

# Developing the collection's documentation for the Grand Egyptian Museum's permanent exhibition: the role of its central information management system

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## Abstract

The Grand Egyptian Museum's (GEM's) upcoming exhibition in a new contemporary building in Giza, Egypt aspires to be one of the largest archaeological collections in the world, with an aim to encompass a timeline of the ancient Egyptian history.

The paper presents contribution to the documentation of objects within the collections intended to be on display, since this is one of the critical elements of the exhibition project. Through two case studies of the museum's collections, it explores some issues of documentation that were faced.

Strategies for exhibition development presuppose creation of collections that convey significant historical narratives. In order to achieve that, documentation of collections is necessary since reliable stories can be produced only if there are clear guidelines and information on aspects like full identification and description of collection objects, their associations, provenance, condition, treatment and present location.

Emphasis is given on a clear definition of the selected objects for display through investigation of existing and required data regarding their nature, typology, characterisation, provenance as well as exhibition concept, context and further requirements. Inventorying of objects' records has to be in an adequate and convenient format for information exchange with external exhibition stakeholders, assuring accuracy of the content.

Documentation, in the case of GEM, also serves multiple functions of collection management activities (for administrative management of collection) by defining necessary courses of action.

Documentation is carried out through a central information management system (Artefacts Database), which stores data for a large number of records of objects, intended both for storage and display. The role of this system is to identify areas that are in need of setting up appropriate documentation guidelines, policies and procedures as well as carry out additions and corrections on data that will result in provision of adequate and representative records with practical and conceptual features.

Keywords: Grand Egyptian Museum, Documentation, GEM Artefacts Database

## 1. Introduction

The Grand Egyptian Museum (GEM) in Egypt is one of the largest projects of museum development worldwide and almost near completion in the next few years. It is located at the Giza Plateau between

the Pyramids and Cairo and is bound to be a new state-of-art museum that will house a large world class collection of ancient Egyptian artefacts at an exhibition space of 40,000 square meters. It aspires to be recognised as an exceptional cultural destination that will focus on Egyptian civilisation with special reference to Pharaonic history as well as various aspects of Egyptian history.

It is a project of the Supreme Council of Antiquities of the Egyptian Ministry of Antiquities with support of the Army Authorities and under the auspices of the Egyptian Presidency, while its construction and operation involves various Egyptian and international partners.

Based on the architectural program, as defined in the building brief and the project concept in 2001 (The Great Egyptian Museum Project, 2001), the permanent exhibitions of the museum will be divided in several indoor and outdoor areas following a very progressive building program. More specifically, the internal exhibition components include the Atrium (in which the colosseum statue of Ramesses II has already been located), the Grand Stairs, the Tutankhamun Galleries, the Chronological Galleries, as well as the Children Museum. Additionally, the project includes open air exhibition spaces such as thematic gardens.

Driven by the notion that the heart of a museum's operation is its exhibits and how these could communicate information, concepts and stories of past times about people, events and activities, the main goal for this museum is to render its objects of central role as prime storytellers and provide through them tangible connections to the past. But in order for museum objects to serve this purpose and have these qualities, their identity has to be made known and solidified by means of appropriate documentation. For achieving this goal, assessment of the current state of the objects' records through extensive reviews was carried out, as well as certain initiatives and interventions were made for enhancing the quality of collections information.

## **2. Collection status - Condition and targets of documentation**

One of the main features of the new museum will be its collection covering the major periods of the Egyptian civilisation in an interesting archaeological concept. The plan is that approximately 50,000 objects will be exhibited and another approximately 50,000 will be kept in the storerooms of the GEM for research and educational activities. Moreover, the Conservation Center of the Grand Egyptian Museum which has been in operation since 2010, aims to prepare (examine, analyse, conserve and restore) all the artefacts intended to be exhibited in the main galleries.

The main attraction of the museum will be the presentation, for the first time, of the Tutankhamun collection, by exhibition of the total amount of the artefacts that Howard Carter found during his excavations of the intact tomb (designated as KV62) of the 18<sup>th</sup> Dynasty Pharaoh, between 1922 and 1930, in the Valley of the Kings in Egypt. The collection is considered a unique sample of a complete ancient Egyptian burial hoard, of which only a small part has been studied properly so far (Malek, 2015). According to scholars, less than one third of the whole collection has been on display in the Egyptian Cairo Museum for the last almost 100 years.

As far as the rest of the collections are concerned, since the idea of the Grand Egyptian Museum and its gradual implementation counts more than 15 years, the process of artefacts' selection has always been an important component of it. Objects bound to be displayed in the main galleries of the new museum have been selected in the past by a process carried out by initiative of the Ministry of Antiquities. This process, which is at an on-going basis, involves setting up of academic committees to review various archaeological storerooms, museums and archaeological sites around the country as well as to identify more findings that have been retrieved from recent excavations at different sites.

Egyptian scholars and experts identify objects that they either represent the glory of the ancient civilisation or date from historical times of the Egyptian history that have not been adequately covered in the new museum's collections. This work entails a number of challenges such as the strategic decision of the Ministry not to minimise or deduct the value of local museums by taking artefacts for exhibition in GEM, or identification of objects through old or illegible manual records that impose the need for transfer of information to electronic or digital formats. This challenging task was executed

from 2005 to 2013 by the GEM Archeological Documentation Department (ADD) team with archeologists trained and supported by the Japanese International Cooperation Agency (JICA) and Japanese experts. The team, with the Japanese consultancy and support, executed a major work by carrying out missions all over Egypt for survey of artefacts.

Documentation of the GEM collection was mainly available through the GEM Artefacts Database, a central information management system which had been designed in FileMaker Pro software<sup>1</sup> by the ADD team and it has been the main task and responsibility of the lately established Department of Artefacts and Information Affairs of GEM. In 2013, when the first phase of this massive project documentation was completed, the database contained more than 90,000 records which in reality responded to a greater number of actual objects. The majority, though, of these objects were not physically located in the GEM premises but still in different locations around the country – so it was more or less a virtual collection.

In this frame, the project reached a turning point where the collections information needed to be used for development of the exhibition narratives but also as basis for transportation activities and further selection of objects. It was at the same time that it was decided that the exhibition areas would open in two phases: the first phase would involve exhibition in the Grand Stairs (an almost vertical sculpture gallery at the museum's entrance) and the Tutankhamun Galleries, and the second phase (at a later stage) would involve the chronological galleries. This decision gave clearer directions regarding organisation and management of the work that needed to be done in different components related with deliverables and scheduled targets.

The main target with GEM's documentation was to reach a high level of data production that would serve one of the museum's wider strategic goals to have a complete frame of information and knowledge about the objects and collections which then could be used, interpreted and disseminated through their exhibition. This knowledge would be addressed to both wider public and researchers that might need more specialised and specific information.

Suitable documentation had to respond to modern professional standards that would lead to retrieval of complete, accurate, reliable and correct data which would confirm, illustrate, and validate the information contained in the documentation.

It was initially ascertained that all records contained in the database did not have the same level of documentation, so GEM's collections documentation faced a series of challenges. A prolific cooperation between the staff of the ADD team with other project components was established at this stage, which involved initially extensive reviews of the collections database records and a lot of modifications at a practical level.

When the dilemma of obtaining new collections management software appeared, the leaders of the project decided to continue the development of the FileMaker Pro database because it provided certain benefits at that stage:

1. the staff was familiarised with the software and it would be easy to train new members of it,
2. migration of the data to a new software might appear several operational and financial risks, and
3. the current software offered the 'custom made' flexibility of fields arrangement according to requirements and deliverables expected.

So it was decided that any work undertaken would be within the existing database.

No matter what the level and quality of the existing documentation through the database, the main goal was to improve and refine the current information where required, and enrich it (add more data) where there were deficiencies, in order for the data to be used for the exhibition preparation (by curators for development of exhibition narratives and by designers for having the ability to design in a

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<sup>1</sup> FileMakerPro software had predefined fields for information which could be modified depending on the fields of documentation available in the manual systems. There were separate interfaces mainly for collection management activities like conservation, exhibition, condition report, transportation, loans, etc. This software has the possibility of extracting information in Excel sheets, which means easy transfer of data, although, and mainly because of daily use, there may be technical complications if there is no appropriate care.

detailed and precise manner as well as for exhibition implementation). Therefore, reviews and assessment of documentation involved two types of approach:

- Bibliographical research for identification, research and documentation of the objects' archaeological value, historical significance, context and associations, role in the collection, educational status, etc.
- More technical information including physical features, material(s), state of preservation, conservation requirements, exhibition standards and requirements.

In more practical terms, the standards and documentation requirements that were set up from the beginning were the following:

- Database's structure and data organisation in a way that would result in a useful and functional tool of work with flexibility and reliability in data collection
- Potential to compile reliable catalogues with the objects of specific collections based on a number of filters-criteria like historic time (dating), typology of object, context or provenance, exhibition location, etc. Collection of all records with identity should be able to consist a "collection's catalogue".
- Consistency in the use of terms and fields since it is crucial to retrieve information quickly and accurately when necessary. One of the challenges here was communication, since all documentation was in English and with a number of foreign experts in an Arabic speaking country.
- Ability of identification of appropriate objects included in certain exhibit topics, i.e. to identify objects that fall into certain thematic references after content development, sub-themes, reference texts etc. In the same frame, it was considered essential to be able to enter labels or other clarifying texts of thematic context, produced at a later stage for exhibition purposes, all filed reliably and rendered easily accessible. This is information that can be changed in a future redesign of the exhibition or other uses.
- Organisation or coordination of all collection management activities in an effective way, i.e. straightforward identification of selected objects that needed transportation from other locations to GEM, objects that were in immediate need of conservation, labelling, registration, survey and other stages necessary for the exhibition's implementation. Collection management is a rather complicated, multifaceted series of tasks and actions that demand careful planning, management and prioritisation of stages and action. Running these activities through central information management systems provides satisfactory support for such activity. Updated information facilitates staff's work flow as it can be disseminated through various departments with different tasks – it promotes interdepartmental communication and it is a time saving procedure.
- Provision of all information regarding each record so that special features would be identified, researched or completed when missing, and priorities could be set for a number of stages of collection management procedures or exhibition requirements.

Registration in the museum's catalogues was the first step after entry of an object into the museum or the museum collection (this was done both in Arabic –in manual records- and English for the database's use). The essence of the procedure entailed matching the physical presence of an object with assignment of a single number to the object for the GEM collection (entry/accession or museum number). It also included identification of the item's location within the building or other museums (if not moved yet), and records that concerned its historical or legal documentation. It also included the title or name of the object, the number of parts described in a record, a short description, the date of accession, provenance information with reference to the site of retrieval and the excavator, the previous owning institution as well as previous accession numbers, stewardship responsibility, as well as available photos (fig. 1).

This level of registration intended to provide a level of description sufficient to render identification of an object feasible and differentiate it from other similar objects. The practice was based on catalogues, thesauri, tables and indexes either previously formed (produced) by various

components of the project or currently produced by Egyptology experts. Another intention was also to allow easy access with use of filters, indexes, free text retrieval, etc.

Registration was carried out by specialised museum staff and provided safe storage of the information related to a museum object.

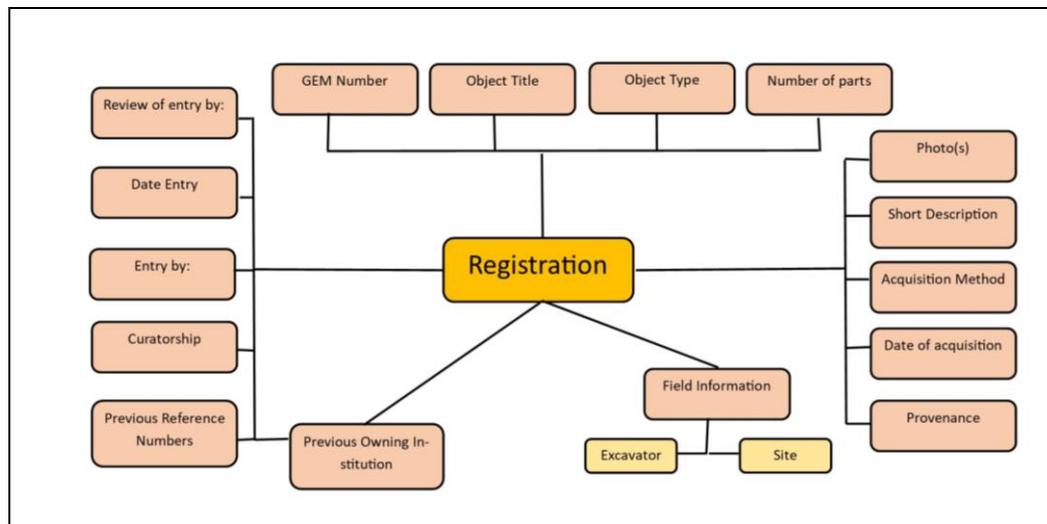


Figure 1: the main fields of data that were completed during the registration process in the GEM Artefacts Database.

Apart from registration, further documentation included recording of all the information that would provide the most complete knowledge for the nature, role, values, historical value, use and the connections of a museum object. This information included documentation of the historical and academic significance, its importance (role) within a specific cultural or scientific context, its physical features, the legal status and the objects' provenance of the collection before and after their entry in the museum. This would fulfil another of the basic functions of the museum, to preserve not only the objects but also the information that is connected with these objects, something that is also evident in a database by accumulation of published bibliographical information and references regarding specific objects and collections.

### 3. Practical components

The second component of the present work involves specific actions/steps that took place in the project for improvement of documentation, collection management and exhibition preparation.

#### General actions

In parallel with processing the database records from the various collections of the museum, certain measures were taken for clarifying and establishing procedures that could facilitate both collection management activities and exhibition content development processes. Examples are given in the following paragraphs.

#### GEM's ownership template

This template was developed in order to confirm acquisition as well as transfer of custody and its relevant information and to review the ownership status of the objects. As mentioned, the majority of the collection's objects were virtual and had not been yet located in GEM's premises. So, one of the first aims and activities was, starting from the Grand Staircase collection, to produce an ownership template that would be filled in first and then inserted into the database for all the objects that had been transported or had been confirmed to unquestionably belong to the GEM collection, no matter their then current location. For verification of the process, all the required documentation (i.e. letters, decrees or other relevant documents that proved transition of the ownership to GEM, reference numbers - even in Arabic) were recommended to be included, along with relevant dates of all correspondence and decisions.

GEM No	Short description	Current location	Current Inventory Records	GEM Ownership status (yes, pending)	Documentation on ownership	Notes

Table 1: the main fields of the ownership template for the GEM objects

### GEM Database Template for external stakeholders

Another useful step was to create a documentation template that would include all fields of information required normally by exhibition designers in terms of both content and design development, bearing always in mind the fact that the classification of information and completion of the fields has to be done in such a way that the required information could be retrieved in a straightforward way.

The purpose of the activity was also to use comprehensive and suitable terminology for communication at an international level. Certain fields included in this template needed specific modifications and improvements.

The required fields to be retrieved from the database included the GEM number (the identification /registration or reference number for each of the exhibits), the Object title (a concise and accurate description of the type or title of each object)<sup>2</sup>, the Theme reference (i.e. the general category or group of objects that were classified according to the process of content development, and more specifically the development of curatorial briefs and themes regarding the collection’s exhibition), material (only specific types of material, e.g. wood, faience, linen, copper, etc. or more materials when the objects were composite), dimensions (measurements of height, width or depth and weight), current location, mounting requirements (if the existing mount was appropriate or a new one would be required, if it should be placed in a showcase, or it could be an open display), display requirements (related to the position of the object in the exhibition and if any other special display requirements were needed), images<sup>3</sup> (sufficient number and replacement of poor quality photos were recommended), supporting images (information for display purposes like context or connections), notes (a free text field where all special features or requirements about an object could be included- it could include information related to any of the previous fields of the template).

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### Database Template for external Stakeholders

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GEM No

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Object Title

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Zone/Tray/Gallery Reference

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Theme Reference

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Material

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Dimensions

Height  
Width  
Depth  
Thickness  
Diameter

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<sup>2</sup> The Object Title field was at the same time advised to be included in the database’s interface. This field could include a very short description of the object, retrieved from the fields of *Sub Category*, *Title* or *Piece name* initially included in the Database together with very little but basic information from the *Description* field. The term *Object Title* was recommended to be used since it is a term widely used for this purpose internationally. In case the information was missing or could not be extracted from the above fields, it should be reviewed and added individually for each object.

<sup>3</sup> Photography was recommended to be carried out in standard conditions, following certain guidelines.

	Length
<b>Weight</b>	
<b>Current Location</b>	
<b>Mounting requirements</b>	<b>Mount</b> Existing New <b>Showcase</b> <b>Open Display</b>
<b>Display requirements</b>	$\frac{3}{4}$ view - view from front and two sides 360 deg- view from all sides Facing Front Flat Standing Tilted
<b>Images</b>	
<b>Supporting images</b>	
<b>Notes</b>	

Table 2: the main fields of the database template for the GEM objects for external stakeholders

### 3.2. Specific collections

#### Grand Stairs Collection

The Grand Stairs Collection will include about 100 statues and architectural elements exhibited on plinths along the Grand Staircase, with an aim to initiate the visitor into the identity of the museum which centers on the state, kingship and longevity of ancient Egypt. Single, large statues and other objects (monumental architecture) related to kingship and the different powers of the king, will impress the visitor with their scale and magnificence while forming an intermediary bridge (transition) from exterior to interior.

The lists of objects to be included in the Grand Stairs collection were reviewed on the basis of ownership status (pending approvals), thematic connection with the themes that had been developed in the exhibition content development process (to fit in to the curatorial briefs and contribute to a more descriptive and complete picture of the general statement, the key messages and content briefs) and their assigned allocation according to that. There was a need for physical survey for certain of these objects in order to complete all the missing data and then carry out accurate input of data in the GEM Artefacts Database. The survey would include verification of current location, proper photography (with one or more photos if required), measurements, weight calculations<sup>4</sup>, material identification<sup>5</sup>, determination of their condition and their mounting requirements as well as their exhibition requirements (e.g. footprints of artefacts).

It was of crucial importance and immediate priority for GEM first to develop and standardise this procedure in the most efficient and accurate way and then to prioritise and complete all the missing information as indicated above. The awareness of the procedure's importance along with careful planning was vital for risk mitigation and appropriate training of authorised staff.

#### Tutankhamun collection

As mentioned above, the main attraction at the GEM will be the first time display of the complete Tutankhamun collection. Approximately 5,000 objects that were found in the king's tomb, first

<sup>4</sup> This was of utmost importance for any technical requirements and restraints that needed to be considered during the construction of the Grand Stairs' part (plinths, bases or other display options). Consequently, it was a rather urgent bit of information that had to be filled in immediately with either the actual or estimated weight of each object.

<sup>5</sup> The great majority of the objects were made of granite, although other types of stones like limestone, sandstone, quartzite and basalt were also encountered in smaller numbers. Knowledge of the material was also crucial for weight calculations.

discovered in 1922 by the British archaeologist Howard Carter, will be on view in an exhibition gallery of 7,000 square meters.

The Tutankhamun collection comprises a closed set and has been retrieved from the Tutankhamun Tomb in the Valley of the Kings in the west bank of Thebes, a burial complex consisting from the Antechamber, the Annexe, the Burial Chamber and the Treasury.

A large part of these objects are nowadays exhibited in the Cairo Egyptian Museum in Tahrir Square while others have already been transported to the storerooms of the GEM's Conservation Center (including garments of fragile nature that have never been on display before), some are in the Luxor Museum and fewer in other locations. A great number of the collection's artefacts have been the object of many exhibitions internationally as well as studies and publications for almost one hundred years now because of their great significance.

The decision to have the whole Tutankhamun collection on display includes the responsibility to decide how to present the world heritage collection and some of the most famous artefacts in the human history, including the Tutankhamun funeral mask.

Today's vision for the collection's display is for the visitor to have the unique experience of the funerary relation and significance of the artefacts inside the tomb, offering a different perspective of the way the artefacts have been on display for many years.

For realising this interesting aspect, one can easily understand that for GEM to reach these high expectations, the collection and its documentation have to be as articulate and complete as possible. In practical terms, two major procedures were taken up in order to move forward:

- development of curatorial briefs for the collection, and
- review of the objects of the collection and their documentation (with emphasis on the data available in the database).

One of the main goals of the first reviews was mainly related with determining the identity of the objects: to establish their typology, determine further categories of each type and attempt grouping these objects for reasons of more convenient handling of their data (refinement of clear filters of research).

Another goal was to identify weaknesses or deficient and missing data and correct or complete it where possible. This process needed very careful planning and methodology, clear targets and guidelines, consistency and in depth research of the objects for which there was not much available information. It also needed a productive cooperation and coordination between the staff of GEM's departments as well as staff from the Cairo Egyptian Museum in order to achieve the best results.

### ***Fields of review and modifications/additions***

#### ***GEM Numbers***

The Tutankhamun Collection is an archaeological collection that has been documented and registered repeatedly in the past. Its artefacts are quite variable in terms of significance, aesthetics, size, state of deterioration, numbers of similar objects or other features.

Almost all artefacts were first recorded by H. Carter at the time of excavation and retrieval from the tomb (Carter number) while the Egyptian Museum Cairo has followed more than one registration systems regarding the documentation of the collection's objects.

GEM though decided, upon its establishment, to develop a separate documentation system (based more or less in the Egyptian museum's official system), so the artefacts for once again had to be registered and given new identification numbers (GEM numbers). This practice worked well with single (individual) artefacts that have been assigned with one GEM Number, despite the random distribution of numbers (no arithmetical order has been adopted). There were cases though, that a single number has been assigned to:

- artefacts that consist of two or more parts - without having smaller division of this number, indicating the different parts of the object. Smaller divisions were necessary here for keeping better records of the actual nature and data of each object as well as for more efficient and realistic collection management processes. Types of objects from the collection with such requirements were determined and such examples were pairs of sandals, vases with lids, ewers

with lids, bowls with lids, jars with lids, earrings, necklaces, pairs of gloves, miniature coffins, game boards, boxes with lids, chariots, food boxes, baskets with lids, etc.



Image 1: Canopic chest and lid initially with the same GEM number, and  
Image 2: Pair of earrings initially with one same GEM number

- artefacts of similar typology (one single GEM Number may have been assigned for more than one objects with similar or identical features, without individual part numbers).

Another case of records that needed changes were records that had been given one GEM number as a *Mother* record and then the same number with extensions in a numerical order (e.g. X.1, X.2, X.3), responding to *parts* which are similar objects (individual items with identical many of their features, i.e. type, description, material, even dimensions sometimes), a practice adopted from a previous identification system in the Egyptian Cairo Museum and has not been followed in all cases.

For resolving the above issues, establishment of protocols was recommended and carried out regarding the recording/assignment of numbers. Individual numbers were assigned to every object, parts of certain objects were given subdivisions of numbers and an extensive review was carried out again in order to correct errors and weaknesses. So it ended up that the objects of the collection were more than 5000, counted in total for the first time.

#### *Types of Objects*

The types of the Tutankhamun objects have been classified according to MET (Multilingual Egyptological Thesaurus) and this is also the way they have been entered in the GEM Artefacts Database. MET is a thesaurus of Egyptian artefacts, compiled from various sources, mainly for electronic applications whose primary goal is to propose a documentation methodology for describing Egyptian artefacts, nowadays considered an internationally recognised standard. This classification includes four (4) levels, starting from more general and moving to more specific ones: categories, subcategories, titles and piece names. The initial state of classification (following the MET standard) is depicted in the figure 2, while numbers of records and objects have also been produced.

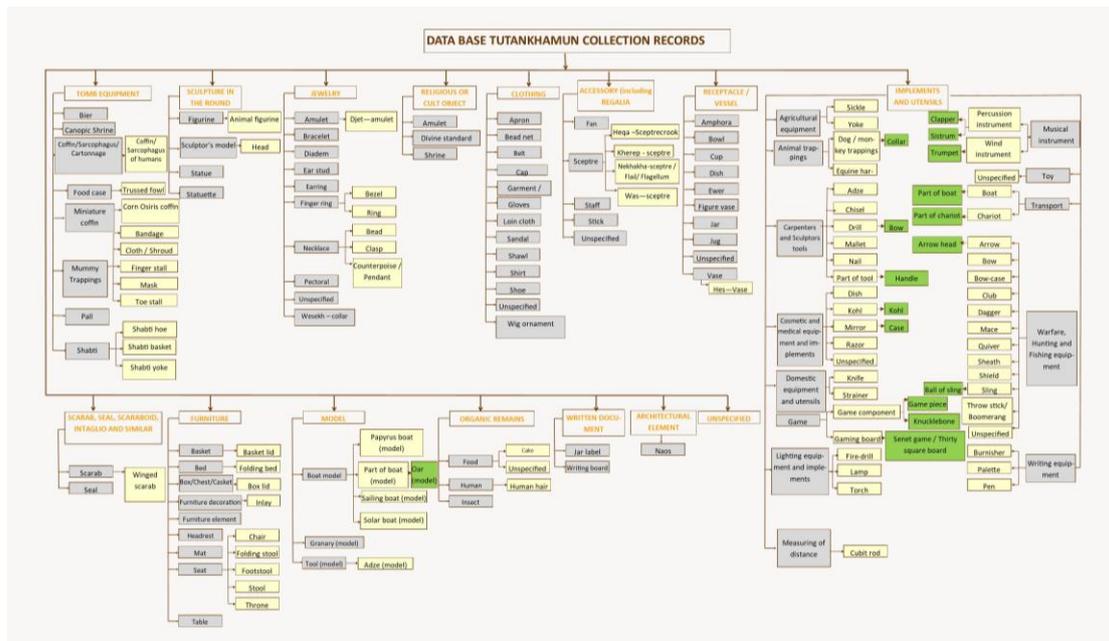


Figure 2: The different levels of classification for the Tutankhamun records according to MET are depicted in different colouring.

Review of the records on the typology of artefacts showed that there were some records classified as Unspecified or Undefinable: these were recommended to be prioritised in terms of archaeological and curatorial study and research as well as terms of conservation or other analysis which would contribute for the determination of their nature, typology and use in the king’s burial context.

Records that mainly come from storage rooms of the museums that have artefacts from the Tutankhamun collection, have classified the artefacts only at the first level –in one of the categories– but no further classification describing the specific type (subcategory, title or piece name) have been added. Archaeological and further study and research on such types was definitely necessary so that the artefacts could be more accurately classified and in more detail.

Review also showed records of conflicting classification, i.e. objects of similar typology were found to belong to two different categories e.g. shrines that were allocated either to the Tomb Equipment category or to the Religious/ Cult Object category, or amulets classified either under Religious or Cult object or the Jewellery category. Other types of objects with conflicting classification were dishes, statues and statuettes, bows, games, etc. For such issues, it was recommended (and finally implemented) that protocols and criteria should be determined which would rationalise either the differentiation in categories or the corrections that were considered necessary. Despite adherence to a certain classification system (such as MET which is not always so rigorous in various fields of information classification), it was often advised that there should be initiative by the Egyptology experts to conduct research and study the artefacts, in order to avoid confusion and conflicts. Clarifications and differentiations were suggested to be included in the text-free fields of the different Database templates and interfaces.

*Description*

Some of the records of the Tutankhamun collection in the GEM Database initially had limited or no description of the objects. Recommendations for developing descriptions for all objects included:

- Content instructions (in workshops carried out by Egyptology experts) so that there were full descriptions of each object (standards and guidelines were given for same level of information, tables and use of predetermined terminology for communication and consistency).

- Addition of features like condition assessment, more than one materials, colour, technology (features of technology like method of construction or decoration), burial context in certain cases.
- Remarks about syntax (grammar structure, spelling and editing that should be carried out by staff with competent fluency in English). In all cases, advance agreements were made on the way to write certain terms, not only because of professional deontology but also for reasons of convenience in the search processes.

All the above features as well as many more were clarified with constructive and continuous cooperation between the experts of the project's components in the form of discussions, workshops or other.

*Missing documentation on association of objects from the Tutankhamun Collection*

The majority of the Tutankhamun records in the GEM Artefacts Database are connected to Carter's electronic links (resources), the excavator's archives that have been digitised and made available on line by the Griffith's Institute Archive of University of Oxford. These records of Howard Carter, entitled "Tutankhamun: Anatomy of an Excavation", are one of the most famous archival resources referring to the discovery of the tomb of Tutankhamun, containing lists of the objects found, descriptions as well as their context, drawings and photos (how they were originally recorded by the excavator), providing a comprehensive online resource.

There was though an issue in the Database with information concerning association of the objects, at least as given in the Carter's resources. Connections and associations could be seen only if one opened up the relevant Carter's link from the Griffith's Institute, where apart from detailed descriptive accounts, sketches and interpretations of some objects, certain of them are associated with others. This fact though, was not included in the records of the GEM database, i.e. there was no information if an object was associated with another one or with a group of others in terms of context (all objects' data from the Tutankhamun collection could be only given and presented individually). This state of records confined knowledge on the role and significance of the objects and at the same time this would have an impact in the exhibition requirements, since Carter's links could not be given to external stakeholders such as exhibition designers and fabricators; even in the case that one used the link, one could not find the associations and connections because in the links the objects have different numbers (Carter numbers) which then have to be corresponded to the GEM numbers. For complete and self-sufficient data, this information had to be included in the Database itself since it was the core of documentation of the whole collection. Such examples are given in the following images:

- King's throne or ceremonial chair and footstool



Images 3 and 4: associated objects from the burial hoard of Tutankhamun's tomb.

The two objects in the above images, of the most important of the Tutankhamun Collection, were given as two separate records in the GEM Database without reference of connection between them, while in the recording system of the Egyptian Museum they have been given the same number, and in Carter's links they are also connected since they were found together. The two objects are also displayed together in the Egyptian Museum's Tutankhamun Gallery.

- Wooden box with contents

A second example of missing associations is the case of the wooden box in image 5, which according to Carter's records, contained the objects of the images 6-8, information also not given initially in the Database records.



Image 5. For this wooden box, Carter gives as its contents the objects of the photos below.



Images 6-8. Pair of sandal-like slippers of leather embellished with gold and bead work, small box and stone anklet from schist, objects found in the interior of the box of image 5.

The above examples as well as a series of similar cases imposed check of the Griffith's Institute links, corrections and new additions where necessary, and at the same time investigation of the records that had no Carter's link and unspecified information.

#### *Context of the artefacts*

For most of the objects that belong to the Tutankhamun Collection there is available information in the database about the archaeological context of the artefacts, i.e. in which of the five areas of Tutankhamun's tomb (Corridor, Antechamber, Annexe, Burial Chamber and Treasury) the artefacts were initially found. Combination of suitable filters of research may yield lists of objects for each of the five areas, in case such information is decided to be needed for future exhibition requirements (depending on the exhibition content development process). For the small number of objects that this information was missing or unavailable, it was recommended to be investigated thoroughly through Carter's records or other bibliographical resources and then to be entered in the database.

#### *Other important fields of review and additions*

- Exhibition Theme Connection

In parallel with the exhibition content development (themes, briefs etc.), the Tutankhamun objects were also classified in themes and thematic subdivisions and were given pre-determined numerical codes. After review of such classifications, the data were entered into the Database, available for immediate retrieval when required.

- Photos

Photographic documentation is another important aspect of museum practice. There are certain criteria and guidelines in order for the photos to be representative of the objects, attributing realistically their

condition and special features. Common are the cases where more than one photos are necessary in order to depict in total an artefact. Regarding the photos of the Tutankhamun's collection's records, recommendations were made for records with missing photos, prioritisation of photography of not physically surveyed objects, records with poor quality of photos and objects that had undergone conservation or restoration interventions.

- Physical features

For the complete identity of an object, it is necessary to include certain physical features in its documentation records, like dimensions, weight and material or materials in the case of a composite object. Apart from documentation though, this information is vital for display purposes (both exhibition design and implementation).

Review of the Tutankhamun records in the Artefacts Database showed that the great majority of them included dimensions (height, width, length, thickness, and diameter) for objects that have been surveyed, very few have weight measurements and few lack material information. It was recommended that all the missing data should be prioritised for completion since they all are objects that belong to a collection of great significance and this would also facilitate external exhibition stakeholders. It was also advised that this could be achieved through interdisciplinary work with the GEM Conservation Department for objects that had undergone conservation treatments.

#### **4. Discussion on GEM Documentation**

The aim of the Grand Egyptian Museum, as mentioned before, is not only to exhibit important and impressive artefacts of the past Egyptian history but also to convey and disseminate valid information surrounding these objects and facilitate thus understanding of the country's past times.

All the steps described above and applied for two of the most important collections that will be exhibited in the Grand Egyptian Museum (The Grand Stairs and the Tutankhamun Collections) fall within a wider effort to achieve the most appropriate, complete and high-level documentation possible. This aim, apart from serving the museum's vision for enhancing professional standards, it has also contributed significantly to the implementation of exhibition purposes like exhibition design of the GEM Galleries that will house the collections.

From the above examples, it is clear that the work carried out regarding documentation of the GEM Collections, targeted at two specific areas:

- The establishment of standards and protocols that would be developed first for internal use to serve all the project's components and their work. It was attempted for these standards to follow acceptable international practices (since this was considered an international project of global interest) but with adaptation to existing modes of work and available resources. Practical issues (user experiences) that came up regularly and needed clarifications, corrections or simplifications were also tried to be incorporated in the protocols – there was care that clear guidelines were provided in every issue that came up and all stages or options of work were described in detail for future reference and use.
- Apart from the exhibition requirements that were intense, compulsive and tight-scheduled, the prevailing perception in every action was that the objects, apart from any aesthetic value they had, they should be faced as historical and archival sources. This could be achieved through a number of different approaches, depending on the object in each case and its needs, e.g. field survey, bibliographical research, interdisciplinarity (information extraction from use of analytical techniques or condition examination by conservators), etc.

The same methodology has also been recommended to be followed for the records of the objects that will be exhibited in the chronological galleries of the museum since they have similar issues in their documentation.

The practice of providing as complete documentation as possible for each object of these large collections was the core element in our effort to trace down information and knowledge about them. This was made easier and more efficient through use of the central information management system the Museum had. The use of the Database could offer us straightforward validation of information and at the same time it could show us the weaknesses or missing information in data. This practice though, by

no means, can minimise the value of the human factor and human perception in processing the information. Assessments and reviews carried out by people of the data produced by the electronic resources was the right combination for moving forward, scheduling, migrating data and filling in the gaps to reach the desired level of work. In addition, this way of work provided the staff with confidence since they could realise the necessity of the steps that they had to implement and could schedule in a much more efficient way.

The Database played a central role and enabled a major step forward in the methodology of data collection and processing since it could carry out general or specific inventories of the collections, it could standardise pieces of information without substantial loss of it and retrieve data in a structured manner as well as safely store all the information accumulated.

It is believed that adoption of such practices could build GEM's unique reputation based on the extensive, deep and unique content on Egyptian history and civilisation.

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