

**WOODEN CANOPIC BOXES WITH *PR-NW* LID –  
Development of the lid construction  
till the end of the New Kingdom (part 1),  
and the practical use in working with object remains (part 2)**

**Poster Appendix**

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# 1 INTRODUCTION

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In the burial chamber of the tomb TT C.3 in Sheik Abd el-Qurna (Egypt), discovered by the Belgian mission in 2012, more than 30 individuals have been buried between the 18<sup>th</sup> and the 20<sup>th</sup> Dynasty. The heavy looting of the tomb caused not only the destruction of the wooden objects but also explains the significant lack of object-elements.

Handling thousands of wooden elements (planks, boards, laths etc.) and fragments of them (broken parts of planks etc.) with numerous origins (deposition furniture like tables and stools, container furniture like boxes and coffins, tools and so on) can be compared to solving several jigsaw puzzles where the resulting objects can just be expected, the amount of the specific objects is unknown and several pieces are missing. **The key to solving this task was the detailed study of construction methods of the entirety of wooden tomb inventory and their development, beginning with the Middle Kingdom till the end of the New Kingdom.**

Due to the central role of canopic boxes, they are found in almost every tomb - and therefore being statistically second to coffins. Related to canopic boxes with *pr-nw* lid in this poster three results focusing on the lids can be presented:

## Part 1

- The shape of the middle part of the lid (between the end-walls) is changing over time and can be helpful for dating.
- Within the change of the shape occurs a change in the construction method, which includes the amount and shape of the single elements used to produce these shapes.

## Part 2

- By using these results several elements could be identified as belonging to two canopic boxes with *pr-nw* lid and the missing parts could be reconstructed.

# 2 PART 1: DEVELOPMENT OF THE LID CONSTRUCTION TILL THE END OF THE NEW KINGDOM

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## EXCURSUS: BASICS OF CONSTRUCTIONAL DEVELOPMENT OF WOODEN OBJECTS

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Constructional development over time involves a stepwise improvement of the quality of woodworking applied to a specific object type like e.g., canopic boxes with *pr-nw* lid with vaulted middle-part. This includes new innovations that sometimes can fail and will be abandoned again, but in general are improving the different aspects reflecting woodworking quality by time. For example:

- the overall construction-type development: dug-out → board construction → post-construction → frame-construction → frame-filling-construction (which was just invented by the romans);
- edge shape development: butt joint → mitre joint → dovetail joint;
- fastener development: fabric / leather bands → metal bands → pegs and so on.

The constructional development within a specific culture can in modern times just be reconstructed by studying in detail examples that are combining certain requirements:

- a) examples need to be of the highest quality,
- b) the production dates of the single examples need to be known,
- c) the corpus of the examples needs to reflect a longer time-span. The results would be the known dates of the first occurrence of different features, which can then serve as the earliest possible date of the production of an object.

**Relating to a):** As studying just the highest quality of objects is not possible for the complete time-span of ancient Egyptian culture, we need to research the objects (or remains) that have been found. In doing so we need to consider that produced objects are always a mirror of the social status of the client, the economic situation of the state (e.g., access to high quality wood) or even the ecological situation at a specific time (e.g., not enough

foreign trees). Due to this it is necessary to keep in mind that although the knowledge about production techniques of a higher quality may already be available in the society the simpler types will still be produced. In sum it can be noted that at each time all kind of quality levels known / accessible at that point can be expected.

**Relating to b):** The dating of a single wooden object produced in ancient Egypt is based on different methods (the scientific dating methods of C14 or dendrochronology are not taking in account as the date of the tree felling can be much different from the date of the object's production). Hence the methods include e.g., dating based on archaeological context, inscriptions mentioning a (known) pharaoh, inscriptions mentioning names and titles which were used preferably at a specific time-span, inscriptions mentioning relatives that are already known and convincingly dated or by stylistic features reflecting a specific phase or even dynasty (or pharaoh). It needs to be considered that the value of the dating methods is just as good as the current state of knowledge about the developments of these different aspects. For that very reason, dating results based on the last three methods should be handled carefully.

## 2.1 METHODOLOGY AND ITS LIMITATIONS

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Starting with wooden object types, which from our current state of knowledge can be expected in a New Kingdom noble tomb, my objective is to gain basic knowledge upon the shapes and sizes of the single elements that are needed to produce the anticipated objects (when dealing with object remains).

Hereby some limitations occur for every study related to a specific object type:

- a) The timeframe for answering this question by researching every single object type is usually just the time of being at the mission in Egypt. Yet this time is too limited to research all known examples of a specific object type.
- b) This leads to the exclusive use of resources that are available online (→ object entries in online-databases, literature available digitally) or somehow with the mission in digital way (→ pdf's of literature and so on).
- c) Evidences on constructional features combined with drawings occur usually in excavation reports of the beginning of the 20<sup>th</sup> century. However, the immense number of excavation reports cannot be checked in the given timeframe.
- d) Faster and more promising results can be obtained by researching online-databases for examples. But this on one hand certainly results in "investigating" photographs instead of studying the objects with your own eyes and on the other hand rules out objects from museums, that don't have online databases (yet), objects that are not mentioned in online databases (yet) or objects that have no published images online (yet).

All this together leads to the condition that every study is just based upon few (and fast accessible) examples and will stay in progress.

## 2.2 RESULTS

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### 2.2.1 Differentiation of main shapes

The three known shapes of the middle part are sorted by the dating of the found examples: vaulted type from MK to NK (Ahmose), one example with gable-shaped middle-part dated to the end of the MK / beginning of the 2IP and the flat type which is just known from a rectangular coffin with *pr-nw* lid from the 2IP (for a drawing see 'MANT-project canopic box with *pr-nw* lid 1'). This also puts the shapes in the order of a decreasing quality level and therefore helps to visualise a stepwise abstraction / minimalization of the shape of the middle-parts. Related to the construction this illustrates the decreasing complexity of producing the middle-part and the decreased volume of wood that is needed to produce the different shapes. Next to that it can also be stated that elements for gable-shaped and flat lids can be produced of reused boards, whereas for the vaulted type scantlings are needed (what usually makes a freshly cut tree needed).

Based on the found examples it might be possible that the three types were developed one after another. But related to the low number of evidences at that time this reflects the current state of knowledge and will need to be revised when new objects occur.

## **2.2.2 Development of constructional features of canopic boxes with vaulted middle-parts**

As the found realia mostly belong to the “vaulted middle-part” shape the constructional development can just be interpreted for this one. Also related to the points mentioned in the excursus the realia sorted by their dating are just those ones which could be dated safely. The sorting of the other realia is based on the interpreted development steps. The development shown here is based on the following features: the different kinds of positioning-aids, closing systems of the lid and orientation-aids.

### **‘Hapyankhtifi Type’**

For the closing system it can be stated that at the beginning of the production of container furniture there was obviously no closing system at all, but a positioning-aid instead: the lid-battens. As for dealing with loose lids they need to be placed on the right location upon the case which was handled by using lid-battens at the exact spots to fit in the inner corners of the case.

No hints on orientation-aids could be found but it is known from coffins since the MK that carpenter marks have been used for this function.

### **‘Senebtisi Type’**

The lid-battens in the function as positioning-aids are now in the common orientation known from all kinds of containers from the MK onwards: parallel to narrow-face / left and right.

The first permanent closing system (= securing system) was developed by using the already available lid-battens: crossing pegs were put through the case-sides and then were crossing the lid-battens.

### **‘Amenemhet Type’**

As the middle-part was not found this is reconstructed based on the recesses in the end-walls and side. It is not known if there have been lid-battens, but they are not needed as positioning-aid anymore, as the loose tenons take this function.

Next to that the loose tenons are also replacing the lid-battens in the function of the closing system. These could be produced form-locked or in addition could be secured with one or two crossing pegs each. (Here form-locked in the upper half und with crossing peg in the lower half.)

### **‘Iy Type’**

This object uses loose tenons as positioning-aids for the end-walls (which are not permanently joined to the middle-part). But this example shows one more possibility: for the middle-part rebates are used to place it at the proper location. (As a constructional consequence the width of the lid needed to be narrower than the case deepness.)

The first constructional solution for differentiating the left and right side of the lid was the use of notches at one side.

### **‘Minmontou Type’**

With this type a combination of positioning-aid and orientation-aid occurs with the permanent connection of the left end-wall to the case.

The right end-wall is still joined with the middle-part to produce the lid. This will be slightly oblique sliding into the recess of the left end-wall and then the right side of the lid part will be put down to place the loose tenon into its mortise (see drawing insert at ‘Sitre Type’).

As closing system here loose tenons with two crossing pegs each were chosen.

### **‘Sitre Type’**

(see ,Minmontou-Type“)

### 3 NOTES

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#### 3.1 ON TERMINOLOGY

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##### 'BOX' VS. 'CHEST'

The term 'chest' (ge = 'Truhe') in German carpentry refers exclusively to containers with hinged lids (container closing system: to clap the lid). As this lid type is very rare in Egypt another possibility for the usage of the two known English terms 'box' and 'chest' for the internal communication of the mission was searched.

One possibility would have been to adopt the widespread differentiation used in the English everyday language according to their level of design: the term 'chest' is often given to containers that are more elaborate in comparison to boxes. But this is an intuitive decision and therefore only reflects one's own opinion upon 'elaborate design' and thus causes discussions.

For this reason, a definition was sought that clearly assigns both English terms, but at the same time takes the quality into account. The definitions used within the mission are therefore:

<p><b>Term: 'Box'</b> <b>Definition:</b> Container without studs, that would lift the bottom at a higher level.</p> <p>This includes:</p> <ul style="list-style-type: none"><li>- containers without anything underneath the bottom</li><li>- containers with battens underneath the bottom</li></ul> <p>(Note: See also the next discussed term: In German the term for these containers is defined as 'Kanopenkasten' instead of 'Kanopentruhe'.)</p>	<p><b>Term: 'Chest'</b> <b>Definition:</b> Containers with studs (ge = Stollen) that are lifting the bottom</p> <p>This includes studs with the following shapes in cross-section:</p> <ul style="list-style-type: none"><li>- square</li><li>- slightly rectangular</li><li>- intensively rectangular (e.g., the 'Stollentruhen' of the Graeco-Roman period)</li></ul>
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This led to naming the containers in focus as 'canopic boxes'.

**,CANOPIC BOXES' VS. 'VISCERA BOXES'**

The 'Lexikon der Ägyptologie' is classifying two types of canopic boxes which is based on their content:  
(See: K.M. 'Kanopenkasten A.' and 'Kanopenkasten B.', in: LdÄ, Band III, column 319f, 1980)

<p><b>Term: 'Canopic boxes Type A'</b>  <b>Definition:</b> Boxes for four wrapped organs  <b>Synonym:</b> 'Eingeweidekasten' (en = ,Viscera box')</p>	<p><b>Term: 'Canopic boxes Type B'</b>  <b>Definition:</b> Boxes for four canopic jars  <b>Synonym:</b> 'Kanopenkasten' (en = canopic box)          (It is assumed that type B also includes empty and model canopic jars as well as coffinettes.)</p>
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This classification is quite difficult to use for several reasons: a) It needs to be safely known which content has been placed inside the boxes. b) It doesn't take into account the possibilities of empty boxes. c) It doesn't take into account the production of a box which could be used for four containers (related to the dimensions) but which was found with wrapped organs.

Based on that the synonyms already mentioned in the entry were chosen to be the better ones as they are directly naming the differentiating feature and the definitions for both terms were extended:

<p><b>Term: 'Viscera boxes'</b>          (former 'Canopic boxes <u>Type A</u>')  <b>Definition:</b> Boxes which are not designed to accommodate four organ containers</p> <p><b>Explanation:</b> The dimensions of the box would be too low or too narrow to host four containers with organs (in the shapes and dimensions we know).</p> <p>(Note: the term 'organ container' refers here to containers which host only one single organ.)</p>	<p><b>Term: 'Canopic boxes'</b>          (former 'Canopic boxes <u>Type B</u>')  <b>Definition:</b> Boxes which are designed to accommodate four organ containers</p> <p><b>Explanation:</b> The dimensions of the box would make it possible to place four canopic jars etc. inside. Related to the number of four organs containers the width and deepness would approximately be the same and related to the needed height to store the organs containers the height would approximately have the same dimension as the width and the deepness. All together it would give the container a <u>cube-like or approximately cube-like shape</u>.</p> <p>This includes all types of contents:</p> <ul style="list-style-type: none"> <li>- boxes with canopic jars,</li> <li>- boxes with model canopic jars ('Scheingefäße'),</li> <li>- boxes with coffinettes,</li> <li>- empty boxes, if they show the dimensions to be able to contain four organ containers</li> <li>- boxes with organs, if they show the dimensions to be able to contain four organ containers</li> </ul>
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This led to naming the containers in focus as 'canopic boxes'.



### **,PER-NU, PR-NW'**

from: D.A. 'Per-Nu, pr-nw', in: LdÄ, Band IV, 1982, column 932f:

#### [RELIGIOUS CONTEXT]

„Dem o.äg. \*Per-wer entsprechend war das P. ursprünglich wohl nur das Heiligtum der u.äg. Wappengöttin \*Wadjit von Pe. Es floß dann mit dem *pr-nzr* von Dep<sup>2</sup> als dem Heiligtum der Roten Krone zum u.äg. Reichsheiligtum zusammen. [...]

#### [ARCHITECTURAL USE]

Die Reihung ihrer Kapellen wird in Beziehung gesetzt zu den P.-förmigen Kapellen, die in \*Buto entlang des gewundenen Kanals unter Palmenhainen dargestellt werden<sup>4</sup>. [...] Das P. war, im Gegensatz zum sehr spezifischen Per-wer, ein in U. Äg. weit verbreiteter Gebäudetypus. Abgesehen von Nachbildungen dieses Bautyps in den 10 Kapellen der W-Seite des Djoser-Festhofes<sup>6</sup> dürften die Mastaba der Königin \*Chentkaus in \*Giza und die \*Mastabat el-Fara'un des Königs \*Schepseskaf diesen Gebäudetypus vertreten, wobei nicht klar ist, ob diese das P. oder ganz allgemein u. äg. „butische“ Bauformen darstellen sollen.

#### [ARCHITECTURAL STRUCTURE]

Seine Ableitung aus urtümlichen Bauweisen ist umstritten. Die äußere Form wie die spätere Übernahme der Bauform in andere Bereiche (s.u.) ließe zwar auf einen ursprünglichen Ziegelbau mit Längstonne und hochgezogenen Schmalseiten schließen, wenn nicht die Existenz größerer Tonnengewölbe in der Frühzeit unwahrscheinlich wäre. Muster und grüne Bemalung der Hieroglyphe weisen dagegen eher auf eine Holz/Mattenkonstruktion.

#### [TRANSFER OF SHAPE]

Die Form des P. lebt seit der 3. Dyn. in Sarkophagen, später in Kanopenkästen usw. bis in späteste Zeit fort.'

### **,PR-NW LID'**

The term used here refers to all lid types with end-walls.

### **'CLOSING SYSTEMS'**

In ancient Egypt two different systems of closing a container can be found which can be classified by the possibility of reopening:

- a)** temporary closing systems,
- b)** permanent closing systems.

**Relating to a):** A temporary closing is defined by the need to open it again – meaning the closing method or mechanisms can be put back in the initial state (without causing damage). These are usually found in containers that are in use (= personal household items). One example for a temporary closing system are knobs at the lid and the corresponding knobs at the sides which are tied up with a cord which is then knotted (the temporary locking system is the knot).

Remark on the use of Nile-mud putty with or without seal imprint attached to cords instead the use of knots: Puttying the cords with mud is also considered a temporary closing system as it does not damage the container when reopened (= just breaking the putty) and reflects a sacrificial material which can/should be used again – just as wax.

Therefore, this type of closing system will in further studies be called 'locking system'.

**Relating to b):** A permanent closing is defined by 'not able to be opened again' which also serves as barrier against robbery and therefore causes damage or even destroy of the product when doing so. These are usually found in containers that are exclusively produced for the storage in the tomb. Examples are the securing of the lid with pegs from above, with crossing pegs crossing the lid-batten or with loose tenons with crossing pegs. This type of closing system will in further studies be called 'securing system'.

## 3.2 ON OBJECT CORPUS

### 3.2.1 Checked Databases (+ results)

(Museums are sorted in relation to the main place of residence of the author)

OBJEKTRECHERCHE in Online-Datenbanken (nur ägyptische Sammlungen / Objekte)					
OBJEKTKATEGORIE: Kanopenkästen mit Pernudeckel					
DATUM: 2020-02, wiederholt 2022-04					
MUSEUM	ERGEBNIS		MUSEUM	ERGEBNIS	
<b>GEMISCHTE MUSEEN</b>					
GEM	✓	-	Mudira	✓	-
Scala	✓	-			
<b>EINZELNE MUSEEN</b>					
<b>1. MITTEL-EUROPA</b>					
<b>1.1 Deutschland</b>					
Berlin	✓	ÄMP 1175	Hildesheim (via gem.org)	✓	-
Bonn, Uni	✓	-	Tübingen	✓	-
Karlsruhe	✓	-	Rostock	✓	-
Leipzig	✓	-			
<b>1.2 Österreich</b>			<b>1.3 Schweiz</b>		
Wien	✓	-	Genf	✓	-
<b>2. WEST-EUROPA</b>					
<b>2.1 Großbritannien</b>					
<b>(England)</b>					
Bexhill	✓	-	Liverpool	✓	-
Bolton	✓	-	London, BM	✓	-
Brighton	✓	-	London, Petrie	✓	-
Bristol	✓	-	Manchester	✓	-
Buckinghamshire	✓	-	Oxford	✓	-
Cambridge	✓	-	Windsor	✓	-
Durham Uni	✓	-	Swansea, Hilton Price	✓	-
Harrogate	✓	-	Swansea, Abaset	✓	-
Ipswich	✓	-			
<b>(Schottland)</b>					
Aberdeen	✓	-	Glasgow	✓	-
Dundee	✓	-	Greenock	✓	-
Edinburgh	✓	-			
<b>2.2 Irland</b>					
Dublin (via gem.org)	✓	-			

<b>2.3 Belgien</b>					
Brüssel	✓	-	Mariemont (via gem.org)	✓	
<b>2.4 Frankreich</b>					
Paris, Louvre	✓	N 491; E 17108; N 2949	Lille	✓	
Grenoble	✓	-	Lyon	✓	-
<b>2.5 Niederlande</b>					
Amsterdam	✓	-	Leiden	✓	AH 216
<b>3. SÜD-EUROPA</b>					
<b>3.1 Italien</b>					
Bologna	✓	-	Rom	✓	-
Florenz (via gem.org)	✓	-	Turin	✓	C. 2452
<b>3.2 Portugal</b>					
Lissabon, Arch. (via gem.org)	✓	-	Lissabon, Pharmacia	✓	-
Lissabon, Gulbenkian	✓	-			
<b>3.3 Spanien</b>					
Madrid	✓	-			
<b>4. OST-EUROPA</b>					
<b>4.2 Polen</b>					
Warschau	✓	-			
<b>4.3 Ungarn</b>					
Budapest	✓	-			
<b>5. NORD-EUROPA</b>					
<b>5.1 Dänemark</b>					
Kopenhagen, NM	✓	-	Kopenhagen, Glyptotek	✓	-
<b>5.2 Schweden</b>					
Stockholm	✓	-			
<b>6. AMERIKA</b>					
<b>6.1 USA</b>					
Atlanta, Sensusret	✓	-	Los Angeles	✓	-
Atlanta, Museum	✓	-	New Haven	✓	-
Baltimore	✓	-	New York, Brooklyn	✓	-
Berkeley	✓	-	New York, MET	✓	12.183.14; 32.3.426; 86.1.46
Boston	✓	-	Pennsylvania	✓	-
Cambridge	✓	-	San Jose	✓	-
Chicago, FieldM.	✓	105216	Washington, Smith. Inst.	✓	-
Chicago, OI	✓	-	Washington, Natural History	✓	-
Cleveland	✓	-			
<b>6.2 Kanada</b>					

Toronto	✓	-			
<b>7. NAHER OSTEN, ORIENT, VORDERER ORIENT</b>					
<b>7.1 Ägypten + Sinai</b>					
Alexandria, BAAM	✓	-	Kairo (via gem.org)	✓	-
Alexandria, GRM (via gem.org)	✓	-	Kairo (via Catalogue General)	✓	CG 4731; CG 4732
<b>7.2 Israel</b>					
Jerusalem	✓	-			-
<b>8. ASIEN</b>					
<b>8.2 Russland</b>					
St. Petersburg	✓	-	Moskau	✓	-
<b>9. AUSTRALIEN + OZEANIEN</b>					
<b>9.1 Australien</b>					
Sydney	✓	-			
<b>9.2 Neuseeland</b>					
Auckland	✓	-			

### 3.2.2 Checked Publications

Publications are sorted by their publishing date (numerical) rather by their author (alphabetical) as in this study it is more important when information has been published (illustrating the knowledge at a specific time and their development) rather than by whom they have been published.

Legend: Excavation Reports (ER), Museums Catalogues (MC) and Studies (St).

**1895 DE MORGAN, J.:** Fouilles à Dahchour. Mars-Juin 1894, Vol. I. Vienna. (ER)

**1903 DE MORGAN, J.:** Fouilles à Dahchour en 1894-1895, Vol. II. Vienna. (ER)

**1906 MACE, A.C.; WINLOCK, H.E.:** The Tomb of Senebtisi at Lisht, New York. (ER)

**1907 GARSTANG, J.:** Burial customs of ancient Egypt as illustrated by tombs of the middle kingdom (Beni Hassan during 1902-3-4), London. (ER)

**1923 ENGELBACH, R.:** Harageh. Series: BSAE, No. 28, London. (ER)

**1924 WINLOCK, H.E.:** The tombs of the Kings of the Seventeenth Dynasty at Thebes. In: JEA 10, p. 217-276, pls. 12-21. (St)

**1930 BRUYÈRE, M.B.:** Rapport sur les fouilles de Deir el-Médineh (1929). Series: FIFAO, No. 7, Vol. II. Cairo. (ER)

**1953 HAYES, W.:** The Scepter of Egypt: A Background for the Study of the Egyptian Antiquities in the Metropolitan Museum of Art. Vol. 1, From the Earliest Times to the End of the Middle Kingdom. New York. (MC)

**1959 HAYES, W.:** The Scepter of Egypt: A Background for the Study of the Egyptian Antiquities in the Metropolitan Museum of Art. Vol. 2: The Hyksos Period and the New Kingdom. New York. (MC)

**1967 BORCHARDT, L.:** Der Kanopenkasten des Königs Sbk-m-s3f. In: ZÄS 32, p. 23-26. (St)

**1967 REISNER, G.A.; ABD-UL-RAHMAN, M.H.:** Canopics. Catalogue Général des Antiquité Égyptiennes du Musée du Caire. No. 4001-4740 and 4977-5033. Cairo. (MC)

**1990 LÜSCHER, B.:** Untersuchungen zu ägyptischen Kanopenkästen. Vom Alten Reich bis zum Ende der Zweiten Zwischenzeit. Series: Hildesheimer Ägyptologische Beiträge, No. 31. Hildesheim. (St)

**1994 DODSON, A.:** The Canopic Equipment of the Kings of Egypt. London and New York, Kegan Paul International Ltd. (St)

**1998 IKRAM, S.; DODSON, A.:** The Mummy in ancient Egypt. Equipping for the Death. London, Thames and Hudson. (St)

**2010 MINIACI, G.:** The canopic box of Khonswmes and the transition from the late Middle Kingdom to the Second Intermediate Period. In: EVO XXXIII, p. 17-30. (St)

### 3.2.3 Catalogue (+ notes on constructional studies)

(Sorted by the shape of the middle-part of the *pr-nw* lid)

OBJECT	NOTES ON CONSTRUCTIONAL STUDIES
<b>WITH VAULTED MIDDLE-PART</b> (alphabetically)	
<b>Amenemhat</b> 1930 Bruyere	<p>see poster</p> <p>notes: In the tomb inventory are listed: No. 1: <u>Rectangular coffin</u> (with Pernu lid) – foot and head sides No. 3: <u>Rectangular coffin</u> (lid type unclear) - Frgt</p> <p>No. 2: <u>Canopic Box</u> (with Pernu lid) – one side No. 8: <u>Canopic Box</u> – inner lid No. 14: “three fragments of furniture with semi-circular recess”; the drawing shows just two of the three frgt, but those two are both end-walls from Pernu lids. Related to the given width they belong to two <u>canopic boxes</u> – one in 25 cm and one 44 cm deepness.</p>
<b>Djehuty</b> ÄMP 1175, Berlin	(could not be studied)
<b>Hapyankhtifi / Hapy-Ankhtyfy</b> 12.183.14, MET	<p>see poster</p> <p>Remaining questions: - Why have they used three (!) lid-battens in that small container? - And why are they oriented in the uncommon way? - Is there maybe another function that can not be seen from the outside? Like an unknown closing system.</p>
<b>Hemhotep</b> CG 4731, Cairo	<p>belongs to the ‚ly type‘</p> <ul style="list-style-type: none"> <li>- middle-part carved out of solid block</li> <li>- catalogue mentions a “groove” for placing the lid into the case, but it is a rebate</li> <li>- closing system with two loose tenons (not ‘flat pegs’) at each side (no crossing pegs not mentioned)</li> </ul>
<b>Inyotef V / Sekhemra Wepmaat Intef</b> N.491 / E 2538, Louvre	<p>belongs to ‚ly type‘</p> <p>variations: - middle-part carved out of solid block - middle-part and end-walls permanently joined - closing system with two crossing pegs in each loose tenon - no notch for orientation of lid</p>
<b>Iy</b> E 17108, Louvre	see poster
<b>Khonsumes</b> CG 4732, Cairo	(could not be studied)
<b>Men</b> A 105216, Chicago Field-Museum	(could not be studied)

<b>Men</b> C. 2452, Turin	(could not be studied)  notes: - low quality: one end-wall made of several pieces; middle-part obviously reused - Groove at the upper edge of the case?
<b>Minmontou</b> N 2949, Louvre	see poster
<b>Nemetj-em-saf / Nyet-em-Mar-em-saf</b> 32.3.426, MET	(could not be studied)
<b>Senebtisi</b> 1916 Mace	see poster  notes: - the drawing shows a simplified version of the wooden elements  middle-part made of: - two solid blocks of hardwood for middle area - covered with softwood veneer - two softwood laths attached to the sides each end-wall made of: - one softwood block - one softwood lath underneath to create a rebate
<b>Sobekemsaf</b> AH 216, Leiden	belongs to ‚ly type‘  variations: - middle-part carved out of solid block - middle-part and end-walls permanently joined - closing system with two crossing pegs in each loose tenon - no notch for orientation of lid
<b>WITH GABLE-SHAPED MIDDLE-PART</b>	
<b>Sitre</b> 86.1.46, MET	see poster
<b>WITH FLAT MIDDLE-PART</b>	
Pr-nw lids with flat middle parts (on canopic boxes) were not found till now. We just have known about this possibility by one coffin from Edinburgh (A 1909.527.10).  (The example of the MANT-project is the first canopic box to confirm that this lid-type was used in these containers as well.)	

### 3.3 ON TECHNICAL DRAWINGS

#### 3.3.1 TD of Examples

##### UPPER PART

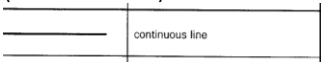

type of drawing	technical sketch (= freehand drawing AND arch. wooden object → not 100% accurate!)
drawing media	pencil drawing (scanned and digitally coloured)
type of content	object
drawn elements	elements, fasteners, fastener recesses
scale	1 : 10
projection method	

Table 1 – Projection systems

Projection centre	Position of projection plane of projectors	Main features of the object in relation to projection plane	Number of projection planes	Type of view	Type of projection
Infinite (parallel projectors)	Orthogonal	Parallel/orthogonal	One or more	Two-dimensional	Orthogonal (ISO 5456-2)
		Oblique	One	Three-dimensional	Axonometric (ISO 5456-3)
	Oblique	Parallel/orthogonal	One	Three-dimensional	
		Oblique	One	Three-dimensional	
Finite (convergent projectors)	Oblique	Oblique	One	Three-dimensional	Central (ISO 5456-4)

(Table from ISO 5456-1: Technical drawings - Projection methods - Part 1: Synopsis, p.3)

##### lines

line no.	line type	line thickness relation	line thickness (According to scale and number of lines)	line application
01.2.3	line no. 1 = continuous line (See ISO 128-20) 	thickness no. 2 = wide (See ISO 128-23)	line group 0,5 → wide line = 0,5 mm	visible outlines of parts in view (See ISO 128-23, Application no. 01.2.3)
03.1.3	line no. 03 = dashed space line (See ISO 128-20) 	thickness no. 1 = narrow (See ISO 128-30)	line group 0,5 → narrow line = 0,25 mm	hidden outlines (See ISO 128-23, Application no. 02.1.3)

(ISO 128-10: Technical drawings – General principles of presentation – Part 20: Basic conventions for lines;  
ISO 128-30: Technical drawings – General principles of presentation – Part 23: Lines on construction drawings)

background colours	BROWN	= Lid
	dark brown	= end-walls of lid
	light brown	= middle part of lid
	GREY	= Case
marks	orange lines	= Positioning aids: fitting cross-sections
	blue circles	= Differentiation aids: difference in left and right side

## LOWER PART

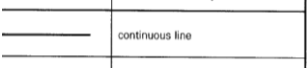
type of drawing	technical drawing (= constructed drawing, not freehand)
drawing media	pencil drawing (scanned and digitally coloured)
type of content	idealised object
drawn elements	elements, fasteners just if they serve another function as well, fastener recesses
scale	not in scale, just in relation (Meaning the measurements are not precise, but the heights, widths etc. of the single parts are in relation to each other)
projection method	axonometric, as exploded drawing

Table 1 – Projection systems

Projection centre	Position of projection plane of projectors	Main features of the object in relation to projection plane	Number of projection planes	Type of view	Type of projection
Infinite (parallel projectors)	Orthogonal	Parallel/orthogonal	One or more	Two-dimensional	Orthogonal (ISO 5456-2)
		Oblique	One	Three-dimensional	Axonometric (ISO 5456-3)
	Oblique	Parallel/orthogonal	One	Three-dimensional	
		Oblique	One	Three-dimensional	
Finite (convergent projectors)	Oblique	Oblique	One	Three-dimensional	Central (ISO 5456-4)

(Table from ISO 5456-1 Technical drawings - Projection methods - Part 1: Synopsis, p.3)

## lines

line no.	line type	line thickness relation	line thickness (According to scale and number of lines)	line application
01.2.3	line no. 1 = continuous line (See ISO 128-20) 	thickness no. 2 = wide (See ISO 128-23)	line group 0,25 → wide line = 0,25 mm	visible outlines of parts in view (See ISO 128-23, Application no. 01.2.3)

(ISO 128-10: Technical drawings – General principles of presentation – Part 20: Basic conventions for lines;  
ISO 128-30: Technical drawings – General principles of presentation – Part 23: Lines on construction drawings)

background colours	BROWN	= Lid
	darker brown	= end-walls of lid
	middle brown	= middle part of lid
	light brown	= lid-battens
	GREY	= Case
marks	orange lines	= Positioning aids: fitting cross-sections
	blue circles	= Differentiation aids: difference in left and right side



### 3.3.2 TD of MANT-Objects

#### MAIN PART

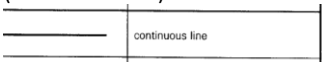
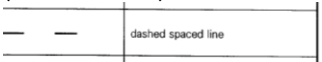
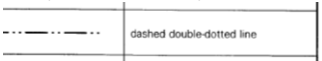
type of drawing	technical sketch (= freehand drawing AND arch. wooden object → not 100 % accurate!)
drawing media	pencil drawing of existing elements; ink drawing of existing elements; pencil additions of reconstructed missing elements (scanned and digitally coloured)
type of content	object
drawn elements	existing elements: boards etc., fasteners and fastener recesses; missing elements: boards etc., fasteners just where questions occur, no fastener recesses
scale	1 : 10
projection method	

Table 1 – Projection systems

Projection centre	Position of projection plane of projectors	Main features of the object in relation to projection plane	Number of projection planes	Type of view	Type of projection
Infinite (parallel projectors)	Orthogonal	Parallel/orthogonal	One or more	Two-dimensional	Orthogonal (ISO 5456-2)
		Oblique	One	Three-dimensional	Axonometric (ISO 5456-3)
	Oblique	Parallel/orthogonal	One	Three-dimensional	
		Oblique	One	Three-dimensional	
Finite (convergent projectors)	Oblique	Oblique	One	Three-dimensional	Central (ISO 5456-4)

(Table from ISO 5456-1: Technical drawings - Projection methods - Part 1: Synopsis, p.3)

#### lines

line no.	line type	line thickness relation	line thickness (According to scale and number of lines)	line application
01.2.3	line no. 1 = continuous line (See ISO 128-20) 	thickness no. 2 = wide (See ISO 128- 23)	line group 0,35 → wide line = 0,35 mm	visible outlines of parts in view (See ISO 128-23, Application no. 01.2.3)
03.2.3	line no. 03 = dashed space line (See ISO 128-20) 	thickness no. 2 = wide (See ISO 128- 23)	line group 0,35 → wide line = 0,35 mm	hidden outlines (See ISO 128-23, Application no. 02.1.3)
12.1.	line no. 12 = dashed double-dotted line (see ISO 128-20) 	thickness no. 1 = narrow (See ISO 128-30)	line group 0,35 → narrow line = 0,18 mm	in ISO 128-23 the line no. 12 in thickness no. 1 is defined for e.g.: application no.3 = outlines of adjacent parts;  as lines for missing parts / elements of

				<p>arch. objects are not defined in standards for drawings of modern products, this one was chosen to fit best the needed line type</p>
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(ISO 128-10: Technical drawings – General principles of presentation – Part 20: Basic conventions for lines;

ISO 128-30: Technical drawings – General principles of presentation – Part 23: Lines on construction drawings)

colours

BROWN  
GREY

= existing elements  
= missing elements