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The certainty of change : a research into the interactions of the decoration on the western walls of the cult chapels of the mastabas at Giza during the Old Kingdom

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The certainty of change

A research into the interactions of the decoration on
the western walls of the cult chapels of the mastabas
at Giza during the Old Kingdom

VOLUME I:

Text

Table of contents

Volume I

Compilations	Table of contents	ii
	Technical terms and abbreviations	v
	Bibliography and bibliographical abbreviations	viii
	Bibliography of the tombs	xv
	Introduction	xix
	Compilation of (sub)themes	xxi
Chapter I	Architecture, decoration and interpretation.	
	Introduction	1
I.	The development of the superstructure of the mastabas at Giza	2
II.	The development of the decoration of the cult chapel	10
III.	The secular versus the non-secular content of (sub)themes	16
IV.	The « etic » versus the « emic » interpretation	21
Chapter II	Preliminary considerations	
I.	The purpose of this research project	23
II.	The research project	25
III.	The catalogues	28
IV.	Considerations concerning chronology	33
	Appendix II.1. The decoration south of the false door	35
Chapter III	The methods employed in the research project	
I.	Introduction	38
II.	Methods	38
III.	The co-occurrences between (sub)themes	43
IV.	Co-occurrences of (sub)themes in relation to their location on the wall	47
V.	The cultic character of (sub)themes	53
VI.	The determination of the influence between two (sub)themes	56
	Appendix III.1. Various methods of calculating the difference factor Df	60
	Appendix III.2. The calculation of the difference factor (CPSD) of the central field	61
	Appendix III.3. Some aspects of curves	63
	Appendix III.4. The making of a chronological ordering	70
Chapter IV	The western wall of the cult chapel	
I.	The (sub)themes on the western wall	73
II.	Preliminary study	75
III.	The chronological ordering of the (sub)themes	76
IV.	Preliminary conclusions	79
Chapter V	The co-occurrence of (sub)themes on the western wall	
I.	Considerations concerning the co-occurrence of the (sub)themes	81
II.	Conclusions about the co-occurrences on the western wall	83

Chapter VI	The locations of the (sub)themes on the western wall	
I.	Considerations concerning the location of the (sub)themes on the western wall	85
II.	The location of the (sub)themes on the wall sections	86
III.	The chronological development of the employment of the main (sub)themes on the wall sections	91
IV.	The interaction between (sub)themes 1, 2 and 3	94
V.	CP and SWS values	96
VI.	Preliminary conclusions	99
Chapter VII	The relation between the (sub)themes on the western wall	
I.	Preliminary considerations	100
II.	The cultic character of (sub)themes 1, 2 and 3, and its chronological development	103
III.	Determination of the cultic character of the (sub)themes	105
IV.	The unifying function of (sub)themes	112
V.	The chronological development of the cultic character of the western wall	116
VI.	Preliminary conclusions	119
Chapter VIII.	The decoration of the false door	
I.	Preliminary considerations	121
II.	FO calculations	124
III.	Interactions in chronological development between (sub)themes on the false door	128
IV.	Conclusions	136
Chapter IX	The chronological development of the cultic character false door and its parts The interaction between the western wall and the false door	
I.	The chronological development of the cultic character: preliminary considerations	138
II.	The chronological development of the cultic character of the whole western wall	140
III.	Conclusions	142
Chapter X	The interactions between the decoration of the western wall and the false door. Further considerations about the magical food supply	
I.	Preliminary considerations	144
II.	Considerations relating to the food supply for the <i>ka</i> of the deceased	145
III.	Conclusions	150
Chapter XI	The results, analysis and correlation	
I.	Preliminary considerations	151
II.	Summary	152
III.	A compilation of the mutations of the (sub)themes throughout the Old Kingdom	168

Chapter XII	Conclusions	
I.	Introduction	172
II.	Conclusions	172
III.	The signalling/guiding role.	178
IV.	Epilogue.	178

Volume II

Catalogues	182
Tables	191
Diagrams	205
Chronological orderings	213
Plates	217
Stellingen	233

Technical terms and abbreviations

Association	The tendency of (sub)themes to be placed together on the same wall, or wall section, or on the false door or a part of it.
Attribute	The separate parts which together form a (sub)theme.
Bandwidth	In a diagram every measurement (point) of a curve has an uncertainty in both directions; for the whole curve this is depicted as a band of a certain width with the line of points approximately in the middle. http://mathworld.wolfram.com/Accuracy.html
Chronological ordering	In this research project it is applied as a chronological ordering of tombs which is based on the midpoint of their “use life”.
Cluster / cloud	A compilation of measured values gathered in a diagram.
Combination	The occurrence of the same (sub)theme on more than one wall section or part of the false door(= multiple placement).
Co-occurrence	The placing of two (sub)themes on the western wall or on a section of it.
Copied	If a (sub)theme which is placed on wall A of the cult chapel, also gets placed on wall B, while the original (sub)theme remains placed on wall A, the (sub)theme is said to have been “copied” from wall A onto wall B.
CP	Abbreviation for “Co-occurrence Percentage”, the number of co-occurrences between two (sub)themes expressed as a percentage of the maximum number of co-occurrences possible between the two of them.
CPSD	“Co-occurrence percentage surrounds discrepancy”, a calculated value giving the quantified difference between a CP value and the CP values surrounding it in a table.
Cultic	Everything pertaining to the primary function of the cult chapel of the tomb chapel.
Cultic content	A measure of the cultic character given as the number of (sub)themes having a certain type of cultic character during a given period.
Cultic character	The type of function of the (sub)theme on the western wall or the false door. This is determined by the kind of interaction it has with the prime (sub)themes.
Dissociation	The tendency of (sub)themes not to be placed together on the same wall, or wall section, or on the false door or a part of it.
Elements of the western wall	The functional parts of the western wall consisting of the false door against the western wall and the remaining surface of this western wall (also see “western wall” and “whole western wall”).
Emic	The point of view when a system is studied employing criteria being inherent to the system itself.
Etic	The point of view when a system is studied employing criteria being inherent to a system other than the system under study.
Focal (sub)theme	The (sub)theme which can be considered to be the most important of a group of (sub)themes.
FO	Abbreviation for “Frequency of Occurrence”, the frequency with

	which a subject under study occurs in a population, expressed as a percentage of a defined number of attributes, the character of which is determined by the subject under study (see chapter III, section II.1.1.).
Funerary	All architectural expressions and cultic activities which are connected with the burial of the tomb owner.
Group (of (sub)themes), a scene	A conglomerate of (sub)themes in which several (sub)themes are strongly connected with a (sub)theme serving as the focal point of the group (a focal (sub)theme (see <i>infra</i>)). The group serves to convey an idea which cannot be expressed by any of the (sub)themes alone.
Guiding role	The (sub)theme has the role of guiding visitors of the chapel to the offering place in front of the false door.
Ideographic offering list	The display of offerings and their quantities depicted next to the offering table and written ideographically (“Inventaropferliste”). ¹
Importation	A (sub)theme that is already present on an element of the western wall of the chapel also appears on another element.
Introduction	The appearance of a (sub)theme on a wall. It concerns a (sub)theme that, up to that point, has not been placed anywhere in the cult chapel.
No.	Abbreviation for “number”(plural nos.).
Non-ideographic offering list	The inventory of the furniture and other goods for the benefit of the deceased that were placed in the tomb on the day of the burial.
Parts of the false door	The component parts of the false door (panel, door jambs, etc.).
Period	A chronological unit defined in such a way as to fit a certain type of research.
Population	A group of items which is the subject of an arithmetical study.
Prime (sub)theme (main (sub)theme)	A (sub)theme that has a leading role on the false door and/or the remaining surface of the western wall. It constitutes: 1. The tomb owner sitting at the offering table. 2. The tomb owner standing with members of his family.
Remaining surface of the western wall	The surface of the total western wall that is not taken up by the false door(s). In the research project this term is often replaced by the term “western wall”.
Ritual	The total of cultic activities that take place in a cult chapel, and which were nearly always intended to be repeated on a daily basis, and certainly during (most of) the many festival days.
Scene	A group of (sub)themes together depicting a decorative subject.
<i>Serekh</i> type false door design	A false door of the type that is also called “palace façade paneling” (LÄ, V, 568, Abb. 3, s.v. “Scheintür”).
Shift	If a (sub)theme, which is originally placed on wall A of the cult chapel, is moved to wall B, thereby disappearing from wall A, the (sub)theme is said to be “shifted” from wall A to wall B. For this the verb “to transfer” can also be used.
Signalling role	The (sub)theme has the function to signal the ownership of the tomb by means of depiction and text.
Sth (sths)	Abbreviation for “(sub)theme”(plural = “sths”).

¹ Barta, *Opferliste*, 9. A small part of the inventory offering list that is placed next to or under the offering table.

SWS	Abbreviation for “(Co-occurrence on the) Same Wall Section”.
Subperiod	Part of a period (see above).
(Sub)theme	One of the (basic) items of the decoration of the western wall of the cult chapel and the parts of the false door. With other (sub)themes it can form a group or scene and it consists of attributes.
Symmetry	In this study with the term “symmetry” is meant the optical symmetry of (sub)themes placed north and south of a physically significant point or (real or fictitious) axis on the western wall (e.g. the false door) of the cult chapel.
Total western wall	See: Whole western wall.
Unifying function	The function of a (sub)theme when it is placed between larger (sub)themes, thus unifying them by filling up the open space between them. This unification is not meant to equalize the sense of the two (sub)themes.
Use life	The period during which a certain criterion (here a (sub)theme)) has been employed in the material culture under study.
Wall sections (ws)	The subdivisions in which the wall of a chapel (here the western wall) can be divided and that are determined by the placement of the false door(s) on this wall.
Western wall	Although as a rule the western wall consists of the false door(s) and the wall not taken up by them, for the study at hand it is necessary to differentiate between them. Consequently the surface of the western wall that is not taken up by the false door(s) is either called the western wall or the remaining surface of the western wall.
Whole western wall	The total western wall, consisting of the false door(s) and the remaining surface of the western wall.

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AEP	<i>L'Art égyptien au temps des pyramides</i> (Paris, 1999).
ÄF	Ägyptologische Forschungen, Glückstadt, Hamburg, New York.
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Arnold, <i>Pyramids</i>	D. Arnold, <i>When the pyramids were built</i> (New York, 1999).
ASAE	Annales du service des antiquités de l’Égypte, Cairo.
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BÄB	Beiträge zur Ägyptischen Bauforschung und Altertumskunde (Wiesbaden).
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² The abbreviations employed for journals, bulletins etc. are the ones given in LÄ, VII, XIV-XIX, s.v. “Liste der abgekürzt zitierten Zeitschriften und Reihen”.

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- BIFAO Bulletin de l'Institut Français d'Archéologie Orientale, Cairo.
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Akhtihotp	200-1	Reisner, <i>Giza I</i> , 27-8, 322, 327, 328, 333, 341, 344; Der Manuelian, <i>Slab stelae</i> , fig. 218; Stevenson Smith, <i>Sculpture</i> , plate 41; Harpur, <i>DETOK</i> , plan 38[394-5].
ꜥAnk-haf	196	Reisner, <i>Giza I</i> , 299, 308, 322, figure 8, 122; Harpur, <i>DETOK</i> , plan 39[394-5].
Akhetmehu	87	Reisner, <i>Giza I</i> , 285; Edel, <i>Inschriften</i> , 327-33.
ꜥAnkhmaꜥreꜥ	206	Reisner, <i>Giza I</i> , 238-9, 314; Harpur, <i>DETOK</i> , plan 69[406-7].
Duaenhor	200	Reisner, <i>Giza I</i> , 49, 208-9, 328, fig. 118, 309; Harpur, <i>DETOK</i> , plan 9[382-3]; LD, <i>Plates</i> , II, 82a.
G 5030	145	Reisner, <i>Giza I</i> , 322; Harpur, <i>DETOK</i> , plan 42[394-5]; LD, <i>Text</i> , I, 71; LD, <i>Erg.</i> , XXXIXa.
G 7560	200	Reisner, <i>Giza I</i> , 16, 210, 311, 322; Harpur, <i>DETOK</i> , plan 12[382-3].
Harzedef	191	Reisner, <i>Giza I</i> , 121, 125, 205, 308, 327, 338-9, 341, 343-4, fig. 195; Harpur, <i>DETOK</i> , plan 10[382-3].
Hetepnptah	94-5	Badawy, <i>Nyhotepptah</i> , 1-7, figs. 2-3a/b, plate 3; LD, <i>Erg.</i> , 9, 10b; LD <i>text</i> 49-50; Junker, <i>Giza</i> , III, 40; Harpur, <i>DETOK</i> , plan 117[430-1]; Altenmüller, <i>Hetepnptah</i> .
Iasen	82	Simpson, <i>Gmast</i> 4, 18-23, plates XLI a,b,c, plate XLIIb; BMFA 32 (1934) figs. 5, 7; Reisner, <i>Giza I</i> , 242, 314, 365-6; Stevenson Smith, <i>Sculpture</i> , 55; Harpur, <i>DETOK</i> , plan 101[423].
Idu	185-6	Simpson, <i>Gmast</i> 2, 26-9, fig. 39-41; Bolshakov, <i>Hinting</i> , 9-29; Reisner, <i>Giza I</i> , 377-8
Irenreꜥ	144-5	Junker, <i>Giza</i> , III, 156-162.
Iteti	193	Badawy, <i>Iteti</i> , 1-14, figs. 1-11, 13, 16, plates 1-10.
Iti	174	LD, <i>Text</i> , I, 38; LD, <i>Plates</i> , I, 21; LD, <i>Plates</i> , II, 59; Reisner, <i>Giza I</i> , 312.
Itisen	252-3	Harpur, <i>DETOK</i> , plan 113[430-1]; Hassan, <i>Giza</i> , V, 263-74.
Iymery	170-4	Harpur, <i>DETOK</i> , plan 16[384-5], 85[413]; Weeks, <i>Gmast</i> 5, 37-8, fig. 31; Reisner, <i>Giza I</i> , 363-5.
Kadua	244-5	Harpur, <i>DETOK</i> , plan 66[404-5]; Hassan, <i>Giza</i> , VI, 93-107, plates XXXIX, XLII-XLV.
Kaemsekhem	201-2	Harpur, <i>DETOK</i> , plan 11[382-3]; LD, <i>Plates</i> , II, 32; LD, <i>Text</i> , I, 84; Reisner, <i>Giza I</i> , 322, 328, 337, 343.
Kahif	76	Harpur, <i>DETOK</i> , plan 109[428]; Junker, <i>Giza</i> , VI, 94-153, plate VIII; Stevenson Smith, <i>Sculpture</i> , 198.
Kakhent	---	Roth, <i>Gmast</i> 6, 88-9, fig. 55, plate 148.
Kanufer	77-8	Harpur, <i>DETOK</i> , plan 48[398-9]; Reisner, <i>Giza I</i> , figs. 123, 206, 257-60.
Kanenesut [I]	78-9	Harpur, <i>DETOK</i> , plan 50[398-9], 91[416]; Reisner, <i>Giza I</i> , 318, 322-3, 327, 331, 341, 345; Junker, <i>Giza</i> , II, 135-172, plate VI.
Kanenesut [II]	79-80	Harpur, <i>DETOK</i> , plan 59[402-3]; Junker, <i>Giza</i> , III, 145-156; Reisner, <i>Giza I</i> , 447.
Kapi	69-70	Harpur, <i>DETOK</i> , plan 107[427]; Roth, <i>Gmast</i> 6, 99-104, plates

		163-4, 167; Reisner, <i>Giza I</i> , 285, fig. 182.
Kapunesut	135	Harpur, <i>DETOK</i> , plan 53[400-1]; Junker, <i>Giza</i> , III, 123-144.
Kaseuza	159	Harpur, <i>DETOK</i> , plan 60[402-3], 94[418]; LD, <i>Plates</i> , II, 85b; LD, <i>Erg.</i> , XXVIIa; Junker, <i>Giza</i> , VII, 158-178.
Khemtnu	155	LD, <i>Plates</i> , II, 26d/e.
Khenit	162	Junker, <i>Giza</i> , VII, 241-245.
Khentka	74-5	Reisner, <i>Giza I</i> , 430-2, plate 36c.
Khuienptah	237	Hassan, <i>Giza</i> , VII, 35-40.
Khufu ^c ankh	129-30	Reisner, <i>Giza I</i> , plate 65b.
Khnemu	121	Junker, <i>Giza</i> , VI, 190-194, plate 16a.
Khufukha ^c ef [I]	188-90	Harpur, <i>DETOK</i> , plan 7[380-1], 84[413]; Simpson, <i>Gmast 3</i> , 16-7, fig. 31-3; Reisner, <i>Giza I</i> , 308; BMFA 32 (1934), 1-12.
Khufukha ^c ef [II]	190-1	Harpur, <i>DETOK</i> , plan 112[429]; Simpson, <i>Gmast 3</i> , 25-7, fig. 50; Reisner, <i>Giza I</i> , 382.
Meni [II]	107-8	Junker, <i>Giza</i> , V, 138-43.
Meres ^c ankh [III]	197-9	Harpur, <i>DETOK</i> , plan 14[384-5], 86[414]; Dunham, <i>Gmast I</i> , 18-9, fig. 10; Reisner, <i>Giza I</i> , 225, 310, 331, fig. 131.
Merib	71-2	Harpur, <i>DETOK</i> , plan 43[396-7]; LD, <i>Text</i> , I, 46-9; LD, <i>Plates</i> , I, 22; LD, <i>Plates</i> , II, 19-20; Der Manuelian, <i>Slab stelae</i> , figs. 108-9; Junker, <i>Giza</i> , II, 16, 121-35; Reisner, <i>Giza I</i> , 419-21.
Meruka	118-9	Junker, <i>Giza</i> , IX, 70-83.
Meryre ^c nufer (Qar)	184-5	Simpson, <i>Gmast 2</i> , 10-1, fig. 32.
Mersu ^c ankh	269-70	Hassan, <i>Giza</i> , I, 104-14.
Minzedef	203-4	Harpur, <i>DETOK</i> , plan 8[380-1]; LD, <i>Plates</i> , I, 26; LD, <i>Plates</i> , II, 33; Reisner, <i>Giza I</i> , 328, 331, 338, 343-4, 382.
Neferbauptah	169-70	Harpur, <i>DETOK</i> , plan 56[400-1], 95[418]; Weeks, <i>Gmast 5</i> , 27-9, fig. 21-3; LD, <i>Plates</i> , I, 21; LD, <i>Plates</i> , II, 58b; Reisner, <i>Giza I</i> , 290, 314.
Nefer-Khuwi	---	Roth, <i>Gmast 6</i> , 144-7, plates 191-5.
Neferma ^c et	183	Harpur, <i>DETOK</i> , plan 5[380-1]; LD, <i>Plates</i> , II, 17a; Reisner, <i>Giza I</i> , 309, 331, 381.
Nefer-mesdj- er-Khufu	---	Roth, <i>Gmast 6</i> , 163-5, plates 202-7.
Nekhetka	240	Harpur, <i>DETOK</i> , plan 65[404-5]; Hassan, <i>Giza</i> , VII, 21-32.
Nensezerkai	72	Junker, <i>Giza</i> , II, 97-121; Reisner, <i>Giza I</i> , 280.
Nesemnau	209	Harpur, <i>DETOK</i> , plan 110[428]; LD, <i>Erg.</i> , XXXIII; LD, <i>Plates</i> , II, 92; Reisner, <i>Giza I</i> , 243, fig. 151.
Nesutnufer	143-4	Harpur, <i>DETOK</i> , plan 47[396-7], 82[412]; Kanawati, <i>Giza II</i> ; Junker, <i>Giza</i> , III, 163-187.
Ni ^c ankhre ^c [II]	223	Junker, <i>Giza</i> , XI, 79-87; LD, <i>Plates</i> , II, 91a.
Nihetepkhnun	50	Cherpion, <i>Mastabas</i> , plate 3-7; Der Manuelian, <i>Slab stelae</i> , fig. 306.
Nikaure ^c	232-3	Harpur, <i>DETOK</i> , plan 40[394-5]; LD, <i>Erg.</i> , XXXV; Reisner, <i>Giza I</i> , 221, 310, 347.
Nikauhor	236-7	Hassan, <i>Giza</i> , IV, 189-94; LD, <i>Text</i> , I, 113; LD, <i>Plates</i> , II, 94d.
Nikaukhnun	119	Junker, <i>Giza</i> , IX, 59-66.
Nima ^c etre ^c	282-4	Harpur, <i>DETOK</i> , plan 68[406-7], 92[417]; Hassan, <i>Giza</i> , II, 204-220.
Nima ^c etre ^c -tut	---	Roth, <i>Gmast 6</i> , 114-5, plate 64.

Niuty	133	Harpur, <i>DETOK</i> , plan 71[406-7]; LD, <i>Erg.</i> , XXX-XXXI; Reisner, <i>Giza I</i> , figs. 210-1.
Nufer [I]	137-8	Junker, <i>Giza</i> , VI, 26-73.
Nufer	165	Junker, <i>Giza</i> , VIII, 66-88.
Nufer	72-4	Harpur, <i>DETOK</i> , plan 6[380-1]; Reisner, <i>Giza I</i> , 201, 328, figs. 205, 241 plates 31-2.
Person	48-9	Harpur, <i>DETOK</i> , plan 45[396-7], 88[415]; LD, <i>Plates</i> , II, 83b; Reisner, <i>Giza I</i> , 217, 329, 331.
Ptahhotp	161	Junker, <i>Giza</i> , VII, 192-228.
Ra ^c kha ^c ef ^c ankh	207-8	Harpur, <i>DETOK</i> , plan 57[400-1]; LD, <i>Plates</i> , II, 8c, 10a, 11; LD, <i>Erg.</i> , XXVIIa; LD, <i>Text</i> , I, 92-3; Reisner, <i>Giza I</i> , 238, 314.
Ra ^c wer [II]	162-3	Harpur, <i>DETOK</i> , plan 19[386-7]; LD, <i>Plates</i> , II, 84; Reisner, <i>Giza I</i> , 370; Junker, <i>Giza</i> , III, 223-235.
Redi	---	Roth, <i>Gmast</i> 6, 70-2, plates 141-2.
Ruzka	247	Hassan, <i>Giza</i> , VI(3), 125-131.
Sa-ib	70	Roth, <i>Gmast</i> 6, 108-11, plates 178-80.
Sedaug	52-3	Junker, <i>Giza</i> , IX, 107-18.
Sekhemka	53	Harpur, <i>DETOK</i> , plan 72[406-7]; Simpson, <i>Gmast</i> 4, 4-5, fig. 3; Reisner, <i>Giza I</i> , fig. 155.
Sekhemka	221-2	Junker, <i>Giza</i> , XI, 1-48.
Sekhemkare ^c	233-4	Hassan, <i>Giza</i> , IV, 106-121; LD, <i>Plates</i> , II, 42b/c; LD, <i>Erg.</i> , XXXVII; LD, <i>Text</i> , I, 110-1; Reisner, <i>Giza I</i> , 223, 310, fig. 128.
Senenuka	68-9	Harpur, <i>DETOK</i> , plan 52[398-9]; Stevenson Smith, <i>Sculpture</i> , plate 45; Reisner, <i>Giza I</i> , 217, 311, 329, 335, 369.
Seshemnufer [I]	142-3	Harpur, <i>DETOK</i> , plan 49[398-9], 90[416]; Kanawati, <i>Giza I</i> , 51-68; LD, <i>Plates</i> , II, 27, 29; Junker, <i>Giza</i> , III, 33; Reisner, <i>Giza I</i> , 214, 344, fig. 124, 197.
Seshemnufer [II]	146-8	Harpur, <i>DETOK</i> , plan 58[402-3]; Kanawati, <i>Giza II</i> , 51-64; Junker, <i>Giza</i> , III, 33; Reisner, <i>Giza I</i> , 328.
Seshemnufer [III]	153-4	Harpur, <i>DETOK</i> , plan 67[404-5]; Junker, <i>Giza</i> , III, 33, 192-214; Brunner-Traut, <i>Seshemnufer III</i> .
Seshemnufer	249	Harpur, <i>DETOK</i> , plan 64[404-5]; Hassan, <i>Giza</i> , VI, 201-206.
Seshethotp	149-50	Harpur, <i>DETOK</i> , plan 46[396-7]; LD, <i>Plates</i> , II, 23; Junker, <i>Giza</i> , II, plate XV-XVI, 172-195.
Sethu	135-6	Harpur, <i>DETOK</i> , plan 20[386-7]; LD, <i>Plates</i> , II, 87; LD, <i>Erg.</i> , XXVIIb; Reisner, <i>Giza I</i> , 334, 521-3, plates 74-5.
Setka	160-1	Harpur, <i>DETOK</i> , plan 74[408-9]; Junker, <i>Giza</i> , VII, 192-222.
Shepseskaf ^c ankh	175	Harpur, <i>DETOK</i> , plan 55[400-1]; Weeks, <i>Gmast</i> 5, 62, fig. 56-7; BMFA 37 (1939), 30.
Snefruhotp	96	Harpur, <i>DETOK</i> , plan 104[425]; Fisher, <i>Minor Cemetery</i> , 163-6.
Snefrukha ^c ef	183-4	Reisner, <i>Giza I</i> , 309, 331, 381; LD, <i>Text</i> , I, 25; LD, <i>Plates</i> , II, 16.
Snefrusonb	125	Reisner, <i>Giza I</i> , 465, plate 57.
Thentet	139	Curto, <i>Gli Scavi</i> , fig. 17.
Thenti	141-2	Harpur, <i>DETOK</i> , plan 54[400-1]; LD, <i>Plates</i> , II, 30; Reisner, <i>Giza I</i> , 214, 341, 343, 345.
Tjeset	---	Roth, <i>Gmast</i> 6.
Wehemka	114-5	Harpur, <i>DETOK</i> , plan 51[398-9]; Roeder, <i>Uhemka</i> , 10-13; Kayser, <i>Uhemka</i> , 23-29; Cherpion, <i>Sentiment</i> , 33-47.
Wehemnefert	139-40	Curto, <i>Gli Scavi</i> , fig. 20.
Weri	121	Junker, <i>Giza</i> , VI, 195-198.

Wonshet	139	Junker, <i>Giza</i> , I, 249-54; Der Manuelian, <i>Slab stelae</i> , fig. 162-3; Reisner, <i>Giza I</i> , 334.
Zaty	204-5	Reisner, <i>Giza I</i> , 309, 327-8, 335, 337, 344-5, 382; Harpur, <i>DETOK</i> , plan 15[384-5].
Zaty	161	Junker, <i>Giza</i> , VII, 230-41, Abb. 95; LD, II, 86; Reisner, <i>Giza I</i> , 251, 312.

Introduction *

In pharaonic Egypt it was important that after the demise and the burial of a person “contact” was maintained between the deceased and the society in which he/she once lived. To enable this, a monument was erected, with one of its functions being to mark the place where the deceased had been buried and where the living could go, not only to revere the memory of the deceased, but also to bring offerings.³

During the Old Kingdom the mastaba was the prevailing tomb form for the burial of a private person on the plateau of Giza, and to allow contact between the deceased and the living one of its architectural features was a chapel. Whatever form the chapel took, a “meeting place” between the deceased and the living was constructed on its western wall, which took, except for a short period in the 4th dynasty, the form of a (false) door with an offering stone in front of it.⁴ This “meeting place” was introduced because the basic idea had always been that the (non-royal) deceased actually lived in the tomb, albeit in a spiritual form.

The western wall and the false door placed against it, both elements of the western wall as a whole, bore decoration, which must have been of crucial importance for the cult for the deceased, intended to occur on a regular basis in front of the false door. That this decoration was considered essential can be deduced from the fact that every chapel (except those constructed during the short period in the 4th dynasty already mentioned) was decorated, despite the doubtless prohibitive cost. Evidently, a chapel without decoration was not considered fit for purpose.

There are many important questions to be posed about the cultic role of this decoration. Is the decoration of just one of the elements of primary importance for the cult? Or are all the items of the decoration significant? Are changes on the false door and the remaining surface of the western wall interconnected? And can reasons be deduced as to why these changes took place?

People living in pharaonic Egypt must have interpreted many aspects of the world in ways fundamentally different from us. All the evidence leads to the conclusion that, although religion was not seen then as a separate cultural subsystem as it is now, people then and there were nonetheless subjected, as we are here and now, to the all important and strongly interconnected triangle of climatic, economic and political change. It is not unlikely that changes in all three of these factors led to changes in the cult. Since these factors are strongly interdependent, changes in the cult can be considered to have multiple causes too.

Changes in the decoration not only on the western wall, but also on all the other walls and on all architectural elements of the mastaba, have been studied and discussed by many scholars, but nearly always as independent and separate items, with each of these changes consequently being explained in many different ways. Therefore it appeared worthwhile, and possibly revealing, to study all these changes together, assuming them to be interdependent. This approach could lead to a completely new and different set of conclusions.

* I would like to thank Mrs. Westcott (Montbarla, France) and Mr. Sexton (London) for their going over my English.

³ Shirai, *Funerary cult*, 326 ff.

⁴ Renfrew, *Archaeology*, 359.

To assess and quantify inter-scenic influence in this tomb decoration necessitated the development of a new mathematical methodology. The applicability of this approach has already been demonstrated in a similar type of research.⁵

Research has been begun in the present study by tackling the decoration of the elements of the western wall, but the method could well be extended to the other walls of the chapel, the entrance thicknesses and even the façade of the mastaba. The reason that the western wall has been chosen for initial study is that the decoration on this wall, the most important of all the walls of the chapel, is probably the one most prone to change,⁶ and consequently it can serve as a test case. The results thus obtained can give rise to a working hypothesis which can be tested in further research on the other architectural elements of the mastaba. This methodology could eventually lead to the discovery of connections joining the various elements of the cult chapel, thus revealing an intricate structure of closely knitted influences, and possibly opening the way to a hypothesis unifying all changes.

Of course the most common decoration scenes - those of the deceased engaged in various activities together with his family and the deceased sitting at the offering table - play a major role in the cult chapel, but the mere fact that they are not the only scenes on that wall leads to the conclusion that the other scenes must also be included in the research.

An important point of investigation is whether or not all the scenes are placed there exclusively for the cult itself or whether there are also scenes employed to signal and guide visitors to the chapel? Or indeed to help unify the scenes on the wall? They could be connected in this way with the functioning of the cult chapel but not with the cult itself.

It could be the case that even on the western wall, the most cultic of all walls, some of the scenes are not directly connected with the cult itself. This leads to the question whether perhaps the scenes on the other walls do not have a cultic function at all., and that they are employed there just to support or strengthen the cultic importance of the scenes with that role on the western wall?

The reason the Old Kingdom has been chosen as the chronological unit of study is that it is a period of rapid cultural development. Therefore changes, if present, can be detected more easily than in a period of attained cultural maturity.

The decision to study only the cult chapels of private tombs, and not include those of royal burial complexes, is based on the fact that during the major part of the Old Kingdom ideas about the afterlife of a private person were completely different from those about the afterlife of a king. Moreover, the extremely small number of such royal complexes, even for a period like the Old Kingdom, prevents, within the context of this research project and the methods developed for it, a study of the royal complexes as a separate, representative group.

⁵ Roeten, *Second style*.

⁶ Harpur, *DETOK*, 1. It is stated here that the scenes of banqueting, offering bearers, priests, etc. are more formal and as a consequence less prone to change. However, two types of change are possible, a change based on freedom of interpretation, plainly visible in scenes depicting agricultural activities, fishing, the preparation of food and goods, etc. and a change based on an alteration of ideas about one or more of the formal scenes. It is clear that the latter is the case for the western wall, while the former is the change taking place on the other elements of the cult chapel.

(Sub)themes placed on the remaining surface of the western wall.

1. The tomb owner, standing or sitting alone (plate IV.1).
2. The tomb owner in physical contact with members of the family, standing or sitting (plate IV.2).⁷
3. The tomb owner sitting at the offering table (with or without family) (plate IV.3).
4. Members of the family not in physical contact with the tomb owner who is present (plate IV.11).
5. Servants bringing offerings (plate IV.4).
6. Personified estates bringing goods (plate IV.9).
7. Priests (plate IV.10).
8. Scribes in a row or alone, writing, rendering of accounts, leading people (plates IV.6 and IV.9).
9. Butchery scenes (plate IV.4).
10. Piles of food offerings (plate IV.8).
11. The non-ideographic offering list (plate IV.3).
12. Musicians, dancers (plates IV.6 and IV.7).
13. Indoor diversion (plate IV.6).
14. Kiosk scene ((plate IV.8).
15. Agricultural activities.⁸
16. Craftsmen (plate IV.5).
17. Hunting in the desert or in the marshes (plates I.6 and I.7).
18. Servants making a bed (plate IV.6).

(Sub)themes placed on the false door.

The side slots.

20. Empty (plate VIII.1).
21. *Serekh*-type false door design (plate VIII.2).
22. The non-ideographic offering list (plate VIII.3).
23. Members of the family (plate VIII.4).

The door jambs.

30. The tomb owner alone, standing or sitting (plate VIII.1).
31. Wife and/or family, standing or sitting (plate VIII.1).
32. Name, title(s) (plate VIII.1).
33. The offering formula (plate VIII.4).
34. Offering bearers (plate VIII.5).
35. Priests (plate VIII.6).

⁷ Physical contact can be direct (the son touching, see plate IV.2), indirect (by means of the son holding the staff, see plates IV.2 and IV.10) or just standing together (plate IV.11).

⁸ Because (sub)themes 15 and 18 are not represented on the western wall of the cult chapels included in the catalogue, no example has been given.

36. Containers/standards for offerings (plate VIII.2).

The false door panel.

- 40. The tomb owner alone at the offering table (plate IV.11).
- 41. The tomb owner with another person at the offering table (plate VIII.4).
- 42. The non-ideographic offering list (plate VIII.7).
- 43. The offering formula (plate VIII.8).
- 44. Name, titles (plate VIII.7).

The door recess.

- 50. The tomb owner, alone, standing or sitting (plate VIII.1).
- 51. The tomb owner standing with another person (plate VIII.1).
- 52. Text (plate VIII.6).

The architraves.

- 60. The tomb owner, alone, standing or sitting (plate VIII.1).
- 61. The tomb owner with family (plate VIII.6).
- 62. Name, titles (plate VIII.6).
- 63. The offering formula (plate VIII.6).