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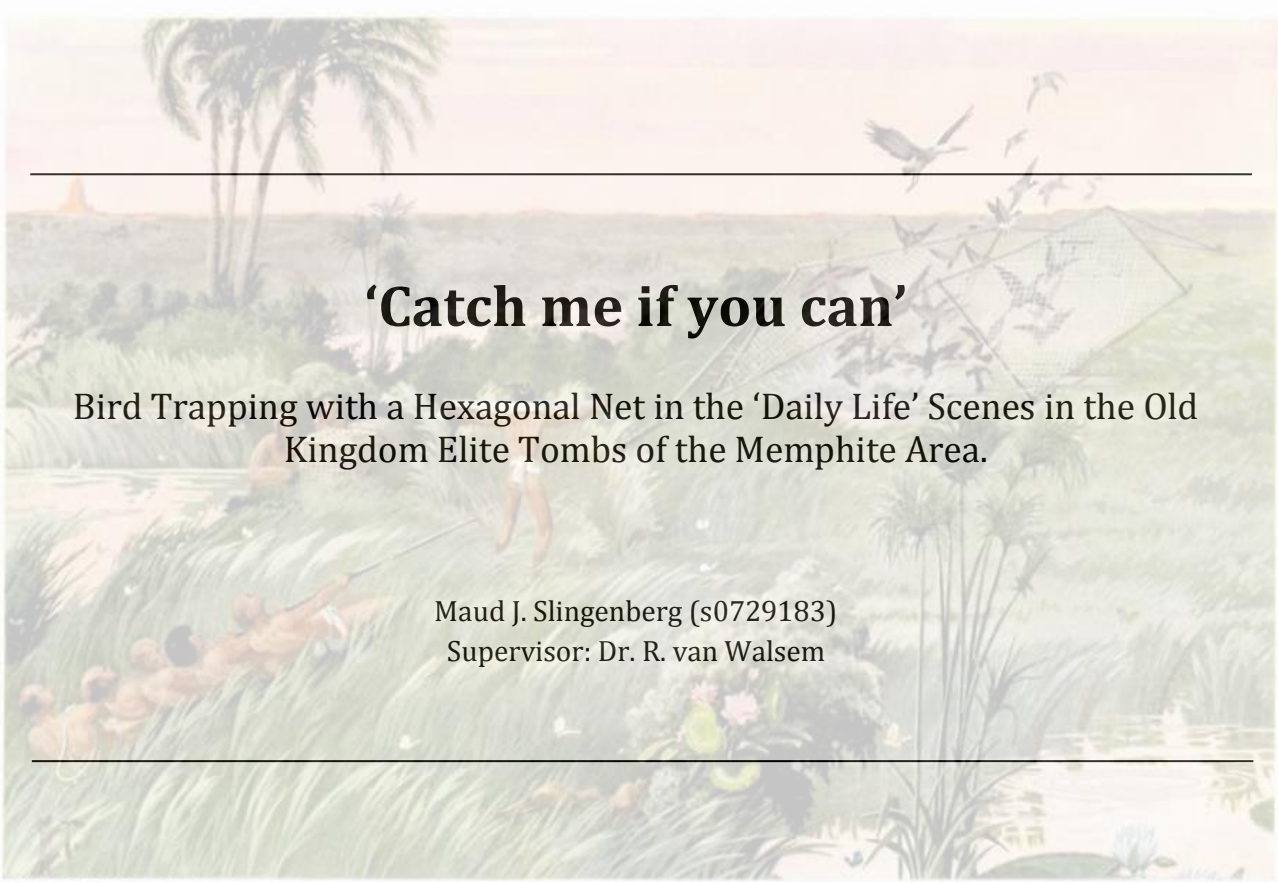
Volume I



‘Catch me if you can’

Bird Trapping with a Hexagonal Net in the ‘Daily Life’ Scenes in the Old Kingdom Elite Tombs of the Memphite Area.

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"…Toen is in mij het bewustzijn ontwaakt dat een van de taken van de historicus, de man (of vrouw) die schrijft over de mensen van vroeger, is de doden stem te verlenen. De doden moeten kunnen spreken en als men hen het spreken belemmert dan sterven ze tweemaal…"

Translation

"…At that moment it occurred to me, that one of the tasks of the historian, a man (or woman) who writes about people of the past, is to give the dead voices. The dead must be able to speak and if one prevents them from speaking, than they die twice…"

Jacques Presser, Amsterdam, 1971[1]

[1] Bregstein, P. (1971). *Gesprekken met Jacques Presser*, p. 125. Translated by Maud Slingenberg.

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Abbreviations & Citation Conventions

AJA	American Journal of Archaeology (Baltimore/New York/Concord/New Haven)
AntOr	Antiguo Oriente (CEHAO, Buenos Aires)
App.	Appendix
ASAE	Annales du Service des Antiquités de l'Égypte (SAE) (Cairo)
BACE	Bulletin of the Australian Centre for Egyptology (North Ryde)
Bd.	Band
BIE	Bulletin de l'Institute d'Égypt (Cairo)
BIFAO	Bulletin de l'Institut Français d'Archéologie Orientale (Cairo)
BMFA	Bulletin of the Museum of Fine Arts (Boston)
BSEG	Bulletin de la Société d'Égyptologie Genève (Geneva)
Bc	Caging birds (subtheme, legend *Table 2.2*.)
BiOr	Bibliotheca Orientalis (Leiden)
Bt	Transporting birds in cages (subtheme, legend *Table 2.2*)
CASAE	Cahiers supplémentaires des ASAE (Cairo)
cf.	Confer (Latin), compare (English)[2]
Dok. nr.	Dokument Nummer
EAG	Edel, E. (1955). Altägyptische Grammatik I, in: *Analecta Orientalia,* Vol 34 & 34/39.
Fasc.	Fascicule (edition, volume)
Fig.	Figure(s)
FIP	First Intermediate Period
FO	Fowling (main theme)
H	Hexagonal net (subtheme, legend *Table 2.2*)
IBAES	Internet-Beiträge zur Ägyptologie und Sudanarchaeologie (Berlin/London)
JARCE	Journal of the American Research Center in Egypt (Boston/Princeton/New York/Cairo)
JEA	Journal of Egyptian Archaeology (EES, London)
KMT	KMT: A Modern Journal of Ancient Egypt (San Francisco)
LMP	Leiden Mastaba Project
MÄS	Münchner Ägyptologische Studien (Berlin/Munich/Mainz am Rhein)
MDAIK	Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo (DAIK) (Mainz/Cairo/Berlin/Wiesbaden)

[2] Glare, P.G.W. (1968). *Oxford Latin Dictionary,* p. xxi.

MFA	Museum of Fine Arts (Boston)
MK	Middle Kingdom
MSS.	Manuscripts
n.	(foot)note
No.	Number
n.r.	Not recorded
N/T	Name/Title (Text type LMP)
OK	Old Kingdom
p.	Page(s)
pl.	Plate(s)
P&M	B. Porter and R. Moss, 'Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Reliefs and Paintings', 7 vols., 1927-1951 (1960-)
SAGA	Studien zur Archäologie und Geschichte Altägyptens (Heidelberg)
SAK	Studien zur Altägyptischen Kultur (Hamburg)
TdE	Trabajos de Egiptología. Papers on Ancient Egypt (Puerto de la Cruz, Tenerife)
VA	Varia Aegyptiaca (San Antonio)
Vol.	Volume
Wb	Wörterbuch der Aegyptischen Sprache (Leipzig)
WPI	Wall Position Index
ZÄS	Zeitschrift für ägyptische Sprache und Altertumskunde (Berlin/Leipzig)
Ad	Latin preposition (or prefix). Translated in English as *at.*[3]
K	Selection of a population used in the MastaBase, Leiden University
M	Mean
Mo	Mode
N	Population size
n	Sample size
( )	Indicates what is not written but may be understood
{ }	Indicates what the editor considers to be an error in the hieroglyphic writing
< >	Indicates an emendation by the editor
[ ]	Indicates damaged text in the original, but added by the editor
[…]	Lacune
(?)	Uncertain meaning

[3] Glare, P.G.W. (1968). *Oxford Latin Dictionary,* p. 32-35.

1. Introduction

God loved the birds and invented trees. Man loved the birds and invented cages.

(Jacques Deval)

Birds are a worldwide known animal, of which some travel in seasons to warm lands and others are resident birds.[4] Birds have been used by humans throughout history for their feathers, eggs and as nourishment. Intrinsically, they have been caught in various ways.[5] Ancient Egypt was no exception in this.[6] Since prehistoric time representations of various means of catching birds, as well as of hunting for birds, have been found in ancient Egypt.[7] This intriguing topic is the main focus of this thesis, specifically *the catching of waterfowl by means of a hexagonal net* found in the Old Kingdom tombs of the Memphite area.

As is indicated above, the focus is placed on the catching of birds instead of the hunting for birds. Van Walsem indicated that there is a difference between the definitions of the words 'hunting' and 'catching', which also results in a different way of catching the intended animals.[8] Hunting is defined as "the act, practice, or an instance of chasing, taking, or killing, wild and especially game animals"[9] in which the word chase as well as game (sports/recreation) is used. The word chase is not present in the definition of catching, which refers to 'capture, seize or take hold of' animals, where one would not want to disturb the animal.[10] Another contribution by Van Walsems' article is that hunting not solely took place in order to extend the food supplies, but depended on the animal and the method used, could take place as precautionary measurements (decreasing the hippopotami population) or even as recreation (fowling with a throw

[4] Modern Egypt is positioned on a major migratory flyway for birds in the Palearctic region. Redford, D.B. (2001). *The Oxford Encyclopedia of Ancient Egypt*, Vol I-A-F, p. 186 & Vol III-P-Z, p. 435-436.
[5] Engravings by, for example, J. Luyken (1711) and Hans Bol (1582) show the catching of different birds.
[6] Buchberger, H., Vogel, in: Helck, W., and Otto, E. (1977). *Lexikon der Ägyptologie*, Bd. VI, p. 1046-1051; Darby, W.J., Ġalyūnǧī, B., and Grivetti, L. (1977). *Food: The Gift of Osiris*, Vol. 1, p. 265-266, 272; Redford, D.B. (2001). *The Oxford Encyclopedia of Ancient Egypt*, Vol I-A-F, p. 186; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, in: *Europäische Hochschulschriften*, Reihe 38, Vol. 35, p. 257-282.
[7] Walsem, R. van (2014). Jachticonografie in de Elite Graven van het Oude Rijk in Egypte, in: *Phoenix, Bulletin uitgegeven door Vooraziatisch-Egyptisch Genootschap "Ex Oriente Lux"*, p. 69-70. Examples of differences between hunting and catching fowl can be shown between the fowling scene with a throw stick and a hexagonal net. With the previous the birds need to be disturbed to fly up, while with the letter the birds need to be left in peace in order to catch them.
[8] Walsem, R. van (2014). Jachticonografie in de Elite Graven van het Oude Rijk in Egypte, p. 69-97.
[9] Webster, N. (1976). *Webster's Third New International Dictionary of the English Language, Unabridged.* Vol II-H-R, p. 1103.
[10] Walsem, R. van (2014). Jachticonografie in de Elite Graven van het Oude Rijk in Egypte, p. 69-70.

stick).[11] The article by Van Walsem focuses on the different *hunting* scenes, the chase of the animals for different purposes, whilst the focus of this thesis is on *catching* animals, namely birds. The birds were not disturbed in order to optimize or enlarge the catch, as was done with a tree net or *hexagonal net*. The catching of birds was not for recreation or precaution, but to extend the food supply, either as food (secular sphere) or for offerings (funeral, religious sphere).[12] As such, the term hunting was not used in this thesis with regard to catching birds.

According to Mahmoud, the scene of catching birds has taking position in tombs and temples from the 1st dynasty onwards.[13] From this period onwards, mud brick superstructures were found at Abydos extending to the Memphite area, such as Saqqara and Giza.[14] The tombs with mudbrick benches strongly resemble a bench, or *mastaba* in Arabic. These tombs developed over time and in the 4th dynasty the first stone mastabas occurred. Because the surroundings of tombs could influence its architecture, not only mastaba tombs were found during this period. Rock cut tombs or a combination of the two previous structures was also found. Concerning the interior shape and decoration, these tombs did not deviate enormously from the mentioned mastabas.[15] Based on their resemblance, in both form and decoration, these tombs have been included in the data under the overarching name *tombs*.[16] With the introduction of the stone architecture, the usage of wall reliefs occurred in these tombs. The inner walls of the tomb chapel of the mastaba were decorated with scenes from 'daily life' to fulfil various purposes in the afterlife, as for example the catching of birds.[17] Besides this formal funeral function, the aesthetic purpose of the scenes related to 'art' is often addressed. Statements concerning

[11] Walsem, R. van (2014). Jachticonografie in de Elite Graven van het Oude Rijk in Egypte, p. 78-82.
[12] Buchberger, H., Vogel, in: Helck, W., and Otto, E. (1977). *Lexikon der Ägyptologie*, Bd. VI, p. 1046, No. 3; Martin, K., Vogelfang, -jagd, -netz, -steller, in: Helck, W., and Otto, E. (1977). *Lexikon der Ägyptologie*, Bd. VI, p. 1051; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 258-266, 278-279.
[13] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 121.
[14] Brinks, J., Mastaba, in: Helck, W., and Otto, E. (1977). *Lexikon der Ägyptologie*, Bd. III, p. 1215-1223.
[15] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom: Studies in Orientation and Scene Content*, p. 1; Redford, D.B. (2001). *The Oxford Encyclopedia of Ancient Egypt*, Vol III-P-Z, p. 435-436; Walsem, R. van (2005). Iconography of Old Kingdom Elite Tombs: Analysis & Interpretation, Theoretical and Methodological Aspects, in: *Mémoires de la Société d'Études Orientalis "Ex Oriente Lux"*, Vol. 35, p. 17.
[16] A definition of an elite tomb is given by Van Walsem stating "an architectural complex completely or partially free standing, respectively cut from rock, consisting of one or several (substantial) space unities, which is intrinsically and consciously connected with the mortal remains of the elite, and (was planned to be) provided with decoration, that is iconography and/or text." Walsem , R. van (2005). Iconography of Old Kingdom Elite Tombs, Vol. 35, p. 19.
[17] Brinks, J., Mastaba, in: Helck, W., and Otto, E. (1977). *Lexikon der Ägyptologie*, Bd. III, p. 1226-1227; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 122.

the omission of perspective and representation of movement and time are nowadays being refuted. Concerning the execution of the reliefs, one needs to keep in mind that the tomb owner (agency) gave the assignment to (a) sculptor(s). The framework of different scenes could be seen as static, but was not laid down in rigid rules. Besides the variable space, the degree of importance of certain scenes for the tomb owner resulted in a variation of iconographic repertoire between the tombs.[18] As such the often anonymous sculptors could not choose freely which scenes to place in the tomb, restricting the creativity or artistic element of an 'artist'. However, individuality of the sculptor could be found in the variations between the main or subthemes, perhaps expressing the sculptors' observation of his 'reality' of the activity in the scene.

Amongst the iconographic repertoire, from the 4th dynasty onwards the ancient Egyptians had different ways of representing the catch of birds, either with nets or traps.[19] Birds could be caught with a hand net (for quails), spring trap or clap net, a tree-net (singing birds) or a hexagonal net.[20] These types of nets and traps were used to catch (different) types of birds (*Figure 1.1.).*

[18] Walsem, R. Van (2006). Sense and Sensibility. On the Analysis and Interpretation of the Iconographic Programmes of Four Old Kingdom Elite Tombs, in: *IBAES*, Vol. 6, p. 305. In the same volume by *IBAES,* D. Vischak discusses the agency-based view of material culture, which "prioritizes the influential role of the people who created the objects we study". Concerning the Old Kingdom Tombs, the agent would be the tomb owner. She indicated that the sculptors, or in her words 'artisans', executed the work but that the tomb owner influenced the decoration program as well as the shape of the tomb. Vischak indicated that "the role of agency is especially important in the interpretation of Old Kingdom tomb programs because of the nature of the data available for analysis." This agency-based view is thus in agreement with the approach to analyse the data and indicate the degree of importance by the tomb owner and variations between tombs. However, it is one thing to identify differences in importance between scenes and another to identify the social situation in which these choices of omission or extension of a scene was made by the tomb owner. This would involve a specific analyses of the individual tomb owner, which is beyond the scope of this thesis. In disagreement with Vischak, the variations found between scenes in the tombs do not have to be a result of the tomb owner, but could also indicate the individuality of the sculptor. Vischak, D. (2006). Agency in Old Kingdom Elite Tomb Programs: Traditions, Locations, and Variable Meanings, in: *IBAES*, Vol. 6, p. 257.

[19] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 121-122.

[20] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V: Bas-Relief et Peintures: Scènes de la Vie Quotidienne, p. 307-320 ; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 187-216; Darby, W.J. et al. (1977). *Food: The Gift of Osiris*, Vol. 1, p. 268, fig. 6.4, 6.5a.

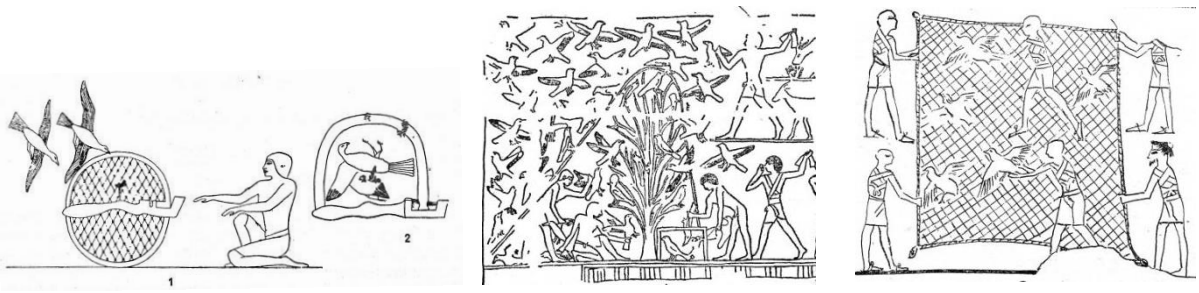

Figure 1.1. Types of bird traps and nets. From left to right: clap net, tree net and hand net. Fig. 140.1-2, 143.1, 144.3 in: Vandier, J. (1969). *Manuel d'Archéologie Égyptienne*, Vol. V: Bas-Relief et Peintures: Scènes de la Vie Quotidienne, p. 308, 314 & 319.

The different attributes used to catch the birds, show the capability and knowledge of the ancient Egyptian about catching, as well as about the intended catch. An interesting catching device is the mentioned hexagonal net. This six corner shaped net, often related to a clap net, was used to catch multiple waterfowl at the same time. The hexagonal net has been present in Egyptian tomb reliefs from the Old Kingdom until well into the Late Period. The scene of catching waterfowl with the hexagonal net appeared in tombs in the Memphite area as well as in provincial tombs. Due to the limited size of this thesis the main focus is on the Old Kingdom 'elite' tombs in the Memphite area.[21] More specifically, the main purpose of this thesis is to systematically study and analyse the scenes showing *the catching of waterfowl by means of a hexagonal net* found in the *published* Old Kingdom tombs of the Memphite area. However, one provincial tombs from Meir was used in this thesis, namely that of '*Pepiʿonkh,* the middle son of Sebkḥotpe and Pekhernefert'. It was used in order to emphasize and clarify the iconographical description of the scene and as such, this tomb was not included in the statistical analyses.

Even though the percentage of scenes showing the catching of waterfowl with a hexagonal net is small within the decoration program of the tombs (1% of the published registers)[22], the whole process of catching birds, by analysing the detailed elements, is of interest to recognize the technical method of catching waterfowl. But in a broader sense, these detailed elements are of interest to recognize variations between tombs in the execution of the scene.

[21] The term elite is discussed by Walsem, R. van (2005). Iconography of Old Kingdom Elite Tombs, p. 17-18. Described as "a segment or group regarded as socially superior" and "a minority group or stratum that exerts influence, authority or decisive power".
[22] The 1% is explained in Chapter 2, p. 12.

1.1. Data

For the research on the hexagonal net, the database called MastaBase was used. This database provides information about 337 published Old Kingdom tombs in the Memphite area.[23] Every data entry (tomb, block (s), rock cut tomb etc.) is numbered in the database with three digits and the abbreviation for 'Leiden Mastaba Project' (LMP). The LMP database provides, by searching for the main theme 'fowling' (FO) and subtheme 'hexagonal net' (H), a list of 70 items in 57 tombs. Every item stands for (a) depiction(s) of the subtheme H in a register. Thus, multiple depiction of the subtheme can occur in different registers in the same tomb, even on the same wall. This is the result of more items (70) than tombs (57). However, one register can also show multiple hexagonal nets. Even though it is counted in the LMP database as one item, when specifically describing the catching of waterfowl with the nets, these multiple depictions in one register are divided and discussed separately.

In order to approach an exhaustive list of scenes presenting a hexagonal net, a cross reference was executed with the data provided by Mahmoud, Decker & Herb and Harpur. In *Die wirtschaftliche Bedeutung der Vögel im Alten Reich* Mahmoud presented a table with 61 sources of scenes obtaining (a) hexagonal net(s).[24] Focusing on the Memphite area in agreement with the LMP database, excluding the items from other areas or Royal depictions (17 sources), Mahmoud only described 53 items of the 70 items presented in the LMP database (40 tombs).[25] Two sources were not recorded by the LMP of which one is Dok. Nr. 22 (LMP 079), *Ptḥ-ḥtp-y.n-ʿnḫ*.[26] In his table, Mahmoud indicated that the representation only shows a 'watchman' accompanied by text, and 4 fowlers hauling a rope. There is no further description of a hexagonal net. The line drawings by Hassan in *Mastabas of Ny-ʿankh-Pepy and others* correspond to the findings by Mahmoud showing no hexagonal net.[27] Hassan indicated that there are indeed 4 men in the upper register hauling a rope, but they appear to be dragging some sort of object,

[23] Walsem, R. van (2008). *MastaBase. The Leiden Mastaba Project. A Research Tool for the Study of the Secular or 'daily life' Scenes and their Accompanying Texts in the Elite Tombs of the Memphite Area in the Old Kingdom* [CD-ROM] (Leuven, Leiden).
[24] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 126-153.
[25] Missing LMP numbers: LMP 044, 051, 063B, 070a, 072c, 094, 143, 180b, 183a (2x), 184a, 186, 217, 218, 224, 228a, and 258a. In total 17 items in 16 tombs.
[26] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 134. Dok. Nr. 22; Porter, B., and Moss, R.L.B. (1981). *Topographical Bibliography of Ancient Egyptian Hieroglyphic Text, Reliefs, and Paintings. III²: Memphis (Saqqara to Dahshûr)*, p. 606-607; Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im alten Ägypten : Corpus der bildlichen Quellen zu Leibesübungen, Spiel, Jagd, Tanz und verwandten Themen*. Vol. 1: Text, p. 486: K.3.61.
[27] Hassan, S. (1975). *Mastabas of Ny-ʿankh-Pepy and others*, p. 94, pl. 36 & 37, LXXVIIa.

possibly a sledge instead of a hexagonal net.[28] Whereas the line drawings don't show a rope, the photograph (LXXVIIa) shows the rope going through the hand of the man continuing to the ground towards an object.[29] Agreeing with the findings by Hassan, the legs depicted before the haulers belong to a statue or object instead of being the legs of a 'watchman'. All that remains to clarify is the text found by Mahmoud. The middle register shows a dragnet accompanied by men who drag this net.[30] The text above this scenery on the left matches the text in the table by Mahmoud, namely [*ḥb*] *nfr pw*. Mahmoud translated [*ḥb*] *nfr pw* as "it is a good catch", leaving the type of catch unknown.[31] The text was translated by Hassan as "it is a good catching of fish and birds."[32] Even though the word *ḥb* combined with *nfr* can be translated as "ein schooner fang (of fish and birds)", the type of catch is placed between brackets.[33] The space after the quail hieroglyph up until the second man on the left is not large enough for hieroglyphs to imply that either the word fish or bird was written. As the text is placed above a fishing scene with a dragnet, it is most probably referring to this type of catch. Intrinsically, the scene is not associated with the trapping of birds and was, as such, excluded from the data used in this thesis.

The other source is numbered Dok. Nr. 6. This item was found in Saqqara and is currently in the Oriental Institute in Chicago.[34] It is a fragment of a stelae which once belonged to *ʾIpy*.[35] Mahmoud dated this item to the 6th dynasty[36], but according to Quibell the fragment belongs to the 10th dynasty.[37] Mahmoud gave no indication why he dated the stelae to the 6th dynasty. As such this item was also excluded from the data.

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[28] Hassan, S. (1975). *Mastabas of Ny-ʿankh-Pepy,* p. 93, pl. 36 & 37, LXXVIIa.
[29] Ibidem, LXXVIIa.
[30] Ibid., p. 94, pl. 37.
[31] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol.35, p. 134: Dok. Nr. 22.
[32] Hassan, S. (1975). *Mastabas of Ny-ʿankh-Pepy,* p. 94, pl. 37.
[33] Hannig, R. (2003). *Ägyptisches Wörterbuch I: Altes Reich und Erste Zwischenzeit*, p. 794.
[34] The Oriental Institute, Chicago, Illinois. E17365, Photo Number 009903 < http://oi-idb.uchicago.edu> [Accessed on the 9th of August 2015].
[35] Porter, B., and Moss, R.L.B. (1981). *Topographical Bibliography of Ancient Egyptian Hieroglyphic Text, Reliefs, and Paintings. III²,* p. 564.
[36] Wreszinski dates the fragment to the end of the 6th dynasty. Wreszinski, W. (1936). *Atlas zur Altägtptischen Kulturgeschicht*, Vol. 3: Gräber des alten Reiches, Lieferung 7, p. 152, pl. 73B.
[37] Quibell, J.E. (1907). *Excavations at Saqqara 1905-1906*, p. 8, 26, pl. XX [5].
Other authors dating the fragment to the 10th or 1st Intermediate Period are: Allen, T.G. (1923) *Handbook of the Egyptian Collection*, p. 34-35; Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im Alten Ägypten,* Vol. 1: Text, p. 505; Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom,* p. 340.

Decker & Herb described 97 K-numbers concerning bird catching with a hexagonal net in the OK.[38] Every K-number represents a scene in a tomb. Within a scene multiple registers can represent the subtheme 'hexagonal net', which belong to one specific K-number (with the exception of the findings in Meidum). As such, the numbers do not add up, as every item in the MastaBase refers to a register representing this subtheme. By excluding all items from other areas or Royal depictions (29 K-numbers), Decker & Herb described a total of 66 items of the 70 items presented in the LMP database (53 tombs).[39] Decker & Herb described 8 K-numbers, which were not included in the LMP database. These 8 K-numbers are in agreement with the criteria of belonging to the Memphite area.[40] After closer evaluation, most of the items were very fragmentary, unclear or didn't represent a fowling scene.[41] Due to the obscurity of these items, none of them have been included in the current data, with which the statistical analysis of the hexagonal net was conducted.

Finally, Harpur summed up a list in table 6.19 of tombs containing 'clapnet scenes'. She divided the list by location.[42] The list contains 57 tombs in the Memphite area and two blocks from an unknown provenance.[43] Harpur described 49 tombs of the 57 tombs presented in the LMP database.[44] Her list is extended by 8 tombs.[45] Again after closer evaluation, 7 of these 8 items are unclear or don't represent a fowling scene. Due to the obscurity of these items, none of them were included in the data, with which the statistical analysis of the hexagonal net was conducted. The 7 items are summed up in *Table 1.1.1*.

[38] Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im Alten Ägypten,* Vol. 1: Text, p. 456-505.
[39] Missing LMP numbers: LMP 184a, 186, 217, and 218. In total 4 items as well as 4 tombs.
[40] K3.1, 3.21, 3.30, 3.35, 3.55, 3.61, 3.62, 3.67. The K-numbers dated to the Old Kingdom are K3.1 up until K3.98.
[41] Only K3.30 shows a clear hexagonal net. K3.1 is according to Decker & Herb the oldest representation of the scene. Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im Alten Ägypten,* Vol. 1: Text, p. 456, 470-471.
[42] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom,* p. 339-341.
[43] Excluding the list of provincial tombs.
[44] Missing LMP numbers: LMP 002B, 051, 180b, 183a, 184a, 186, 217 & 218. Total of 8 items.
[45] Porter, B., and Moss, R.L.B. (1974). *Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Reliefs, and Paintings III¹: Memphis (Abû Rawâsh to Abûṣîr),* p. 193[4] (LMP 119) and 309; Porter, B., and Moss, R.L.B. (1981). *Topographical Bibliography of Ancient Egyptian Hieroglyphic Text, Reliefs, and Paintings. III²,* p. 484 (LMP 050), 579 (LMP 073), 824 (Cairo JE 91104), 607 [4] (LMP 079), 546 and 564.

Table 1.1.1. *The 7 Items indicated by Harpur to show a 'clapnet'.*

P&M III²	**LMP**	**Name/ site**	**Reference**	**Notes**
193 [4]	119	*ỉttỉ*	Badawy, A. (1976). *The Tombs of Iteti, Sekhemʿankh-Ptah, and Kaemnofert at Giza*, fig. 17, pl. 12.	The line drawing indicates some lines, which apparently could form a net. The scene has been appointed to the main theme marsh scene (MA) with subtheme birds (B) as can also be seen in the tomb of *ɜḫtḫp* (LMP 062A). This appointment seems to describe the scene more accurate. Due to a rather unclear photograph no lines can be seen or traced.
484	050	*tp-m-ʿnk ỉỉ*	Smith, W.S. (1942). The Origin of Some Unidentified Old Kingdom Reliefs, in: *American Journal of Archaeology*, Vol. 46(4), p. 516.	Only descriptions found. Smith: "One of these [fragments of the Von Bissing Collection], showing a part two figures pulling the cord of a bird-trap…". According to Smith, this fragment does not belong to the tomb of *tp-m-ʿnk* with complete certainty.
597	073	*ḫnmw-ḥtp*	Málek, J. (1982). New Reliefs and Inscriptions from Five Old Tombs at Giza and Saqqara, in: *BSÉG 6,* p. 47-68.	The block coded Berlin 14100 is described by Málek as a fowling scene with a net. There is no indication of a hexagonal net.
824	/	Cairo JE 91104	*The Egyptian Museum, Cairo in Ten Years, 1965-1975: an Exhibition held in the Museum in 1976*, p. 42, pl. I.	Fragment of ducks in pool, 5th-6th dynasty.
607	079	*Ptḥ-ḥtp: ỉy-n-ʿnḫ*	Hassan, S. (1975). *Mastabas of Ny-ʿankh-Pepy and others*, p. 94, pl. 36 & 37, LXXVIIa.	As already explained before, discussing Mahmoud's data, P&M III² 607 (LMP 079) is the same tomb as Dok. No. 22 and does not represent catching birds with a hexagonal net.
546	/	Collection unknown	Firth, S. M., & Gunn, B. (1926). *Teti Pyramid Cemeteries*, Vol.1, p. 6	Fragment depicting the trapping of birds with a springtrap, 6th dynasty.
564	/	*ỉpy*	Quibell, J.E. (1907). *Excavations at Saqqara 1905-1906*, p. 8, 26, pl. XX [5].	As already explained before, discussing Mahmoud's data, P&M III² 564 is the same fragment as Dok. No. 6 and is dated to the 10th dynasty by Quibell. Harpur dates the fragment broader to the First Intermediate Period.
Total:	***7***			

Only one item does show a hexagonal net, namely P&M III² 309, coded Munich Gl. 115. Porter & Moss (P&M) described the Giza block as "three registers, men cutting out roes of fish, bringing fish and netting fowl, formerly in Von Bissing Colln., now in Munich,

Staatl. Sammlung, Gl. 115."[46] Wolters described the block by means of a photograph and dated the block to the 4th dynasty.[47] It remains uncertain to which tomb owner the block belongs and although it shows a hexagonal net, this single item was therefore not included in the data.

The 70 items in 57 tombs found by the LMP database were used to draw statistical analyses about the main theme 'fowling' (FO) and subtheme 'hexagonal net' (H). More specifically, they were used to view the development of number of scenes, their internal organization and their location in the tomb. Besides analysing the data as described above, every element of the main theme FO and subtheme H were examined individually. In order to draw statistical analyses of the different elements (haulers, the net, the pool etc.) of the subtheme, certain items were excluded from the data. These items have been removed either because there were no images found or because the scenes are too damaged in order to be of use, or even identify the subtheme. The removed items are shown in *Table 1.1.2.*

Table 1.1.2. *Removed items from the data.*

LMP no.	Code	Location	Owner	P&M ref#	Reason
143	G1234 (or G1233)	Giza	*ꜣnḫ ḥꜣf*	III²-060	Uncertain
094	G7837(+G7843)	Giza	*ꜣnḫmᶜrᶜ*	III²-206	No image/photograph
070a	S915	Saqqara	*nkꜣwḥr*	III²-498	Unclear
072c	T20c = CG 1720	Saqqara	*?*	III²-754	Unclear
218	T86	Saqqara	*sšššt: ỉdwt*	III²-617-619	Uncertain
224	T92	Saqqara	*m…*	III²-569	No image/photograph
180b	T56c	?	*?*	n.r.	No image/photograph
Total:	***7***				

LMP 143 was slightly adjusted, as between brackets, G1233 was added. The LMP database does not refer to any source, but describes the fragment as showing among others the remains of netting fowl. It also mentions the painted decoration by Davies, N.

[46] Porter, B., and Moss, R.L.B. (1981). *Topographical Bibliography of Ancient Egyptian Hieroglyphic Text, Reliefs, and Paintings. III²,* p. 309.
[47] Wolters, P. (1913). K. Glyptothek und Skulpturensammlung des Staates 1912, in: *Münchner Jahrbuch der bildenden Kunst*, München, fig. 2, p. 159.
<http://www.digizeitschriften.de/dms/resolveppn/?PID=PPN523132190_0008|log29> [Accessed on the 21st of September 2015].

de G., which ought to be in the Boston Museum (MFA). After consulting P&M,[48] a description was found given by Smith stating that "the chapel of G1234 is entirely decorated in painting [….] The scenes in the corridor include bird netting in the swamp, and the care of cattle (fording water, & c.)."[49] The Giza Archives website by the MFA correctly, under the code G1234, refers to both P&M and Smith. Still, no photograph, painting or linedrawing is documented under this code.[50] It appears that there could be some confusion between tombs G1233 and G1234. G1233 shows line drawings of the bird netting and cattle fording scenes described by Smith.[51] The remark given on the Giza Archives webiste by MFA is that "G1233 cannot be confirmed as the source of this drawing by existing field photographs."[52] Due to the uncertainty of the information, the item was removed from the data.

For the preliminary report from the Mastabase, the sample of 70 items (registers) was used. As mentioned before, certain registers show multiple nets. Regarding the analyses of the different elements of the FO, H scene, these nets (or items) were counted and described separately.[53] Consequently, the total number of items altered from 70 to 78 items. Excluding the items in *Table 1.1.2*, as they were removed from the data, 71 items were used for the statistical analyses of the different elements.

The numbering of the items is consistent with the numbering in the LMP database. During the analyses of the texts, the font *Trlit_CG_Times* was used for the transliterations as for the hieroglyphic texts the programme *JSesh* was used.

Concerning the structure of the thesis, first the preliminary results from the LMP database were analysed, followed by a visual examination of the different elements shaping together the subtheme 'hexagonal net' (H). First, the (type of) net is discussed (Chapter 3.1), followed by its setting (Chapter 3.2), surrounding animals (Chapter 3.3) and finally the present figures (Chapter 3.4).

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[48] Porter, B., and Moss, R.L.B. (1974). *Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Reliefs, and Paintings III[1],* p. 60.
[49] Smith, W.S. (1978). *A History of Egyptian Sculpture and Painting in the Old Kingdom*, p. 197.
[50] The Giza Archives website, Museum of Fine Arts, Boston. <http://gizapyramids.org/view/sites/asitem/PeopleTombs@2333/0?t:state:flow=65661fd8-2729-4505-bd0f-f3bc0364e861> [Accessed on the 8th of September 2015].
[51] Ibidem, EG000552 & EG020803 <http://gizapyramids.org/view/sites/asitem/search@swg'G%201233'/0/siteNumber-asc?t:state:flow=0968c72b-a4aa-4ac9-b40f-aeee900cdc29> [Accessed on the 8th of September 2015].
[52] Ibid., <http://gizapyramids.org/view/plansdrawings/asitem/SitePlans@339/9/title-asc?t:state:flow=0402defb-a716-4eb6-aedd-05cee964ea6a> [Accessed on the 8th of September 2015].
[53] LMP 021, 062B, 163, 183, 183a, 184. Total of 6 items.

2. Preliminary statistical results from the MastaBase

According to Mahmoud the scene of catching birds took its position in tombs and temples from the 1st dynasty onwards.[54] By searching the LMP database for the main theme 'fowling' (FO) 69 tombs were found, which is 20.47% of the total number of tombs. Even though this appears a considerable amount of tombs, the main theme 'fowling' (FO) is spread over 129 registers out the total of 6943, only 1.86%. As third runner up of being the smallest main theme, it could be considered an optional theme with no high priority. As the ancient Egyptians had multiple ways of representing fowling scenes, the main theme FO consists of several subthemes. The catching of birds is represented by means of a 'hand net' (2 tombs), a 'spring trap' (3 tombs), and a 'tree net' (9 tombs). Fowling with a 'hexagonal net' (often referred to as 'clapnet') appears most frequently and seems to be the most popular way of fowling as this subtheme is depicted on 70 registers in 57 tombs (*Table 2.1*). This is 16.91% of the total number of tombs in the Memphite area. However, with 70 out of 6943 registers, only 1% of the published registers shows the catching of birds with a 'hexagonal net'. This emphasizes the dim number of representations, and low-priority of the main theme FO. Other depictions concern the scenes 'aviary/bird house' (10 tombs), 'caging birds' (13 tombs), 'scaring birds' (1 tomb), 'transporting birds in cages' (4 tombs), 'care/feeding' (10 tombs), 'folding wings' (1 tomb), 'manufacturing of bird-nets' (7 tombs) and 'scribe administrating' (4 tombs) (*Figure 2.1, Table 2.2*).

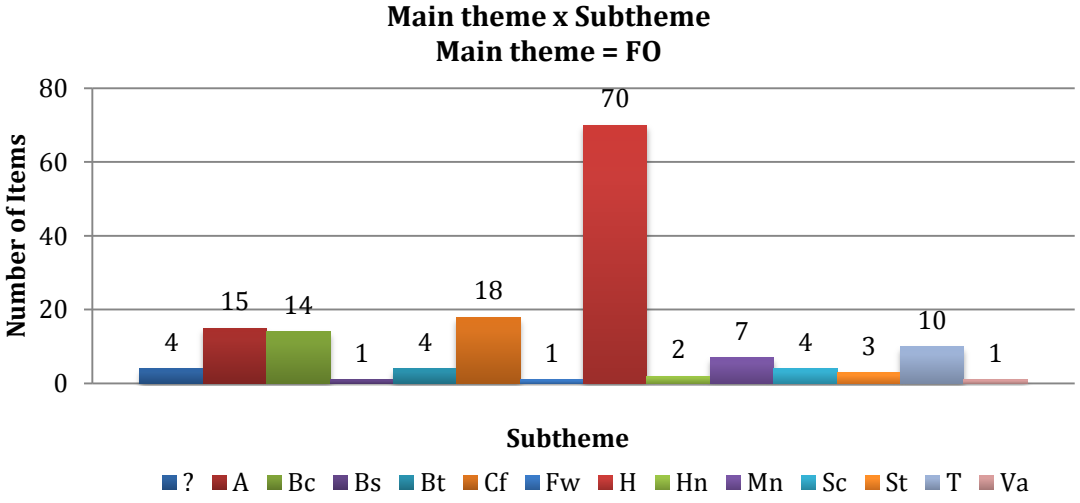


Figure 2.1 The number of ITEMS represented per subtheme within the main theme FO (n=154).

[54] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 121.

Focusing on the subtheme 'hexagonal net' (H), *Figure 2.2* (*Table 2.3*) shows the topographical distribution of this subtheme. A total of 20 out of 70 items (28.57%) are found in the tombs at Giza. Almost double the amount is retrieved from Saqqara, specifically 42 items (60%). When examining the number of tombs showing the subtheme H, 33 of the 57 tombs are located at Saqqara (57.89%). Eighteen tombs are located at Giza (31.58%), 4 at Meidum (7.02%), and 1 at both Dashur and an unknown location (both 1.75%). Again the percentage of tombs at Saqqara is nearly double the percentage of tombs at Giza. Based on the items as well as number of tombs, Saqqara appears to be the most popular location for this scene. To underpin this argument, only 18 of the 169 (10.65%) tombs from Giza versus 33 of the 144 (22.92%) tombs at Saqqara show the subtheme H. Thus, the topographical distribution of the subtheme, based on the percentages, is twice as large at Saqqara compared to Giza.

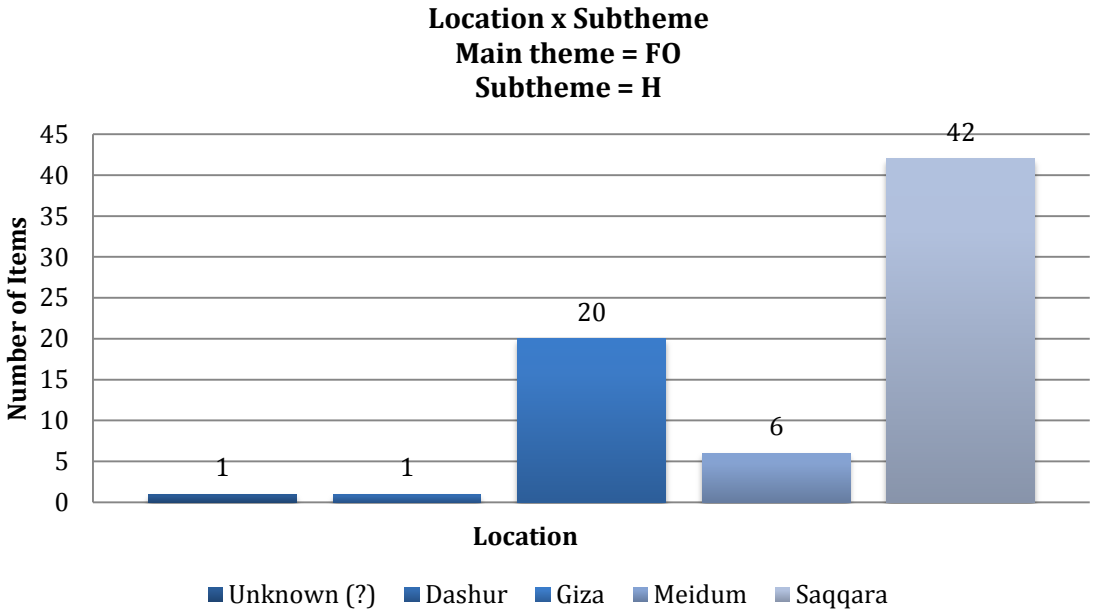


Figure 2.2. The number of ITEMS of the subtheme H represented per locations (n=70).

Concerning the orientation of the scene within the tombs, *Figure 2.3* (*Table 2.4*) shows almost equal distribution of the orientations with the exception of the east orientation. This orientation occurs twice as often compared to the other orientations. Of the 70 items 26 (37.14%) are orientated towards the east. Concerning the other orientations, 18.57% is orientated south, 15.71% is orientated north, and 14.29% is orientated west as well as 'unknown'. Looking at the location and orientation combined, remarkably none of the items at Meidum are orientated towards the east.

According to Mahmoud this 'daily life scene' of catching birds with a hexagonal net is presented regularly on the north wall of the cult chamber. He also indicated that, as the scene is often represented in the swamp area of the Delta, the north wall symbolizes Northern Egypt, the Delta.[55] Examining the first statement, then the north wall occurs nearly as frequent as the west wall. It occurs less frequent than the south wall and not even half the times the east wall occurs. The second statement, the symbolic meaning of the north wall, implying a connection between the topographical orientation in the tomb and the geographical orientation of Egypt is not well substantiated as the subtheme occurs in every orientation, and more often on the east rather than the north wall.[56]

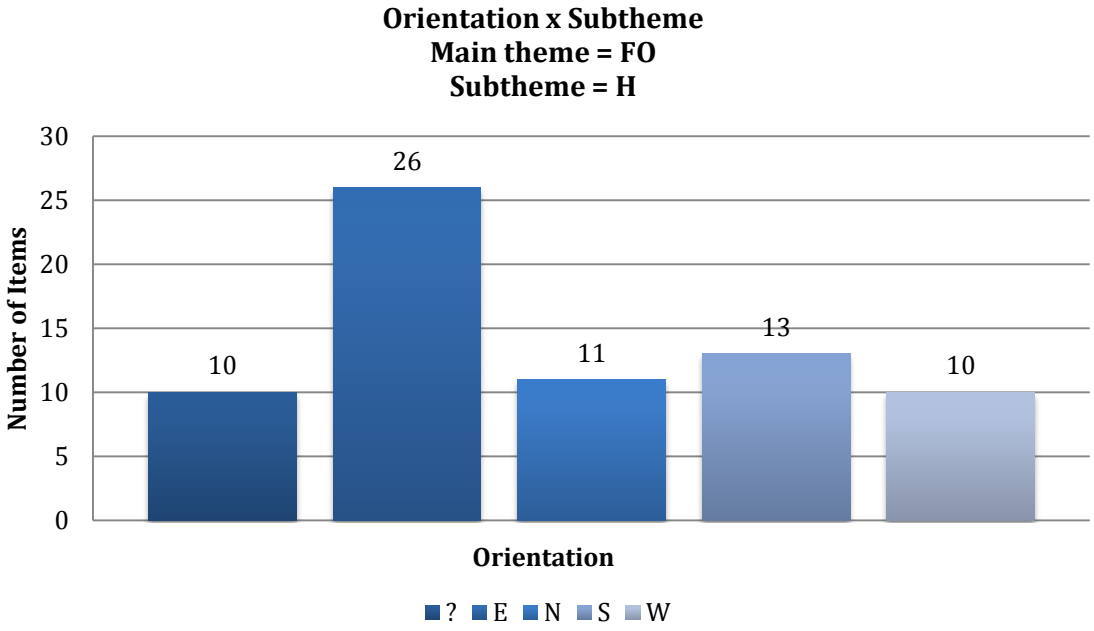


Figure 2.3. The number of ITEMS of the subtheme H represented per orientation (n=70).

Besides looking at the orientation in the tomb, the position of the items on the wall in the tomb combined with the composition of scenes surrounding the subtheme H were examined. Due to the limited time for this thesis, the latter was only generally executed, mentioning some of the interesting findings.

[55] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 122. Wolf described it as a meaningful relationship between "der Ort der dargestellten Handlung, … und dem Ort der Anbringung des Bildes…". Wolf, W. (1957). *Die Kunst Aegyptens: Gestalt und Geschichte*, p. 224.
[56] Mahmoud refers to the orientation of the scene by mentioning the corresponding wall.

The LMP database presents a variable named Wall Positioning Index (WPI), which defines the relative position of, in this case, the subtheme H on the tomb wall. The position can be at the lower (*L*), middle (*M*) or upper (*U*) part of the wall, based on the total number of registers and the register position of the theme.[57] The results for the subtheme H can be found in *Figure 2.4*. Of the 70 items 16 remain uncertain due to the walls and/or registers being damaged or fragmentary. The figure shows that the number of items increase as the position on the wall ascends. As such, the highest number of items (23) is positioned on the upper part of the wall. There appears to be a slight preference for this position on the wall (32.86%), however the numbers do not deviate considerably from each other to support this statement.

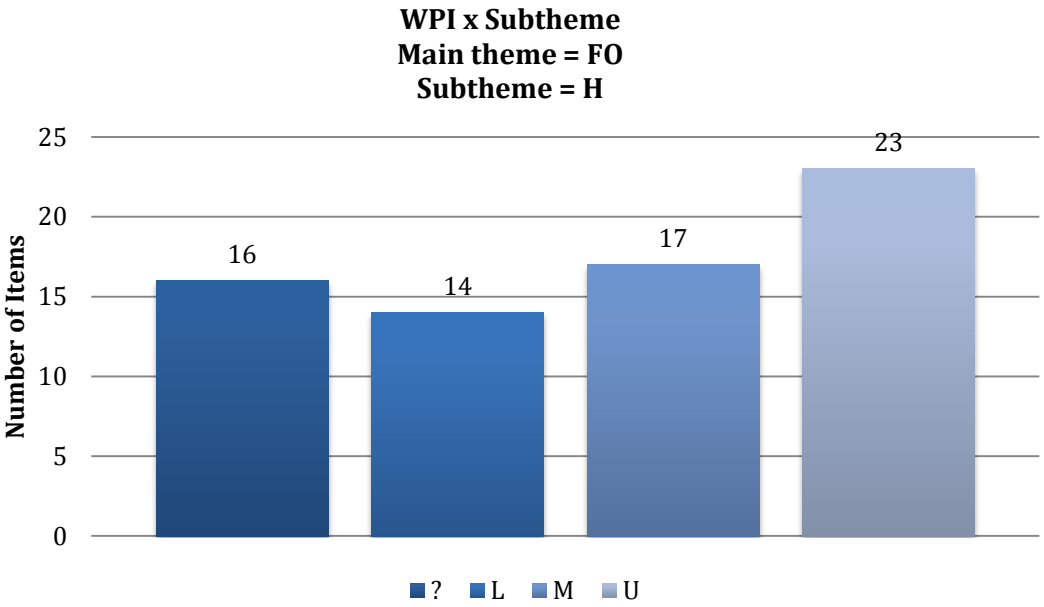
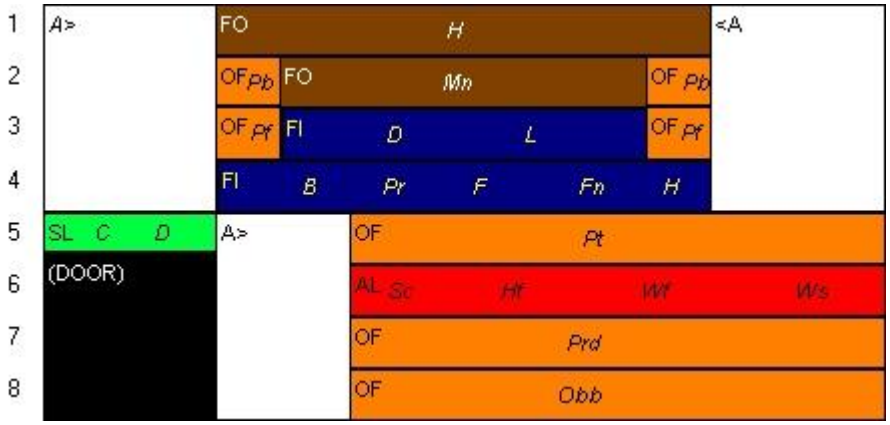


Figure 2.4. The number of ITEMS of the subtheme H per *WPI* (n=70).

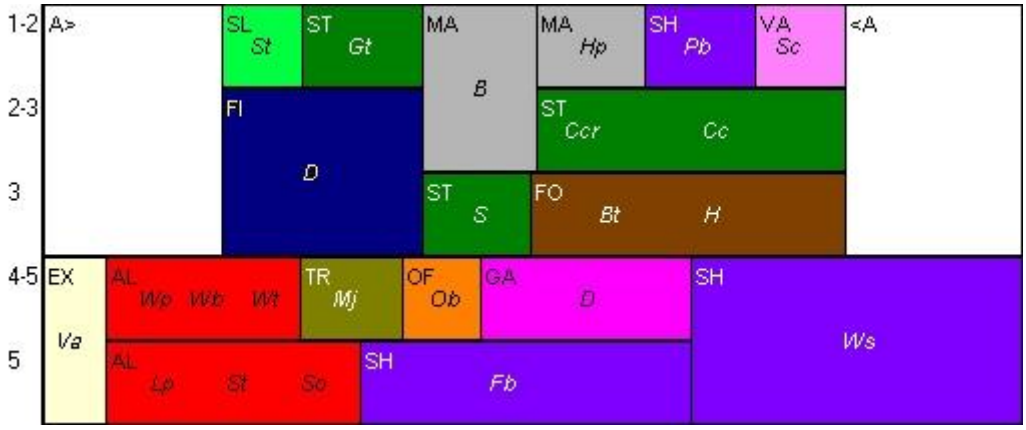
Adding the variable location, one could explain the deviation between the lower and upper WPI. The location Giza shows a large difference between the lower (1 item) and the upper (8 items) position, with a preference for the upper position. At Meidum and Saqqara all three positions are displayed with a rather equal distribution indicating the subthemes' freedom of movement on the wall, as shown on the wall schemes in *Figure 2.5*.

[57] The index is based on K (either calculated from above or below) number of registers and N as the total number of registers.

Saqqara 048/II/09 Orientation: S
WPI: U



Saqqara 053/I/01-02 Orientation: E
WPI: M



Saqqara 062b/I/17-18 Orientation: E
WPI: L

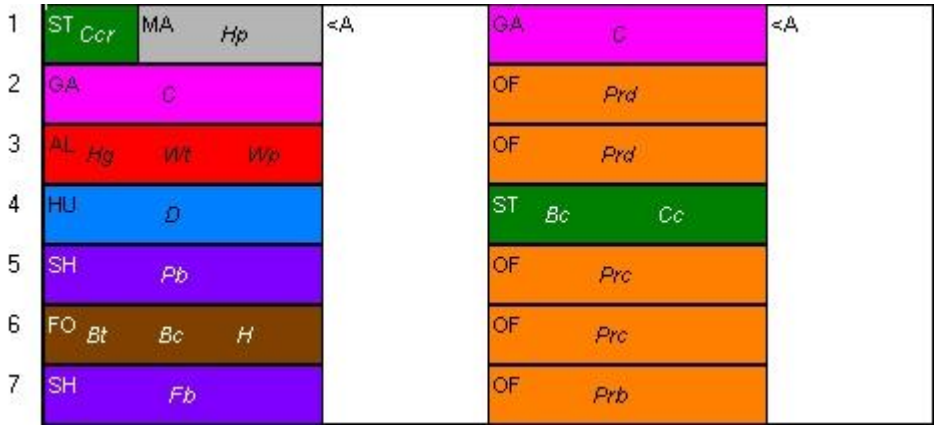


Figure 2.5. Three examples of the position of the subtheme H on the wall schemes (WPI).

As mentioned, the composition of the themes directly attached to the subtheme 'hexagonal net' (H) were examined (*Table 2.5 & 2.6*). The mean of the main themes surrounding the subtheme H is *M* = 2.53, *range* = 4. The most common number (mode) of main themes surrounding the subtheme is *Mo* = 2 (*Table 2.6*). Of the 17 main themes, only one, namely 'trades' (TR) is not adjacent to the subtheme H. The runner ups are the main themes 'funeral' (FU) and 'games/music' (GA) as they both occur only once in the register above and below the subthemes' register.[58] Interesting, only twice does the main theme 'hunting' (HU), subtheme 'hippopotamus hunt' (H) occur near the subtheme 'hexagonal net'.[59] All these adjacent themes are shown in Saqqara tombs.

Certain themes stood out and are interesting to mention, starting with the main theme 'fowling' (FO). Different subthemes have been found directly positioned next to the subtheme H. These are 'aviary' (2), 'caging birds' (10), 'transporting birds in cages' (2), 'care feeding' (1), 'folding wings' (1), 'manufacture of bird-nets' (4), 'scribes administrating' (1) and 'tree-net' (1). The subtheme 'caging birds' (Bc) stands out as it occurs on 10 out of the 60 walls containing the subtheme H.[60] The subtheme Bc is depicted 9 out of the 10 times on the same register next to the subtheme H. The latter can support the link between catching birds and caging them for transport. Still, 'transporting birds in cages' (Bt) is only depicted twice (LMP 044 & 062B) of which only one also depicts Bc (LMP 062B). Another interesting find is that of the 7 items in the LMP database showing the subtheme 'manufacture of bird-nets' (Mn), 5 items occur on the same wall as the subtheme H. Of these 5 items, 4 are shown adjacent to the subtheme H (3 times above or below the register and 1 time on the same register).

On 22 walls the main theme 'offerings' (OF) occurs together with the subtheme 'hexagonal net' (H). Different subthemes are presented but the most common is the 'presentation of birds' (Pb) as it occurs 16 times.[61] No less than 12 out of these 16 times the subtheme Pb occurs on the same register on either side, leaving the remainder positioned on the register above or below. Presenting the catch of birds to the tomb owner together with catching birds with a hexagonal net could augment the argument that the catching of birds with a hexagonal net was to enhance the economical purpose

[58] LMP 217: Main theme 'funeral' (FU), subtheme 'dragging statues' (Ds) and 'funeral voyage (/crossing) and/or procession (Vp); LMP 053: Main theme 'games' (GA), subtheme 'dancing' (D).
[59] LMP 049, 139.
[60] LMP 021, 049, 051, 056, 062A, 062B, 075, 116, 157, 188. Total of 10 items.
[61] LMP 002b, 048 (2x), 060, 056, 062a, 139, 184 (2x), 188, 190 (2x), 216 (2x), 217, 218. Total of 16 items.

of providing food, not only in daily life, but also for the hereafter.[62] With these subthemes FO, Bc & Mn and OF, Pb attached to the subtheme H, a possible sequence of phases appears. However, they are not consistently joined and FO, H is often presented as a single scene surrounded by unrelated subjects. An example of unrelated subjects is cattle-breeding, more specifically the cattle-crossing (waterways). Seven items of this subtheme are presented on the same wall as the subtheme, of which 6 directly in a register above or below the subtheme[63] and 1 item on the same register.[64]

Fishing and fowling are often seen as being related, either in their symmetry, being complementary conceptualized[65], or based on the position of the minor figures in the dragnet and clap-net scenes.[66] The results of the wall schemes show that fishing with a dragnet occurs 60 times in 58 tombs. Of these 60 items, 29 items occur together with a hexagonal net, but only 15 items are directly placed next to the subtheme.[67] More specifically, 11 out of the 15 items are placed on the register below the subtheme hexagonal net. Only 4 are placed on the same register next to the subtheme. Interesting to observe is that the preference for a lower position of dragnet scenes is also found amongst the 29 items: 21 out of the 29 items are placed on a lower register, 4 are placed on the same register and only 3 items occur on a higher register compared to the subtheme H. This can be extended to the WPI of the dragnet scene, as only 15.25% (9 out of 59 items) have a WPI *U*. No less than 33.90% (20 out of 59 items) of the items have a WPI *L*.[68]

Finally for the dating of the tombs (*Figure 2.6, Table 2.7a-c*) the variable 'most likely date' was used. Of the 70 items, 29 don't have a reference to a date. They were marked with a hyphen (-), remaining uncertain. Another 3 items without dating did not receive a hyphen. They were added to the uncertain group, resulting in a total number of 32

[62] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 122.
[63] LMP 053, 070, 136, 139, 186, 258a. Total of 6 items.
[64] LMP 163.
[65] Altenmüller, H. (2008). Der König als Vogelfänger und Fischer (*nbty wḥˁ*) – Zu Frühen Belegen eines Traditionellen Motivs in: *E.M. Engel, V. Müller, U. Hartung (Hg.). Zeichen aus dem Sand. Streiflichter aus Ägyptens Geschichte zu Ehren von Günter Dreyer,* Menes 5, p. 11.
[66] Harpur , Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom,* p. 173.
[67] LMP 002c, 056, 070a, 072c, 094, 113, 117, 120, 129, 136, 139, 163, 184a, 186, 188. Total of 15 items.
[68] The LMP database omits the WPI of LMP 002A, resulting in 59 instead of 60 items. Based on the wall scheme of LMP 002A, the WPI is middle (K from below = 4, N=8; WPI=*M*). With 60 items the recalculated percentages are WPI *U* = 15% and WPI *L* = 33.33%.

instead of the LMP number 29.[69] The largest group of items is found in tombs dating to the reign of Teti (8 items, 4 tombs). This group is followed by the two groups of items dating to the reign of Sneferu and the second half of the 5th dynasty (5 items, 3 tombs).

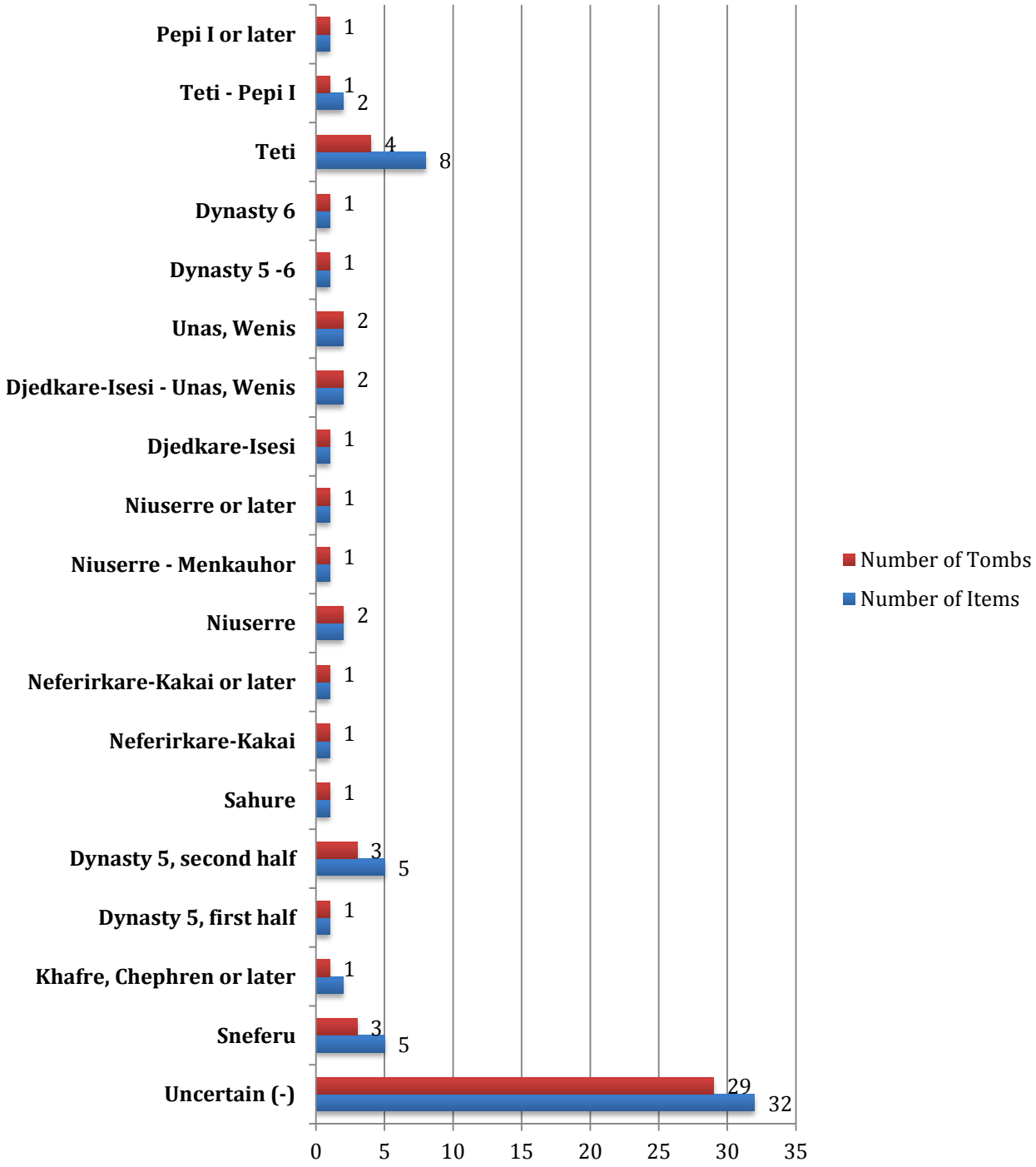


Figure 2.6. Most likely date of the items and tombs with the subtheme H. Total of 70 items and 57 tombs.

[69] The 'most likely date' variable is entered in the MastaBase based on at least three other dates (P&M, Harpur, Kanawati, Cherpion, Other dating). When questionable the 'most likely date' is left empty, as is the case with the 29 items found with the main theme FO and subtheme H.

The guide of the MastaBase presents us with a table regarding dating periods for the tombs. The dates used in the MastaBase were obtained from Shaw's *Oxford History of Ancient Egypt*.[70] The table provides additional terms dividing the dynasties in first or second half and in early, middle or late. To attain a general view of the distribution per item, they have been aggregated per dynasty, as well as divided into first or second half of the dynasty.[71] Equally was done for the number of tombs (*Figures 2.7 & 2.8*).

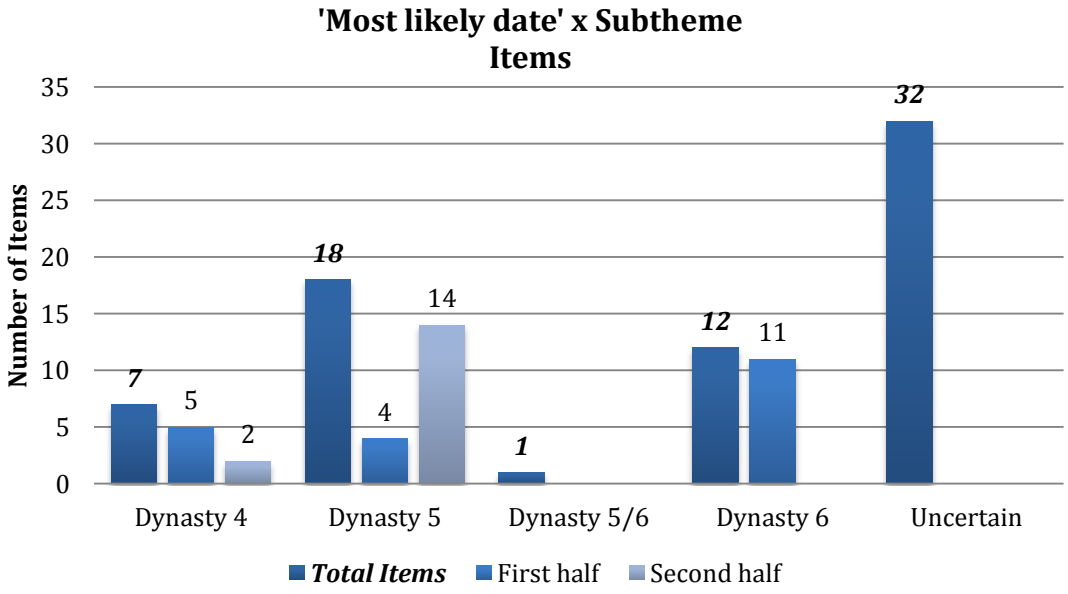


Figure 2.7. The number of ITEMS of the subtheme H represented per dynasty (n=70).

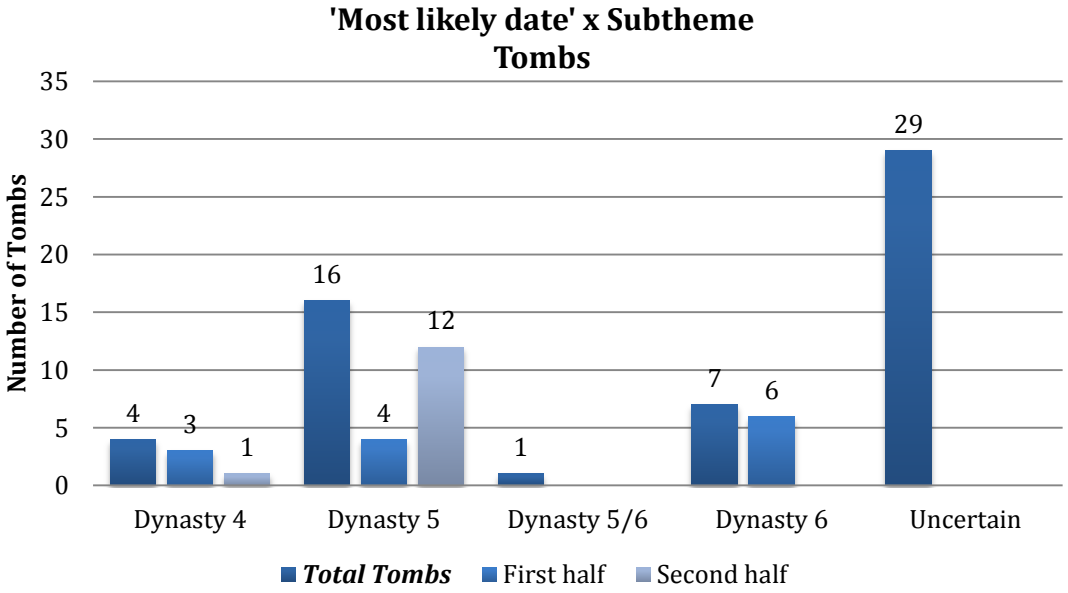


Figure 2.8. The number of TOMBS of the subtheme H represented per dynasty (n=57).

[70] Shaw, I. (ed.) (2000). *The Oxford History of Ancient Egypt* (Oxford).
[71] Not every item or tomb can be precisely dated within the first or second half of a dynasty. As such the total number of items (or tombs) per dynasty will not always equal the sum of items (or tombs) of the first and second half of this dynasty.

The figures show, besides again a high number of uncertain items/tombs, that a considerable number of items found belong to the 5th dynasty (18 items), more specifically the second half of the 5th dynasty (14 items). The first half of the 6th dynasty displays approximately the same number of items. This indicates a high preference for the depiction of hexagonal nets in the second half of the 5th, continuing into the 6th dynasty. Because the uncertain group is very large, another diagram is displayed obtaining the dating by P&M (*Figure 2.10, Table 2.8a-c*). Again, there is no significant number shown in the figure as the number of items are scattered, ranging from 1 to 5 out of 70 items. *Figure 2.9* shows a significant number of items belonging to the 5th dynasty (29 items), and again specifically the second half (22 items). The general distribution is equal to *Figure 2.7* but the number of items are more centred to the second half of the 5th and first half of the 6th dynasty.

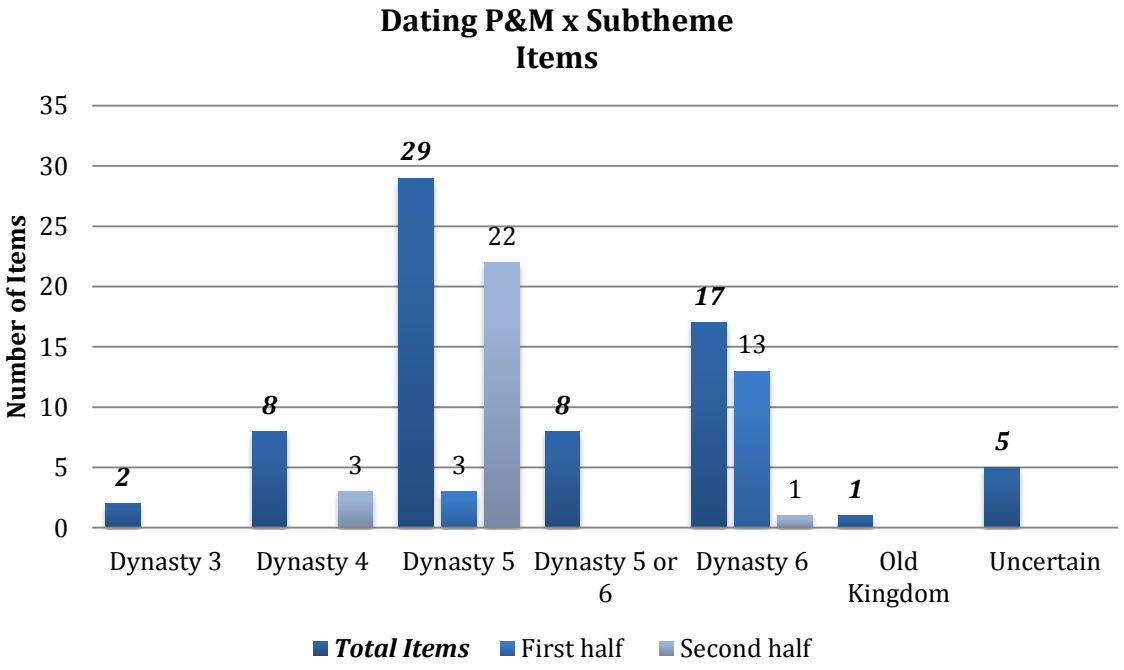


Figure 2.9. The number of ITEMS of the subtheme H represented per dynasty (n=70).

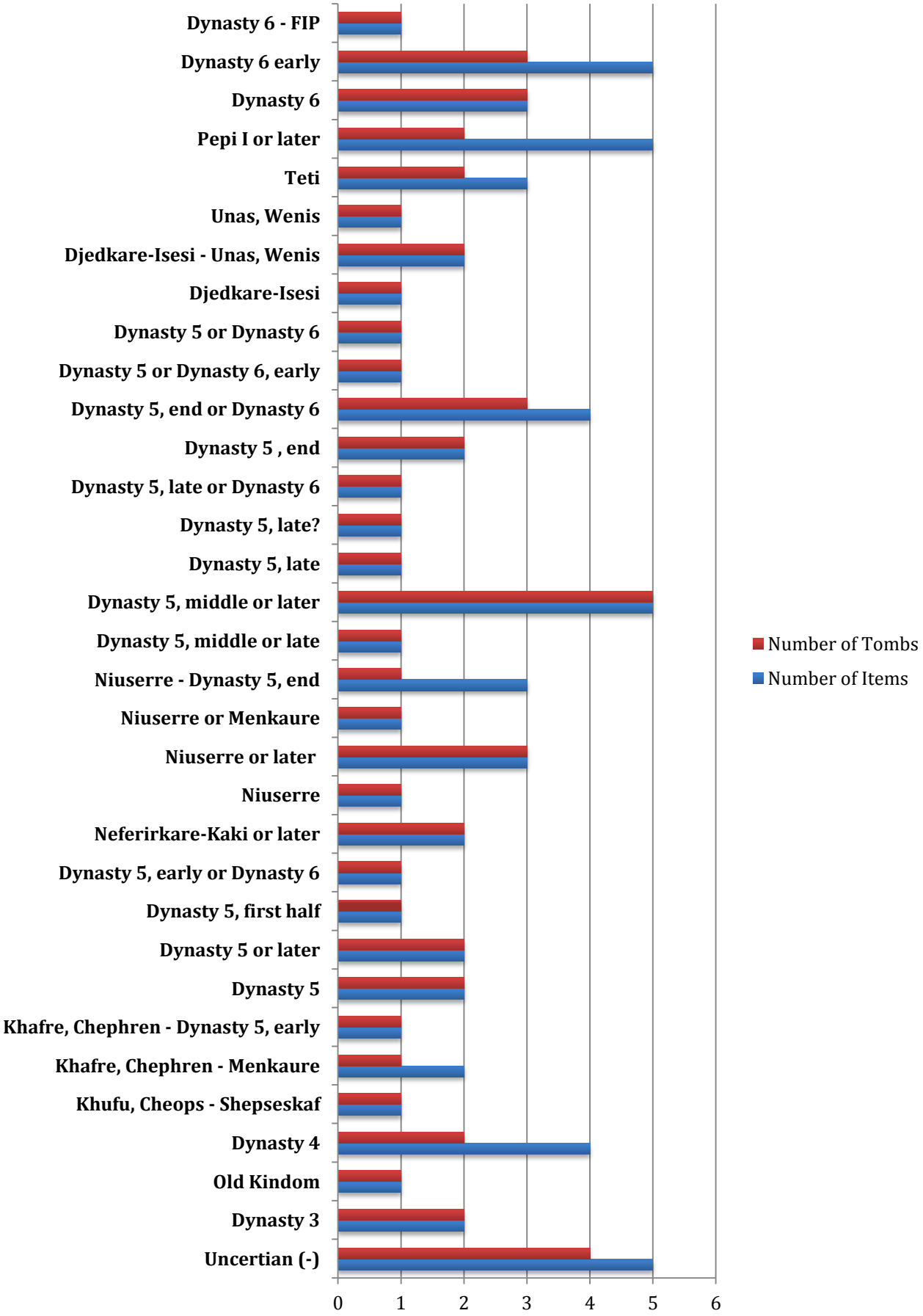


Figure 2.10. P&M dating of the items and tombs with the subtheme H. Total of 70 items and 57tombs.

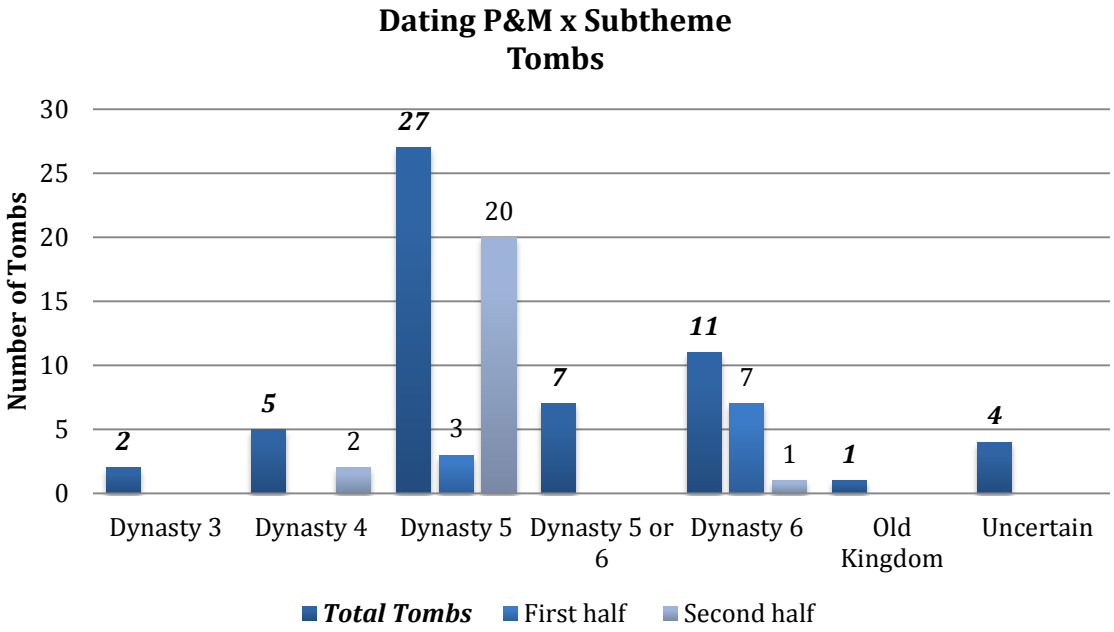


Figure 2.11. The number of TOMBS of the subtheme H represented per dynasty (n=57).

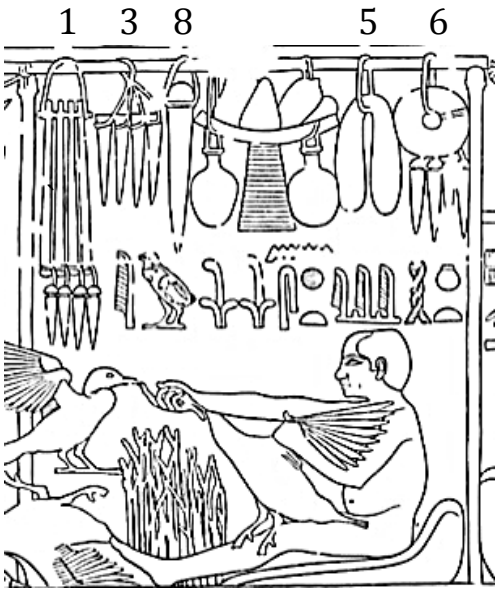
Examining the number of tombs, the distribution is generally the same (*Figure 2.11*). Only the 6th dynasty decreases relatively more compared to the other numbers. As such based on the number of items as well as tombs, the second half of 5th dynasty stands out compared to the other periods.

3. Analyses of the hexagonal net

After having analysed the LMP data, the representations were examined on their individual elements. This chapter is focused on the hexagonal net, how it functions, and what it is used for, namely catching waterfowl.

3.1 The net

The hexagonal net is built of different elements. These elements are shown on several representations, either hanging on the wall behind a kitchen scene (*Figure 3.1.1*)[72], at a manufacturing scene[73], placed near the fowlers (*Figure 3.1.2*)[74], or, as shown in the tomb of Ti, carried to the fowlers who are installing the net (*Figure 3.1.3*).[75] These elements are poles, pegs, ropes and nets (*Figure 3.1.1*). By means of *Table 3.1.1* the different elements will be shortly discussed before analysing the technical aspects of the net.



1. Poles
2. Interior pegs
3. (Exterior) pegs
5. The net
6. Rope (with pegs)
8. Large peg

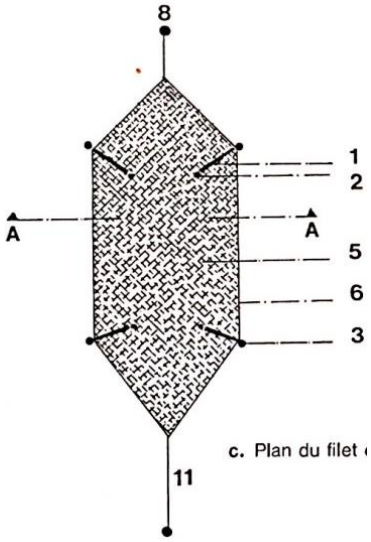


Figure 3.1.1. Kitchen scene from LMP 049. The numbers correspond with the right drawing of an open net by Henein, N. (2001). Du Disque de Hemaka au Filet hexagonal du Lac Manzala, in: *BIFAO* 101, p. 246, fig. 8. As such, the numbers 4 and 7 are omitted.

[72] LMP 049.
[73] LMP 048, 049, 188, 191 & 216.
[74] LMP 043, 184a & 190.
[75] LMP 049 & 053.

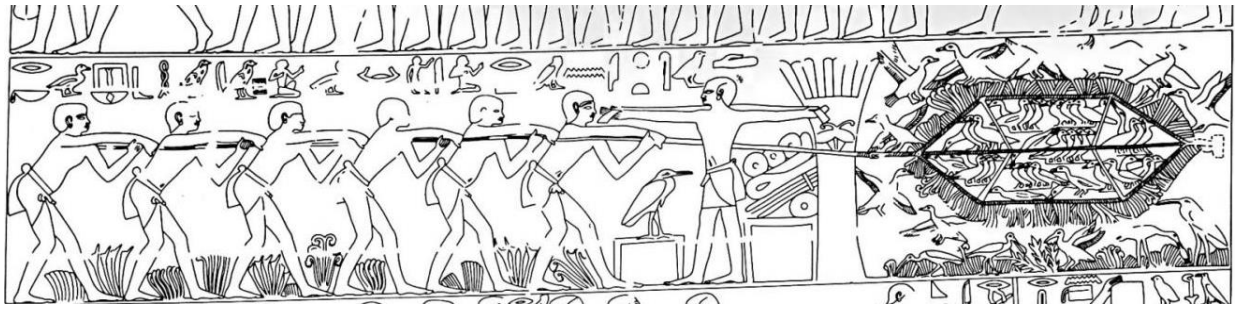


Figure 3.1.2. LMP 184a. Several ropes and poles are shown between the 'hide' and 'signalman'.

Of the 71 items with a hexagonal net[76], the shape of the net is in almost every representation the same (58 items), showing a hexagon.[77] The difference can occur in the width or length[78], among others being influenced by the space/location used to represent the scene.[79] The shape is shown from above, showing the border lines of the net. In order to install the net different pegs and poles were necessary. Most interesting are the (leaping) poles, depicted in the interior at the corners of the hexagonal shape. Of the 71 items found 36 items show these poles (*Table 3.1.1, A*: 50.70%).[80] The poles are presented in different ways. For instance the poles can be depicted crossing above the waterfowl,[81] as well as under the waterfowl[82] or even both.[83] As the poles can be depicted under the birds the theory of two panels on the side/margin closing in on the birds seems to be invalidated.[84] An example supporting the latter theory is LMP 116, where the poles are positioned exteriorly to the hexagon shape of the net. However, there is no explanation thus far for these double exterior poles.[85] Even so, the possibility of the panels closing in from the side cannot be excluded as only 11.67% of the items

[76] There are 71 nets of a total of 78. The 7 items removed from the data have been mentioned in Chapter 1.1, *Table 1.2.*
[77] There are 11 items uncertain because no outer line of the net is shown due to damage. These items are LMP 001A, 002B, 051, 109, 111, 120, 184 (3x), 186, 217. LMP 056 does not show the outer lines of a hexagonal shape. It only shows the surrounding of an oval shape (Chapter 3.2.1). LMP 188 depicts a net catching long-legged waterfowl (Chapter 3.3). The shape is off compared to the other items. According to Henein the net is represented sideways. Henein, N. (2002). Filets hexagonaux à Oiseaux représentés dans la Tombe de Méhou à Saqqâra, in: *BIFAO* 102, p. 264-266.
[78] Examples LMP 043, 163, or 188.
[79] Examples LMP 002A & 104.
[80] LMP 002A, 002B, 013, 018 (2x), 021, 042, 043, 044, 049 (3x), 053, 054, 056, 062A, 062B (2x), 065, 104, 116, 117, 139, 183, 183a (3x), 184a, 188 (6x), & 191 (2x). Total of 36 items.
[81] LMP 013, 042, 049, 065, 117, 139, 183, 183a (3x), 184a, 188 (5x) & 191 (2x). Total of 18 items.
[82] LMP 002A, 002B, 018, 043, 049, 053 & 054. Total of 7 items.
[83] LMP 056, 104 & 188. Total of 3 items.
[84] Wilkinson, J.G. (1878). *The Manners and Customs of the Ancient Egyptians,* Vol. 2, p. 109.
[85] LMP 018 depicts a hexagonal net, which is being dismantled and emptied. There are two crosses of poles within the net which resemble the outer poles presented at LMP 116.

show the poles under the birds.[86] Vandier indicated that, besides the items being damaged or incomplete, a large number of waterfowl and vegetation would leave no space and give reason to hide the poles (only in the case of an open net).[87] He also stated that, in several items, one is forced to conclude that the artist deliberately renounced the visual representation of the poles.[88]

Another feature of the four straight poles starting from the angles of the hexagon is that they often intersect[89] or touch[90] each other two by two on the longitudinal axis. They can also be positioned across each other with some space in between.[91] This could indicate the closed and open position of the net by means of the poles. The direction of the poles is never straight (vertical in the representations), but the 36 items always show the poles (slightly) diagonally to the right or left.[92] Combined with the fact that the poles close in on each other, the theory by Bénédite, who proposed that the net was rectangular, leaving the bottom and lid open, is somewhat undermined (*Figure 3.1.1, A*).[93]

In LMP 049 the upper register shows the installation of the hexagonal net by five figures (*Figure 3.1.3*). Four of these five figures that are presented within the net, are holding different elements. The specific point of installation remains rather uncertain. The two figures on the left seem to be knotting a rope, either connecting the pole to a peg, or solely a rope to the rounded edge of the pole. Of the two figures on the right, one holds the same rope as the two previous figures, while the other one holds the pole with one hand. It is unclear what the figure with the rope is doing. He could be knotting it to the longitudinal crossing rope, or he could be attaching it in the same way as the other

[86] Of the 71 items, 11 items are uncertain due to the omission and damage of the net. This leaves 60 items, of which 7 show the poles under the birds.
[87] Example LMP 060.
[88] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 344. He extents his argument by discussing the thoughts and feelings of the sculptor indicating that there is no doubt that the artist felt that the viewer, seeing the hexagon, could easily restore the poles with help of his experience and imagination.
[89] Examples are LMP 013, 018, 117, 065, 053, 139, 191. Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 344; Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 261 ; Henein, N. (2001). Du Disque de Hemaka au Filet hexagonal du Lac Manzala, in: *BIFAO* 101, p. 238. In the latter article by Henein, he discusses that the rope (*miknān*) is attached to the poles from the outside, guaranteeing that the outer ends of the poles join without crossing.
[90] Examples LMP 002A, 002B, 049, 062B, 104.
[91] Examples LMP 043, 044, 143, 188.
[92] An exception is LMP 191 as it presents a hexagonal net with only 3 poles, of which the lower part is missing one pole. The pole on the upper right is situated in the middle of the net, crossing the net diagonally until the rope. But, as the pole is not positioned at the corner of the hexagonal net, a question could be what is holding the hexagonal shape.
[93] Bénédite, G. (1910). La Tenderie dans la Décoration Murale des Tombes Civiles, in: *ZÄS,* Bd. 48, p. 8.

two figures. This also leads to the uncertain function of the rope being attached to the lower edge of the poles. Interesting in the representation is the shape of the poles, namely rounded at the bottom end (interior). Within the net of the second register the end of the poles under the birds show a rounded edge as well.[94] The exterior of the poles are tapering and touch the border line of the net. This is in agreement with the direction of the movement of the panels, as well as with the explanation of the poles and pegs by Henein.[95] The third register shows the poles shifted inwards. Here, as with the installation scene, pegs are shown attached to the poles.[96] In 4 out of the 36 nets, the poles are attached to these smaller sticks, or rather pegs.[97] The round ending of the poles reoccurs with the shape of these pegs. In *Figure 3.1.1., No. 2*, the pegs attached to the poles are also rounded at the end, which separates them from the pegs with an angular ending (*No. 3*). This difference is also shown by the figures carrying and bringing different pegs to the figures installing the net (*Figure 3.1.3*).

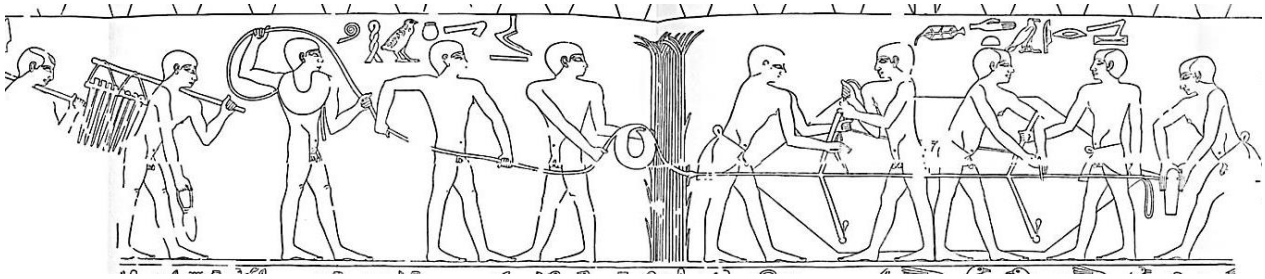


Figure 3.1.3. Installation of the hexagonal net in LMP 049, the tomb of Ti.

Another example showing pegs is LMP 056. Equal to LMP 191, 2 of the 4 poles are situated in the middle, crossing the oval shape. The poles to the left are positioned differently as the upper pole is shorter and shows a small stick with a round ending. This depiction resembles the findings in LMP 049 and seems to be a peg. Finally, LMP 013 shows, presumably, a peg in the lower left and upper right corner. The line drawing is less clear compared to the other items.

[94] Wild, H. (1953). *Le Tombeau de Ti*, Fasc II: La Chapelle, pl. CXX. The representation shows the rounded edge of the poles at the upper right and lower left corners of the net.
[95] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238, fig. 6-7.
[96] Wild, H. (1953). *Le Tombeau de Ti*, Fasc II, pl. CXXI. The representation shows the pegs attached to the poles at the upper left and right side, as well as the lower right side of the net.
[97] LMP 013, 049 (2x), 056. Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238, fig. 6. Henein discusses the possible attachment of the poles to the (inner) pegs.

Next to the pegs in the kitchen scene of LMP 049 a large peg is presented (*Figure 3.1.1. No. 8*). The large peg is shown in 36 out of the 71 representations of the hexagonal net (50.70%) (*Table 3.1.1, B & Table 3.1.2*).[98] Only in 9 items no large peg is shown at the end of the net (12.68%).[99] Combined with 26 uncertain items[100], the large peg is an essential element of the net to depict.[101] As 63.38% shows either nothing or a large peg at the end, the argument by Wilkinson, where the net is supposed to be attached to aquatic plants such as reed, seems rather unlikely.[102]

Concerning the topographical distribution (*Table 3.1.1, B*), the large peg occurs at Saqqara (69.44%) more than twice as often as at Giza (25%). The topographical distribution based on the total number of items per location is relatively close, with only a small preference for Saqqara.

The large peg is mostly shown with a rounded top (*Table 3.1.2*: 31 items). The upper parts in LMP 018 are more angular being described as a triangle, but perhaps the line drawing is not completely accurate as it seems to indicate a rounded off peg.[103] The only item which deviated from the others is LMP 191 showing what seems to be a square. The shape of the peg ends in a sharp point, needed to be driven into the ground (*Figure 3.1.4*). Concerning the bottom part of the peg, only 5 items in 3 tombs show this pointy end of the peg.[104] All other shapes have a blunt ending, indicating that they have been driven into the ground. The representation of complete objects is not uncommon as for example the birds are shown completely while their feet should be under water.[105] However, the representation of the pointy shape is rather rare. It only occurs in 7.04% of the items found in 6% of the tombs, by which it seems less essential to depict.

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[98] LMP 002A, 002B, 013, 018 (2x), 021, 042, 044, 045, 049 (3x), 053, 054, 060, 062B (2x), 065, 070, 104, 116, 129, 139, 141, 149, 183 (2x), 183a (3x), 184a, 190 (2x), 191 (2x) & 216. Total of 36 items.
[99] LMP 056, 075, 163 (2x), 188 (5x). Total of 9 items.
[100] LMP 001A, 002B (2x), 002c, 021, 043, 048, 051, 062A, 063B, 109, 111, 113, 117, 120, 136, 157 (2x), 184 (3x), 186, 217, 188, 228a, 258a. Total of 26 items.
[101] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 346. He indicates that the large peg is generally represented. When the peg is intentionally omitted, which rarely happens, he calls these representations "mal reproduites ou mal conservées, et il est possible que l'absence de poteau doive être attribuée, soit à une négligence du dessinateur moderne, soit à une lacune qu'on aurait omis de signaler". According to Vandier the main axis peg is one of the elements shown regularly, because it was easy to mount in the ground and because it has a particular important role to play in the mechanism of the machine.
[102] Wilkinson, J.G. (1878). *The Manners and Customs,* Vol. 2, p. 109.
[103] Concerning the correctness of the line drawing, equally can be stated about LMP 054 which shows a perfect, rather artificial, circle.
[104] LMP 013, 183a (3x), 216.
[105] Schäfer, H. (2002) *Principles of Egyptian Art*, p. 259-260.

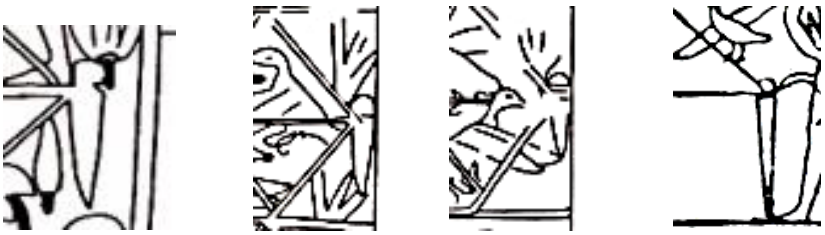

Figure 3.1.4. The large peg with a pointy end. From left to right: LMP 013, LMP 183a (2x), LMP 216.

There are two items showing a rectangle bottom, of which LMP 049 is interesting as it shows an installation scene of the hexagonal net (*Figure 3.1.3*). Here, a fowler is placing the large peg into the ground, holding it with two hands. The rectangular shape could refer to how far the peg has been pushed in the ground.

In 15 items the large peg shows a constriction obviously preventing the rope from slipping over the top or perhaps from moving (*Table 3.1.2, Figure 3.1.5*). No less than 10 of the 15 items show the rope going around or being bound to the peg.[106] Another 7 items also show a rope, but without the detail of a constriction.[107]

Figure 3.1.5. Large peg with a rope around it. From left to right: LMP 049, 065, 149, 190. Items.

The ropes are the elements needed to pull and close the net. Still, it is not clear from the representations how many ropes were necessary. The current data shows several elements concerning the ropes. First of all, within the hexagonal net, 47 out of 71 representations show a rope crossing the net on the longitudinal axis (*Table 3.1.1, C*: 66.20%). Only 12 items show no rope crossing the hexagonal net (16.90%). Of these 12 items, 7 items clearly show the net without this crossing rope.[108] The net in LMP 075 is painted and rather unclear from the photograph. LMP 002B is rather unclear as there are two line drawings of the scene where one shows the poles and is partially damaged, while the other drawing shows no poles and ropes but only a noose.[109] LMP 063B and

[106] LMP 049 (2x), 062B, 065, 149, 183 (2x), 190 & 216. Total of 10 items. The upper register in LMP 049 shows a loop connected to the rope on the longitudinal axis, but hanging loosely without it being attached to the large peg.
[107] LMP 060, 129, 139, 141 & 183a (3x). Total of 7 items.
[108] LMP 021 (2x), 043, 044, 049, 149, 157. Total of 7 items.
[109] Made by Petrie, W.M.F. and Mariette, A. shown together in: Harpur, Y. (2001). *The Tombs of Nefermaat and Rahotep at Maidum: Discovery, Destruction and Reconstruction,* fig. 82.

258a do not show a horizontally crossing rope in the line drawing, which categorizes them as items omitting this element. However, as the line drawings are partially damaged and not detailed it remains rather uncertain if there was a rope(s) (in paint or relief). LMP 188 is an exception as this net is used the catch a different type of bird, namely cranes (Chapter 3.3). The representation of the net is different compared to the other nets.[110] Thus, only 7 items do not show a rope(s) on the longitudinal axis, which corresponds with one of the characteristics of an open net according to Vandier.[111]

Of the 47 items showing a rope on the longitudinal axis, 38 items show 1 rope and 7 show double ropes.[112] LMP 191 even shows 3 ropes. There are two items, LMP 043 and 049, showing double ropes at the beginning and end of the net without the rope crossing the longitudinal axis.

Concerning the topographical distribution (*Table 3.1.1, C: Table 3.1.3*), the rope on the longitudinal axis occurs at Saqqara (68.09%) more than twice as often as at Giza (25.53%). The topographical distribution based on the total number of items per location is relatively close, showing a slight preference for Saqqara.

Dividing between double and single ropes (*Table 3.1.3*), the topographical distribution of a single rope (38 items) is as follows: 23 items at Saqqara (60.53%), 12 at Giza (31.58%), and 3 at Meidum (7.89%). Again Saqqara occurs almost twice as often as Giza. Based on the total number of items per location, the single rope occurs more often at Giza (60%).[113] As the differences in percentage are not significant, no clear preference per location can be indicated. Concerning the double (or triple) ropes, all 8 items are from Saqqara. Based on the total number of items at Saqqara this results in 18.18%. Including LMP 043 and 049, which show double ropes at the endings of the net, the percentage is 22.73%. Thus based on the current data, the variation in depicting a single or double rope is only known from Saqqara, indicating a preference for this element at this location. However, the number of items is very small and too insignificant to state that the double rope was essential to depict.[114]

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[110] Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 265-266.
[111] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 332-333.
[112] The double ropes are shown in LMP 045, 049 , 070, 136, 188, 190 (2x). 38 plus 8 items is 46 items, because LMP 048 is rather unclear how many ropes crossed the longitudinal axis.
[113] The other percentages are 52.27% at Saqqara and 50% at Meidum.
[114] According to Vandier, in the case the net is closed, he assumes that the sculptor has represented, either by mistake or by the desire to simplify, a single rope instead of a double rope. But, as he already indicated himself, how can you explain the presence of a single rope shown in an open net? His explanation for this

The rope(s) on the axis cross(es) the border line of the hexagonal net before continuing towards the haulers. At this crossing point, it seems as if the ropes come together, but this would imply knotting or splicing of the ropes at that exact point.[115] As such, the border line could either represent the rope on the ground[116] or the representation of the border line of the hexagonal net (*kafāfa*). When following the rope(s) on the longitudinal axis, a possible noose or knot can be shown. Statistically, of the 71 items in 50 tombs, 19 items show such a 'knot' (*Table 3.1.1, D*).[117] Of the remaining items, 32 items don't show a knot. Of these 32 items, 3 items do not show a knot as the representation does not leave enough space to represent it.[118] Interesting to mention is that these 3 items, even though not showing a knot, show a change in rope number from 2 or even 3 crossing the net to only one rope held by the haulers.[119] Thus, one would expect a 'knot' to combine these ropes.

It is not clear from the representations which kind of knot was used for this hexagonal net. The rope(s) crossing the longitudinal axis indicate the rope(s) of the net in a presumably closed state, pulled together by the haulers. Thus the rope(s) is attached to the operational rope used by the haulers to close the net.[120] As there is much strength necessary to pull the rope(s) and close the net (Chapter 3.4.3) the knot, if indeed present, needs to be firm and not slip or break.[121] Of the identified knots from archaeological evidence, a possible suggestion would be the overhand knot.[122] However, based on no clear representations of a type of knot, as well as no presence of identified

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is a habit of the Egyptians to represent the same number of ropes in an open or closed trap. Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 345-346.

[115] Verrill, A.H. (1924). *Knots, Splices and Rope Work: A Practical Treatise*, p. 70-76, fig. 106-109.

[116] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 179-181.

[117] LMP 002A, 002B, 018, 043, 049 (2x), 051, 060, 075, 149, 183 (2x), 183a (3x), 184a, 188, 190, 191. Total of 19 items. LMP 184a & 191 are rather uncertain, but the photographs and line drawing seem to show something on the rope between the 'signalman' (Chapter 3.4.2) and the net.

[118] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 350.

[119] LMP 049, 190, 191. This leaves 10 uncertain items, of which 3 items seem to not represent a noose. Due to small damages on the significant place of the noose, they have been categorized as uncertain. These items are LMP 104, 113, 120.

[120] According to A.J. Veldmeijer no identification of splicing is made concerning archaeological findings from Ancient Egypt. During the post-pharaonic period splicing was used.

[121] This already excludes the reef knots because, even though the most widely used knot in ancient Egypt, they "are not well-suited to connecting two pieces of string or rope. The knot loosens easily and is regarded as dangerous." Veldmeijer, A.J. (2006). Knots, Archaeologically Encountered: A Case Study of the Material from the Ptolemaic and Roman Harbour at Berenike (Egyptian Red Sea Coast), in: *SAK*, Bd. 35, p. 347; Wendrich, W. (1996). Ancient Egyptian Rope and Knots, in: Turner, C., and Griend, P. van de, eds. *History and Science of Knots*, p. 67. One needs to be careful to draw conclusions on the basis of these mostly Late and Roman Period established archeological identification of knots as the main subject of this thesis are Old Kingdom representations.

[122] Veldmeijer, A.J. (2006). Knots, Archaeologically Encountered, in: *SAK*, Bd. 35 p. 345-347.

or closed-associated archaeological findings concerning bird nets, no strong identification can be made.[123]

The rope, after crossing the net at the longitudinal axis, crosses (if present) a type of vegetation named a 'hide' (Chapter 3.2.2). Of the 36 hides (*Table 3.2.4*) the rope crosses 5 times behind the vegetation (13.89%) and 26 times in front of the vegetation showing the continuation of the rope (72.22%).[124] One would expect that the rope would go through the vegetation as it is used as cover or hide. Based on the percentages, it seems that the continuation of the rope is more essential to depict. Another argument, indicating this preference, is that the hide is not always shown (36 items) while the operational rope, besides damages, is always shown (69 items).

Continuing to follow the rope, it crosses the so-called 'signalman' towards the haulers (Chapter 3.4.2). Of the 43 signalmen (p. 86) the rope crosses 13 times behind the signalman (30.23%) and 22 times in front of the signalman showing the continuation of the rope (51.16%).[125] Of the 5 items showing the rope passing behind the hide, 4 items show the rope continuing behind the signalman.[126] Because the height of the signalman can cover multiple sub-registers, the ropes in LMP 062B[127] and 188[128] cross behind the head of the signalman. The crossing of the rope behind the head also occurs in LMP 042, 049, 104 and 190. The rope is at the height of their heads, because these figures are positioned in a crouching or sitting position (p. 93).[129] LMP 049 also shows the tomb owner in front of the rope, which would make him more essential to depict completely. Thus, besides the latter, the variation in showing the rope could be a result of the presence of multiple sub-registers or of the position of the signalman. The remaining 6 of the 13 items all show the signalman, with outstretched arms in front of the rope, as if needed to be shown completely. This depiction is only shown in 6 out of 43 items (13.95%), which makes the argument for showing the signalman completely rather

[123] Terminology concerning identifiable and associated rope, which can also be used for knots. Veldmeijer, A.J. (2005). Identifiable and Associated Cordage. Examples from Berenike (Egytian Red Sea Coast), in: *AntOr* 3, p. 66; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 178.
[124] The 5 items which show the rope behind the vegetation are LMP 049 (2x), 188 (2x), 190. The 5 items which are uncertain are LMP 129, 163, 184, 190, 217.
[125] The 13 items crossing behind the 'signalman' in LMP 002c, 042, 049 (2x), 060, 062B, 063, 104, 163, 184a, 188, 190, 217. The 8 items that are uncertain are LMP 109, 111, 116, 129, 136, 157, 186 & 228a.
[126] LMP 049 (2x), LMP 188, 190.
[127] Also crosses the legs because of the two sub-registers.
[128] The ropes also cross the waist and legs because of the three sub-registers. In relief one can see the rope, but the paint indicates differently. Concerning the hide, only the upper rope crosses behind the hide.
[129] LMP 049 shows another figure sitting behind the tomb owner, of which the rope crosses behind his head.

insignificant.

In sum, the rope(s) continues from the end of the net, either attached to a large peg or nothing, crossing the net or not, possibly crossing a hide and signalman, continuing as the operational rope through the hands of several fowlers, ending either around the neck of a fowler[130], on the ground, ending in a loop[131], attached to another peg (15.49%)[132]or rolled up as a coil (21.13%).[133] There is 1 item showing both a peg and a coil, namely LMP 065. The pegs often resemble the large peg discussed earlier (p. 27). Concerning the topographical distribution of the peg, 6 items occur at Saqqara, 2 items at Giza and Meidum, and 1 item at Dashur. Concerning the coil, 11 items occur at Saqqara and 4 at Giza. The item showing both elements is from Saqqara, at the end of the 5th dynasty. The coil, with the exception of LMP 021, occurs from the middle of the 5th dynasty onwards, whilst the peg already occurs in the 4th dynasty at Meidum. The peg and coil do not seem to be very essential to depict based on the percentages mentioned, however 31 items remain uncertain (*Table 3.1.1, E*). Even so, a reason for using a peg behind the haulers is to attach the rope to the ground, holding the net in position (closed). Even though speculative, following his logic of reasoning, Vandier added that with a peg not all fowlers need to hold the rope [lying] thus being able to help gather the catch.[134]

The details (fibres) of the rope are rarely shown. Due to damage, only 2 of the 71 items do not show any rope (held by the haulers and at the net).[135] Of the remaining 69 items, only 8 (11.59%) show the detail of small diagonal lines (twist[136]).[137] LMP 002B shows no diagonal lines, but the exterior lines of the rope are slightly waved.

[130] LMP 018, 049, 191. The first two show a scene where the net is being installed.
[131] LMP 002B & 157. They resemble each other.
[132] LMP 002A, 002B, 043, 183, 184 (2x), 190 (2x), 258a. The endings in LMP 013 & 163 have been identified as a peg. It is often not clear from the line drawing or photograph if a peg or a coil is represented. Total number of items is 11.
[133] LMP 048, 051, 060, 062B (2x), 129, 183a (2x), 188 (3x), 191. The endings in LMP 021, 104, 111 are identified as a coil. LMP 021 shows different line drawings and LMP 111 seems the show both, but could be misread by the person who drew the line drawing. Total number of items is 15.
[134] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 351.
[135] LMP 184 & 186.
[136] Veldmeijer, A. J., Zazzaro, C. ed. (2008). The "Rope Cave" at Mersa/Wadi Gawasis, in: *JARCE*, Vol. 44, p. 14.
[137] LMP 065, 183 (2x), 184a, 190 (2x) & 191 (2x). Total of 8 items. One needs to keep in mind that these numbers are partially based on line drawings and the originals always need to be consulted.

The production of ropes is discussed several times in the literature.[138] Several materials continued to be mentioned, such as flax, halfa grass, papyrus, palm fibre (dom and date) and even camel hair.[139] According to the multidisciplinary research by Ryan several identifications in previous research were misidentified. He indicated that, although date palm fibres were indeed used for cordage in ancient Egypt, a much higher ancient reliance was upon halfa grass and papyrus.[140] Yet, this research was based on a small sample (n=16) and mostly New Kingdom or later dated samples.[141] Thus, one cannot disregard the multiple option of fibres mentioned which could have been used in the OK. Besides the variable 'material of manufacturing', the variables 'size (diameter)', 'structure/composition (twist)' as well as 'Cord Index of Ply (CIP)' are of influence for the function of the rope as they influence strength.[142] These variables will only present the *relative* strength of the ropes, as the archaeological finds cannot be tested for their pulling strength.[143] As there is no archaeological identification of rope associated with bird catching, no relative pulling strength can be predicted, leaving one to estimate the size of the net, as well as the length of the ropes needed, based on the current use of the net and the representations.[144]

The following element of discussion is the net (*Table 3.1.1, F*). As with a fishing net, a bird net contains meshes. According to Henein the meshes were attached to a thin rope (*dunya*) which was annularly attached to the border rope (*kafāfa*). He based his findings

[138] Lucas, A., and Harris, J.R. (1989). *Ancient Egyptian Materials & Industries*, p. 134-136; Vandier, J. (1969). *Manuel d'Archéologie égyptienne*, Vol. V, p. 447-484; Peck, H.P. (2013). *The Material World of Ancient Egypt*, p. 149-152; Teeter, E. (1987). Techniques and Terminology of Rope-making in Ancient Egypt, in: *JEA* 73, p. 71-77; Veldmeijer, A. J., Zazzaro, C. ed. (2008). The "Rope Cave", in: *JARCE*, Vol. 44, p. 12-14; Veldmeijer, A. J. (2009). Cordage Production, in: Wendrich. W. ed., *UCLA Encyclopedia of Egyptology*, p. 1-9. The identification of ropes slowly changed from visual identification by means of external morphological distinctions towards the microscopically examination of the fibers micro-anatomical structure. Greiss, E.A.M. (1949). Anatomical Identification of Plant Material from Ancient Egypt, in*: BIE*, Vol. 31, p. 249-277; Ryan, D.P., and Hansen, D.H. (1987). *A Study of Ancient Egyptian Cordage in the British Museum* (London : British Museum); Ryan, D.P. (1993). Old Rope. Who Cares About this Ancient Egyptian Technology?, in: *KMT,* Vol. 4 (2, Summer), p. 72-81.

[139] Lucas, A., and Harris, J.R. (1989). *Ancient Egyptian Materials & Industries*, p. 134-135; Peck, H.P. (2013). *The Material World of Ancient Egypt*, p. 150; Teeter, E. (1987). Rope-making in Ancient Egypt, in: *JEA* 73, p. 72.

[140] Ryan, D.P. (1985). The Misidentification of Ancient Egyptian Plant Fibers, in: *VA* I, p. 146.

[141] Ryan, D.P., and Hansen, D.H. (1987). *A Study of Ancient Egyptian Cordage in the British Museum* (London : British Museum); Greiss, E.A.M. (1949). Anatomical Identification of Plant Material, in*: BIE*, Vol. 31, p. 249-277. Greiss used a larger sample (n=73) shown on p. 262-273, but the data is also mainly dated to the New Kingdom or later.

[142] Ryan, D.P., and Hansen, D.H. (1987). *A Study of Ancient Egyptian Cordage in the British Museum*, p. 3-6; Veldmeijer, A. J., Zazzaro, C. ed. (2008). The "Rope Cave", in: *JARCE*, Vol. 44, p. 12-14, 29-30.

[143] Veldmeijer, A. J., Zazzaro, C. ed. (2008). The "Rope Cave", in: *JARCE*, Vol. 44, p. 29.

[144] Teeter, E. (1987). Rope-making in Ancient Egypt, in: *JEA* 73, p. 71-77; Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 237-239, fig. 2-7.

on the current use of the hexagonal net at Lake Manzala.[145] Concerning the data from the OK, all except for one item show no depiction of meshes.[146] As such, it is difficult to identify the net. The only representation showing a net with meshes is LMP 013.[147] It shows that the net is spread covering the whole hexagonal shape. Although it is just one example, one could start questioning the theories discussing only rectangular panels of nets.[148] A different representation of what seems to be meshes is shown in LMP 216 under the subtheme manufacturing nets (Mn) (Chapter 2, p. 16). The manufacturing scene shows 2 crouching figures preparing and repairing the nets. The figure on the left is sitting in front of an installation on which the net is attached. The net is represented by diagonal lines to the left, indicating the meshes. The figure seems to be knotting or braiding the meshes of the net. The latter can be amplified by the manufacturing scene of LMP 048, where the same representation is accompanied by text saying "**patch/fix** the nets by the bird-catcher from the pasture ground"[149], "**twisting the yarns** by the bird catcher of the 'Totenstiftung'"[150] and "**tie/knot** the nets by the bird catcher of the

[145] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 237-238, fig. 7a-b; Wendrich, W. (1999). *The World according to Basketry: an Ethno-Archaeological Interpretation of Basketry Production in Egypt*, p. 292-295; Veldmeijer, A.J. (2005a). 'Knotless' Netting in Ancient Egypt, in: *Göttinger Miszellen*, Bd. 206, p. 93. The literature mainly focusses on fishing nets to discuss the production and materials. As no identification has been made concerning bird catching nets, one needs to be careful drawing analogies with fish nets and its production.

[146] Wendrich, W. (1999). *The World according to Basketry*, p. 292-295; Veldmeijer, A.J. (2004). Fishing Nets from Berenike (Egyptian Red Sea Coast), in: *TdE* 3, p. 103. The identified fish nets are always made of flax cordage. Flax can be very strong and can be less heavy than nets made of grass or palm leafs, especially as the latter materials absorb water. This would make them less suited to be used for nets which lay in the water, as they would become too heavy to mend and close quickly. Veldmeijer, A.J. & Roode. S.M. van (2004). Carrier Netting from the Ptolemaic Roman Harbour town of Berenike (Egyptian Red Sea Coast), in: *AntOr* 2, p. 10.

[147] Montet mentioned that the work of the sculptor's was completed by the painter. He indicated that meshes were certainly painted in the tomb of Ti, above the overturned birds. Montet, P. (1925). *Les Scènes de la Vie Privée dans les Tombeaux Égyptiens de l'Ancien Empire,* p. 50.

[148] Bénédite, G. (1910). La Tenderie, in: *ZÄS,* Bd. 48, p. 8; Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 45-47.

[149] Moussa and Altenmüller transliterate and translate: *ḏsf iɜdt wḥˁ ḥr sɜ-pr* 'Flicken des Netzes durch den Vogelfänger aus dem Weideplatz'. The word 'Flicken' is not mentioned in the *Wb* (cf. *Wb* 5-II, 609.7). Moussa and Altenmüller suggest in their notes that the word, besides *stỉt*, could mean 'Knüpfen zum Zweck des Flickens' (knotting with the purpose of fixing). Moussa, A.M., and Altenmüller, H. (1977). Das Grab des Nianchchnum und Chnumhotep, *Archäologische Veröffentlichungen* 21, p. 96a; Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 1516.

[150] Moussa and Altenmüller transliterate and translate: *ḫsf nwt ỉn wḥˁ n pr ḏt* 'Zwirnen des Garns durch den Vogelfänger der Totenstiftung'. The word *ḫsf* is translated in the *Wb* as 'die Spindel, or in MR as 'spinnen' (cf. *Wb* 3-II, 335.5). Hannig mentions 'spinnen, zwirnen, aufspulen' and combined with *nwt* 'Zwirnen des Garns'. The word *nwt* is translated by the *Wb* as 'Yarn, Faden' and 'Schnur, Seil' (cf. *Wb* 3, 217.3-6). Moussa, A.M., and Altenmüller, H. (1977). Das Grab des Nianchchnum und Chnumhotep, p. 95a-b; Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 604 & 979.

'Totenstiftung'".[151] Thus, the representation of meshes concerning bird nets was known in the OK, but almost always omitted (98.59%) from the representations leaving the outer lining of the hexagonal shape. As with the poles in the net, the relief of the net could not have been executed to keep a clear representation of the waterfowl, vegetation and rope.[152] Another explanation could be that the net was painted, which seems to be the case in LMP 013.[153] As colour is nowadays poorly preserved leaving only few examples, the large percentage of omission of the depiction of meshes could be explained by the weathering of colour (paint).[154]

3.1.1. Technical description of the hexagonal

Different authors have shared their opinions and discoveries about the technical process of the hexagonal net from the beginning of the 20th century (*Figure 3.1.6-7*).[155] From observation, interpretation, comparison[156] as well as building models, their arguments were laid down in either agreement or disagreement with predecessors.[157] The explanation and understanding of the technical mechanism of the hexagonal net is difficult.[158] Questions concerning how the net is placed in shallow water and by what

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[151] Moussa and Altenmüller transliterate and translate: *stỉt ỉꜣdt ỉn wḥˁ <n> pr ḏt* 'Knüpfen des Netzes durch den Vogelfänger der Totenstiftung'. The word *stỉt* is translated in the *Wb* as 'knüpfen o.ä.' (cf. *Wb* 4-II, 330.4). Moussa, A.M., and Altenmüller, H. (1977). Das Grab des Nianchchnum und Chnumhotep, p. 95; Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 1253.

[152] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 344.

[153] LMP 013 shows the lining of meshes of a net in the line drawing. However, these lines are not clear from the photographs. Even, the photographs with colour (made by Fania Kruijf, MA Student Egyptology) do not clearly show the meshes of the net. Either the colour of the lines has completely faded, or no lines were depicted. Moreover, no specific notion concerning the net meshes is made in the publication by Dunham and Simpson. Dunham, D., and Simpson, W.K. (1974). *The Mastaba of Queen Mersyankh III*, p. 10-11, pl. IIIa, fig. 4.

[154] Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 50. Montet indicated that with Egyptian bas-reliefs, the work of the sculptor's was completed by the painter who executed details. He continues stating that the meshes were certainly painted in the tomb of Ti, above the overturned birds.

[155] Wilkinson, J.G. (1878). *The Manners and Customs,* Vol. 2, p. 109-115; Newberry, P. E. (1895). *El Bersheh,* Part I: The Tomb of Tehuti-Hetep, p. 30-31; Bénédite, G. (1910). La Tenderie, in: *ZÄS,* Bd. 48, p. 1-9; Montet, P. (1914). La chasse au filet chez les Égyptiens, in: *BIFAO* 11, p. 143-153; Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 42-66; Appelt, K. (1935-1938). Der Vogelfang mit dem Klappnetz, in: Maspero, G. Sir, *Mélanges Maspero*, Vol. I Orient Ancien, p. 217-226; Dunham, D. (1937). Two parallels to Ancient Egyptian Scenes, in: *BMFA*, Vol. 35, p. 50-54; Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 320-327; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 155-162, 177-187; Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 237-248.

[156] Comparisons to later periods, such as the Italian engraving mentioned by Dunham, D. (1937). Two parallels, in: *BMFA*, Vol. 35, p. 50-54. Or the current traps used at Lake Manzala by Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 237-248.

[157] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 320-327.

[158] According to Vandier "l'interprétation technique du mécanisme est, malheureusement d'une grande difficulté et a été, longtemps, une problème…" He indicates that P. Montet is the only one who gives a satisfying explication, which is also universally accepted. Vandier, J. (1969). *Manuel d'Archéologie*

method it is closed are the focus of this chapter.

The hexagonal net consists of at least, according to most of the authors, two rectangle nets attached to four poles.[159] These two nets are often referred to as panels or frames. By means of suddenly pulling the rope, these panels would close in on each other. As already indicated, the poles can be depicted above and under the birds, of which the latter can weaken the argument of two panels on the side/margin closing in on the birds.[160] The directions of the poles in the 36 items are always (slightly) diagonally to the right or left.[161] As they are diagonal, the rectangular shape by Bénédite can be questioned.[162] The poles can intersect or cross at the longitudinal axis.[163] This trapezoidal shape occurs in 18 items.[164] The diagonal (leaping) poles give reason to doubt the argument that the panels were to lie flat on the water surface. The theory by Montet does not explain the crossing of the poles, which would be unnecessary if the panels would fit exactly over the surface of the water. [165] One would expect the poles to be represented in a straight (vertical) position. An explanation could be that for the observant, as shown in the schematic figure by Montet, the poles become two large vertical poles instead of four poles (*Figure 3.1.6, B*). In order to show the four poles, they could have been depicted diagonally. However, this does not explain the diagonally depicted poles shown under de birds and across from each other. Another explanation for the diagonal poles could be that, as addressed by Henein and Appelt, the poles intersect in the air obliquely, forming a tent shape.[166] This could explain the crossing of

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Égyptienne, Vol. V, p. 320. Different authors indicate the difficulty of reconstruction of the mechanism of the net. Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 239, n. 2.

[159] Wilkinson, J.G. (1878). *The Manners and Customs,* Vol. 2, p. 109; Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 148-149; Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 47; Dunham, D. (1937). Two parallels, in: *BMFA*, Vol. 35, p. 52.

[160] Wilkinson, J.G. (1878). *The Manners and Customs,* Vol. 2, p. 109; Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 51.

[161] An exception is LMP 191, as it presents a hexagonal net with only three poles, of which the lower part is missing one pole. The pole on the upper right is situated in the middle of the net, crossing the net diagonal until the rope. But, as the pole is not positioned at the corner of the hexagonal net, a question could be what is holding the hexagonal shape.

[162] Bénédite, G. (1910). La Tenderie, in: *ZÄS,* Bd. 48, p. 8; Montet, P. (1925). *Les Scènes de la Vie Privée,* p 46.

[163] Examples of the poles that intersect: LMP 013, 018, 117, 065, 053, 139, 191. Examples of the poles touching: LMP 104, 002B ,002A, 049, 062B.

[164] LMP 013, 042, 049, 065, 117, 139, 183, 183a (3x), 184a, 188 (5x), & 191 (2x). Total of 18 items. Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p 183.

[165] Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 151 & 153; Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 51; Dunham, D. (1937). Two parallels, in: *BMFA*, Vol. 35, p. 52; Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 342; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 181.

[166] Appelt, K. (1935-1938). Der Vogelfang mit dem Klappnetz, p. 221-223; Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238.

the poles on the longitudinal axis, as these panels would lean in on each other.[167]

Concerning the pegs used as hinges, Bénédite indicates that they are created by two bars on the ground at which four corner poles are attached. The two bars described are fixed in the ground by their weight and rigidity, keeping their position and distance.[168] Even though this is the first technical explanation of the mechanism of the hexagonal net, there are some elements that could be questioned. Montet indicated that the poles can only stand upright if they are fixed, and once they are fixed they become immobile.[169] There are 5 scenes, combined with a kitchen scene, in which the small pegs are shown. These pegs are attached to the leaping poles by presumably ropes.[170] This is explained again by Henein based on his current observation of catching birds at Lake Manzala.[171] This explanation, combined with the representations, seems more likely than the two static bars on the ground by Bénédite. Another interesting statement by Bénédite is made at the end of his article. He points out that one should remember that the hexagonal form of the net resembles the completed moment during fowling.[172] This argument is invalidated by Montet again, stating that Egyptians don't always show the same moment during fowling, let alone the completed phase of fowling.[173]

With the possibility that the representations do not show the exact depiction of the net,[174] the representation of the rope could be a simplification. By depicting one rope crossing the longitudinal axis, the representation shows the separation of the two panels. Some representations show two or three ropes, which in the current line of reasoning would be a variation giving more detail about the trap. However, this only occurs in 8 items. Another variation is the intended omission of the rope on the longitudinal axis, which occurs in 7 items. An explanation for this can be that the representation of the birds is more essential, but it could also be a variation in showing

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[167] In the article by Henein, he discusses a rope (*miknān*) attached to the poles from the outside, guaranteeing that the outer ends of the poles join without crossing. This could be a later development of the trap in order to prevent the crossing of the poles. Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238.

[168] Bénédite, G. (1910). La Tenderie, in: *ZÄS,* Bd. 48, p. 8.

[169] These side panels could slow down the closing of the net, giving the fowl the opportunity to flee. Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 146.

[170] LMP 013, 049 (2x), 056 and the kitchen scene in LMP 049 (*Figure 3.1.1*). The latter shows the pegs and poles attached by ropes.

[171] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, 237-248.

[172] Bénédite, G. (1910). La Tenderie, in: *ZÄS,* Bd. 48, p. 9.

[173] Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 146 ; Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 333; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 180.

[174] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 178.

that the net itself is not closed. The latter can be amplified by the poles being depicted across each other at a certain distance as in LMP 043, 044, 049 and 188. However, Mahmoud and Dunham address another explanation of the single rope. In order to achieve the closing impulse on both sides, the "ropes starting from the exterior far corners of the two main nets must have been joined together and led around the anchor-stake [large peg] and back along the centre line of the trap, to be united to the main control [operational] rope at the near end."[175] The latter thus results in one rope crossing the longitudinal axis in open position. The results of this mechanism are a properly closed net and a rope that is not too long compared to the ropes' length when it is fixed to the large peg. When closed, it would presumably show two or three ropes. Dunham's explanation for the omission of the rope is that it is hidden behind the birds, which could lead to the previous mentioned explanation of birds being more essential. However, Mahmoud mentioned his doubt about the certainty of this mechanism, as one cannot prove that the border ropes of the net are bound *around* the large peg or attached to it.[176] In the 36 items showing the large peg 17 show a rope going around or bound to the peg (47.22%) (*Table 3.1.2*.).[177] One is tempted to agree with the rope going around the peg as no knot or noose is shown.[178] However, not all representations show a rope crossing the longitudinal axis.[179] Finally, as no clear evidence is found in the current data for the two possibilities, one cannot exclude the option that perhaps both types of mechanisms were used, depending on the size of the net.[180]

Concerning the shape of the net, Dunham discussed, by describing two differences between an Italian engraving and the Egyptian hexagonal net, two triangular wings (*Figure 3.1.6, D*). These wings of net would cover more ground to catch a larger number of birds. In contradiction to Montet[181], according to Dunham the change in

[175] Dunham, D. (1937). Two parallels, in: *BMFA*, Vol. 35, p. 52.
[176] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 183-184.
[177] The upper register in LMP 049 shows a loop connected to the rope on the longitudinal axis, but hanging loosely without it being attached to the large peg. As it is the only example, no strong argument for the rope going around the large peg can be made.
[178] Fallacy of negative prove. The absence of a clear knot, does not have to mean that the rope was not attached to the large peg.
[179] 47 out of 71 representations show a rope crossing the net on the longitudinal axis (*Table 3.1.1, C*: 66.20%). Only 12 show no rope crossing the hexagonal net (16.90%), of which 7 items clearly show the net without this crossing rope. For example LMP 043, 044, 049, 149. The remaining 12 items are uncertain.
[180] Dunham, D. (1937). Two parallels, in: *BMFA*, Vol. 35, p. 52.
[181] According to Montet, if the net is closed the shape would become a rectangle, as the rope crossed the longitudinal axis. Yet, he indicates that on many reliefs there seems to be no difference in shape between an open and closed net. Concerning the current data, 11 items do not show a trace of the hexagonal shape

hexagonal shape between a closed and open net is not the shape but the size.[182] However, in the current data, the double scenes showing presumably an open and closed net do not show a difference in size, nor in shape.[183] An explanation by Dunham is that perhaps by desire to attain symmetry the Egyptians did not show the difference in size.[184] These wings, or as Bénédite and Appelt described panels, are, as indicated, refuted by Montet as not being essential. Still, Montet recognized, however, that one cannot completely dismiss the possibility of their existence.[185] As such, Bénédite, Vandier, Appelt and Dunham agree that the sides are to be incorporated into the functioning of the net.[186] However, Dunham's explanation indicates that the wings are part of the net and not separated panels. This corresponds with the meshes being shown covering the whole hexagonal shape.[187]

The mentioned elements are in line with the theory by Henein (*Figure 3.1.7*).[188] He based his explanation on a comparison of the current use of a bird net, indicating that the poles do not fall over the entire water surface, but form a tent shape. This creates the intersecting of the poles[189] and perhaps the diagonal representation. His explanation of the poles indicates a tapering ending, which is sometimes shown with the poles in the representations.[190] His specific explanation of the attachment of the operational rope to the poles is not shown in the representations. Still, it is a very plausible explanation of use, because the rope cannot detach from the poles.[191] He also suggested two types of nets, namely 'le filet avec fond' for waterfowl and 'le filet sans fond' for long-legged birds.[192] The previous resembles the idea of a 'bag', as the net is placed over the entire

---

due to damage. LMP 056 and 188 deviate from the representational shape, leaving 58 items showng a hexagonal shape (81.69%). Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 147; Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 48; Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 333.

[182] Dunham, D. (1937). Two parallels, in: *BMFA*, Vol. 35, p. 52.

[183] LMP 021, 018, 049, 062B, 183, 183a sub-register, 188 sub-register, 190, 191. LMP 190 shows a slight difference in size.

[184] Dunham, D. (1937). Two parallels, in: *BMFA*, Vol. 35, p. 52.

[185] Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 50-51.

[186] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 327.

[187] LMP 013. Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 150 ; Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238. 'Filet avec fond'.

[188] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 237-248.

[189] Examples are LMP 013, 018, 117, 065, 053, 139, 191. Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 344.

[190] LMP 049, 065, 184a(?), 188 (2x).

[191] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 237-238, fig. 5a-b.

[192] Ibidem, p. 238.

surface instead of merely two panels.[193] The reason to use a net at the bottom of the trap is to avoid that the waterfowl will dive and swim away.[194] Combined with the tent shape, one could catch more waterfowl, leaving them rather intact, without them escaping. As explained, based on his findings at Lake Manzala, Henein indicated the use of hinges, discussed by Montet and Bénédite, illustrating there attachment to the net and the ground.[195]

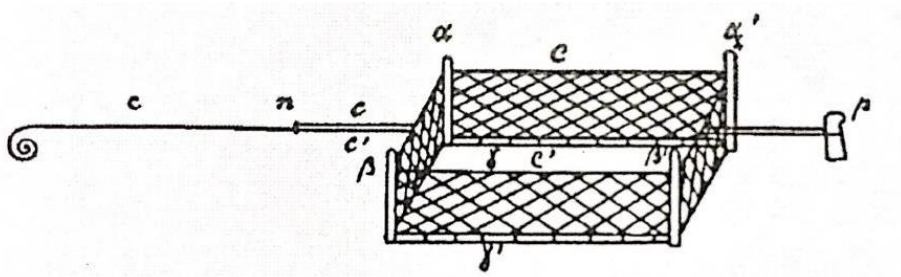
Mahmoud suggested an extra line through the net basis near the ground, which is attached to the large peg (P) and comes together with the operational rope in a knot (K).[196] He did not indicate if this rope is attached to a peg in the ground or to a knot. The latter would block the pulling of the operational rope as it would not only close the upper side of the net, but also incorrectly try to close the baseline of the net which should not move. Henein described 4 exterior pegs instead of a rope, which would keep the poles in open position before closing. These pegs make sure the net is not placed directly on the ground surface of the water or land. A new feature explained by Henein is the rope exterior to the net, which is needed to keep the poles in position when closing. This is shown on *Figure 3.1.7,* No. 10.

Thus, even though the current data does not reveal clear indications to explain the technical aspect of the hexagonal net, it does question or complement several elements of the different theories. The explanation by Henein concerning interior pegs and their attachment to the poles seems to be a plausible explanation based on LMP 013, 049, 056. His 'filet avec fond', resembling the bag theory by Newberry and the tent shape by Appelt, is not significantly supported by the current data. However, the diagonal poles could indicate the shape as well as support the representation of the poles under the birds. Henein's suggestion of the exterior pegs to keep the poles in place cannot be supported by the current data. It seems a logical development to enhance the speed of closing as well as decrease the power needed to close the net (as the poles are already lifted in the air and possibly just under the surface of the water instead of completely on the ground under water).[197] Even though the mechanism of the rope, influenced by the

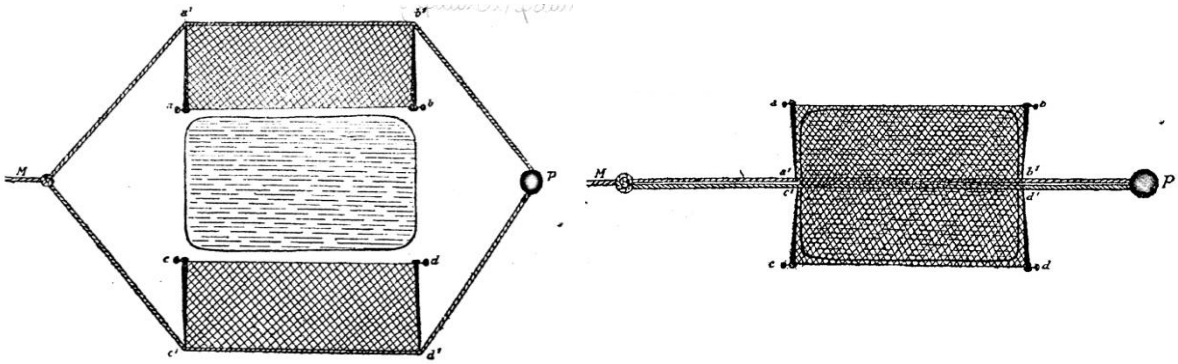
[193] Newberry, P. E. (1895). *El Bersheh*, p. 31; Henein, N. (2001). Du Disque de Hemaka , in: *BIFAO* 101, p. 238, fig. 8a,b.
[194] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238.
[195] Ibidem, p. 238, fig. 6.
[196] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 179-181, fig. 25, 26c.
[197] According to Dunham these exterior pegs could be depicted hanging on the wall in a kitchen scene in the tomb of Ti. He indicated that these pegs "served as additional fastenings for the lower edges of the

type of attachment to the peg, remains rather uncertain, small variations are shown in the number of ropes.

The placement of the net, based on the current data, suggests water, as the net is surrounded by vegetation or water (Chapter 3.2).[198] The items showing the poles under the birds enhance this hypothesis. However, one could question the authentic representation of the water (oval shape) or net as the available space can influence these elements.



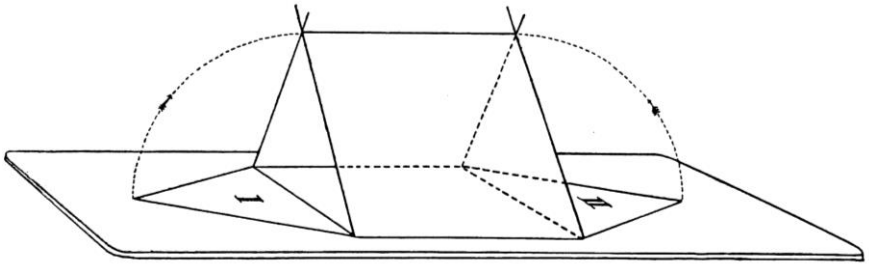
A. *Bénédite* proposes that the net is rectangular, leaving the bottom and lid open. The hinges are created by two bars on the ground at which four corner poles are attached. The double rope is attached to a small post and continues through the upper edge of the rectangular net to the other side. There the double rope is joint by a noose and continues as one. At the moment the haulers would pull the rope, the four poles would fall inwards. The hexagonal shape is explained by the two short sides, which, when the net closes, are being pulled outwards creating sharp angles.



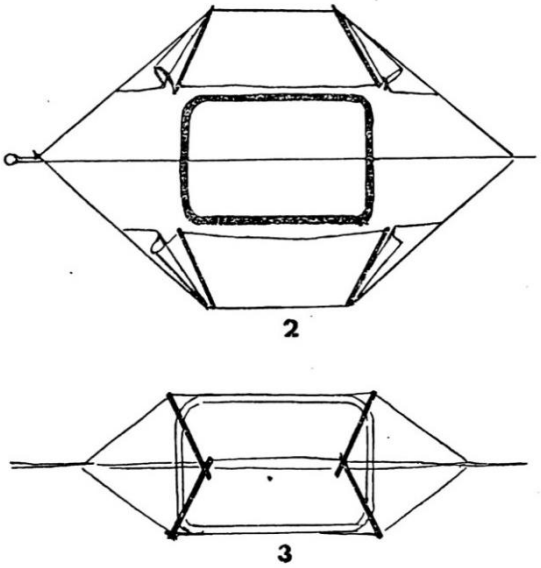
main nets, or, more probably, they were placed in such a way as to hold the outer ends of the four poles slightly raised from the ground when in the open positions." Dunham, D. (1937). Two parallels to Ancient Egyptian Scenes, in: *BMFA*, Vol. 35, p. 54. The previous explanation resembles the small pegs used with a 'filet sans fond' in Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 248, fig. 10.

[198] Montet suggested that the pegs are placed in soil around the water as the net would become too heavy to close quickly if placed in water. He also stated that it is essential that the panels cover the water in order to prevent the birds from flying away. As Henein explained, the meshes cover the water ground completely forming a sort of bag, preventing the birds from diving away. As the poles are lifted from the water surface by the pegs, as well as closed obliquely, the process of closing the net is fast, leaving no time for the birds to fly away. Montet, P. (1925). *Scenes de la Vie Privee*, p. 51-52; Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238.

B. Based on the representations in the tomb of Ti, *Montet* explains that the representation is a rough but uniform (hexagonal shape) representation of the net. Montet focusses on the hinges and the complete covering of the water by the two panels, flat on the surface. If the net is closed the shape would become a rectangle, as the rope crossed the longitudinal axis.



C. *Appelt* addresses the number of panels again, as well as the closing position of these panels. He assumes that the net consists of four mesh panels (cf. Bénédite), of which two of them join at the top, standing obliquely. This forms a shape of a tent. He thus deviates from the theory of the two mesh panels covering the whole water surface. The opening of the net is on the side, as the other two panels, triangular and smaller, are on the ground. The net is sealed by a hook held by the signal man, which prevents the panels to break up under the effect of flying and stressed birds.



D. *Dunham*, based on a comparison with a bird trap shown on an Italian engraving, does not imply two triangular mesh panels, but two triangular wings. These wings would cover more ground to catch a larger number of birds. In contradiction with Montet, according to Dunham, the change in hexagonal shape between a closed and open net is size.

Figure 3.1.6. - Illustrations of the different theories concerning the mechanism of the hexagonal net.
A. Construction Bénédite, fig. 8. B. Construction Montet, fig. 10-11.
C. Construction Appelt, fig. 2. D. Construction Dunham, fig. 148 in Vandier (1969).

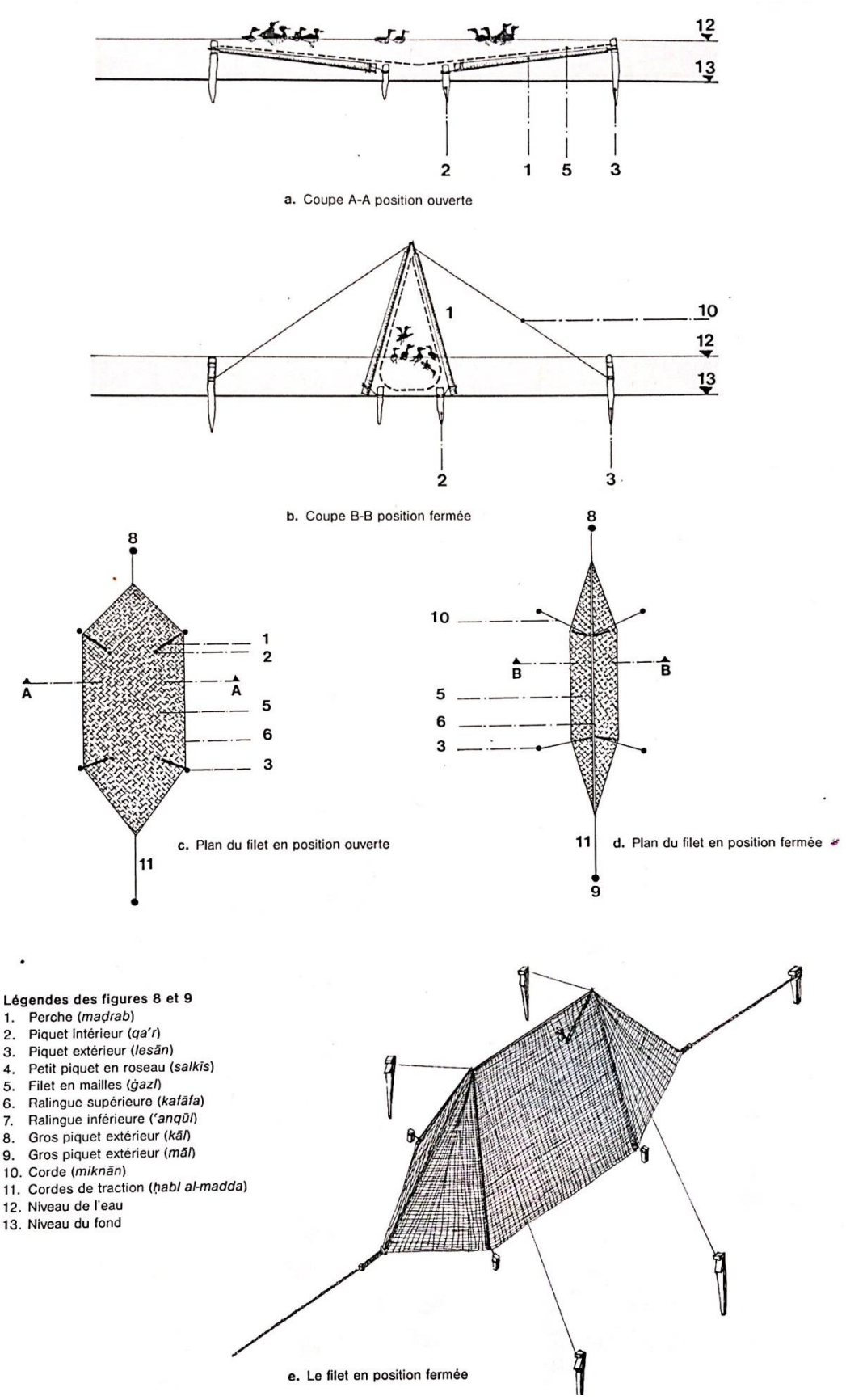


Figure 3.1.7. Henein, N. (2001). Du Disque de Hemaka au Filet hexagonal du Lac Manzala, in: *BIFAO* 101, p. 246, fig. 8.

3.1.2. The catch

The purpose of the net is to catch a certain number of birds, specifically waterfowl.[199] Of the 71 items 38 items show a complete scene concerning the birds within the net (*Table 3.1.4*).[200] Of these 38 items the range of birds *within* the net runs from 3 to 74 birds (*range*= 71).[201] The number of birds with the highest frequency (*Mode*) is 24 as it occurs 4 times (*Figure 3.1.8*).[202] No meaning for the number of birds can be defined as almost all numbers between 3 and 74 occur. There are also no trends shown amongst the frequencies of numbers and the dating of the LMP numbers. However, from the number 25 onwards, the gaps between the numbers of birds become larger. Another 17 items also show birds within the net, but these items are incomplete.[203] The numbers run from 1+x to 37+x. Again no significant differences or similarities occur between the numbers of birds as well as how many times these numbers occur.

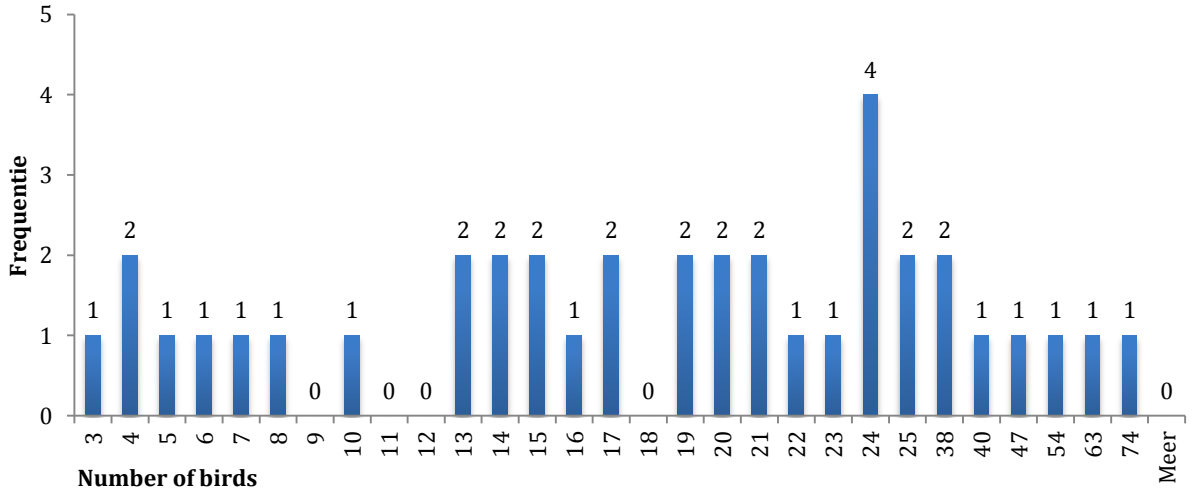


Figure 3.1.8. Histogram of the birds within the hexagonal net (n=38) (See Table 3.1.4).

Concerning the birds *outside* the net, 41 items show either none or a number of birds (*Table 3.1.5*).[204] When the items showing no birds are excluded from count, 35 items

[199] Based on his data, Mahmoud stated that ducks and geese account for nearly 100% of the catch in the hexagonal net, with the exception of the pigeons in LMP 075 and the cranes in LMP 188.
[200] There are 13 items uncertain due to damage or complete loss of the net. These items are LMP 001A, 002B, 021, 051, 109, 111, 157 (2x), 184 (3x) 216, 258a. There are 3 items showing either the installation or dismantling of the net. These scenes would occur before or after the birds have been caught with a result that no birds are shown in the net (LMP 018, 021, 049).
[201] There are 3 birds shown in LMP 002B and 74 birds in LMP 190.
[202] LMP 062B, 104, 183, 188.
[203] LMP 002c (16+x), 018 (21+x), 043 (37+x), 048 (6+x), 062a (12+x), 063B (2+x), 113 (1+x), 116 (9+x), 117 (18+x), 120 (14+x), 136 (20+x), 163 (1+x & 21+x), 183a (9+x), 186 (1+x), 217 (8+x), 228a (19+x).
[204] Referring to the waterfowl surrounding the net, excluding the long-legged waterfowl mentioned in Chapter 3.3. Birds outside the net have been classified as being either completely or more than halfway outside the net.

remain.[205] The range of birds runs from 0 to 30 (range= 30). The histogram is skewed to the left as most numbers of birds are between 0 and 9. The number of birds with the highest frequency (*Mode*) is 2 as it occurs 7 times (*Figure 3.1.9*).[206] The 29 birds shown in LMP 062B surround both nets completely, and therefore no clear separation of birds between the nets can be made. Evidently, the number 29 is the sum of the two nets making the number invalid in the histogram. As such, the number 30 is an outlier as it is distant from the other observations/numbers. Interesting to mention is that of the birds shown outside the net, LMP 044 and 045 show the birds flying on the side of the net instead of surrounding it or 'above' it. Another 13 items also show birds outside the net, but these items are incomplete.[207] The numbers run from 1+x to 11+x. The numbers are in agreement with the skewness of the histogram as they would be positioned on the left side of the histogram. Thus, the numbers of birds outside the net are smaller compared to the birds inside the net. This could be a result of the position in which the birds are represented (flying with their wings spread) and the space available.

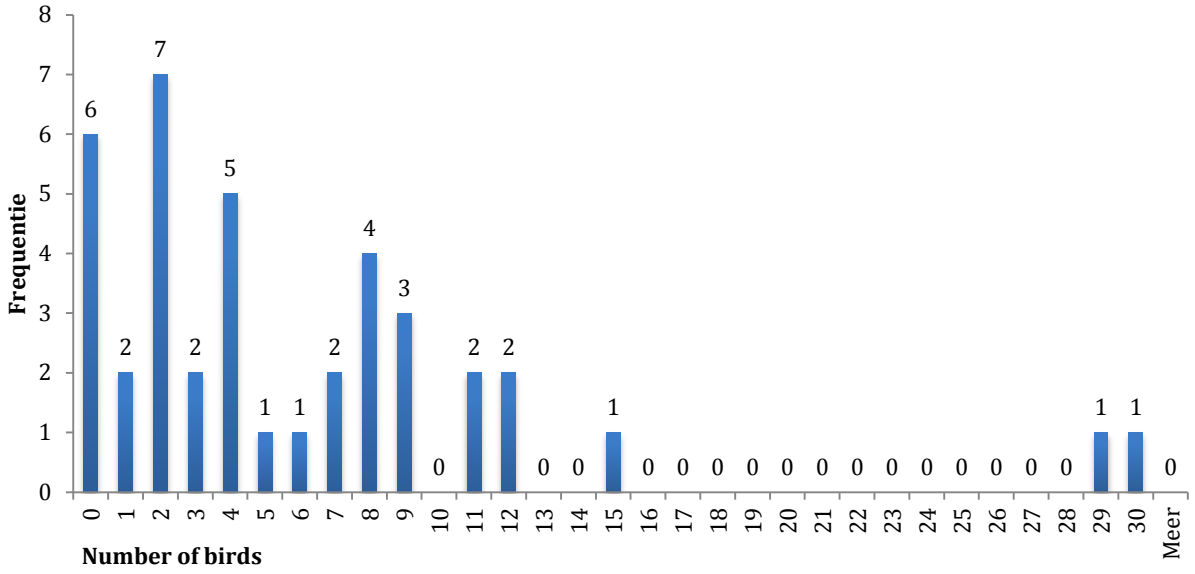


Figure 3.1.9. Histogram of the birds outside the hexagonal net (n=40) (See Table 3.1.5).[208]

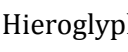
[205] LMP 002A, 002B (2x), 013, 042, 043, 044, 045, 049 (2x), 054, 056, 060, 062B (2x), 065, 075, 104, 139, 141, 149, 163, 183 (2x), 183a (2x), 184a, 188 (5x), 191 (2x), 216. Total of 35 items. The items showing no birds at all are LMP 018, 053, 070, 129, 183a, 190. Total of 6 items.
[206] There are 2 birds shown in LMP 002A, 002B, 139, 141, 183a, 188 (2x). Total of 7 items.
[207] LMP 021 (1+x), 048 (10+x), 062a (6+x), 063B (1+x), 109 (1+x), 117 (11+x), 120 (3+x), 157 (1+x), 157 (2+x), 184 (4+x), 190 (4+x), 217 (5x), 228a (1+x). Total of 13 items.
[208] The number of birds found in LMP 062B is entered only once, resulting in n=40 instead of n=41. The reason for this, is that no clear observation and count can be made of the birds between the two nets. It seems that both nets are to be surrounded by about half of the number of birds mentioned. As such, the number 30 is an outlier as it is distant from the other observations/numbers.

The birds in the net are shown flying or swimming. Vandier indicates that when they are swimming the birds opt calm and without worry, concluding that the net is still open.[209] Nonetheless, the birds are represented in pairs or alone, shown from the side completely. The pairs range from 1 to a maximum of 4 birds, overlapping in the same position. Variation is added as the heads may be turned into a different direction. Another variation is the depiction of birds on their back, implying a probable death.[210]

The identification of the birds is very difficult. The differences between geese and ducks as well as amongst the birds' species are difficult to identify without colour.[211] Only characteristics such as size and sometimes shape between the birds can indicate the difference between the type and species of the birds.[212] The literature discusses several birds based on archaeological finds and representations, but the current data does not clearly show which types of birds were meant to be represented.[213] One duck can be recognized by its specific feature the tail, namely the Pintail (*Figure 3.1.10*). This duck is identified in 16 items of current data.[214] Houlihan indicates that the Pintail is an "easily distinguishable duck [which] can be recognized in a variety of situations".[215] The pintail is a migration bird passing through Egypt in the winter but as Houlihan indicates "the most frequently represented species of waterfowl in Egyptian art and hieroglyphs."[216] Even though one cannot state with certainty the migration time and

[209] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 332-333.
[210] LMP 018, 049, 149, 188, 190. LMP 049 and 188 show two birds on their backs, among which two cranes in LMP 188. LMP 044 shows two birds on their sides, represented vertically.
[211] An example of a depiction showing colour is LMP 013. The publication only presents black and white photographs and line drawings. No notion of colour is made in the publication. The identification of the birds is described as 'various birds'. However, the item shows red, blue and yellowish colours. The ducks are yellowish. The two goose in the lower half of the net, the three in the middle of the upper half and the three on the upper right side show red paint in their faces. Two birds which are positioned in a bend position (middle upper half and lower left side) have traces of blue paint. Dunham, D., and Simpson, W.K. (1974). *The Mastaba of Queen Mersyankh III*, p. 10, fig. 4, pl. IIIa, IV.
[212] Examples are LMP 070, which shows the difference in body position and LMP 183, which shows the goose flying above the net. LMP 183 shows in the 'lower' part of the net four ducks with a pattern on their wings. These ducks are difficult to identify without colour.
[213] Darby, W.J. et al. (1977). *Food: The Gift of Osiris*, Vol. 1, p. 265-286; Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 54-74; Boessneck, J. (1988). *Die Tierwelt des Alten Ägypten*, p. 48-50; Goodman, S.M., Meininger, P.L. et al. (1989). *The Birds of Egypt*, p. 152-167; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 17-85.
[214] LMP 001A, 002B, 042, 049 (2x), 056, 060, 062B (2x), 139, 149, 183, 183a, 188 (2x), 228a. Total of 16 items. There are 2 items uncertain because of an unclear photograph or line drawing. These items are 184a and 190.
[215] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 71-72. This statement is based on all pharaonic periods; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 62, 64-65.
[216] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 71.

precise route of these birds in ancient times[217], it is interesting that this migration bird is so often represented. This could indicate certain knowledge by the Egyptians about this bird as well as perhaps a preference to depict this bird.[218] Still, within the hexagonal net, in the current data, the Pintail occurs only 25.81%.[219] This number is based on items showing at least 1 bird.[220]

Latin:	*Anas acuta*[221]
English:	(Northern) Pintail
German:	Spießente
Hieroglyphs:	 , det.  *st*, *zt*, *sꜣt* [222]
Heights:	51-62 cm.[223]
Characteristics:	Slender build, long and thin neck, short legs, and a long, pointed central tail feathers.
Distribution Egypt:	Nile Valley and Delta, the Faiyum, Suez Canal, and the Dakhla and Kharga Oases.
Residence period Egypt:	Winter ((Late August) mid-September to late April (mid May)).[224]

a.

b.

Figure 3.1.10. Anas acuta, the (Nothern) Pintail

[217] Darby, W.J. et al. (1977). *Food: The Gift of Osiris*, Vol. 1, p. 265. Egypt is situated in the middle of the migratory route of the Palearctic bird fauna. It is the resting place between central/south Africa and Europe.
[218] Thus, knowledge of the shape of this bird to present it in the reliefs. An indication for a specific period to catch the birds seems rather unlikely as the birds are not only presented as wild birds (in the hexagonal net). Other situations in which the bird is shown are aviaries, processions of domestic fowl, processions of offerings, and cooking scenes. Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 65.
[219] The percentage is based on the (in)complete scenes with birds within and outside the net. Thus, there are 38 complete items + 17 incomplete items within the net (p. 44). concerning the birds outside the net (not counting double items) there is 1 item complete and there are 5 incomplete (LMP 021, 109, 157 (2x), 184, 216). This gives a total of 62 items in which a possible Pintail could be recognized.
[220] Some items could be questioned if drawn correctly or rather simplistic such as LMP 109 or 117. LMP 001A shows on the line drawing a Pintail, but this part of the relief is lost on the photograph.
[221] Linnaeus, C. (1758), *Systema Naturae*, ed. 10(1), p.126, No. 25.
[222] Hannig, R. (2003). *Ägyptisches Wörterbuch I,* p. 1030; Darby, W.J. et al. (1977). *Food: The Gift of Osiris*, Vol. 1, p. 282.
[223] ETI BioInformatics (2005), De SoortenBank.nl <http://www.soortenbank.nl/zoeken.php?zoekterm=Anas+acuta&image.x=0&image.y=0&zoekmodus=eenvoudig> [Accessed February 2016].
[224] Goodman, S.M. et al. (1989). *The Birds of Egypt*, p. 161.

Another species of the family *Anatidae* which is only recognized in 1 item is the *Aythya fuligula*, Tufted Duck (LMP 049). It is shown three times in the second net from above in the tomb of Ti. The duck is recognized by the 'drooping crest' on the back of its head. The bird is nowadays a common winter visitor from late October to late April in the Delta and the Faiyum as well as the Nile Valley.[225]

Finally, there is a possible identification of a Hoopoe, of the family *Upupidae*, which does not belong to the group of waterfowl. It is shown in LMP 184a above the net to the right. Although this seems to be the case in the line drawing, the photograph shows presumably a wing to the left of the bird. The crest characteristic is not clearly shown on the photograph. Examination of the original seems necessary to identify this bird.

[225] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 166.

3.2. Setting of the hexagonal net

3.2.1. The pond

As the hexagonal net is often surrounded by birds flying or foraging (Chapter 3.1 & 3.3), the representations also show a (double) line surrounding the net. This occurs in 29 out of the 71 items (40.85%). Of the remaining items only 10 were uncertain due to damage[226], leaving 32 items not showing this depiction (45.1%). The distribution is thus almost equal. The same can be said about the tombs, as 25 show the depiction of the line(s) and 21 do not. As multiple items can occur in one tomb, 3 tombs (LMP 002B, 183a, 188) have similar representations showing both options. *Table 3.2.1* shows the items obtaining the oval line surrounding the net, as well as the variables *date, location*, and *shape*. The table is separated into two parts, based on the variable shape. The 4 items with a hexagonal shape were not incorporated into the following calculations and intrinsically their results. The reason for this will be explained further on in this chapter (p. 52).

Notable from *Table 3.2.1.* is that the number of items from Saqqara and Giza are the same (48%), followed by Meidum (4%). Thus, apart from Dashur, all other locations depict the oval shape surrounding the net. Based on the total items per location, Saqqara shows the oval shape in 12 out of 44 (27.27%), Giza 12 out of 20 (60%) and Meidum 1 out of 6 items (16.67%).[227] Hence, there is no significant difference between Saqqara and Giza concerning the number of depictions. Still, based on the total number of items per location the percentage of Giza is significantly higher compared to the others. As such, there seems to be a high preference for this element of the subtheme at Giza.

Concerning the development over time, no specific or peculiar aspects occur. Already present in Meidum, the oval shape continues to be depicted in Giza in the 4th dynasty (P&M dating). During the 5th dynasty Giza and Saqqara show parallel the depiction, which marginally continues into the 6th dynasty. Still, in the 5th dynasty, the tombs in Saqqara, as well as a few in Giza, also represent the net without a surrounding oval shape.[228]

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[226] LMP 002c, 051, 063B, 111, 120, 157, 184 (3x), 186. Total of 10 items.

[227] The LMP indicated a total of 42 items in 33 tombs. As explained, during the examination of the different elements of the scene, the number of items were based on the number of hexagonal nets depicted. The total of nets is 71 items. This results in 44 items from Saqqara, 20 from Giza, 6 from Meidum and 1 from Dashur.

[228] Giza: LMP 116, 129, 157, 163. Total of 4 items. Saqqara: LMP 049, 060, 062A, 062B, 075, 136, 139, 183a, 184a, 188, 191, 216, 217. Total of 13 items.

Concerning the identification of the oval shape, the shapes as well as the content of the shape have been examined. As already indicated the shape is not always completely the same. The oval shape sometimes resembles a more rounded rectangle, yet they all show a rounded form surrounding the net. This is different from the four items showing a hexagonal shape.[229] The line follows the perimeter of the net precisely and very close. As this depiction is completely different from the oval shape, they could have different meanings (*Figure 3.2.1*).

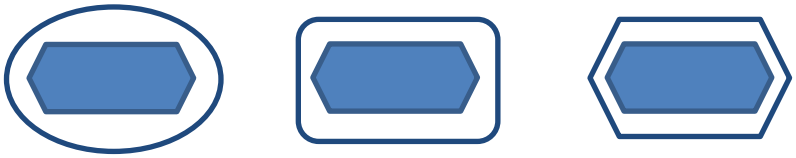


Figure 3.2.1. The general presentation of the mentioned possible shapes of the surrounding lines. Not based on the precise sizes in the representations.

The oval shape creates a certain amount of space between the outer lining (long side) of the oval and the net. This space is sometimes occupied with flora and fauna (40%).[230] The fauna refers to the several ducks or geese flying or swimming.[231] The identification of the flora by means of visual examination has been summed in *Table 3.2.2*.[232] All 10 items show lotus leaves, flowers and buds, resembling the *Nymphaea lotus* (white) and *caerulea* (blue) (*Figure 3.2.2*).[233]

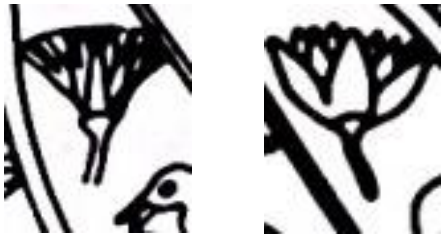


Figure 3.2.2. The different lotuses found in the representations. Right: *Nymphaea lotus* (white). Left: *Nymphaea caerulea* (blue).

[229] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V: Bas-Relief et Peintures: Scènes de la Vie Quotidienne, p. 343.
[230] LMP 013, 042, 043, 044, 054, 065, 070, 141, 183 (2x). A total of 10 out of the 25 is 40%. LMP 183a shows vegetation within the surrounding line following the hexagonal net.
[231] LMP 013, 043, 054, 065.
[232] *Table 3.2.2.* also shows 17 items where lotus leaves, buds and flowers are shown within the net. Only 4 items (LMP 042, 043, 054, 065) also show water plants within the oval surrounding. Of the 13 remaining items, one rather uncertain item (LMP 228a) shows an oval surrounding the net and 11 items do not show an oval shape. LMP 002c is uncertain due to damage.
[233] Täckholm, V., Flora, in: Helck, W., and Otto, E. (1977). *Lexikon der Ägyptologie*, Bd. II, p. 268. They are easy to distinguish whereas the blue lotus has pointed petals and entire leaves, while the white lotus has obtuse petals and dentate leaves. An example is LMP 042.

As the family *Nymphaeaceae* are aquatic herbs, the identification of the content of the oval shape seems to be an area where this flora can grow. Both species grow in shallow still water and are nowadays common in the Nile Delta and Faiyum, but rare in or absent from the Nile Valley.[234] This information about their location is based on data from this century and cannot be translated to the OK. However, with the area of growth being shallow still waters, it is certain that the content of the oval shape is water.[235]

Table 3.2.2. also sums the items showing the water plants *within* the net. Of the 17 items, 11 items (all Saqqara) do not obtain an oval shape surrounding the net. The plates demonstrate that two main aspects influenced the dismissal of the oval shape as well as presenting the water plants in the net: *space* and *necessity*. LMP 060, 062A (partially damaged) 188 and 191 show the scenes filled up with birds and/or vegetation between the register lines. Perhaps here the oval shape is less essential to depict. LMP 062B & 183a both show two nets above each other. One can argue that the sculptor's decision of not placing two oval shapes above each other is due to the limited space, as they would touch or merge. The 25 items show that the oval shape covers (almost) the complete height of the register, which would mean that the oval shape would cover the two nets in order to do so.[236] As Harpur indicated concerning LMP 018 & 021, the composition is perhaps better balanced if the oval shapes are separated.[237] As the scenes are depicted on sub-registers, precluding separation, the oval shapes have been omitted. Finally, in LMP 139 the net covers almost the full height of the register leaving no space for an oval shape. In all cases, to indicate that the net is placed on water, seemingly compromising the omission of the oval shape, the water plants are shown in the net. Yet, this last argument about the oval shape cannot be statistically supported as only 9 out of the 32 items (28.13%) show water plants in the net without being surrounded by an oval

[234] Brewer, D.J., Redford, D.B., and Redford, S. (1994). *Domestic Plants and Animals. The Egyptian Origins,* p. 326. Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V: Bas-Relief et Peintures: Scènes de la Vie Quotidienne, p. 343. The most frequent flora are flowers, buttons or lotus leaves. Lotuses are found mostly in the water, while other plants are rather found on the shore.
[235] Wreszinski, W. (1936). *Atlas zur Altaegyptischen Kulturgeschichte,* Vol. 3, Lieferung 7, p. 148. According to Wreszinski the water (lines) are not shown to fully represent the birds. (See also n. 147 about meshes).
[236] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom,* 178, n. 128. LMP 018 & 021 both show unusual broad oval shapes. They also cover the complete height of the register. The separation of the two scenes on different registers, or behind each other, could be explained by the oval shapes being too close to each other, almost merging. As Harpur indicated "the composition was [perhaps] better balanced with a space between them" (p. 184).
[237] Ibidem, p. 184.

shaped line.[238]

As one can extract from the paragraph above, not only flora is found within the oval shape, the net itself is also placed within these shaped lines.[239] As such, the large peg, at the end of the net, is placed in the 'ground' within the oval surrounding. This is shown in 16 out of the 25 items (64%).[240] This is not always the case as there are 2 items clearly showing the peg outside the surrounding lines and one where no clear net is shown.[241] As the hexagonal net for catching waterfowl itself is represented within the lines, the connection with water is enhanced. Thus, the content of the oval shape is water containing lotus leaves, flowers and buds. The location would resemble an area with shallow waters (swampy habitat) and attracts ducks and geese to swim and rest, such as the Nile Delta.[242]

This leaves the question about the hexagonal shape surrounding the net. The space between the net and outer line is much smaller compared to the oval shape. There are 4 items showing the line surrounding the net (5.63%) (*Figure 3.2.3*).[243]

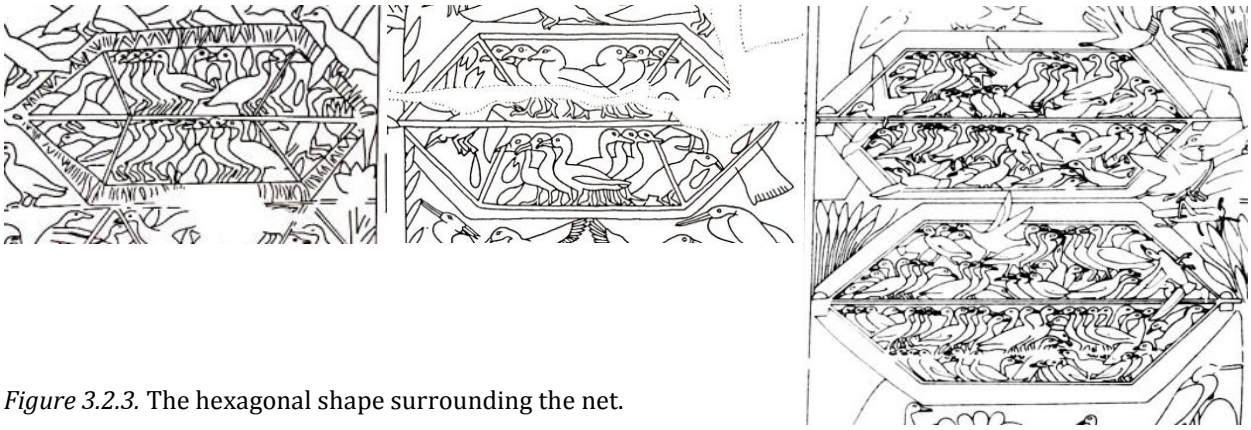


Figure 3.2.3. The hexagonal shape surrounding the net.
From left to right: LMP 183a, 188 & 190 (2x)

[238] The 17 items minus 4 items leaves 13 items. LMP 002c is uncertain and LMP 228a shows an oval shape. Of the remaining 11 items, 2 items show a hexagonal surrounding and have not been incorporated in the calculations in the main text. Concerning these hexagonal shapes, it does not indicate water but represents vegetation. As such, they do not depict a 'pool' or water and need to be included in the calculations. As such, 2 out of the 4 items (LMP 183a & 188) show water plants within the net. Thus correcting, 11 out of the 36 (32+4) results in 30.56%.
[239] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 178, n. 128.
[240] LMP 021 & 117 are partially damaged, but it is still clear from the representation that the whole net falls within the surrounding lines.
[241] LMP 045, 149, 056. 6 of the 26 items remain uncertain due to damage. Harpur mentioned that the two sections of the net were pegged out on either side of a 'pond' instead of specifically mentioning within or outside the 'pond'. Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 141.
[242] The depth of the shallow waters could be indicated by the birds presented, such as the presence of long-legged waterfowl as their legs are normally underwater. See Chapter 3.3 for long-legged waterfowl.
[243] LMP 183a, 188, 190 (2x).

By examining these items, LMP 183a is the only item showing vertical lines between the outer line of the hexagonal shape and the net. Henein described the line as a 'strip' surrounding the perimeter of the hexagon net, which is placed on the ground. He indicated that the net is folded like an accordion in order to facilitate its deployment at the time of closure.[244] The example tomb used by Henein is LMP 188.[245] Henein himself already indicated that the hypothesis given is rather unsatisfying. One of the elements which is difficult to explain is the vegetation on the lower right corner of the hexagonal net. This 'artificial' plant seems to Henein to protrude from under the net, or rest on the strip.[246] By comparing several items, the hexagonal shape does not represent a strip of net, nor does it represent water. The hexagonal shape probably represents vegetation. This hypothesis is based on the following comparisons. LMP 183a shows stripes within the shape. Even though this could technically represent a net, it rather resembles the depiction of vegetation surrounding the water in LMP 065 and 117 (*Figure 3.2.4*).[247] LMP 070 resembles the previous items based on the line surrounding the perimeter of the oval shape. In between these lines no vertical stripes are shown, but different forms of rushes and bushes.[248] These plants are aquatic plants at the bank of the water (*Table 3.2.3*).

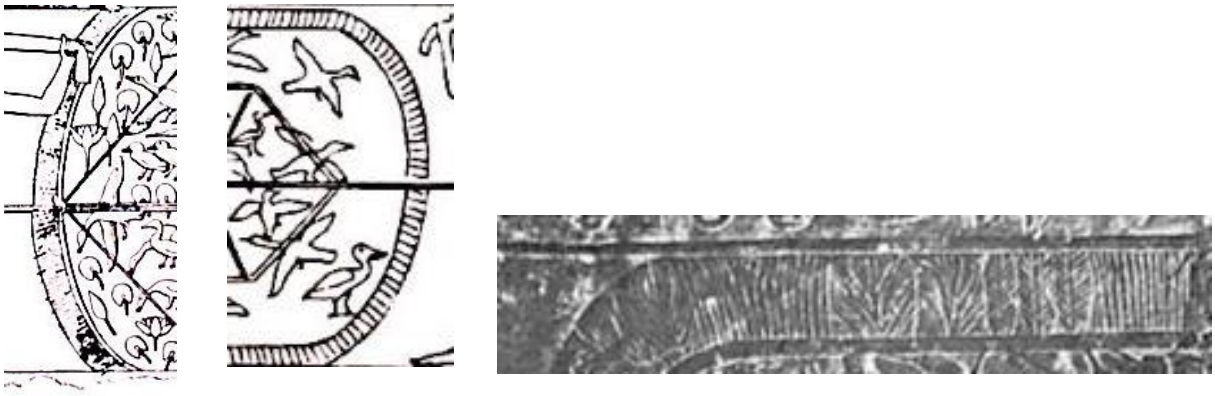


Figure 3.2.4. Decoration within the lines of the oval shape. From left to right: LMP 065, 117 & 070. The latter is shown upside down.

[244] A visual example can be found in Matthey, I. (2002). *Vincken moeten Vincken locken: Vijf eeuwen vangst van Zangvogels en Kwartels in Holland*, p. 102, fig. 35.A.
[245] Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 262-263 & 265. Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238 & 247, fig. 9c.
[246] Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 265.
[247] Equally shown in the provincial tomb of Pepiʿankh in Meir. Both registers show a hexagonal net with a hexagonal surrounding filled with lines. Blackman, A.M. (1924). *The Rock Tombs of Meir: The Tomb-chapel of Pepiʿankh the middle son of Sebkḥotpe and Pekhernefert*, Vol. 4, pl. VIII.
[248] The excluded LMP 143 shows a hexagonal shape filled with different patterns. These patterns do not resemble vegetation nor do they resemble the zigzag pattern of water shown in the cattle crossing represented under the same LMP number.

LMP 188, discussed by Henein, does not show any depiction between the outer lines. It does show an object identified in general as vegetation because it resembles the foliage in LMP 136 and 183a as well as the aquatic plants in LMP 183.[249] The depiction shows the lining of the object continuing until the outer lining of the net. It seems to resemble LMP 104, which, even though only the line drawing is presented, shows an extra band surrounding the water with short vegetation. The plants in the line drawing are either placed on the perimeter of the oval shape or connected to the extra surrounding as shown in LMP 188. Another argument enhancing the vegetation hypothesis can be extracted from the remaining LMP numbers in *Table 3.2.3* showing vegetation surrounding the net. Although Vandier argued that the hexagonal shape surrounding the net is water, he made an interesting notion about the absence of the water. He indicated that the water is not always present but that the sculptor did have the intention to represent the water in a hexagonal shape. The vegetation which is at the perimeter of the net represents the bank of the hexagonal water.[250] This hexagonal shape of the vegetation is visible in LMP 184a and 191 (*Figure 3.2.5*).[251] Even though no outer lining is shown of the hexagonal shape (as is the same in LMP 042 concerning the oval shape) they do resemble LMP 183a, 188 and 190.

Figure 3.2.5. The hexagonal shape of the vegetation. From left to right: LMP 184a & LMP 191 (2x).

An argument against the theory of vegetation could be made based on LMP 190. Here, no relief or remaining paint is shown between the lines, but there is vegetation behind and in front of the net. It seems to be placed at the border of the hexagonal shape, which in the line of reasoning by Vandier is water. But if one examines the item closer, the bottom

[249] Bissing, F.W. von, and Weigall, A.E.P. (1905). *Die Mastaba des Gem-ni-kai*, Bd. I, pl. XXVI; Muschler, R., in: Bissing, F.W. von, Bollacher, M., and Weigall, A.E.P. (1911), Die Mastaba des Gem-Ni-Kai, Bd. II, p. 41-42, Nr. 71. The plant in LMP 188 resembles the numbers 56 & 71.
[250] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V: Bas-Relief et Peintures: Scènes de la Vie Quotidienne, p. 343 and fig. 154 (LMP 191).
[251] Wreszinski, W. (1936). *Atlas zur Altaegyptischen Kulturgeschichte,* Vol. 3, Lieferung 8, p. 165, pl. 80. He indicated concerning LMP 191's upper register: "Ein besonderer Uferrandstreifen ist nicht vorhanden: die Uferpflanzen erheben sich strahlig vom Netzrande, ach am unteren Rande ein abwärts gerichtetes Büschel."

of the vegetation behind the net is placed on the register line instead of the border of the hexagonal shape. Still, to reject the previous argument, by examining all the items showing vegetation surrounding the water and net there are several items showing both the vegetation surrounding the water (net) combined with vegetation on the side.[252] Hence, the hexagonal shape surrounding the perimeter of the net seems most likely to represent vegetation. Based on these arguments the calculations in the beginning of this chapter excluded the 4 hexagonal shaped items. Thus, only the oval shaped surroundings represent water.

Several authors discussed the representation of the water as depicting a natural pond or being formed by the sculptor. Mahmoud indicated that the vegetation surrounding the pond creates a natural representation, but that the shape itself is not of natural origin.[253] Montet connected the water shape with the closing technique of the net as well as the composition of the scene on the wall . As indicated the net is placed in the middle of the water. According to Montet this position of the net is difficult to handle and it could result in a 'bad' catch.[254] He argued that in reality the panels were on the banks of the pond and when closed they would cover this pond completely.[255] He then indicated that if the Egyptians would represent his proposal of the nets' position, the water would have been much reduced in size and shape. He implied that the Egyptians reversed the sizes of the two objects. Hence, the pond is represented bigger than the net. Mahmoud argued that the representation without the oval shape (pond) is a natural representation of the water. When the surrounding lines are present, he indicated that the oval shape was specifically made for bird catching in the swamp area. As such the Egyptians would have an advantage as both net panels would cover their constructed

[252] Not including the vegetation between the signalman and the net, the following items show this combination LMP 045, 048, 060, 070, 183a, 184a, 191 (2x). Total of 8 items.
Harpur already mentioned the combination of vegetation at the Sun temple of Niuserre at Abu Ghurab. She described that "on either side of the trap are high, bushy plants, one of which acts as a hide, and the plants round the ponds' edge are distributed to form a hexagon rather than a lozenge shape. In other words, the clapnet and pond are merged." Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 190.
[253] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten, Vol. 35, p.157-158.
[254] Montet, P. (1914). La chasse au Filet, in: *BIFAO 11*, p. 151. With this position of the net, the panels could either be on the surface of the water or underneath. Concerning the former, the birds could dive underwater and move away from the net. If the panels would be underwater, the resistance of the water would prevent the net from closing quickly, whereas the birds would have time to fly away.
[255] Ibidem, p. 150, fig. 7.

pond completely when closed, giving the birds no flying opportunity.[256] Harpur already indicated that the oval shape seems to relate to the net and the parallel register lines.[257] The symmetrical way of representing the shape following the register lines, being rounded off when covering the net, could also be an explanation.

Having established the identity of the shapes there seems to be a change in depicting the flora surrounding the net and water. From the 5th dynasty onwards, the water is surrounded by flora.[258] Although still shown in LMP 183, the flora is placed from surrounding the water towards directly surrounding the net. This change occurs around the end of the 5th, beginning of the 6th dynasty (dating P&M).

3.2.2. The surrounding vegetation

Besides the vegetation identified in chapter 3.2.1 the theme FO,H possesses more types of vegetation. These can be divided into *vegetation in the net, in the water, surrounding the water, beside the water, between the figures and the water, and between the feet of the haulers*. As the first two groups have already been discussed in the previous chapter, this chapter will continue with the presence of vegetation surrounding the water or net. To identify and discuss every plant is beyond the scope if this thesis. As the occurrence of the groups of vegetation *surrounding the water, beside the water*, *and between the feet of the haulers* are irregular they will be discussed only shortly (*Table 3.2.3. & 3.2.4*) followed by the vegetation *between the figures and the water* (the 'hide').

Table 3.2.3 shows the items in which the net or water is surrounded by vegetation. Most items show vegetation all around whereby the aquatic plants are symmetrically arranged, following the border representing the net or water.[259] This results in a spectator's view as 'upside down'. Interesting to mention is LMP 183 where the aquatic herb *Nymphaea* surrounds the net in the water. The herbs follow the outer lining of the net, but compared to the surrounding water plants, the lotuses are not presented upside down but follow partially the perimeter of the water. The sculptor shows the two variants in one scene. There are only two items showing the same composition as the *Nymphaea*, where the bottom row of vegetation is not upside down

[256] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten, Vol. 35, p. 157-158. He omits to mention the inconsistencies with making a pond. It would lead to questions such as how they would make the pond and what they would do with the vegetation,
[257] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 178, n. 128.
[258] LMP 002B from Meidum is rather damaged. The pieces found do seem to depict some form of vegetation. It is yet unclear if it surrounds the water.
[259] Schäfer, H. (2002). *Principles of Egyptian Art*, p. 247.

but on the register line, namely LMP 043 & 191.[260] The latter is also interesting because it shows a double scene which differs in the surrounding and number of vegetation. The upper register shows a full surrounding with water plants but none of them upside down. The lower register shows less variation and density in the representation of the vegetation.[261] But in the middle of the lower line of the net is an upside down piece of grass shown.

Muschler has identified several aquatic plants in the mastaba of Gem-ni-kai (LMP 183), among which *Panicum geminatum Forsk* and *Potamogeton Lucens L*.[262] Germer discussed that the previous grass specie is incorrect because of the one-sided flowers at the stem but she made no other suggestion. The identification of the *Potamogeton Lucens L.* has also been discussed in the literature. This aquatic plant has also been identified as *P. crispus L.* or even *Phragmites australis.* Based on the habitat and appearance of the plant (among others on examples from tombs) Beaux revealed the inconsistencies of the previous identifications and proposed *Polygonum senegalense Meisn*. as a more suitable alternative.[263] This type of aquatic plants also occurs between the haulers.[264]

The group of items showing vegetation between the haulers is in total 6 items with 1 item from both Meidum and Dashur and 4 items from Saqqara. Of the 71 items at least 65 items show haulers in 48 tombs (Chapter 3.4.3, p. 98). This means that only 9.23% shows vegetation between the haulers, indicating their rather rare occurrence. One can argue that this type of representation was not essential and can be seen as filling a void between the haulers.[265]

The first item showing vegetation between the haulers is LMP 002B, the tomb of *ỉtt*. As Harpur indicated, the 'tuft of grass' is omitted in the tomb of *Rʿḥtp*, leaving LMP 002B the only one showing this vegetation at Meidum. Notable from *Table 3.2.4* is the absence of the vegetation between the haulers in the FO,H scenes at Giza. The first item

[260] Mohr, H.T. (1943). *The Mastaba of Hetep-Her-Akhti*, p. 54-56.
[261] Wreszinski, W. (1936). *Atlas zur Altaegyptischen Kulturgeschichte,* Vol. 3, Lieferung 8, p. 166, pl. 80. Lower register: "Um das Netz herum, dessen Randstriche nicht sichtbar sind, kein Uferstreifen, nur ein üppiger, aber aus nicht mehr als zwei Arten bestehender Pflanzenwuchs."
[262] Muschler, R. in: Bissing, F.W. von et al. (1911), *Die Mastaba des Gem-Ni-Kai*, Bd. II, p. 41-42, fig. 51 & 54.
[263] Beaux, N. (1988). The Representation of "Polygonum senegalense" Meisn. in Ancient Egyptian Reliefs and Paintings, in: *JEA* 74, p. 248-252. Examples are LMP 002c, 183 and 191; Brewer, D.J. et al. (1994). *Domestic Plants and Animals,* p. 331-332. Brewer et al. indicate that this weed does not occur in deep swamps.
[264] LMP 049, 184a & 190.
[265] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 330.

in the data showing this vegetation again is LMP 049, dating to the second half of the 5th dynasty. Again a gap in time occurs, as two items are dated to the 6th dynasty and two items are uncertain. As the main number of items are from Saqqara (66.67%), Harpur addressed the possibility of an artistic link between Saqqara and Meidum. Although this is a possibility, she omitted the item from Dashur which also shows vegetation between the haulers.[266] All items show a rather short type of vegetation, but they differ quite from each other.[267]

In the literature it is mentioned that the figures hide behind foliage, resulting in the name of the vegetation 'the hide' (*Table 3.2.5*). For instance Harpur, who indicated that "in real life the signalman and haulers must have hidden behind or under foliage, but this vegetation is often omitted from the scene or stylised so that it resembles a column topped with reed heads or papyrus umbels."[268] The 'hide of reeds' in front of the haulers and signalman is a new feature in the FO, H scene from the first half of the 5th dynasty onwards.[269] Harpur mentioned an earlier hide in LMP 002c, the tomb of *Nfr…w* at Meidum, but she argued that, if indeed a hide, the depiction of the vegetation (plant, bush) would be quite different from the 'stylistic' hides of 5th and 6th dynasty. Another argument against it being a hide is its height, as it is under the waist of the signalman being too low in order to be effective.[270] As such, LMP 002c was not incorporated in the table representing the items with a hide, but incorporated in *Table 3.2.4. other vegetation.*

Of the 71 items, 36 show a resemblance to a hide (47.89%) (*Table 3.2.5*). Twenty-eight items are found at Saqqara (77.78%), 7 at Giza (19.44%) and 1 at Dashur (2.78%).[271] As to the number of items, the hide can cover two and even three sub-registers. Thus, LMP 049 shows only one hide enlarged covering two sub-registers with nets. The same accounts for LMP 188 showing three nets on three sub-registers and only one enlarged hide. LMP 183a is an exception as both sub-registers depicting haulers have their own hide. Because of this variation in depicting an enlarged hide with double

[266] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 179.
[267] Grasses and aquatic plants, such as the *Polygonum senegalense* and the so-called plant of Upper Egypt (LMP 049).
[268] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 142.
[269] Ibidem, p. 34, 188, 339, Table 6.19. Harpur mentioned the chapel of *Wr-ỉr.n-Ptḥ*, which she dated before the reign of Niuserre (V3-5(?)).
[270] Ibid., p. 188, n. 139.
[271] Only 9 uncertain items and 26 items which don't show a hide. The 9 uncertain items are LMP 001A, 051, 111, 116, 141, 157, 184 (2x), 186.

or triple sub-registers, the number of *nets* covered by a hide were counted.[272] Concerning the total number of items per locations, 63.64% is found at Saqqara, 35% at Giza, and 100% at Dashur.[273] As only one item was found at Dashur, the 100% is rather misleading. Saqqara remains higher in percentage compared to Giza, but Giza increased from ¼ to more than ½ in percentage difference.

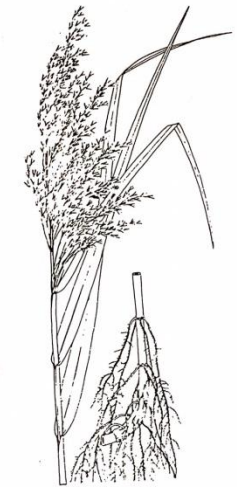
In disagreement with the above mentioned numbers, Vandier stated that the hide is often absent. He also stated that, if represented or assuming it was once represented, the hide was never absolutely necessary.[274] Perhaps this statements needs to be specified as the words 'never' and 'absolute' in the narrow sense of the words completely exclude the possibility of the item being essential or not. By viewing the statistical analyses of the hide, there seems to be a high preference for the hide in Saqqara. The 35% of hides found at Giza indicate that the hide was less essential to depict. Hence, a difference occurs between locations.

Continuing citing Vandier, he mentioned that the foliage or thicket could be papyrus or reed but that it is very difficult to identify.[275] Germer et al. discussed several plants which can be found in wetlands, namely sedges, rushes and reeds. She indicated that the *Cyperus papyrus* (Papyrus), *Phragmites australis* (Reed) and the *Cyperus alopecuroides* (Foxtail Sedge, Matsedge) are main characteristic features of the marsh and bank landscape. She mentioned more types of plants, but these three types of vegetation are primarily present in the representations (*Figure 3.2.6*).[276]

[272] LMP 184 shows two sub-registers but is damaged at the area where a hide would be. Both items of LMP 062B show no hide. If we were to count the number of hides, than the two items of LMP 049 and 3 items of LMP 188 were to be counted as one. Thus, of the 68 items 33 items show a hide which is slightly higher in percentage (48.53%). 25 items instead of 28 would be from Saqqara (75.76%) and the percentages for Giza (21.21%) and Dashur (3.03%) would slightly increase.
[273] Saqqara is 28 out of 44; Giza is 7 out of 20; Dashur is 1 out of 1.
[274] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V: Bas-Relief et Peintures: Scènes de la Vie Quotidienne, p. 348.
[275] Ibidem, p. 348.
[276] Schoske, S., Kreissl, B., and Germer, R. (1992). *"Anch," Blumen für das Leben: Pflanzen im alten Ägypten,* p. 6, 10.

129.19
C. alopecuroides Rottb.
(= Juncellus alopecuroides C. B. Cl. Chlorocyperus alopecuroides (Rottb.) Grossh.) [family CYPERACEAE].

129.21
C. papyrus L.
[family CYPERACEAE].



124.20
P. australis (Cav.) Trin. Ex Steud.
(= Arundo phragmites L., A. australis Cav., P. communis Trin., P. vulgaris (Lam.) Bonnet) [family GRAMINEAE] [277]

Figure 3.2.6. The three types of plants mentioned by Schoske, S., Kreissl, B., Germer, R. (1992). The drawings and texts are from Germer, R. (1985). *Flora des Pharaonischen Ägypten* and Täckholm, V. (1974). *Students' Flora of Egypt.*

Our knowledge about the vegetation is based on the combination of substantial finds in the tombs, paintings and relief, and written information.[278] As such it is interesting to mention that, according to the codex by Vartavan and Asensi Amoros, no remains of the *Cyperus alopecuroides* (Foxtail Sedge) have yet been found belonging to the OK.[279] The *Cyperus alopecuroides* is also much shorter than the other two (with 50–150 cm long triangular stems). Supporting these facts, during visual examination of the representations, no identification of this species of the family *Cyperaceae* was made (*Figure 3.2.6*). The visual examination was based on several characteristics of the plants. As such, the giant plant *C. papyrus L.* is leafless[280] compared to the *P. australis* which obtains numerous leaf-blades.[281] Another main characteristic of recognition is the long, silky hairs placed on the rachilla of the *P. australis*. One cannot specifically recognize the hairs, but the shape of these hairs is recognizable (cf. M17 in Gardiner's sign list, LMP

[277] Germer, R. (1985). *Flora des Pharaonischen Ägypten,* p. 206, 244 & 248. Germer re-used the drawings from Cook, C.D.K. et al. (1974). *Water plants of the World* (The Hague : Junk).
[278] Täckholm, V., Flora, in: Helck, W., and Otto, E. (1977). *Lexikon der Ägyptologie*, Bd. II, p. 267.
[279] Vartavan, C. de, and Amorós, V. A. (1997). *Codex of Ancient Egyptian Plant Remains*, p. 93-94.
[280] Even though the plant does not have real leafs, at the bottom of the stem bracts can occur. Germer, R. (1985). *Flora des Pharaonischen Ägypten,* p. 248.
[281] Täckholm, V. (1974). *Students' Flora of Egypt,* p. 697 & 790.

048 and 124.20 in *Figure 3.2.6*).[282] Concerning the *C. papyrus L*., the umbel at the ending of the stem showing numerous umbel rays is a recognizable characteristic.[283] Again, it is not always the specific umbel rays one can recognize but the shape of the umbel.[284]

Table 3.2.5 presents the items with 'hides'.[285] Vandier indicated that the identification of the hide is difficult, as it can be partially represented or very stylized or artificial.[286] The table shows a rather clear identification of the hide concerning the LMP numbers dated to the first half of the 5th dynasty. Clear lines, leaves and umbels are shown. Two exceptions are LMP 060 and 104, which are not detailed but both identified as *P. australis* (*Figure 3.2.7).* As with LMP 048, LMP 060 shows different vegetation on both sides of the net.[287] The *C. papyrus L*. is depicted at the end of the net, which is executed differently from the representation of the hide. The shape of the top of the stem resembles the rounded ending of LMP 049 and 054 and as such has been recognized as the same vegetation. LMP 104 resembles 060 and as such is also recognized as *P. australis*.

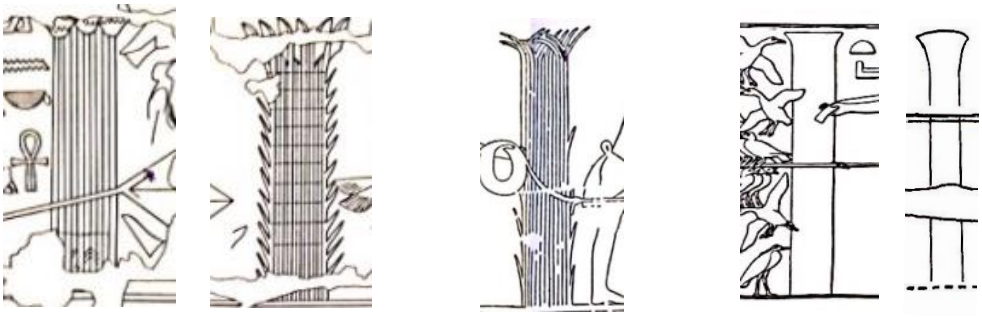


Figure 3.2.7. Hides. From left to right: LMP 048 (2x), 049, 060 and 104.

The identifications have led to the recognition of a possible change in the stylistic representation of the hide. The combination of the plates and *Table 3.2.5* show a change from a detailed depiction of the vegetation in the first half of the 5th dynasty towards roughly presented hides which resemble trees instead of water plants at the end of the 5th into the 6th dynasty. The first example is LMP 120 which resembles LMP 163 and

[282] Gardiner, A.H. Sir. (1957). *Egyptian Grammar: Being an Introduction to the Study of Hieroglyphs,* 3rd ed., p. 481.
[283] Täckholm, V. (1974). *Students' Flora of Egypt,* p. 790.
[284] LMP 048 in front of the net , LMP 060 behind the net and LMP 075.
[285] There is a group of items showing only the straight bottom border lines of the hide. Because they are unfinished, they have been classified as uncertain. These items are LMP 063B, 184, 217, 228a, 258a.
[286] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 348 ; Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 188, n. 139.
[287] *Table 3.2.4*. The net (or even the haulers and signalman) can be placed between two identical types of vegetation (LMP 045, 075, 190) and different types of vegetation (LMP 048, 060, 191).

190. With the exception of LMP 190, the items show a straight up plant with multiple leaves (*Figure 3.2.8*). If they truly can be identified as leaves as compared to for example LMP 049 in *Figure 3.2.7,* the possibility of the plant being papyrus is excluded. Still, being described as a tree in the literature, the identification remains rather uncertain.

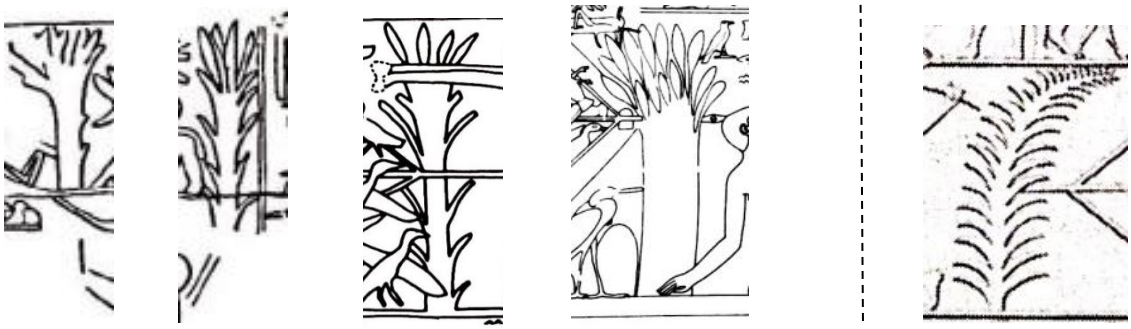


Figure 3.2.8. Hides resembling trees. From left to right: LMP 120 (2x), 163, 190 & 129.

Concerning the group of items above, there is another item that would be described as a tree, namely LMP 129 at Giza. Vandier questioned the line drawing made by Lepsius to be correct, as it is the only example where a bush is drawn with regular branches, bent at the top.[288] Lepsius did not recall the object and no description was found in the literature. Within the current data the closest resemblance is found with the group of items shown in *Figure 3.2.8*, as the branches are on either side until the top.[289]

LMP 136 shows a rather straight hide with the upper part widened. The top is crenelated and there is a butterfly shown in the middle of the vegetation. No clear identification is possible because it further contains insufficient details. Still, this type of hide is shown in LMP 183a and 191 but also in LMP 183, 184a and 188 (*Figures 3.2.9 & 10*). The hides are all broader at the top and bottom. They all have details at the end of the stem, either crenelated or showing crossing lines, and some have a butterfly on the top of the stem.[290]

[288] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 129.
[289] Not only the vegetation is rather exceptional, the signalman behind the object is also in an alternative position. See Chapter 3.4.2, p. 89.
[290] LMP 062B(?), 136, 184a, 188 (5x). LMP 190 shows a butterfly on aquatic plants between the haulers.

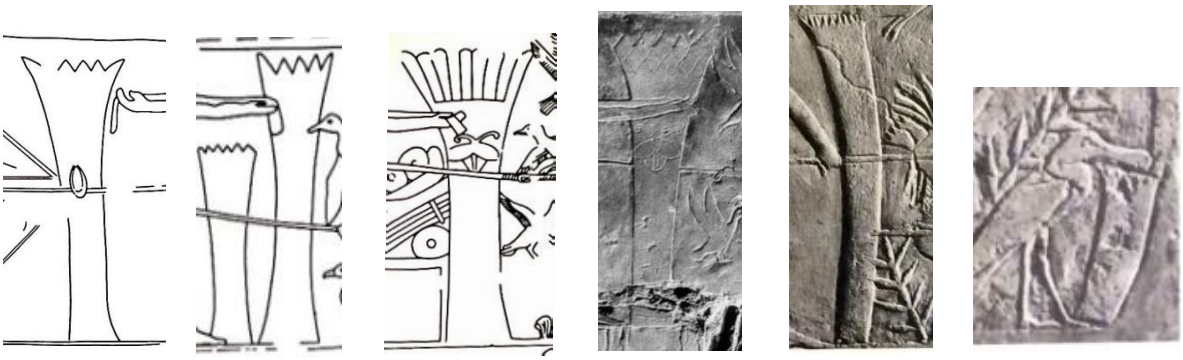


Figure 3.2.9. Hides with crenelated tops. From left to right: LMP 136, 183a, 184a, 188, 191 (2x).[291]

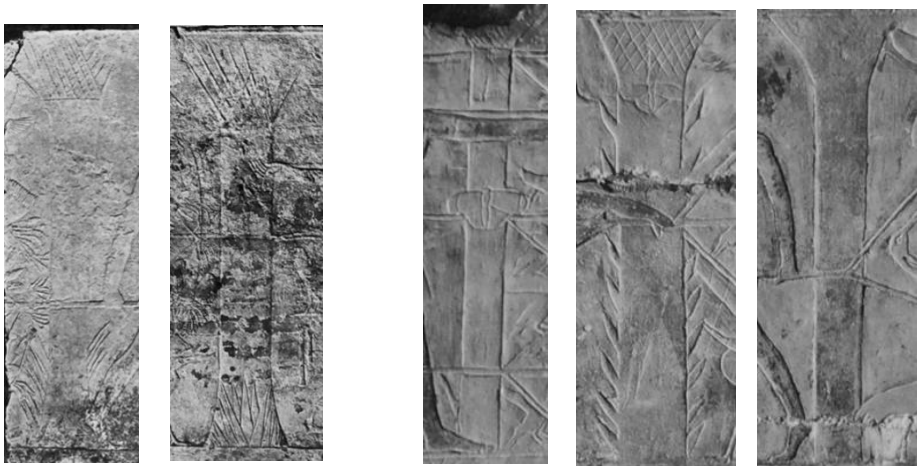


Figure 3.2.10. Hides with crossing lines at the top. From left to right: LMP 183 (2x) & 188 (3x).

The crenelated top (or umbel?) can be a result of the crossing lines as is shown in LMP 188 in *Figure 3.2.9*. Concerning LMP 183, Muschler identified the vegetation as a *Phoenix dactylifera L*. or rather date palm.[292] But according to Täckholm "the date palm is unknown in a wild state and has always been part of human culture".[293] If the 'artificial vegetation' argument by Vandier is applied, it should according to Wreszinski have supplemented the present vegetation rather than standing out. By arguing that the hide is a 'wall' or 'screen' which probably surrounded the pond, Wreszinski indirectly rejects the arguments of the hide being artificial. However, he does not fully reject the idea as he indicates that the surrounding could have been artificially closed.[294] LMP 183 could also

[291] In the photograph of LMP 190 the vegetation is shown at the end of the net. Wreszinski, W. (1936). *Atlas zur Altaegyptischen Kulturgeschichte,* Vol. 3, Lieferung 8, p. 166, pl. 80. Lower register: " […]Am rechten Rande ein bildhauerisch nicht aufgeführter Busch, wie überhaupt die rechten Enden dieser Bildstreifen nicht völlig durchgearbeitet sind."
[292] Muschler, R. in: Bissing, F.W. von et al. (1911), *Die Mastaba des Gem-Ni-Kai*, Bd. II, p. 42, Nr. 70.
[293] Täckholm, V., Flora, in: Helck, W., and Otto, E. (1977). *Lexikon der Ägyptologie*, Bd. II, p. 270.
[294] Wreszinski, W. (1936). *Atlas zur Altaegyptischen Kulturgeschichte,* Vol. 3, Lieferung 4, p. 77, 149. Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 188, n. 139.

be identified as a *C. papyrus L*. as the bracts are shown at the bottom of the stem. The top with crossing lines could resemble the umbel as shown in LMP 075. Yet, the similar hide in LMP 188, middle register, shows a resemblance to the *P. australis* because of the 'leaves on the side' (cf. LMP 048). The presence of a butterfly does not fully contribute to the identification of the vegetation, besides their presence in wetland/marshland representations.[295] The ecology of butterflies nowadays in Egypt reveals that the habitat of the butterfly is often arid areas, but humid areas are not excluded. Butterflies can be found in grass, desert or swamp habitats and have often flowers as their host-plant.[296] Concerning common reed, Skorka et al. found that the height of the vegetation negatively effects butterfly species' richness and abundance. A possible explanation is that tall vegetation prevents flight among flowers.[297] They also stated that if vegetation is very tall not every flower is in fact available, because some plant species overgrow others. This aggressive growth is known with the *P. australis*.[298] Still, this does not exclude the presence of these insects on reeds or papyrus, and as such leaves the question open to identifying the type of vegetation. Hence, no unambiguous identification was made concerning the vegetation in *Figure 3.2.9* and *3.2.10*. What can be stated from the current data concerning butterflies is that 5 items in 3 tombs obtain a (out of proportion) butterfly on a 'hide'. There are 5 items showing the butterfly on another location in the scene[299] and 3 items show different insects.[300] In all cases the butterfly is presented in a marsh scene, among plants or birds.[301] This variation in representation (butterfly on a hide) is rare, as it only occurs in 7.04% of all items and in 6% of the tombs. Of the 36 items showing a hide, only 13.89% shows this variation making it not very essential.

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[295] Verhoeven, U., Schmetterling, in: Helck, W., and Otto, E. (1984). *Lexikon der Ägyptologie*, Bd. V, p. 663. LMP 136, 184a, 188 (3x).
[296] Gilbert, F., and Zalat, S.M. (2007). *Butterflies of Egypt: Atlas, Red Data listing and Conservation* (Cairo : Egyptian Environmental Affairs Agency).
[297] Skórka, P., Settele, J., and Woyciechowski, M. (2007). Effects of Management Cessation on Grassland Butterflies in Southern Poland, in: *Agriculture, Ecosystems and Environment*, Vol. 121, p. 322. They examined how the (independent) variables 'number of plant species, flower abundance and vegetation height' affects among others butterfly species richness (dependent variables). They found that the most important factors influencing butterfly abundance are the variables vegetation height (negative) and number of plant species (positive).
[298] Brewer, J.D. et al. (1994). *Domestic Plants and Animals,* p. 330.
[299] LMP 062B (2x), 188 (2x) & 190.
[300] Other insects are shown in LMP 188, 190 & 217. More specific, two grasshoppers are shown in LMP 190 and a dragonfly is shown in LMP 188, 190 & 217.
[301] Keimer, M.L. (1934). Pendeloques en Forme d'Insectes faisant partie de Colliers Égyptiens, in: *ASAE* 34 (1934), p. 108.

3.3. Long-legged waterfowl near the hexagonal net

Besides vegetation surrounding the net, different scenes show birds surrounding the net on the ground. These birds are depicted in their natural habitats, as they are eating[302] or nesting[303]. Interesting about these birds is that besides small waterfowl, also long-legged waterfowl are depicted. Of the 71 depictions of catching birds with a hexagonal net (50 tombs), 21 items are uncertain due to damage or no depiction of a net.[304] Twenty of the remaining 50 items show these long-legged waterfowl (*Table 3.3.1*). As 20 items is 28.17% of the total amount of items, the argument by Houlihan seems rather dim as he mentioned that "there is scarcely a scene in Egyptian art picturing the pursuit of the fowlers in the swamps that does not include at least one of these tamed aquatic birds wading in the shallows alongside of their clap-nets […].[305]

Notable from *Table 3.3.1* is that the largest number of items are found in tombs at Saqqara (85%). Nevertheless, the four locations found obtaining the fowling scene with a hexagonal net (FO,H) seem to, at least once, obtain a presentation of a long-legged water bird near the net. From Meidum, 1 out of the 6 items depicts a long-legged water bird (16.67%), at Giza 1 out of 20 (5%), and at Dashur 1 out of 1 (100%). With 17 out of 44, 38.64% is found at Saqqara. It is my opinion that one cannot state that the depiction of long-legged waterfowl near a hexagonal net is specific to a location. However, the large number of items from Saqqara point to a preference for this element at this location. By closer evaluation of the long-legged bird the number and position of the birds were indicated (*Table 3.3.2*).

Remarkable is the position of the long-legged waterfowl, as they are depicted 18 times on the register line and twice on the inner line of the oval shape or water (Chapter 3.2.1). As the birds within the water are generally depicted from the side, the water itself is depicted from above represented in full view.[306] The former also accounts for the birds on the register line as well as the figures surrounding the net. It is too simple to state that all depictions are presented from the side as there are several "perspective-

[302] Examples are LMP 002A, 002B & 054. All plates depict (presumably) two geese, on the register line, eating from the ground. LMP 042, 060, 184a, 190, 191 and 258a depict eating long-legged waterfowl, such as ibises and herons.
[303] LMP 190.
[304] LMP 001A, 002B(2x), 021(2x), 049, 051, 062a, 109, 111, 113, 116, 117, 120, 157(2x), 163, 184(3x), 186. Total of 21 items.
[305] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 13-14 .
[306] Montet, P. (1925), *Les Scènes de la Vie Privée,* p. 58.

like exceptions" among the representations, or in this specific case the birds.[307] For instance, the depiction of the European spoonbill *(Platalea leucorodia*) from the side is accompanied by the frontal image of its bill.[308]

However, there is no depiction thus far presenting the long-legged birds within the net.[309] One can conclude that the long-legged birds were either not the intended catch of the fowlers or this net was not the suitable tool for catching the long legged birds. The question remains however whether they had a function concerning fowling or just represented fauna in their natural habitat.

3.3.1. Types of long-legged waterfowl

The order *Ciconiiformes* (long-legged waterfowl) contains different families, namely the *Ardeidea* (Heron), *Balaenicipitidae* (Shoebills),[310] *Ciconiidae* (Storks) and *Threskiornithidae* (Ibises and spoonbills).[311] The families and species of long-legged waterfowl which lived in ancient Egypt were among others the heron under which the Grey Heron *(Ardea cinerea*), Great Egret (*Egretta alba*), Little Egret (*Egretta garzetta)*, Cattle Egret (*Ardeola ibis*), Night Heron *(Nycticorax nycticorax*) and the Bittern (*Botaurus stellaris*). But also the family *Threskiornithidae*, such as European Spoonbill (*Platalea leucorodia*), and the Glossy Ibis (*Plegadis falcinellus*).[312] Another bird family known in ancient Egypt, which was also attracted to marshlands, was the *Gruidae* (cranes) of the order *Gruiformes*, more specifically the *Anthropoides virgo* and *Grus grus*.[313]

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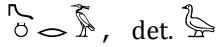
[307] Schäfer, H. (2002) *Principles of Egyptian Art*, p. 259-260. Fig. 275a & b have been found among the representation of birds. Examples are LMP 056, 149 & 183.
[308] LMP 191; Capart, J. (1907). *Une Rue de Tombeaux à Saqqarah*, Vol. 2, pl. LXXXV-LXXXIX.
[309] The only exception is LMP 188 showing a different kind of net with cranes.
[310] This family is often categorised under the order *Pelecaniformes;* family *Pelecanidae*. ETI BioInformatics (2005), De SoortenBank.nl <http://www.soortenbank.nl >. [Accessed on the 5th of December 2015]. Störk also mentioned the family *Scopidae* (Hamerkop), which is also categorised under the order (taxonomic rank) *Pelecaniformes*, species *Scopus umbretta* instead of the *Ciconiiformes*. Störk, L., Stelzvögel, in: Helck, W. ,and Otto, E. (1986). *Lexikon der Ägyptologie*, Bd. VI, p. 9.
[311] Störk, L., Stelzvögel, in: Helck, W. and Otto, E. (1986). *Lexikon der Ägyptologie*, Bd. VI, p. 9.
[312] There were more long-legged birds in ancient Egypt, such as the species Goliath heron, Purple heron and the Squacco heron but also species from the families *Ciconiidae* and *Balaencipitidae*. These families/species were not identified on the reliefs from the mentioned data and as such left out of the summery. Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 146-147.
[313] Störk, L., Stelzvögel, in: Helck, W., and Otto, E. (1986). *Lexikon der Ägyptologie*, Bd. VI, p. 9-10; Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 13-34, 83-88; Schüz, E. (1966). Über Stelzvögel (Ciconiiformes und Gruidae) im Alten Ägypten, in: *Die Vogelwarte 23,* Vol. 2, 263-283; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 106-115.

Based on the description by the publishers of the tombs, Houlihan[314], Mahmoud[315], Goodman and Meininger[316] and the online species databank concerning among others birds[317], the 20 items showing long-legged waterfowl were examined and identified. As Houlihan also indicated, with the absence of colour the identification of specific species of a family is often difficult.[318]

First, an overview of the long-legged waterfowl with their characteristics is given. Followed by a table representing the findings of the identification of the long-legged waterfowl. The former was done to support the identification of these waterfowl. Based on the visual examination 7 different species of *Ciconiiformes* have been found.[319]

Overview of families and species found

No. 1.	Latin	*Ardea Cinerea.*
	English	Grey heron
	German	Fishreiher
	Hieroglyphs/transliteration	 *ḥʿw*[320] Grey heron
		 *nwrw*[321] Heron
	Heights:	90-98 cm.
	Characteristics:	Differs from other herons by its large size, grey feathers, white head and neck, and a black line of feathers surrounding the eyes. Large yellow bill, large legs and neck. Its position is often motionless in water or along the waterside, with extended or retracted neck (creating the bulge shape of the neck). Indicator of an adult heron is a crest expanded from the back of the head.
	Distribution Egypt:	Nile Valley & Delta, Red Sea Coast, and the Dakhla, Kharga, and Siwa Oases.
	Residence period Egypt:	Winter (mid-August to early May). [322]

[314] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt* (Warminster: Aris & Phillips).
[315] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, in: *Europäische Hochschulschriften*, Reihe 38, Vol. 35 (Frankfurt am Main ; Bern ; New York ; Paris : Lang).
[316] Goodman, S.M. et al. (1989). *The Birds of Egypt* (Oxford, Oxford University Press).
[317] ETI BioInformatics (2005), De SoortenBank.nl <http://www.soortenbank.nl/soorten.php?soortengroep=vogels&menuentry=plaatjessleutel> [Accessed November -December 2015].
[318] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 13.
[319] The *Nycticorax nycticorax,* or Black-crowned Night heron has been added to the overview, based on some discussion concerning the identification of the birds.
[320] Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 288.
[321] Ibidem, p. 606.
[322] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 13; Distribution map by the 'SoortenBank.nl' ETI BioInformatics (2005), <http://www.soortenbank.nl/soorten.php?soortengroep =vogels&menuentry=atlas&id=33&tab=bekijken> [Accessed on the 5st of December 2015] combined with the specifics given by Goodman, S.M. et al. (1989). *The Birds of Egypt*, p. 140. Concerning the other bird species, the same documents and webpage have been consulted.

Figure 3.3.1a

Figure 3.3.1b

No. 2.

Latin	*Egretta Alba*[323] currently known as *Ardea Alba*[324]
English:	Great Egret
German:	Silberreiher
Hieroglyphs:	 *sdꜣ*[325]
Heights:	85-100 cm.
Characteristics:	Long slender neck, long pointed, yellow bill, and the unmistakable wholly white plumage and slender body. The long legs are black. The *Egretta garzetta* resembles the Great Egret but is clearly smaller and has a black bill.
Distribution Egypt:	Nile Delta, Faiyum and Suez Canal, and along the Red Sea coast.
Residence period Egypt:	Winter (early September to late March or mid-May).

Figure 3.3.2a

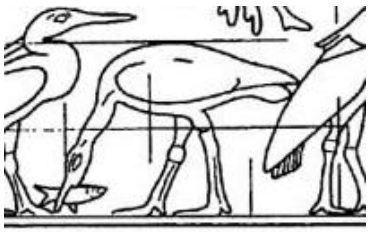


Figure 3.3.2b

Figure 3.3.2c

[323] Linnaeus, C. (1758), *Systema Naturae*, ed. 10(1), p.144.
[324] Kushlan, J.A., Hancock, J.A., and Thelwell, D. (2005) *The Herons* (Oxford), p. 96.
[325] Hannig, R. (2003). *Ägyptisches Wörterbuch I,* p. 1270.

No. 3. Latin *Nycticorax nycticorax*
English Black-crowned Night heron
German Nachtreiher
Hieroglyphs/Translit.  *rꜣ-šꜣw* [M.K][326]

Heights: 58-65 cm.
Characteristics: Black-crowned Night heron is a stocky bird with a short, thick neck compared to other heron relatives. Relatively short yellowish legs, firm black bill and grey and black plumage. Indicators of an adult Night heron are its black back, black crown and multiple long white crest plumes.
Distribution in Egypt: Breeding in the Nile Valley (and Delta, and the Faiyum). During the winter in the Nile Valley and Delta, and the Faiyum.
Residence period Egypt: Resident bird and winter visitor (from mid–August to late May).

Figure 3.3.3. No line drawing found.

No. 4. Latin *Botaurus stellaris*
English: (Eurasian or Great) Bittern
German: Rohrdommel
Hieroglyphs:  *kꜣpw* [M.K][327]

Heights: 70-80 cm.
Characteristics: A yellow-brownish, black speckled bird with a hunched stance, or rather stocky build, relatively long bill, legs and toes. When disturbed it will point its bill directly upwards and freezes in that position, causing it to blend into the surrounding reeds. This is known as the *bittern position* or the defensive posture.
Distribution Egypt: The Nile delta, the Faiyum and the area of the Suez Canal.
Residence period Egypt: Winter (early September until early May).

[326] Erman, A., and Grapow, H. (1928). *Wörterbuch der Aegyptischen Sprache*, Bd. 2-II, p. 399.3 ; Hannig, R. (2006). *Ägyptisches Wörterbuch II. Mittleres Reich und Zweite Zwischenzeit*, Vol. 1, p. 1455. The name is not known from the Old Kingdom.
[327] Erman, A., and Grapow, H. (1928). *Wörterbuch der Aegyptischen Sprache,* Bd. 2-II, p. 105.2; Hannig, R. (2006). *Ägyptisches Wörterbuch II,* Vol. 2, p. 2562. The name could also refer to the Squacco Heron. Name is not known from the Old Kingdom.

Figure 3.3.4a

Figure 3.3.4b

No. 5	Latin	*Platalea leucorodia*
	English	European Spoonbill
	German	Löffler
	Hieroglyphs/Translit.	?
	Heights:	86 cm.
	Characteristics:	The body is entirely covered with white body plumage. Both legs and bill are black, but the tip of the bill is yellow. The bill is shaped like a long spoon. Identification of an adult spoonbill: yellow spot on its chest.
	Distribution in Egypt:	Nile Valley, Delta, Faiyum, and along the Red Sea coast.
	Residence period Egypt:	Winter (early September to late May).

Figure 3.3.5a

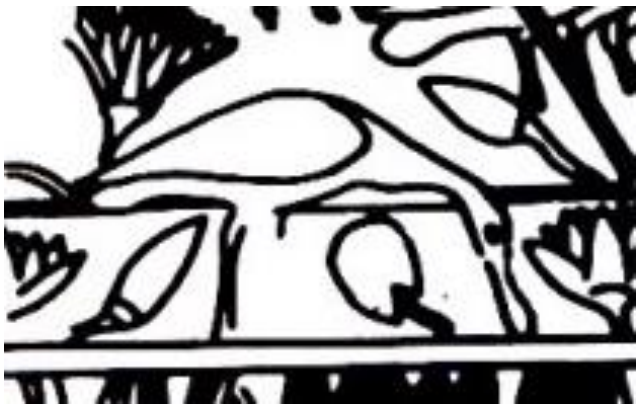


Figure 3.3.5b

No. 6	Latin	*Plegadis falcinellus*
	English	Glossy ibis
	German	Sichler
	Hieroglyphs/Translit.	 gmt [328]
	Heights:	55-65 cm.
	Characteristics:	Unmistakable long slender bowed (sickle-shape) bill, long legs, and neck. Generally black plumage, but with a gloss on the upper back and wings.
	Distribution in Egypt:	The Nile Valley and Delta, Faiyum, and along the Red Sea cost.
	Residence period Egypt:	Winter (Mid-August to mid-November and from early February to early May).

Figure 3.3.6a

Figure 3.3.6b

No. 7.	Latin	*Grus grus*
	English	Common crane
	German	Kranich
	Hieroglyphs/Translit.	 *ḏ3t*[329]; *ʿ(i)w*[330]; *g3*[331]
	Heights:	110-120 cm.
	Characteristics:	Long bill (although shorter than herons), neck, legs, and extended secondary black feathers which hang over the tail. He has a white and black band on the side of its head and neck. A red spot is visible on their crown.
	Distribution in Egypt:	Nile Valley, and northern Delta.
	Residence period Egypt:	Winter (September to early December and early March to late April).

[328] Hannig, R. (2003). *Ägyptisches Wörterbuch I,* p. 1366.
[329] Ibidem, p. 1491.
[330] Ibid., p. 261; Birgelen, P.A. van (2006). *De Vogelprocessie- en Volièrescènes in de Privégraven van het Oude Rijk : een Iconografische Beschrijving*, Vol. 1, p. 11. According to Hannig "Graukranich-Jungvogel (Grus grus juv. *mit andere Färbung*)", but according to Van Birgelen one cannot differentiate between the representations of the birds in reliefs.
[331] Hannig, R. (2003). *Ägyptisches Wörterbuch I,* p. 1363. Also written with a basket sign with long handle/thread hanging from the basket.

Figure 3.3.7a

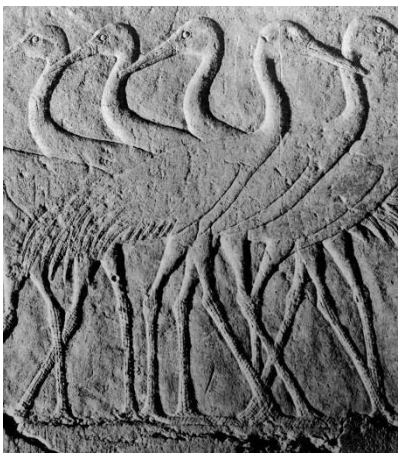


Figure 3.3.7b

No. 8.

Latin		*Anthropoides virgo*
English		Demoiselle Crane
German		Jungfernkranich
Hieroglyphs/Translit.		*wḏ*[332]
Heights:		80-90 cm.
Characteristics:		Demoiselle Cranes are the smallest crane species. They have long necks and black legs. The bill is quite short. They have extended breast feathers, a crest on the back of their heads, as well as secondary feathers hanging over their tails. They do not have a red spot on their crown
Distribution in Egypt:		The Nile Valley and Delta, and in the Dakhla and Kharga Oases.
Residence period Egypt:		Winter

Figure 3.3.8a

Figure 3.3.8b

[332] Hannig, R. (2003). *Ägyptisches Wörterbuch I,* p. 402.

Table 3.3.3. *Identification of the long-legged waterfowl found in the Old Kingdom tombs*.

LMP No.	No. of birds	Type of birds Latin	Type of birds English	Notes
002c	1	*Ardea cinerea*	Grey Heron	With the clear depiction of the crest and indication of a darker colours and white chest this is possibly a Grey heron.[333]
042	2	*Platalea leucorodia - Ardea sp.*	Spoonbill – Heron	Van de Walle indicated that the bird represented at the right corner was an ibis, remaining quite indifferent to what was happening around him. Though, the long bill, legs and bulge shape of the neck indicate a heron.[334]
045	1	*Ardea sp.*	Heron	With the line drawing it is difficult to identify the bird, but it has long legs and a long neck. It even seems to have an indication of a crest.[335]
049	2	*Ardea cinerea - Botaurus stellaris*	Grey Heron - Bittern	The crest is indicated as being coloured dark (black) which is characteristic of the adult Grey heron.[336]
054	2	*2x Botaurus stellaris*	2x Bittern	Mahmoud described a bittern and heron, but both birds have the characteristics of the hunched stance and stocky build.[337]
060	10	*6 x Ardea cinerea - 2x Platalea leucorodia - 1 x Ardea sp. - 1x unclear(?)*	*From L to R:* Grey heron - Spoonbill - Grey Heron - Egret(?) - Grey heron - Quail(?) - 2x Grey heron - Spoonbill - Grey heron	The smaller bird in he middle is difficult to identify, but is presumably a quail. Though a Night heron is smaller in seize and bill than the Grey heron, it is still difficult to veryfy that this bird represents this specie.[338] The 4th bird from the left is indicated to be a heron. Though, because no colour or significant fieatures are present, this bird could also be an egret as it can resemble among others the 4th bird from the left on LMP 184a.
062B	1	*Ardea cinerea*	Grey Heron	Indicators are the crest and the bulge of the neck.
063B	1	*Ardea sp.*	Heron(?)	Fragmentary; clear identification of the family not possible, although it is most likely a heron.
065	1	*Ardea cinerea*	Grey heron	Indicators are the crest of the heron, the bulge of the neck with presumably some plumage on the bulge.[339]
139	1	*Ardea cinerea*	Grey heron	On the right, in a motionless position, stands a heron between the net and the vegetation covering the haulers. It has a long bill, crest and a drawn back neck indicating the Grey heron.

[333] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 15 & 176, n. 78; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 111.
[334] Walle, B. van de (1978). *La Chapelle funéraire de Neferirtenef*, p. 72, pl. 13; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 111.
[335] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 111.
[336] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 21; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 111.
[337] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 108 & 111.
[338] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 34 & 178, n. 196.
[339] Ibidem, p. 21; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 111.

141	2	*Ardea sp. - Platalea leucorodia*	Heron - Spoonbill	Mahmoud described the left figure as a bittern, but the sharp silhouette of the retracted head and neck of bird (creating a bulge) are characteristics for a heron.[340]
183	6	*3x Ardea cinerea - 3x Botaurus stellaris*	*From L to R:* Heron -Bittern Heron -Bittern Bittern - Heron.	Von Bissing indicated that the birds underneath the net were cranes and herons. He even specified that the first bird is a crane, which seems to detect danger as it has opened its mouth. Still, the silhouettes and characteristics of the birds seem to indicate herons and bitterns.[341] Hence no cranes. The first bird can be identified as a heron, as it resembles the other herons in the same representation and can be compared to a crane from LMP 188.
184a	5	*Plegadis falcinellus - Platalea leucorodia - Plegadis falcinellus (?) - Egretta sp. (?) -Ardea sp.*	Ibis - Spoonbill - Ibis(?) - Egret(?) – Heron	Kanawati & Abder-Raziq were correct in doubting the last (right) bird underneath the net. They question if it was a bittern or Night heron. The line drawing would confirm that the bird is a bittern, but if you look closer at the photograph you will recognize the characteristics (bulge & neck) of the heron. Also the possibility of a Night heron is doubtful as this bird has a rather stout and shorter bill compared to a Grey heron. The photo and line drawing show a rather thin long bill. Equally ambiguous is the bird in front of the signalman.[342]
188	3 (?)	*Ardea cinerea - Ardea sp. - Pelecanus or Plegadis falcinellus (?)*	Grey Heron - Heron - Pelican or ibis(?)	Altenmüller indicated that underneath the net a Grey heron, Night heron and a pelican were depicted. Much of the last two birds have been damaged to confirm this statement. The second bird could also be another Grey heron as it has a crest. If the depicted size resembles the reality, a Night heron cannot be excluded. The third bird could be an ibis as it resembles LMP 184a & LMP 190.[343]
188	2	*2 x Ardea sp.*	2x Heron	According to Altenmüller the two birds are a Night heron (*Nycritorax*) and Grey heron (*Ardea cinerea*). He indicated the difference in size, which could indicate different species within the family. Houlihan did not specifically indicate this difference in size but described that "in the absence of specific plumage

[340] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 107,109 & 111. Three description given by Mahmoud for only two birds. Characteristics of the heron can be found in Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 13, 34 & 178, n. 196.
[341] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 21 & 177, n. 109; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 108.
[342] Kanawati, N., and Abder-Raziq, M. (1999). *The Teti Cemetery at Saqqara V*: The Tomb of Hesi, p. 29-32, pl. 20-26, 55. According to Houlihan the bird in front of the signalman obtains the characteristics of a Heron, which are a long bill and neck, folded in a bulge; Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 13 & 18.
[343] Altenmüller, H. (1998). *Die Wanddarstellungen im Grab des Mehu in Saqqara*, p. 135; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 111.

				characteristic, we cannot recognize them [Night Heron] as such."[344]
188	4	*Anthropoides virgo - Ardea cinere. - Grus grus - Ardea cinerea*	*From L to R:* Demoiselle crane - Grey heron - Common Crane - Grey heron.	According to Altenmüller the long-legged birds are from left to right: Demoiselle crane (*Anthropoides virgo*), Night heron, Crane (*Grus grus*), Grey heron. Closer look of the relief shows no difference between the two birds of the family *Ardea sp*, besides position of the head. Both are depicted with a bulge of the neck and a crest. As such both have been identified as Grey herons.[345]
190	3	*2x Plegadis falcinellus - Ardea cinerea*	2 x Glossy ibises - Grey heron	Two ibises in natural habitat besides a larger depicted heron with the drawn back neck (Kanawati). Kanawati and Badawy made different line drawings of the scene. Still, the identification remains the same.[346]
191	4	*Ardea cinerea -2 x Plegadis falcinellus - Platalea leucorodia*	*From L to R:* Grey heron, 2x Egret(?) - Spoonbill.	According to the characteristics mentioned by Houlihan the bird at the end of the net (right) is a European Spoonbill. The two birds in the middle, bend forwards, resemble an egret as well as a heron. As there is no colour or specific features such as a crest identification is difficult.[347] As the crest is omitted, the bodies are slim, and the neck and bill long, these birds are more likely to be egrets.
217	1+x	*?*	?	No clear identification possible. The bird has a long bill and something on his head.
258a	1+x	*Ardea sp.*	Heron or Egret(?)	The line drawing of the hexagonal net is fragmentary and very scarce. The most common long-legged bird is the heron, but it could also be an egret. The position of the bird resembles LMP 060, LMP 184a & LMP 191.
Total: 20	***53+x***			

With 26 items out of the 53, or rather 49.06%, the gender *Ardea* is unmistakably the most common long-legged bird depicted near the hexagonal net. Besides the *Ardea sp.* clear identification of 6 spoonbills as well as 6 bittern has been made (11.32%). Two other species can be identified with certainty; 3 Glossy ibises and 2 cranes (5.66% & 3.77%). The birds which were difficult to identify have been counted as uncertain, resulting in 10 out of 53 items, or 18.87%. Of these 10 birds, 5 have been questioned if

[344] Altenmüller, H. (1998). *Grab des Mehu in Saqqara*, p. 93, pl. 7; Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 20.
[345] Altenmüller, H. (1998). *Grab des Mehu in Saqqara*, p. 93, pl. 7; Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 83.
[346] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 27 & 177, n. 148; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 111. For the difference in line drawing see Badawy, A. (1978). *The Tomb of Nyhetep-Ptah at Giza and the Tomb of 'Ankhmáhor at Saqqara*, p. 23-25, fig. 33, pl. 41; Kanawati, N., Hassan, S., and Cavanagh, A. (1997). *The Teti Cemetery at Saqqara II*: The Tomb of Anchmahor, p. 36-37, pl. 8-9, 42.
[347] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 34 & 178, n. 196.

they could be egrets.[348] The *Egretta Alba,* as it was later redefined to the gender *Ardea,* resembles the Grey heron. The features which can differentiate the two birds are the crest which elongated from the head of the heron, optional chest feathers and colour. As the latter is not (often) present, the representations which do not depict the specific features are questioned being a Grey heron. Two of these representations are identified as herons, based on their motionless position in water or alongside the water with an extended or retracted neck.[349] The remaining 5 questionable birds are all positioned bend forward, in a walking position, with their neck stretched towards the ground. The latter indicates they are looking for food, as some have caught fish. Still, this corresponding depiction, even though interesting, does not fully verify the identification of an egret.

This brings us to the question why these birds are depicted near a hexagonal net. Montet addressed this issue by questioning if these birds where there freely or placed by the fowlers to ensure the catching of wild water birds. He enhanced the later possibility by discussing a scene from the tomb of Ti, where a long-legged water bird is placed among the provisions and accessories concerning the catching of birds. The leg of the bird is attached to a peg. Montet mentioned that the long-legged water bird wanders, as if knowing the surroundings near fowlers and among various objects, without thinking to run away, similar to real auxiliary staff.[350] Solely based on this depiction in the tomb of Ti, Montet addressed the issue of the heron being domesticated. The hypothesis by Montet was supported by Vandier, where Vandier drew a positive comparison between the long-legged water bird attached to the peg in the tomb of Ti and the long-legged waterfowl present near *open* nets. Thus, Vandier agreed with the assumption by Montet that long-legged waterfowl were prepared and placed near the (open) net to reassure the catching of water birds.[351] The first pronunciation of the word decoy is mentioned by Vandier, as he presents a summary of tombs obtaining long-legged waterfowl as decoys.[352]

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[348] LMP. 060, 184a, 191 (2x), 258a.
[349] LMP 042 & 141.
[350] Montet, P. (1925). *Scenes de la Vie Privee*, p. 58.
[351] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 330.
[352] Ibidem, p. 348. To explain the type of long-legged water bird, in this case the heron, Vandier referred to S. Schott in a footnote illustrating Schotts' hypothesis of the heron being a religious animal linked to the hereafter. The deceased could transform himself into a heron and as such could not be dragged to the place of torment. He used this theory to explain why a heron could not be caught in the net. This would

Houlihan also indicated that the fowlers domesticated the heron to function as a decoy and lure waterfowl into their nets. He argued that "as wild herons are generally cautious and wary of the ways of man, they tend to be quite selective of the areas they choose to frequent, and it is probably for this reason that other birds seeking a place of refuge are attracted to their immediate environment."[353] He also indicated that the heron was the most popular long-legged bird used as a decoy. Interesting enough, according to Kushlan et al. the heron is known to be very tolerant of humans and can easily adapt to the human landscape.[354] How does this correspond with the caution and mistrust of man mentioned by Houlihan? Another possible explanation for the symbiosis is given by Crozier and Cawlik. They mentioned that long-legged water birds feed in groups and look for high quality foraging areas over a large spatial area. This could reduce the search time for other water birds in locating foraging areas and food.[355] Nonetheless, the connection between water birds and the long-legged water birds as decoys was not unfamiliar. Markham already mentioned in 1621 that one who wants to catch a large number of wild water birds, one needs a "life *Heron* (formerly taken) for a Stale".[356] Even though this symbiosis is not yet scientifically explained, it remains that, according to the research by Krebs (1974), birds seem to be more attracted to areas with long-legged birds as decoys than areas without decoys. Krebs even found that the number of attracted birds also depends on the numbers of decoys.[357] These arguments explain the benefits and reason to use long-legged birds during catching water birds, but it does not explain the identification of these decoys on the representations.

The drawn comparison by Vandier between the long-legged water bird from the tomb of Ti and the ones near the net was based on one example and the resemblance was seemingly based on the birds' pose. Notable from the data concerning the long-legged birds are their position in comparison to the net, their size and their pose. In 7

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according to Vandier be the reason why a heron would have been chosen as a decoy. This linkage is void as Schott combined different periods (OK and MK) and religious Coffin texts with tomb reliefs. Despite that, Vandier did not argue why, based on the reliefs, the long-legged waterfowl resembled decoys. Solely that they could be caught in nets and that they could lure wild water birds.

[353] Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 15.

[354] Kushlan, J.A. et al. (2005) *The Herons*, p. 3.

[355] Crozier, G.E., and Gawlik, D.E. (Winter, 2003). The Use of Decoys as a Research Tool for Attracting Wading Birds, in: *Journal of Field Ornithology*, Vol. 74, No. 1, p. 58.

[356] Markham, G. (1621). *Hunger Preuention*, p. 14-15.

[357] Crozier, G.E., and Gawlik, D.E. (Winter, 2003). The Use of Decoys as a Research Tool, p. 53.

items a clear difference is notable between birds occupied with foraging (natural habitat) and larger birds in a motionless, calm position (called *standing*) (*Table 3.3.4*).[358]

As LMP 258a is fragmentary and the line drawing only depicts a crouching or rather bent bird in natural habitat, it is uncertain if any standing long-legged bird is depicted. As such, 26.76% shows the representation of a long-legged water bird in *standing position*. Concerning LMP 060 and LMP 183, within these scenes it is difficult to separate the birds based on their poses. They have been positioned behind each other "underneath" the net. Regarding LMP 060, one can separate the two birds eating fish and possibly a quail from the others.[359] The remaining seven birds all hold the same position. In LMP 183 all birds are positioned behind each other in the same position, with exception from the first bird. It seems the bird is sensing danger as it assumes an alert upright posture, with its head and neck out and bill open, giving possibly a threat call.[360] Because the birds are shown in a standing position, they, the six and seven birds depicted in LMP 060 and 183, have been incorporated into the count of the birds. Thus, 24 of the *standing birds* are herons, 6 are bittern, 4 are spoonbills, and 2 remain uncertain. Increased to 66.67%, the heron is the most common depicted long-legged bird in standing position.

Concerning the position of the long-legged birds, remarkable is that when two birds are present, they are constantly positioned in the front and back of the net (left & right), covering the length of the net. This depiction of two birds at each corner of the net (as well as the multiple birds in LMP 182) gives the impression of symmetry. It balances the representation of the net. If only one bird is present, it is either at the front or the back (never the middle). In the data found a slight preference is appointed to the front position, namely 7 out of 11 items (63.64%).

Immediately notable from *Table 3.3.4* is that in the case one bird is depicted near the net it is, with the exception of the uncertain items, always a heron. If more birds are

[358] LMP 042, 060, 184a, 188 (2x), 190, 191. Total of 7 items. This difference is also made by Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 348; Kushlan, J. A. 2011. *The Terminology of Courtship*, p. 3, 6, 8-9. <www.HeronConservation.org> [Accessed on the 15th of December]; Whymper, C. (1909). *Egyptian Birds. For the most part seen in the Nile Valley*, p. 153.

[359] Concerning the small bird identified as a quail, it resembles the depiction of a quail in Kanawati N., et al. (2010). *Mereruka and his Family, Part III:1.* The Tomb of Mereruka, pl. 67 and Wild, H. (1953). *Le Tombeau de Ti*, Fasc II, pl. CXVI.

[360] Kushlan, J. A. (2011). *The Terminology of Courtship*, p. 3. <www.HeronConservation.org> [Accessed on the 15th of December]. Compare LMP 188 where a Grey Heron is depicted with a turned head and open bill.

present, a combination between the spoonbill and bittern with a heron is shown. With the exception of LMP 054, at least one heron is always present. This indicates that in the convention of showing a long-legged water bird near the net, the heron is highly preferred. Still, as the depiction of the bird only occurs 26.76%, the possibility of it being a decoration 'rule' is refuted.[361] The variation lies in the combination of different species, from two birds to multiple birds. This variation started to occur at the end of the 5th dynasty, which coincides with the increase diversity recognized around the time of the reign of Neferirkare until Djedkare Izezi.[362] Still, this feature has a limitation in variation as the choice of species is restricted to two (besides the heron), namely a spoonbill or bittern.[363]

The described *standing position* besides a fowler is shown in the mentioned tomb of Ti. Similar representations are found in 5 other items in 4 tombs.[364] No less than 5 out of the 6 items are Grey herons and the one found in the tomb of Ti is a bittern. The latter clearly shows a bittern bound by a rope on his left leg to a peg, standing beside a fowler who sits on the ground holding the wings of a duck.[365] On the other side remains a pile of attributes. This scene is depicted on a separate register within the register representing the hexagonal net. The net is closed as the fowlers are gathering birds. The haulers are lying on the ground with their upper body bend backwards. LMP 184 (tomb of Methethi), LMP 190 (tomb of Ankhmahor) and LMP 191 (tomb of Neferseschem-Ptah) resemble the scene in the tomb of Ti. The heron in the tomb of Neferseschem-Ptah is also depicted on a separate register, in the middle of attributes, next to a fowler holding the wings of a duck. Again the net seems closed as fowlers are running towards the net to gather the birds. Equally, the haulers are depicted lying on the ground.[366] The tomb of Ankhmahor shows two herons. The one next to a crate with caught birds resembles the

[361] 19 items out of 71 items.
[362] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 123; Staring, N. (2009). Fixed Rules of Personal Choice? On the Composition and Arrangement of Daily Life Scenes in Old Kingdom Elite Tombs, in: Strudwick, N. & Strudwick, H. *Old Kingdom, New Perspectives: Egyptian Art and Archaeology 2750-2150 BC,* p. 269. Staring indicated that, even though tombs continued to be built at Giza, "Increasing diversity was, however, confined remarkably primarily to Saqqara tombs" but he does not excludes the possibility for unique features to occur at Giza. LMP 141 would be an example concerning the combination of bird species in Giza.
[363] There were more long-legged birds in ancient Egypt, such as the species Goliath heron, Purple heron and the Squacco heron but also species from the families *Ciconiidae* and *Balaencipitidae*. Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 146-147.
[364] LMP 049, 184, 184a, 190 (2x), 191. Total of 6 items.
[365] Wild, H. (1953). *Le Tombeau de Ti*, Fasc II, pl. CXXII; Montet, P. (1925). *Scenes de la Vie Privee*, p. 58; Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 330.
[366] Capart, J.(1907). *Une Rue de Tombeaux à Saqqarah*, Vol. 2, pl. LXXXVII.

earlier mentioned depiction of this bird. The only element missing is the representation of a fowler holding the wings of ducks. The second bird is depicted between the legs of the haulers. Both birds seem to be bound by a rope on their legs but there is no peg represented.[367] The heron in the tomb of Methethi is placed on a separate register, overviewing the fowlers placing water birds in boxes and presenting them to a scribe.[368] The heron in the tomb of Hesi (LMP 184a) is sitting on a box between the haulers and the signalman, resembling the heron near the net. No separate register is incorporated, but behind the signalman another box is depicted carrying attributes required for catching birds.[369] LMP 184a seems to be the only item which deviates from the general depiction of this long-legged bird on a separated register near a closed net. The haulers are still standing, holding their arms in front of them, ready to pull.

Nonetheless, all birds are depicted in the same standing position which bears a resemblance to several birds depicted near the nets (36+x items in *Table 3.3.4*). As such, the argument of resemblance by Vandier can be accepted.[370] Based on the statements by Montet, Mahmoud referred to the denoted representation in the tomb of Ti but also to a representation in the tomb of Kawab to prove their role as decoys.[371] He agrees with Montet that the calm position is a result of domestication. The standing position, correctly described as calm, is also a natural pose mostly used during feeding.[372] Long-legged waterfowl feeding behaviour entails standing still in one place waiting for a prey to emerge. According to Kushlan "it is the most common behaviour among herons and one that characterizes best the fundamental adaptive suite of the group. Herons stand in shallow water, on perches next to or over the water, on land, on emergent or floating plants, on a rock, or even on mobile platforms such as large animals. […] From the standing position herons can view a wide area for potential prey, competitors, and predators."[373] The position of these birds in the tombs, of which 66.67% is a heron

[367] Badawy, A. (1978). *The Tomb of Nyhetep-Ptah*, p. 23-25, fig. 33; Kanawati, N. et al. (1997). The Tomb of Anchmahor, p. 36-37, pl. 42.
[368] Ziegler, C. (1990). *Catalogue des Stèles, Peintures et Reliefs Égyptiens de l'Ancien Empire et de la Première Période Intermédiaire vers 2686-2040 avant J.-C.*, p. 128
[369] Kanawati, N., and Abder-Raziq, M. (1999). The Tomb of Hesi, pl. 55.
[370] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 330.
[371] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 108, 112; Simspon, W.K. (1978). *The Mastaba of Kawab, KhafKhufu I and II*, fig. 11, pl. VI-d.
[372] Kushlan, J. A. (2011). *The Terminology of Courtship*, p. 3, 8-9. <www.HeronConservation.org> [Accessed on the 15th of December]. The standing position by herons is used during feeding, courtship and nesting as well as inspecting the area.
[373] Ibidem, p. 8-9. <www.HeronConservation.org> [Accessed on the 15th of December]; Whymper, C. (1909). *Egyptian Birds*, p. 153.

(*Table 3.3.4*), is a well-represented position known from nature. As such, it is unlikely that this position is due to the domestication of the bird. Another argument given by Vandier is that these long-legged waterfowl are represented near open nets.[374] By examining the haulers positions as well as the absence of the fowlers gathering the birds in all 20 items, every depiction shows the haulers either waiting to pull or just in position. Once the net is closed, the presence of a long-legged bird near the net is lacking. As for the 6 mentioned long-legged birds, they appear among accessories, provision and near fowlers either caging birds or folding the wings of birds. The haulers have pulled the net in order to close it. Combining these findings, one can only state that during the presence of long-legged birds the hexagonal net is not yet closed.

Thus, based on the mentioned findings, the long-legged birds deviated from the net and the birds near the net show the same natural pose. The long-legged birds are represented when the net is open as the haulers are either waiting to pull or just in position. The 6 birds represented either on a separate register or among the haulers are twice shown being bound by their legs with a rope (LMP 049 and 184a). And 5 of the 6 birds are represented on a separate register in the scene where haulers are lying on the ground, closing the net. If the sequence of the scenery is used as an argument, one could state that the birds were placed near the net to lure the water birds, and once closed they would not be necessary anymore and gathered again, bound to a peg among the other fowling accessories. But the long-legged birds could just as well belong to the natural flora and fauna of the scene, and they could have simply flown away once the net was being closed, as movement concerning and surrounding the net could scare off animals.[375]

In the literature the argument for a decoy is acknowledged as authors mention the function of the heron as decoy. Still they do not always validate this conclusion by omitting their arguments or references.[376] Without the proper argumentation or

[374] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 330.
[375] Montet, P. (1914). La Chasse au Filet, in: *BIFAO 11*, p. 146.
[376] Harpur , Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 178. Harpur refers, concerning the identification of the Grey Heron, in her footnotes to the plates by Petrie, W.M. F. Sir (1892). *Medum*, pl. XXVIII[7] and Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, pl. XIX, fig. 153. She does not explain why these birds are decoys; Van de Walle, B. (1930), *La Chapelle funéraire de Neferirtenef*, p. 72; Hayes, W.C. (1953). *The Scepter of Egypt*, Vol. 1, p. 97; Boessneck, J. (1988). *Die Tierwelt*, p. 98; Houlihan, P.F., and Goodman, S.M. (1986). *The Birds of Ancient Egypt*, p. 15; Ziegler, C. (1990). *Catalogue des Stèles, Peintures et Reliefs Égyptiens*, p. 128. Ziegler mentions the questionable heron as decoy ('appeau') but refers to Klebs who discusses the capturing of a larger 'swamp bird' with a noose. This hypothesis is found invalid by Montet and he simply concludes that the representation shows a long-legged water bird

references for this conclusion, one can state that these arguments are based on a fallacy and canonized statements. If they were indeed based on a reference, they referred to Montet's arguments, founded on "on serait tenté de croire…" as well as one scene from the tomb of Ti.[377] Of only 7 of the 20 items showing long-legged waterfowl, the specific specie is discussed in the publication however not its possible function.[378] Even though the arguments to *use* decoys seem logic, the evidence for long-legged waterfowl being decoys in the representation in Old Kingdom elite tombs in the Memphite area is visually rather marginal and thus statistically insignificant.

attached to a peg. Klebs, L. (1982). *Die Reliefs des alten Reiches (2980-2475 v. Chr.)* : Material zur ägyptischen Kulturgeschichte, p. 73; Montet, P. (1925). *Scenes de la Vie Privee*, p. 58.

[377] Montet, P. (1925). *Scenes de la Vie Privee*, p. 58; Badawy, *The Tomb of Nyhetep-Ptah*, p. 25; Ziegler, C. (2007). *Le Mastaba d'Akhethetep*, p. 111 (1993, p. 82); Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 330; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 108, 112.

[378] LMP 054, 060, 183, 184a, 188 (3x). Total of 7 items.

3.4 Figures

The last chapter concerns the figures shown in relation to catching waterfowl with a hexagonal net. Harpur discussed the major and minor figures in *Decoration in Egyptian Tombs of the Old Kingdom*. She indicated that one can divide the human figures in certain categories, of which the figures in the FO, H scenes are categorized as minor figures. The minor figures attend to different activities among which catching birds. In the hexagonal net scene the ropes of the net come together and are held by several *haulers* positioned at a certain distance from the net. The haulers are shown occupied with different activities from preparing the rope to pulling the rope, as well as holding the rope in position. But the haulers are not the only minor figures in the scene. The haulers are guided by a *signalman*, who will give a signal to close the net. Other figures shown are *the overseer of fowlers* often preceded by *ka-servants* and fowlers *gathering birds*. Classified under a different subtheme, the fowling scene also shows *fowlers crating birds*, *scribes, bearers of fowl*, and sometimes *pluckers.* As not every figure is classified under the theme FO, H as well as their irregular presence in the scene, they will be discussed only shortly.[379] The signalman as well as the haulers will be discussed more thoroughly in the chapters 3.4.2 and 3.4.3.

3.4.1. The minor figures

One of the figures in the scene is the 'Overseer of fowlers'.[380] He is not always presented but if indeed present, he is shown at the beginning of the scene behind the haulers.[381] He often holds with one hand a vertical standing staff.[382] Another option is that one hand leans on top of his diagonal standing staff while the other hand is free or holds the staff in the middle.[383] In the current data all the overseers are shown with their legs apart and feet flat, except for LMP 116. The overseer is wearing a kilt with a belt and sometimes an apron.[384] He oversees the work of the fowlers or the fowlers present him birds for

[379] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 142. The main reason she gives for the absence or attendance of certain figures is that their attendance is dependent on the space or size of the composition as these figures are not essential to the capturing of birds.

[380] Title *ỉmỉ-r wḥˁ(w)*'Overseer of Fowlers' (LMP 048), *ỉmỉ-r wḥˁt* 'Overseer of fowling' (LMP 063), or *ỉmỉ-r mḫw* 'Overseer of Fowlers' (LMP 184a).

[381] LMP 048, 063B, 104, 116, 188, 190. LMP 018 is the only item with the overseer of fowlers behind the net.

[382] LMP 048, 104, 190. The latter shows half of the regular size of a staff.

[383] LMP 063B & 116 have both hands on the staff; LMP 018 & 188 have one hand on the staff.

[384] LMP 104 & 116 show short kilts with a diagonal fold. LMP 190 shows the overlapping of the kilt according to fig. 10 and 12 by Staehelin or it shows a double kilt according to Vogelsang-Eastwood. The rest show closed plain kilts as shown in fig. 2.2 by Zelenková, L. Staehelin, E.S (1966). Untersuchungen zur

inspection.[385] Besides the overseer, once the title of 'Elder of the fowlers' occurs near a figure with a staff (LMP 120). He presumably fulfils the same function as the overseer of fowlers.[386]

When the birds are caught in the nets and the fowlers are gathering them, they are put into cages or directly taken to be presented to the tomb owner. This phase of the process is categorized under the subthemes 'caging birds' (FO, Bc) and 'transporting birds in cages' (FO, Bt) and under the main theme 'offerings', subtheme 'presentation of birds' (OF, Pb). The birds are held by the fowlers by their necks, legs and wings and placed into cages. The birds are either transported in these cages or taken by offering bearers to be presented. Concerning the *caging of birds*, of the 14 items mentioned in the LMP database, 10 occur near the subtheme 'hexagonal net' (H).[387] Regarding the distribution, 2 items represent this theme on different registers and 8 items on the same register.[388] Of these 8, 3 items depict the scene on sub-registers.[389] The number of fowlers occupied with the cages is often 2.[390] Besides a standing position, there are 5 items showing the fowlers kneeling, gathering or taking the birds from the cages.[391] In most items the fowlers are presented behind the haulers[392] and once behind the net on the other side of the scene.[393] There are 2 items where the fowlers are directly gathering the birds from the net and passing them through to another fowler who places them in cages.[394] In one of these items, LMP 056, the fowlers are presented on a sub-register above the haulers. In LMP 157 they are presented on another register, standing, passing the birds through. Concerning the scenes in which the net is being dismantled (LMP 018,

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ägyptischen Tracht im Alten Reich, in: *MÄS*, Bd. 8, p. 7-11, fig. 10, 12, 17 & 27; Vogelsang-Eastwood, G. (1993). *Egyptian Pharaonic Clothing*, p. 58-59, fig. 4:9, 4:10; Zelenková, L. (2010). The Royal Kilt in Non-Royal Iconography? The Tomb Owner Fowling and Spear-Fishing in the Old and Middle Kingdom, in: *BACE*, Vol. 21, p. 142-143, 156, fig. 2.1 & 2.2.

[385] LMP 018 & 116. Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 144.

[386] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 164.

[387] LMP 021, 049, 051, 056, 062A, 062B, 075, 116, 157, 188. LMP 062A & B as well as 075 are accompanied by text implying the placement of the birds in the cages. For example the caption in LMP 062A/II/03-04 is *wd.t ꜣpd.wt m ḏb* 'Putting fowl in a cage'. The LMP database does not refer to LMP 018 which seems to represent a damaged scene of 'caging birds'.

[388] The two items are LMP 049 & 157.

[389] LMP 051, 056, 075.

[390] LMP 018, 051, 062B, 157, 188. In LMP 062A two men are putting the birds in the cage and two are removing them to present them. Harpur indicated that the number of fowlers carrying birds and placing them in crates is dependent of "the size of the composition and the amount of space to be filled between the activity and the major figure." The space is either filled with the presentation of birds. Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 144.

[391] LMP 049, 051, 056, 075, 188.

[392] LMP 051, 062A, 062B, 075, 188.

[393] LMP 116.

[394] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 360, 361.

021), birds are brought and gathered in the cages from which the offering bearers again take the birds. Likewise is shown in LMP 188. The only exception is LMP 049, where the scene is in the middle of a kitchen scene showing the plucking of birds and the manufacturing of nets. The most common representation of the minor figures is one fowler holding two hands full of birds, bringing them to the (2) men who place them into cages.[395]

As indicated, besides carrying birds by hand, they can be *transported in these cages*.[396] This occurs 5 times near a hexagonal net.[397] The only item representing this subtheme on a different register is LMP 044. Here, multiple figures carry cages with a yoke over their shoulders.[398] This same type of figure occurs in LMP 053, 062B and 116. The former seems to show the figure picking up the cages. His position equals the principle of a beam lever. Besides this device to transport the cages, they are also depicted on the heads of the figures.[399] The *offering bearers* (OF, Pb) are often represented on the side of the scene, carrying the birds to present them to the tomb owner.[400] There are 3 items, connecting the caging of birds with the offering bearers as they collect their birds from these cages.[401]

This leaves two subthemes which both are rather rare, namely the presence of *scribes*[402] and the *manufacturing of nets.*[403] The latter has already been discussed in Chapter 3.1 (p. 34). Of the 3 items, LMP 191 shows scribes attending to the aviary of birds. LMP 018 and 184 clearly depict scribes, sitting on the ground, in front of the

[395] LMP 018, 051 ,075, 116, 188.
[396] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 361.
[397] LMP 021, 044, 053, 062B, 116. Total of 5 items. LMP 021 & 116 are not categorized under the subtheme *Bt*. LMP 139, resembling LMP 184, also shows the carrying of cages, but this is a *kꜣ*-priests.
[398] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 361.
[399] LMP 021, 062B, 139. Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 361.
[400] LMP 002B, 013, 018, 021, 048, 053, 060, 062A, 183a(?), 184(2x), 186, 190, 191 216, 217, 258a. Total of 17 items. These offering bearers are often accompanied by their (*kꜣ*) titles or names, but occasionally by text such as in LMP 062A/II/03-04: *ỉnt wšnw* or in LMP 048/II/09: *sḫpt wšnww* 'bringing the poultry'. Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 385.
[401] LMP 021, 062A, 188. Mahmoud indicated that the offering bearers were not directly involved with catching birds, but these two scenes show that the birds in cages were taken to be presented. This could indicate that the catch itself is used for the presentation of birds. Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 166.
The sequence represented in LMP 062A/II/03-04 is accompanied by the text:
ỉṯỉt wšnw 'Taking the birds'; *wdt ꜣpdwt m ṯb* 'Putting fowl in a cage'; *ỉnt wš*[*n*]*w* 'Bringing birds'; *ỉnt wšnw* 'Bringing birds'.
[402] LMP 018, 184, 191. The former two are not indicated by the LMP database. It does mention LMP 258a, but this is incorrect. The other items in the LMP are not near a hexagonal net.
[403] Near a hexagonal net are LMP 048, 049, 188, 191, 216. LMP 175 and 133 are depicted separately.

fowlers or offering bearers at the end of the scene. They are administrating, presumably, the catch of birds.[404]

3.4.2 The signalman

The 'signalman, lockout or watchman' is named after his presumed function, which is based on the gesture he makes to indicate that the hexagonal net is full. As such, with this signal he informs the haulers to pull and close the net. This description is not solely based on the representation of the figure, but also on texts accompanying the representations.[405] First, the data given by the LMP database is analysed, followed by a classification based on the gestures made by the figures. Finally, the accompanying texts are discussed providing content to the scene. Still, even though not yet proven, for the clarity of the present written text the figure is called a signalman.

There are 43 items in 40 tombs showing a signalman.[406] Concerning the total number of items found, the signalman can cover two and even three (sub)registers. Thus, LMP 062B shows only one signalman enlarged covering two sub-registers with nets. The same accounts for LMP 188 showing three nets on three sub-registers and only one signalman. Still, these signalmen do not significantly differ in size from the other minor figures on the wall as the sub-registers depict the haulers either sitting or lying. This is also the case for LMP 183a but it is not the signalman who is enlarged covering the two sub-registers but two fowlers gathering the birds. There is only one example, corresponding with the word 'rarely' used by Harpur, showing a signalman enlarged being the tomb owner himself.[407] This is LMP 049, the tomb of Ti.

Of the 71 representations of catching birds with a hexagonal net, no less than 47

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[404] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten, Vol. 35, p. 163. He indicated that the presence of the scribes was to determine and write down the catch. He even suggests the possibility that these scribes order the birds according to species, for the aviary. Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 184. She states that the scribes in LMP 018 are rare because "these minor figures are hardly ever included later on, no doubt because they were associated with the rarely-depicted dismantling scene."

[405] Erman, A. (1919). *Reden, Rufe und Lieder auf Gräberbildern des Alten Reiches*, p. 36-39; Müller, H.(1937). Darstellungen von Gebärden auf Denkmälern des Altes Reiches, in: *MDAIK*, Bd. 7, p. 73-74; Junker, H. (1943). *Zu einigen Reden und Rufen auf Grabbildern des Alten Reiches*, p. 38-44; Dominicus, B. (1994). Gesten und Gebärden in Darstellungen des Alten und Mittleren Reiches, in: *SAGA*, Bd. 10, p. 112-130.

[406] From the total of 78 depictions (excluding the 7 earlier mentioned items) 71 depictions remain. Of these 71 nets, 9 nets are covered by 4 signalmen (LMP 049, 062B, 183a, 188). This means 5 nets can be subtracted from the 71 leaving 66 net depictions. There are 18 items not showing a signalman of which LMP 021, 018 and 049 depict the dismantling and installing of the net. The 4 items numbered LMP 001A, 141, 184 and 157 are damaged and uncertain. Like LMP 183a the uncertain item LMP 184 indicates double nets. Resulting in 43 items.

[407] Wild, H. (1953). *Le Tombeau de Ti*, Fasc II, pl. CXXII ; Montet, P. (1925), *Les Scènes de la Vie Privée*, p. 57; Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 142.

(66.2%) nets are accompanied by a signalman.[408] In tomb numbers, no less than 40 of the 50 tombs (80%) obtain a signalman. The signalman, being described as a 'key figure' in the representation, is thus a highly preferred but not always essential figure.[409] The absence of a signalman is explained by Dominicus, who indicated that he was unnecessary if the net was small in size and small in number of haulers (2-4). As such, the haulers could choose themselves when to close the net.[410] To enhance her argument she refers to Petrie as well as provincial tombs.[411] From the current data, 18 items do not show a signalman and 4 items are uncertain due to damage. Of these 18 items, 2 show the dismantling and 1 shows the implementation of the net. Of the remaining 15, 5 items clearly show a closed net based on the fowlers gathering birds from the net.[412] Concerning the latter, this could be a phase during catching birds where a signalman would be unnecessary, but not based on the reasons given by Dominicus.[413] The argument given concerning the number of haulers seems rather dim. Of the 15 remaining items without signalman, the range of haulers is 1-5.[414] The number of 5 haulers seems rather large and would imply according to the argumentation by Dominicus that a signalman would be necessary. Enhancing this proof of the contrary, of the 50 items showing 4 or less haulers, only 12 items do not show a signalman, resulting in 24%. Concerning the examples given by Dominicus, Van Walsem refuted the argument concerning the oldest example in Meidum. He stated that the absence of a signalman "can be more likely explained by the fact that early/first representations of subjects tend to be compact, before being elaborated in the later OK. So the sign-man is omitted as being less essential."[415] This argument of being essential combined with the

[408] The 47 nets include 43 nets with a signalman as well as the multiple nets represented on different registers covered by a single signalman (4 nets).
[409] Harpur , Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 144. Dominicus, B. (1994). Gesten und Gebärden, in: *SAGA*, Bd. 10, p. 112.
[410] Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im alten Ägypten,* Vol. 1: Text, p. 288. This leaves the question of how much haulers were indeed necessary to close and hold the net full of birds. This question will be discussed in the Chapter 3.4.4, p. 109.
[411] Dominicus, B. (1994). Gesten und Gebärden, in: *SAGA*, Bd. 10, n. 667. She refers to Petrie, W.M.F., Sir (1892). *Medum,* pl. XVIII, XXIV.
[412] LMP 157 is partially damaged and as such categorized under the uncertain items. However, one can see the fowlers gathering bids which could indicate no further signalman is depicted.
[413] The signalman could already be gathering the birds as Harpur suggests in *Decoration in Egyptian Tombs of the Old Kingdom*, p.142.
[414] LMP 002B (3-1-2), 002A (2), 054 (3), 056 (4), 075 (3), 183a (5), 184 (2+x), 188 (3), 188 (3), 190 (4), 191 (3), 216 (5), 258a (5). Total of 15 items.
[415] Dominicus, B. Gesten und Gebärden in Darstellungen des Alten und Mittleren Reiches, *SAGA*, Bd. 10 in: Van Walsem (1998). Boekbesprekingen - Faraonisch Egypte, *BiOr*, Vol. 55 (1/2), p. 129.

space available could also be extended to later items in the 5th and 6th dynasty.[416] Another possible explanation could be that the signal is given by another figure, such as the overseer of catching birds.[417]

The topographical distribution of the 43 items is 1 (2.33%) from Meidum, 16 (37.21%) from Giza, and 26 (60.46%) from Saqqara. Based on the total number of items per location, 16.66% is from Meidum, 70.27% from Saqqara, and no less than 88.89% from Giza obtain a signalman.[418] Hence, even though Saqqara seems to obtain the most representations of a signalman, based on the current data a signalman is shown in almost all the representations from Giza (*Figure 3.4.1*).

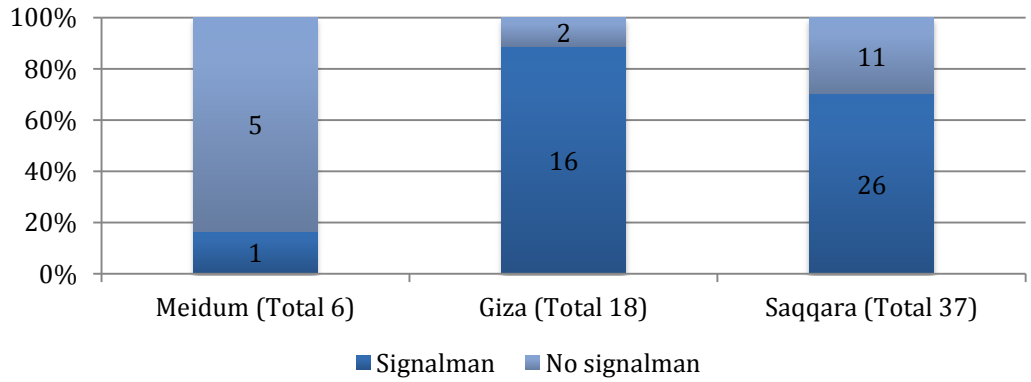


Figure 3.4.1. The number of items with a signalman per location.

Harpur mentioned that "in the earliest scenes at Maidum and Giza the posture of the signalman is very simple. He stands with his legs apart holding a cloth over his chest in his outstretched hands and turning his head towards the net or the man as if preparing to give a signal...". Of the period and locations she mentioned, the data provides only 4 out of the 9 items which show a signalman. These are LMP 002c, 013, 018 and 021. Her description is accurate as all 4 items show a signalman with his legs apart, turning his head towards the net or the men and holding a cloth with horizontal outstretched arms. From the middle of the 5th dynasty additional positions occur in de depiction of the feet, arms as well as the legs. The latter referring to the three items depicted on their

[416] LMP 054, 075, 184, 188 (2x), 258a. Total of 6 items. Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 188.
[417] LMP 188. Compare the provincial tombs in Lepsius, C.R. (1972). *Denkmäler aus Ägypten und Äthiopien*, Vol. 2, 105b; Davies, N de G. (1901). *The Rock Tombs of Sheikh Said*, pl. XII.
[418] In total 61 items because Dashur is not included and LMP 021, 018 and 049 depict the dismantling and installing of the net. The double nets covered by one signalman have been counted once as well as the double nets in LMP 183a and LMP 184.

knees.[419] The cloth from now on occurs alongside the hand gesture, even though it is still more commonly shown (cloth 74.42% vs. hand 23.26%).[420]

Viewing the total number of items found, no less than 37 items are represented with the legs apart, 3 remain uncertain due to damage and, as already mentioned, 3 items show the signalman on his knee. Combining the variation of his feet, no less than 28 of the 37 signalman with the legs apart show the feet flat on the register line. Only 2 remain uncertain and 7 items show a small variation as the rear foot is represented on the ball of the foot. Thus besides the small variations in leg and foot positions, the most common pose is with his legs apart and feet flat on the ground (*Table 3.4.1*). Concerning the head direction, 11 times the head of the signalman is focused on the net and 27 times on the haulers.[421] Combined with the body direction, the signalmen show variation and indicate movement described by Harpur "as if preparing to give a signal". Hence, 5 items show the signalman completely facing the net and 8 items completely facing the haulers. The combination of the head turned towards the haulers and the body towards the net occurs 19 times. The opposite pose occurs 5 times (*Table 3.4.2*).[422] The variations of head and body direction occur already from the earliest scenes and do not indicate a pattern or sequence of change through time.

Another important element not yet discussed is the position of the arms. The four oldest items all show the outstretched arms holding a cloth in horizontal position, crossing the chest of the signalman. From the 5th dynasty (Neferirkare-Kakai and later) a variation besides the earliest pose with outstretched, horizontal arms holding a cloth is shown. Five out of the 32 items deviate from this pose. Of these 5 items, 2 show the cloth above the head of the signalman with his arms in an angle of circa 90 degrees, facing the haulers.[423] Another 2 items show the signalman with his elbows bend instead of outstretched horizontally.[424] Between these two items, LMP 149 shows the cloth curved instead of straight as if not fully stretched. Finally, LMP 129 completely deviates or seems to be an alternative pose. The figure itself is in a crouching position with one knee

[419] LMP 042, 129 & 190.
[420] Items showing a cloth: LMP 002c, 013. 018, 021, 043, 044, 045, 051, 053, 060, 062A, 062B, 063B, 065, 070, 109, 111, 113, 117, 129, 136, 139, 149, 157, 163, 183, 183a, 184a, 188 (2x), 217, Total of 32 items; Items showing the hand gesture: LMP 042, 048, 049, 104, 116, 120, 163, 183, 190, 191. Total of 10 items.
[421] 5 items remain uncertain: LMP 062a, 109, 163, 186, 228a.
[422] Of one item only the head is clearly directed towards the net, but the body remains unclear. The opposite occurs 4 times, whereby 3 times the body is facing the haulers.
[423] LMP 117 & 065. From Giza and Saqqara, end of the 5th dynasty.
[424] LMP 113 & 149. Both from Giza. Beginning and end of the 5th dynasty.

on the ground, his arms diagonally stretched, holding a curved cloth above his head. Although the curved cloth resembles LMP 149, it is thus far the only item found where a signalman is shown on his knee combined with holding a cloth, as well as the diagonal outstretched arms. Remarkable is the location of these items, as 4 out of the 5 items are from Giza. More striking is the skewed distribution of all the representations of signalman with a cloth as a total of 11 items are from Giza and 20 from Saqqara.[425] Thus, even though the items from Giza are no less than half of the items from the Saqqara, a higher number of varying items are from Giza.

In order to interpret the gesture made with a cloth, as well as the role of the figure, the accompanying texts were consulted. The fowling scene with a hexagonal net shows 70 texts in 30 tombs. The Mastaba text data is divided into several types among which 'Title/Names, Spoken, Observation, and Caption'.[426] The scene *FO, H* has 20 'spoken' texts, 29 captions, 1 observation[427], 1 damaged and 19 titles/names. Concerning the scenes showing a signalman holding his hand up in the air with a cloth, 9 'spoken' texts, 13 captions, 1 observation and 1 damaged text are found. The 9 'spoken' texts in 5 tombs have been summed in *Table 3.4.3.*

[425] Omission of LMP 002c from Meidum.
Giza: LMP 013, 021, 018, 109, 111, 113, 117, 129, 149, 157, 163. Total of 11 items.
Saqqara: LMP 043, 044, 045, 051, 053, 060, 062A, 062B, 063B, 065, 070, 136, 139, 183, 183a, 186, 184a, 188 (2x), 217. Total of 20 items.
[426] The other types are unknown, damaged and question mark (?).
[427] This one item is LMP 013. Under main theme Owner (looking left and right) more observations concerning fowling are found. LMP 001A, 063A, 190.

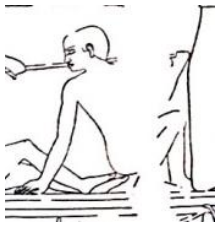
Table 3.4.3. *The 9 'spoken' texts accompanying the signalman with cloth near the hexagonal net.*

LMP	Location	Transliteration	Translation
062B	Above the sitting haulers, besides the signalman	*iṯi r.k*[428] *nt*(*y*)*-ḥnᶜ* *ỉw ḥb n.k*	Pull! Comrade! There is a catch for you![429]
070	Above the signalman and the haulers	*ỉr ṯw wrt wḥᶜ pw* […]	Do/act you, very![430] You fowler [...]
183	Under the arm of the signalman	*iṯi m* […] *nt*(*y*)*-ḥn*[ᶜ]	Take[431] from [...] comrade!
183	Above the signalman	*ḥr.k nḏr*	Upon you/you there! Hold on...[432]
184a	Above the signalman and the haulers	*ỉ wḥᶜ* (*ꜣpd.w*) *pw* *ỉw ḥb r.k*	Oh, you fowler! There is a catch for you![433]
188	Under the arm of the signalman and above the rope and lying haulers	*nḏr r.k wnỉ ỉw ḥb r.n*	Grab/catch (it)! Hurry! There is a catch for us.[434]
188	Near the leg of the signalman and above the rope and lying haulers	*iṯi r.k nṯ*(*y*)*-ḥnᶜ*	Pull! Comrade!
188	Above the haulers	*ỉnỉ r.k nt*(*y*)*-ḥnᶜ ḫwt-dšr*	Bring (it) in[435]! Comrade! (There is) a 'Red house'(?)[436]
188	Above the signalman and the haulers	*ỉnỉ r.k nt*(*y*)*-ḥnᶜ* *ỉw ḥb r.n*	Bring (it) in! Comrade! There is a catch for us!
Total	*9 texts*		

The content of the text reveals the actions, ranging from pull, take or come. All with the notion that there is a catch of birds ready to be caught. The word *ỉnỉ*, which can mean

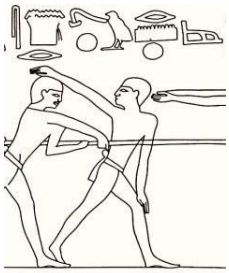
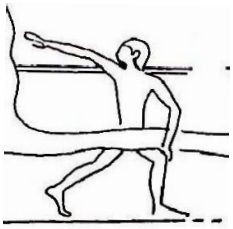
[428] Edel, E. (1955). Altägyptische Grammatik I, in: *Analecta Orientalia,* Vol. 34, §616. (*i*)*r* is reinforcing the imperative. It is possible with intransitive and transitive verbs.
[429] The preposition *r* 'to, into, towards (direction)'or 'in respect of' is written in LMP 184a, 188 (2x), 191 instead of the preposition *n* 'to, for' written in LMP 062B. The latter is the only example of the preposition *n* with a suffix. The preposition is used in LMP 184 followed by a noun, which can also be translated as 'because of your arm'.
[430] Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 354.
[431] Could also mean 'pull' as in LMP 062B and translated by Montet, in: Montet P. (1925). *Les Scènes de la Vie Privée,* p. 59.
[432] *nḏr* can also be translated with catching, thus translated as an imperative 'catch…!', Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 689-690. Montet translated the sentence literally with 'your face towards me' [the signalman] in : Montet, P. (1925) *Les Scènes de la Vie Privée,* p. 59.
[433] The first part of this text is a caption: *dw sḫt ỉn ỉmỉ-r wḥᶜ* (*ꜣpd.w*) 'Setting the trap by the overseer of fowlers'. As the scenes context is catching fowl, the specification of the overseer is placed between brackets. Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 367.
[434] Variation in subject between LMP 188 and LMP 184a & 191, which both use the 2nd singular as subject.
[435] 'Einholen', in: Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 151. It could also be translated with 'holen' (to get/collect) or 'herbeiholen' (to fetch). Ibidem, p. 149-150.
[436] Ibid., p. 787. He translates 'Rotes Haus' and indicates with the * the possible, yet uncertain, meaning 'e. Totengut; Geflügelhof'. Even though the latter is suggested by Altenmüller, there is no further mentioning of this meaning for *ḥwt dšr*(*t*).

'holen' or in this case 'einholen', refers to the catching of birds by 'pulling or hauling them in'.[437] Thus, the text accompanying the signalman reveals that it is the moment of pulling, either by indicating to pull or mentioning that there is a catch.

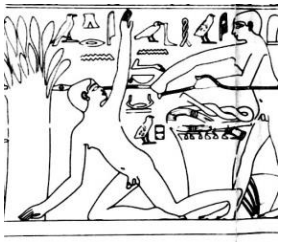



A LMP 042 LMP 049



B_1 LMP 183 LMP 191 **B_2** LMP 044 LMP 104



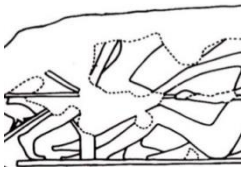
B_3 LMP 190

Overseer with hand gesture LMP 188



C_1 LMP 049 LMP 116 **C_2** LMP 183a






D LMP 048 LMP 120 LMP 163 Gathering fowl; LMP 190

Figure 3.4.2. Classification of the four hand/arm poses (by M.J. Slingenberg).

[437] Wolters-Noordhoff (1993). *Wolters' Woordenboek Duits-Nederlands*, p. 235.2. Martin, W., and Tops, G.A.J. (1999). *Van Dale Groot Woordenboek Nederlands-Engels*, p. 170, 0.2.

As already mentioned an alternative figure type occurs parallel to the figure with a cloth. Ten items have been found whereby the hand is either raised in the air, and /or holding the rope.[438] There are 3 additional figures, likewise shown with a raised hand and/or holding the rope, besides the signalman with a cloth.[439] The graphic aspects as well as the presence of text have been summed in *Table 3.4.4*. Before interpreting the data one can classify them in several subgroups based on the graphic aspects, in this case the gestures with the hand (*Figure 3.4.2*). Viewing the column 'hand', two figures are separated as there is no hand gesture in the air. These two figures are kneeling or sitting on the ground, holding the rope and viewing the haulers (A). Equally, two figures are holding the rope, but they are standing, holding a hand in the air (B_1). This (diagonal) gesture in the air also occurs in LMP 044 & 104. The difference with the two other figures is the position of bent legs with their hand on their knees. But also the smallest detail of the bent elbow in a curved shape separates them from the other two (B_2). There seems to be some overlap between representations, as LMP 190 also raises his hand in the air, even vertically, but is situated on his knees. Still, based on the gesture with the hand, it is placed in group $B_{(3)}$. As the remarkable elements in the columns 'hand' and 'legs' have been discussed and classified, another pair of representations can be placed together. LMP 049 and 116 both show a figure with the right arm horizontally and left arm vertically besides the body (C_1).[440] The difference lies in the position of the body, as the figure in LMP 049 is turned towards the net and in LMP 116 turned towards the haulers. Again there is an interesting overlap between groups concerning LMP 183a, as the figure is shown in the same body position as B_2. Though its right arm is not raised high in the air but just below the shoulders resembling C_1. Again, based on the arm gesture, this item is placed in group $C_{(2)}$. LMP 048 and 120 form group D as both items show a figure with one arm raised in an angle, with their bodies towards the net and head towards the haulers. In both items, the haulers are lying on the ground. This leaves the classification of just one item, namely LMP 163. On the upper register a figure is facing the haulers, seemingly pulling the rope with one hand (hand is damaged). The other is raised in the air with a bent elbow (angle). Based on his hand on the rope(?), placement in group A or B would be adequate. Based on his other arm in the air

[438] LMP 042, 048, 049, 104, 116, 120, 163, 183, 190, 191. Total of 10 items.
[439] LMP 044, 049, 183a. In LMP 049 both figures are not represented with a cloth.
[440] Compare the provincial tomb from Meir. Blackman, A.M. (1924). *The Rock Tombs of Meir*, Vol. 4, pl. VIII. This item shows both hand gestures, categorized as B_1 and C_1.

combined with his foot on its ball, it could be inclined to place the item in group B. Still, as all classifications are primarily based on the hand gesture, the bent right arm resembles the gesture forming group D.

Viewing the chronology of the representations, solely based on these items, small variations occur from the height of the arm and the position of the body towards the 6th dynasty high held arm, palm down, and inward bent elbow. Interesting is group D as the depictions show a figure in movement towards the net, arm raised in an angle, followed by another figure. The haulers are on the ground, lying, implying that they pulled the rope closing the net.[441] Concerning the partially damaged LMP 163, the haulers are also lying on the ground and the figure is making the same gesture with his 'arm'. Thus, these standing fowlers are moving towards the net, presumably to gather the birds. To support this theory, LMP 190 in the upper register shows 2 fowlers gathering birds from the net, where one fowler in crouching position is holding birds in one hand and showing the same gesture as group D with his other arm (hand is damaged). In order to fully state that this pose with the angled arm and hand gesture represents the calling for fowlers to gather the birds, the accompanying texts were reviewed.

Of the 13 items found, 10 items are accompanied by text, whereby 5 obtain the type 'spoken' and 5 items the type 'caption'.[442] Of group D, 2 of the 3 are accompanied by the type 'spoken' text, summed in *Table 3.4.5*. Additional to this table is the tomb of Ti (LMP 049), where the haulers of the lower net equally are lying on the ground, accompanied by the sitting figure as well as 'spoken' text. All texts call for attention or action of fowlers by using the imperative and possibly a particle at the beginning of the sentence. The content of the text, the calling of fowlers towards the net (LMP 049) to gather the birds (LMP 048), does support the theory that the signal given by the fowler is to call for bird gatherers, or in general to request for attention. The table is extended by extra texts, concerned with gathering birds or near the scene of gathering birds to enhance this context. For instance, the text near the overseer of fowlers in LMP 048 refers to the action itself by the imperative *sꜣk*, gather![443] LMP 191 is added to the table, as the scene shows fowlers moving towards the net, as well as fowl gatherers already

[441] Klebs argues that the haulers were lying on the ground because of the length of the foliage. According to him it was not high enough to hide behind. Klebs, L. (1982). *Die Reliefs des alten Reiches (2980-2475 v. Chr.),* p. 71; Junker, H. (1943). *Reden und Rufen*, p. 40, n. 1.
[442] *Spoken text*: LMP 048, 049 (3x), 120, 190, 191. *Caption*: LMP 042, 049, 044, 104, 183. No text: LMP 116, 163, 183a. Total of 13 items.
[443] Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 1068.

present at the net. Again the haulers are lying on the ground. Even though no figure is making any gesture with his hand, the scene and accompanying text are about gathering birds from the (full) net and draw attention to this fact.

Table 3.4.5. *The 3 'spoken' and extra texts accompanying the signalman with his arm in an angle.*

LMP	Location	Transliteration	Translation
048	Above the haulers and signalman	*mỉ pḥr r zp sḫn*[444] *ꜣpd mỉ šꜣs ḥn.k m ꜥnḫ*[445]	Come! Walk! Fold the wings of the *ꜣpd*-birds! Come! Walk, with (all) your ability in life!
120	Above the haulers and signalman	*m* […] *r.k wḥꜥ pw*[446] *ỉ(w)s*[447] *ỉꜣ* (*?*)	Come(?) you, you fowler, the (?)[448]
049	Above the lying haulers and sitting signalman	*ỉm(ỉ)*[449] *ṯw r.s nty-ḥnꜥ ỉw ỉꜣd* [*t*…]	Follow[450] you towards it (the net)! Comrade! The net is [...]
Total	*3 texts*		

[444] Erman, A. (1919). *Reden, Rufe und Lieder*, p. 38; Montet, P. (1925), *Les Scènes de la Vie Privée,* p. 64 ; Erman, A., and Grapow, H. (1930). *Wörterbuch der Aegyptischen Sprache,* Bd. 4-I, 253.7; Junker, H. (1943). *Reden und Rufen*, p. 41; Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 1209.5. *Sḫn* 'Flügel lähmen'. Mahmoud translated *ḥnỉ* 'niederlassen' as a causative 'die Vögel haben sich niedergelässen!' in: Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 171.

[445] Erman indicated "… das das *ḥn.k m ꜥnḫ*, das allen diesen Befehlen (different labor activities) folgt, eigentlich zur Kraftanstrengung auffordert, etwa entsprechend unserem 'was du kannst, was du Kraft hast'." Erman translated this sentence with "was du kannst", which would translate in English 'with all your might or ability'. Hannig translates the word *ḥn* as 'ordnen, organisieren' and for the combination of *.k m ꜥnh* 'Erfülle dich mit Leben, schnell!, so schnell du kannst!'. Webster's dictionary defines the words 'fulfil: accomplish/to carry out' or 'organize: to arrange/unify/to put in a state of order'. These definitions refer to taking action or as Erman puts it 'asking for effort'. As such, the translation of the sentence is 'with your ability'. Erman, A. (1919). *Reden, Rufe und Lieder*, p. 8; Erman, A., and Grapow, H. (1929). *Wörterbuch der Aegyptischen Sprache,* Bd. 3-I, p. 103.1; Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 837; Webster, N. (1976). *Webster's Dictionary of the English Language,* Vol I, p. 918; Vol II, p. 1590.

[446] LMP transliterates *pỉ*.

[447] *EAG* §881.

[448] Perhaps the sentence resembles LMP 049 *ỉw ỉꜣd*<…>, thus *ỉ(w) ỉꜣ*<…>. The problem is the partial line drawing. What is clear is that there is no space to write the word *ỉꜣdt*, unless it continues further above the net. Another option could be that  is followed by writing the word *sḫn* with G41 in Gardiner's list as determinative. Compare LMP 048 and LMP 049 under *extra texts*. Montet, P. (1925). *Les Scènes de la Vie Privée,* p. 62-64.

[449] This sentence resembles the inscription from the provincial tomb of Pepi'onkh at Meir, where the sentence ends with *dns*[sic]. Blackman translated 'Give (?) thyself to it, comrade, thy net is heavy!' (p. 29). The question of reading *ỉmỉ* has been addressed by Erman and Junker. Both authors translated the verb as an imperative. Junker used the translation *mr*, 'sich verbinden 'in the sense of 'holding the net' (being connected to). He translated rather freely as he translated the subject *s* as net. A closer translation is given by Dominicus, who translates 'Halte dich gegen es, mein Genose, dein netz [is schwer]' (p.117). But as these translations are based on the net being heavy, it is not clear if this is the case in LMP 049. Blackman, A.M. (1924). *The Rock Tombs of Meir,* Vol. 4, p. 29-30, pl. VIII; Erman, A. (1919). *Reden, Rufe und Lieder*, p. 37, n. 8; Junker, H. (1943). *Reden und Rufen*, p. 41-42; Dominicus, B. (1994). Gesten und Gebärden, in: *SAGA*, Bd. 10, p. 117.

[450] Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 546.

Extra texts

LMP	Location	Transliteration	Translation
048	Near the overseer of fowlers	[*ỉr*] *r mnḫ ḥr* [*nb*][451] *sɜḳ*	Make (it) excellent, (everybody) gather![452]
049	Above the sitting figure, besides the figure folding the wings of a bird)	*mỉ sḫn ɜpdw*	Come, fold the wings of the birds. Or: Come, the (water)fowl have descended
191	Above the fowl gatherers and haulers	*ỉ*(*w*).*s wrt m ɜpdw*	It is full with birds.[453]
191	Above the lying haulers	*ỉw ḥb m ḫnw.s*	There is a catch in its interior
Total	*4 texts*		

In terms of interpreting the gesture made with the hand in the air, again the accompanying texts can be consulted. In current daily life the sign of a lifted arm and hand in the air, in sports or traffic, could indicate waiting. This action would end when the hand is lowered. As this is a current, western perspective of the sign, this meaning is not transferable to the gesture made by the Egyptian figure on the wall of a tomb in Egypt. Several authors have examined among others this gesture and concluded that it refers to the request for silence.[454] Müller stated that "… als ob die Armbewegung nicht eine Begleitgebärde zum Ruf, sondern das Zeichen, Ruhe zu bewahren, darstellt".[455] Thus, he implied a double meaning for the signal. Dominicus included another request of the signalman, namely "der Zeichengeber mahnt die Mannschaft, *sich verdeckt zu halten,* zu schweigen und aufmerksam zu sein."[456] In order to verify or dispute these conclusions, the 'spoken' texts near the figures with the hand in the air have been summed in *Table 3.4.6*.

[451] *ḥr.k* as in LMP 191, translated 'be watchful'!
[452] Erman, A., and Grapow, H. (1930). *Wörterbuch der Aegyptischen Sprache,* Bd. 4-I, 25.6; Moussa, A.M., and Altenmüller, H. (1977). Das Grab des Nianchchnum und Chnumhotep, p. 94; Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 1068.
[453] LMP: *ỉs wrt m ɜpdw* = Look, (there is) much (of) birds.
[454] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 328.
[455] Müller, H.(1937). Darstellungen von Gebärden, in: *MDAIK*, Bd. 7, p. 74.
[456] Dominicus, B. (1994). Gesten und Gebärden, in: *SAGA*, Bd. 10, p. 112.

Table 3.4.6 . *The 3 'spoken' and extra texts accompanying the signalman with the hand in the air.*

LMP	Location	Transliteration	Translation
049	Above the standing haulers and signalman	*mi̯ r.k i̯m.f wn i̯w ꜣpd sꜣ ḥr.f*	Come, you, from there fast! There are weak birds upon it. [457]
190	Above the kneeling signalman	*i̯w ḫb n ꜥ.k mḥw pw i̯gr ti̯wn*	There is a catch for your arm. You fowler[458], may you keep quiet.[459]
191	Above the haulers and signalman	*i̯ wḫꜥ pw ḥr.k nḏr.k i̯w ḫb r.k*	O fowler, upon you! May you pull! There is a catch for you.[460]
Total	*3 texts*		

Extra texts

LMP	Location	Transliteration	Translation
049	Above the standing haulers	*ỉ i̯n.t i̯m.s* […]	O, that which is brought from it …
183	Caption, Above the signalman and haulers	*sgrt i̯n i̯my-r wḫꜥw*	Silencing by the overseer of fowlers
184	No signalman, above the haulers	*i̯w ḫb n ꜥ.k wḫꜥ pw i̯w* …	There is a catch for your arm, you fowler! <It> is….
Total	*3 texts*		

A similarity can be found with *Table 3.4.3*, as of the three sentences in *Table 3.4.6* LMP 190 and 191 refer to the birds in the net (it is a catch). LMP 191 even refers to the action of pulling. LMP 049 indicates that the fowlers need to come because the net is full, resembling the request from *Table 3.4.5*. LMP 190 also refers to the haulers to be quiet in the hope to catch a lot of birds. This implies that they are still waiting to pull and take action.

Table 3.4.3 and *3.4.5* both imply steps of the process of catching birds, as the first one implies action to catch the birds by closing the net while *Table 3.4.5* shows the next chain of action, the collecting of the catch. The figures accompanied by the text, showing different poses with their arms and hand, imply different meanings. The cloth and outstretched arms are accompanied by the action of closing the net. Thus, as the literature implies, the *signal of the cloth* could be the indicator to *pull* resulting in the closure of the net. The figures with the arms in an angle (combined with the lying

[457] Reading it as an adverb 'weak', while *sꜣi̯* can also be read 'to pass'. This leaves the question what the suffix *f* refers to as the net is female. Erman translated 'Komm schnell mit ihm (?), die Vogel sind satt auf ihm'. Furthermore, he translates *i̯m.f* as 'with' instead of 'from'. Hannig, R. (2003). *Ägyptisches Wörterbuch I*, p. 1052, 1055; Erman, A. (1919). *Reden, Rufe und Lieder*, p. 37.

[458] Kanawati reads *mḥw* while *whꜥ* is also possible. Kanawati, N. et al. (1997). The Tomb of Anchmahor, p. 36-37.

[459] *EAG* §574 (bb).

[460] *nḏr.k* is translated by the LMP text database as an optative (wish form of the subjunctive *sdm=f*) '(that) you may pull'.

haulers) attend to the gathering of the catch as the net is closed. *The angled arm signal* signals the fowlers to *come* towards the net. Finally, the arm in the air could imply several meanings. Based on the accompanying text, no difference is found between the horizontal arm and diagonal arm in the air. However, only one of the three items belonging to group C is accompanied by text (LMP 049). Hence, we cannot fully exclude the possibility of a different signal. As only 3 divergent sentences and a caption are found near this type of figure, the evidence based on the text is rather weak to conclude a description of the signal.[461] Making it even more difficult, the content of the sentences is different referring to the actions *come, pull* and *be silent*. Müller and Dominicus both implied that the signalman signals for silence. Although Dominicus approached several daily life scenes to examine the gestures with the hand, the only evidence referring to silence is one 'spoken' text and one caption.[462] Furthermore, no reference to the meaning *to hide* stated by Dominicus is made. As for her notion that the haulers need to be alert, this is a general assumption. No text directly refers to this request, but for the haulers to make a catch they need to see the signal and pull quickly. For this, one needs to be focussed on the task and stay alert.

This leaves the question of the function of these different figures. The 29 captions accompanying the scene in general refer to the trapping of birds. More specific, the caption 'placing of the trap' is often found near the signalman (under, above, besides), while trapping the birds beginning with *sḫ.t* is often found above the haulers (*Table 3.4.7*). This difference between the infinitives denoting the actions 'placing' and 'trapping' could refer to a different stages during catching waterfowl. Placing the trap occurs before trapping the birds, while trapping the birds could be read as general explanation of the whole scene or as the specific moment of closing the net. However, as the captions do not indicate a subject nor a 'receiver' of the sentence, only indicating the action, the text does not reveal the specific function of the signalman.

The differences in signals explained by Decker and Herb were due to the distance by which one could see the signal, as the cloth could reach much further.[463] Still, this does not explain the use of both figures in one scene. Thus, by examining the texts and the gestures, or signs, made by these figures, different denotations were found

[461] Of the 9 items, with either a horizontal or diagonal arm in the air, only 4 have text. These are LMP 049, 183, 190 & 191 shown in *Table 3.4.6*.
[462] LMP 190 & 183.
[463] Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im alten Ägypten,* Vol. 1: Text, p. 288.

supporting the process of catching birds. Based on the gesture made by the figure, inquiring for a certain form of action, the figure can be described as a 'signal-man' as a 'signal' is defined as "A: an act, event, or watchword that has been agreed upon as the occasion of the concerted action. B: something that incites the action : an immediate cause or impulse."[464] In this line of reasoning one could also identify the figure calling to gather the birds as the signalman, because he would probably be the first person at the net, completing the process of catching the birds.[465]

3.4.3. The haulers

There are 65 scenes in 48 tombs showing haulers with or without a net.[466] Of this amount, 9 items show a fragmentary or damaged scene resulting in an uncertain number of haulers.[467] The range of haulers is 1 up to 7.[468] Although the numbers 3 and 5 occur often, the most common number of haulers is 4, as it occurs 32.31% (19 tombs).[469] Of all the representations the remaining numbers of haulers seem rather exceptional, as they only occur in 9 scenes in 5 tombs (*Figure 3.4.3*).[470]

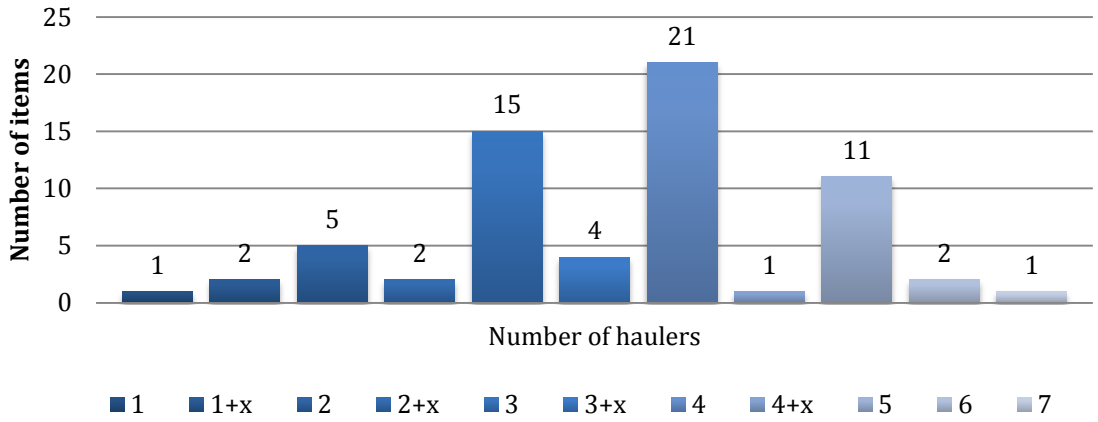


Figure 3.4.3. Distribution of the number of haulers per item (n=65).

[464] Webster, N. (1976). *Webster's Dictionary of the English Language,* Vol. III S-Z, p.2115. Thus, it is a current (modern) ascribed description of the function of the figure.
[465] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 356.
[466] The representations in LMP 021, 018 and 049, which depict the dismantling and installing of the net, have not been included into the number of items. The same accounts for LMP 141 & 157 (2x). These three items do not depict any haulers and remain uncertain.
[467] LMP 001A, 002c, 042, 049, 129, 183, 184 (3x). Total of 9 items.
[468] LMP 002B shows one hauler and LMP 062B shows 7 haulers. Dominicus, B. (1994). Gesten und Gebärden, in: *SAGA*, Bd. 10, p. 112. Dominicus indicates that the range is 2-7.
[469] The only damaged item depicting at least 4 figures is LMP 049. There is no depiction of the rope bending down or a large peg to indicate the fourth hauler as the last one. The scene below, showing lying haulers, clearly shows the rope bending off at the 5th hauler. Comparing the space of both representations, it seems reasonable to believe that there were only 4 haulers depicted in the upper scene. Still, because of no clear ending of the rope in both scenes, the item was not included during the calculations.
[470] LMP 002A, 002B (2x), 062B (2x), 184a, 188 (3x). Total of 9 items. The representations with ≥ 2 hauler is less than 10% while ≤ 6 is less than 5% of the total items showing haulers. These numbers and percentages do not include the uncertain items (1+x, etc.).

The composition of the scenes all resemble each other based on the main elements; the haulers, rope and position opposed to the net. This is called a 'controlled' scene by Harpur, as the position of the figures in relation to each other is controlled by the nature of the activity.[471] Still, a close-up of the scene shows aspects of variation between tombs as well as between the haulers within the same scene. Different features occur viewing the general position of the haulers, such as standing, crouching, sitting, and lying.[472] The bodies overlap in different ways, possibly influenced by space, and the figures are either naked or wearing a belt or kilt. Specific features occur once examining the body movement, heads, legs, arm and hand positions, as well as the representations of the rope.

***Body position*.** Of the 65 items showing haulers, 4 are crouching (on their knees), 5 are sitting, 10 are lying and no less than 46 are in a standing position (*Table 3.4.8 & 3.4.9*). Clearly, the standing position is the most common position with 70.77%. Following the order given by Vandier, 3 out of the 4 items showing crouching or squatting figures are from Meidum.[473] The 4th item comes from Saqqara (*Figure 3.4.4*).[474] Not only does it differ in location, the dating is set far apart, as the latter belongs to the reign of Teti. The items from Meidum all resemble each other; the figures have an upright torso, their rear feet are on their toes and they are positioned towards the net with their heads and bodies. The rope is tight, running through both hands and is tied to a peg in the ground (Chapter 3.1, p. 32). All 3 items show that the hands are at different heights resulting in a diagonal line of the rope between the hands. The smallest details show the difference between the items as in LMP 002A they wear a belt with 2 strings, while in LMP 002B they wear a belt with 3 strings. The other representation of LMP 002B shows a kilt. LMP 184 shows variation compared to the items from Meidum. For instance, the torso or rather shoulders are not in front view, but turned towards the net.[475] The fowlers are on their knees and the height of the rope is the torso. Likewise are the rear feet on their toes and the direction of the heads.

[471] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom,* p. 173.
[472] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 356.
[473] LMP 002A & 002B (2x).
[474] LMP 184.
[475] Schäfer, H. (2002). *Principles of Egyptian Art*, p. 284, 302.

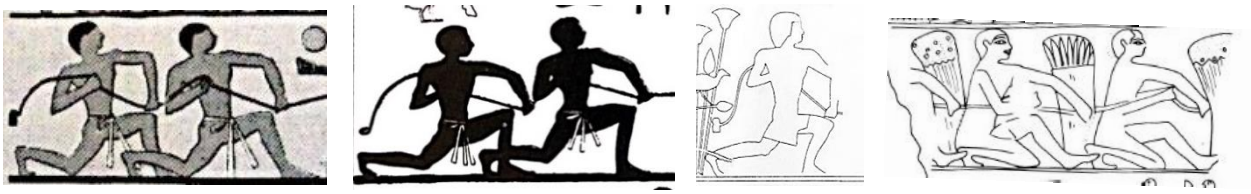


Figure 3.4.4. Crouching and kneeling haulers. From left to right: LMP 002A, 002B (2x, line drawing by Petrie) & 184.

Even though sometimes the difference between lying haulers and sitting haulers is difficult to recognize, there are 5 items in 4 tombs depicting sitting haulers (*Figure 3.4.5*).[476] In general, the haulers direct their heads towards the net, lean back with their torso, and have slightly bent legs with the heels in the ground. The overlap of the haulers occurs near the feet.[477] This overlap runs in different directions as of the 5 items, 3 show the last hauler completely while 2 show the first hauler completely. Although both feet are shown in the overlap, the haulers presumably sit behind each other as the rope runs from the net towards the peg. There are two items (LMP 048 and LMP 062B), where one hauler turns his head towards the other haulers. Concerning the body position, LMP 062B is the only item showing the haulers sitting straight up, as well as the rope at the height of the shoulders. They seem to be in position to pull. All other items show the torso slightly leaning back, as if pulling the rope. Vandier mentioned that from this sitting position it is easy to fall on your back and pull the rope. By doing so, he indicates that the sitting position is a starting point to pull.[478] But by observing the rest of the scene, the contrary can be argued. Fowlers are running towards the net to gather the birds implying that the net is closed. Thus the haulers are not pulling to close the net, but holding the rope to keep the net closed.[479] Still, by sitting one loses a certain amount of pulling force as the weight of the hauler is minimized from the complete body to only the upper body. In agreeing with Vandier, they most likely would need a larger group of haulers to compromise for the weight loss, compared to the standing haulers with the same size net.

[476] The deviation between sitting and lying haulers is based on their facial direction and the position of the rope. As such, the face of the lying haulers is faced 'upwards' and the rope passes above their heads or over the shoulder (LMP 188, 190).
[477] Schäfer, H. (2002). *Principles of Egyptian Art*, p. 177.
[478] By doing so, Vandier even wonders why this attitude is not represented more often. To answer his own question, he replies that it is more likely to need a larger group of haulers to close the net, as this position is not favourable for the effectiveness of the pull. Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 356-357.
[479] With the exception of LMP 062B.

Figure 3.4.5. Sitting haulers. LMP 048 & 062B.

The 10 items in 8 tombs show the haulers lying on their back (*Figure 3.4.6)*. This basic posture according to Harpur was introduced late in the reign of Niuserre' or later.[480] The present evidence dates the first item with lying figures to the middle of the 5th dynasty or later, agreeing with the statement by Harpur.[481] In general, the haulers direct their heads upwards, leaning back with their torso or lying on the ground, and legs bend with their heels in the ground. The overlap of the haulers occurs near the feet or head and shoulders.[482] Besides the kind of overlap also found with the sitting haulers, LMP 049 and the three items of LMP 188 show one leg completely to the side of the hauler in front of him and the other only partially. As such, the legs seem to be on both sides of the hauler in front of him. These depictions enhance the fact that the haulers are sitting/lying behind each other.[483] Another interesting item is LMP 062B. Here an example of Schäfer's lateral layering is shown, as the figures are completely overlapping with the exception of their heads.[484] To make it more interesting, the 2nd figure from the right (viewer's perspective) seems to surround the head of the first hauler. Perhaps this was done to show that the haulers all pull with two hands as this is not clear from the layered haulers. LMP 062B also shows a clear difference between the sitting and lying haulers by the two sub-registers. In both items, the haulers largely overlap which might be due to the limited space. This argument of space could also be a reason for depicting haulers leaning back or completely on the ground as well as the variation between bent and straight legs. Finally, LMP 049 shows a descending rope towards presumably a peg in the ground. The direction of the rope is followed by the haulers, as the artist has depicted the figures in different positions from crouching towards almost lying on the

[480] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 33-34, 143.
[481] Most likely date in the LMP database is the 5th dynasty, second half. The dating by P&M and Cherpion is Niuserre or later. Harpur and Kanawati both date the tomb to the reign of Djedkare-Isesi or later.
[482] Schäfer, H. (2002). *Principles of Egyptian Art*, p. 177.
[483] This resembles the bed scene in the Mastaba of Mereruka, pl. XXXI, in: Smith, W.S. (1978). *A History of Egyptian Sculpture and Painting in the Old Kingdom*, p. 330 fig, 213.
[484] Schäfer, H. (2002). *Principles of Egyptian Art*, p. 178-185.

ground.[485] Normally the rope continues in a straight line from the net, but due to the limited space the rope bends off in a slope.[486]

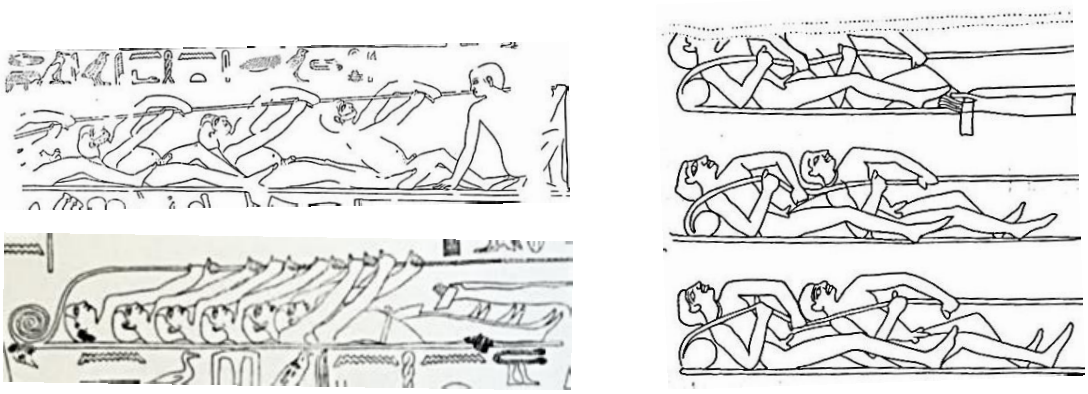


Figure 3.4.6. Lying haulers. LMP 049 (upper left), 062B (lower left) & 188 (3x).

By observing the rest of the scene, the lying pose of the haulers also seems to imply that they have pulled the rope and closed the net. Again fowlers are running towards and gathering from the net.[487] Two of the ten items show two sub-registers where on one the haulers are sitting and the other lying.[488] If they are a sequence then the lying haulers seem to have pushed their weight back and closed the net. This leaves LMP 188, where the haulers are lying but the signalman just gave the signal to pull, as well as the accompanying text implying to pull (*Table 3.4.3*). This might be an item where elements belonging to a closed and open net are combined.[489]

The standing position is the most common pose given to the haulers (*Figure 3.4.7*). Still, by looking at the body, heads, hands and rope, variations are shown. As

[485] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 357

[486] The lower register is split into two sub-registers to depict the folding of wings and attributes. If, as both nets are symmetrical in size and usage of space, the rope of the lower register would continue horizontally it would run under the hieroglyphs being too high to represent the haulers. The sloping rope seems to be a solution in order to depict these essential figures. The two other examples depicting a sloping rope are LMP 048 & 056. In LMP 048 the sculptor depicted both the haulers as well as the running gatherers behind each other (viewer's perspective) instead of next to each other (LMP 190 & 191). Again space limit seems to be the cause.

[487] LMP 049, 056, 120, 190, 191.

[488] LMP 062B & 184.

[489] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 335. *Kagemni* is another example where in reality not all the open/closed arguments mentioned by Vandier occur. Vandier indicated that the nets of Kagemni, open and closed, have the same size. The net on the right clearly shows the crossing poles. Still, it is uncertain if the net is already closed as the signalman is giving the signal to pull accompanied by the request to pull (text). The haulers (of what is left) seem to be standing and are not yet on their backs. Thus, the execution is still in progress. In LMP 188 the signalman is also giving the sign to pull, but the haulers are already lying on their backs. The net seems to be closed with the crossing poles and the birds are wild. Thus, the execution has ended, but the signal is referring to the beginning of the action. Here, the scene shows multiple elements (events and consequences of an action) of a process in one scene. Montet, P. (1925). *Les Scènes de la Vie Privée*, p. 50.

shown in *Table 3.4.9* concerning the upper body, the haulers can either stand straight (14 items), bend forward (26) or backwards (1). No less than 35 items show the haulers with their legs apart and only 6 show the legs next to each other or slightly apart.[490] Twenty-seven items show the haulers with their rear foot on the ball of the foot, of which 26 show the legs of apart.[491] Only 8 items show the haulers with their feet flat, with either their legs apart or next to each other. This leaves 5 items showing the haulers with their heels in the ground.[492] There is one item in which 2 of the 4 haulers also have their front feet on their toes.[493]

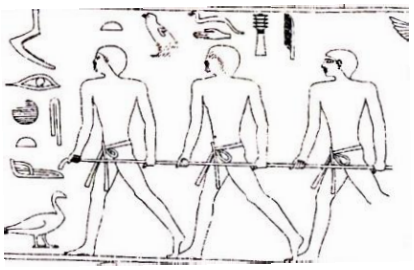


Figure 3.4.7. LMP 001A

Concerning the direction of the head and body, no less than 36 items show the haulers with their heads directed towards the net and only 3 away from the net. One needs to keep in mind that there may be some occasional head turning, as often one hauler has its head turned the opposite direction.[494] Of the 7 uncertain items concerning the head, 5 have their body turned towards the net and only one item shows the bodies turned away from the net.[495] Of the 36 items showing the heads turned towards the net, 29 show the haulers with their bodies turned towards the net and 7 turned in the opposite direction. The 3 items with the heads directed away from the net also have their bodies turned away. Again, as with the heads, some variation occurs between the haulers and their directions.[496]

Viewing the whole body pose of the figures, Harpur indicated that there were "four basic standing variants" already established in the beginning of the 5th dynasty, specifically under Sahure.[497] She describes them as follows (*Figure 3.4.8)*[498]:

[490] Uncertain items: LMP 002c, 042, 109, 183. Total of 46 items.
[491] LMP 042 only shows the feet of the haulers. It thus has been counted as 1 of the 27, but not incorporated in the table.
[492] Uncertain items: LMP 002c, 018, 054, 109, 183, 184.
[493] LMP 116.
[494] LMP 013, 049, 063B, 104, 217.
[495] Uncertain items: LMP 002c, 042, 109, 111, 183, 184, 228a.
[496] LMP 045, 053, 117.
[497] In agreement with the findings in LMP, LMP 021 (group 4) is dated by Hapur and Cherpion to the reign of Sahure. P&M and Kanawati refer to the early 5th dynasty.
[498] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 142-143.

1. The striding broad-shouldered figure with both hands hanging downwards to hold the rope.[499]
2. The broad-shouldered figure with two hands outstretched to hold the rope.[500]
3. The leaning figure with an abbreviated shoulder and arms outstretched, with the rope looped over the nearer arm.[501]
4. A similar leaning figure with hands outstretched to hold the rope.[502]

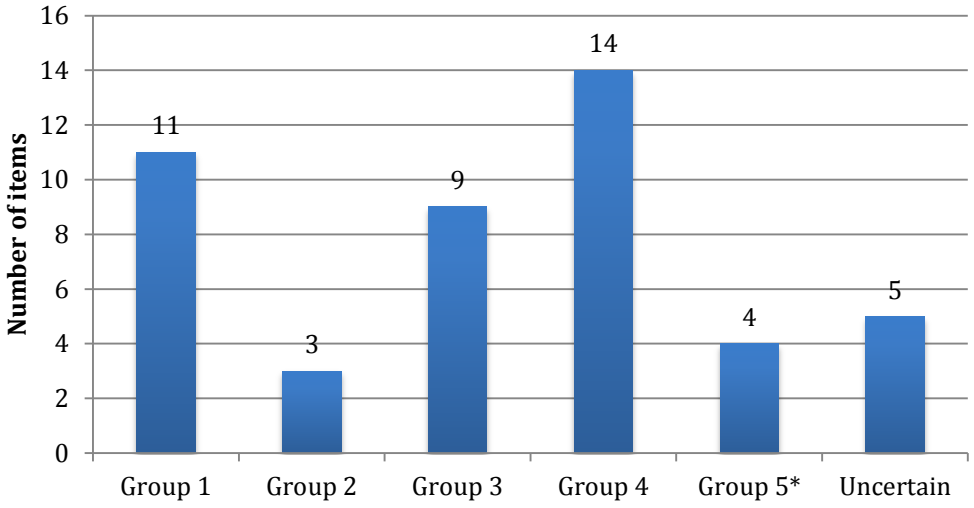


Figure 3.4.8. Distribution of the number of items per group of standing body positions (n=46).

Besides the occasional head turn or combinations of the above mentioned positions, there are some variations to these basic standing positions. One is called by Harpur a less common variant discussed besides the lying and sitting variants. According to her description "the hauler bends forward above and below the waist, and for additional support he digs his heels into the ground as he pulls the rope."[503] This variant occurs from the 5th dynasty onwards. LMP 045, 049, 070, 104, 186 show the hauler(s) in the described turned circumflex position, although the feet might be shown flat or both with their heel (*Figure 3.4.9*). There is one other example, but these haulers lean back instead of forward with their legs stretched before them and their heels in the ground (LMP

[499] LMP 001A, 002B, 053*, 063B, 129, 163, 183, 188, 217, 228a, 258a. * = a hauler in the position of group 3. Total of 11 items.
[500] LMP 013, 136*, 191. * = a hauler in position of group 4. LMP 191 looks as if the haulers are slightly bent forward above and below the waist.
[501] LMP 018, 043, 051, 060, 065, 113, 117*, 139, 183a. * = a hauler in the position of group 1. Total of 9 items.
[502] LMP 021, 044, 054, 062A, 070*, 075, 104, 111(?), 116, 149, 184a, 188 (2x), 190. * = a hauler in position of group 3. Total of 14 items. The following items remain uncertain concerning the *whole* standing body position: LMP 002c, 042, 109, 183, 184. Of the first three, the outstretched arms and possibly forward bend body are shown.
[503] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 143.

216). Even though the latter item is dated to the 6th dynasty, the present evidence does not verify the argument by Harpur that this variant occurs more often in the 6th dynasty than the bend forward variant.[504] Both variants together seem to be exceptional as only 5 out of the 46 (10.87%) standing items show this position. As it (almost) equals the number of items belonging to group 2 as well as the sitting and crouching variants, it should be an additional variation to the four basic standing positions (group 5).

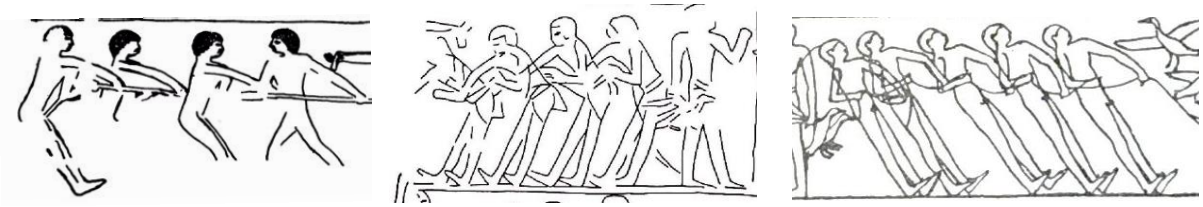


Figure 3.4.9. Haulers in a circumflex position and lean back position. From left to right: LMP 045, 186, 216.

A number of variations should be mentioned as they are rarely, if ever, repeated. LMP 043 shows the fourth standing variation but the toes on their frontal feet are in the air, showing a strange forward movement. LMP 116 shows the haulers from leaning on one leg with flat feet to standing with both feet on their toes in a plié.[505] Showing three positions in one item, LMP 070 depicts a figure with one foot on the ball of the foot, one with flat feet and his waist pushed back, and a figure leaning backwards with his legs parallel. It is not uncommon that one figure of the haulers is different,[506] but here all haulers are different, seemingly showing a sequence of movement when pulling the rope. Finally, LMP 045 shows a broad-shouldered hauler facing the others with his legs apart. Even though this representation resembles among others LMP 053 and 117[507], the arms are not placed symmetrically on either side of the body. It looks as if the figure is leaning on his frontal leg, pulling the rope, resulting in one retracted and one stretched arm. This resembles a common position with rope pulling nowadays (*Figure 3.4.10*). In almost every item overlap occurs, from 2 haulers to all haulers and from little overlap with the hands or feet, crossing arms and legs to full body overlap[508].

[504] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 143.
[505] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 358, fig. 158, 4. Vandier is not certain if it is drawn correctly by Lepsius.
[506] LMP 045, 053, 070, 104, 117, 136. Total of 6 items.
[507] Cf. Blackman, A.M. (1924). *The Rock Tombs of Meir*, Vol. 4, pl. VIII.
[508] No overlap occurs with the following items: LMP 001A, 002B, 113, 184a, 190.
Examples of very little overlap are LMP 049, 111; Crossing arms and or legs: 051, 053, 065; (Lateral) full body overlap: LMP 013.


Figure 3.4.10. Rope pulling. *Left:* Dutch Championship Tilligte*. Right:* "Stichting Nieuwe helden"

***Arm and rope position*.** As there have been variations indicated for the standing position, the same is done for the arm positions holding the rope provided in the data. The following variations have been found with Harpur as reference point (*Figure 3.4.11a-b*):

1. The broad-shouldered figure with *both hands on either side* hanging *downwards to hold the rope*.[509]
2. A straight or leaning figure with broad- or abbreviated shoulders and *arms outstretched*, with the *rope looped over the nearer arm*.[510]
3. A straight or leaning figure with broad- or abbreviated shoulders with *arms outstretched to hold the rope*.[511]
4. A similar figure with *one arm 'above' and one 'below' the net* (*no* rope looped over the nearer arm).[512]
5. *One arm outstretched and one pulled back creating an angle with the elbow*.[513]

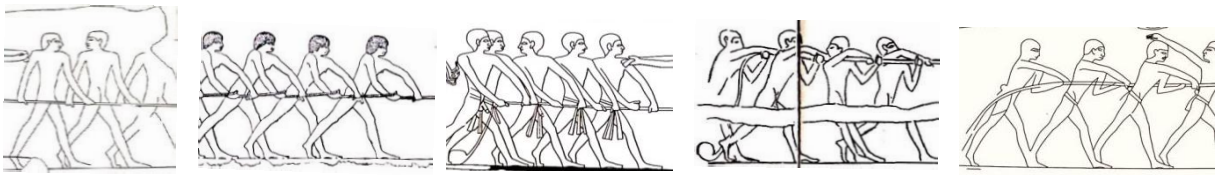


Figure 3.4.11a. Illustrations of the different arm/rope positions of group 1 to 5. From left to right:
1. LMP063B - 2. LMP 065 - 3. LMP 013 - 4. LMP 104 - 5. LMP 44

[509] LMP 001A, 002B, 053*, 063B, 129, 163, 183, 188, 217, 228a, 258a. * = hauler in position of group 2. Total of 11 items.
[510] LMP 018, 043, 048, 051, 060*, 065, 070, 113, 117*, 139, 184(?), 190. * = hauler in position of group 1 or 5. Total of 12 items.
[511] LMP 013, 021, 042(?), 049, 062A, 062B (2x under the rope), 116, 136, 149, 184a*, 188 (2x)*?, 191. * = hauler in position of group 5. Total of 14 items.
[512] LMP 049, 056, 104*, 120, 183a (3x)*, 184*, 191*. * = hauler(s) also in position of group 5. Total of 9 items.
[513] LMP 002A, 002B (2x), 044, 045, 075, 163*, 186, 188 (3x)*, 190, 216*. * = Group 2 and 4. LMP 216 overlaps with group 2 based on the rope and hands. LMP 163 and 188 overlap with group 4. Total of 13 items. In the items from Meidum the elbow is more pulled backwards.
Uncertain items: LMP 002c, 054, 109, 111, 183, 184. Total of 6 items.

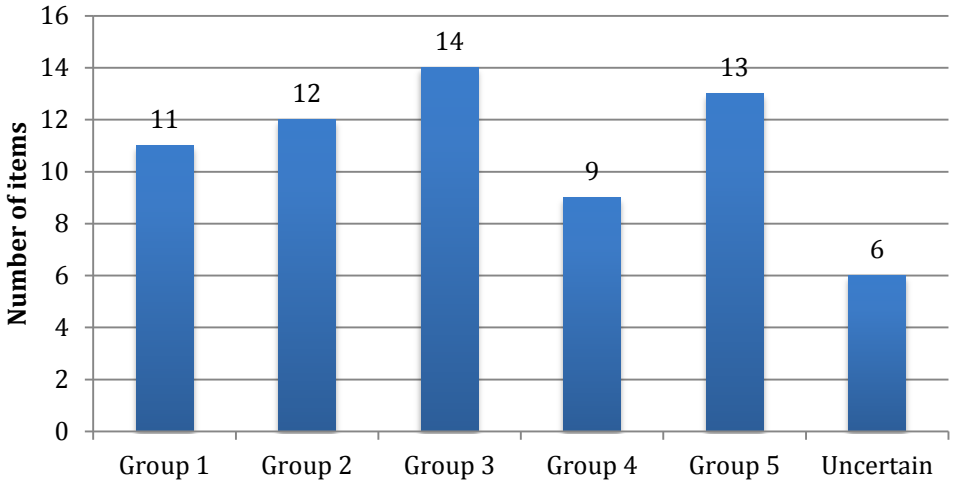


Figure 3.4.11b. Distribution of the number of items per group of different arm/hand positions (n=65).

The chart in *Figure 3.4.11b* does show a rather equal distribution, with a slight preference for group 3. Still, LMP 188 seems to represent a similar position as group 2 but it is unclear if the rope loops over the nearest hand. The haulers in LMP 062B hold both hands outstretched on the rope with the outer hand, placed before the nearer hand, showing the palm and fingers. The body position creates a unique arm position as the sitting figures have both arms under instead of above the rope. The same can be said about the lying haulers as the rope crosses above their bodies as well as their arms.[514] As these items (LMP 062B & 188) seem to slightly differ from the group in which they are placed, they could be replaced reducing the small preference of group 3.

Concerning the rope the haulers are holding, in general it seems to run horizontally through the hands of the haulers, ending towards the ground bound to a peg or rolled up (Chapter 3.1, p. 32). Yet, the rope is not always presented completely horizontally. The artist depicts the rope straight or rather tight in 53 items (81.54%)[515] and loosely in 7 items (10.77%).[516] However, alterations of the direction of the rope can also be seen in items showing a tight rope. These alterations or movements of the rope can be divided in stretched and loosely held ropes between the hands or haulers. Both types of alterations occur most frequently in group 2 and 5 with small exceptions in the other groups.[517] The result for the movement is the position of the hands of the haulers. From the earliest representations from Meidum, the fowler holds one hand in front of

[514] Cf. LMP 056 in which both arms seem to cross over the rope.
[515] Uncertain items: LMP 002c, 042, 120, 184, 186.
[516] LMP 048, 113, 116, 149, 184, 216, 136. Total of 7 items.
[517] Group 1: LMP 053; Group 3: LMP 149, 116, 188.

his torso and the other is pushed down. This results in a large, tight diagonal rope crossing the torso of the figure. This alteration of the direction of the rope occurs later in less abundant variants, especially when the rope loops over the nearest arm.[518] This seems logic as the position of the hand seems to resemble the hand position of the items from Meidum, as one hand pushes the rope down while the other holds the rope vertically, pushing his elbow backwards.[519] A really minimized movement of the rope is shown in LMP 190, where the rope only deviates from the horizontal line when looping over the hand. Also in LMP 060 and 065 the rope stays almost horizontally. The items which occur only once in the current data are LMP 116 and 149. The hand position of LMP 149 seems to resemble the previous mentioned position only the hand pushing the rope down is depicted higher than the vertical one. This gives the impression that the rope between the hands just hangs loosely with no tension upon it. LMP 116 shows still a rather horizontal rope, but between the hands the rope is drooped down, hanging loosely. Again, the item does not show any tension placed upon the rope.

3.4.4. Reality or not?

Concerning the haulers, one could question if the representation shows the factual position and number of these haulers. By addressing the purpose of the different signals, the distance the haulers might stand from the signalman and net has been addressed by Decker and Herb. According to them the cloth-signal was easier to see from a larger distance.[520] Reversible, if we were to take the spoken text accompanying the scene as a call asking for attention and action (silence etc.), then this would need to be done up-close, whispering to the haulers, in order to not disturb the birds.[521] Based on the representations, the distance argument could be disapproved as both types of signalman are also represented together. But again, this rejection would be based on the represented distance which is questioned here. The haulers are consistently depicted either on a separate register or on the same line besides the signalman. Thus, it seems that the composition firstly and mostly was influenced by space rather than representing the actual distance. Still, it seems logic that in reality the distance between the signalman and haulers was far greater, at least far enough from the net, to need a

[518] Not in the case of LMP 018, 117*, 139.
[519] LMP 043, 048, 051, 053, 070, 113, 184(?), 190, 216. Total of 9 items. LMP 075 and LMP 188 (lying) show an equal handgrip without the rope looping over the arm.
[520] Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im alten Ägypten,* Vol. 1: Text, p. 288.
[521] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 338. Montet, P. (1914). La Chasse au Filet, in: *BIFAO 11*, p. 146.

signalman to indicate when the net was full.[522]

As the represented distance is questioned, subsequently is the number of haulers. This is dependent of different elements, such as the surroundings as well as the size of the net. As Wilkinson indicated "the Egyptian nets were very similar to those used in Europe at the present day *[1878]*, but probably larger, and requiring a greater number of persons to manage them than our own...".[523] This is also addressed by Appelt, who indicated, based on his mechanism of the net, that the men would need a lot of power to close the net. He based this statement not on the size of the net, but on the obstacles being a wet rope and the turning of the rope around a peg without the use of a wheel.[524] Henein did address the size of the net as being an indicator for the number of men, from a small net needing one man to a large net needing 15 men.[525] He enhanced this argument by explaining that a large net is very heavy due to the large, possibly by water impregnated, rope and large poles. According to him, these obstructive factors would need the attendance of a number of haulers that would exceed the present number in the representations (1-7).[526]

The position of lying or almost lying haulers on the ground is explained by several authors as the result of pulling the rope with much power.[527] They assumed that from a standing position, the haulers would pull with the needed power and would fall on their backs. Appelt approached the lying position from a different perspective. He suggested the surroundings as the influential factor, as the height of the banks influences the position, angle and use op power by the haulers.[528] Klebs also argued that the surroundings influenced the position, specifically the height of the foliage covering the fowlers.[529] Henein again argued the size of the net, more specifically the length of the

[522] Montet states "a voir les bas-reliefs, on dirait que le guetteur et les tireurs se tenaient fort près les uns des autres, mais si le groupe des tireurs n'avait pas été éloigné d'une façon appréciable, le guetteur n'aurait pas eu besoin d'agiter son écharpe ou, pour mieux dire, le chasseurs n'auraient pas en besoin de lui. Ils s'éloignaient en réalité le plus possible et restaient dissimulés et immobiles dans les hautes herbes." Montet, P. (1925). *Les Scènes de la Vie Privée*, p. 56.
[523] Wilkinson, J.G. Sir, (1878). *The Manners and Customs*, p. 109.
[524] Appelt, K. (1935-1938). Der Vogelfang mit dem Klappnetz, p. 219-220, 224.
[525] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238.
[526] Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 261, n. 7.
[527] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 160; Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im alten Ägypten,* Vol. 1: Text, p. 287. This is also addressed by Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 261.
[528] Appelt, K. (1935-1938). Der Vogelfang mit dem Klappnetz, p. 226.
[529] Klebs, L. (1982). *Die Reliefs des alten Reiches (2980-2475 v. Chr.),* p. 71; Junker, H. (1943). *Reden und Rufen,* p. 40, n. 1.

rope, as a result for the position of the haulers.[530] All elements could be influencers of the position of the haulers, but the current data shows that the lying and regularly the sitting positions are final poses as the net is closed and fowlers are gathering the birds.[531] Even though it is not possible to tell how large the net was, the two phases in catching birds in LMP 062B and LMP 184 could indicate a smaller net in real life as the power to pull is reduced by the sitting position. Still, interpretation of the number and position of haulers should be handled with caution.[532] Even though all elements are associated with the activity of catching birds with the hexagonal net (showing several phases and variations), they don't have to represent the actual proportions. The artist could have been influenced by the surface and space available to represent the general activity, which could explain the deviation from the 'real depiction' of the net.[533]

[530] Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 261, n. 7.
[531] In LMP 062B and LMP 184 the sitting position is the starting point and the lying position indicates that the net is closed. LMP 188 shows lying haulers but the signalman just gave the signal to pull, as well as the accompanying text implying to pull.
[532] Decker, W., and Herb, M. (1994). *Bildatlas zum Sport im alten Ägypten,* Vol. 1: Text, p. 287.
[533] Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 263.

4. Conclusions

The main purpose of this thesis was to systematically study and analyse the scenes showing *the catching of waterfowl by means of a hexagonal net* found in the published Old Kingdom tombs of the Memphite area and by doing so trying to understand all technical aspects of this net. Although the percentage of scenes showing the catching of waterfowl with a hexagonal net is very small within the decoration program of the tombs (1%: 70 out of 6943 registers), fowling with a 'hexagonal net' is the most popular way of fowling depicted. The subtheme is shown on 70 registers in 57 tombs, which is 16.91% of the total number of tombs in the Memphite area. The subtheme is found at Saqqara (42 items), Giza (20 items), Meidum (6 items) and Dashur (1 item). The topographical distribution of the subtheme is twice as large at Saqqara compared to Giza, based on the total number of items and tombs. Even based on the total number of tombs found per location, Saqqara is the most popular location for this scene (18 of the 169 (10.65%) at Giza versus 33 of the 144 (22.92%) at Saqqara).[534]

The tombs are dated from the 3rd until the 6th (FIP) dynasty, indicating that the subtheme is represented throughout every period of the Old Kingdom.[535] Based on the 'most likely date', the largest group of tombs is dated to the reign of Teti (2345-2323 BC) with 4 tombs (8 items). However, this is only 7.02% of the tombs. Aggregating the dates in dynasties, the highest number of tombs is found belonging to the 5th dynasty, specifically the second half of the 5th dynasty. Therefore, a higher preference for the depiction of hexagonal nets occurs in this period.

The majority of the items are located on the east wall (26 items; 37.14%). However, the subtheme is also depicted on the other walls, or orientations, with a rather equal distribution (North 11, South 13, and West 10 items). So contrary to the finding by Mahmoud, a symbolic meaning linked to the walls, implying a geographical orientation such as the Delta, cannot be substantiated here.[536]

There appears to be a slight preference for the upper position on the walls (32.86%), however the numbers do not deviate considerably from each other to support this statement. The deviation between lower and upper position can be explained by the

[534] The comparison here is between Giza and Saqqara as most tombs were found here. The LMP database provides information about 5 tombs in Meidum. The subtheme 'hexagonal net' (H) is found in 4 tombs (6 items). Hence, 4 out of the 5 tombs show the subtheme H, which is exactly 80% making the scene also highly preferred at Meidum.
[535] Based on the dating by P&M.
[536] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 122.

preference in Giza to depict the subtheme 'hexagonal net' mostly in the upper registers. At Meidum and Saqqara all three positions were displayed with a rather equal distribution indicating the subthemes' freedom of movement on the wall.

The main theme 'trades' (TR) is the only theme not adjacent to the subtheme 'hexagonal net' (H). The reasons concerning 'why' remain uncertain. If one were to argue that only related themes surround the subtheme 'hexagonal net', it would be refuted based on two different arguments. First, one could suggest that there is a relation based on the subtheme 'fabrication of ropes' (TR, Fr). Secondly, the argument that there is no relationship is refuted as other unrelated main themes are depicted surrounding the subtheme 'hexagonal net' (for example Games (GA)). However, the suggestion that themes are related is in this case merely speculative, and should be examined in more detail.

The subthemes most commonly found directly next to the subtheme 'hexagonal net' are 'caging birds' (Bc) or the 'presentation of birds' (Pb), which can support the sequence between catching birds and caging them for transport or presentation of the catch to the tomb owner. Nonetheless, they are not consistently joined and the main theme 'fowling' with subtheme 'hexagonal net' is often presented as a single scene surrounded by unrelated subjects.

After statistical examination, the following elements seem to be essential to depict in the subtheme: the haulers (91.55%), the hexagonal shaped net (81.69%), the longitudinal rope (66.20%), signalman (60.56%), poles (50.70%), large peg (50.70%) and hides (47.89%). The other elements (knots, coils, pegs) are also shown, but occur infrequently (*Table 4.1)*. The current data does not reveal clear indications to explain the technical aspect of the hexagonal net. However, it does question or complement several elements of the different theories concerning the technical mechanism. As such, a variation in depicting one or multiple longitudinal ropes occurred in Saqqara at the end of the 5th dynasty, beginning of the 6th dynasty. It is theorized that, in order to achieve the closing impulse on both sides, the ropes from the far corners of the nets must have been joined together, led around the large peg and then back along the longitudinal axis, to be united to the operational rope at the beginning of the net.[537] The results of this mechanism are a completely closed net and a rope that is not too long compared to the ropes' length

[537] Dunham, D. (1937). Two parallels, in: *BMFA*, Vol. 35, p. 52.

when it is fixed to the large peg. Once closed, it would presumably show two or three ropes. With regards to the length of the rope, it is difficult to prove if the rope was bound *around* the large peg or *attached* to it.[538] Only 17 items show the rope connected to the peg, but there is no clear identification of how it is attached. Although the above mentioned theory by Dunham would give an explanation for the double and triple ropes, they are rarely depicted resulting in insignificant evidence (17.02%).[539] Besides the number of ropes, no evidence is found regarding the type of ropes (material and construction) used.

The leaping poles are of interest for the mechanism concerning the closing position of the net and several authors have presented their opinions about this. The poles are diagonally represented in 36 items (50.70%), crossing under the waterfowl (19.44%)[540] or above the birds (50%)[541]. Sometimes pegs are shown being attached to the poles (LMP 013, 049 (2x), 056). These pegs imply hinges as can be seen hanging in a kitchen scene or brought to the installation of the net (LMP 049). But again the number of representations is not significant to completely support this theory (5.63%). It does overthrow the argument by Bénédite, as he states that the poles are attached to two fixed bars.[542]

Montet implied that when closing the two 'panels' (by means of the poles) they would lie flat on the water surface, covering the water completely.[543] Another explanation could be that, as addressed by Henein and Appelt, the poles intersect in the air obliquely, forming a tent shape.[544] This could explain the representation of the diagonal poles, as well as the crossing of the poles on the longitudinal axis, as the panels would lean in towards each other.[545] Concerning the theory by Montet, if not operated correctly, the waterfowl can dive away or flee out the sides.[546] According to Henein the net would not only close in from the side, but continue underwater forming a 'filet avec fond'. His 'tent shape' net would generate more space for a larger group of birds to be

[538] Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 183-184.
[539] Total of 8 out of the 47 items showing a longitudinal rope.
[540] LMP 002A, 002B, 018, 043, 049, 053 & 054. Total of 7 items.
[541] LMP 013, 042, 049, 065, 117, 139, 183, 183a (3x), 184a, 188 (5x), & 191 (2x). Total of 18 items.
[542] Bénédite, G. (1910). La Tenderie, in: *ZÄS,* Bd. 48, p. 8 ; Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 146. These side panels could slow down the closing of the net, giving the fowl the opportunity to flee.
[543] Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 151 & 153.
[544] Appelt, K. (1935-1938). Der Vogelfang mit dem Klappnetz, p. 221-223; Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238.
[545] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238.
[546] Montet, P. (1914). La chasse au Filet, in: *BIFAO* 11, p. 146.

caught as well as giving no opportunity for the birds to flee on the sides or dive away.[547] It would also suggest that most birds were caught alive, leaving their feathers intact. In the case of Montet's mechanism one would suspect a higher number of representations of birds on their backs (implying death or unconsciousness) as the net closes completely in on the birds with a certain amount of speed. Nonetheless, the variation in depicting the birds on their back is too insignificant to be able to support or deny this hypothesis (7.04%).[548] Even though, with his comparison to the nets used at Lake Manzala, the explanation by Henein seems very reasonable, the theory of the 'filet avec fond' is not significantly supported by the current data.[549]

Concerning the intended catch with the net, the number of waterfowl within the net and surrounding the net show no significant differences or similarities. Moreover, no trends are found concerning the frequencies and dating of the LMP numbers. What is interesting to mention however is that the number of birds outside the net is smaller compared to the birds inside the net. This could be a result of the position in which the birds are represented combined with the space available. It could also be a way for the Egyptian to indicate a large catch, which was more beneficial than a small catch. The variations amongst the waterfowl are shown in the execution and position of the birds. Examples are the occasional head turning, eating of fish or the depiction of birds on their back.

The identification of the birds was only described in detail when examining the long-legged birds. Without colour the identification of the waterfowl in and around the net is very difficult. Only characteristics such as size and sometimes shape between the birds can indicate the difference between the type and species of the birds, with only the Pintail being identified with a high certainty.

Besides the net and the intended catch, several other elements belonging to the subtheme 'hexagonal net' were discussed. The oval shape, which is highly preferred at Giza, is identified as water. The arguments for this identification include the surrounding vegetation and the content of the oval shape containing lotus flowers, buds and leaves.

[547] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238.
[548] There are 5 tombs showing birds on their backs and 1 tomb showing 2 birds vertically. Of the 5 tombs, LMP 188 is excluded from the above mentioned calculation as it shows two cranes on their backs. The remaining tombs show in total 5 items with birds on their backs (LMP 018, 049 (2x), 149, 190). See Chapter 3.1.2, p. 46.
[549] Henein, N. (2001). Du Disque de Hemaka, in: *BIFAO* 101, p. 238, fig. 6.

Because of the latter, the location would resemble an area with shallow waters (swampy habitat) which would attract ducks and geese to swim and rest, such as the Nile Delta. The hexagonal shaped surroundings were described as a strip of net (folded like an accordion) or water.[550] Based on comparisons between items, these surroundings have been identified as a simplistic representation of vegetation. Developments in the depiction of surrounding vegetation are evident from the end of the 5th dynasty onwards as the flora is moved from surrounding the water (oval shape) towards directly surrounding hexagonal shape of the net[551] and may suggest that the oval shape became less essential. LMP 183 shows however that the oval shape did not completely disappear from the scene. This development occurred at Saqqara, which is in agreement with the increasing diversity in Saqqara tombs. Although not included in the statistical analyses of the data, LMP 043 indicates that the unique feature of depicting a strip of vegetation around the net also occurred in Giza during the end of the 5th, early 6th dynasty.

Some vegetation is represented to fill a void, such as the vegetation between the haulers. The latter variation sporadically occurred through time in Meidum, jumping towards the second half of the 5th dynasty in Saqqara and again to the 6th dynasty in Saqqara. Harpur addressed the possibility of an artistic link between Saqqara and Meidum. Although this theory could be possible, she omitted the item from Dashur which also shows vegetation between the haulers.[552] In my opinion, with 9.26% depicting this variation, the data is too small to underpin this artistic link. Specifically with the infrequent occurrence spread over time, the argument 'to fill a void' seems more adequate.

The hide is a new, rather essential (47.89%) element which occurs in the 5th dynasty, with a high preference at Saqqara.[553] Mahmoud indicated that no essential elements were introduced or omitted to the theme throughout the Old Kingdom and Vandier indicated that the hide is often absent, suggesting it is less important to depict. But with nearly 50% of the items showing hides introduced in the 5th dynasty both

[550] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V: Bas-Relief et Peintures: Scènes de la Vie Quotidienne, p. 343 and fig. 154; Henein, N. (2002). Filets hexagonaux à Oiseaux, in: *BIFAO* 102, p. 262-263 & 265.
[551] LMP 002B from Meidum is rather damaged. The pieces found do seem to depict some form of vegetation. It is yet unclear if it surrounds the water.
[552] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 179.
[553] Ibidem, p. 188, n. 139.

authors can be refuted.[554] The identifications of the hides have led to the recognition of a possible change in the stylistic representation of the hide. The items show a change from a detailed depiction of the vegetation in the first half of the 5th dynasty towards roughly presented hides resembling trees instead of water plants at the end of the 5th into the 6th dynasty. This change seems to occur mainly in Saqqara.[555] However, being described as trees in the literature, the identification of these hides remains rather uncertain.

A total of 20 out of the 71 items show long-legged waterfowl (28.17%). With no less than 17 out of 44, 38.64% found at Saqqara. This large number of items from Saqqara point to a preference for this element at this location. Based on visual examination, 7 have been shown in the overview and 6 different species of *Ciconiiformes* have been identified, namely the Grey heron, Egret, Bittern, Spoonbill, Glossy ibis and the Crane.[556] With 49.06%, the gender *Ardea sp.* or even more specifically the *Ardea cinerea* (Grey heron) is unmistakably the most common long-legged bird depicted near the hexagonal net. When one bird is depicted near a net it is, with the exception of the uncertain items, always a heron. If more long-legged birds are present in one scene, again the heron is highly preferred. Still, as the depiction of the bird only occurs in 26.76% of the items, the possibility of it being a decoration 'rule' is refuted. A variation lies in the combination of different species, from two birds to multiple birds. This variation started to occur at the end of the 5th dynasty, but the limitation lies in the choice of species as it is restricted to two (besides the heron), namely a spoonbill or bittern.

Arguments made for the long-legged bird being a decoy, specifically for the Grey heron, focus on the benefits and reasons to use long-legged birds during catching waterfowl. They do not explain the identification of these decoys based on the representations. The long-legged birds deviated from the net (6 items) and the birds near the net show the same natural standing pose. If the sequence of the scenery is used as an argument, one could state that the birds are placed near the net to lure the water birds. Once closed, they would not be necessary anymore and as such gathered and bound to a peg among the other fowling accessories. However, of the 6 birds

[554] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V: Bas-Relief et Peintures: Scènes de la Vie Quotidienne, p. 348 ; Mahmoud, O. (1991). Die wirtschaftliche Bedeutung der Vögel im Alten Reich, Vol. 35, p. 123.
[555] With the exception of LMP 228a as well as LMP 258a at Dashur.
[556] The *Nycticorax nycticorax,* or Black-crowned Night heron was added to the overview, based on some discussion concerning the identification of the birds. The bird has not been identified.

represented either on a separate register or among the haulers, 2 birds are bound to a peg with their legs (LMP 049 and 184a). The long-legged birds could just as well belong to the natural flora and fauna of the scene. They could have simply flown away once the net was being closed, as movement could scare off animals.[557] Together with the argument that in literature the description of a decoy is canonized, the evidence for long-legged waterfowl being decoys in the representation in Old Kingdom elite tombs in the Memphite area is visually rather marginal and thus statistically insignificant.

Concerning the figures, there are 43 items (60.65%) in 40 tombs showing a signalman. Of the 71 depictions of catching birds with a hexagonal net, no less than 47 (66.2%) nets are accompanied by a signalman.[558] Hence the signalman is a highly preferred but not always essential figure.[559] Based on the 43 items, Saqqara shows the largest group, namely 26 items (60.46%). Based on the total number of items per location, no less than 88.89% of the items at Giza show a signalman (70.27% at Saqqara). Hence, even though Saqqara seems to obtain the most representations of a signalman, based on the current data a signalman is shown in almost all the representations from Giza.

The signalman is mostly shown standing with his legs apart, holding a cloth over his chest in his outstretched arms and turning his head towards the net or the haulers. In the 5th dynasty additional positions occur in the depiction of the legs, arms as well as the gesture made by the signalman. In addition to the cloth gesture, different hand gestures occur. Besides visual examination of the gestures, or signs, the accompanying text was examined. Different denotations were found supporting the process of the catching of birds. The gestures made by the figure inquire a certain form of action. The *signal of the cloth* could be the indicator to *pull* resulting in the closure of the net. *The angled arm signal* signals the fowlers to *come* towards the net. Finally, the gesture with the arm in the air is unidentified. With only 3 divergent sentences and a caption found near this type of figure, the textual evidence is rather weak to conclude a description of this signal.[560] However, based on the previous two action descriptions insinuated by the gestures, the figure can be described as a 'signal-man'.

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[557] Montet, P. (1914). La Chasse au Filet, in: *BIFAO 11*, p. 146.
[558] The 47 nets include 43 nets with a signalman as well as the multiple nets represented on different registers covered by a single signalman (4 nets).
[559] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom*, p. 144. Dominicus, B. (1994). Gesten und Gebärden, in: *SAGA*, Bd. 10, p. 112.
[560] Of the 9 items, with either a horizontal or diagonal arm in the air, only 4 have text. These are LMP 049, 183, 190 & 191 shown in *Table 3.4.6*.

The highest percentage is found when examining the haulers. No less than 65 items (91.55%) in 45 tombs (90%) show haulers with or without a net. The range of haulers is 1 up to 7 and the most common group of haulers is *Mo* = 4, as it occurs 32.31% (19 tombs). However, as no exact measurements of the net as well as type of ropes are known, it is difficult to interpret with certainty the number of haulers needed. One can state that, when using an equal size net, the sitting haulers would need a larger group of haulers to compromise for the weight loss. The composition of the scenes all resemble each other based on the main elements 'haulers', 'rope' and 'position opposed to the net' as they are controlled by the nature of the activity.[561] However, no item is the same. The standing position is the most common position, but from the second half of the 5th dynasty the haulers are also presented sitting or lying. The sitting and lying positions have been identified as the position in which the action of pulling has ended. However concerning the sitting position, they either show the haulers holding the rope after closing the net or they are about to pull and the end result is lying on the ground as for example is shown in LMP 062B. Besides the difference in position, within the groups of haulers several variations occur between the leg and arm positions.[562] Interesting to mention are the figures positioned in a circumflex position, with their heels in the ground. This position occurs from the second half of the 5th dynasty or later and seems to show a more complex position during the process of pulling the rope with their heels digging into the ground. Concerning the arm positions, they also get more complex over time. They evolve from being positioned alongside the body, to more in front of the body as well as holding one arm in and the other outstretched, resulting eventually in 5 groups of arm and hand positions. Details in holding the rope, looping over the hand, are interesting as it could for example strengthen the grip on the rope or show the continuation of the rope.

Viewing the position of the signalman and the figures, it would seem logical that in reality the distance between the signalman and haulers was far greater, at least far enough from the net to need a signalman to indicate when the net was full. Interpreting the 'true' distance should be handled with caution. All elements are concerned with or necessary for catching birds with a hexagonal net (showing several phases and

[561] Harpur, Y. (1987). *Decoration in Egyptian Tombs of the Old Kingdom,* p. 173.
[562] Vandier, J. (1969). *Manuel d'Archéologie Égyptienne,* Vol. V, p. 356.

variations). The artist used the surface and space available to represent the general activity and as such would not have to represent the actual proportions.

The statistical data shows that the expansion of variations between the tombs and items occurs mostly during the second half of the 5th dynasty or later (*Table 4.2*). These variations coincide with the increased diversity recognized around the time of the reign of Neferirkare until Djedkare Izezi.[563] Staring indicated that "increasing diversity was, however, confined remarkably primarily to Saqqara tombs." This is in agreement with the current findings, but as indicated by Staring, the possibility for unique features to occur at Giza is not excluded. Even so, one needs to keep in mind that the increased diversity occurred parallel to a growth in the number of tombs. No less than 177 tombs in the LMP database dated to the second half of the 5th dynasty and 259 tombs to the period from Niuserre to Pepi I.[564] In both cases a little over 18% of the tombs are covered by the subtheme hexagonal net.[565] As the provided sample is larger in these two periods, more information about several elements, variations or styles can be gained. It also enhances the possible presence of these variations or differences between scenes. With the fallacy of negative proof, we cannot exclude the possibility of these variations already being present in the 4th dynasty or earlier. But one can also argue that, based on the development of scenes and tombs, the first representations were more compact (as for example the haulers), leaving less room for different elements.[566] However, it still does not exclude the presence of variations.

Table 4.2. *Development of the subtheme 'hexagonal net' during the Old Kingdom, based on the statistical data*

Element	**Date of first appearance**	**Location***
Multiple longitudinal ropes, instead of a single rope	Niuserre or 5th dynasty, end	Saqqara
From vegetation surrounding the oval shape to directly surrounding the net	5th dynasty, end	Saqqara, with the exception of LMP 143
Vegetation at the end of the net	5th dynasty, middle or later	Saqqara

[563] Staring, N. (2009). Fixed Rules of Personal Choice? On the Composition and Arrangement of Daily Life Scenes in Old Kingdom Elite Tombs, in: Strudwick, N. & Strudwick, H. *Old Kingdom, New Perspectives: Egyptian Art and Archaeology 2750-2150 BC,* p. 269.
[564] On needs to keep in mind that the LMP database shows the tombs dated to multiple periods twice if searching for these periods individually.
[565] Second half of the 5th dynasty: 33 out of the 177 toms (18.64%); Combined with the beginning of the 6th dynasty: 47 out of the 259 tombs (18.14%).
[566] Dominicus, B., *SAGA*, Bd. 10 in: Van Walsem (1998). Boekbesprekingen, *BiOr*, Vol. 55 (1/2), p. 129.

The representation of a hide	5th dynasty or 5th dynasty, middle or later	Saqqara, Giza
The change towards an rather artificial hide	6th dynasty, early	Saqqara, with the exception of LMP 228a
The representation of more than two long-legged birds near the net	5th dynasty, end - 6th dynasty, early	Saqqara
Hand gesture by the signalman	5th dynasty, middle	Saqqara, Giza
Haulers lying on their backs	5th dynasty, middle or later	Saqqara, with the exception of LMP 120
Hauler sitting	5th dynasty, middle or later	Saqqara, with the exception of LMP 163
Haulers in a circumflex position (excluding the Haulers bend backwards)	5th dynasty, middle or later	Saqqara

* The exceptions are all located at Giza.

4.1. Limitations & future research

This study has several limitations. Concerning the data used, it is based on the currently published tombs and does not include the yet unpublished but known tombs. This indicates a convenience sample. Publishing and writing articles about findings or digs is often a slow process and certainly a development point within Egyptology.

Concerning the representations, the original tombs were not at hand leaving the line drawings and photographs as the main source of information. Not all publications included both types of sources, which resulted in some uncertainties concerning the reliefs in the scene (for example the line drawings by Lepsius). Even though the appendices include the plates of the items used, it remains advisable to consult the publications or if possible the original tomb.

There is one item, which has been included in the data based on the type of net used and the execution of the scene, with the only difference being the catch presented. The item, namely LMP 075, shows pigeons instead of waterfowl. It is currently the only example from the Old Kingdom. Based on the content of the net, it should have been excluded from the data. However, because the surroundings and presentations of the fowlers resembled the execution of catching waterfowl, I decided to include this item. As the catching of birds on land nowadays resembles the catching technique with a 'clap net', it would be interesting to further examine this item as well as the catching and use of pigeons in ancient Egypt.

Concerning the different elements of the net and surrounding the net, future research could dig deeper into the data by examining more specifically the differences or similarities between these elements. Especially with similarities, such as positions of figures, perhaps one could trace the hand of a sculptor. This could also be the case with the representations of the net or between the hides. Besides tracing the hand of a sculptor, one could also examine the replication/copying between tombs. Again this could have occurred for example with the hides, but perhaps also between the tomb of *Ty* and *Snbmiḥ:Mḥi* concerning the horizontally held arm/hand (C_1) or between the tombs of *Kɜmnfrt*, *ʾItisn* and *Sʿnḫwptḥ* concerning the crouching position with the hand on the knee (B_2.)

Future research could broaden the scope of this data by examining the different periods and development through time, such as the change of the figure(s) who haul or the abundant representation of flora and fauna. However, one should take into consideration the social and economic environment in which the representation is made in order to translate or explain certain developments or changes.

Despite the mentioned limitations, this study sought to provide a detailed insight in the daily life scene of catching waterfowl with a hexagonal net and should hopefully motivate future research.

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