Le Brun Odile

Fonds

▼ Fonds CH1-48 - Alain Le Brun. Néolithique...

▼ Sous-fonds CH9-48 - Fouilles, Khirokitia (...)

▼ Série organique CH9-42 - Documents de t...

▼ Sous-série organique CH19-20 - Relevés...

▼ Dossier CH19/1 - Khirokitia ouest, relevés...

sous-dossier CH19/1/1 - Structure 82 (Éb...

sous-dossier CH19/1/2 - Structure 83 (Éb...

sous-dossier CH19/1/3 - Structure 84 (Éb...

sous-dossier CH19/1/4 - Structure 85 (Éb...

sous-dossier CH19/1/5 - Structure 86 (Éb...

Importer

• XML

• CSV

Exporter

• XML Dublin Core 1.1

• XML EAD 2002

Parcourir

• description archivistique

• fichier d'autorité


• Institution de conservation

• Fonctions

• Sujets

• Lieux

• Objets numériques



Zone d'identification

Code de référence

FR FRAEPMISHRG CH1-48-CH9-48-CH9-42-CH19-20-CH19/1-CH19/1/1

Intitulé

Structure 82

Date(s)

• 1977-1978 (Production)

Niveau de description

sous-dossier

Importance matérielle et support

6 relevés

Zone du contexte

Nom du producteur

Daune-Le Brun Odile

Institution de conservation

Service des archives de la Maison Archéologie et Ethnologie, René-Ginouvès

Métadonnées de l'objet numérique

Nom du fichier

CH19\_1\_1.pdf

Type de support

Image

Type MIME

application/pdf

Taille du fichier

739.2 KiB

Déposé

23 avril 2014 13:42

Figure 1: Example of hierarchical analysis (Arch. MAE).

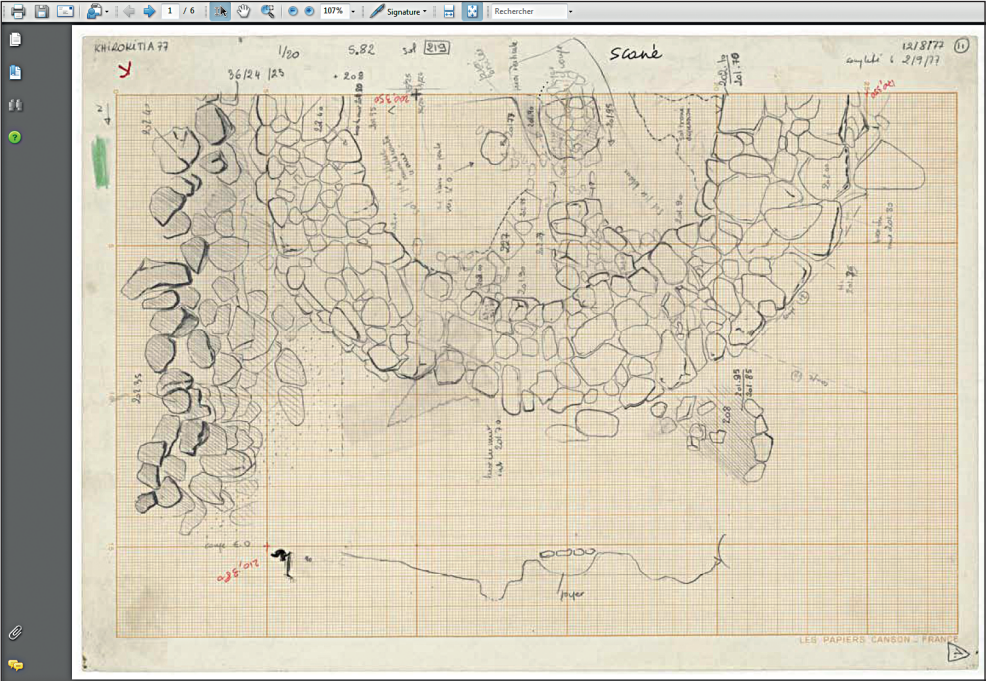


Figure 2: Access to drawings of the structure 82 (Arch. MAE).



For example, the “field drawings” files are classified by sector (Eastern and Western sector), then by structures/features (habitation units, enclosure walls and entrance of the village, tombs etc.). Within a file each structure/feature is identified with its locus number. Therefore, the analysis of “structure 82” can be found on the sixth level of the fonds. The digital archives are directly associated at the lowest level, such as “structure 82” file in which six drawings are available as originally classified by the fonds producer.

There may be different ways of access to analysis and online archives. The user may navigate his way through the filing plan or the digital archives icons and reach the descriptions and the associated images that are available for downloading in pdf format. He may also conduct a “simple search” on a word or an expression and browse all the field or an “advanced search” which gives the ability to narrow the search by using boolean operators such as AND, OR, NOT or use the descriptor-lists.<sup>16</sup>

Khirokitia digitization and on-line publishing program has met its double objective, access and preservation of the scientific sources, while maintaining the organic character of the fonds. It has also given the archaeologists the opportunity to carry on improving tools for the analysis of Khirokitia records. The provision of digitized archives to the national and international scientific community is a major asset for the further study of the development of Cyprus’ Pre-Pottery Neolithic, and in a wider sense to understand the Neolithisation of insular or Mediterranean environments.

Moreover, the program had a significant impact on the MAE scientific community to the point that field archives digitization has become a major activity in the Archives Service. Nearly 150.000 files from digitized excavations archives are currently held.

## Bibliography

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International Council of Archives. 2000. *ISAD(G): General International Standard Archival Description, Adopted by the Committee on Descriptive Standards, Stockholm, Sweden, 19-22 September 1999*, 2nd ed. Ottawa: International Council of Archives.

<sup>16</sup> These access opportunities are offered by the ICA-Atom software developed by the International Council on Archives. This software is currently being installed in the archives Service at the MAE, replacing PLEADE software (AJLSM Company).

## Περίληψη

Το 2007 η Υπηρεσία Αρχείων του Maison Archéologie & Ethnologie, René-Ginounès (MAE) επιχείρησε να ψηφιοποιήσει πειραματικά ένα μέρος από τα αρχεία ανασκαφών της Χοιροκοιτίας με τελικό στόχο να ψηφιοποιηθεί ολόκληρο το αρχείο ανασκαφών της Γαλλικής Αρχαιολογικής Αποστολής της Χοιροκοιτίας υπό την διεύθυνση των Alain Le Brun και Odile Daune-Le Brun, το οποίο εκτείνεται χρονικά από το 1977 μέχρι το 2007. Τα δεδομένα από τα αρχεία της Χοιροκοιτίας ποικίλανε ως προς τη μορφή (κείμενο, γραφικά, φωτογραφίες), το φορμά (ημερολόγια, αρνητικά φωτογραφιών, διαφάνειες, χειρόγραφες σημειώσεις, κτλ.), αλλά και το φυσικό στο οποίο φυλάσσονταν. Στο άρθρο αυτό παρουσιάζονται οι επιστημονικές, μεθοδολογικές, τεχνικές και διαχειριστικές αποφάσεις σχετικά με τη ψηφιοποίηση του αρχείου, τις συμβάσεις ονοματολογίας και τα καταγεγραμμένα μεταδεδομένα. Σημειώνεται, τέλος, ότι σχεδόν 19.000 αρχειακές εικόνες από τα αρχεία της Χοιροκοιτίας μαζί με συνοδευτικά αναλυτικά δεδομένα και μεταδεδομένα είναι σήμερα διαθέσιμα μέσω της διαδικτυακής πλατφόρμας του προγράμματος ψηφιοποίησης.