THE ARTS OF MAKING IN ANCIENT EGYPT

VOICES, IMAGES, AND OBJECTS OF MATERIAL PRODUCERS 2000−1550 BC

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Introduction

Ancient Egypt is considered a true repository of beautiful objects. The fascination they have exerted on Western imagery has certainly contributed to the consideration of the land of the pharaohs as one of the cradles of Western civilization. Both ancient Egypt and the Classical world (especially ancient Greece) were thought to share a common sense of beauty, harmony and delicacy that struck a chord with archaeologists and visitors of museums all over Europe and North America. People capable of such achievements were in some way "our" ancestors and paved the way to the sculptural magnificence of a Phidias or a Praxiteles: *ex oriente lux* could not be better illustrated than in the archaic and Egyptian-looking appearance of the archaic *kouros*.

However, here lie two problems, intimately related. One of them concerns identities, the other one work processes. Western culture has celebrated genius and freedom of creation of their artists, an ascending path of progress contemporaneous to individuality and market freedom in the realm of economy. The names of many artists, especially from the Renaissance on, occupy a place of choice in the pantheon of national glories. Their fight to emancipate themselves from the constraints of patrons, conservative tastes and prudish social values are the best proof of the triumph of individuality in modern times. Ancient Egypt, on the contrary, was catalogued as an "oriental" society. Artistic creations depended on the commands of "despotic" monarchies that left little room to the expression of geniality, a quality reserved to Western *Artists*. Under these conditions, production was basically developed in workshops, a *collective* way of working that still reduced the possibilities of expressing individuality. If one adds the weight of temples and "priests", one was tempted to assimilate the conditions of Egyptian artistic production more to the obscure European Middle Ages than to the heroic times of a Phidias or a Michelangelo. The concept of "artisan" and "workshop", and the flavour of collectivism they carry with them, should explain why ancient Egypt, despite its remarkable artistic achievements, was fatally doomed to fall short of producing Great Art. Another continent was waiting for that.

At the same time, as the focus of research was put on beaux arts, workshops (sponsored by kings) and "artists", ordinary craftsmanship has received less attention and its analysis has depended on models elaborated elsewhere. One influential example has been the idea of division of labour as concomitant to the birth of "complex" societies and "civilizations". According to this view, as economic activities became more complex and the needs of people and, especially, nascent political powers increased, the

emergence of full-time specialists was necessary. When their work was highly appreciated (nature of raw materials involved, sophistication), such specialists were grouped in palace or temple workshops and their produce commanded by and delivered to these institutions. A perverse consequence is that this approach neglected the role of rural and itinerant craftsmen/woman as well as that of people involved part-time in agricultural activities and part-time in handicraft production. As for the very concept of palatial and temple workshops, the archaeological evidence from Mesopotamia, for instance, reveals that, contrary to this assumption, craft activities were usually dispersed in cities and hardly formed specialized urban areas. In other cases, alternative circuits provided raw material used by rural craftsmen/woman. Mobile populations, for instance, collected gold, especially alluvial gold, and it is quite possible that they sold it not only to the agents of pharaoh but also to rural artisans. It has also been suggested that people collected small blocks of stone from the quarries usually exploited by the king and that they elaborated small objects. On the other hand, it is also well known that temples adapted their production of certain items depending on the type of consumers. In other cases, the imitation of high quality goods gave an impetus to new types of objects adapted to a "low cost" demand, as it happened, for example, during the Late Bronze Age. As for one of the most important craft activity of the ancient world, the production of textiles, the very nature of the evidence preserved has focused on institutional production, centred on palace and temple workshops. However, other documents reveal that small fleets of ships collected cloth from women and it is quite possible that women played a crucial role as textile workers for merchants who collected their production and sold it in Egypt and abroad. Nubians also emerge as major vectors of the diffusion of leather cloths and specialized techniques of leather preparation (dying, tanning) since, at least, the late 3rd millennium BC.

In this vein, craft activities appear as rather more complex activities than previously thought. The limits between "high" and "low" production, between qualified specialists and part-time workers, between "artists" and mere "producers", seem more blurred, while the centrality ascribed to the production promoted at institutions such as temples, palaces and the households of high officials appears questionable.

Pervasive preconceptions among researchers thus collide repeatedly and systemically with evidence for ancient patterns of and ideas around material production. All fifteen contributors to this volume confront, in different ways, that continuing disjuncture. A shared focus on practice allows new thinking on the location and societal value of different activities, and on their shifting social context of class, age, gender and ethnicity, all inseparable from ancient categories and structures of thought in action.

Comparative archaeology and anthropology provide often the most promising empirical and theoretical ground for avoiding assumptions in research. Here Shereen Ratnagar (11) draws on South Asian archaeology to assess the times as well as places of making, with "sporadic domestic activity" distinguished from regular production in a socially transmitted technological line. Within Egyptology, Alexander Ilin-Tomich (5) uses a single object-type, the stone offering-table, to take up the same question of production timespace, with examples of centralised production set against evidence for regional innovation. Rather than a dichotomy or a bland spectrum of possibilities, the detailed evidence here delivers a more specific history of interplay in different output locations. Similarly, assessing the category of "workshop" from the corpus of stone

statuary, Simon Connor (1) foregrounds the overlapping factors of the materials, the material architectural context, and the identity of the statue subject, introducing the wider social context. Focussing on the first of these, a material science approach enables Patricia Rigault and Caroline Thomas (12) to follow in minute detail the movements of the ancient makers, from the traces uncovered through archaeometric techniques. Ancient makers can also be seen reflecting on the products of other crafts, and applying their reflection in choices of form and motif, transferred from one material and its technology to another. In her discussion of these skeuomorphs, Karine Seigneau (13) demonstrates their power as an analytical lens, to define "degrees" of intervention at the specific level of the technical.

Taking production and consumption as an integral object of study, ancient choices also materialise in critical analysis of distribution patterns of object types. From the archaeological record of late 3rd millennium BC stone vessels Christelle Mazé (7) seeks to chart the visible contours of ancient values, simultaneously material and symbolic, individual and collective. Gianluca Miniaci (8) proposes a quartet of key elements to establish the social role of one widely distributed human-made material, Egyptian faience, and argues for a focus on the "production technique and end-user target" for each object type in turn. Precisely that duo is prominent throughout the ancient Egyptian monumental record, in depictions where an official watches a wide range of productive activities. Claus Jurman (6) selects the offering-hall of Khnumhotep at Beni Hasan, as a test-site to pose a range of questions: how visual and written means were used to convey which kinds of information, why captions were included, but not always, and how they relate to other material in the same context, and to social structure. Stephen Quirke (10) reviews the ancient depictions and inscriptions as indirect sources, or reported speech, except for the few inscriptions with name of artist where context indicates that the writer was that artist. Written evidence provides supplementary access to ancient makers, beside the primary evidence of their works. At the same time its presence reminds us that all writing by archaeologists, too, can only indirectly relay the voice of a past individual.

To overcome or reduce the epistemic dilemma of reported speech, further strategies of disruption are offered by other contributors. After detailing a 15th century BC example of creative composition at Elkab, Alisee Devillers (2) further undermines Eurocentric negative attitudes to "the copy" by her incisive art historical turn to a 16th century Italian parallel, the house of Giorgio Vasari, painter and biographer of artists. Juan Carlos Moreno Garcia (9) reviews the long duration history of leatherwork, one of the arts marginal to Egyptological discussions. In extending the spatial horizons of Nile Valley production, and the range of materials involved in any one art, his discussion introduces dimensions of ethnicity and "invisible" interrelations, which may play a role in all arts. Gaps in the visible record can also affect recent history to an unexpected extent, as Lilli Zabrana (15) powerfully reminds us in her careful documentation of an ancient Egyptian architectural feature in modern Nubian villages. Mudbrick vaults without wooden support are features of lower Nile Valley buildings into the 1st millennium AD, and then, after several hundred years, appear for a short period in the early 20th century, but without evidence for precisely why, when and how. Where patterns of creativity are highly localised, the combined resources of history, archaeology and anthropology may not clarify such questions. Here the disciplinary exclusion of

people closest to the material becomes an obstacle to new solutions. Maximilian Georg (3) indicates how the European archive of excavation can reintroduce field workforce as the producers of archaeology itself, and asks what is lost when their skills and contributions are not recognised. Perhaps the central loss is the structure and impact of knowledge itself, which in art is so often the core "invisible", as Andreas Stauder (14) explores from the most extended self-presentation by an ancient Egyptian artist, on the stela of Irtysen. Rather than itemising his knowledge in explicit terms, the words of Irtysen effectively paint the restricted nature of artistic knowledge. With the corpus of inscriptions at the Sinai turquoise and copper mines, Amr el Hawary (4) illustrates how method and knowledge are unfolded in and as practice, in a manner entirely counter to the scientific treatise, though close to the recent Actor-Network-Theory model of science. Here practice and knowledge become as inseparable as production and consumption, or artist and workshop, or material and symbolic values, and at this point the Nile artists can relay their own story.

Acknowledgments

Sculpture workshops: *who, where and for whom?*

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Abstract

In Egyptology and in Art History in general, certain terms are often used vaguely because they lack a clear definition. In the context of studies on sculpture, the term WORKSHOP is one of them. Giving a definition is not an easy task, but it is a necessary one especially since in the case of art the scholar's approach does not rely on scientific objectivity only, but also on perception, feeling and the "eye" of the art historian. While not all researchers might agree with the same definition, it is important to propose one for the terms employed. Several questions occur to the scholar who studies a corpus of artifacts or works of art. **Where** do the artisans work? **How many** people are involved? Do they **specialize** in a particular production or are they more versatile? In the case of sculptors, do they work in the **quarries** or in their proximity, or in **studios** connected to temples or palaces? Is a group of artisans sedentary or itinerant? Do sculptors all work for the king and the **royal court** or can we identify **regional styles**? Such questions arise when dealing with the corpus of the Late Middle Kingdom statuary. As this paper tries to demonstrate, it appears that different productions are identifiable based on three main factors: the **material** in which the statues are carved, the **architectural context** for which the statues are produced, and the **clientele** to which they are destined. These three factors are closely intertwined and determine the types of sculpture that were realized.

Keywords: Royal statuary, private statuary, stone sculpture, workshops, elite.

The present paper concentrates on stone sculpture produced during the Late Middle Kingdom and Second Intermediate Period (c. 1850-1550 BC). The corpus is large (around 1500 statues[1]) and comprises different categories of objects:

- Statues of different size: from several meter high colossi to tiny statuettes;
- Statues in a wide range of materials: hard stones (mainly granodiorite, granite, quartzite, graywacke), soft stones (limestone, alabaster, steatite) and, in much lower proportions (probably reflecting conditions of conservation), wood and metal;
- Statues from various contexts: major temples, provincial sanctuaries, monumental tombs and more modest funerary chapels;
- Statues of different quality (from the same reign, and sometimes even for representations of the same individual), from a very carefully proportioned rendering to much cruder appearance.

This diversity makes it likely that there were different production centers specialized in the manufacture of specific types of statues and working for specific clients. Nevertheless, even in the presence of differences in style, one should not conclude too hastily that these are necessarily traceable to distinct groups of sculptors.

The sculptor's "hand" / individuality

Before diving into the concept of "workshop", it must be kept in mind that differences of appearance within a group of statues may be simply due to the individual "hand" of the sculptor(s) who made them. Such individual and most probably unintentional discrepancies appear for example in the three heads of Osirian statues from Medamud, most likely portraying the first king of the 13th dynasty, Amenemhat-Sobekhotep.[2] Although all three heads follow the same model and show the same individualizing features (features that identify the official portrait of a specific sovereign: in the present case, a prominent square chin, a large smiling mouth, gigantic ears and a vertical furrow between the eyebrows), strong differences are manifest in their rendering. Since the heads are of the same dimensions, are made of the same variety of limestone and clearly belonged to the same architectural structure, it can be assumed that they were produced contemporaneously by sculptors working in the same place. However, the sculptor who produced the Louvre head has proven more capable of rendering the flesh naturalistically, whereas the Beni Suef head shows unnaturally large eyes with sinuous and sharp eyelids, and a rigid mannerist smile. These differences need not be intentional; they are probably simply due to the unconscious individuality of the people who sculpted the statues.

The series of statues of Senwosret III, from Deir el-Bahari (London BM EA 684, 685, 686 and Cairo TR 18/4/22/4), as well as that from Medamud (Suez JE 66569,

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1   Around 340 royal and 1150 private statues, according to the results of the research I carried out for my PhD dissertation, defended in 2014 at the Université libre de Bruxelles, under the direction of Pr. Laurent Bavay.

2   Paris Louvre E 12924, Cairo Egyptian Museum JE 54857 and JE 58926 (now in the Beni Suef Museum). For photographs and further details concerning their attribution, I refer to my article in the proceedings of the MeKeTre conference 2013 (Connor 2016, 1-3; 12, fig. 1-3).

*Figure 1: statues of Senwosret III from Medamud: (a) Suez JE 66569, (b) Paris E 12962,
(c) Paris E 12961, (d) Cairo CG 486.*

Paris E 12962, Paris E 12961, Cairo CG 486, *cf.* pl. 1), illustrate a similar variation within homogeneous groups. Here as well, differences in physiognomy and quality between the preserved faces can be observed, and the discrepancies do not seem to be intentional. What was important was that the king be recognizable, and he certainly is, for all the elements of his very peculiar features are present. The observed differences in proportions and rendering are due first and foremost to the difficulty of reproducing the exact same thing in a hard stone such as granodiorite, from blocks which perhaps were not totally equal in size and homogeneity, and probably also to differences in skill between individual sculptors. The chin may be more or less pointed, the furrows more or less accentuated, or more or less naturalistic; in all cases, however, the king is immediately recognizable, and this was probably a sufficient requirement.

As is often the case in archaeology and in Egyptology, we must accept our ignorance concerning the number of people involved in the realization of a group of statues. Was there one sculptor or group of sculptors for each? Or were the same sculptors working

on all the statues, with some of them specialized in specific phases (shaping, engraving, polishing, …)? It is hard to know. However, the differences in quality and refinement between one piece and another in the same series suggest that there were significant differences in ability and experience between one sculptor and another.

Despite the presence of individualities within a group of sculptors, it is possible to highlight different productions, usually specializing in some materials and intended for specific clients, as will be shown in the following pages.

Different productions: for the court of for the lower elites

When dealing with a very large corpus of statues from a single period, stylistic ensembles can be highlighted. Both royal and non-royal repertoires must be included here because studying them separately would deprive us of enlightening comparisons. In the Late Middle Kingdom and Second Intermediate Period corpus, statues can be organized quite clearly in basically two categories: on the one hand, court sculpture for the king and his entourage, and, on the other hand, a more modest production for the lower and intermediary levels of the elite.

When inscribed, statues of larger format worked in hard stones (granodiorite, granite, quartzite, indurated limestone) bear the titles of high officials or individuals with high-ranking titles linking them to the king. These statues show the same quality and often the same physiognomy as the king's, and are often also sculpted in the same materials (although pink granite remains almost exclusively used for the king's statues) and for the same architectural contexts, namely temples. The similarity of stylistic features between royal statues and those of these upper officials often allows dating the latter quite accurately. The development of the royal and private upper-class production seems very homogeneous, to such an extent that it seems reasonable to propose that they were produced by the same groups of sculptors, or by sculptors trained in the same institutions. Among many examples, the statue of the governor of Elephantine Heqaib II (Habachi 1985, 48, pl. 50-57, cat. 17) may be cited. This extremely refined piece, with finely carved details and harmonious proportions, displays the facial features of the official's king Senwosret III; if only the face had been preserved, without the non-royal wig and the body (with rolls of fat), the statue could easily have been attributed to the king himself. The eyes display the same almond-shaped and sinuous movement, with sharp canthi; the sinuous lips show the exact same chiselling; the furrows under the eyes and the cheeks have the same naturalistic rendering; even the eyebrows have the very unusual "ear of wheat" pattern incised on the surface of the statue that is also found on the Karnak granite colossi of Senwosret III (Cairo CG 42011, 42012, and Luxor Museum J. 34).

Similar close comparisons can be drawn between royal statues and representations of other coeval high officials. Examples are given on plate 2 (early 13th dynasty) and 3 (third quarter of the 13th dynasty).

These examples demonstrate a coherent and persistent connection with the royal production, illustrating what I would call the "court style". It is important to notice that no regional style emerges in this category. Close stylistic similarities can thus be observable between statues from different regions of Egypt (see for example the statue of Heqaib II from Elephantine and the colossi of Senwosret III from Karnak),
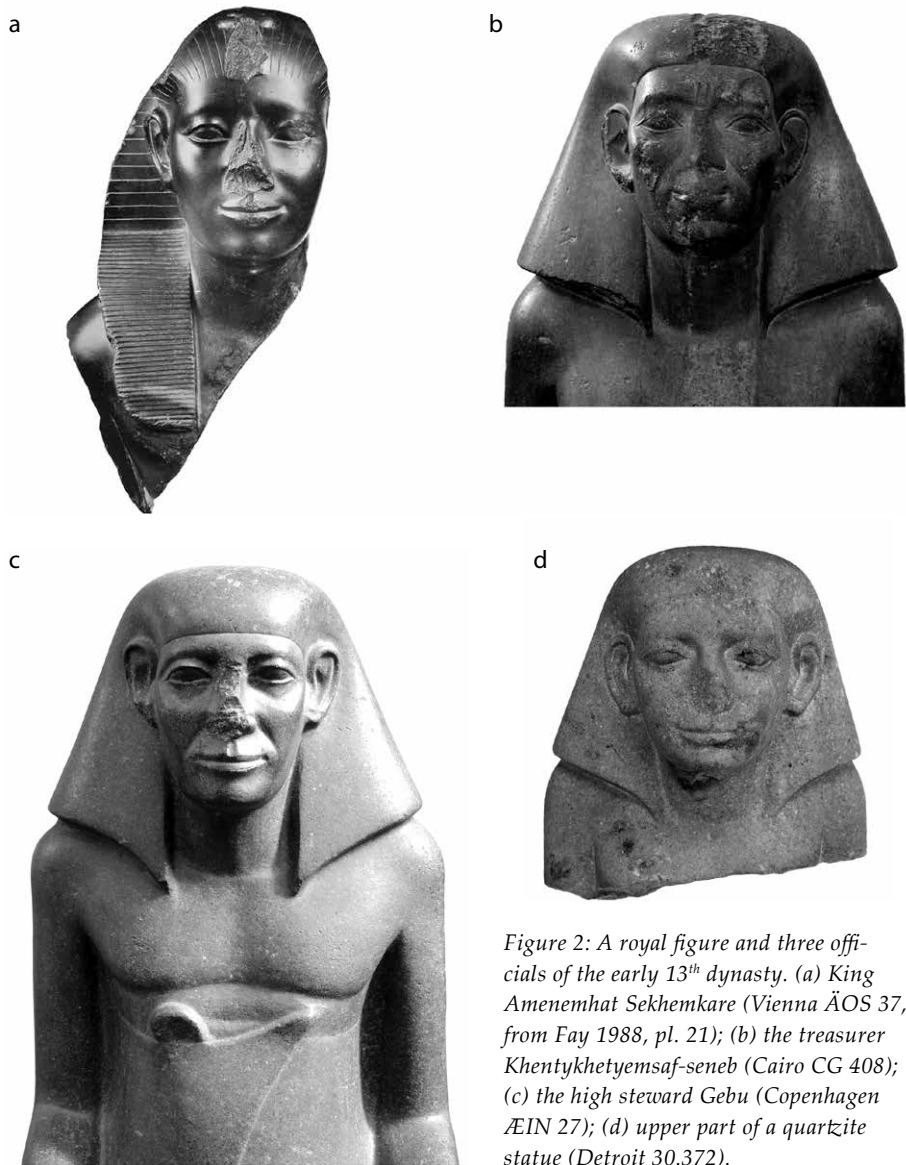
Figure 2: A royal figure and three officials of the early 13th dynasty. (a) King Amenemhat Sekhemkare (Vienna ÄOS 37, from Fay 1988, pl. 21); (b) the treasurer Khentykhetyemsaf-seneb (Cairo CG 408); (c) the high steward Gebu (Copenhagen ÆIN 27); (d) upper part of a quartzite statue (Detroit 30.372).

while statues of apparently different style but contemporary production appear at the same site (*e.g.*, Lisht, Abydos and Elephantine, where statues of extremely diverse quality have been found, depending on the material used and the social position of the individual represented).

Besides this "court production", another large corpus includes smaller sculptures, worked mainly in softer stones (limestone, steatite, serpentinite), usually of cruder execution, and bearing names and titles of lower officials or people of more modest social categories – although still within the elite. The vast majority of these statuettes, now in museums or private collections, come from the art market; the few for which

primary archaeological contexts are known derive from cemeteries,[3] cenotaphs, private chapels associated with a cult place, or small provincial temples.[4]

These statuettes are often difficult to date precisely due to the usual lack of an archaeological context and because they display stylistic features that are distant from those of royal contemporary sculpture. In some cases, especially for the Second Intermediate Period (c. 1750-1550 BC), some groups can be tentatively traced to specific sites; they possibly represent productions made for local elites who would acquire them for their funerary chapels. Such a group of statues is attested at Abydos, and was probably produced in a local workshop active during the Second Intermediate Period (Marée 2010). Based on a series of epigraphic peculiarities, as well as iconographic or stylistic features such as the unusual way of carving the kilt, the helmet-like curled wig, and the squared shoulders and narrow torso, Marée was able to distinguish a group of statuettes, as well as a whole series of stelae, probably coming from the same atelier.

Another of these groups is also traceable to Abydos and stems from more or less the same period. It consists in standing statuettes of limestone, around 21-22 cm tall, very elongated, with shaved skulls, large hands, *shendjyt* kilts of unusual proportions, accentuated curves and a thick belt. Six of these pieces are without recorded provenance, but two are from Abydos; this may indicate that their place of production, and therefore that of the six unprovenanced specimens similarly, was indeed in that area.

A stylistic variation on this iconography, with a thicker appearance, can be found in a group of limestone statuettes that can probably be situated in the Theban region, given that three of the four pieces come from the necropolis of Dra Abu el-Naga. All four statuettes show strong pectoral muscles placed high on the torso and underlined by a distinct undulating line, thick legs and a sharp line indicating the tibia, and the heavily curved pleated kilt and large hands observed with the Abydos group.

Another of these groups can perhaps be identified in the necropolis of Hu, with stylistic peculiarities such as a very narrow torso and waist contrasting with the wide pelvis, the rounded hips, and the hands, which are even larger than in the figures of the groups from Abydos.

These stylistic groups are of course associated with a site on the basis of just a few pieces with known provenances. This is hardly enough to prove that there were permanent sculpture workshops in Hu or Abydos. Yet, there seems to be at least a case to be made for a local production at certain moments in time during the Second Intermediate Period (16th – 17th dynasties) based on the archaeological context of the few pieces found during excavations, compounded with a certain combination of

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3   For example in the northern necropolis of Abydos (Brussels E. 4251, 4252; Cairo CG 461, 468, 476, 480, 481, 482, 483; Kendal 1993.245; Liverpool E. 610; Manchester 3997; Philadelphia E. 9208, 9216; Toronto ROM 905.2.79), in the 13th Dynasty cemetery in front of the pyramid of Amenemhat I in Lisht-North (New York 15.3.54, 15.3.91 (= Caracas R. 58.10.19), 15.3.108, 15.3.224-15.3.230, 15.3.280, 15.3.347-15.3.350, 15.3.575-15.3.592, 22.1.52, 22.1.53, 22.1.78, 22.1.107, 22.1.190-22.1.192, 22.1.199 (= Caracas R. 58.10.37), 22.1.735, 22.1.737), or in the cemeteries of the fortresses in Nubia (Boston 24.891, 24.892; Khartoum 13633, 14068, 14070; Leipzig 6153; Paris E 25576, 25579, 25618; Lille L. 626; Philadelphia E. 10751, E. 11168).

4   For example in the sanctuary of Heqaib in Elephantine (Habachi 1985; Franke 1994), or in the Old Kingdom mastabas and pyramid temples transformed into cult places in the Middle Kingdom (Verbovsek 2004, 477, 486, 498-499, 525-530) or in Abydos (Richards 2010, 157-161).
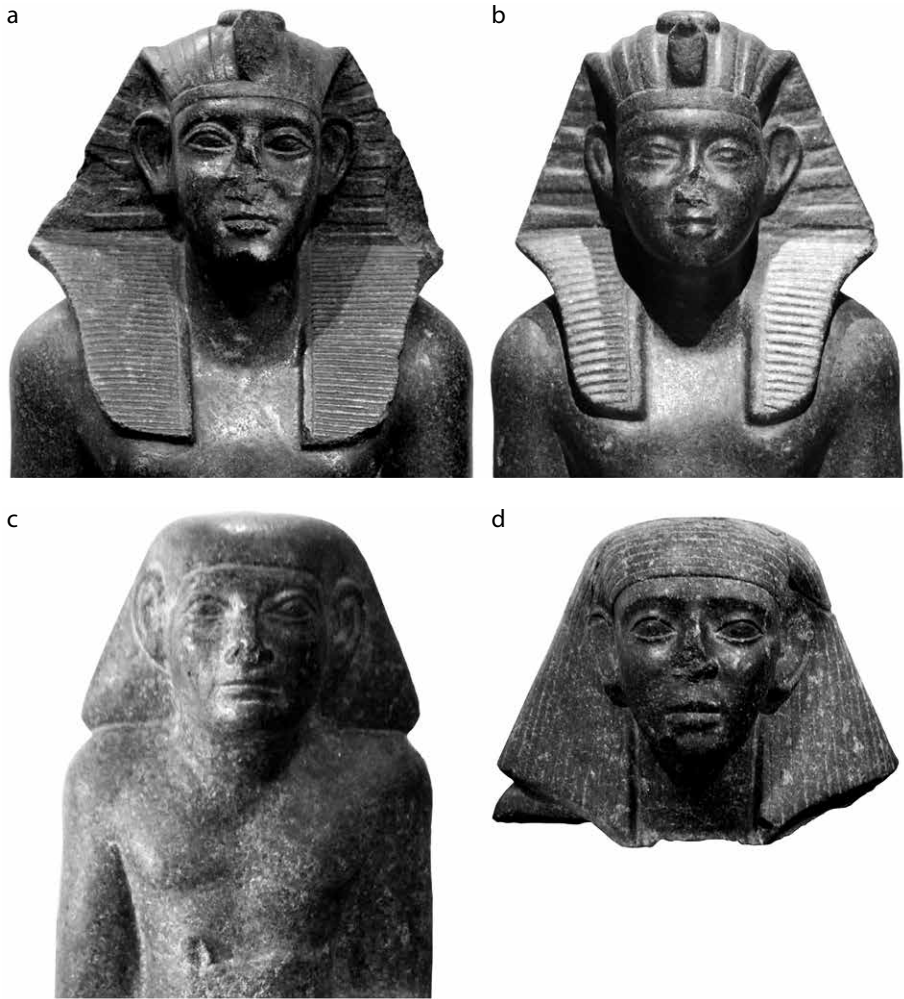
Figure 3: Two royal figures of the third quarter of the 13th dynasty: (a) Sobekhotep Khaneferre (Paris A 17); (b) Sobekhotep Khahetepre (Berlin ÄM 10645); and two officials: (c) the Elder of the Portal Horaa (Richmond 63-29, contemporary to Sobekhotep Khaneferre, cf. De Meulenaere 1971) and (d) the life-size head of a vizier (Chicago AI 1920.261, recognizable by the shenpu-collar).

iconographic features (both arms stretched out along the body,[5] the *shendjyt*-kilt, the shaven head or short rounded curly wig) and stylistic ones (the curved pleats of the kilt, the thick belt, the elongated torso, the graphic treatment of the muscles and the tibias). All these groups are datable to the Second Intermediate Period and thus belong to a time of political fragmentation that probably induced a regionalization of sculptural production (which is also much scarcer than during the Late Middle Kingdom).

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5   During the Late Middle Kingdom, standing male statues generally show both arms raised in front of them, with the hands flat on the front of the kilt, while women and children have both arms stretched out along their body, with their hands on their hips. However, in the Second Intermediate Period, the latter position becomes the usual one for adult male sculptures too.
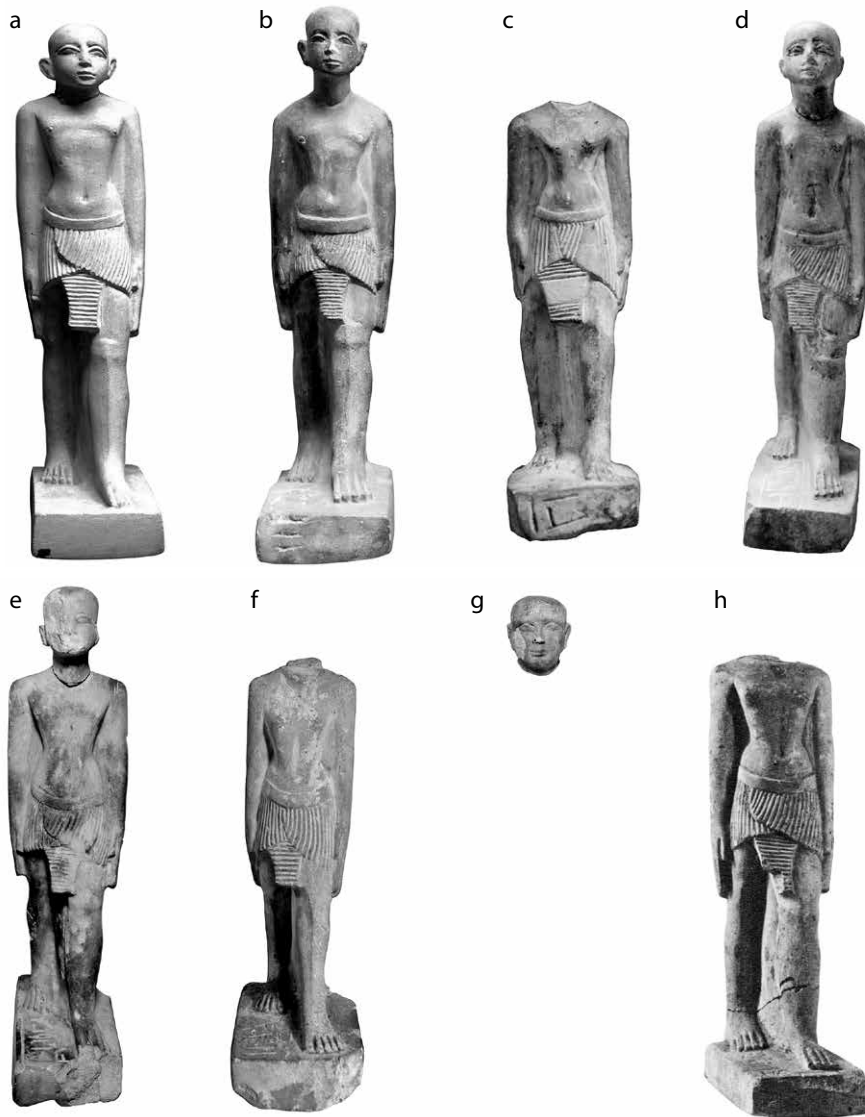
Figure 4: An "Abydos group": (a) Paris E. 18796bis; (b) Paris E. 5358; (c) Paris N 1587; (d) Cairo CG 465; (e) London UC 14619; (f) Philadelphia E. 9958; (g) London UC 8808; (h) Cairo CG 1248 (from Borchardt 1934, pl. 173).

Museum, inv. Nb.	Represented character	Title	Height	Estimated orig. height	Provenance
Cairo CG 465	Weseranuqet	Great of the Ten of Upper Egypt (*wr mḏw šmꜥw*)	21.5 cm	21.5 cm	Abydos, Kom es-Sultan
Cairo CG 1248	Montunakht	Guardian of the table of the ruler (*ꜣtw ṯt ḥkꜣ*)	22 cm	26.5 cm	Unknown
London UC 8808	Anonymous (only head preserved)	/	3 cm	18 cm	Unknown
London UC 14619	Renefres	*wꜥb*-priest	20.8 cm	20.8 cm	Unknown
Paris E 18796bis	Siti	Not indicated	21.9 cm	21.9 cm	Unknown
Paris E 5358	Ibia	*sꜣb*	23.4 cm	23.4 cm	Unknown
Paris N 1587	Sobekhotep	Mouth of Nekhen (*sꜣb r Nḫn*)	18.7 cm	22 cm	Unknown
Philadelphia E. 9958	Yebi	*sꜣb*	18.7 cm	21 cm	Abydos, necropolis of el-Amra

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Figure 5: The "Dra Abu el-Naga group": (a) Cairo CG 256; (b) Philadelphia E. 12624; (c) Cairo JE 33481 (photo courtesy Egyptian Museum); (d) Philadelphia E. 29-87-478. The "Hu group": (e) Baltimore 22.391; (f) Boston 99.744; (g) Chicago OIM 5521 (photo courtesy Oriental Institute); (h) [Hu 1898] (from Petrie and Mace 1901, pl. 26).

Cairo CG 256	Tetikhered	Elder of the portal (*smsw ḥꜣyt*)	17 cm	20.5 cm	Dra Abu el-Naga
Cairo JE 33481	Renseneb	*sꜣb*	21 cm	25 cm	Dra Abu el-Naga
Philadelphia E. 12624	Khonsu	*sꜣb*	27 cm	31,5 cm	Unknown
Philadelphia E. 29-87-478	Djehuty	Scribe (*sš*)	19 cm	23 cm	Dra Abu el-Naga
[Hu 1898]*	[…]	[…]			Hu
Chicago OIM 5521	Ity	*sꜣb*	9.4 cm	…. cm	Hu
Baltimore 22.391	Mar (?)	*sꜣb*	19.7 cm	19.7 cm	Unknown
Boston 99.744	Taseket	/	20 cm	20 cm	Hu

* Petrie and Mace 1901, 52, pl. 26.

Figure 6: Steatite statuettes of the Late Middle Kingdom: Turin C. 3083; C. 3084 (the face is a modern restoration); S. 1225/1; S. 1226/1 (photo Dell'Aquila © Museo Egizio).

For the Late Middle Kingdom proper, by contrast, the evidence for provincial local workshops in the 12th and 13th dynasties remains meagre, being based on just a few specimens. There clearly is a wide production of statuettes for the members of the lower elite, very often made in steatite, in a style that differs from that of the upper elite statues worked in hard stone. Although groups can be highlighted, it is difficult to link these to specific sites in the country. Specimens found in Lisht, Haraga, Abydos, Thebes or in Nubia are very similar, and the similarities between pieces are perhaps due more to a chronological vicinity than to a common regional style.

Hard stones and soft stones are worked in very different ways. For the former, very hard tools must be used, usually hammers-chisels made of even harder rock (ideally dolerite). For the latter, copper tools can be used to extract blocks and sculpt them, and flint shards and sandstone pebbles are also effective shaping tools. It is of course possible for a single sculptor to excel in carving different stones, but the techniques and tools, and the amount of time required, are very different between hard and soft stones, suggesting that at least in some cases sculptors (or workshops) could develop a

specialization in specific materials.[6] This would be born out by the quality of execution of the statues of the Late Middle Kingdom corpus: while quartzite and granite statues generally display great virtuosity in the rendering of proportions, forms, surface and details, figures in steatite form a homogeneous corpus of more standardized figures, carved with less accuracy (or less skill?), and hence give the impression that they were produced "in series".

To summarize regarding the Late Middle Kingdom, although it remains difficult to connect productions to specific places, one is clearly dealing with two registers of sculpture: on the one hand, royal and upper-elite statuary, of larger formats, finer and more homogeneous in quality, usually carved in hard stones and installed in temples or other monumental structures; on the other hand, lower-elite statuary, of smaller formats, carved in softer stones, and mostly found in funerary chapels, cenotaphs, or local cult places. The style and quality of the latter type of statuary is very heterogeneous and far removed from those of the statuary of the king and high officials. These are accordingly two different levels of production, with two distinct clienteles.

Where: in the proximity of the quarries or of the construction site?

No workshop (in the sense of a structure housing a sculpture activity) has been found so far during the period of time the present essay is concerned with. While for the New Kingdom the atelier of Thutmose in Amarna is well known, similar archaeological evidence is still lacking for the Middle Kingdom and Second Intermediate Period. Textual sources, however, provide some information and attest to the existence of sculptors connected with the court of Itj-tawy:

- Stela Cairo CG 20514, from Abydos (Simpson 1963, 55, B; Quirke 2009, 117). Year 1 of Senwosret I. A lector-priest named Nakht is mentioned, who bears the title of draughtman (*sš ḳdwt*), while his father is director of the goldsmiths (*imy-r mdw*).

- Inscriptions from the sanctuary of Heqaib in Elephantine (Habachi 1985, 38; Franke 1994, 106-107; Quirke 2009, 117-118). Reign of Senwosret I. According to these inscriptions, the nomarch Sarenput I received "hundreds of persons from Lower Egypt" (*šnw nt tpw m mḥw*) from the king to build his tomb and manufacture his grave goods. Sarenput is probably referring to artisans sent from the king's Residence to cut and decorate his tomb and produce various objects for his grave.

- Stela Los Angeles, Country Museum A. 5141.50-876, probably from Abydos (Simpson 1963, 53, C; Faulkner 1952; Quirke 2009, 117-118). Reign of

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6   The case of the villa of the sculptor Thutmose in Tell el-Amarna, comprising the only physical remains of a permanent workshop found so far, is revealing in this regard. In the area of the studio, the fragments of hard and of soft stones were found in separate locations (Phillips 1991). It would appear therefore that, although working in the same space and for the same master, different people were sculpting soft and hard stones. Concerning the Late Middle Kingdom, J. Wegner found possible evidence of a quartzite workshop in an area close to the town of Wah-Sut, founded by Senwosret III (Wegner 2007, 296) – unless the chips of stone found there are actually vestiges of architectural blocks or statues that were cut into pieces at some point of history in order to be reused as construction material.

Senwosret I. Shenseti, director of sculptors (*imy-rꜣ gnwtyw*), says that he was sent to Abydos, where he built his tomb (perhaps meaning by that one of the cenotaphs on the Terrace of the Great God?): "I acted as a sculptor in Amenemhat-Itjtawy (…) and I came to this temple to work for His Majesty, the King of Upper and Lower Egypt Kheperkare, beloved of Khentymentiu, Lord of Abydos (…)".

- Stela London, British Museum EA 101, probably from Abydos (PM V, 96; Blackman 1935; Franke 1994, 108; Quirke 1996, 674). Reign of Amenemhat III. According to the inscription, on the occasion of the *Sed* festival of his king, Nebipu-Senwosret, acting as a "Chief of the Ten of Upper Egypt" and "priest of Dua-wer", went to the Residence with the priesthood of the temple of Abydos; the stela was presumably brought back from the Residence to Abydos under the supervision of the elder lector-priest Ibi.

- Stela New York, Metropolitan Museum of Art 35.7.55, from Hierakonpolis, tomb of Horemkhawef (Hayes 1947; Franke 1994, 108). 13th dynasty. The "head and high priest of Hierakonpolis and superior of the fields" (*sḫḏ ḥm-nṯr tpj ḥr nḥn imy-r ꜣḥwt*) Horemkhawef says that he went to the Residence (*ẖnw*) by command of the god Horus-who-avenged-his-father in order to bring back Horus of Nekhen and his mother the justified Isis (*i.e.* cult statue of these two deities) (*ḥrw-nḏ-it.f* (…) *r ẖnw r jn.t ḥr nḥn ḥnꜥ mwt.f ꜣst mꜣꜥ-ḥrw*). This could mean that, in order to provide the temple of Hierakonpolis with a new cult statue of the local gods, the official went to Itj-tawy, where an atelier for the production place for cult statues, probably of metal or gilt wood, presumably stood.

These texts suggest that there were craftsmen attached to the royal Residence of Itj-tawy, from where they could travel, depending on construction projects, or to whom provincial officials could turn to in order to obtain a statue. This does not rule out the possibility that provincial workshops actually existed, but it does seem that those of the Residence enjoyed special prestige, especially for their metal works, as these inscriptions suggest.

Additional clues are provided by stylistic analysis. For the early Middle Kingdom, and the reigns of Mentuhotep II and III specifically, R. Freed has highlighted stylistic connections between the reliefs of Elephantine and those of other temples erected by these kings, notably in Tod, and proposed explaining these similarities by the existence of "travelling sculptors" (Freed 1984, 146, 150, 185).

The material analyzed in the current study suggests a similar situation, as pointed out above, for example in the case of the striking similarity of the granodiorite statue of governor Heqaib II (found in the sanctuary of Heqaib at Elephantine) to the granite standing statues of Senwosret III found in Karnak. The stylistic homogeneity of the upper-class style during a single reign speaks in favour of a quite homogeneous production. What these pieces have in common is not their fin-dspot, but the fact that they are all carved for the highest members of the court, in large formats, and mostly in hard stones.

Some coherent groups of statues found in different sites of Egypt attest large-scale projects involving either different workshops or a single atelier for various destina-
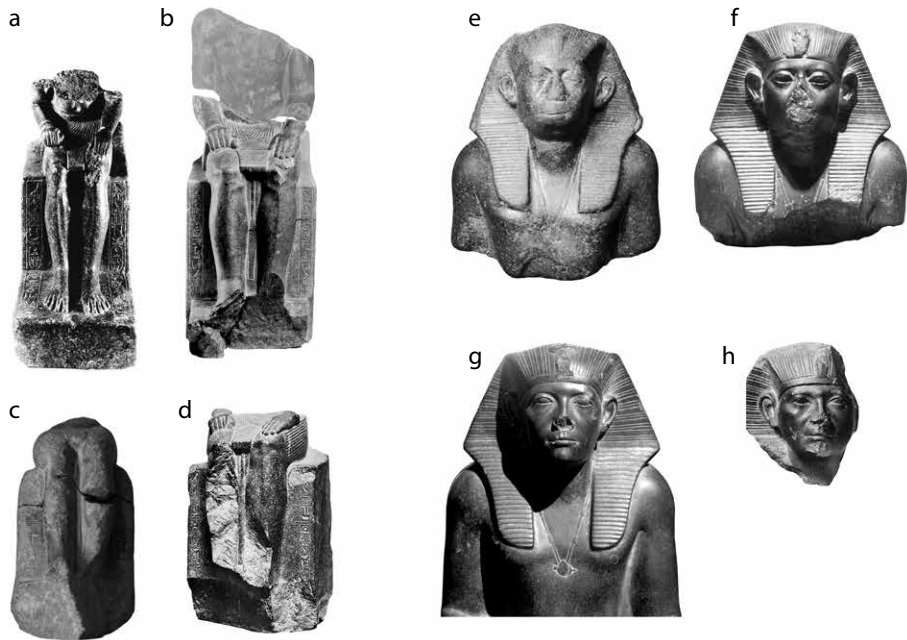
Figure 7: (a) Karnak-Nord (from Jacquet 1971, pl. 41); (b) Elephantine + Boulogne E 33099 (from Delange 2012, pl. 225); (c) London UC 14635; (d) Cairo CG 422 (from Borchardt 1925, pl. 68); (e)Vienna ÄOS 6; (f) Detroit 31.68; (g) Brooklyn 52.1; (h) Lucerne A 96 (from Spanel 1988, 64).

Museum/coll., inv. Nb.	Height	Estimated orig. height	Provenance	Estimated origin	Dedication to a deity
Brooklyn 52.1	54.5 cm	54.5 cm	Unknown	Hierakonpolis	Horus of Nekhen
Cairo CG 422	30 cm	55-60 cm	"Kom el-Ahmar" (bought in 1888)	Gebelein, Hathor temple	Hathor, mistress of Inerty
Detroit 31.68	16.5 cm	50 cm	Unknown	/	/
Elephantine (Habachi 1985, Nb. 102) + Boulogne E 33099	33 + 16.5 cm	60 cm	Elephantine, sanctuary of Heqaib	Elephantine, sanctuary of Heqaib	Satet, mistress of Abu
Karnak-North	33.5 cm	53 cm	Karnak-North	Esna?	Sobek, lord of Senet
London UC 14635	31 cm	54 cm	Unknown		Horus and Seth
Lucerne, coll. Kofler A 96	11.8 cm	55 cm	Unknown	/	/
Vienna ÄOS 6	22.5 cm	55 cm	Unknown	/	/

tions. A noticeable example is a group of statues of Senwosret III, of which, according to their findspot or their inscription, specimens were apparently produced together and planed for different sites. This group, noticed by B. Fay (Fay 1996, 34, n. 160), reunites seated statues of the sovereign of a very fine variety of granodiorite. All are of approximately the same dimensions and depict the king with a softened version of his characteristic expressive features. All represent Senwosret with the *shendjyt* kilt and the bull tail, the talisman pendant necklace on his chest, and a bracelet on the proper right wrist. The king always wears the *nemes*, except on the Elephantine-Boulogne piece, where he has the *khat* headdress. Each statue is dedicated to a deity linked to a specific cult place. The king apparently ordered a whole ensemble of stat-

ues destined to different temples through the country, perhaps at the occasion of his coronation as was suggested by Fay. Their consistency in iconography, material and dimensions leads to identifying a coherent group, produced on the same occasion for different destinations. Some differences of quality within this group should be noted nonetheless, suggesting that different sculptors, of various level of expertise, worked for the same project. If the statues of Brooklyn, Cairo and Elephantine-Boulogne demonstrate a great care in the polishing, the rendering of the proportions and musculature, and the incision of the inscription, the treatment of the Vienna and London statues, as well as that of the fragment from Karnak-North, is considerably rougher, despite the iconographic coherence and the obvious intention of following the same guidelines. It is therefore most likely that different sculptors participated in the same project. However, were they all working in the same atelier (some being "masters" and some "apprentices"?) and were all the statues then sent to the different sanctuaries? Or should one rather consider a common model sent to various ateliers, of different level, through the country for local cult places?

This leads us to wonder where statues were produced: in the quarries? in the royal Residence workshops, with blocks coming from different quarries and regions of Egypt? or directly at the site of destination? Were sculptors always itinerant? Did they travel from one site to the other according to the needs of building or decorating projects, or did they work in or near the quarries, to be closer to their source of raw material? (Which, incidentally, would explain the stylistic proximity between statues clearly intended for architectural contexts that were geographically far apart.)

Probably no definitive answer can be given, and all these scenarios may actually have occurred at one time or another. In stone quarries in Egypt and Sudan one finds abandoned pieces, either unfinished or broken. None of them, however, can so far be dated certainly to the Middle Kingdom. This may mean that in some periods at least some pieces -at least the heavier ones- were produced, completely or partially, at the quarry.

In stone quarries close to the Nile this would certainly have been a viable option, since the more or less finished piece would have been relatively easy to transport from there by boat. Regarding stones that were available only far away from the Nile Valley, like graywacke, serpentine, steatite or alabaster, the place of production or at least of the finishing of sculptures would conceivably have been rather in a more liveable place than the middle of the desert. Giving the statue its rough shape before transportation would have allowed a reduction of its weight, especially in the case of colossi, and thereby have facilitated its transportation on the long route towards the Nile; yet, it would also have made the block more fragile, increasing the risk of breakage before reaching destination.

It is therefore possible that in many cases blocks were first roughly shaped at the quarry (or in its proximity) but properly sculpted and finished only in the vicinity of their final destination.

In the case of important centers where many Middle Kingdom statues and statu-ettes have been found, like Abydos, Lisht-North or Haraga, one is tempted to assume that they housed a local workshop producing these sculptures for the local elite (or for the people coming there to build a cenotaph); so far, this remains an hypothesis only, since no regional style can presently be identified in the centuries preceding the Second Intermediate Period.

How: in series or to order?

In the case of the upper levels of society, statuary seems therefore to be the product of specialized sculptors linked to the court, although it remains difficult to know whether these artisans were systematically itinerant or whether statues were transported from their place of production to their site of destination. Concerning the statues of the lower levels of the elite, it seems on the other hand that more or less local productions are conceivable, perhaps linked to some important urban or religious centers.

The next question is whether statues were made to order for specific purposes, or whether they were at least partly produced in series, to be acquired by anyone who could afford one? Probably both are true. In the case of statues of special shapes, with unusual positions or attributes, one is most likely dealing with works created for specific purposes, commissioned by the king or high officials to fit in a definite architectural or decorative context. However, clear cases of individualization are not so common.
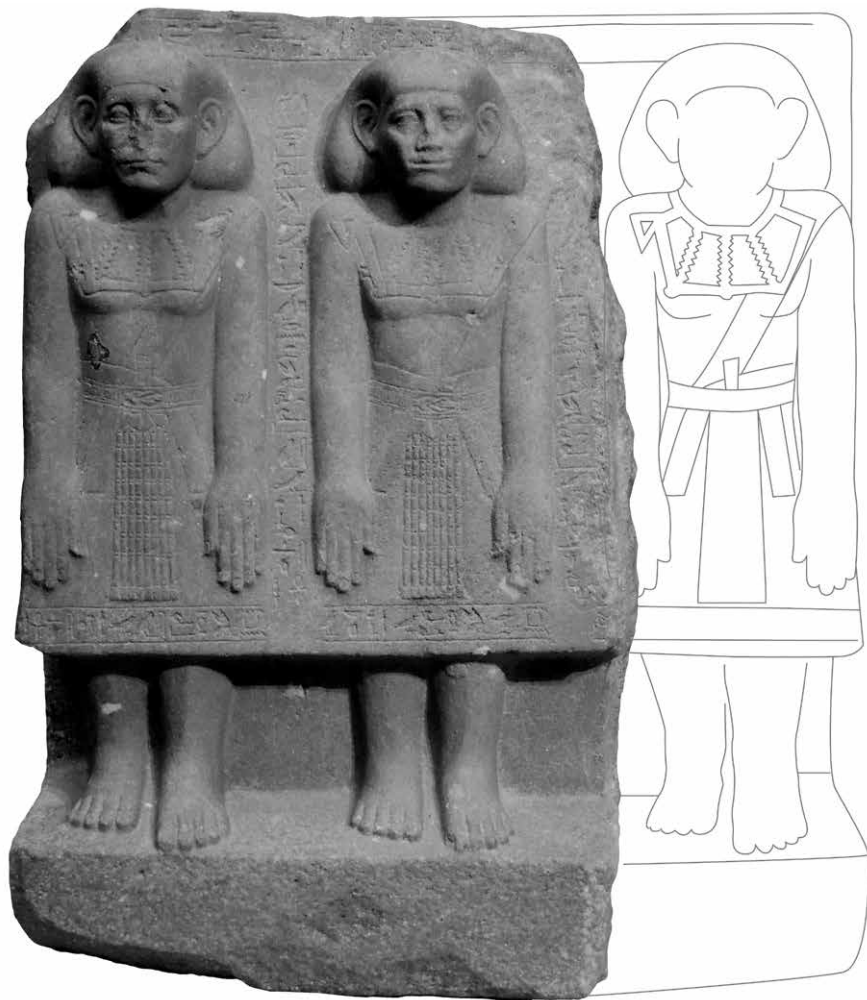
Figure 8: Triad of the high priests of Ptah Nebpu, Sehetepibre-ankh-nedjem and Sehetepibre-khered (Paris A 47).

Figure 9: (a) detail of the proper right side of the seat of Nemtyhotep (Berlin ÄM 15700); (b) steatite statuette of the director of the temple Senwosret (Cairo CG 481); (c) triad of the guardian Wadjnefer (Stockholm 1993:3, from George 1994).

In the Late Middle Kingdom, indeed, only the vizier (with the *shenpu*-collar) and the high priests of Ptah (with a peculiar apron, *cf.* Maystre 1992) display attributes which indicate their specific functions.

However, in some cases at least, there are arguments that speak to a production in series of statues,[7] even for the upper elite repertoire. A telling example is the statue of the steward Nemtyhotep (Berlin ÄM 15700, *cf.* Oppenheim 2015, 128-130, cat. 63; Connor 2015), a rather large sculpture made of quartzite – a hard stone almost exclusively used for the upper levels of the elite – sculpted with great care and showing close

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7   A similar situation appears in the Old Kingdom repertoire (*cf.* discussion in Vymazalová and Pieke 2017).

stylistic similarities to, and a quality comparable with, the corpus of Amenemhat III. The time and skills required for such a piece is considerable, probably several dozens or even hundreds of hours. However, absolutely nothing in the appearance of the official would allow us to identify his function or his person. The face is that of the reigning king and no distinctive attributes of his role appear, so that this could be any non-royal person. The statue is almost finished, except perhaps only for a last fine polishing, yet it does not bear the usual inscription on the front of the seat on either side of the legs, or on the mantle. The only visible inscription, roughly incised on the proper right side of the seat (in an unusual position), is the basic dedicatory formula with the title and name of the recipient of the statue (*imȝḫy ḫr nṯr ꜥȝ nb pt imy-rȝ pr nmty-ḥtp*). The lines of hieroglyphs are roughly carved and deviate markedly from the horizontal. They seem to have been quickly and improvisedly incised, not as the definitive inscription but only as a memorandum, probably to be replaced by a definitive inscription which, however, was never executed. I would see this as a kind of labelling of the statue, once it was made and ready to be chosen from a stock in the royal workshops, which would explain its high quality, the prestige of the stone, and the similarity of the sculpture to contemporary royal "portraits". It was as some point chosen to be acquired by the steward Nemtyhotep, but it would have been fit for any other high official of his time.

Another example of an apparently quickly and carelessly incised inscription is the steatite statuette of the director of the temple Senwosret (Cairo CG 481), which bears a roughly carved inscription on the torso, in this case as well in a very unusual position.

As a last example, the small steatite triad of the guardian Wadjnefer (Stockholm, Medelhavsmuseet 1993:3, *cf.* George 1994) may be cited. The inscription, crudely incised on the back panel and, due to lack of space, continuing in one column along the front, identifies a man, his mother and his wife. However, the sculpture represents two men and a female! It would seem that the statuette was acquired as a "ready-made" product, even though the figures did not fully match the sex of the recipients, since the inscription would be sufficient anyway to identify them.

Preliminary conclusions

In the **Second Intermediate Period** (16th – 17th dynasties), it seems that one is dealing with several local productions of statuettes for local funerary chapels (those whose archaeological context is known all come from cemeteries). At least in Abydos, Thebes, and probably also in Hu, it seems that pieces have come survived in sufficient numbers to suggest the existence of local productions. At the same time, it must be born in mind that the royal repertoire is considerably reduced compared to the Late Middle Kingdom.

Concerning the previous period, the **Late Middle Kingdom** (second half 12th – 13th dynasties), two main levels of production are identifiable. On the one hand, there is a court production of statues for the upper elite, in hard stone, usually in larger formats, and often intended for temples. Both royal and non-royal statues are in the same official style and share the same quality and features. On the other hand, there is a vast production of smaller statues, often of less refined quality (including some very crude

pieces), intended for the members of the lower elite, as their inscriptions bear out, and usually deriving from cemeteries.

For the upper elite statuary, there is no evidence of regional styles, since statues with different provenances show consistent features. These statues seem to have been produced either in the same workshop or by itinerant sculptors trained in the same place. Regarding the lower elite statuettes, usually of limestone or steatite, local productions seem to be linked to regional sites, according to the evidence found in cemeteries. Everything is done in order to make them look like the statues of the upper officials: same colours, types, positions, garments and attributes; however, they differ in dimensions, stone and quality.

Getting back to the definition of sculpture "workshop", I would propose a definition based on the evidence provided by the Late Middle Kingdom and Second Intermediate Period corpus. A "workshop" can, but need not necessarily, correspond to an actual permanent working site, a studio. The term is in all likelihood better defined as identifying a "group of craftsmen/artists producing works in a common and coherent style", possibly itinerant, at least in some situations. "Workshops" are identified by recurrent stylistic specificities which allow us to single out distinctive groups within the corpus of the same period. Pieces with such homogeneous stylistic particularities may have in common their place of extraction or production, the nature and hardness of their material, but more than anything else the people who commissioned them.

Acknowledgements

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The Artistic Copying Network Around the Tomb of Pahery in Elkab (EK3)

A New Kingdom case study

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Abstract

Through a case study of the artistic copying network around the tomb of Pahery in Elkab (EK 3), this paper aims to illustrate the circulation of knowledge via iconographic patterns in Ancient Egypt. As will be highlighted, this phenomenon is closely linked with the process of creativity. After describing the different tombs related to EK 3, I will attempt to identify two artists behind the iconographic program of those funerary chapels. Finally, in order to create "analogy-bridges" which may provide food for thought for Egyptology, the productive copy process and the idea of creativity will be briefly compared with a Western Renaissance context.

Keywords: artist, copy, Elkab, iconography, icons (circulation of), identity, intericonicity, Pahery.

Introduction

Evidence for the transmission of iconographic patterns in artistic copies exists in the Middle Kingdom This is the case, for instance, with the famous tombs of Ihy and Hetep (Saqqarah), as well as of Djehutyhotep (Deir el-Bersha) (Freed 2000; Pieke 2016). However, the state of the documentation does not allow us to follow the details of the mechanism of transmission of the iconographic motifs, nor to reach the level of the artists' choices behind their compositions.
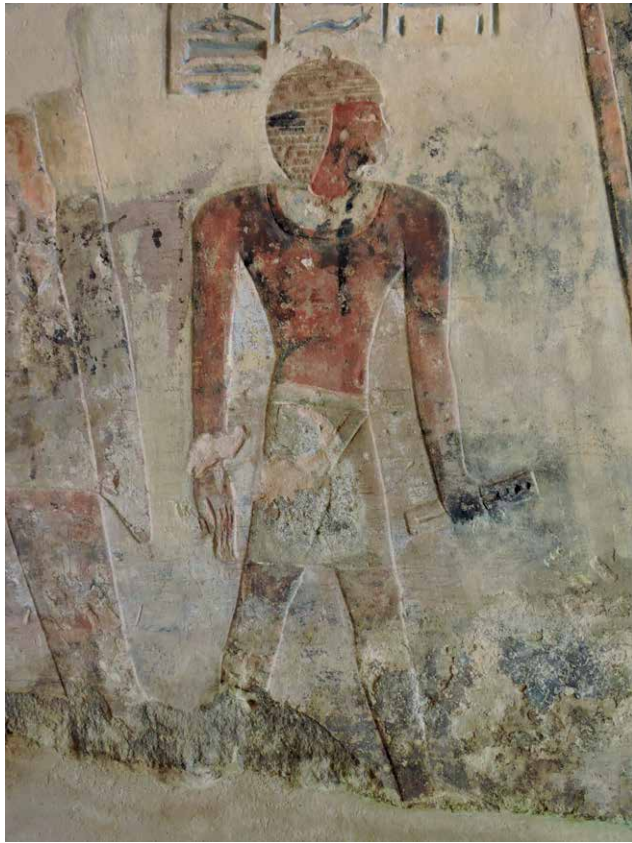
Figure 1: Pahery represented as a painter in his grandfather's tomb (© MANT – Ulg).

A case study of the New Kingdom copying network around the tomb of Pahery in Elkab, although slightly outside the chronological focus of this volume, allows us to track the circulation of patterns that could have applied equally as well to the Middle Kingdom. An analysis of four tombs enables us to identify two artists behind those iconographic programs. Indeed, if the preconception that "Egyptian art is an art without artists" has endured since antiquity (Davis 1979), recent studies (Laboury 2016; Laboury in press) tend to reveal the existence of identifiable artistic individuals. Studying the circulation of motifs allows us to understand and identify specific artists' identities and sensibilities, here those of Pahery of Elkab (fig. 1) and Meryre of Esna.

After describing Pahery's funerary chapel, each tomb connected to it will be considered. Parallels and distinctions will be drawn and a characterization of the circulation of iconographic patterns will be suggested, including its motivations. Then, I will draw attention to two artists' identities and link the productive copy process[1] with the notion of "intericonicity"[2] and the concept of "creativity" in Ancient Egyptian perspective. Finally, from the perspective of a transcultural study, we will

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1   That is to say using a partial artistic copy to construct an iconographic thesaurus in which patterns are chosen to create a new composition (Auclair 2010, 8; Laboury in press).
2   On this concept, see Laboury 2017.

Figure 2: General view of Pahery's tomb (© MANT – Ulg).

briefly consider the Western Renaissance, which may be generative of further comparative methodologies in Egyptology.

Pahery's tomb (EK 3)

Brief description of EK 3[3]

Pahery's tomb (EK 3) (fig. 2) was cut in a terrace of the sandstone hill at the northern-east of the ancient city of Elkab. Other tombs relevant to our study were also built there, including, from south to north: Reneny's tomb (EK 7), that of Ahmose son of Ibana (EK 5) and the tomb of Setau (EK 4).

The exterior door was carved with reliefs representing Pahery in the offering attitude. The tomb owner is also depicted adoring the sun, on the triangular wall on the right-hand side of the door. The left front wall of the tomb is quite damaged and the right one represents Pahery, staff in hand, facing the door. The south wall of the tomb is dedicated to Pahery's official biography and to funerary scenes. A niche is carved in the west wall surrounded by an autobiographical text of thirty lines. On the north wall, a banquet scene is depicted along with a scene where Pahery is worshipping different divinities in company with his wife. A famous corpus of "Reden und Rufe" enliven all these painted reliefs (Guglielmi 1973; Vernus 2009-2010).

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3   General data come from Tylor and Griffith 1894 and Tylor 1895.

Pahery of Elkab's identity

Pahery's titles appear in his tomb as well as in his grandfather's, Ahmose son of Ibana. He was a painter ("*sš-ḳd n 'Imn*"), a scribe accountant of grain ("*sš ḥšb it*"), a [confidant of] the treasurer ("[*mḥ-ib n*] *imy-r ḥmt*"), and later, governor of Elkab and Esna ("*ḥзty-ꜥ n Nḥb ḥзty-ꜥ n ꜥnyt*") and chief of Nekhbet's priests ("*imy-r ḥmw-nṯr n Nḥbt*") (Davies 2009, 142; Merzeban 2014, 351). Thus, Pahery had a singular career as an artist who became governor of an important nome in the beginning of the 18th dynasty.

From a chronological point of view, we must use incidental data[4]. Pahery's father, Itireri, was the tutor of prince Wadjmose, a son of Thutmosis I (*ca.* 1493-1483 BC).[5] Royal tutors were generally older, experienced men (Roehrig 1990, 325-326). We can thus assume that Pahery must have been slightly older than the children of this king. Therefore, Pahery began his career not later than the first years of the reign of Thutmosis III (*ca.* 1479-1425 BC).

An extended artistic copying network: the tombs undoubtedly connected with EK 3

The tomb of Wensu (TT A4)

Description[6]

The tomb of Wensu, a scribe accountant of grain who was a contemporary of Pahery, and his colleague, is currently lost. Nevertheless, some fragments of it are preserved in the Louvre Museum. Combining 19th century travellers' notebooks with the sketches made by R. Hay and H. Burton, L. Manniche (Manniche 1988, 62-87) was able to identify the different iconographic scenes and propose an approximative location of the tomb at Dra Abou el-Naga.

TT A4 is a T-shaped tomb with, on the left side of the broad hall, a funerary banquet, a vineyard and a fishing scene, as well as the depiction of a market supervised by the mayor of Thebes, Siuser. On the right-hand side of this hall, the official life of Wensu was depicted with agricultural scenes connected with boats being loaded with grain[7] and scenes of fishing and hunting in the desert. In the inner room, the right side depicts the rituals being performed in front of the tomb owner's mummy while the left side represents funerary scenes and adoration of deities.

Circulation of iconographic motifs: differences and similarities with EK 3

There are a number of iconographic and textual similarities in the agricultural and funerary scenes of EK 3 and TT A4 (Manniche 1988; Merzeban 2014; Laboury in press).

For example, in TT A4's agricultural scenes, the general composition is the same as for EK 3 (fig. 3): one register is dedicated to the *peret*-season activities

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4   I thank D. Laboury for his help concerning this chronological demonstration.
5   All the chronological data comes from Hornung, Krauss and Warburton 2006, 492.
6   General data come from Manniche 1988.
7   D. Laboury suggested a new display of the fragments preserved at the Louvre Museum and he located the depiction of boats on top of the agricultural scenes (Laboury in press).
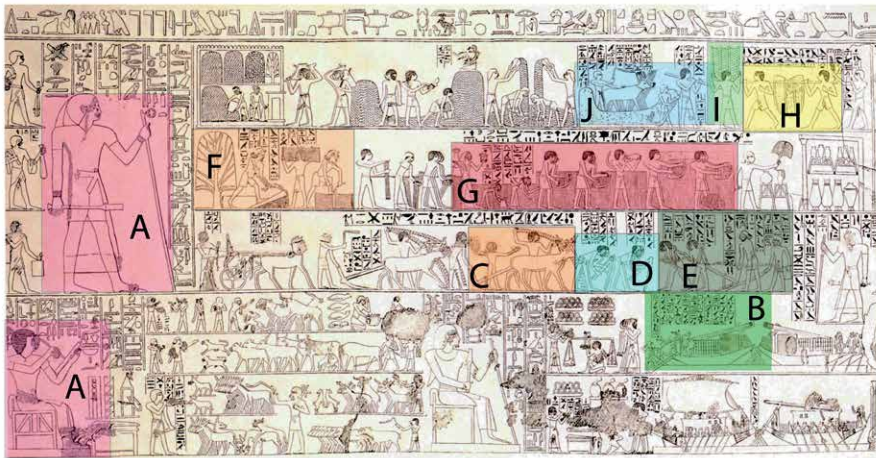
Figure 3: Comparison between EK 3 and TT A4's agricultural scenes (© Musée du Louvre/ Christian Décamps and Tylor and Griffith 1894 pl. III).

and two others for those of *shemu*-season. Moreover, unusual patterns such as the plough tracked by four men are copied (fig. 3, E). Nevertheless, we may observe iconographic variations in the copying of every register. The owner is not standing but seated on a chair very similar to the one used by Pahery in the cattle registration scene (fig. 3, A). There is also a modification of the ploughman's hair and a change in the small sower's position (fig. 3, E). Furthermore, the two small gleaners of the second register were reversed (fig. 3, G) and the grain bag bringer on the first one turns his bag over his head in TT A4 (fig. 3, I).

The scene of the boat loaded with grain is also similar to the one of EK 3 (fig. 4). Nevertheless, once again, iconographic modifications must be noticed. An overseer was added at the bottom of a dock that is more detailed in TT A4 (fig. 4, B1). Instead of the two bag bringers walking in a single line in EK 3, we encounter only two men walking side-by-side in TT A4 (fig. 4, B2). A man with an empty bag was also appended on the deck of the boat (fig. 4, B4) as were the birds on the paddles (fig. 4, B5).

There are also similarities and variations on the same theme in the corpus of "Reden und Rufe" (fig. 5) as well as in the scene's title (fig. 5, A) which uses, in both tombs, the rather unusual word "*jtrw*". The exclamation of the ploughman on the third register, "Now, I shall do more than my work for this noble man" (fig. 5, C), is a variation on
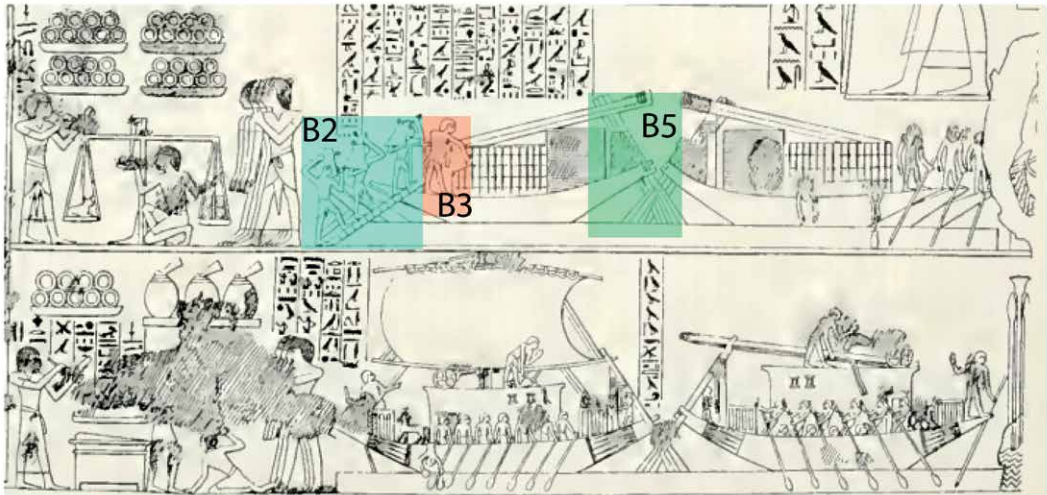
Figure 4: Comparison between EK 3's and TT A4's boat scenes (© Musée du Louvre/Christian Décamps and © MANT-Ulg).

Figure 5: TT A4's discourses (© Musée du Louvre/Christian Décamps and Tylor and Griffith 1894 pl. III).
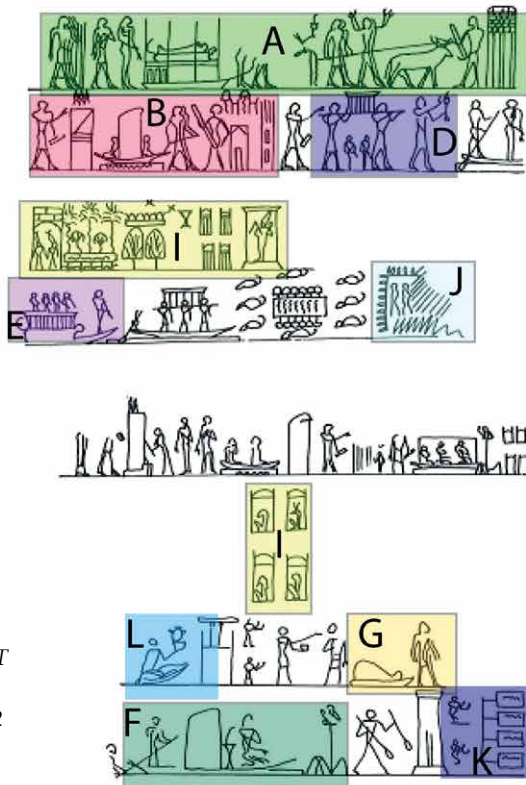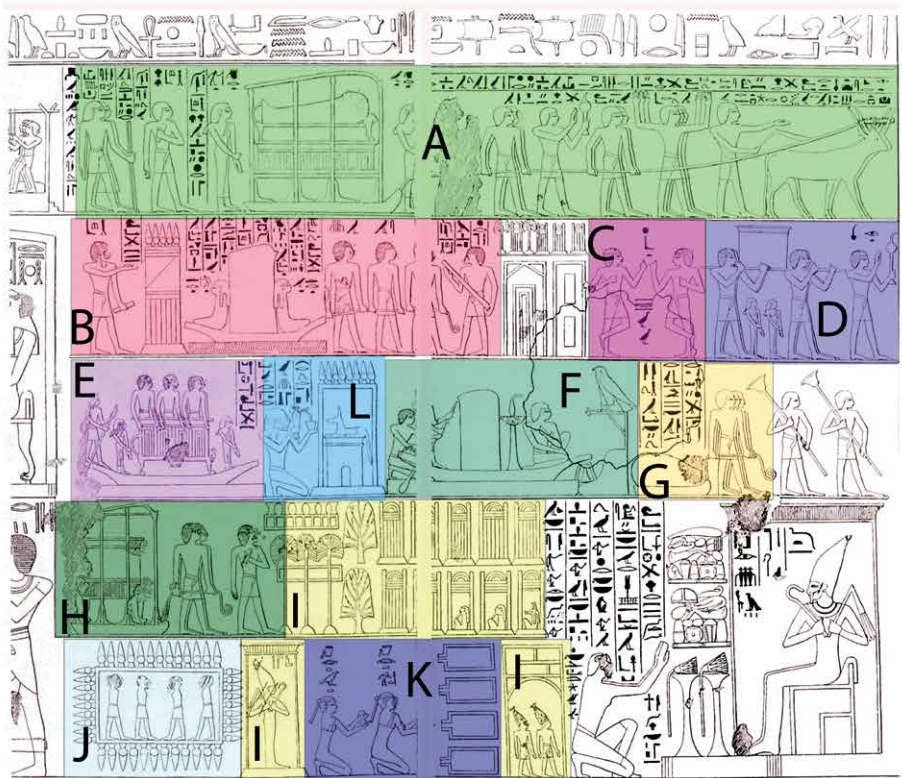
Figure 6: Comparison between EK 3's and TT A4's funerary scenes (Manniche 1988 pl. 12 fig. 23 and Tylor and Griffith 1894 pl. V).

the words of another worker in EK 3. Concerning the dialogue between the young sower and the old ploughman at the right of the third register in TT A4, the only thing we can read for certain is a variation of the old man's answer: "How excellent is your exclamation, my child. The day is beautiful, free of worries…" (fig. 5, B). The two gleaners' dialogue of TT A4 is incomplete, but it seems very similar to its equivalent in EK 3 (fig. 5, D). There are also textual similarities with orthographical variations in the boat scene, even if the title of the scene is quite different (Merzeban 2014, 354).

The funerary scenes (fig. 6) are now completely lost but we can attempt to reconstruct it thanks to the sketches made by R. Hay. Here, the iconographic groups are the same in both tombs, but their locations are different.

We can also observe some similarities in the butchery scene, where the two offering bearers and the tomb owners are depicted as a couple.

Preliminary conclusion

Concerning the chronology of the copying, the more likely explanation is to assume that TT A4 preceded EK 3, both on iconographical and textual grounds (Laboury in press).[8] To understand TT A4 as a predecessor to EK 3, we have to keep in mind that Pahery, owner of EK 3, was a "painter of Amun" in a previous stage of his career and thus might very well have personally decorated TT A4, the tomb of one of his colleagues in the administration of grain accounting in the Theban region. He then might have re-used in his own tomb a part of this iconographic program which he – probably – created himself.

Nevertheless, whatever the copying direction, a real iconographic connection undoubtedly existed between EK 3 and TT A4: the agricultural and boat schemes as the funerary scenes were displayed with few variations. We can thus infer the use of drafts because of the degree of details in the copied work (Manniche 1988, 86) and the "reorganisation register by register" which supposed that "the copying medium took the form of separated strips, like papyrus rolls – or long pieces of leather, textile or any other recording material" (Laboury in press).

Setau's tomb (EK 4)

Description

Setau's tomb is located south of EK 3. Setau was the High priest of Nekhbet for about fifty years, between *ca*. 1175 and 1122 BC (Kruchten and Delvaux 2010, 184-185). The dating of the tomb is secured by the iconographic evocation of Ramses III's Sed Festival and the "signatures" of Meryre of Esna, who was responsible for the decoration of the tomb.

The front wall shows offering scenes and the so-called "second signature"[9] of Meryre. The south wall depicts the representation of the round trip to Pi-Ramses for Ramses III's Sed Festival, the agricultural work of *shemou* and *peret* accompanied by the cattle registration and funerary scenes. The north wall displays the funerary banquet,

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8   I thank Jean Winand for pointing out some textual evidences on the subject.
9   J.-M. Kruchten and L. Delvaux developed this terminology not based on chronological facts (Kruchten and Delvaux 2010).

the owners worshipping Ra and the "first signature" of Meryre. A prayer to Nekhbet with his so-called "third signature" (a colophon) is written on the west wall.

Circulation of iconographic motifs: differences and similarities with EK 3

As was also the case for TT A4, the similarities between EK 3 and EK 4 are both textual and iconographic (Manniche 1988; Merzeban 2014; Laboury 2016). We can observe it in the agricultural and funerary scenes, in the banquet tableau as well as in the worship scene.

With regard to the agricultural scenes (fig. 7), the *shemu*-season work is shown here on a single register and the workers' song is reduced to two lines (fig. 7, A) (compared to eight in Pahery's tomb). There is a change of tone in this discourse: it sounds like an encouragement for the oxen to eat while it is a reprimand in EK 3 (Kruchten and Delvaux 2010, 122). The cattle registration scene (fig. 7, C) and the *peret*-season work (fig. 7, B) are partially copied and, in both tombs, this agricultural scene is shown on one single register.
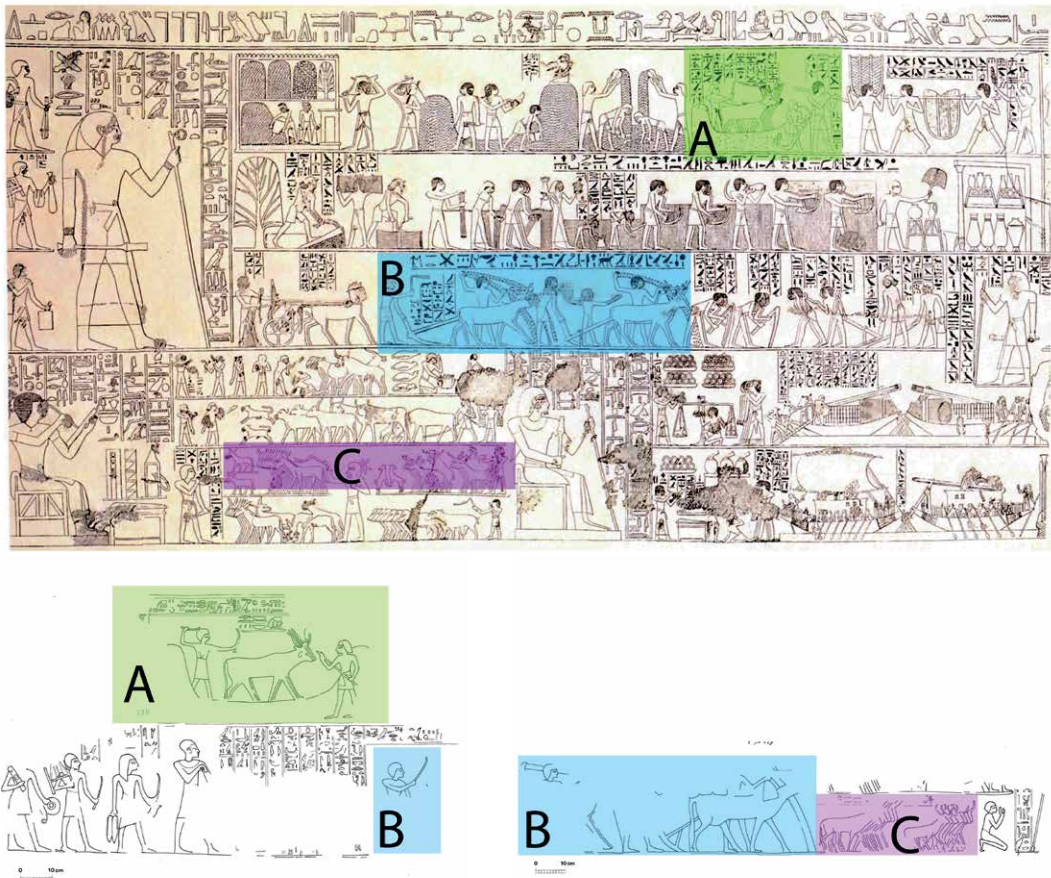
Figure 7: Comparison between EK 3's and EK 4's agricultural scenes (Kruchten and Delvaux 2010 pl. 29 and 31 and Tylor and Griffith 1894 pl. III).
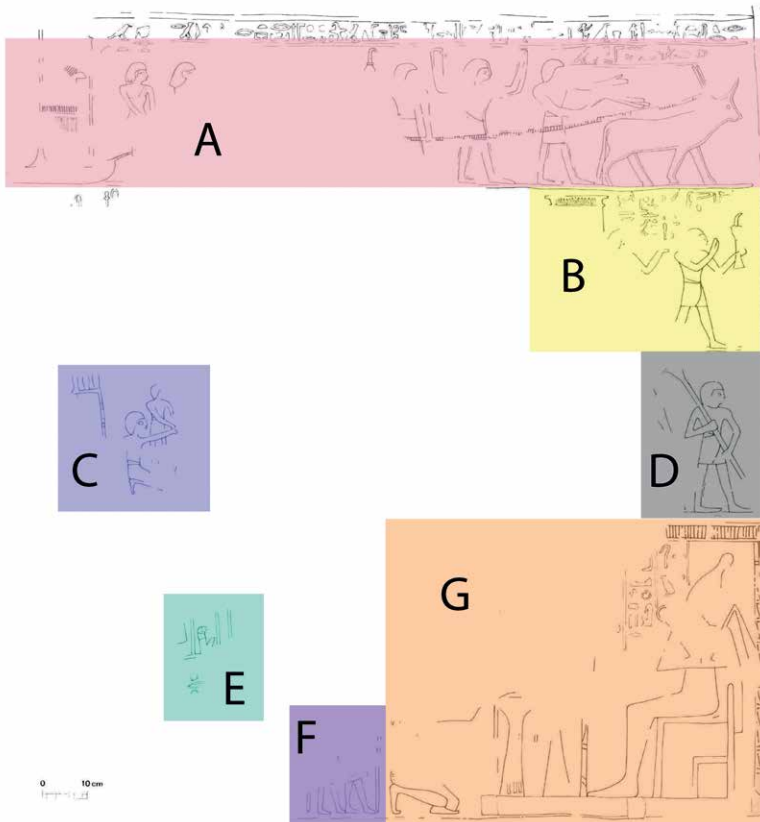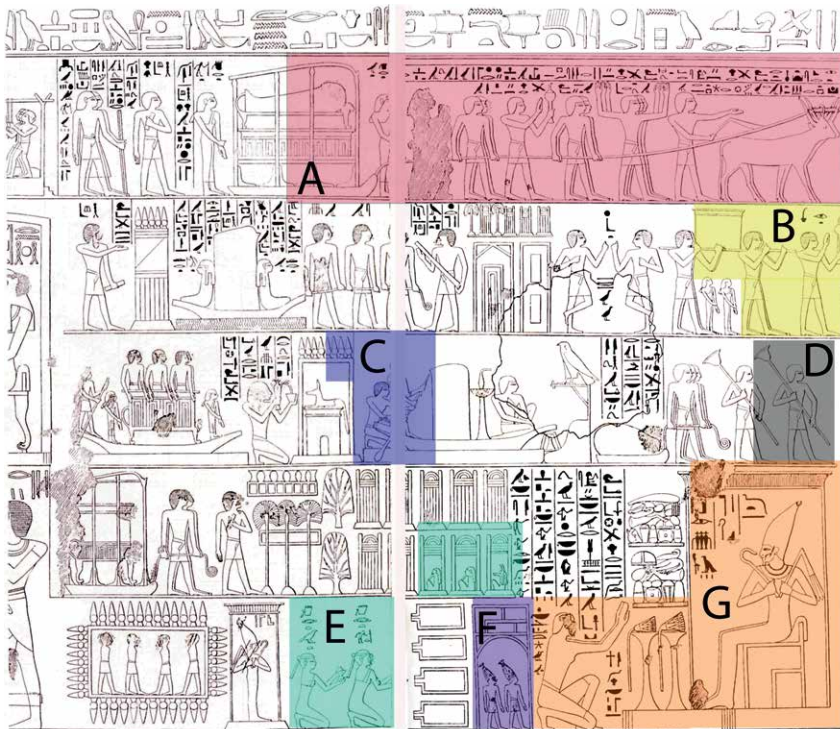
Figure 8:
Comparison be-
tween EK 3's and
EK 4's funerary
scenes (Kruchten
and Delvaux
2010 pl. 33 and
Tylor and Griffith
1894 pl. V).
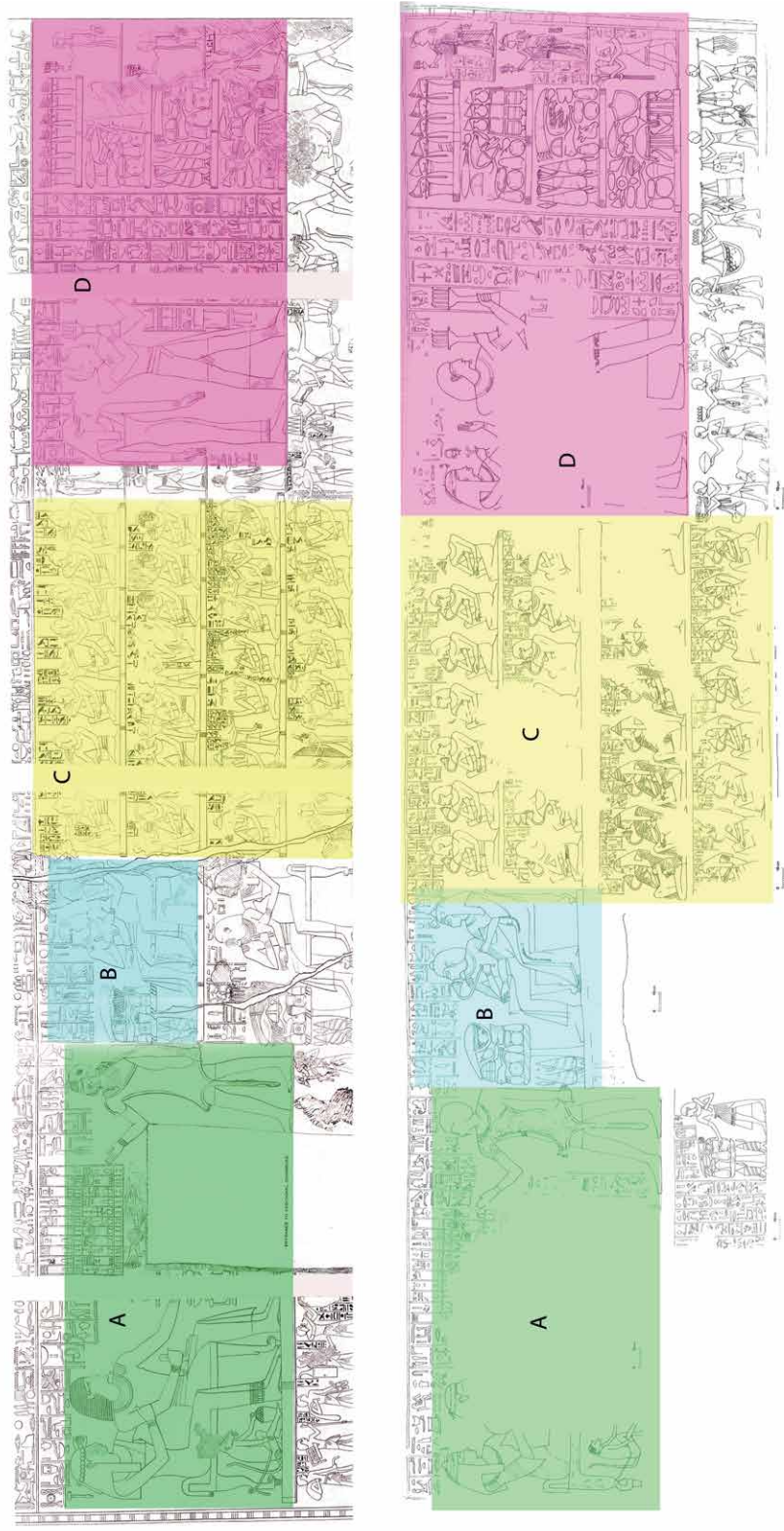
Figure 9: Comparison between EK 3's and EK 4's north wall (Kruchten and Delvaux 2010 pl. 13, 15, 17, 19, 21 and 23 and Tylor and Griffith 1894 pl. VI-VIII).

The funerary scenes are exact copies (fig. 8): we can see coffin transportation (fig. 8, A), the shrine carriers (fig. 8, B), a barge rower (fig. 8, C) and the last register composition is the same (fig. 8, E, F, G).

The north wall scenes are structured like those in EK 3 (fig. 9): there is an offering to the tomb owners (fig. 9, A) with the funerary banquet (fig. 9, B, C) and the tomb owner worshipping Ra with his wife (fig. 9, D). Moreover, we should note the degree of details on the copy of the offering table (fig. 9, D): each element is reproduced with precision. Only the butchery scene is missing.

Preliminary conclusion

Setau chose to copy the iconographic scheme and the general layout of the neighbouring tomb of Pahery. Here, the location of EK 4 south of EK 3 certainly facilitated the transmission of motifs. Nevertheless, in this process of circulation of patterns, he decided to change elements of EK 3's program for three main reasons (Kruchten and Delvaux 2010, 23). First, his own career and family obviously required changing the names and the "autobiographical" inscriptions to create a new scene and to add the depiction of the journey to Pi-Ramses for the Sed festival of Ramses III. Second, EK 4 is smaller than Pahery's tomb. Third, he opted for a Ramesside stylistic updating of EK 3's iconographic composition. Through this updating of EK 3's iconographic scheme, Setau decided to link himself with his famous predecessor Pahery and bore witness to the interest aroused by this governor and ex-painter's tomb.

The fourth tomb in Pahery's funerary chapel network: the tomb of Reneny (EK 7)

Description[10]

At the south end of the same terrace lies Reneny's tomb, the last monument that may be involved in this artistic copying network. Reneny was the governor of Elkab at the beginning of the 18th dynasty, following his father, Sobekhotep (Davies 2010, 237). By writing a *graffito* in EK 10, he connected himself with the family of Sobeknakht, which counted several governors of Elkab during the 17th dynasty (Marciniak 1981a; 1981b; 1986).

The layout of EK 7 is the same as in EK 3 and EK 4.[11] The tomb was decorated with carved reliefs and painted elements. The south wall shows agricultural scenes, cattle registration, boats loaded with grain and a funerary banquet. A niche with the tomb owner's statue is surrounded by six offering bearers and Reneny worshipping Amenhotep I's cartouche. The north wall depicts a second funerary banquet in smaller dimensions with ritual and funerary scenes converging on the deity of the West.

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10   General data come from Tylor 1900.
11   Tombs with one room, usually a niche and additional pits at the end of the right wall seem to be the traditional layout at Elkab.
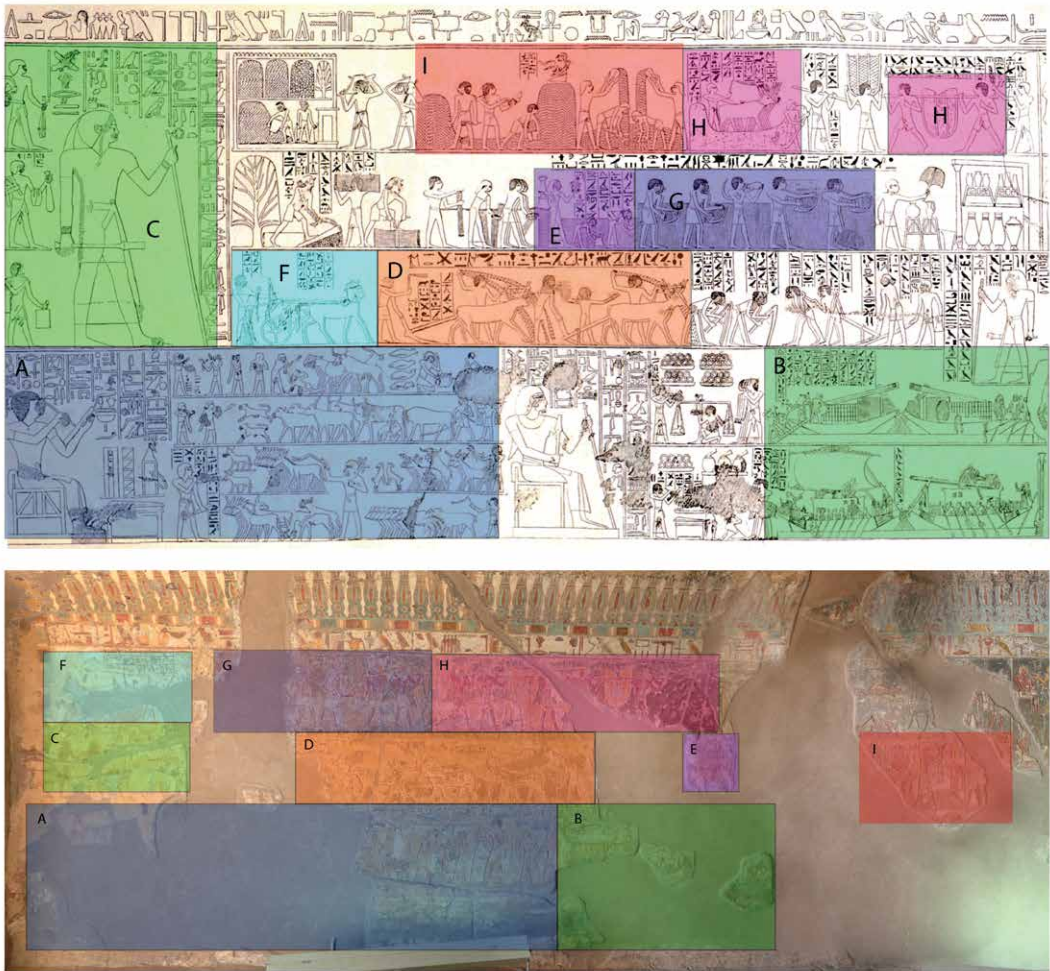
Figure 10: Comparison between EK 3's and EK 4's agricultural scene (© MANT – Ulg and Tylor and Griffith 1894 pl. III).

Circulation of iconographic motifs: differences and similarities with EK 3
F. Ll. Griffith pointed out, in 1900, the similarities between EK 3 and EK 7 (Tylor 1900, 1), that is to say a partial copy of the general layout of the iconographic scheme (fig. 10).

Pahery probably took inspiration from the side-by-side representation of cattle in the cattle registration (fig. 10, A) and the boats loaded with grain (fig. 10, B). He also rearranged several iconographic groups or elements: in EK 7, the chariot conductor is in the first register (fig. 10, F) as are the men with sickle (fig. 10, G) and the group with the small figures of gleaners is in the second register (fig. 10, E) with the grain measure scene (fig. 10, I).

It seems that EK 3's funerary banquet was influenced by the first one in EK 7, on the south wall: the tomb owners seated above a small baboon are in front of two couples and behind, there are four rows of guests.

Nevertheless, there is no general similarity with regard to the funerary scenes. At the most, there is the reuse of the coffin pullers, the "*mww*" dancers, the shrine bringers, the *tekenu* and the garden patterns.

There are also "Reden und Rufe", but we cannot point out any real similarity with the ones in EK 3. It may be the first example of agricultural work brightened by "Arbeiterreden" since the Middle Kingdom.[12]

Preliminary conclusion

The iconographic themes of EK 7 are more developed than those of EK 3, particularly in the agricultural and funerary scenes. We can also observe more creativity in the general layout of the EK 3's scenes, while those of EK 7 are more conventional.

Pahery, as the likely designer of his own tomb, seems to have taken inspiration from EK 7. The main goal of this copy was probably to connect himself with an ancient governor of Elkab (by reusing some iconographic patterns and by his tomb's location) and to integrate his tomb in the monumental landscape of Elkab's elite cemetery (notably by the localisation of his tomb and by its general iconographic layout).

Two artists' individualities: Pahery of Elkab and Meryre of Esna

In the context of this artistic copying network, Pahery's identity, so nicely illustrated in his tomb, would need a deeper understanding of the image he wanted to convey of himself through his iconographic biography displayed in his memorial. Nevertheless, this undertaking would necessitate the study of another monument undoubtedly realized by Pahery himself: his grandfather's tomb (EK 5), but this is beyond the scope of this paper and I will come back to it in a forthcoming monograph devoted to a monumental biography of Pahery. At this point, we have to notice, as already underlined, that Pahery had a singular career: he started his professional life as a painter of Amun ("*sš-ḳd n ʾImn*"), *i. e.* in Thebes, and a scribe accountant of grain and became governor of Elkab and Esna. It is clear that there are traces of his former job depicted in his tomb: one would be tempted to see in the incredibly detailed reliefs of EK 3 the aesthetical choices of a former "*sš ḳd*". Pahery chose to integrate his tomb in the Elkab monumental landscape (general layout of the tomb, localisation near an ancient governor's funerary memorial) and undoubtedly reused iconographic patterns of, at least, one monument made by himself, TT A4.

In order to understand this copying phenomenon, we must consider another artistic individuality, that of Meryre of Esna. Thanks to his multiple "signatures", we can establish that he was a member of the clergy of Khnum and designed – at least – a private tomb as a side business (Kruchten and Delvaux 2010, 208). Even if it is the tomb owner who decided to copy the iconographic scheme of Pahery's tomb (Laboury 2016, 393), Meryre of Esna had the opportunity to leave his marks with his "signatures", but also his adaptations and additions (Kruchten and Delvaux 2010, 209-210; Laboury 2016). The claim of Meryre, "it is his own heart that conducts himself, there is no superior's mouth of a superior that instructs him", could be thus interpreted as the expression of his will to position himself *vis-à-vis* Pahery, his distant colleague (Laboury 2016, 393-396).

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12   I thank Aurore Motte, research fellow F.R.S-FNRS for this information (conversation of 15/09/16).

Conclusion

This brief study points out different copying methods that allowed the circulation of iconographic motifs: the copy can be applied to only one register, an entire wall or a peculiar iconographic detail that was rearranged in a new composition (Merzeban 2014, 341). In the case of Reneny's tomb, it is possible that the copy was made from tomb to tomb, without any copying inter-*medium*, since it is fundamentally only the iconographic concept that was borrowed. Nevertheless, given the degree of detail of some copies (such as the one linking TT A4 and EK 4), we must admit the use of *ostraca* or *papyri* or some other kind of copying media in other cases (Manniche 1988, 86; Pieke in press).

Other cases of circulation of iconographic patterns are attested (Merzeban 2014; Laboury in press; Pieke in press) and supported the hypothesis which assumes that it was the tomb owners who decided to reuse patterns selected for different reasons, for instance the desire to link themselves with a predecessor (Merzeban 2014, 341).

Given the negative connotation and the restrictiveness of the term of "copy", scholars recently introduced to Egyptological discourse the notion of "intericonicity" or "interpictoriality" (Laboury 2015; Laboury in press; Pieke in press). This notion is closely linked to the concept of creativity (Laboury 2012; Laboury in press; Pieke in press). Indeed, despite a long-lasting preconception argues that there is no creativity in ancient Egyptian art (Laboury in press), the re-appropriation of iconographic patterns by the productive copy process (intertwined with the very concept of "intericonicity"), *i.e.* the practical articulation between tradition and innovations, exactly defines the "creative" process in ancient Egyptian art (Laboury 2015, 336; Laboury in press; Pieke in press). Indeed, the images were always in motion and are reused for their symbolic value in a persistent tradition (Pieke in press). As D. Laboury wrote, "tradition does not impede creativity but constitutes the necessary background for its development" (Laboury in press). Thus, these "phenomena of transmission", attested in our case study, shape and are at the centre of the ancient Egyptian concept of creativity (Laboury 2012; Laboury 2015; Laboury 2016; Laboury in press; Pieke in press).

As mentioned above, the history of Renaissance art might provide food for thought for Egyptology, as a way of re-thinking the importance of the productive copies and the artist's status. In an anthropological and transcultural perspective, we can integrate a microstructure (the Theban necropolis and the necropolis of Elkab at the beginning of the 18th dynasty) within a macrostructure (the creativity process, the productive copy and the transmission of patterns underlined by this concept) to create "analogy-bridges". Nevertheless, it is obviously necessary to adapt our point of view for each case study. I chose here to approach briefly the case of the Western Renaissance. As was the case in the New Kingdom, the Renaissance was a period when the productive practice of copying was quite common (for instance, see the case of Peter Paul Rubens' theory and practices of copying quoted by D. Laboury, in Laboury in press). According to V. Auclair, the main motivations behind creativity in Renaissance art were the apparition of perspective and the phenomenon of "productive copy" (Auclair 2010, 17). This phenomenon was so important for this period that one can draw parallels and comparisons with the Ancient Egyptian practice.

As it was during the Renaissance (Auclair 2010, 32-33), productive copying was, in ancient Egypt, a part of the artist's education (Laboury 2013b). This practice was integrated into the creativity process and enabled, during the Renaissance, the production of "carnet de modèles" or pattern books. As we saw, the use of this kind of media in Ancient Egypt can be deduced by the accuracy of the copy of some artistic patterns (Manniche 1988, 86; Laboury in press; Pieke in press). During the Renaissance, "la constitution d'un répertoire soumettait presque toujours les prototypes copiés à une perte de leur identité originelle" (Auclair 2010, 85) but it was not always the same in the Ancient Egyptian context. Indeed, it is clear that the obviousness of the copy was sometimes chosen by the noble and that the deliberate reuse of ancient patterns here underlies the creativity process (see above). In this context, we can assume that the prototype kept its identity.

Besides, we can also note, for both periods, the emergence of real artistic individualities, recognized as such by the society. With regard to the Renaissance, the case of Giorgio Vasari is quite emblematic of this phenomenon. As a celebrated artist of his time, he was the creator of the iconographic program of his own houses that were a real testimony for the posterity, just as ancient Egyptian tombs were. The frescoes in these mansions were influenced by the masterpieces that Vasari saw and realized during his numerous travels (De Girolami Cheney 2006, 54-70). Highly intellectualized, some paintings truly depicted the concept theorized by Giorgio Vasari as "*ritratto*", "*imitazione*", "*guidizio*" and "*disegno*" (Jacobs 1983, 402). G. Vasari created the iconographic program of monuments emblematic of his personality with the same goal as did Pahery in his tomb: to remind the visitors of how prestigious the monument owner was.

In conclusion, the comparison between the pharaonic era and other cultural contexts, for instance the Renaissance period, seems to be a fertile ground for a better understanding of the artist's status, the creativity concept, and the transmission of motifs it underlines, in ancient Egypt.

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Antiquity Bound to Modernity

The significance of Egyptian workers in modern archaeology in Egypt

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Abstract

Egyptian workers have taken part in almost every modern archaeological project in Egypt. Nevertheless, historians of Egyptology have only recently shown sincere interest in them. This paper aims to explain why it has taken so long, and why the Egyptian workers do deserve scholarly investigation. In my analysis, research has been hampered by a lack of sources on workers, but also, and more importantly, because traditional Egyptological thought separates modern from ancient Egypt and therefore ignores the former. To modern Egyptology, constituted in Europe, Egyptians, generally identified as Arab and Muslim, are not a research topic and their language is not to be learnt, because they are, unlike Westerners, "unworthy" successors of the ancient Egyptians. They are perceived as destroying the Egyptian antiquities and failing to take proper, scientific care of them. Archaeological workers are modern Egyptians as well, so Egyptology equally excludes them. However, the discipline should care about them. First, because workers -through their skills or the lack thereof, through their presence or absence- must have a tangible impact on what is found, and how it is found, in excavations. Second, Egyptian workers may help bridge the gap that continues to separate most archaeological projects in Egypt from neighbouring local communities. Where such a gap exists, residents may not treat the archaeological site in a way archaeologists would like to see it treated, and archaeologists may forfeit crucial local knowledge. I illustrate my reflections with findings from my ongoing research into workers of German-led excavations in Egypt between 1898 and 1914. Moreover, I find commonalities between workers of modern

Egyptian archaeology and workers and craftspeople of ancient Egypt, which again calls into question Egyptology's segregation of the two eras.

Keywords: Egypt; History of Archaeology; Archaeological Workers; History from Below; Reflexive Archaeology.

Introduction

Close to 300 Egyptians worked in the average excavation led by Germans in Egypt between 1898 and 1914, the heyday of German archaeology in the land of the Nile. Similar numbers applied to other nations' projects. Nowadays, excavations -even if they could pay for as many people as that- will employ much fewer, since most archaeological sites no longer need to be freed from massive rubble, silt or sand, but require sophisticated recording. This, in turn, increases the importance of skilled Egyptian workers such as those from Qift in Upper Egypt, who continue to be part of numerous operations, and are (briefly) acknowledged for it in the prefaces of archaeological field reports.

The Qiftis already worked with the Germans of a century ago. Nevertheless, histories of archaeology in Egypt have almost entirely limited their attention to Western archaeologists and the finds "they" made. This paper aims to explain the silence about local workers, questions its justification, and argues that Egyptology would benefit from taking its workers into due account. I will draw illustrations from my ongoing research into Egyptian workers in excavations between 1898 and 1914, headed by German archaeologists Ludwig Borchardt (1863-1938), Georg Steindorff (1861-1951), Otto Rubensohn (1867-1964), or Friedrich Zucker (1881-1973) (Georg in press b). I presented an outline of this paper at the conference on Egyptian craftspeople of the Middle Bronze Age (2000-1500 BC). Therefore, I try to advance the understanding of workers of modern Egyptian archaeology also by comparing them to workers and craftspeople of ancient Egypt.

Why, and how rightfully, does Egyptology disregard archaeological workers?

Difficult source situation

A major obstacle to exploring the realm of archaeological workers lies in a lack of sources. Such workers are little inclined to write things down about their work and life. Around 1900, most of them could not have done so anyway, as 93 percent of Egyptians were illiterate (1908) (Toledano 1998, 279). Even today, there are illiterate workers. Workers who write are exceptions that confirm the rule (Quirke 2010, 17, 81; Georg 2015, 203-204). With present-day workers, at least interviews can be conducted, which practising archaeologists have recently started to do (El Dorry 2009; Beck 2012; 2016; Rowland 2014; Sonbol 2014). By contrast, for historical workers, one must largely make do with documents that the usually foreign leaders of archaeological projects have produced on their employees. Those are, most importantly, diaries of excavations, which only in recent years have been read with systematic regard to

Egyptian workers (Quirke 2010; Doyon 2015; Georg 2015; in press b; Raue 2016). However, research shows that surprisingly much can be gleaned from diaries as well as excavation payrolls and photographs; and from songs that workers sang at work and that archaeologists have recorded (Clément 2010).

Egyptology's exclusion of modern Egypt as a research subject

Those sources, or the possibility for interviews, existed before the 21st century. Nevertheless, apart from a few peculiar exceptions (Legrain 1902; Petrie 1904, ch. 3; Chubb 1954), Egyptologists did not refer to archaeological workers outside conventional acknowledgments, or anecdotes surrounding 19th-century treasure hunters prior to professional archaeology.

Taken literally, "Egyptology" should be concerned with Egypt's every aspect and era – otherwise it should not bear a name as unspecific as "the science on Egypt". In practice, though, Egyptology limits itself to Egypt's "ancient" past. This past may have started with the emergence of pharaohs and written records at the end of the 4th millennium BC, and ended in the 4th century BC, when Egypt was conquered by the Greeks; or in the 4th century AD, when "ancient" Egyptian culture and its hieroglyphs faded (Schneider 2010, 42-44). Whatever dates they subscribe to, Egyptologists agree that they do not cover Egypt after its conquest by the Arabs and Islam in the 7th century.

An exception is the studies on Copts, the Egyptian Christians. Albeit straddling Egyptology and other fields, Coptology is a historical and institutional cousin of Egyptology (Krause 1978, 1-4). Since Christianity spread to Egypt during the first centuries AD, Coptic civilisation set in early enough to belong to Egypt's antiquity. At the same time, it has lasted beyond antiquity, up to our days. Consequently, Coptologists deal with the Egypt of (late) antiquity, the Middle Ages, and (at least theoretically) the present (*ibid.*, 6).

Yet here again, Muslim Egypt, which would include the majority of archaeological workers, is left out – although Muslims have ruled and shaped the land of the Nile for the last one and a half millennia, and have created a great civilisation. Egyptologists would by no means deny that the latter deserves to be researched; however, they leave that task to "Oriental" or "Middle Eastern studies". These are concerned with, among other regions, the Arabo-Islamic lands as they evolved since the birth of Islam in the 7th century AD.

At least at Western universities, Egyptology and Middle Eastern studies each usually runs its own, separate institute, and just as the former does not care about Islamic Egypt, Middle East scholars sidestep that region's pre-Islamic history. That is why Edward Said in his book *Orientalism* (2003) -denouncing the derogatory distortions of the "Orient" in the works of Western "Orientalists"- scarcely mentioned ancient Egypt, or ancient Mesopotamia: Orientalists had had little to say about the ancient world.

In one regard, the described separation is, to be sure, practically required: "ancient" Egypt alone encompasses thousands of years of changeful history to be studied. As a result, by the early 20th century, so much knowledge on ancient Egypt had been accrued that Egyptologists were compelled to specialise within their discipline, in smaller and smaller subfields. It would simply be impossible for one person to, for example, master

both the philology and the archaeology of ancient Egypt or, later, within philology, master even all stages of the Egyptian language.

It follows that mastering both the ancient and modern eras of Egypt is absolutely out of the question today, and may have been so from the beginnings of Egyptology as a modern science in the 1790s. On the other hand, Egyptian universities distinguish less between studies on ancient and studies on modern Egypt. Rather, they house a department for Egypt's entire history, and one for its entire archaeology. Consequently, students of either programme learn about both the ancient and Islamic eras.[1] This being so, the Western, time-based subdivision of Egypt as a subject must have deeper than merely practical reasons.

Egyptologists' lack of Arabic skills

While ancient and modern Egypt are usually kept apart, in one regard they cannot be: when it comes to studying the reception of ancient Egypt by post-ancient Egyptians. Thematically, this question could be tackled by both Egyptologists and Orientalists. In practice, it is only done by the latter (*e.g.* Gershoni and Jankowski 1986, ch. 8; Wood 1998; Reid 2002; Colla 2007; Cooperson 2010), unless it is Egyptian Egyptologists (*e.g.* Hassan 1998; El Daly 2005).

Why such one-sidedness? "Few of the original Arabic sources on ancient Egypt are available in English, and even fewer are well translated" (Cooperson 2010, 1127) – and in fact, non-Egyptian Egyptologists seldom know Arabic well enough to use it for any research. They do not learn it in Western Egyptology courses; and even after decades of fieldwork in Egypt, and regular cooperation with local archaeologists, antiquities inspectors and workers, foreign archaeologists struggle with a language barrier. Admittedly, Egyptian authorities do not press for a change.

The Turkish and Greek antiquities administrations demand from a foreigner seeking to do work in their country basic knowledge of their national language (Raue 2014). Egypt does not, also owing to its specific past: until as late as 1952, the French controlled the Egyptian Antiquities Service. Moreover, Egyptology as it exists today, also in Egyptian institutions, was launched by the scholars who, in 1798, marched into Egypt along with Napoleon's troops. Since then, it has been continued mainly by other Frenchmen as well as Britons, Italians, Germans, and U.S. Americans. As a result, still today, Egyptological publications and conference talks -including those by Egyptians- are, if they wish to be noticed, not in Arabic, but in English, French, or German (Wynn 2007, 65-66, 231-232; Hansen 2008).

Be that as it may, Western explorers have from early on observed traits and customs of the ancient Egyptians that the modern ones share (Jomard 1821a, 161-171; Blackman 1927, ch. 18). Also the German archaeologists from before 1914 found, in ancient sites, room interiors or jewellery that reminded them of what they knew from Egypt's modern inhabitants (Rubensohn 1901-1902, 101-102; Steindorff *et al.* 1914, 523). Today, such "survivals" of the ancient in modern Egypt are beyond dispute, but few Egyptologists who are not Egyptian do investigate them (like Haikal [Egyptian]

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1   *Cf.* for example the current curricula for history and archaeology at the Faculty of Arts of Tanta University, available at: http://dbportal.tanta.edu.eg/courses_uv/HTMLUvs.htm (accessed 13th April, 2017).

2003, xi-xii; Vymazalová [Czech] *et al.* 2011) – because it requires advanced Arabic skills, particularly when it comes to similarities between the Arabic language and ancient Egyptian (Youssef 2003; El Daly 2005, 6, 64).

Foreigners thus deprive themselves of those insights into their ancient subject that "survival studies" -also known as "ethnoarchaeology"- might provide them with (insights such as in Moustafa Noh 2003). On the other hand, all Egyptologists cope, during their studies, with several stages of the Egyptian language, which belongs to the same – Afroasiatic – language family as Arabic. Why is the latter shunned by Egyptologists?

Modern Egyptians as "unworthy" successors of the ancient ones

Again, we return to the beginnings of modern archaeology in Egypt. Napoleon's scholars had set out to unveil the ruins of ancient Egypt partly because they regarded it as the grandmother of human civilisation – that is, of themselves. Meanwhile, Egypt was seen as having, after antiquity, "plunged into barbarism", and lost "its institutions, its independence, its light, and even the memory of its original greatness" (Fourier 1821, i-ii, v-ix; similarly Jomard 1821a, 167).

That is to say, the modern, Arabic-speaking Egyptians were a wretched shadow of Egypt's ancient splendour, whereas the French, or other Europeans, were its worthy successors (González-Ruibal 2010, 40-41). As for German Egyptology, one of its founders, Heinrich Brugsch (1827-1894), visited Egypt in 1853/54 and reported that once, in Thebes, he was admiring temples until locals asking for "baksheesh" reminded him of the "disgusting" present of the ancient place (1855, 116).

In the eyes of early-20th-century German archaeologists, modern Egyptians were "dirty" (Borchardt *et al.* 1907-1908, 353; Steindorff *et al.* 1913-1914, 130) – particularly when compared to their country's past: at Tell el-Amarna, having discovered an ancient bathroom, the Germans commented on a workman, "Filthy Abd el-Halim digging up the pretty bathroom of one of his ancestors! How a nation can degenerate" (Borchardt *et al.* 1906-1907, 50-51). Actually, in antiquity, Egyptian houses were not necessarily clean – that was Western romanticism (Raue 2014).

All the more so, until at least 1914, German and other Western archaeologists referred to contemporary natives of Egypt as "Arabs" rather than "Egyptians". The scholars reserved the latter term to the ancient people, whereas the modern, Arab-speaking inhabitants were reduced to intruders, destroyers, and troublemakers. By generalising negative judgments on Egyptian individuals as easily as above -from "filthy" Abd el-Halim to his entire "nation"- the Germans revealed themselves as Orientalists in the Saidian sense (Said 2003, 86; Georg 2015, 202-203).

Today, humanities are supposed to show more respect towards foreign cultures. Still, Egyptology's mental traditions keep its scholars from integrating modern Egyptians, for instance archaeological workers, into their research horizon.

Modern Egyptians as "destroyers" of antiquities

On a more practical level, particularly the Egyptians living close to, and often working in, excavation sites are not only neglected, but also despised by Egyptology because they may not protect the ruins – and, at worst, destroy them. Accordingly, eminent archaeologist Kent R. Weeks, in his encyclopaedia entry on the history of archaeology

in Egypt, alludes to modern local inhabitants only via the keywords "pollution, agriculture, growing population, theft, and other insidious forces" threatening ancient sites (2001, 109; as noted by Doyon 2015, 141).

Again, already Napoleon's scholars complained that the "Arabs" plundered antiquities, extracting stones to build with, matter for fertilising (*sebakh*), and artefacts to sell to visitors. Even local dignitaries tore down ancient monuments, expecting to find gold in them (*e.g.* Jomard 1821a, 25; 1821b, 300, 305, 363, 370, 391). A hundred years later, Egypt's French-led antiquities administration found its mission obstructed by brutal *sebakh* collectors (*sebakhin*), by locals robbing tombs for the illegal antiquities trade, or by residents wrongfully claiming ancient sites as their private property (Maspero 1912, XXIX-XXX, 32-33, 36-37, 165-168, 173-174, 205-207). In that context, German archaeologist Ludwig Borchardt remarked that "it is certainly difficult to now suddenly teach respect for the antiquities, declared state property, to people for whom since the ancestral fathers' times, each antiquity has been a *res nullius*" (1913, 4).

It is true that such locally driven violations of Egypt's heritage happen, and cause appalling harm. On the other hand, Western critics admitted that many treasures were stolen to satisfy *Europe's* demand (Jomard 1821a, 25; Maspero 1912, 201-202, 318). Since the Renaissance, that "Egyptomaniac" continent had been thirsting for ancient Egyptian curiosities (Brier 2013, 32ff.); to marvel at their beauty, study their mysteries, or simply use their contents – as in the case of mummies and their bitumen – as a medical drug.

Even worse, think of the "researchers" from various European countries whom we credit with having launched, early in the 19th century, the discipline of Egyptology. They amassed antiquities from across Egypt – in order to outperform each other in filling European museums. It was a race so fierce and greedy that one of those men, Italian Giovanni Battista Belzoni (1778-1823), worried about the "ideas" that this might have led the "Arabs" to form of Europe's "civilization" (1820, 368). Alternatively, take Frenchman Auguste Mariette (1821-1881), who in 1858 initiated the governmental Antiquities Service of Egypt to protect the ancient remains. In his own excavations, he opened monuments with dynamite (Fagan 2004, 185-186).

By comparison, local Egyptians have more of a moral right to put "their" ruins to use – if they do so to relieve their economic hardship. "Subsistence digging" is a delicate and controversial topic (Hollowell 2006). At least, there can be no doubt that "archaeology" is a luxury that not everyone can afford, especially not on the poor Egyptian countryside, where most of the ancient sites are located. Ancient stones have proven to be solid, so locals recycle them to construct their buildings. Ancient pieces of art are sought-after commodities, so locals extract and sell them for cash that helps them and their families survive.

Agriculture in Egypt, which mostly is a desert, can benefit from fertilisers that supplement the natural ones provided by the Nile (Mosséri 1921, 77). So locals look for *sebakh*: pulverised bricks that the ancient Egyptians formed out of fertile mud, from the Nile as well. Objecting to such local behaviours is questionable unless one can offer people alternative sources of income. Also and especially archaeologists should make sure that the "welfare" of objects and the dead does not impair the welfare of the living (Hollowell 2006, 90).

Modern Egyptians' "failure" at Egyptology

The very idea of archaeology, as conceived in the West, has long been perceived in Egypt with widespread uneasiness. For social reasons, to start with: education in Egypt was, until well into the 20th century, restricted to a small elite. On the primary level, this resulted perhaps from the country's sluggish industrial and urban development (on that sluggishness: Toledano 1998, 254, 273). Additionally, the British colonial administrators, here supported by local elites, restricted access to higher education by means of tuition fees, in order not to let lower classes become too self-reliant (Russell 2001, 51). As a consequence, the bulk of the population, the peasants (*fellahin*) -who likewise formed the bulk of the workforce in archaeological sites (Georg 2015, 198-199)- did not even learn to read and write, and were disdained for their "ignorance" even by their Egyptian betters (Brown 1991). Under such circumstances, how would the peasants have comprehended the Egyptological meaning of "old" and "paint-ed stones", as locals originally referred to the ancient remains (Belzoni 1820, 403; Hartleben 1906, 203, 237; Lepsius 1852, 133)?

Westerners without education would have had similar difficulties – or those with education yet rather different passions: none other than Winston Churchill criticised the first Dam at Aswan, whose construction began in 1899, for being kept low enough to save the ancient temple on the island of Philae from drowning in the impounded floods of the Nile. "The State must struggle and the people starve", he railed, "in order that professors may exult" – those "profitless chippers of stone" (1899, 19).

Second, since their Christianisation and then Islamisation during the 1st millennium AD, at least some Egyptians have regarded the ancient past of their country as pagan and therefore forbidden (Wood 1998, 186-189; Reid 2002, 288). Thus, when Egyptian chronicler Abd el-Rahman el-Jabarti (*c*. 1753-1825) described the activities of European antiquities collectors in the 1810s, he referred to a pharaoh's bust as "idol", *sanam* in Arabic (Colla 2007, 73-74; *cf*. Brugsch 1855, 89, 114).

Throughout the Middle Ages, Egyptian scholars studied various aspects of ancient Egyptian remains (El Daly 2005). However, anti-pagan suspicion and other, yet-to-be fathomed hurdles (Trigger 1989, 44) made it impossible for those efforts to develop, as European research did, into a systematic, cumulative, institutionalised Egyptological science (Colla 2008, 136-137). Thus, in the early 20th century, even patriotic Egyptians reproached their fellow countrymen for a lack of interest in their distant past (Gershoni and Jankowski 1986, 306, no. 1). Again, in the early 21st century, even critical Egyptian Egyptologist Okasha El Daly acknowledged "our immense debt to our Western colleagues for their invaluable contribution" to Egyptology (2005, 143).

On the other hand, within modern, European-founded Egyptology, modern indigenous Egyptologists -who started being trained in the 1870s- were for decades excluded from actual participation by the Antiquities Service under French direction (Reid 1985). In 1911, Director Gaston Maspero (1846-1916) reckoned that "until now, it is not scientific passion that has prompted Egyptians to claim [the right to excavate on their own], but a pure love of gain" (1912, XXX). In effect, foreign Egyptologists accused Egyptians even if they were their peers, trained by Western teachers (Hilal 1995, 345-346), of not attaching "proper", scientific value to the antiquities.

How much more must Western scholars have distrusted "simple" archaeological workers? Not to mention other, "passive" residents of archaeological sites. Thus,

perceiving the locals as failing at their "duties" towards the antiquities, Egyptologists resolved to assume stewardship over the latter (Meskell 2000, 150). From 1882 to 1952/53, Egypt was under colonial rule by the British, militarily and politically. Western Egyptologists complemented it with their "scientific colonialism" (Colla 2007, 98-115; Georg in press a). Today, it is still there when even Egyptian Egyptologists wish to rid monuments of the "visual pollution" that locals allegedly represent (van der Spek 2011, 404, no. 9).

Modern Egyptian workers compared to ancient ones

Until the 1980s, Egyptology was for the most part concerned with ancient Egypt's "great men": kings, priests, aristocrats (Trigger *et al.* 1983, xi). This corresponds to traditions in other historiographies, including that on the Middle East and North Africa (Cronin 2008, 1). For ancient Egypt, to be sure, elitist monuments and inscriptions are the most obvious sources – with the according neglect of, and bias against, non-elites (Frood 2010, 479). Archaeological excavations, however, offer us access also to remains of lower social strata, surviving not because made for it, but by historical chance: remains such as informal texts, pottery shards, or simply household waste.

Thus, its archaeological foundation renders Egyptology naturally suited to shed light on "ordinary" people (*cf.* Liebmann 2008, 9). In fact, with results from certain excavations, entire books can be written on the everyday life at Deir el-Medina, the village of the (albeit privileged) workforce that created, in the late 2nd millennium BC, the royal tombs at Thebes (*e.g.* Bierbrier 1989). Even inhabitants' family trees can be drawn (*ibid.*, 72-73). By this standard, the modern, archaeological workers of Egypt are a *terra incognita*.

On our way to improving this, we should take advantage of Egyptology's insights into the social history of ancient Egypt; for ancient workers and craftspeople bear some resemblance to modern archaeological workers. Much of the evidence on the latter comes from elites as well – from mostly foreign archaeologists, with their neglect of, and bias against, local staff. Like modern peasants with archaeology, ancient peasants engaged (then in the framework of corvee) in supplementary jobs such as constructing monuments or digging canals (Caminos 1997, 21).

Ancient craftsmen would correspond to the skilled, experienced archaeological foremen (Arabic: *ruasa*, singular: *reis*) from Qift and other towns (Georg in press b). "Craftsmen toiled in anonymity, signed none of their works and attained no fame during their lifetimes" (Brier and Hobbs 2008, 181). Foremen likewise do not put their names on finds they excavate, and later are forgotten. In any case, they are more qualified than the local day-labourers who are employed to "merely" haul dirt. In the language of the ancient Middle Kingdom (*c.* 2100-1700 BC), the latter, menial job was referred to as *bꜣk*, in contrast to the intellectual *kꜣt* (Kóthay 2010), which may describe what archaeologists do.

However, in the German-led excavations between 1898 and 1914, the Egyptian foremen sometimes knew better than the German scholars where to dig, how to dig, and what to do with finds (Georg in press b) – especially Foreman-in-Chief Muhammed Ahmed el-Senussi (*c.* 1880 – after 1932), whom Georg Steindorff called a "born archaeologist" (1903, 144). Where does the foreman stand between unskilled workers and academic archaeologists? For the Middle Kingdom, Stephen Quirke has

analysed the relationship between artists and draughtsmen. The latter designed the art, the former executed it. "But then, if the 'manual' artist needed to know the 'idea' or system behind the outline in order to execute a work to perfection, was the gap between him and the draughtsman so great? Perhaps the draughtsman, the outline painter, was not so indispensable" (2003, 91). May the same not be true of the "gap" between archaeological "foremen" and "archaeologists" in modern Egypt?

Why should Egyptology care about archaeological workers?

It is right that Egyptologists first and foremost ought to increase our knowledge of Egypt as it was in antiquity. That is what they are trained, employed and paid for, and therefore due to perform. Nobody else could do it as they can. However, more than most other historical sciences, Egyptology relies on evidence from archaeology, because so little of ancient Egypt escaped being buried by silt or sand after the downfall of its civilisation. In that archaeology, workers are more than just tools or "extensions" of excavation directors. They possess, as far as I see, two agencies of their own, which make an impact on the conditions and results of archaeological operations, and therefore should be of interest for any Egyptologist.

Workers' impact on the scientific results of excavations

In 2010, Egyptologist Stephen Quirke published *Hidden Hands*, the ground-breaking first monograph on Egyptian archaeological workers – those of English archaeologist William Matthew Flinders Petrie (1853-1942). At one point, Quirke quotes what Petrie, in an 1884 field diary, stated regarding his workers: "engagement, dismissal, & the money-bag […] are all in my hands" (2010, 60). According to a reviewer of Quirke, archaeologist Nathan Schlanger, Petrie thereby implicitly admits that "so little else" is in his hands besides that. His "access to the past is mediated by […] a Pharaonic apparatus" – hundreds of workers, whom he incentivised with a system of monetary rewards in the form of wages for time and workload as well as bonuses for better finds. Thus, "the knowledge produced by Petrie on ancient Egypt has been conditioned, shaped, oriented, constrained -in interesting ways that remain to be elucidated- by the very conditions of archaeological labour prevailing in the Egypt of his time" (2011, 303).

The case of Petrie's German contemporaries suggests similar, and more of such, "mediations". First, their decisions on where to dig were often based, directly or indirectly, on locals' superior knowledge of the respective area. When in Egypt, Ludwig Borchardt and, for the so-called German Papyrus Cartel, Otto Rubensohn and Friedrich Zucker routinely checked antiquities shops for unusual pieces, since more might be excavated where locals had brought them from. Such a context led, for example, the Germans to choose Tell el-Amarna as site for their excavations between 1906 and 1914 (Borchardt 1907, 14, 31).

Second, the Germans had the sites dug up by hundreds of Egyptians; men, boys, and girls. More or less skilled foremen headed gangs of more or less unskilled local day-labourers. Most of the time, workers were available in sufficient numbers, so that excavations did not need to halt. However, the more workers there were, the more impossible it would have been for a handful of German archaeologists to control everything that the people did or did not do (figure 1). Workers may have sto-

Figure 1: German-led excavations at Abu Gurob/Abusir, 1898-1908 (SCA, no. 156)
© Egyptian Ministry of Antiquities, Cairo.

len antiquities or "discovered" fake ones they had "planted" themselves in hopes of reward. More importantly yet, who knows which structures and objects they tacitly overlooked, crushed, or discarded – because they did not know better, were unhappy with their wage, did not feel good that day, or for whatever reason?

In their field diaries, the Germans suppress such human contingencies with a technical, impersonal language: debris "is removed", things "come to light", as if by themselves. Workers "are put" at a spot to work, like chessmen on a board. By contrast, at Giza in 1903, Foreman Ali Mansur proved his independence, to Georg Steindorff's anger: Mansur "had received an explicit order not to touch the burial in the 3rd well of the Western wall, since on the body [found] there was bead jewellery [...]. He still picks up the beads; whether he thereby has destroyed the jewellery or whether it had come apart before -on the feet, too, there were bead strings- can no longer be ascertained" (Steindorff *et al.* 1903, 150-151).

In these and other ways, the Egyptian workers must to a certain extent have determined what and how it was found, and what was not found in the German-led excavations. Ali Mansur's example is, in all likelihood, the tip of an iceberg, most of which must have gone undocumented if not unnoticed by the German archaeologists.

Workers as a link between Egyptian archaeology and local communities

Today, archaeological projects in Egypt generally employ fewer and rather skilled workers, so that their impact on scientific results is smaller or, at least, more controlled. Anyway, Quirke (2010) does not cite that point as a reason for Egyptology to consider archaeological workers. Instead, he cites something that matters in the here and now more than at any time: his investigation of Petrie's workers hopes to "move" archaeology in Egypt "out" of its "neocolonial practice"; "out" of its "exclusion into inclusion of the past and present inhabitants of the landscape under study" (304).

In fact, whether archaeologists of Egypt like it or not, the sites they are interested in do not lie in a vacuum, but in the midst of a vibrant and growing society. Unlike archaeologists, this society stays in Egypt all year around. Therefore, the protection of ancient sites is mostly up to the residents (Hollowell 2006, 92-93; Sonbol 2014, 68). The Egyptian antiquities authorities' means for guarding are scant. Since the 2011 revolution (Hanna 2013), its revenues from tourism have dwindled, while the unrest has affected the security also of antiquities. In the world, collectors keep asking for artefacts, while in Egypt, poverty and unemployment prevail, and the population grows. Consequently, as we have seen above, some residents may not protect, but even occupy or plunder, antiquities; if only to subsist. It is in the interest of archaeologists to prevent such things. Yet that is possible only by means of cooperation with locals. Therefore, it is equally in the interest of archaeologists to cooperate with them – more fully and/ or in new ways. In addition, such cooperation allows archaeologists to "learn from the Egyptians and their unique experience" (Meskell 2000, 162) and thereby, as we have also suggested, to "see archaeological remains in new light" (Marshall 2002, 218; *cf.* Moser *et al.* 2002, 222-224, 243; Wynn 2007, 72-73).

Today, anyone seeking to dig in Egypt is compelled by law to cooperate with Egyptian officials. With "non-official" Egyptians, by contrast, (foreign) archaeologists have sustained unsettled (non-)relations (Meskell 2000; Raue 2014). Since at least the 1990s, many archaeologists active in other world regions have become "reflexive" (Hodder 2003) – that is, they have critically asked themselves about dimensions of their work beyond the scientific core: "public" (Merriman 2004), "ethical" (Scarre and Scarre 2006), or "postcolonial" (Liebmann and Rizvi 2008) dimensions. Meanwhile, Egyptologists have generally kept out of those kinds of debates, and not modernised their approaches to fieldwork.

By taking an interest in current archaeological workers and their historical predecessors, Egyptologists could for their part take a step towards reflexivity. This approach attempts, among other things, to integrate local communities into archaeological practice (Hodder 2003, 62-63) -with the benefits described. Such "community archaeology" may be "time consuming, […] frustrating, humbling and challenging […] – but it is also rewarding" (Marshall 2002, 218; *cf.* Atalay 2012). As rewarding as the British project at Egyptian Quseir, which started in 1999 and has successfully sought "to involve the local community in all aspects of the archaeological enterprise" (Moser *et al.* 2002, 221; *cf.* Tully 2009).

In community archaeology, what is the role of archaeological workers? They are, on the one hand, local residents themselves. By being employed in the excavations, they can earn money, learn about the site's archaeological -and potentially touristic- value,

discover the archaeologists' goals and concerns, and contribute their own knowledge and views (Moser *et al.* 2002, 233). As project "ambassadors" (Mapunda and Lane 2004, 217), they may then sensitise the rest of their community, so that all its members come to appreciate "their" ruins in a sense archaeologists can endorse.

On the other hand, specialist workers -foremen- may hail from further away. In this case, they can, by virtue of their archaeological expertise as well as Egyptianness, act as intermediaries between their local fellow countrymen and (foreign) archaeologists, so that the latter better reach the former – provided that conflicts between local and non-local Egyptians (Sonbol 2014, 62-63) can be avoided.

Conclusion

It is well known that in 1912, an excavation campaign at Tell el-Amarna directed by German Ludwig Borchardt discovered the bust of Egyptian Queen Nefertiti, which is now in Berlin. It is less known that in the literal sense, it was found not by a German archaeologist, but by Egyptian workers, digging in a section that was under the supervision of Foreman Muhammed el-Senussi (Borchardt *et al.* 1912-1913a, 34, 39-44).

Those who first saw the bust seem to have been men and boys from Qift, Abusir, and El-Hagg Qandil. The Germans paid them, for the discovery's day, bonuses of up to 400 (!) piastres, compared to daily wages ranging from 2 to 4.5: Ali Abd el-Gani, Ahmed Selim, Kemal Abdallah, Abd el-Aziz Def, and 18 others (Borchardt *et al.* 1912-1913b, 2-4). Obviously, the workers, if worthy of such recognition, were also in the Germans' opinion members of the archaeological campaign in their own right. Still, we know more about Nefertiti and her subjects of three and a half millennia ago than about the Egyptian archaeological workers even of today (*cf.* Beck 2012, 52).

I am not asking scholars to abandon ancient Egyptian art, language, religion or whatever else to turn to those workers instead. It would suffice if Egyptology developed a principle and genuine awareness of the workers and their history; also for ethical reasons, but mainly because they constitute an essential and indispensable part of archaeology in Egypt – which, in turn, furnishes most of the sources of Egyptology. This "archaeological record" is "formed" not only by the producing culture and natural processes thereafter (Schiffer 1987, ch. 3-9), but also depends on who excavates it, and how (*ibid.*, ch. 13) (figure 2). Moreover, Egyptian archaeological sites have living, indigenous neighbours. Notably by employing them as, or reaching them through, archaeological workers, they can be won as allies for archaeology's cause. Otherwise, they may impede excavations and thereby compromise the archaeological record.

A long and mighty tradition makes it difficult for Egyptology to become aware of its workers: the segregation between ancient and modern Egyptians. Whereas the former created unparalleled splendour, the latter, in that European-shaped perception, buried the splendour under their inferior, Arab and Islamic (non-)culture. As a result, Egyptology has largely kept modern Egyptians, including archaeological workers, out of its affairs – although at a closer look, they even have things in common with the ancient Egyptians. However, the mostly Western Egyptologists were neither mentally willing nor -without Arabic skills- practically able to behave otherwise.

In 2015, historian Jason Thompson published the first two volumes of his *Wonderful Things*, the first comprehensive history of Egyptology. In volume no. 1, he remarks that
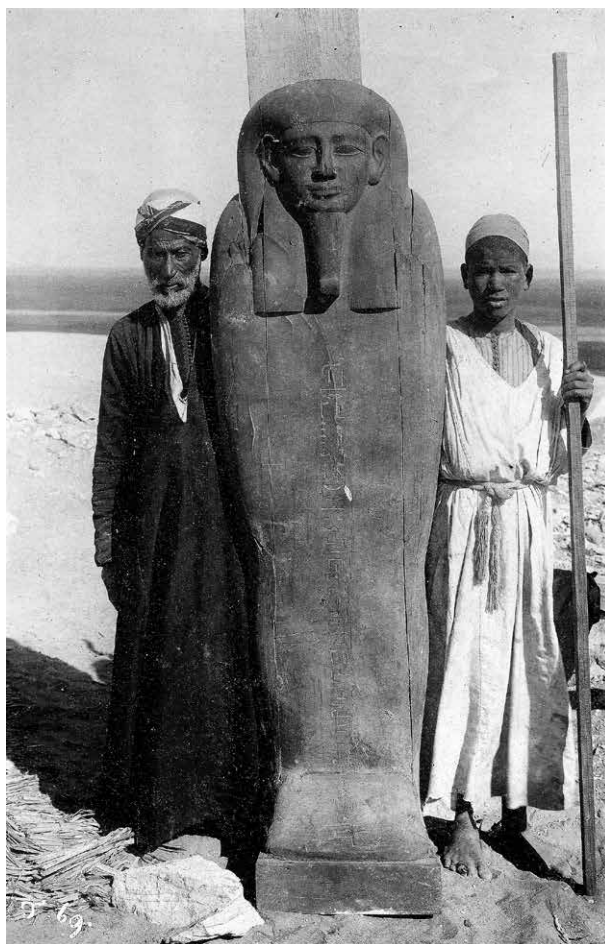
Figure 2: Workers with a sarcophagus in the German-led excavations at Abu Gurob/Abusir, 1898-1908 (SCA, no. 85) © Egyptian Ministry of Antiquities, Cairo.

"Egyptology has never been practiced within a time warp where the present is irrelevant, although some of its practitioners have been unaware of that reality" (2015a, 10). As regards the Egyptian workers, Thompson himself must be counted among those unaware; for in his second volume, which covers the period from 1881 to 1914 – that is, the heyday of archaeologist Flinders Petrie – Thompson makes no reference to Quirke's basic book on Petrie's workers (2010), nor do many other local hands appear in *Wonderful Things* (2015a, 230-231; 2015b, 6, 8-10, 36, 187-192). Nevertheless, for about a decade now, scholars from various countries, and from Egyptology and other disciplines, have been conducting more research into present and past Egyptian archaeological workers than in any decade before. Chances seem good that this trend will continue, and it is about time.

Acknowledgments

As a non-Egyptologist, I feel especially honoured and grateful that Gianluca Miniaci invited me to contribute to an Egyptological conference and its proceedings. In Paris, Stephen Quirke, an inspiring pioneer of research into Egyptian archaeological work-

ers, chaired my panel in a most sympathetic and supportive way. Moreover, I thank Amr El Hawary, whom I equally met in Paris, for insightful conversations there and afterwards, as well as Dietrich Raue for providing me with the text of his unpublished, yet highly instructive 2014 talk on the relationship between Egyptology and contemporary Egypt.

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(Archives: ÄMPB = Egyptian Museum of Berlin; ÄMULA = Egyptian Museum of the University of Leipzig; DAIK = German Archaeological Institute, Cairo Department; SCA = Egyptian Ministry of Antiquities, Cairo).

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Epistemological Things! Mystical Things!

Towards an ancient Egyptian ontology

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Abstract

The first question in this contribution is a methodological one: how can we disclose the ancient Egyptian conception of knowledge? As with all abstract categories, the Egyptian sources keep silence on this. In my opinion, the methodological problem is in fact an epistemological one. We have – as in "Actor-Network-Theory" (*ANT*) – to abstract such Egyptian conceptions from a praxeological point of view. The astounding result is that the Egyptian writings themselves expect the praxeology as a basic condition of every form of knowledge. The key for opening that black box is to describe how the epistemological community, the "knowledge elite", negotiated, attacked, and defended themselves in the time of hegemonic disorientation. Beside the secrecy of knowledge and the basic condition that it had only to be experienced, Egyptian sources tend to a naturalistic description of Creation, in which both the world and the creator arise from one and the same substance. The hierarchy of the existence leads to a dynamic Ontology in which every element could be the starting point of Creation at any moment. Egyptian hieroglyphs, like the Egyptian syncretism of gods and creatures, are the representations of a diffusional monistic atomism, familiar to modern scholars of the early Greek natural philosophy. Not only Pythagorean, Orphic or Platonic currents, or hermetic mysteries and the Gnostics, evoke Egyptian thoughts, but also the late antique Arab mystics and alchemists. Both the materialism and mysticism of things and its agency are rooted, in my view, in the theology of the Theban god Amun, which developed at the beginning of the Egyptian Middle Kingdom, and is having an effect down to Bruno Latour's metaphysics of things in our own time.

The question of representation and order of knowledge in Ancient Egypt concerns me in a wider context of large-scale long-term research on Egyptian scholarliness. Therefore, this contribution is intended as a theoretical and methodological approach to the topic of this volume, offering some reflections on practical knowledge. *How, on earth, did they do that?*

This is one of the most frequently asked questions to confront us in Egyptology. Everyone expects an Egyptologist to know how the Egyptians built their pyramids, or at least to offer some explanation for this fascinating phenomenon. The question on such technical matters is in fact the most difficult of all, because we do not have any source, which describes such specific procedures. Although the Egyptian culture is rich in written material about many aspects of daily life, or about ideas, or even about the afterlife, we still miss the manual on how to build a pyramid in one week.[1] We still have to reconstruct the user guide to Ancient Egypt from its final products. Our topic in this volume deals with such practical knowledge from Ancient Egypt and, moreover, our joint goal is to track the transfer of technical information among craftsmen, artisans and scribes. However, first we have to sharpen our focus on what kind of knowledge interests us. What is the meaning of science, art, craftsmanship or scholarliness in our field of concern?

First of all, I would like to demonstrate the difficulties of such an enterprise, on account of the shortage of sources, the lack of abstract terms and their definition in the ancient Egyptian material (sections 1-2).

In the second part, I will discuss the theoretical frame and methodological potential in the modern academic fields of research on the phenomenon of science, such as epistemology, history of science, and sociology of knowledge. As the volume topic concerns representations of knowledge, it is possible to contextualize the dynamic procedure of producing with the help of the so-called "practical turn" in the field of science studies (sections 3-4).

Finally, before concluding, I will illustrate different approaches by using an example from the Sinai-excavation of Bonn University. With their help, it could be possible to deduce the concept of knowledge (section 5).

Defining science in Ancient Egypt

The volume aim, to "encounter the material producers", requires us to investigate the transfer of knowledge, science and technology in ancient times and up to now, in other words, to investigate our traditional problems of transmission and to assess and to evaluate the sources first, and then to ask ourselves: what kind of knowledge are we looking for? What is the meaning of knowledge, science, technology and art in Ancient Egypt and in which sense do we use such terms?

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1   At a conference in Fribourg on 29 November 2012, Philippe Collombert told me that he identified such a manual.

It is difficult to find such a definition in ancient times and sources because of the particular Egyptian character of representing knowledge and its understanding of the media of scholars. We do not have written sources, explicitly informing us on the Egyptian concepts and order of knowledge. Furthermore, in many cases, we are not even equipped with the cultural encyclopaedia embedded in such sources to detect the implicit information about knowledge, which we are trying to find (Loprieno 2007, 11). We have to locate the relevant knowledge keepers we need, which means to identify the epistemic community that creates the type of art or technology in question. According to Peter Burke (2001, 14), knowledge could be partial, local or even at the level of daily life, depending on the keeper of the particular knowledge. Two further problems, which affect our enquiry in this context, are the critical aspect of cultural distance and the long duration as a primary temporal dimension of Egyptian history. Concerning the question of ancient Egyptian knowledge, modern scholars often expect a homogenous, monolithic concept, which should be compatible to our modern understanding of it like the technical translation of religious and enigmatic texts of ancient Egypt. Such views persist, even though we are confronted with material from a pre-modern culture, from different periods with their own mechanisms and dynamics of representation, and despite the prominence of cultural peculiarities, time changes and a diversity of purpose and localisation. Instead of some stable and static system, which we just have to detect, we have to look for the mechanisms of representation. Such mechanisms could be understood by means of a thick description of their cultural premises, and by highlighting its characteristics at particular moments of action.

General characteristics of knowledge in Ancient Egypt[2]

There are many peculiarities concerning knowledge in Ancient Egypt, which may briefly be summarized here. First, we have secrecy and exclusivity of knowledge, which I identify as epistemic premises. They can be connected with the maxim of silence in the wisdom literature (Hornung and Keel (eds.) 1979, 213), or as Herodotus describes it in his history (2.3). The example from one Late Egyptian Miscellany (Papyrus Anastasi V, 23, 3-23, 4) just gives the correct result of a mathematical calculation without revealing the method leading to it; in its way, this again illustrates the Egyptian ideal of secret knowledge (Morenz 1996, 51, note 221 and 78ff.). This purposeful manner brings us to the next epistemic premise: the praxeology[3] of Egyptian pragmatism. In many of the Egyptian funerary texts but also in the medico-magical literature we can observe such a focus on efficient results. The deceased has to know the name of certain gods or daemons to overcome an obstacle in the underworld or to achieve an important task or to gain a certain effect (Book of the Dead Chapter 125, Allen 1974).

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2   This topic is the focus of my Habilitation project "Wissensordnungen und Wissensrepräsentationen im Alten Ägypten – eine historisch-epistemologische Untersuchung" ("Orders of knowledge and representations of knowledge in ancient Egypt: an historical-epistemological investigation"), in preparation.

3   Praxeology means the primacy of practical matters without theoretical sophistications. You have to do something if you want to know it.

This tendency stresses the fact that in Ancient Egypt there was no division between theory and practice.

The qualitative premises of knowledge in ancient Egypt may be identified as monism, pantheism, and the Egyptian naturalistic hierarchy of existence in a teleological ontology (Hornung 1982 and Allen 1988). These premises arrange the real world into spheres of visible material, invisible entities, and the mid-sphere of the materia in between, such as voices, which are perceptible by hearing without their physical existence, or odours that can only be smelled, or smoke that can only be seen. This real world in all its manifestations is a matter of experience and of perception: one has to handle it for proof that it exists.[4]

Beside the secrecy of knowledge and the basic condition that it had to be experienced, even Egyptian mythical sources tend to draw on naturalistic elements in their description of the creation in which both the world and its creator arise from one and the same substance. The hierarchy of existence leads to a dynamic ontology in which every element could be the starting point of the creation at any time (Bergmann 1970, 47-76). Egyptian hieroglyphs, like the Egyptian syncretism of gods and creatures, are the representations of that diffusional monistic atomism, a tendency that may remind us of early Greek natural philosophy. Not only Pythagorean, Orphic or Platonic currents, or hermetic mysteries and the Gnostics seem to have called upon Egyptian thoughts. The late antique Arab mystics and alchemists like Dhū n-Nūn al-Misrī (796-859) also claimed that the sacred knowledge of elements and its metamorphoses derived directly from Egyptian hieroglyphs and from Coptic scholars (El Daly 2005, 57 and 66). Both the materialism and mysticism of things and the agency in both are rooted in my opinion in the theology of the Theban god Amun "the Hidden Creator", which developed at the beginning of the Egyptian Middle Kingdom and is having an effect until B. Latour's metaphysics of things nowadays.

All that results in an inclusivity of knowledge, which means that the most beautiful, the supreme, the highest-ranking scientific ideal is the most associative one. And this concerns medicine, magic, poetics, mathematics, theology and history alike. So, in fact, all the cardinal disciplines at the same time converge at the Egyptian ideal of *sp n rḫ*, "*scholarliness*", literally "the threshing floor of knowledge"(WB III, 435, 18), in sense of multiple knowledge.

Here the Egyptian term challenges us to move from habits of thought, which have long been embedded in European scientific enquiry. The segregation between subject and object, nature and culture, theoretical and practical sciences and disciplines is an attitude of the enlightenment being a result of the emancipation of science and philosophy from church and theology. Such a conflict did not occur in Ancient Egypt. If we apply the modern concept of knowledge from our cultural background, we confuse "orientation knowledge" (knowledge of aims, purpose, what we are supposed to do) with "disposal knowledge" (knowledge of causes, effects, means, what we are able to do) in the terms of Mittelstrass (2003, 42 ff.). Egyptian artefacts are both the result of technical efforts *and* a parameter of cultural and natural values at the same time.

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4   These spheres are reminiscent of the classical Arabic writing on interface between worlds particularly the concept of *Barsakh* in the work of Ibn Arabi (1165-1240) *cf.* Yousef (2007).

Let us go back to the beginning: we do not have any manual to know how the ancient Egyptians did something; we *just* have the achieved results.

Most of the artefacts we have belong to the monumental discourse and thus were made for eternity (Assmann 2003). That leads us to another characteristic, namely the tendency to transfer time-tied-procedures into spatial spheres. This cultural manner can be traced back to the fear of visible change as death injuring the circular continuity. The sun stands here as a metaphor for the kind of ongoing transformation which is not simultaneously visible to observers (Hornung 1989). Therefore, the result of change is important, but the change itself should not be seen: the Egyptians prefer a subtle process of change, and consider every abrupt matter as hazardous.

In short, we do not have the necessary epistemic requirements needed to translate ancient Egyptian concepts of knowledge, realized and demonstrated in an artefact, into our modern sphere of understanding.

Lost in cultural translation

Absence of clear terminology, the problem of professional jargons and the specific vocabulary of science are also major difficulties in this concern, because the semantic outcome of lexemes used in scientific contexts is not stable. Terms like *sp*, or the verb *gmj*, as P. Vernus has recently demonstrated, could have specific meanings in specific contexts including the scientific one (Vernus 2011, 387-458). Quite often, it is not so clear which semantic field dominates in a certain text passage; on the contrary, we are dealing with an associative chain on different levels at the same time. Evidently, we have to learn to associate things anew, as Bruno Latour suggests in his sociology of associations and translations (Latour 2010, 9).

Another difficulty arises from our perspective on ancient Egyptian science and philosophy and its definition. Again, we expect a static system of knowledge, which is stable, homogeneous and representative, whereas our target is in practice always on the move (Clagett, M. 1989a, Clagett, M. 1995b and Clagett, M. 1999c). To deal with such connectivity in motion through the different periods of Egyptian culture could result in a distorted image of Egyptian principles of knowledge. We have to figure out the mechanisms of representation and assess them before we can understand the principles themselves.

Finally, we have to recognise knowledge, science and art in Ancient Egypt as a dynamic process, which is always moving and changing, consisting of complex entangled elements. Furthermore, sciences or knowledge in general are historically embedded, so they depend on the conditions of time and space (Burke 2001, 14f.). They are also not the product of a single person or genius scholar but the result of a wider network in which a group of actors, conditions, materials, institutions and worldviews are involved. In short, they are historically and socially shared within their knowledge community in all their mutual transformations. In the case of ancient Egypt, the "sciences" or sphere of knowledge must confront us with an even vaster challenge, due to the cultural distance and the gap in time.

In modern theories of science, many disciplines focus on knowledge, notably the history and philosophy of science, epistemology and sociology of knowledge. Across these, we can determine two major tendencies. A historical approach to contextualise

knowledge, science and art concentrates on the conditions of their production. Then there is the so-called "practical turn" back to the practice and the procedure of production itself (Latour, Woolgar and Salk 1986[2]). Products are crossing points of many agencies and they can tell us much about the context of productions and the concepts of the producers.

To me it seems quite clear that pre-modern cultures and postmodern cultural theory are analogous. The problems of which contemporary scholars complain as heirs of 18th and 19th century ideologies of modernity are attested in a pre-modern culture like Ancient Egypt as well. Egyptologists and postmodern philosophers witness almost the same symptoms. This somewhat surprising analogy provides us with promising methodological tools to reconsider several Egyptological problems and to reread the Egyptian sources with new sensitivity (El Hawary 2012 117-134).

In his main work *Representing and Intervening*, I. Hacking comments on the good old-fashioned term of history "History is not dealing with what we are thinking but with what we are doing" (1983, 40). He thereby initiates the "practical turn" in the philosophy of science. A human being is always in need to produce meaningful signs, but the process of representing, first of all, is a material and practical one. Scientific experiments, for example, do not proceed in a linear manner according to the exact plan of the scientists; quite the contrary, experiments generate new phenomena by the sheer practice and without theoretical superstructure. Representation is not an image of the real and vice versa: rather, we use real things or materials to produce our meaningful signs. According to Egyptian texts, as we saw above, knowledge is a historical, practical and process-related phenomenon: the "practical turn" and historical epistemology focus exactly on these three aspects.

Again, this process is not the work of a single mind, a scholar, an artist, a genius or a wizard; it is the operation of an entire network. How, then, can we map the complexities and dynamics of "networking" in the process of making knowledge?

"Actor-Network-Theory" (ANT) as a new approach to the problem

At this point, I would like to introduce a particular form of Network-Theory, which can be useful to embody "Connectivity in Motion" as a highly specific characteristic of the transfer of technical knowledge, and to place it in a wider socio-cultural movement.

The so-called "Actor-Network-Theory" *(ANT)* is rather a method than a theory, and was developed by Callon, Latour and Law in the late 1980s in the field of sociology of knowledge and science studies, to understand processes of innovation and knowledge-creation in science and technology (Latour, Woolgar and Salk 1986[2]).

The main problem here is how to define a network and the limits that can be used to outline a significant actor-network. To discuss this, I will briefly introduce in simplified manner the central terms of that method, which can be called the sociology of associations and translations. As Latour put it, there is no information but always transformation (Latour 2010, 153). The transportation and transmission of ideas, knowledge, or even things evoke deformations, which leave traces to be followed. Who, though, is the actor, which traces can we expect, and how does it work?

Intermediaries and mediators

Looking for the actor in a network, one has to distinguish these two types of agents. Intermediaries transport the force of some other entities, more or less without transformation. They are objects, things, artefacts, which circulate between the mediators like money, inscriptions, technologies, skills and expertise.

The mediator then is a crucial and complex element of networking which can be seen as the transformer of circulating social energy. His, her or its output cannot be predicted by his, her or its inputs. All entities in a network should be described symmetrically in the same terms, then both intermediaries and mediators could change their status by involving themselves in the transformation process or by excluding themselves from it in a continuity of exchanges, negotiations and translations in a state of flux.

Actor

As we have seen, the actor is a mediator who has to be followed in a network or precisely has to outline a certain network. This actor could be a heterogeneous agent, human or non-human, or even both, a hybrid actor in interactions. An actor is the one who or which mobilises other entities to do something in his, her or its procedure or schedule. According to Latour: "An actor is what is *made to act* by many others" (Latour 2010, 46; Wieser 2012, 81).[5] ANT locates agency neither in human subjects nor in non-human objects but in heterogeneous associations of humans and non-humans.

The circulation of reference

Scholars transmit with the help of different inscribing instruments – so-called immutable mobiles (unchanged mobile elements) – to transform all concepts, events, ideas and even natural things into other media like graphics, diagrams, charts and registers, in order to enable these things to become traceable and available (Wieser 2012, 32-33). These immutable mobiles themselves mutate into a reference in other treatises, and not the thing itself, in a circle of referentiality, which amounts to a continuous dynamic of translations.

Black box and punctualisation:

Stable networks with locked off roles and irreversible actions in this form of punctualisation constitute a black box. Like a car, usually considered simply as a tool for transportation, which is taken as a technical unit without any traces of complex mechanisms while running well but abruptly confronts us with the fact that it consists of thousands of small parts when an accident or break-down happens: from bolts and screws to metal and plastic and rubber. In such a "crisis" we can see the wheels connected to an axle, and we can imagine powered gears and a drive shaft, transmitting the energy to let the car move again. We can also see which elements are relevant in this network and which are not (Callon 1986, 314 ff.). According to this example, it is evident that crises and innovations are keys to understand what happens in a network and how it is built. These key elements would also be very encouraging in our own field of research.

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5   Italics in original.

The actor-network-theory stresses the circular sense of reference always on the move. A core of meaning, which refers to things in such a process, remains constant in spite of the perpetual transformation, and will be unfolded in the interaction between subject and object of knowledge during its genesis. In practical experience, we can keep in close touch with material things without the confusing references. One main outcome of *ANT* is that the agent of acting is not necessarily a human being, but can also be an object actant in a dynamic process and not just as intermediary or a mediator. We always have to deal with hybrids, mixed creatures of human beings provided with devices acting together as hybrids (Rheinberger, 2007, 125).

Method in action: the case study Serabit el Khadem

Now, let us bring all observations and aspects together: the methodological problems from the specific nature of Egyptian culture; and the results from modern discussion on science and knowledge with its tendency towards historical epistemology – that is, the practical dynamics of knowledge and the production of science. The main question now is how to deal with practical knowledge from Ancient Egypt? Or, even more important for us, how to gain information from Egyptian texts about the genuine understanding of practical knowledge and its transmission in an exclusively close circle of experts and through time?

There are four key elements, which shall be borrowed from historical epistemology, to solve the problem:

I. We need a laboratory, a location of knowledge-making, for example the quarry and workshop in Serabit el Khadem on the Sinai peninsula. The members of the ancient Egyptian expedition to Serabit el Khadem carved stone objects like the stela of Herwerre (Fig. 1), an expedition leader under king Amenemhet III, to record their successful activities in mining turquoise under his majesty and with the help of the mountain goddess Hathor, lady of turquoise (Gardiner, Peet and Cerny 1952, I, Pl. XXVA, II, 97).

The dynamic of the location reveals the concept of sacred landscape to consist of pragmatic and mythic issues combined. The pragmatic matters include such problems as how to cut stone easily and quickly with the help of rainwater. Mythical and cosmological issues include the treatment of turquoise as the unborn sun, or the idea that the temple (or more precisely the cave of Hathor, as its real sanctuary) is the most fertile place at the eastern gate of the horizon. From there the sun arises to existence every day in the morning. The cave was carved on top of the plateau from which the rainwater falls down; in this vision, it would flow out of the sanctuary as if out of a spring, to colour all valleys green, and as a symbol for the green turquoise coming out of the cave-like mine (Fig. 2). By using the rainwater, it was possible to cut the stone and to wash the turquoise, which was then offered in return to the goddess Hathor in her cave-sanctuary, in a natural-cultural circle of a perfect acting network.

II. We need epistemic things as defined by Rheinberger (Rheinberger 2001 "epistemische Dinge"), like tools, traces of work, water, stone or turquoise in our example. Such rough material can reveal how to be used in order to give the epistemic thing an ample
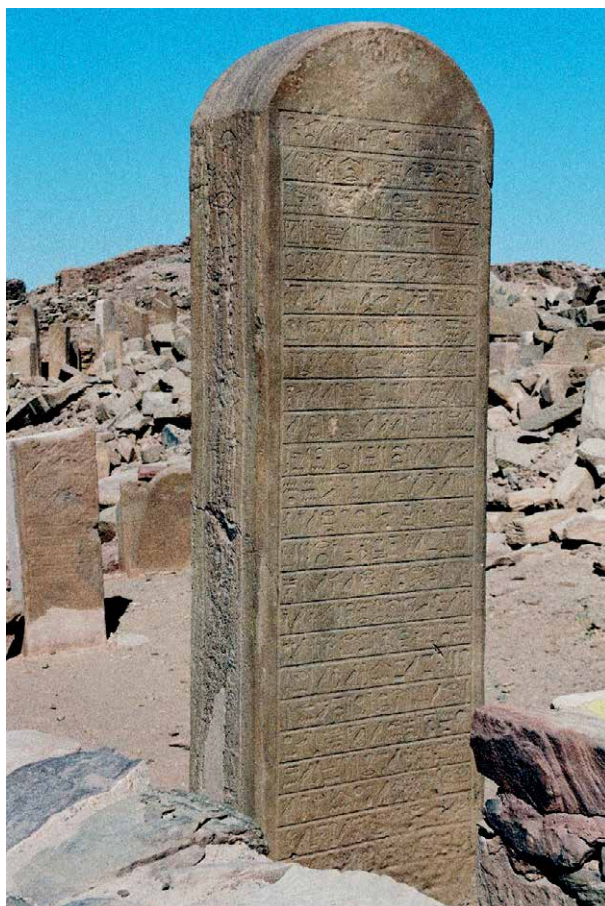
Figure 1: The Stela of Herwerre from Serabit El Khadem at Sinai.

scope to unfold itself. As in Foucault's "heterotopia" (1998, 175-185), Rheinberger in his "experimental systems" tries to create a productive approach to the unknown.

III. In the sense of Latour (above) we need in-scripts, i.e. hybrids of natural rough material and human cultural readings into it. What people see in it or the object suggests or invites us to be used in a certain manner, like the terrace shaped temple-architecture in Serabit el Khadem imitating the surrounding rock formation (Fig. 3). Another instance from this concept is the typical form of stela from Serabit el Khadem, shaped like a simplified human body on marked rock stone, guarding the opening of the valley. Terrace and stela each represent again the circle of imitating natural landscape and of highlighting the human cultural thoughts reflected on it at the same time.

IV. Finally, we need a crisis. If we take the stela of Herwerre from Serabit for example we see more than one key element bound together (Fig. 1).

So it shows the element of hybrid in-script between human and nature in the form of the stela, in calling the temple the gate of eastern horizon as religious cultural element with reference to the *Um-elreglin* mountain as natural element (Fig. 4) in the background of the temple resembling the hieroglyph *ȝḥ.t* "horizon" (Kurth 1997, 57ff.).

Figure 2: The sanctuary of Hathor as mining cave.

Figure 3: The tempel of Hathor at Serabit El Khadem.

Figure 4: The Um-elreglin mountain at Serabit El Khadem.

Herwerre, head of the Middle Kingdom expedition describes the procedure of digging and winning turquoise form the mines. In his narrative text, we find all elements or all actors in this process, and also a crisis, since Herwerre started too late in the season and arrived at Serabit in the hot summer. He had to struggle with sun and weather in such a desert and mountain landscape. So he asked the "knowledgeable ones" (*sḫḳw.t*) what to do (*Wb.* IV, 94,3). They advised him to pray to satisfy Hathor, the lady of turquoise, so that she would allow him to find an abundance of turquoise, even though its pale colour in the hot sun made it quite unidentifiable (West Face, horizontal line 9). Here we learn that praying is at least as important as to ask the experts, and both must be done to achieve the desired result (Kurth 1997, 59).

To conclude

By the ancient Egyptian manner dealing with natural materials and using human cultural efforts on the same level out of a monistic understanding of the world, we are at first confronted with epistemological issues levelling technical terms to clarify the differences. If we describe carefully how the Egyptians produced their things in the accurate dynamic way according to the Actor-Network-Theory and if we concentrate on this procedure of production, we will recognize that the practical aspects are always close to cultural and religious ones in a teleological ontology. We do not have any craftsman's manual, but we do have a substantial number of ritual and magical manuals in which things are mentioned and come to speak, and in which natural elements themselves are the main actors and not just mediators. In such cases, the epistemic

things, which contain their own in-script, become mystical things. Mystical things mean mystery things, or things of a secret sphere; it could also mean things of spiritual or preternatural experiences. Nevertheless, the mystical dimension of the reality is in fact, as we have seen, a practical one. In mystical traditions like those of the Sufi, the masters use the term science to express the knowledge of such experiences. We cannot talk about science, we have to practice it; to talk about practical science is like sending a kiss by a messenger. You have to do it yourself or as Rumi puts it: "He, who tastes, knows".

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Centralized and Local Production, Adaptation, and Imitation

Twelfth Dynasty offering tables

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Abstract

The production of offering tables under the 12th dynasty could have been organized in a number of ways. An offering table workshop from the reign of Senusret III can be seen as a case of centralised production of offering tables for officials from different regions. On the other hand, the corpus of offering tables from Asyut can be attributed to several generations of local craftsmen, adhering to a distinct local artistic tradition. The evidence points to the borrowing of new iconographic features by local craftsmen and possibly to a case of adaptation of an offering table in accordance with the local tradition.

Keywords: Offering table, Assiut, working/production method, artist, Middle Kingdom.

In the absence of direct evidence about the means and directions of knowledge sharing between ancient Egyptian artisans in the Middle Kingdom,[1] some light on this issue can be shed by reconstructing the spatial organisation of artistic production and then analysing the spread of artistic features between the different centres of artistic production. The patterns of diffusion of artistic novelties that can be established using this approach may in turn enable the formulation of hypotheses

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1   In this respect, the Middle Kingdom differs from the New Kingdom, when artists' signatures, graffiti, and other explicit sources provide much more evidence on the artists' accomplishments, transfer of knowledge, and the sources of inspiration (Laboury 2012).

regarding the underlying social interactions between the craftsmen and the usage of diverse sources in their work.

Several models of the spatial organisation of artistic production for private patrons have been proposed in the scholarly literature based on the fragmentary evidence available (Franke 1994, 108). One possible model is the centralised production, be it at the royal residence or – as often assumed for stelae – at Abydos, where most known private monuments were installed. Hypotheses of centralised production stand implicitly behind the attempts to reconstruct the stages of a unilineal development of certain object types; yet the relative success of such attempts does not necessarily confirm the viability of the underlying hypothesis. The second option is the localised manufacture of artistic products in diverse regional centres where the patrons dwelled. This model is in accord with the research into the regional artistic traditions and local workshops. The third model envisages that the private monuments were often a by-product of mobile gangs of artists sent to diverse regions to participate in major royal construction and renovation projects (Quirke 2003, 97; Quirke 2009, 119-122).

The inquiries into the manufacture of artistic products of different types in the Middle Kingdom suggest that their distribution can be best explained by different models. Thus, according to Simon Connor (2014, 64-66; 2016), private statues predominantly followed the example set by contemporary royal statuary and regional differences in their production are almost unobservable. This evidence seems to speak in favour of the centralised production of private statues. Similarly, Gianluca Miniaci (2014, 133-134; 2017; also Miniaci's presentation at the Paris conference) makes a case for the centralised production of Late Middle Kingdom faience models at Itjtawy. In contrast, as concerns private Late Middle Kingdom stelae, their localised production at Edfu and Elephantine was established by Pascal Vernus (1987) and Detlef Franke (1994, 105-117), respectively. Later studies by Marcel Marée and Gloria Rosati focus on stela production at Rizeikat and Abydos (Marée 1993, 2010; Rosati 2004). The present author argues in favour of the localised production of stelae at Antaeopolis (Ilin-Tomich 2011a), Thebes (Ilin-Tomich 2012a), and in the Memphis-Faiyum region (Ilin-Tomich 2011b; 2015a), and further reasons that the overwhelming majority of known private stelae were produced locally in diverse artistic centres where their owners resided (Ilin-Tomich 2017).

The workshop approach is a methodological tool particularly helpful in studying artistic production. So far, it has been best developed for stelae and is defined within a comprehensive research framework, put forward by Pascal Vernus, which draws lines between single artisans, workshops, and local artistic traditions (Vernus 1987, 444-449). The study of workshops in its present form focuses on products and their artistic qualities rather than on the production process and persons behind it. Characteristically, in her seminal paper Rita Freed defines the workshop as a group of "three or more stelae sharing distinctive aspects" (Freed 1996, 298) rather than a group of craftsmen. Yet the study of workshops may be seen as a first step in reconstructing the complex interactions between artists working in different regions over time.

The comparative diachronic study of artistic features occurring on stelae (outlined in Ilin-Tomich 2017) suggests that new features spread rapidly across the different centres of production. This justifies the study of unilineal developments of the decorative and textual programs of Middle Kingdom stelae even without assuming that they were

centrally produced. It further facilitates the establishment of constant patterns of their dissemination. Thus, in terms of stela production, the Memphis-Faiyum region spread its influence all over Egypt including Thebes. The influence of Theban artists was limited to Southern Upper Egypt. Artists from minor production centres were prone to imitate the iconography, phraseology, and the characteristic spellings used by reputable artists from the northern residence and from Thebes, adhering at the same time to their local artistic traditions. Artists from the more authoritative centres did not adopt the traits characteristic of the peripheral centres.

After a short summary of views on the spatial organization of artistic production in the Middle Kingdom, one may turn to an object type previously overlooked by students of the issues considered here: offering tables. Due to their small number, Middle Kingdom offering tables receive little scholarly attention. One may cite a repertoire of Middle Kingdom offering table forms assembled by Regina Hölzl (2002), and an overview of their functions by Rémi Legros (2016, 88-94).

Centralized production of offering tables

Like stelae, offering tables may be grouped by workshops (Legros 2013). It is hard to associate any offering tables with known stela workshops, at least partly because offering tables can only be compared with stelae in terms of palaeography and phraseology, but not in terms of decoration. Exceptionally, Pascal Vernus (1987, 469-470) argued that offering table Cairo TN 16.2.22.20 belonged to the same Second Intermediate Period Edfu workshop as stelae Cairo JE 48229 and Engelbach 1922, 116 pl. I.7. Vernus' conclusion is based upon common palaeographic traits. Yet one can identify groups of offering tables stemming from the same workshop, based on common artistic features. This leaves the question open whether these workshops specialized only on offering tables or were also responsible for statues or stelae, which is likely, given numerous cases when an offering table is structurally joined with a stela (Franke 2013, 102) or when a statue or a stela fits into a socket in an offering table. As with stelae, another pertinent issue is whether offering tables were decorated and inscribed at the same time, or whether these works were performed by different (groups of) artists.

One offering table workshop is datable to the reign of Senusret III. Its products can be recognised by the following set of iconographic traits:

1. The set of offerings depicted on the platter includes a duck, a bull's leg, a lanceolate *ḏwj*-vessel, and a trapezoid piece of meat with diagonal lines. These items were first introduced in the offering table iconography during the mid-12th dynasty and each of them remained common throughout the Late Middle Kingdom. However, the combination of all these elements is attested on offering tables only from the studied workshop. No other offering table has a duck, a lanceolate vessel, and a trapezoid piece of meat at the same time.

One may further define the particular forms of iconographic elements, which set off the offering tables of this group from the rest of the offering tables displaying some of the same elements.

2. The feathering of the duck is rendered with a fish scale pattern.
3. The lanceolate ḏwj-vessel is depicted on a stand with two legs.
4. The tops of vessels point toward the bread-sign.
5. The round-shaped loaves have no impressions of fingers (which otherwise often appear on offering tables featuring lanceolate ḏwj-vessels).

The following offering tables can be ascribed to this workshop:

Monument	Trait 1	2	3	4	5
Cairo CG 23017 (fig. 1)	+	+	+	+	+
Cairo CG 23059 (fig. 2)	+	+	+	+	+
Kyoto 2179 (fig. 3)	+	+	+	+	n/a
Louvre D 27 (fig. 4)	+	+	+	+	+
Louvre E.13105 (fig. 5)	+	+	+	+	+
Wien ÄS 98 (fig. 6)	+	+	+	+	+

The workshop can be associated with the reign of Senusret III, since Wien ÄS 98 is datable to this reign after Cairo CG 20733 from year 13 (Franke 1984, dossiers 257 and 283). A late 12th dynasty date is in line with the indicators appearing on other products of the workshop. A date not earlier than the reign of Senusret III is supported by the title *nbt pr* on Louvre E.13105 and the ligature *šs mnḫt* (Berlev 1962, 66) on Kyoto 2179. A date later than 12th dynasty is excluded by the occurrence of the word *mw* "water" (Franke 2003, 52) in the offering formula on Cairo CG 23017.

Three products of the workshop were installed at Abydos (Cairo CG 23017; Cairo CG 23059; Kyoto 2179); three other are of unknown provenance. When it comes to establishing the origin of the owners (which most often allows establishing the location of stela workshops), it transpires that the owners of the offering tables come from different regions. The owner of Wien ÄS 98 is attributable to Thebes after stela Cairo CG 20733 (Franke 1984, dossiers 257, 283; Ilin-Tomich 2015b, 122). The family represented on Kyoto 2179 is also of Theban origin, judging by the names *ddt-nbw* and *sꜣt-jmn* (Ilin-Tomich 2015b, 120-121). The names on Louvre D 27 suggest a Southern Upper Egyptian, possibly Abydene origin (*jn-ḥrt-ꜥnḫ, jn-ḥrt-ḥtp, sꜣ-jn-ḥrt*, and *ddt-jmn*). However, offering table Louvre E.13105 displays names *s-n-wsrt-nḫt, ḫntj-ḫtjj-ḥtp*, and *ḫntj-ḫtjj-nḫt*, suggesting that this family came from the Memphis-Faiyum region (Ilin-Tomich 2012b).

Although the evidence is inconclusive, the discrepancy between the origins of the owners of different offering tables produced by the same workshop speaks in favour of centralized production, of one workshop serving the inhabitants of different regions with offering tables.

Simon Connor (2014, 67-68; 2015) observes that the iconography of most private Middle Kingdom statues did not reflect the exact functions or individual features of the depicted person, and that their physiognomy matched that of the reigning king. Only the inscription was customized for the eventual owner of a statue. He also makes a point for a possible prefabrication of statues that could later be inscribed for the owner (Connor 2015, 66). In this respect, Middle Kingdom stelae differ drastically from statues, as a typical Middle Kingdom stela visually represents a complex web of

Figure 1: Cairo CG 23017 (reproduced from Kamal 1906-1909, pl. IX).
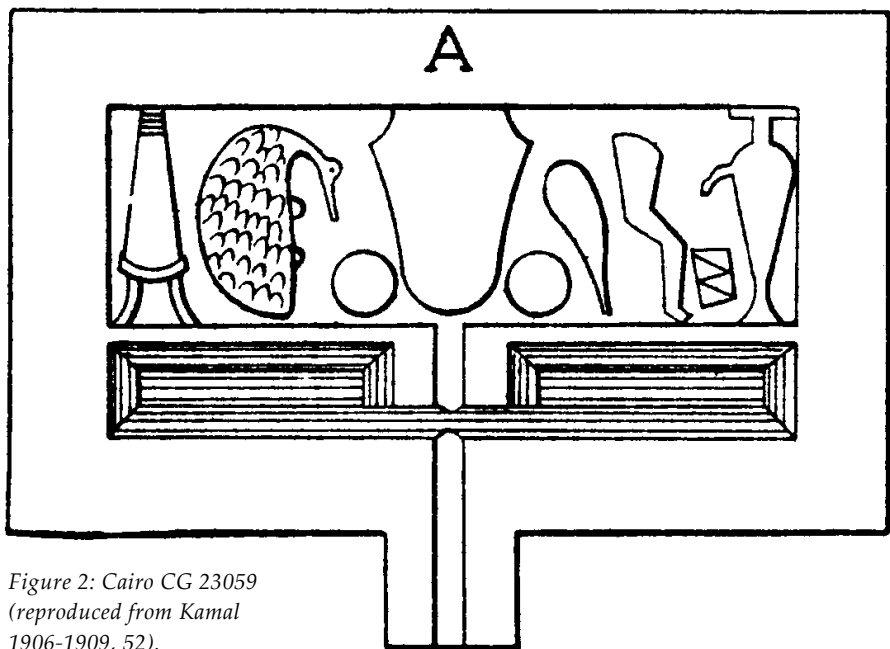

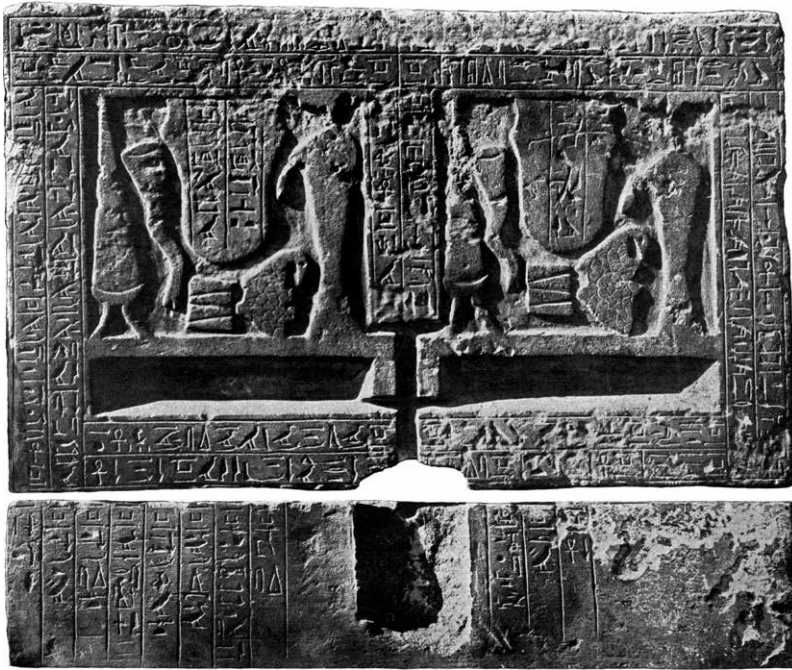*Figure 2: Cairo CG 23059 (reproduced from Kamal 1906-1909, 52).*

Figure 3: Kyoto 2179 (reproduced from Petrie 1925, pl. XXIII.2).

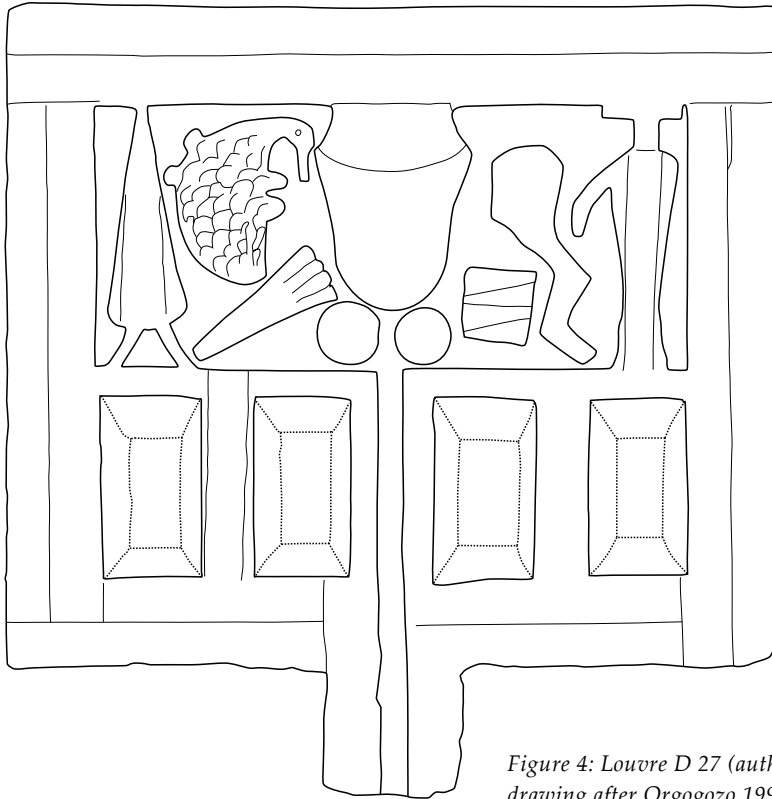*Figure 4: Louvre D 27 (author's drawing after Orgogozo 1992, 30).*

THE ARTS OF MAKING IN ANCIENT EGYPT
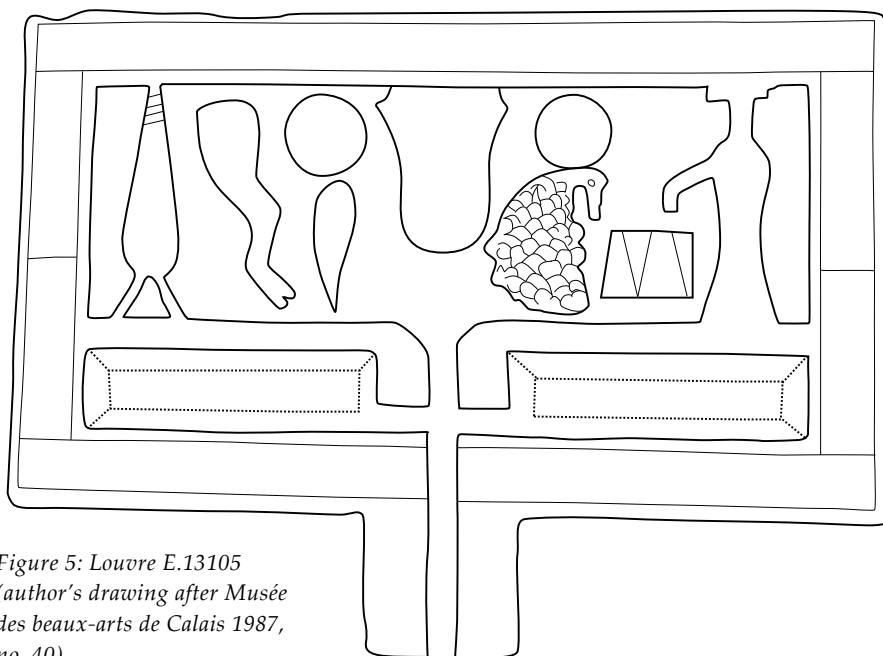
Figure 5: Louvre E.13105 (author's drawing after Musée des beaux-arts de Calais 1987, no. 40).

Figure 6: Wien ÄS 98 (KHM-Museumsverband).

social relations surrounding the particular owner. Such a highly-customized stela had to be made to measure for the patron. The possibly prefabricated or ready-made stelae featuring simple stereotype scenes become common only at the end of the 13th dynasty and in the Second Intermediate Period (Marée 1993, 14). This difference between statues and stelae probably explains why most statues could be produced centrally, and almost all the stelae were produced locally. If one considers the degree of customization of offering tables, one may safely say that like statues, their sculptural features did not reflect the individuality of the owner, and in all aspects but the inscription, they could be finished without even knowing who the eventual owner would be. A significant number of finished, yet uninscribed offering tables[2] and statues are known from the Middle Kingdom, which suggests that it was a widespread practice to fabricate (or pre-fabricate) such objects without inscriptions. Paul Whelan (2007, 137) claimed the existence of blank uninscribed stelae in the Middle Kingdom. However, stela Cairo CG 20097, which he cites, is an almost unique example of a fully decorated stela without inscriptions. In the corpus of over 2000 Middle Kingdom stelae one can hardly find comparable objects without the remains of an inked inscription (exception: Cairo CG 20299). The same applies to stelae with incomplete inscriptions lacking the owner's name: the one cited by Whelan (Bruxelles E.4860) remains exceptional. Compared to the by far more numerous examples in the smaller corpora of statues and offering tables, one may say that with few exceptions stelae were finished at once, whereas statues and offering tables were not infrequently left uninscribed (and given that Bruxelles E.4860 and Cairo CG 20299 feature sculpted mummiform figures and no carved decoration one may conjecture that these objects were produced and delivered in a way appropriate for statues rather than for stelae).

These considerations complement the anecdotal evidence provided by the offering table workshop discussed above and suggest that the centralized production can reasonably be considered a plausible mode of production for many offering tables; yet it was not the only possible mode, as will be shown in the next section.

Offering tables from Asyut

Across different Egyptian sites, stelae generally outnumber other kinds of inscribed private monuments such as statues and offering tables; yet, excavations in the Middle Kingdom necropolis of Asyut have produced by far more offering tables than stelae or stone statues.[3] The Middle Kingdom material found at Asyut or attributable to this site was recently comprehensively surveyed by Marcel Zitman (2010). Zitman catalogued

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2   Provenanced examples (outside Asyut) include a table from Dahshur (Yoshimura, Dahshur 14-15, pl. 3 (2)); Cairo CG 23061, Cairo CG 23063, and MMA 32.1.213 from Lisht; Manchester 272.a, Manchester 272.b, UC 16150 from Lahun; Harageh, pl. XIX.2 from Haraga; MMA 31.3.90 from Asasif; Louvre E.14408 from Edfu. Unprovenanced Dynasty XII examples include BM EA 704; Cairo CG 23068; Christie's New York 10.06.1994, no. 25; Louvre D 28; Sotheby's New York 2-3.06.1981, lot 592; Sotheby's New York, 15.06.1988, no. 216; Torino Cat. 1759; UC 16577.
3   Only stone offering tables are taken into account, not the numerous pottery offering trays from Asyut (Kilian 2012). The prevalence of offering tables is also characteristic of early Middle Kingdom el-Bersha.

the Asyutian offering tables[4] and studied their inscriptions, establishing prosopographical links with other monuments and noting paleographical peculiarities relevant for their dating. However, Zitman did not particularly focus on the iconography of the offering tables (neither did he indicate that offering tables would be dealt with in more detail in the announced second volume of his study).

Local production

One observation made in the scholarly literature may hint at the prevalent mode of production of Asyutian offering tables. Regina Hölzl recognized an iconographic feature distinguishing the offering tables from Asyut from those from other regions, the depiction of tilted *ḥs*-vases (Hölzl 2002, 73; Zitman 2010, 200). Indeed, this feature is present on 11 tables from Asyut (BM EA 973; BM EA 974; BM EA 990; Cairo CG 23042; Cairo JE 46192; Civita Castellana, Museo Archeologico dell'Agro Falisco 1061; Galerie Ägyptischer Kunst Göttingen, no. 17; Harvard Semitic Museum 1902.17.36; Kamal 1916, 109 (136); Kamal, 1916, 112 (151); Torino S.9178) and is absent on offering tables attributable to any other region. Another related iconographic motif is the depiction of two upright *ḥs*-vases with streams of liquid flowing from their tops. A similar motif is present on three tables from Asyut;[5] however, its use is not limited to Asyut, for it is attested on non-Asyutian offering tables as well.[6]

The depiction of tilted *ḥs*-vases can be seen as an element of a local artistic tradition. A framework for studying local artistic traditions was established by Pascal Vernus (1987, 444-449), who pointed out that reginal idiosyncrasies shared by multiple local workshops could be considered elements of the local artistic traditions stretching beyond the life cycle of a single craftsman or a single workshop.

Tilted vases appear on Asyutian offering tables already under the 11th dynasty, as evidenced by Torino S.9178, which features a large triangular-shaped bread sign, attested on 11th dynasty offering tables, such as the offering table of a wife of Mentuhotep II from Deir el-Bahri (Arnold, Tempel I, pl. 25 b) and the offering tables from Heracleopolis (Cairo JE 91096; Pérez Díe, ICE 10, pl. 7; Pérez Díe, ICE 10, pl. 9) generally datable to a period before the 12th dynasty (Bader 2011, 38-39; Bader 2012, 102; contra: Willems 1996). Tilted vases remain in use in Asyut under mid- to late 12th dynasty, as evidenced by tables Cairo CG 23042; Galerie Ägyptischer Kunst Göttingen, no. 17; Harvard Semitic Museum 1902.17.36, featuring the filiation formula *jr.n*+mother's name, pointing to a date not earlier than the late years of Senusret I

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4   To those listed by Zitman, one should add Cairo TN 20.10.17.21, Cairo JE 46192, Drouot 05.02.1986, no. 80, and Civita Castellana, Museo Archeologico dell'Agro Falisco 1061 (features the epithet *nb rꜣ qrrt*, tilted *ḥs*-vases and the female name *ḥwt-ḥr* common in Asyut, but also attested elsewhere). Besides, Lilian Postel (in Cavalier *et al.* 2011, no. 11) proposed to associate offering table Avignon A 50 with Asyut; however, the evidence behind this attribution remains inconclusive. The names derived from the full form of the name of *wp-wꜣwt* like *wp-wꜣwt-nḫt* figuring on the Avignon table are well attested outside Asyut. The best parallel to Avignon A 50 in terms of layout is MMA 26.3.339 from Deir el-Bahri.

5   BM EA 977; Torino S. 9175 (CG 22021); Torino S.14939 (CG 22024).

6   Cairo CG 23021 of uncertain origin; Cairo CG 23035 likely owned by a Theban official (as suggested by stela BM EA 830 [Franke 1984, dossier 763], featuring the names *sꜣt-jmn* and *ddw-sbk*); Cairo JE 91220 owned by an official from Itjtawy (as suggested by stela Louvre C 169 [Grajetzki and Stefanović 2012, dossier 115] featuring the title *ḥm-nṯr sḥtp-jb-rꜥ* "the *ḥm*-priest of Amenemhat I"); Torino Provv. 896 of uncertain origin.

(Obsomer 1993). This timespan, at the very least from the beginning to the end of the twentieth century BC, is greater than the life cycle of a single workshop and thus the depiction of tilted ḥs-vases can safely be considered an element of the local artistic tradition shared by several consecutive generations of Asyutian producers of offering tables. Should the producers of offering tables work at another centre or be trained elsewhere, one would not be able to explain why the tilted ḥs-vases appear on tables from Asyut during several consecutive generations and do not appear on tables from other regions. Besides, the fact that this Asyutian trait is not attested outside Asyut shows that Asyutian offering tables did not serve as a model of inspiration for offering tables produced outside Asyut.

A further argument in favour of the local production of offering tables in Assyut is provided by the similarities in the textual program between the offering tables and other categories of inscribed objects from Asyut. Marcel Zitman notes a number of orthographic peculiarities that offering tables share with coffins (Zitman 2010, 245 n. 1735, 246, 256, 302 n. 2169, 325 n. 2335, 342, 343) and tomb inscriptions (Zitman 2010, 323).

One may further compare the inscription on a statue, known from the rubbings shown to J. J. Clère at the Le Corneur Roudillon Gallery on 02.10.1968, [7] with inscriptions on Asyutian offering tables. The association of the statue with Asyut is confirmed by the owner's name *wpꜣjj*, the epithet of Anubis *nb rꜣ-qrrt* and the epithet of Osiris *nb ꜥnḫ tꜣ*, all repeatedly evoked in Zitman's (2010, passim) study as characteristics of Asyut. The owner's title *jmj-rꜣ qstjw* "overseer of sculptors" makes him the only known craftsman from Asyut. The inscription on the statue shares some peculiarities with contemporary (mid-to late 12th dynasty) offering tables from Asyut. The half-ligature *šs mnḫt* 𓋳 appears on BM EA 976. The combination of the plural and food determinatives after *jḫw ꜣpdw*, which occurs exceptionally rarely on private stone monuments outside the Memphis-Faiyum region under the 12th dynasty, but was common on Asyutian coffins (Zitman 2010, 260, 280-281), appears on BM EA 980 and Kamal 1916, 109 (136). The spelling of the word *qbḥw* matches and the spelling of *snṯr* resembles that on BM EA 973. Put together with the evidence assembled by Zitman, these similarities show that there was a common scribal tradition behind the textual programs of Asyutian inscribed objects of different types.

Adaptation

The question whether certain private stone monuments of the Middle Kingdom could have been finished outside the workshop where they were originally produced remains intriguing in the absence of conclusive evidence supporting this hypothesis.

Among Middle Kingdom stelae, a possible case of adaptation is stela Boston 25.659 from Naga ed-Deir. Rita Freed (1996, 303) includes this stela in the list of products by her Workshop 2 from early 12th dynasty Thebes. Yet Jacqueline Jay (2010, 73-75) points out that the stela features some iconographic elements characteristic of the Naga ed-Deir artistic tradition of the First Intermediate Period, and cites the stela as the evidence for a Naga ed-Deir influence on Theban workmen in terms of iconography.

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7   Griffith Institute Archive, J. J. Clère MSS 03.03. Not included in Zitman's (2010) prosopography of Asyutians.

Figure 7: BM EA 976 (© The Trustees of the British Museum. All rights reserved).

However, one may propose a different interpretation of the monument. Whereas the stela matches in the execution of reliefs and inscriptions the best Theban examples of the early 12th dynasty, most provincial details, such as the figure of an attendant offering a bowl and the mirror placed before the face of the standing woman, are only painted and not carved. It may hence be hypothesized that a stela carved at Thebes by request of an official from Naga ed-Deir was later complemented by local workmen with painted details inherent to the Naga ed-Deir artistic tradition, lasting from the First Intermediate Period.

What triggers a suspicion of adaptation in the case of some Asyut offering tables is the discrepancy between the finely carved decoration and sloppily executed inscriptions. Whereas in many cases the irregular lines of inscription match the skewed decoration of the offering table, on a few Asyutian offering tables the inaccurately scratched inscriptions contrast with the decoration, which is relatively evenly carved in relief. Here belong BM EA 976 and Torino S. 9176. BM EA 976 (fig. 6) deserves particular attention. Its inscription consists of unevenly placed partly crooked and skewed signs. Besides, this offering table also features a slack line apparently added after the principal decoration in relief was complete. The line begins at the spout of the left ḥs-vase and points towards the drainage channel of the offering table. Both the inscription and the water line are executed in shallow inaccurate carving (scratched into the surface) whereas the main decoration is executed in raised relief of low height. One may thus interpret it as an attempt to add the depiction of a stream of liquid flowing from the ḥs-vase -an Asyutian iconographic peculiarity discussed above- made after the decoration of the offering table was finished; probably concurrently with the execution of the inscription. The question remains, whether the craftsmen executing the main decoration and those who made the inscription and the additional line worked at Asyut or

whether the offering table was executed elsewhere and later inscribed and adapted at Asyut in an attempt to add a local iconographic feature.

Imitation

The Asyutian offering table tradition was not isolated from new developments in offering table iconography occurring throughout Egypt (and apparently often invented by the producers of the royal offering tables). It gradually adopted new trends from elsewhere.

One striking example of a massive borrowing on the part of Asyutian craftsmen is offering table Geneva 23474 (fig. 7). The decorative program of the offering table appears to be an imitation of the products of the workshop from the reign of Senusret III, which was discussed above. The Geneva offering table features a feathered duck, a bull's leg, and a trapezoid piece of meat. It only lacks a ḏw-vessel on a stand, but instead the usual ḥs-vases are shown on stands (an almost exceptional case in the Middle Kingdom offering table iconography[8]). Despite the presence of the elements characteristic of the workshop from the reign of Senusret III, the Geneva table obviously differs from its products in execution. Instead of the fish-scale-like pattern, the feathering on the duck is imitated with a diamond-shaped grid of scratched lines. The vessel stands have straight box-like legs instead of the arcuate legs used by the workshop discussed above. The vessel-tops point in the same direction as the central loaf. The depictions of a bull's leg and a trapezoid piece of meat are simplified. The inferior quality of the Genève offering table as compared to the products of the workshop from the reign of Senusret III suggests that Asyutian craftsmen copied motifs from the other workshop and not the other way around. In sum, the offering table Geneva 23474 gives the impression that an Asyutian craftsman tried to reproduce the iconography of the offering tables from an esteemed contemporary workshop, but did not have an actual specimen to copy from, perhaps relying on a sketch or his own memory.

The products of the workshop from the time of Senusret III and their Asyutian imitation belong to the type of offering tables with loosely packed offerings in the main field, including ducks, bull's legs and heads, or trapezoid pieces of meat. These features appear to spread from the mid-12th dynasty. Among the provenanced offering tables belonging to this type are Manchester 272.a and Manchester 272.b from Lahun; Habachi, Heqaib, no. 94 from Elephantine; Louvre E.14408 from Edfu. This type was eagerly adopted by Asyutian artisans,[9] who often combined its iconographic elements with characteristic Asyutian tilted vases (again, the absence of tilted vases on similar offering tables from Lahun, Elephantine, and Edfu, suggests that Asyutian craftsmen borrowed this type from elsewhere and have not invented it and spread to other regions). The ducks (feathering not detailed) occur on BM EA 991 and Cairo CG 23042 (tilted ḥs-vases). A bull's leg is shown on BM EA 973 (tilted ḥs-vases), BM EA 974 (a tilted ḥs-vase), BM EA 975; BM EA 978, BM EA 980, BM EA 997, Cairo CG 23042,

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8   The other examples of ḥs-vases on stands, known to me are Cairo JE 46203 (Second Intermediate Period, Edfu); Zagazig B 1503 (early Dynasty XII, Tell Basta). These are however visually incomparable to the Genève table. The Asyutian offering table BM EA 975 may represent another example of a reinterpreted ḏw-vase like Genève 23474.

9   The Asyutian offering tables with densely packed offering (BM EA 990 and Galerie Ägyptischer Kunst Göttingen, no. 17) are not included in this survey.

Figure 8: Geneva 23474
(© Musée d'art et d'histoire, Ville
de Genève, inv. no. 023474).

Harvard Semitic Museum 1902.17.36 (tilted *ḥs*-vases), Kamal 1916, 109 (136) (tilted *ḥs*-vases) and Kamal 1916, 112 (153). A trapezoid piece of meat appears on BM EA 929, BM EA 974, BM EA 978, BM EA 991, Kamal 1916, 109 (136). The few inscribed monuments in this group, which indicate filiation (BM EA 929; Cairo CG 23042; Harvard Semitic Museum 1902.17.36) use the filiation formula *jr.n+*(mother's name) suggesting a date in the mid-to late 12th dynasty.

Conclusions

The sparse evidence presented in this paper suggests a mixed mode of production for private offering tables during the Middle Kingdom. A centralized production is tangible, but many offering tables could have been produced locally at diverse regional centres. Asyut, where private offering tables outnumber stone statues and stelae, was home to a persistent offering table tradition. Several generations of home-trained sculptors could stand behind the production of private offering tables at Asyut. Based on other types of material, Jochem Kahl has put forward an idea that Asyut could have been an influential centre of artistic production, paralleling his conclusions concerning the spread of texts from Asyut (Kahl 1999, 274-282; Kahl 2007, 151-154). However, in the domain of offering table production there is no evidence for Asyutian influence on other centres. On the contrary, Asyutian craftsmen verifiably borrowed new elements from elsewhere.

List of cited offering tables

Offering tables from Asyut or attributable to this centre
Of the offering tables cited in Marcel Zitman's (2010) work the present author was not able to consult Boston 04.1891, Cairo JE 39113, Cairo TN 20.10.17.19, TN 20.10.17.20,[10] and the unidentified offering table from the antiquities market (Zitman 2010, Maps: 188 [ḥnw 4]). The following objects are cited in this paper:

- BM EA 929 (British Museum online catalogue[11]);
- BM EA 973 (unpublished, examined in the museum);
- BM EA 974 (BM online catalogue);
- BM EA 975 (BM online catalogue);
- BM EA 976 (unpublished, examined in the museum);
- BM EA 977 (BM online catalogue);
- BM EA 978 (BM online catalogue);
- BM EA 980 (BM online catalogue);
- BM EA 990 (BM online catalogue);
- BM EA 991 (BM online catalogue);
- BM EA 997 (BM online catalogue);
- Cairo CG 23042 (a sketch in Kamal 1906-1909, no. 23042; photo seen in the Egyptian Museum database[12]);
- Cairo JE 43283 (a description, featuring names in hieroglyphs, in JE seen in the Egyptian Museum database);
- Cairo JE 46192 (a sketch in JE seen in the Egyptian Museum database);
- Cairo TN 20.10.17.21 (description in the temporary register, seen in the Egyptian Museum database; reportedly sold);
- Città Castellana, Museo Archeologico dell'Agro Falisco 1061[13];
- Drouot 05.02.1986, no. 80 (Pescheteau *et al.* 1986, no. 80);
- Galerie Ägyptischer Kunst Göttingen, no. 17 (Galerie Ägyptischer Kunst 1975);
- Genève 23474 (Kamal 1916, 100 (124); Guarnori and Chappaz 1983, 74-8);
- Harvard Semitic Museum 1902.17.36 (Hölzl 2002, 73, pl. 14);
- Kamal 1916, 109 (136) (description in Kamal 1916);
- Kamal 1916, 112 (151) (description in Kamal 1916);
- Kamal 1916, 112 (153) (description in Kamal 1916);
- Torino S.9175 (Habachi 1977, no. CG 22021);
- Torino S.9176 (Habachi 1977, no. CG 22022);

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10   Zitman's (2010, 187) suggestion that this item sold from the Cairo Museum later resurfaced as Galerie Ägyptischer Kunst Göttingen, no. 17 is plausible although the temporary register gives the size 33 (cm) for TN 20.10.17.20, whereas the piece sold by Galerie Ägyptischer Kunst was 29 × 23 cm large.

11   http://www.britishmuseum.org/research/collection_online/search.aspx (last accessed on 03.11.2016).

12   Currently accessible in the Registration, Documentation, and Collections Management Department in the museum basement.

13   http://osiris.beniculturali.it/MuseiSchedeReperti/museo-dellagro-falisco-civita-castellana/tavola-d2019offerta (last accessed on 28.12.2016).

- Torino S.9178 (D'Amicone and Pozzi Battaglia 2009, no. 8.1 (b); Habachi 1977, no. CG 22020);
- Torino S.14939 (Habachi 1977, no. CG 22024).

Offering tables not attributable to Asyut

- Arnold, Tempel I, pl. 25 b (Arnold 1974);
- Avignon A 50 (Cavalier et al. 2011, no. 11);
- BM EA 704 (BM online catalogue);
- Cairo CG 23017 (Kamal 1906-1909, pl. IX);
- Cairo CG 23021 (Kamal 1906-1909, pl. IX);
- Cairo CG 23035 (Simpson 1974, ANOC 3.4, pl. 9; Egyptian Civilization 2000, no. 37);
- Cairo CG 23059 (sketch in Kamal 1906-1909, no. 23059; photo seen in the Egyptian Museum database);
- Cairo CG 23061 (sketch in Kamal 1906-1909, no. 23061; photo seen in the Egyptian Museum database);
- Cairo CG 23063 (sketch in Kamal 1906-1909, no. 23063);
- Cairo CG 23068 (sketch in Kamal 1906-1909, no. 23063; photo seen in the Egyptian Museum database);
- Cairo JE 46203 (Vernus 1987, pl. 55);
- Cairo JE 91096 (Almagro Basch et al. 1975, no. 36);
- Cairo JE 91220 (Simpson 1995, no. C 15, fig. 72) ;
- Cairo TN 16.2.22.20 (Engelbach 1922, 117-118, pl. I.9);
- Christie's New York 10.06.1994, no. 25 (Christie's 1994);
- Habachi, Heqaib, no. 94 (Habachi 1985);
- Harageh, pl. XIX.2 (Engelbach and Gunn 1923);
- Kyoto 2179 (Petrie 1925, pl. XXIII.2, XXV; Hamada 1923, pl. LI; Sakaguchi 2016, colour pl. 11 (Abydos 20));
- Louvre D 27 (Orgogozo 1992, 30; Champollion 2013, 191-192);
- Louvre D 28 (Bovot 2013, 104 (49));
- Louvre E.14408 (Alliot 1935, pl. XII.3);
- Louvre E.13105 (Musée des beaux-arts de Calais 1987, no. 40);
- Manchester 272.a (Manchester Museum online catalogue[14]);
- Manchester 272.b (Manchester Museum online catalogue);
- MMA 26.3.339 (seen on museum display);
- MMA 31.3.90 (sketch in Hölzl 2002, 71 fig. 8; seen on museum display);
- MMA 32.1.213 (Hölzl 2002, pl. 2);
- Pérez Díe, ICE 10, pl. 7 (Pérez Díe 2015);
- Pérez Díe, ICE 10, pl. 9 (Pérez Díe 2015);
- Sotheby's New York 2-3.06.1981, lot 592 (Sotheby's 1981);
- Sotheby's New York, 15.06.1988, no. 216 (Sotheby's 1988);
- Torino Cat. 1759 (Habachi 1977, no. CG 22017);
- Torino Provv. 896 (Habachi 1977, no. CG 22016);
- UC 16150 (Petrie et al. 1923, pl. XLIV.3; Stewart 1979, no. 165, pl. 38.10);

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14   http://harbour.man.ac.uk/mmcustom/HumDtlQuery.php (last accessed on 27.12.2016).

- UC 16577 (Stewart 1979, no. 161, pl. 38.5; photo in Petrie Museum online catalogue);
- Yoshimura, Dahshur 14-15, pl. 3 (2) (Yoshimura et al 2011);
- Wien ÄS 98 (Seipel 1993, 145);
- Zagazig B 1503 (El-Sawi 1979, pl. II).

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To show and to designate

Attitudes towards representing craftsmanship and material culture in Middle Kingdom elite tombs

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Abstract

Middle Kingdom elite tombs are known to feature a substantial number of scenes showing the activities of craftsmen and their products. While these scenes have been collected and occasionally commented upon in the past, they have hardly ever been studied making full use of the available spectrum of information, *i.e.*, taking into account the pictorial as well as the textual levels of representation. In order to remedy this dissatisfying situation a specific part of the research project *From Object to Icon* – funded by the Austrian Science Fund and hosted by the Institute for Egyptology at the University of Vienna – is devoted to investigating the complex relationship between image and text in these scenes. Building upon the results and the infrastructure established by the forerunner project *Meketre*, a special database has been set up in order to collect, classify and analyse all designations of craftsmen, craft activities, tools and products contained in the tomb decoration. The present paper is meant to highlight the problems and potential gains of such an approach by presenting a case study of the tomb of Khnumhotep II at Beni Hassan. The questions raised comprise: Are there any discernible rules governing the application of labels/captions in burial assemblages in general, and in figurative wall decoration in particular? How does the information provided by the captions relate to the pictorial content? What is the relation of these scenes and their captions to other categories of contemporaneous funerary equipment

(*e.g.*, coffins with their *frises d'objets*, funerary models, deposited implements, *etc.*) and to the social structure of Middle Bronze Age Egypt at large?

Keywords: Egyptology, Middle Kingdom, tomb decoration, decorum, labelling, relation between text and image, representation of society.

Introduction

It seems almost ironic that what we have come to associate with ancient Egyptian elite culture is to a large degree the product of people who were never part of this culture and who can usually not be traced in the archaeological record as individuals commanding a voice of their own. Much of our basic knowledge of Middle Kingdom (c. 2040-1750 BC) Egypt stems from rock-cut tombs of the highest echelons of society, but we have no remnants of those who were actually responsible for hewing out the subterranean chambers and shafts; we may describe and analyse hundreds of square meters of painted tomb decoration but fail to identify the specialists involved in its creation; we can study thousands of wooden funerary models deposited primarily during the earlier parts of the Middle Kingdom in the burial chambers of office holders, some of those models even representing meticulously detailed workshop scenes of woodworking (*cf.* Winlock 1955, pls. 28-29), but the carvers themselves remain in the shadow of abstract concepts describing merely levels of technical agency.

While the overall problem of defective, inadequate, and biased sources is unlikely to change in the foreseeable future, the study of material culture and craftsmanship in Middle Bronze Age Egypt may benefit from a complementary view which focusses not so much on the objects and their creators themselves but rather on the very modes and strategies adopted to represent both within the iconography of the elite tombs. By re-framing the topic and looking through the lens of funerary iconography, the pertinent questions relate not only to positivist "facts" of what is represented in which contexts (see, *e.g.*, Klebs 1922; Vandier 1964; 1969; 1978; Kanawati and Woods 2010), but also to omissions and general attitudes towards choosing, arranging and elaborating information on the tomb walls and burial equipment. Such an approach inevitably calls for a thorough integration of the analysis of textual and pictorial representations that are far too often considered separately and in isolation from each other.

The following paragraphs are not meant to present the results of a completed study, but rather aim at staking out the potential of further in-depth research.

The project and basic research questions

When the project *Meketre* (Middle Kingdom Tomb Relief Evolution) was started at the University of Vienna Institute for Egyptology in 2009, it helped to spark renewed interest in the long neglected field of Middle Kingdom non-royal tomb iconography. One of the major outcomes of the project was the creation of a publicly accessible online database of categorised and annotated iconographic themes, scenes and motifs from Middle Kingdom tombs, the MEKETREpository (http://meketre.org). In the follow-up project *From Object to Icon*, which was equally funded by the Austrian Sciences Fund FWF and run from 2013 till 2017, the major line of investigation

concentrated on the relation between the material world (the "objects") and its representation in two-dimensional art (the "icons"). Within this framework, research also extended to the designation of the objects/icons as evidenced by labels/captions on the tomb walls and in other textual sources of the period. However, it soon became clear that any meaningful study devoted to this topic could not solely investigate how objects represented through icons were designated on reliefs and wall paintings, but had equally to address the question in what instances products and producers received designations at all. Once this perspective has been adopted one is inevitably led to the wider issue of identifying any potential rules or guidelines organising the use of labels/captions on tomb walls and funerary equipment in general. In an ideal world with optimal sources and presupposing completely rationalizable human action one might dream of reconstructing a set of rules/guidelines tied back to decorum[1] which would constitute a sort of "*grammaire de la tombe*"[2] and account for the overall layout of any given tomb as well as the large number of distinct choices made at the subordinated levels of its decoration. It goes without saying that such a scenario is neither realistic nor is it compatible with the great variety of tomb decoration attested during the given period and the multitude of observable parameters (ranging from choices of ground plan and the thematic repertoire to stylistic details and the application of specific colours). Yet, this rather pessimistic appraisal of the available evidence should not curb curiosity and remove questions of "why" and "by agency of whom/what" from the scholarly agenda. Meaningful research in this direction should perhaps start with identifying potentially significant patterns/distributions of individual features or feature complexes, irrespective of their presumptive position within the decision-making processes constitutive of the appearance of a tomb as a whole. In the following, I will try to highlight a few observations relating to the application of captions and their potential significance for understanding ancient Egyptian conceptions of social hierarchy.

Using texts in tombs: autonomous texts, labels and "zeros"

It may appear as a truism that the Egyptians living during the Middle Bronze Age made extensive use of the hieroglyphic script when it came to furnishing the funerary abode of the members of the elite. When looking more closely at the different categories of funerary equipment, however, it becomes clear that the extent and repertoire of such uses were rather restricted and that the motivation behind the inclusion of texts is not always transparent to us. Arguably the most conspicuous category of text carrying objects found in Middle Kingdom tombs constitute the decorated rectangular wooden coffins whose interiors are in a large number of cases covered with a selection of spells from a corpus commonly referred to in Egyptology as the Coffin Texts (Buck 1935-1961; Faulkner 1973-1978; Willems 1996a). These often very long texts of an unequivocally religious nature are not normally accompanied by pictorial elements

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1   For a pertinent example of the use of the concept "decorum" within the study of Egyptian funerary iconography, see Riggs 2013.

2   The term is here coined in analogy to the "*grammaire du temple*" which refers to the system of deliberate principles guiding the design and decoration of Egyptian temples during the Graeco-Roman Period. See, *e.g.*, Derchain 1962, 37-38; Winter 1968, 14-15; Cauville 1983.

directly illustrating their contents.[3] However, there exists a specific group of images inside the coffins which is often placed immediately above or adjacent to the Coffin Texts, namely the so-called *frises d'objets* or *object friezes*. As their name suggests, these bands of images depict a row of religiously charged objects, substances and symbols that possessed significance for the resurrection of the dead buried inside the coffin. In many cases these *frises d'objets* seem to function as a kind of vignette to the adjacent Coffin Texts, depicting objects used in rituals which are mentioned or alluded to in the respective texts (Willems 1996b, 58). Although a comprehensive contextualising study of the friezes, making full use of their potential as sources for ancient Egyptian culture, still remains a desideratum (see, for now, Jéquier 1921; Willems 1988, 48-49, 175-228; 1996b, 56-79), it is evident that one of their most distinctive features (even if not present in all friezes) are accompanying labels providing designations of the respective objects depicted (Fig. 1). The relation between labelling text and labelled icon can be quite complex at times. In certain instances, for example, a number of iconographically distinct, though related, objects may receive a common label (*e.g.*, *jkm* "shield", used for a variety of different types of shields: Jéquier 1921, 229-231), while in other instances objects represented through similar icons are carefully differentiated by their respective designations (*e.g.*, different types of sceptres: Jéquier 1921, 181-185). In a number of Middle Kingdom burials some of the objects depicted in the *frises d'objets* were actually included in the burial equipment as three-dimensional "realia" or full-scale "models",[4] usually placed on top of the mummy itself or near the coffin (*cf.*, *e.g.*, Quibell 1908, pl. XXVIII; Fischer 1978, 25-26; Willems 1988, 200-206; Podvin 1997, 74-174). Interestingly, these objects do not normally feature any labelling or indication of ownership. In stark contrast to their two-dimensional counterparts on the coffin walls it was apparently not deemed necessary or desirable to explicate their designation and use. A similar observation can be made in relation to the wooden models depicting boats with their passengers and crews, offering bearers, servants or whole dioramas of "daily life" (*i.e.*, agricultural activities, animal husbandry, craftsmen/-women at work, occasions of exerting administrative control, *etc.*) which resemble the two-dimensional renderings painted on the walls of elite tombs in many respects (*cf.* Reisner 1913; Winlock 1955; Tooley 1995; Arnold 2005). While the painted scenes normally feature some sort of labelling or scene captions (see below) and regularly state at least the name of the tomb owner wherever he/she is depicted, the models are usually devoid of any inscriptions even if the tomb owner is meant to be represented within a scene (as, *e.g.*, with the "inspection of cattle" model from the Theban tomb of the chancellor Meketre: Winlock 1955, 19-22, pls. 13-15). Exceptions do occur, but they are normally restricted to jottings not directly related to, or identifying, any of the figures

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3   The so-called "Book of the Two Ways", a specific group of Coffin Texts spells from the necropolis of Deir el-Bersha in Middle Egypt, constitutes an exception in that a graphic rendering of parts of the netherworld is one of its constitutive elements. *Cf.* Lesko 1972; Hermsen 1991; Backes 2005.

4   It has to be stressed that many of the (usually wooden) sceptres, batons, sandals, elements of regalia, *etc.*, found in non-royal burials of the Middle Kingdom do not seem to have been "functional" in the narrow sense of the term and should probably be taken as three-dimensional equivalents of the flat images in the *frises d'objets* rather than the actual objects themselves. Of course, matters are much more complex than a simplifying dichotomous distinction between "the actual objects" and "models/images of those objects" can convey.

forming part of the model ensembles. For example, a number of figures of scribes or priests from models of granaries or funerary barges are shown with inscribed papyrus documents (likewise made of wood) on their knees or in their hands (*e.g.*, Parkinson and Quirke 1995, 37, fig. 23 [= BM EA 41573]; British Museum Online Collection, BM EA 9525; Kamal 1911, 23, no. 3 [= Cairo JE 42857]). The walls of the granary models may also contain hieratic dockets referring to the types of grain stored or some similar information (Budge 1925, pl. VI, below; British Museum Online Collection, BM EA 28104; Parkinson 1999, 128, cat. 42 [= BM EA 41573]). These examples may be conceptualised as auto-referential uses of writing and not as labels in the normal sense, since their raison d'être is intrinsically linked to the topic of the scene, thereby adding to the (felt) realism of the respective model. In cases where the model of a funerary barge comprises a representation of the coffin of the deceased, the coffin may be inscribed with (shortened) versions of texts typically found on the exterior sides of real coffins and identify the owner of the model while remaining within the sphere of auto-referential emulation of reality (*e.g.*, Reisner 1913, 35-36, CG 4847, pl. IX). On the other hand, we know of certain Middle Kingdom boat models whose figures – depicting priests, and ritualists in the guise of deities – bear hieratic labels stating the names of distinct individuals (*cf.* the case of the boat model of Ukhhotep in New York, Metropolitan Museum of Art, 12.183.3: Strouse 2000, 48, fig. 56; Allon 2016). These texts may be called referential in that they identify ("label") the respective figures with specific human beings but transcend the realism of the auto-referential texts. A small number of wooden statuettes depicting offering bearers are also identified by names and titles written on their bases, but this practice remains exceptional (*cf.* Tooley 1995, 21, fig. 11; David 2007, 55, fig. 36; 57). Another meta-level of the use of writing is represented by some house models of varying types that, on one of their exterior walls, bear offering formulae or comparable religious texts in cursive hieroglyphs, which do not seem to be directly related to the daily life activities represented by the models themselves (*e.g.*, Cairo JE 28818 [model from Akhmim]; *cf.* Tooley 1995, 22) and can be tentatively characterised as extra-referential.[5] Since most of the known models from the period are left completely uninscribed it is difficult to ascertain the motivation behind occasional cases of inclusion of texts. Apparently, the usual chaîne opératoire for the models did not involve employing scribes, whose expertise might have been deemed more usefully employed in other contexts. One has also to consider the possibility that many of the grave goods associated with a typical Middle Kingdom elite burial were pre-produced at provincial workshops without a specific person in mind (irrespective of the fact that these workshops might have been part of or associated with the household/domain of a leading provincial family).[6] Taken all in all, the majority of grave goods associated with elite burials of the Middle Kingdom[7] bear neither formulae

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5   For narratological concepts applied to the study of inscriptions on Greek pottery see Müller 2016, 113-123.

6   Winlock (1955, 77) remarks that Meketre seems to have "*procure[d] his models from several sources and perhaps at different times*".

7   "Elite" is here understood as encompassing the first three levels of the basic model of Middle Kingdom Egyptian (rural) society proposed by Seidlmayer (2009, 365, tab. 11). In burials of lower strata of society, the use of writing is almost non-existent.
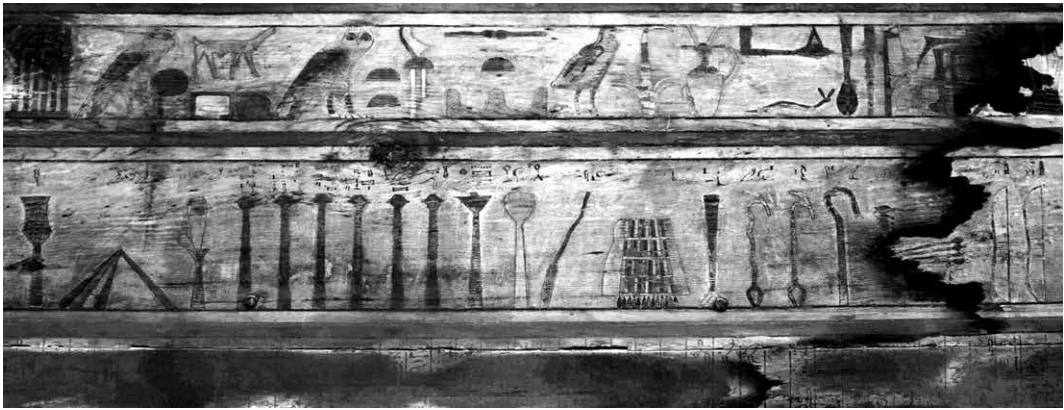
Figure 1: Object frieze on outer coffin of Hapiankhtify from Meir, 12th dynasty, New York, Metropolitan Museum of Art, Gift of J. Pierpont Morgan, 1912, acc.-no. 12.183.11a (photo of the author).

nor labels and were not explicitly personalised beyond being deposited together with other items forming the burial equipment of a specific individual.

Texts on tomb walls: biographies, offering lists, captions

Besides coffins, the wall paintings of the tombs from the highest echelons of Egyptian society constitute the main source for texts coming from non-royal funerary contexts.[8] Different from the categories described above, however, these inscriptions are usually found in the upper parts of the tomb structure, the (publicly) accessible tomb chapels that continued to be used for the funerary cult of the tomb owner and his/her family after the burial. Accordingly, aspects of display and (self-)representation play a much more important role in these texts than in those found inside the burial chamber. It is here that we find lengthy biographical texts (rare as they may be in Middle Kingdom tomb contexts) and large-scale "ornamental" texts, which display the tomb owner's name and strings of his most important titles in prominent positions. Other types of inscriptions inside the tomb chapels include more or less elaborate offering lists and religious formulae connected with funerary rituals. While all these categories function more or less autonomously and do not necessarily depend on interaction with pictorial elements, the texts which shall be the focus of the next paragraphs are by their very nature associated with specific scenes or icons and can be termed "labels"/"captions".

Labels and captions relating to scenes of "daily life"

The majority of Middle Kingdom tombs with preserved decoration feature a selection of scenes devoted to aspects of "daily life" (for an overview *cf.* Klebs 1922; Vandier

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8   Unfortunately, the burial chambers of those tombs which feature richly decorated wall decoration have been almost completely plundered during the last millennia. Comparisons between uses of texts on tomb walls and on grave goods have therefore to revert to two, socially distinct, categories of burials.

1964; 1969; 1978; Scheel 1986; Kanawati and Woods 2010; MEKETREpository). Yet, owing to changes in the significance of certain thematic repertoires and unfavourable conditions of preservation at many sites in northern Upper Egypt they are not as plentiful as in the mastaba tombs of the Old Kingdom residence. The typical amount and variety of texts accompanying these images is also rather small when compared with the Old Kingdom.

While all texts of this category may be viewed as non-narrative referential "labels" (or "Vermerke", see Jansen-Winkeln 1990), it seems worthwhile to make a further distinction between "labels" in the narrower sense, which simply identify figures, objects and actions, and "captions", which provide some sort of context for a scene or group of scenes such as a title or expressions of direct speech attributed to certain protagonists (usually referred to in German Egyptology as "*Reden und Rufe*"), thus creating a kind of virtual soundscape (*cf.* also Quirke 2016, 428-430). Auto-referential texts (see above) such as, *e.g.*, the content of a written papyrus document depicted in the hand of an official reporting to Khnumhotep II in a scene of the latter's tomb at Beni Hassan (*cf.* Newberry 1893, pls. XXX, XXXVIII, 1-2; Kanawati and Evans 2014, pl. 130b-d) are also best regarded as a specific sub-group of "captions".[9]

In combination with the accompanying images, the labels and captions are a mode of representing contemporaneous physical and social reality while at the same time shaping and transforming it according to criteria rooted in the inter-subjective decorum as well as in more specific and personal concerns of the tomb owner and/or his subordinates. Although many of the topics depicted in the tomb chapels of the period may pertain to funerary rites or be imbued with strong religious symbolism, they nevertheless contain valuable information that can be analysed in terms of how social reality was construed and presented. This is of special relevance to the representation of people who were not part of the tomb owner's family or members of the national/regional elite such as craftsmen, workers and their foremen, peasants, fishermen, accountant scribes, *etc*. Since the degree of individualisation of these people through distinct units of textual information differs significantly from group to group, from figure to figure and from tomb to tomb, the question arises what kind of decision making processes and criteria were responsible for the respective results. One may even ask whether the agency of the individuals actually carrying out the decoration of the tomb chapel had any part in arriving at those choices. Is it possible, after all, to gain access to input/intentions of non-elite members of Egyptian society through the analysis of funerary monuments of the elite?

A case study: the tomb of Khnumhotep II at Beni Hassan (BH 3)

It is perhaps best to approach this and similar questions by concentrating on a narrowly defined case study, which, in our case, shall be the scenes of "daily life" in the tomb chapel of Khnumhotep II at Beni Hassan (BH 3). It is no coincidence that this very

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9   The use of cursive hieroglyphs instead of hieratic clearly shows that coherence in the modes of display was more important to the designers of Khnumhotep's tomb than the realistic rendering of an actual document layout. On the contrary, in the neighbouring, slightly earlier, tomb of Imeny (BH 2) the texts of the depicted documents and the captions of direct speech are rendered almost exclusively in hieratic script. *Cf.* Newberry 1893, pl. XXI; Kanawati and Evans 2016, Pl. 31.

tomb has been chosen as the topic of many exemplary studies on Middle Kingdom culture and society (Lloyd 1992; Kamrin 1999; Seidlmayer 2007; Nelson-Hurst 2015). Together with the neighbouring tomb of Khnumhotep II's predecessor Amenemhat/Imeny (BH 2) it is not only the largest rock-cut tomb in the necropolis but features also one of the best-preserved and richest non-royal decoration programmes of the entire Middle Kingdom. It is also quite well documented, although even the most recent publication (Kanawati and Evans 2014) contains errors in the scene drawings that have a potential bearing on the study of labels and captions.[10]

In order to better gauge the significance of the individual attestations of labelling I will provide a short overview of the tomb chapel's pictorial programme and its quantitative aspects.

The decorated part of the chapel is divided into two parts, the large main hall of almost square ground plan, and a small adjacent room (the "shrine") in the axis of the tomb, originally housing Khnumhotep's cult statue. For the purpose of this paper I will adopt a very simplified model of the thematic categories present in the decoration and divide the content of the scenes into three broadly defined categories (for a much more complex and nuanced approach see Kamrin 1999, 46-168). The first group is formed by scenes of "daily life" which show the tomb owner and/or some of his subordinates while overseeing/interacting with people of lower status such as craftsmen, farmers, fishermen, foreigners, *etc*. The focus seems to lie not on the interaction as such, but on the exertion of control and the successful fulfilment of the tasks assigned to the people depicted. While some themes such as the harvesting of flax or the building of ships can (but need not) be interpreted in an exclusively secular context and may represent typical, recurring events, others such as the production of wooden shrines and statues of the tomb owner bear unmistakably funerary connotations and relate to specific occasions.[11] The second group comprises scenes of explicitly religious significance which are mostly tied to the funerary rituals. To this group belong the images of the journey to and from the sacred site of Abydos, the entire southern wall showing the deceased sitting in front of an offering table and receiving défilés of offering bearers, the transportation of Khnumhotep II's statue, depicted above the entrance to the main hall, as well as all the ritual scenes in the small statue shrine. The third group of scenes present Khnumhotep II as the main acting protagonist of a large tableau and exhibit strong symbolic overtones while at the same time remaining within the sphere of earthly experience. They show Khnumhotep II fishing and fowling in the marshes (eastern wall), and hunting desert animals (upper registers of the northern wall).

Even if these three basic thematic categories seem at first quite distinct from each other, they do by no means represent isolated social spheres. Members of Khnumhotep's family and his retainers can be found within nearly every register of the main hall, and some subordinates depicted in the "scenes of daily life" reappear as offering bearers or among the défilés in the large tableau of the southern wall (*e.g.*, the gardener Netjery-

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10   *Cf.*, *e.g.*, the rendering of the word *śn.t* with missing < *t* > in the third column from the right in Kanawati and Evans 2014, pl. 137 with pl. 76a and Newberry 1893, pl. XXXIV.

11   Quite interestingly, "secular" large-scale assignments such as the construction of buildings or works carried out at dykes or canals are never depicted in Middle Kingdom tombs, although such scenes would have been ideally suited to highlight both status and managing competence of the official in charge.

nakht, the like-named scribe Netjery-nakht or the steward of the funerary foundation Netjeru-hotep).

As has already been pointed out by Seidlmayer (2007, 355-365) and Nelson-Hurst (2015, 261), the people depicted in Khnumhotep's vicinity are presented as part of his immediate social environment, and their relative closeness to him may be seen as an indicator of status within the community of the Oryx Nome, the Upper Egyptian province headed by Khnumhotep II. The significance of this "social fabric" is also reflected in a passage of Khnumhotep's biographical text, which occupies the main hall's bottom registers:

> *"he consolidated the name (i.e. memory) of his advisory council (ḫnb.t=f) as distinguished according to their offices, the excellent ones among his house(hold) (prw=f), whom he singled out from his estate personnel (mrw.t), (namely) every office which he controlled and every team of craftsmen (ḥmw.t, or: every craft?) as they exist."* [12]

Taken literally, the statement could be seen as a cue or motto governing the selection of people being included in the decoration of the tomb chapel. According to Nelson-Hurst (2015, 261-262) all those alluded to in the passage and represented within the painted scenes were part of or closely connected with Khnumhotep II's "Social House", *i.e.*, belonged to the family or served the governor's estate in some way or another. However, the motivation to commemorate these individuals within the tomb and thereby demonstrate the tomb owner's status as well as strengthen intra-group identity and social coherence was apparently not strong enough to provide every minor figure with a "hieroglyphic identity" of its own. Even the figures with a label stating name and/or title may sometimes represent "stand-ins" of specific social groups or specialists (in certain cases a hieroglyphic title refers to a group of figures) rather than actual, living individuals. I will come back to this point below.

Some statistics

The representation of Khnumhotep's social environment inside his tomb has already been subjected to prosopographic/quantitative analyses by Seidlmayer (2007, 355-365, tabs. 7-10) and Kanawati and Evans (2014, 15-24). The following table is therefore meant to complement their results by drawing attention to some peculiarities of the distribution of textual identity markers. The limited space makes a comprehensive commentary on the chosen categorisations and their inherent problems unfeasible, but readers should be reminded that the figures given merely highlight tendencies and do not represent incontestable realities.

All in all, the tomb chapel of Khnumhotep II features 455 human figures. Excluding the tomb owner and his core family of two wives, six sons, and four daughters, about 99 individuals are identified by name (*cf.* Kanawati and Evans 2014, 19-24). However, arriving at a precise number is not without its problems since certain like-named fig-

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12 Translation of present author. For the hieroglyphic text see Kanawati and Evans 2014, pl. 108, col. 7-13. For slightly diverging translations of this passage see Seidlmayer 2007, 356-357 and Nelson-Hurst 2015, 262.

Scene category	Total of people represented	Number of people identified through name	Number of people identified through title	Number of people identified through name and title	Percentage of people identified through label	Subgroup: number of supervisors (identified through name/title)	Number of other labels/ captions (speech, action, designation of objects)
craftsmanship and household activities	50	5 (?)	14	13	64 %	10 (5)	9-10
agriculture	32	0	0	4	12.5 %	3 (2)	14
animal husbandry	28	1	7	8	57.1 %	5 (4)	12
fishing	30	0	0	1	3.3 %	1 (1)	3
administration	20	0	1	11	60 %	6 (4-5)	2

Table 1: Textual identification of figures within selected scenes from the tomb of Khnumhotep II at Beni Hassan (BH 3).

ures depicted in different registers may actually represent one and the same individual. In addition, certain labels have been lost or are too poorly preserved as to ascribe them to a specific category.

Some comments on the table

When comparing the values for the different categories, the high percentage of figures identified through name, title or both within the scenes depicting craftsmanship and household activities (occupying only 6.7 % of the decorated wall space) immediately strikes the eye. Looking solely at the activities relating to woodwork and the production of funerary equipment or implements makes the contrast to the scenes featuring agriculture or fishing appear even more striking. For example, the lower-most register of the southern part of the main hall's western wall depicts 13 individuals involved in the production of cultic/funerary goods, tools and objects of the minor arts (Fig. 2, lower register). Of these, at least 7 to 8 (uncertainties are due to some half-destroyed hieroglyphic labels) are identified by name alone or by name and title and are thus fully individualised. One may ponder whether this indicates that the draughtsmen/artisans responsible for designing and decorating this part of the tomb had a say in the concrete choices of labelling. If there was indeed the intention to commemorate a number of their colleagues in a way transcending the specifications defined by the tomb owner and his representatives, it remained clearly within the confines of common conventions, however. Completely different in the amount and quality of labelling are the scenes devoted to agriculture and fishing. There, the few figures with identifying labels represent largely supervisors which do not carry out physical labour, and much space above the figures is taken up by labels/captions describing activities or citing instances of direct speech. The low degree of individualisation within these scenes seems congruent with the low social status attributed to the respective trades in Egyptian textual sources (*cf.* Caminos 1990; Jäger 2004, 181). In contrast, the protagonists of the scenes depicting administrative activities such as registering grain or cattle are predominantly identified through names and titles. This does not come as a surprise since they represent the social group of literate specialists singled out in Khnumhotep's biographical inscription as the backbone of his "Social House". But how then to account for the high percentage of named individuals in the scenes relating to herding and animal
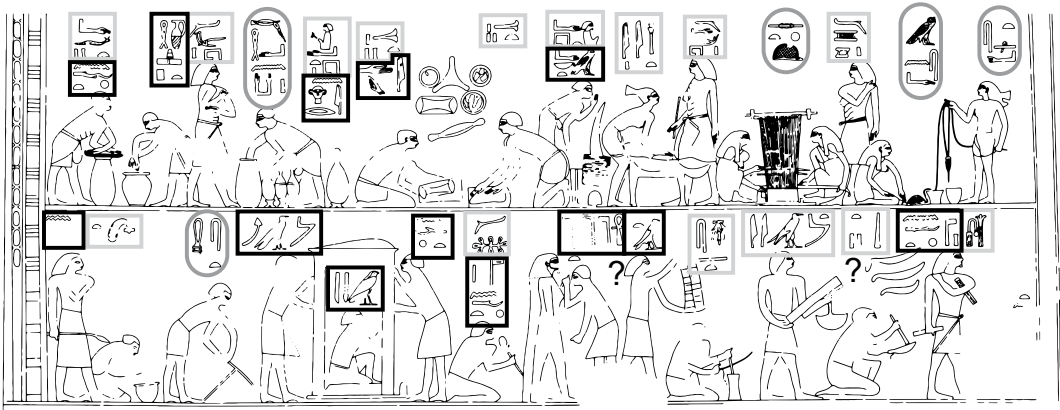
Figure 2: Tomb of Khnumhotep II, Beni Hassan (BH 3): Scenes depicting domestic activities and craftsmanship in the two lower-most registers on the southern part of the main hall's western wall. Light grey rectangles indicate "titles", dark grey rectangles indicate "personal names", grey rectangles with rounded edges indicate "labels of action". Adapted from Kanawati and Evans 2014, pl. 121, bottom.

husbandry? Part of the explanation is perhaps to be sought in the fact that nearly all labelled figures of this category belong to the rows of cattle and other domestic animals being presented to Khnumhotep's magistrates in order to be counted and registered (lower registers of the northern wall). This scene runs parallel to the rows of sacrificial animals depicted at the opposite southern wall and, from a certain perspective, figures as their precondition. The high degree of labelling on these two opposing walls is perhaps related to the wish to record the resources which Khnumhotep II could draw on for his afterlife and funerary cult also on a textual level, thus providing a complement to and expansion of the actual offering lists.

Some guiding principles of labelling

As evidenced by Khnumhotep II's tomb, the tendency towards providing elaborate captions and labels for scenes is far more pronounced if the scenes are explicitly religious in nature and/or if the tomb owner is present. The return from Abydos (Kanawati and Evans 2014, pl. 121, register 3), depicted on the southern part of the western wall, combines both factors, although the representation of Khnumhotep II himself is not specifically labelled apart from his mention within the lengthy infinitival scene title. The scene also features labels for eight individuals, stating their names and titles (mostly members of Khnumhotep's family and/or officials belonging to his personal staff), and designating two groups of Khnumhotep's offspring. In addition, the register records three instances of direct speech attributed to anonymous sailors depicted as standing on the bows and sterns of the two boats. Another sailor called Seankh-Khnum is twice identified through name and title (or, rather, his occupation "sailor") and perhaps associated with one of the captions of speech. Notwithstanding the limited space available for hieroglyphic labels, which precluded the identification of every figure, it is hardly a

coincidence that with the exception of Seankh-Khnum all the people identified by name and title belong to the ships' passengers rather than to their crews.

In scenes focussing on craftsmanship or physical labour labels are more restricted and the principles guiding their application do not always suggest themselves. As a general rule of thumb, titles seem to bear more importance than names or the identification of activities, which is usually accomplished by using an infinitival verb form with or without a limited number of nominal complements. Quite interestingly, compared to the tombs of the Old Kingdom, descriptions of activities occur rather rarely in tombs of the Middle Kingdom, and the general degree of labelling varies considerably even within one and the same necropolis and a limited time span. For example, the aforementioned tomb BH 2 of one of Khnumhotep II's predecessors shares a common repertoire of scenes of "daily life" with BH 3 (Newberry 1893, 9-38, pls. XI-XX; Rabehl 2006, 339-340, 371-372), but the quantity of captions and labels is significantly lower (*cf.*, *e.g.*, the production of flint knives, which is represented in both tombs in a similar fashion: Newberry 1893, pl. XI, top register [BH 2]; Kanawati and Evans 2014, pl. 121, register 5, right [BH 3]).

This and other discrepancies on the level of labelling beg the question whether iconography and accompanying texts were always transmitted and adapted in similar ways. While it is evident that the figures representing members of Khnumhotep II's family and entourage received specifically designed or "updated" name labels referring to real individuals, this need not be the case for every labelled depiction of a subordinate. It is at least suspicious that the common name "Nakht(y)" occurs about 15 times among the subsidiary personnel (irrespective of potentially unrecognised double counts, *cf.* Kanawati and Evans 2014, 21), and one may doubt whether this genuinely reflects the onomastic distribution among Khnumhotep's workforce. If not, the name could have represented to the Egyptians of the 12th dynasty a generic marker of interchangeable identity, thereby equalling modern-day English usages of "Johnny Everyman", which acts as a variable to be replaced with any concrete name at will.[13]

Some final remarks

Given the fact that textual scene information relating to activities and protagonists beyond the tomb owner and his inner circle was clearly non-obligatory, the conceptualisation and selection of labels could at least in part have taken place after the pictorial elements of the scenes had already been sketched or painted. Whether the draughtsmen/artisans responsible for putting the hieroglyphs on the walls had any influence on the system of labelling and could exert agency transcending merely technical execution is difficult to judge based on the existing sources. What is also difficult to assess is the precise function of labels designating an action which seems, at least to us, rather obvious based on its pictorial representation. Apparently, the ancient Egyptians felt a benefit from applying the label *wtś* "sawing", to the image of a man shown sawing through a piece of timber that has been bound on a pole lowered into the ground (see

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13 One has to admit, however, that "Netjery-nakht" is almost as frequently represented among the labels as "Nakht(y)". The latter name can also function as an abbreviation of the former, making things even more complicated.

Kanawati and Evans 2014, pl. 120, first register, right). While one might argue that the inclusion of such hieroglyphic labels added to the general efficacy of the tomb decoration on a religious/magical level, the many tomb models depicting similar scenes (*cf.* Winlock 1955, pls. 28-29 for the model of a carpenter's shop from the tomb of Meketre) apparently did not require analogous textual commentary. Admittedly, no models from the burial of Khnumhotep II have been preserved, but I would suspect that any such models/dioramas originally associated with it were comparable to those on record in terms of their inclusion of texts. As has already been alluded to above, this discrepancy may derive at least partially from the different production procedures and environments characteristic for both groups of sources. Whereas the decoration of rock-cut tombs required a substantial number of highly trained specialists, some of whom possessed advanced skills in reading and writing, the fabrication of wooden models was a task that could, in theory, be carried out at any household or institution that was subjected to Khnumhotep II's domain or held relations with it. The need for a scribe did probably not arise in such working environments, and a subsequent application of hieroglyphic or hieratic labels was perhaps considered unnecessary.

Be this as it may, the use of labels/captions within tomb chapels and the pictorial/textual representation of the tomb owner's subordinates are very complex issues that need to be carefully studied for each necropolis and for each tomb separately before one may dare to arrive at generalising conclusions. The present contribution is merely an attempt to re-frame certain questions related to the social aspects of tomb decoration, and hopefully encourages future research in this direction.

Acknowledgements

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Precious Things?

The social construction of value in Egyptian society, from production of objects to their use (mid 3rd – mid 2nd millennium BC)

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Abstract

From the end of the Old Kingdom to the beginning of the Middle Kingdom, Egyptian society changed dramatically: the collapse of the central power of the Crown during the First Intermediate Period resulted in a reorganisation of social groups and their relationships, especially within the elite, who were seen as the primary sponsors and consumers of craft production. The main purpose of this study is to deepen our knowledge of the processes through which objects were given different and changing values, by their makers and users, depending on social developments in Egypt during the Late Bronze Age. Precious things were usually considered as such because of the use of luxury materials, high quality of manufacture and royal provenance. They were seen as the privileged possessions of the elite. However, the study of artefacts such as stone vases and metal ornaments allows us to analyse how different social groups could acquire them and change their value. In fact, different means of production and acquisition, as well as the possession and different uses of luxury objects can reveal which symbolic, as well as material values were embodied in them and displayed.

Keywords: Craft production; distinction; elite; exchange; gift; hierarchy; jewellery; material culture; prestige; relational network; reward; stone vases; wealth.

For times when craftsmen did not sign their works and seldom left traces of their names and lives, their creations remain one of the few ways to gain some knowledge about this group of individuals, who are now defined by craft activity but nonetheless

in: Miniaci, G., Moreno García, J.C., Quirke, S. and A. Stauder (eds.) 2018: *The Arts of Making in Ancient Egypt*, Sidestone Press (Leiden), pp. 117-138.

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were socially heterogeneous. In the field of archaeological, luxury and prestige objects have constituted an important focus of attention for researchers, as such artefacts seem to reflect the wealth and high technological degree of the Egyptian civilisation. The usual assumption is that these remarkable objects, distinguished from the others by their rare materials and their good workmanship, were produced by state workshops, controlled by state departments and restricted to the king, his close relatives and high servants. As a result, our understanding of Egyptian social structures and relations is based partly on our own perception of the object's value. But how can it be assessed? From studying the geographical distribution of goods in the different cemeteries at Abydos, Janet Richards has established an analytic methodology to measure the value of each artefact in order to determine socio-economic groups of individuals buried at Abydos during the Middle Kingdom (1997 and 2004). She has proposed several criteria that made objects expensive and highly desirable: the scarcity of materials, the remoteness of location and the difficulty of accessing their sources, the means of transport and, finally, the process used for their manufacture. Nevertheless, the various ways in which different social groups used luxuries like stone vases and metal adornments over the long-term evolution of the 3rd millennium BC incite us to take into account the changing nature of the value assigned to such objects.

Prestigious objects: luxurious objects?

Scarcity of raw materials and their diversity

One of the original factors that created the value of things produced by craftsmen was a physical one: the quality of the raw materials that they had to transform. Furthermore, the more difficult it was for a material to be found, the more valuable it was, as not everyone could get it. In Egypt stones and metals can be considered among the most prized materials because of their scarcity and the remoteness of their sources, far away from the Nile Valley (Karlshausen and De Putter 1992, 144 fig.7; De Putter 2000, 15-24; Baines 2000, 29-33). For instance, if limestone was relatively well spread out throughout the country, the best quality stone was localised at Turah, on the east side of the Nile opposite the capital of Memphis (Karlshausen and De Putter 1992, 61-69; Klemm and Klemm 2008, 23-145). Among soft stones, different varieties of calcite and limestone were exploited as early as Predynastic times for their ease of working and for aesthetic properties (Klemm and Klemm 1993, 199-223). From at least the end of the 4th millennium BC onward, craftsmen used the various colours and visual properties of these materials to make elegant vases intended to contain costly ointments and cosmetics for gods, kings, their relatives and high officials (Altenmüller 1976; Serpico and White 2000a; *eid.* 2000b; Quickenden *et al.* 2003; Walter *et al.* 1999). Luxurious stone vases found at Nagada, Abydos and Saqqara show that the needs for lavish objects in the royal court and among the provincial elite stimulated high-quality craftsmanship (Petrie and Griffith 1901, 27, pl. IX.2; Aston 1994, 62-68). This raises questions as to how workshops were provisioned and for whom the craftsmen worked. In the course of the 3rd millennium BC, craftsmen forsook the diversity of stones selected for the production of vases and favoured calcite (De Putter *et al.* 2000, 49-62, tab.5). Obtaining the best quality of this stone required leaving the Nile Valley in

Middle Egypt and taking the desert track to the Hatnub quarries (Shaw 2010). When calcite was not available, craftsmen replaced it with less expensive white stones like limestone or gypsum, maybe to satisfy less important people (Bevan 2007, 66-67). Hard stones like granite, diorite, gneiss and greywacke were even rarer, concentrated in a few quarries located in Southern Egypt and Nubia. The quarries providing red granite were located far to the South in the eastern desert margins of Aswan, more than 800 km away from the ancient capital of Memphis. This specific stone was prized by kings and needed consistent logistical means to be carried to craft workshops. Granite, which is extremely hard to work, had to be cut into blocks on the spot, then loaded onto vessels and transported by water to the places of its transformation for the benefit of kings and elites (van der Heyden 2000, 73-77; Espinel 2007). Gneiss also remained rarely crafted and became restricted to the royal sphere. Highly sought-after for its aesthetic properties, it was exploited at Gebel el-Asr in the Nubian region of Toshka, more than 1000 km away from Memphis (Bloxam *et al.* 2002; Bloxam *et al.* 2001; Bloxam and Shaw 1999).

Similarly substantial efforts had to be made to supply workshops with metals such as silver, gold and copper, even though the latter circulated throughout society. Mineral ores were exploited outside the Valley in desert areas. Copper was present along the length of the Eastern Desert into Nubia and also in the southern Sinai (Ogden 2000, 149-155). Mining sites in these regions were already exploited during the 4th millennium BC, and the development of metallurgical processes is attested there for the following two millennia. Additionally, Egyptians seem to have imported copper from southern Canaan through an Asiatic exchange network that connected sites of copper producers, such as Wadi Feinan and Timna, with other Asiatic sites of consumers as well as with Egypt. For gold, supplying goldsmiths required expeditions to mining sites located southward in the Eastern Desert, on the border of Egypt and in the Sudan (Klemm and Klemm 2013; Ogden 2000, 161-166). Obtaining silver was even more difficult, as Egypt lacks native silver and silver ore sources within its territory. Consequently, it has been thought that silver was imported from abroad, from Anatolian mines or Lebanese sites north of Byblos. Nevertheless, other metal ores such as nickel, lead and electrum contain low silver content that could have been extracted by Egyptian craftsmen as early as the mid 3rd millennium BC (Ogden 2000, 170-171). Owing not only to scarcity and the difficulty of access to their sources but also to their aesthetic properties, stones and metals were desirable materials that were crafted to create luxury objects first restricted for gods, kings and elite members of society.

Control of resources: a royal monopoly?

Due to supply difficulties and their precious nature, these materials have been thought to have come under a royal monopoly. Textual and archaeological data testify to the official exploitation of mineral and metal resources of the desert, but almost nothing is known about private initiative, including if it even existed (Kemp 1989, 232-260; Warburton 2007, 79-94; *id.* 2008, 265-266). Because mining sites and quarries were located in desert areas far from the Nile Valley, their exploitation required thorough arrangements for expeditions that were in charge of extracting, gathering and transporting stone blocks and geodes. According to rock inscriptions, during the 3rd and 2nd millennia BC expeditions were organised in a military manner and managed by official

agents of the Crown (Strudwick 2005, 328-333, 352-357; Couyat and Montet 1912, 80, no. 113, 82-83, no. 114). However, archaeological data suggests that resources situated in Wadi Feinan and in the Negev were controlled by Palestinian tribes at the beginning of the 3rd millennium BC, as rock inscriptions and scenes in the Sinai show contemporaneous Egyptian kings smiting foreign enemies with maces (Gardiner and Peet 1952/1955, 3-17, 53-56, pl. I and IV.3; Giveon 1974). This iconographical theme was depicted throughout pharaonic history, and on rocks its aim was to remind all travellers that the desert and its natural wealth, such as copper and turquoise in the Sinai, belonged to the Egyptian sovereigns (Ibrahim and Tallet 2008; Gardiner and Peet 1952/1955, 56-66, pl. II-X; Giveon 1977; *id.* 1978; Bonnet and Valbelle 1996). According to these rock carvings, taking possession of a territory involved exploiting its resources and subjugating the tribes that crossed the desert and lived on the borders of Egypt (Mumford 2006; Mumford and Parcak 2003, 84-94; Redford 1986, 136-139). So, missions sent to collect mineral and metal ores appear to have been supervised by military commanders or royal officials. At Hatnub (calcite), Wadi el-Hudi (amethyst) as well as in Wadi Hammamat (greywacke), rock inscriptions carved along roads to the quarries present lists of official tittles and even biographies bearing witness to participants in the missions. This documentation reveals that missions were overseen by official agents of the king and were organised periodically by the Crown as needs arose (Eichler 1993, 281-284). In such specific contexts several officials are mentioned: leaders of the land under the first dynasties, treasurers of the god during the Old Kingdom and the First Intermediate Period, then viziers, great overseers of provinces or heralds during the Middle Kingdom and maybe also chefs of the Western Desert, *inter alia* (Eichler 1993, 147-149, 158-168). These titles remind us that the administration of the Egyptian territory and its margins was a State prerogative.

Furthermore, archaeological excavations have brought to light the significant logistical means set up to acquire, transform and transport stone blocks and metal ores from remote quarries and mines of the surrounding deserts to their sites of manufacture and "consumption", *i.e.* to royal construction sites and workshops, primarily of royal capitals. For instance, at Gebel el-Asr stone loading ramps were built to facilitate the transport of gneiss blocks extracted from Chephren's Quarries (Bloxam 2000). Thanks to this system, expeditionary troops could limit land transport and favour water travel by joining Wadi Toshka and the Nile, with which it was connected. The infrastructure established in this desert area presents a scale and cost of completion that seem to exceed the capacities of just an individual or group of individuals (Carlens 2003; Golvin and Goyon 2004, 175-217). Moreover, the complexity of the communication system linking the desert quarries to the Nile was based on a precise knowledge of the topographical features of this region and required a clever understanding of the possibilities for using and planning the land. Obtaining minerals and metal ores involved investments and interventions by the Crown, which had to capture a share in the exploitation of resources and oversee the transport of raw materials previously in the hands of foreign tribes or provincial elites. Specifically, the Treasury Department and Royal Ornament were responsible for supplying the Palace with rare and precious materials (Aufrère 1991, 360-363). Ayn Sukhna attests to the presence of the Crown and spatial organisation intended to maximize a metallurgical production (Abd el-Raziq, M. *et al.* 2011, 5-49). The remains of boats and royal sealings dated from the 4th and 5th dynasties

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have been found that testify to the monarchy's interest in this port site, which could have been arranged to join the south-western Sinai with its mining camps and furnaces (Tallet 2012). An important smelting operation was installed at Ayn Sukhna during the 12th dynasty with no fewer than forty furnaces organised in batteries. As no copper ore deposit has yet been found in the vicinity, it has been hypothesised that Egyptian work crews crossed the Red Sea and imported copper ore from the Sinai. So, archaeological and epigraphic documentation point toward important royal investment and a standardized, strict organisation of work to acquire metal. All these conditions partially explain why objects manufactured from these materials by craftsmen could have been regarded as luxurious and destined primarily for the king, his family and their relatives. If a royal monopoly existed for rare, foreign and precious materials, serving the State and gaining the king's favour would have been the sole means for individuals to obtain precious items made from these materials, such as stone vases and metal jewellery. Yet, the contexts in which these artefacts have been found are so varied that it is impossible to accept the idea of an Egyptian economy based only on a royal monopoly and the redistribution of precious materials and goods (Eichler 1993, 1-25; Kemp 1979. *Cf.* Masetti-Rouault 2008 and Rouillard 2005 about Karl Polanyi's concepts).

Quality of craft production

What gave value to objects was not only the price of the materials worked by craftsmen but also the quality of the craftsmanship. This can be appreciated through the fine objects found in royal and elite tombs, but it is more difficult to find archaeological data for the processes of fabrication, apart from physical and chemical analyses of artefacts. With regard to stone processing, German excavations at Elephantine have brought to light an economic area with a stone workshop near the walls of the ancient town (Kaiser *et al.* 1999, 77-80). Dated to the first half of the 3rd millennium BC, this workshop included several rectangular rooms and open courtyards with fragments of vases made from diorite, calcite, sandstone, and limestone, along with stone tools such as pounders, drills and polishers clustered around work plates. As few stone fragments have been retrieved, it has been concluded that the stone cutting occurred somewhere else, probably at extraction sites, while the small number of drill cores recovered on the spot could indicate their reuse as tools. On the contrary, a lot of stone powder mixed with quartz resulted from the processes of stone drilling and polishing. These processes are illustrated in tombs of officials like Ty at Saqqara from the 5th dynasty (Wild 1966, pl. CLXXIII). Here, craftsmen are depicted engaging in different stages of stone work, notably the making of vases. The question arises as to whether these kinds of iconographic representations refer to royal workshops managed by officials or to private workshops controlled by prominent personalities in society (Drenkhahn 1976, 136-40). At Elephantine the archaeological context, as well as royal and official sealings recovered in the town, point rather toward a State workshop operating according to a division of tasks. For metal working, excavations and survey in the Sinai and at Ayn Sukhna have provided archaeological data about hundreds of productive units combining furnaces used during the Old and Middle Kingdoms (Abd el-Raziq *et al.* 2011, 5-49). Reduction furnaces, tables for grinding and sorting and crucibles have been discovered. Thanks to these finds, the first operations of metal processing are archaeologically well-informed: the ore reduction, the crushing of slag to gather

metal bits and the recasting of the latter to obtain bigger, transportable metal pieces. As has already been said, the remote situations in desert zones and the organisation of furnace batteries join with epigraphic documentation to point toward metallurgical activity managed by the State. As for stone processing, iconographic scenes in elite tombs show activities of craftsmen working metal, but the stages depicted are the last ones in the process: the recasting of metal in crucibles heated by men using blowpipes to fan the hearth, the weighing of metal under the control of a scribe and the making of jewellery, especially broad collars (Wild 1966, pl. CLXXIII). Again, the question arises as to whether these depicted workshops belonged to the Crown or to a private domain.

Nonetheless, stone or metal objects were considered all the more luxurious and highly desirable because they had been manufactured by specialised craftsmen. Because of their skill, craftsmen were authorised to manipulate and transform precious materials that official emissaries brought back from remote, marginal areas and that the Treasury Department kept on behalf of the Crown. Comparative studies of several corpora of products, such as vases and stelae, have revealed that their technical and aesthetic differences resulted from the fact that several workshops or "schools of craftsmen" existed throughout the country with their own traditions, producing in a "Memphite style" or in a "provincial style" (Wildung 1999). It is very likely that in the main provincial towns of the South, such as Dendera, Coptos, Elkab and Edfu, the needs of powerful local elites generated provincial production of lavish objects and then stimulated the work of provincial workshops (Brovarski 1989; Arnold 1991). In any event, craftsmen needed to devote themselves fully to their specialised work in order to create high-quality items. The Crown and the elite were certainly their best sponsors for gaining satisfactory working conditions. Very fine objects illustrate the great skill of craftsmen who were in the service of the royal family and of the elite. Silver bracelets inlaid with semi-precious stones belonging to Hetepheres, Cheops's mother, testify that goldsmiths were able to extract silver from local ores that contained silver, such as nickel, lead ore, gold and electrum (Reisner and Smith 1955, 43-44, fig. 44, pl. 36-38; Ogden 2000, 170-171). Rather than waiting for foreign imports, they could exploit Egyptian metals, retrieving and hammering a small quantity of silver into thin sheets that were crafted so as to give the illusion of solid silver (Harris and Lucas 1989, 246-248). The skill of craftsmen is also visible in fine gneiss cups made for Queen Neith, wife of Pepy II, buried at Saqqara in the 6th dynasty (Jéquier 1933, 29-31, ill.10-12; *id.* 1934, 105-113). These cups were carved from a very desirable hard stone, with scalloped edges that imitated the style of fine ceramics of 500 years earlier, which were also appreciated by elites buried at Giza in the 4th and 5th dynasties 200 prior. In this way, craftsmen displayed their skills by copying objects originally formed from clay by carving them from hard stones, a much more difficult technique to employ, and by adapting ancient shapes to new precious materials (Arnold 1999; Aston 1994, 123, 137, fig. 9-14.). The time spent to produce an object was also an important factor that created value (Midant-Reynes 1987). Quarrying granite was so hard, painful and time consuming that the administrative authorities sent criminals to do this "slave labour". When granite blocks arrived in the workshops, craftsmen needed four to five times more working days to produce granite vases as to produce limestone vases (Bevan 2007, 40-54; *cf.* Vlčková 2006, 14-15, tab.1.1.). Even if the traditional hegemony of the Memphite region in

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the field of craftsmanship has to be put into perspective, it is known that the Crown was a major dispatcher of luxury objects that were made of precious materials in the experienced workshops of the palace.

Prestigious objects and royal policy

Gifts of private individuals to the king

During the Old Kingdom, possessing luxury objects made of rare and costly materials, such as stone vases and metal jewellery, remained predominantly a privilege of the elite. As these objects embodied social hierarchy and expressed the power of their owners, they conveyed prestige. Texts and archaeology bear witness to the official circumstances under which such objects were granted and displayed. Yet, at the beginning of the 3rd millennium BC two different practices of giving existed. In the 3rd dynasty King Djoser accumulated tens of thousands of stone vases in the numerous underground galleries of his funerary complex (Macramallah 1936). Such quantities of precious goods seem to reflect the huge expenditure of the king for exploiting, transporting and manufacturing remote and rare stones like calcite, granite, diorite and porphyries. However, the different shapes, materials and inscriptions of these vases reveal that all of them were not from the same origin and time period. Actually, Djoser had withdrawn pieces from the treasury stocked by his predecessors (Lacau and Lauer 1959/1961; Helck 1979). Moreover, several vases present different types of inscriptions: inscriptions carved outside mention kings of the first two dynasties and sometimes private individuals as recipients, while inscriptions painted inside mention the names and titles of private donors (Lacau and Lauer 1959, pl. 7-8; *eid.* 1961, pl. 5, 22; Kaplony 1968; *id.* 1965, 40-42, n. 3). According to these inscriptions, these vases were brought to early kings during the Sed-festival. They appear to have been offered by master craftsmen such as sculptors, by high officials, especially those responsible for supplying the Royal House with cosmetics and ointments, and by local rulers of Middle Egypt in charge of the province in which the Hatnub quarries were located (Aufrère 2003). It is difficult to specify the social status and origin of these craftsmen, but as their names and titles were written on luxury stone vases offered to the king, they were obviously considered a significant socio-professional group. Thus, stone vases could represent tributes that materialized the allegiance of provincial leaders who controlled desirable resources towards the newly established central power, illustrating also the appropriation of skills mastered by renowned, specialised craftsmen. Consequently, the luxury products given to the king symbolised the extension of the royal authority over the kingdom. They were kept in the Treasury stores over generations as royal heirlooms and constituted a precious stock of luxury and prestige objects for subsequent kings. By reusing them, Djoser limited the expenditure devoted to his own funerary goods.

Gifts of the king to his loyal servants

Royal inscriptions carved on stone vases as well as private biographies attest that, during the Old Kingdom, luxury objects were given ceremonially by the king to reward high officials or to honour temples (Minault-Gout 1997; Ziegler 1997). The 5th dynasty biographies of Washptah at Saqqara and Senedjemib Inti at Giza specify that stone ob-

jects were crafted in royal workshops and offered by the sovereign to his servants (Kloth 2002, 168-173, 214-217, 331-333 fig. 4.b and 4.d; Brovarski 2000, 90-92, fig. 31-33, pl. 58-61). Other biographies also mention that gold amulets were given as rewards to deserving agents like Nekhebu at Giza in the 6th dynasty (Dunham 1938). Archaeology confirms this practice, as stone vases, often calcite, and gold amulets have been found in tombs of queens and great servants of the State representing the sovereign throughout the land (Dunham 1978, 29-34, pl. XVII-XXVIII; Lehner 1996; Limme 1999-2000; Limme, Hendrickx and Huyge 1997). At Balat the oasis, governor Medunefer possessed gold amulets shaped like deities and divine symbols or animals (Valloggia 1986, 32-41). Their forms, even more than their material, distinguish these ornaments from common amulets, as they refer to Memphite religious traditions (Dubiel 2012). The royal act of granting luxury objects made them prestigious, as they were linked to the monarchy and symbolised its capability to control the country's wealth. The social and geographical distribution of stone vases shows that these luxury and prestige objects were assigned primarily to elite members of the Memphite region and the provinces. The recipients of stone vases were buried primarily in the royal necropoleis of Giza and Saqqara. This concentration should be linked with the activity of royal workshops responsible for supplying the king and his court with precious goods and with the presence of many officers of the Crown working in the Residence: in the Memphite region potential recipients of craft production were numerous (Sparks 2003, 43-46).

Outside the Memphite region, rulers of southern provinces and frontier areas were rewarded with royal gifts above all. Three quarters of the stone vases inscribed with royal patterns and cartouches have been found in southern provinces like those of Edfu, Elkab, Elephantine and Balat. At Edfu and Balat the owners of huge mastabas possessed calcite vases inscribed with royal designs and cartouches of Teti and Pepy II (Bruyère *et al.* 1937, 33-36 fig. 13, 107, no. 42, 109, no. 59, pl. XVII, XXII; Minault-Gout 1997, 307-308). One of the female relatives of the oasis governor Khentyka had taken with her an outstanding vase crafted from an ostrich egg and decorated with an open-winged hawk (Castel *et al.* 2001, 189 (P61), 279-294, fig. 121, photos 142-143). This object bears a royal emblem on its underside that relates to the Memphite tradition, but it was made of an exotic material brought by African trade. It was most certainly crafted in a local workshop according to the criteria of formal culture. The same hypothesis can be proposed for the manufacture of three prestige objects belonging to governors of Balat: a group of statues of Ima-Pepy I and his wife, and a statue of Medunefer – both carved in a local limestone but with several adaptations of the Memphite style (Valloggia 1989; Cherpion 1999)- and a limestone stele made for Desheru, inscribed with clumsy hieroglyphs but according to a formal layout (Ösing *et al.* 1982, no. 14, pl. 3 and 57). If it were not for the format of this stele and the status of its owner, one might believe that such a roughly made object was not intended for an important person. Several clues lead us to think that provincial workshops crafted local materials and imitated models, borrowing from the high culture to supply local elites with prestigious goods. Nevertheless, royally inscribed stone vases were used by Egyptian kings to honour their provincial officials and probably also foreign rulers. By offering royal gifts that bestowed prestige, they displayed their wealth and strengthened their relational network in Egypt and in Near Eastern city-states. Thus, Egyptian craftsmanship was used to enhance royal policy and diplomacy.

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Gifts of the king's loyal servants to their close relatives

Whereas private biographies bear witness to the prestige and added value acquired by luxury objects at the time of their ceremonial granting by the king, archaeology reveals that they were not restricted solely to the elite and that their diffusion within society transformed their symbolic value (Sahlins 1972, 191-196; Appadurai 2006, 3-63). Indeed, stone vases and metal jewellery like gold amulets have been discovered among the grave goods of persons with no obvious link to the royal court or to the central administration. Whereas the acquisition of luxury objects by elites can be explained as royal gifts to prominent agents of the State, the relative diffusion of these objects among individuals without official administrative duties can be explained as gifts from these great agents in favour of their dependants, relatives or servants. In the necropolis of Balat in the Dakhleh Oasis, the archaeological context more clearly documents the identities of the individuals owning luxury and prestige goods. Besides the oasis governors, their close relatives received ointment vases and cosmetic pots made of stone. Igit, the wife of Ima-Pepy I, owned at least 38 vases. Among these, two specimens bore royal emblems and names (Valloggia 1998, 26-28, pl. XIV, XXIII, XXVI.A; *id.* 1980; *cf.* Fischer 1993). These details indicate that the grave goods of Igit were at least partially crafted in the workshops of the Palace and supplied by the Treasury or the Ornament Department (Eichler 1993, 281-285; Aufrère 1991, 362-363). Indeed, this important woman held the titles of "governor's wife", "royal acquaintance" and "royal noble," and she could have frequented the Court like her husband before following him to this remote oasis. Consequently, she could have been favoured by the king as a noble woman or by her husband, who kept royal gifts and could distribute them to his relatives (Pantalacci 1997). Thus, the provincial elite participated in promoting the material culture and lifestyle of the Palace.

Furthermore, patronage relations could explain how modest individuals sometimes enjoyed the use of precious goods. At Balat spatial distribution mapping of stone vases in the secondary tombs that surround the great mastabas strongly suggests that the oasis governors imitated the royal policy of donation, making redistributions to favour their dependants by giving them a portion of the gifts they had received from the king. Within the enclosure of the mastaba erected by Ima-Pepy I, the secondary tombs built in the forecourt mostly contained calcite vases. This was also the case in the tomb of Idi, a "royal noble" and an "oasis inspector" who owned two such vases (Valloggia 1998, 30, pl. XIV-XVI, XXIII-XXIV, XXVII-XXIX. Pantalacci 1998, 831-832). There were officials among those in the necropolis buried with precious objects, but most of these privileged people were women, specifically persons with no obvious official responsibilities within the central or local administration (*cf.* Seidlmayer 1987, 185-190). In their cases, it is unlikely that the presence of luxury goods by their sides was due to administrative services to the Crown, but rather because of their affiliation with the palace of Balat as well as to their inclusion in the entourage of the governors. Therefore, stone vases, which were luxury goods, became prestige goods for high officials and their relatives: given by the king, they symbolised not only wealth but also the importance of social networks, built up by elites with the king and his court. Stone vases were conspicuous signs of the royal generosity when they were given. They materialized not only the monarch's power and his capability to control resources but also the dignity of his distinguished servants. In turn, the latter could display these luxury and prestige

objects to emphasize their rank when it had been officially recognized by the Crown. Otherwise they could redistribute these royal gifts to show themselves as generous donators, following the model of their sovereigns. In doing so, royalty disseminated its own culture throughout the country, both in temples and within provincial ruling families (Posener-Kriéger 1976, 565-609; *ead.* 1979; *ead.* 1991; Vymazalova 2006a; *ead.* 2006b; Minault-Gout 1997). Even if found in local workshops, this type of production also borrowed from the Memphite tradition during the 3rd millennium BC.

Prestigious objects and their dissemination

Economic exchanges

In necropoleis of less richly endowed provincial communities, such as those of Qau, Badari and Matmar during the Old Kingdom (Brunton 1927; *id.* 1928; *id.* 1930; *id.* 1948) or Hu and Abydos during the Middle Kingdom (Petrie 1901; Richards 2004), neither inscriptions nor archaeological data establish any link between luxury goods, such as stone vases and gold adornments found mainly in women's graves, and a redistributive institution responsible for representing royal or local authorities. Unlike at Balat, no official foundation is known at these sites. Precious goods don't seem to have had any link with the monarchy in these local contexts. For this reason, even if they could always be considered luxuries, they certainly lacked the prestige value attached to royal gifts. Consequently, the presence of calcite vases and metal ornaments in apparently modest communities should be explained by mechanisms other than gifting by a master to his dependants. Exchanges of goods and services between individuals outside State control formed another framework for the distribution of objects among social groups beyond the elite. As outlined by Barry Kemp for the Hatnub quarries, apart from royal expeditions responsible for bringing back the best quality calcite to the court, opencast working in quarries could have provided passing travellers with opportunities to recover residual blocks abandoned on site by official work crews and thus to supply themselves (Kemp 1989, 246). Therefore, small quantities of calcite could have circulated and been carved by craftsmen for themselves or for private demand. Written data about the conditions of commercial transactions are scarce, but iconography provides some clues about them. A few reliefs decorating funerary chapels of the 5th and 6th dynasties display scenes of exchange and even remuneration of individuals for their services (Bárta 1998, 30-32). At Saqqara Akhethetep's chapel shows this royal courtier receiving the delivery of linen fabrics. In exchange, female weavers are given "rewards", namely gold jewels. These are coupled with two little pots and five big stone vases that are usually designated for perfumed oils and ointments (Ziegler 2007, 92-96; *ead.* 1993, 116-124). This kind of scene has been depicted and captioned in several mastabas. It allows us to think that wealthy individuals could imitate royal behaviour and grant precious goods like gold ornaments, stone vases and ointments to workers who had served them in a satisfactory manner. In all cases, the items given required the knowledge and skill of craftsmen to be produced.

Furthermore, the same types of stone vases have been identified among the traded goods depicted in a few market scenes, also dated to the 5th and 6th dynasties. At Abusir in Lower Egypt a relief decorating the chapel of the funerary priest Fetekty

shows a woman bringing *setj*-oil in two little pots to a merchant who squats in front of a cylinder vase – destined "to make him satisfied" – while two other men exchange strings of beads for food (Bárta 1998, 22). At Saqqara, in the chapel of the funerary priest Tepemankh, another scene depicts a woman bringing a similar vase made of calcite to a stone sculptor so that he can engrave it with the name of the Tepemankh (Hodjash and Berlev 1980; *eid*. 1982, 33, 36, 38-39; Der Manuelian 1999). In both chapels, the shape of the vases and the caption beside the representation enable us to recognize calcite vases. In the market scenes they are obviously used in a situation that shows an exchange of services. However, it is not known if the exchange depicted in a funerary context represents a reality that would have happened at open marketplaces, motivated by private initiative or in an official setting controlled by the Crown. Nonetheless, sellers and buyers appear to be modest individuals belonging to three socio-professional categories: peasants, manual workers and craftsmen. Thus, each of them appears to put forward what he is able to produce in exchange for what he needs but doesn't produce (Bárta 1998). According to these data, it is likely that a craftsman specialised in the manufacturing of stone vases or metal adornments, working in order to satisfy primarily the demand of the king and his court on the one hand, while on the other hand responding to the desires of private individuals who wanted to acquire luxury objects without administrative service, outside any official circuit of "gift and reward'. In exchanging his products, a craftsman was thus able to provide himself with commodities and foodstuffs he needed. In the context of modest local communities, acquiring precious goods such as stone vases and gold jewellery didn't only depend on patronage relationship, but could also be explained according to "market rules" that regulated transactions between seller and buyer, or between producer and customer. Lastly, for stone vases it is very likely that they also served as a standard for the valuation of goods during exchange. Indeed, 5th dynasty reliefs at Saqqara and Abusir show fat oxen being led to the sacrifice and evaluated in terms of a number of vases called *djout* (Vachala 1987). Based on their shape and carved detail that imitates calcite veins, it is obvious that these kinds of vases were made of calcite and that they were considered sufficiently valuable for measuring the material value of other kinds of wealth, namely cattle (Moreno García 1999; *cf*. Müller-Wollermann 1985). In this instance, those stone vases were no longer prestige objects, since the act of royal giving was absent, but they seem to have retained a high value due to the cost of their material and their high quality of workmanship, outside of any royal control.

Heirlooms

As gifts and trade constituted two mechanisms of disseminating luxury objects outside the elite sphere, they caused the reappraisal of these objects, sometimes including a loss of their original prestige. It is difficult to know from whom, whether craftsmen or merchants, subordinate and modest individuals acquired them, but the new "customers," who lived outside the royal and provincial courts and worked outside the official administration, could manipulate luxury goods and ascribe different meanings to them. The same is also true for two other ways of acquiring luxuries: inheritance and looting of graves. In these cases, craftsmen were not involved, but their high quality products were given second lives within diverse social groups. The shared advantage of these two acquisition processes was that they required no personal expense in ob-

taining precious goods. Stone vases that were originally made for kings who preceded Djoser, and which were accumulated by him in his own funerary complex, remind us that sovereigns themselves were not systematically obliged to incur great expenses in gathering luxurious and prestigious funerary goods. When we try to measure the wealth that an individual invested to acquire the best products of craftsmanship, we must take into account the royal heritage built over generations and officially kept as a treasure of the Crown, or, more generally, inheritance from predecessors or ancestors. This mechanism could explain the presence of archaic hard stone vases in graves of the 6th dynasty and First Intermediate Period. Their materials and shapes reflect the earliest dynasties that ruled at the end of the 4th and the beginning of the 3rd millennia BC, but in tombs that were 500 to 700 years more recent. Made of diorite and gabbro, such vases have been unearthed in the tombs of the oasis governors at Balat and their relatives, such as the spouse of the governor Khentyka (Castel *et al.* 2001, 55-57 (P50, P61), 186 (P50), fig. 120, photo 130, 189 (P61), 279-294, fig. 121, photos 142-143.). Some have also been found in the mastabas of provincial rulers like Qar at Edfu in Southern Egypt (Bruyère *et al.* 1937, 41-47, fig. 17-20). Probably, 6th dynasty kings rewarded high-ranking agents of the Crown by reusing luxury vases that had been made for their predecessors and kept in the stores of the Treasury Department for centuries. This raises the question of why kings accepted the inclusion of ancient objects strongly related to monarchical power among funerary goods destined for elite tombs. Did the king or the family of the deceased expect to furnish the tomb with a minimal expenditure? Or did they wish to recover the prestige embedded in objects that had been possessed by "ancestors" formerly honoured by an ancient king? Anthropology has long demonstrated that the value of objects was not intrinsic to them, but rather changed through their multiple handlings as their perceived value was enriched by prestige that surrounded their owners (Malinowski [1922] 1989; Mauss [1925] 1973). A precious object kept in a family by ancestors and left as inheritance was vested with the reputation of the ancestor who had been its prime owner. Then, such an object acted as a material symbol and reminded everyone how significant and extensive the relational network established by its former owner and his family had been. It is precisely this social link between a ruling elite family and the Crown that was embodied in stone vases or gold amulets. Nevertheless, this analysis remains unsatisfactory outside of the elite sphere. At Badari and Matmar, calcite vases decorated with royal insignia and inscribed with the royal name of Pepy II were discovered in modest graves dated to the First Intermediate Period, about one hundred years later (Brunton 1927, pl. XXVI, no. 30, XLI no. 15; *id.* 1948, pl. XXXIV, no. 17; pl. XL, no. 4). Consequently, the presence of such prestige objects cannot correspond with rewards given to the deceased by kings of a fallen dynasty. Given that the central authority of the monarchy had collapsed by this time, it is probable that these royal calcite vases lost part of their value in the absence of any royal donor. They certainly stopped playing the role of prestige goods, as their source of prestige had disappeared, but continued to be considered luxury goods made of rare and precious materials by skilled craftsmen. The fact that such objects, restricted primarily to the king and the elite, were deposited in simple graves of provincial communities leads us to the question of acquisition channels that existed outside official distribution networks, and therefore to a question of the status of owners deprived of wealth.

THE ARTS OF MAKING IN ANCIENT EGYPT

Travellers and plunderers

The gifting of prestige and luxury goods as well as their transmission by inheritance often caused their displacement. This displacement could be social as objects shifted from one social category to another; it could be geographical as individuals travelled and took their goods with them. Archaeological studies suggest that Egyptian travellers may have brought calcite vases to Byblos and offered them to the goddess Ba'alat Gebal (Espinel 2002). Additionally, calcite vases have been discovered in the palace of Ebla, in a secular context dated to the end of the 3rd millennium BC (Scandone-Matthiae 1988; Sparks 2003, 53-56). Whether these objects were brought through trade, diplomatic exchange or war and pillage, they were considered desirable even abroad (Redford 1981; *id.* 1986; Sowada 2009, 210-225). As such, their different shapes could be copied by Syro-Palestinian craftsmen working in gypsum or travertine in the absence of local calcite sources (Sowada 2009, 211-212). Thus, the movement of Egyptian objects inspired the production of another material culture. In Egypt itself, the looting of tombs has occurred since Antiquity. From the Old Kingdom to the Middle Kingdom this practice can explain how valuable objects fell secondarily into the hands of individuals for whom they were originally out of reach. Moreover, traces left by ancient plunderers can provide us with information about the material value that Egyptians assigned to objects. It is noteworthy that at Naga ed-Der stone vases and copper tools were left in place even in disturbed graves (Reisner 1932, 269 (N556), 270-271 (N568), 271-272 (N576), 272-273 (N600)). Similarly, at Balat they were not stolen by the plunderers who entered the mastabas of governors Khentyka and Medunefer (Castel *et al.* 2001, 40, 43, (CU1-2, 8-9, 12-17, 20); Valloggia 1986, 37-40). Were these goods really desirable to the plunderers? Or were they too difficult to sell to simple individuals because they had belonged to privileged persons linked to the elite? Furthermore, "disturbed" funerary contexts could have been caused not by the looting of tombs but by their reopening and reuse to receive new occupants. At the end of the 3rd millennium BC this was certainly the case at Balat, where one tomb could contain several dead people, perhaps belonging to the same family and enjoying the luxury objects already placed in the tomb for another member (Castel and Pantalacci 2005, fig. 12 and *passim*: tombs T19, T104, T105, T126, T129). In another case, the grave of the governor Ima-Pepy II was burned and then reused, with some of his funerary goods used on behalf of four newly-added deceased individuals (Minault-Gout and Deleuze 1992, 44-45, 201, pl. 21). These practices may have been motivated by the intention to share resources and reduce funerary expenditures, or perhaps by the desire to stay symbolically close to one's family or ancestors. In this way, funerary recycling could have changed the primary value assigned to prestige and luxury objects, since it was not always necessary to buy them from craftsmen or to draw on royal rewards in order to acquire them.

Conclusion

During the 3rd millennium BC the development of the Egyptian monarchy triggered royal attempts to control natural wealth. Craftsmen transformed part of this wealth to create luxurious goods in order to satisfy the desires of kings and elites. Crafted objects like stone vases and metal ornaments derived their value not only from their

precious materials but also from the skills of craftsmen. More importantly, their social use and their role in building and strengthening relational networks added symbolic value. Offered to the sovereign as a sign of allegiance during the first dynasties, stone vases were later used by the Crown to reward and distinguish influential personalities and to build their loyalty. In this context, luxury objects like stone vases and gold amulets became objects of prestige because they materialized the monarchy's power to control a huge territory and to exploit, centralise and allocate land resources to favoured individuals. To some degree, high officials themselves behaved similarly to the king by giving prestige goods to their relatives and dependants. Consequently, objects manufactured in royal workshops, whether or not located in the Memphite region, were not always restricted to the most favoured individuals, and they circulated through Egyptian society. Even if a royal gift brought prestige to its recipient, the king's favour was not the only channel through which to acquire luxuries and modest segments of the population could obtain precious goods privately by economic exchange, inheritance or even looting at the end of the 3rd and beginning of the 2nd millennia BC. This "social mobility" of objects went hand-in-hand with modifications to their material and symbolic values. Much sought-after when possessed by important personages, prestige goods lost prestige and value once they could be acquired outside royal and elite spheres. At the beginning of the 2nd millennium BC, kings stopped giving stone vases inscribed with their names, and elites no longer mentioned crafted goods as signs of royal favour in their biographies. Stone vases and precious jewellery continued to be luxuries used by elites in life as well as for the hereafter, but they were adopted also by "middle classes" during the 2nd millennium BC, this time not as symbols of prestige but as signs of a refined lifestyle borrowed from the powerful spheres of Egyptian society. This socially-extended demand must have stimulated workshops' activity in order to satisfy new consumers, even abroad.

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Faience Craftsmanship in the Middle Kingdom

A market paradox: inexpensive materials for prestige goods

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Abstract

The production of faience in ancient Egypt seems to represent a historical market paradox, as it does not fit into a theoretical bipolar (prestige/common) partition of goods. Made of common and inexpensive components, faience artefacts are both widespread across lower strata of society and in use in the uppermost segments of society, often beside very expensive materials, such as metal and ivory. The article aims at analysing four key elements which can determine a clearer social profile for faience production in the Middle Kingdom: a) the *geographical setting of production*, encompassing both the provenance of raw materials and the places of production; b) the *identity of the makers*, including the skills and the degree of specialisation required; c) (a revision of) the *taxonomy of artefacts produced*; d) the *identity of the end-users*. Accordingly, faience cannot be considered *per se* a prestige good, especially since the primary components can be found everywhere and the technology employed is not extremely complex. The only segment in the operational chain that could be controlled is the manufacture: the control over the technical skills of the artisans. The labour, i.e. the skilled artisan, can convert common objects into prestige goods. The only way to clearly distinguish the social role of the faience is to primarily assess for each type of faience artefacts its production technique and the end-user target.

Keywords: Faience; Middle Kingdom; prestige goods; workshop; craftsmanship; manufacture; technical production; faience figurines.

The use of different kinds of raw materials has often been seen as one (out of many) of the parameters to measure and predict social stratification as different types of raw material may be associated with different types of clientele (Santacreu 2014, 237-238). A rough polar division of materials can be attempted at an abstract and theoretical level: on the one side, a) the more expensive/precious raw materials, in relation to their economic value, the difficulty in obtaining them in a local environment, the index of their demand, the high level of technology/skills required and their quality, such as durability, colour and resistance; on the other side, b) the less expensive and ordinary raw materials, in relation to their easy accessibility, the simpler technology required and the minor exploitation of (human) resources (Schortman, Urban 2004, 194; Zakrzewski, Shortland, Rowland 2016, 228).

In ancient Egypt – as in several other civilizations – type a) materials (*e.g.*, cedar wood, ivory, metal, lapis lazuli) have usually been perceived as more connected with the elite, while type b) materials (*e.g.*, mud, clay, basketry) have usually been associated with a less wealthy clientele. Such a pattern was not meant to crystallize the relation between social classes and raw materials into a rigid grid of correspondences, but to frame the extent of the "range of choice".[1] Where the most powerful and rich classes could afford a wider range of materials, spanning from the most ordinary and less expensive to the rarest and most expensive ones, the less wealthy would necessarily have had a more limited spectrum of possibilities, with the index pointing towards the most accessible resources (see Fig. 1). For instance, although kings were one of the wealthiest social groups in ancient Egypt, this did not prevent them from employing materials of modest economic value: a statue in unfired clay is preserved for the 18th dynasty pharaoh Amenhotep III (Bianchi 1998, 24). An anthropological approach carried out by Dean Arnold in contemporary Ticul in Yucatán (Mexico, between 1965 and 1997) has shown that also ordinary material, such as clay (though clay of high quality), can be considered of strategic importance and be placed under the control of the elite (Arnold 2000). In the same logic, the presence of significant quantity of gold in lower/middle class burials of the village around Qau, in the northern part of Upper Egypt, during the First Intermediate Period (Brunton 1927, 76), does not represent an upheaval of the social order, but reflects the dynamics of the private market, which is not exclusively dictated by sustenance and primary needs (Kemp 2006, 309). However, in marginal centres and lower social levels, prestige goods are necessarily attested at a reduced scale only (Ekhom 1972).

The production of faience in ancient Egypt then seems to represent a historical market paradox, as it does not fit into such a bipolar partition: made of common and inexpensive components, faience is widespread across lower strata of society while being frequently used among the uppermost segments of society (Friedman 1998, 15). For instance, in a rapid survey of early New Kingdom (1550-1450 BC) faience distribution, Diana Crag Patch has shown that faience, at least in funerary and ritual contexts, was deliberately chosen by royalty and the uppermost levels of society: the royal

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1   This does not imply that certain types of raw material were automatically excluded from certain social levels, since the logic for the choice of particular materials is not only dictated by economic constraints. Several other complex factors come into play, such a religious symbolism, socio-economic mobility, personal experiences, etc.
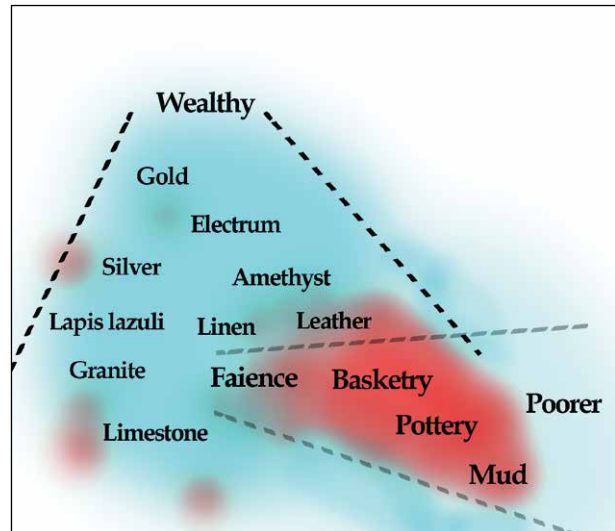
Figure 1: Graphic visual-
isation of the "range of
choice" of material types in
Egypt for richer and poorer
social classes.

tombs of the Valley of the Kings and, above all, the burial equipment of Tutankhamun, contain a relatively high percentage of faience artefacts (Patch 1998, 43; see Fig. 2). Such a measure is not to be confined inside a definite and narrow chronological framework: also during the Old Kingdom (2700-2160 BC), faience was deliberately targeted by the royal class, as shown by the thousands of faience tiles employed for the step pyramid of Djoser at Saqqara (Ziegler 1999). Nonetheless, faience can hardly be listed among ancient prestige goods without some reluctance. The technology involved in its production did not require sophisticated methods: the silica forms the bulk of the body; the addition of lime and alkali flux or soda helps to cement the quartz grains together, while the copper oxide produces the greenish-blue colour; once the figure was formed, and dried, it was fired in a kiln. Faience frequently has two distinct body layers; a coarse, often discoloured, core covered by a brilliant white layer over which the glaze was placed (by means of three different techniques, application, cementation and efflorescence, see Nicholson, Peltenburg 2000, 189-191; Tite, Shortland, Vandiver 2008). After the application of the decoration made with a common ink of manganese and iron oxide, the figure was fired again (Nicholson, Peltenburg 2000, 186-187). The kiln needed to reach a relatively high temperature, between 800-1000 ºC, which is easily obtained even with fairly basic technology (Nicholson, 1998, 51; Vandiver 1998, 124; *cf.* Davidovits, Davidovits 2007). For instance during the Amarna period, faience production seems to have been combined with other crafts, like metallurgy, pottery and also bread making, to economise resources such as manpower and fuel (Friedman 1998, 17; Vanthuyne 2013, 400; see Eccleston 2008, 33-35). The paradox is replicated again in the fact that the use of faience seems to have been motivated in part in response to a market need for artificial stone, as an inexpensive material substituting expensive raw materials such as turquoise and lapis lazuli (Vandiver, Kingery 1987, 32). The connection between lapis lazuli and faience, mainly given by similarity of colours, was already evident to ancient Egyptians who often merged the two materials on the lexical level (ḫsbḏ, *Wb*. III, 334.1-13, mainly used for lapis lazuli but occasionally also for faience: Baines 1985, 282-297 and Harris 1961, 124-129). Yet, the archaeological evidence again seems to point to the opposite direction, as faience objects do not seem

Figure 2: Table showing the objects in faience from the tomb of Tutankhamun, from Patch 1998, 34, table 1.

to have been considered inexpensive products judging by the fact that they were often included in burials besides very expensive materials, such as metal and ivory (*cf.* the case of Kha/Merit, Russo 2012). Therefore, faience products were *not* only perceived as inexpensive replacement for more costly materials (*cf.* Patch 1998, 43), but contemporary also as "deluxe objects intended for a discriminating clientele" (Bianchi 1998, 22).

In order to evaluate the social value of commodities, Franck Vigneron and Lester Johnson identified three non-personal perceptions of luxury brands/goods in contemporary society: 1. perceived uniqueness = something difficult to obtain; 2. perceived quality = superior quality and performance in comparison with ordinary commodities; 3. perceived conspicuousness = public consumption of distinctive goods important for social representation (Vigneron, Johnson 2004). Faience as a raw material does not fulfil any of these requirements, since its components are ubiquitous (as opposed to uniqueness) and clearly of a relatively low value (as opposed to quality) in comparison with more expensive and exotic materials such as lapis lazuli and turquoise. In addition, faience did not require a high technology, as demonstrated by its production which could have been combined with other crafts, such as pottery and bread making (Eccleston 2008, 33-35); by consequence, at least on a theoretical level, faience goods could be produced and consumed by a large range of people and are not distinctive of specific social levels (as opposed to conspicuousness).

However, the value of an object does not lie in the object itself, but in its "transactional potential" for communication (Kemp 1995, 28). The faience paradox has been often addressed by two explanations: a) faience, given the brightness and plasticity of its body, was imbued with symbolic values; faience has been always regularly associated with light, rebirth and fertility, and eventually with the goddess Hathor (Wilkinson 1994, 104-25; Bianchi 1998, 22-31); b) the ontological kernel of faience cannot be immediately found in nature, as it represent the most ancient synthetic material, whose manufacture was regulated by human technology and expertise. Pamela Vandiver and David Kingery defined it as "high-tech ceramic" in order to stress the technological manipulation of raw materials for obtaining a product deviating from the traditional ceramic practices (Vandiver, Kingery 1987, 19). Faience, therefore, represented one of the first human creations, on an even higher level than Prometean fire, which already existed in nature. Such a symbolism, affecting the imaginary perception of technological possibility of controlling and chemically transforming nature, could have led to the increase of the value of faience. Yet, a prestige good, to remain one, needs to be controlled by a narrow group of people (Earle 1987; *id.* 1997; Hayden 1995; *id.* 1998,

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17-18), while the (ubiquitous) nature of the raw materials for faience production is difficult to control; therefore, the parameter of symbolic value cannot explain the social value of materials entirely by itself.

Obstacles in identifying the social profile of faience production

One of the main obstacles in identifying the social profile of faience production in ancient Egyptian material culture lies in a lack of adequate methodological approaches. Three main obstacles can be targeted:

a. Egyptological research has too often focussed on the analysis of the single finished products, creating types over types (*cf.* critique in Quirke 2013) according to their morphology, iconography and/or function, but marginalising the analysis of the productive processes that lead to the creation of the artefacts themselves. For instance, Middle Kingdom statuettes made of mud, stone and wood (Quirke 1998, Tooely 1991) often have been correlated with the faience figurines of the same period merely on the basis of some analogies of the themes represented (see Fig. 3). However, they could have had completely different functions, use and meanings as given by the different processes of production involved in their creation (*cf.* paddle dolls *vs.* female figurines with truncated legs, see Tooley 2017; Morris 2011; Miniaci forthcoming A);

b. Due to the peculiar body plasticity and the signature of the shiny glaze, faience encapsulated a strong visual "appeal power" that in turn tends to create a strong divide between the objects made of faience and those made of other materials, and – simultaneously – to obscure structural differences among the objects made of faience themselves. For instance, faience scarabs whose base was carved with accurate inscriptions have often been grouped together with plain scarabs under the common category label of "faience scarabs", which in turn have been grouped under the label "faience amulet and seal". The shiny glaze and the exterior appearance of these artefacts has erased a rather distinctive character: the production of these two types of objects required two different types of skills (faience technology and calligraphic skills for miniaturist carving), implying that these two categories of objects point to two separate social and technological spheres;

c. Due to the fact that faience in Egypt was unremittingly used from the 4th millennium BC onwards (Tite, Shortland, Kaczmarczyk, Vandiver 2008, 58), it has often been subjected to an anachronistic chronological flattening, so that objects of different periods have been compared and analysed together without considering the advance in technology, shift in manufacturing system, and change in social control over its production. For instance, in the New Kingdom there is direct evidence that a large part of faience industry – as well as of its market – was controlled by the State. In the Great Harris papyrus, however reliable or not about the quantity expressed, over 5700 faience amulets, collars, bracelets, scarabs and rings were recorded as donated by Ramses III in the way of an *ỉnw*-donation to various
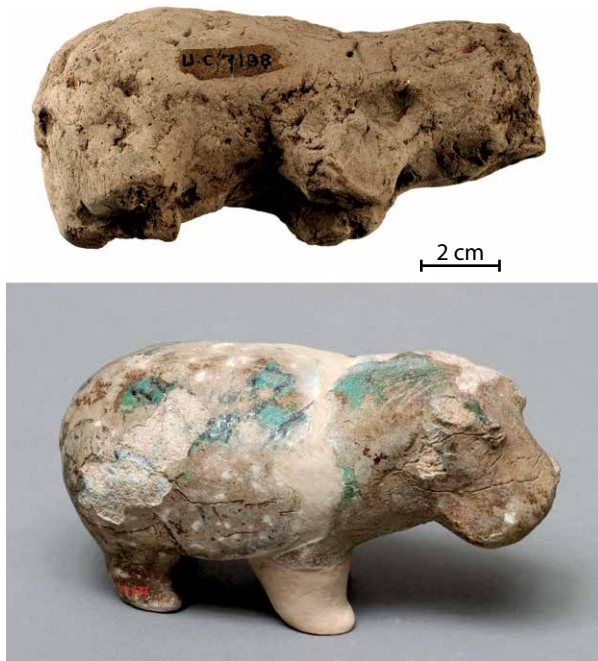
Figure 3: Mud hippopotamus figurine Petrie Museum UC 7188 in comparison with a similar faience hippopotamus figurine MMA 15.3.394. Courtesy of the Petrie Museum of Egyptian Archaeology © Photo: Gianluca Miniaci. License under Creative Common Metropolitan Museum of Art in New York.

temples across Egypt (Grandet 1994, 243, 270, 278, 295, 296, 298, 315, 316). At Quantir, large faience factories seem to have been located close to the royal palace, where thousands of moulds were discovered (Hamza 1930; Shortland 2012, 94-6). The same cannot be said for other periods for which we have less evident source of information; for instance in the Middle Kingdom faience production might have been regulated mainly by a private market. Nonetheless, also for the New Kingdom recent studies have demonstrated that a private market for faience objects existed beside the temple and palace production (based on the archaeological documentation: Kemp, Stevens 2010, vol. I, 478-480; Kemp, Stevens 2010, vol. II, 249-296; based on the distribution pattern of moulds and faience objects across the site of Amarna: Vanthuyne 2013, 414-418; *cf.* Vandenbeusch, Miniaci, Quirke 2015).

Identifying key steps in the operational chain of faience production

Artefacts encapsulate cultural and social patterns that can be decoded through the analysis of their materiality. By applying the methods of the "chaîne opératoire" drawn from anthropological theory and ethnographic studies (Leroi-Gourhan 1963; Lemonnier 2005) onto the archaeological material (Dobres 1999, Martinon-Torres 2002, Coupaye 2009), two primary elements involved in the process that converts a raw material into a finished usable object can be targeted: a) the *geographical setting of production*, encompassing both the provenance of raw materials and the places of production; b) the *identity of the makers*, including the skills and the degree of specialisation required. By identifying the key patterns that regulate the production of faience in the Middle Kingdom, it is possible to assess more clearly cultural index of faience within ancient Egyptian society.

a) The geographical setting of production

As mentioned briefly above, the raw materials for faience production are geographically widespread all over Egypt, with its components – quartz (obtained from sand, flint or crushed pebbles), water, lime and alkali – easily accessible and rather universal. Sand can come from either the desert or beaches, while white quartzite pebbles are obtained from the river bed (Turner 1956, 277-300); lime is present in plant ash (Shortland 2012, 103); soda can derive either from large evaporitic soda deposits, such as the Wadi Natrun lake and other minor deposits (Shortland 2004), or even from the ash of various plants which contain high levels of potash and soda. A third method to obtain the soda is to produce it artificially by using man-made salt pans to precipitate minerals from sea or river water (Shortland 2012, 100). Copper, generally used to give the brilliant blue colour, was the most expensive ingredient, yet might have been readily supplied by scraps from local metal-working workshops, given the low percentage needed (<5 %).

A more difficult task is to identify the place of faience production, as the furnaces associated with glazing do not present any obvious markers beyond wasters and production tools, such as moulds, stands, copper tools and vessels, which are rarely found in archaeological contexts since they were all easily recyclable. Therefore, the identification of faience kilns rests on the finds associated with them (Zakrzewski, Shortland, Rowland 2016, 284). Unfortunately, for the Middle Kingdom only two faience workshops have been tentatively identified, one at Lisht in the Fayum and another at Kerma, in Sudan.

In the late Middle Kingdom settlement of Lisht (Fayum), Arthur Mace identified the areas A1.2 and A1.3, inside the building A1, as "glaze factories" (Mace 1927, 17). Mainly three elements of evidence support the identification of area A1.2 with a faience workshop: a) the high quantity of debris from faience production found there (mostly beads and many hundreds of small marl clay balls along with clay semicircles, Nicholson, Peltenburg 2000, 181); b) the discovery of a semi-circular structure built in the corner of a room filled with ash deposit, recently re-cleaned by Felix Arnold who confirmed this structure to be a kiln (Arnold 1996, 15; see Fig. 4); and c) the discovery in the same area (inside shaft tomb no. 879, located under the northern extension of the house A1.3) of the remains of the burial equipment of the *ỉmy-r ṯḥntyw*, "overseer of glaze-workers" Debehni (Bourriau 1996, 110-111; Kemp, Merrillees 1980, 220-225). Probably, A1.3 was the workshop – or even the residence itself, see hybrid households documented at Abydos in the same period (*cf.* Picardo 2015) – of the chief craftsman of faience Debehni (Arnold 1996, 15, fig. 4). In addition, in the same area, in the late New Kingdom, a primary or secondary faience and glass production was discovered, probably a sign of production continuity (Hayes 1959, 410; Keller 1983, 28).

For the phase of the great royal tumuli – Classic Kerma phase (tumuli K IV and III, ca. 1750-1580 BC) – George Reisner evoked the existence of faience kilns in Kerma (Sudan), because he had found a large amount of glazed quartz pebbles and wasters in this area, without, however, providing further information as the kilns were "too damaged to be drawn" (Reisner 1923, Parts IV-V, 134-135). Although some traces of local production can be identified in Kerma faience (Wilde 2011, 124), no kilns have been certainly identified at the site (Lacovara 1998, 48-49). Peter Lacovara has debated the existence of local faience production in Nubia during this period and suggested
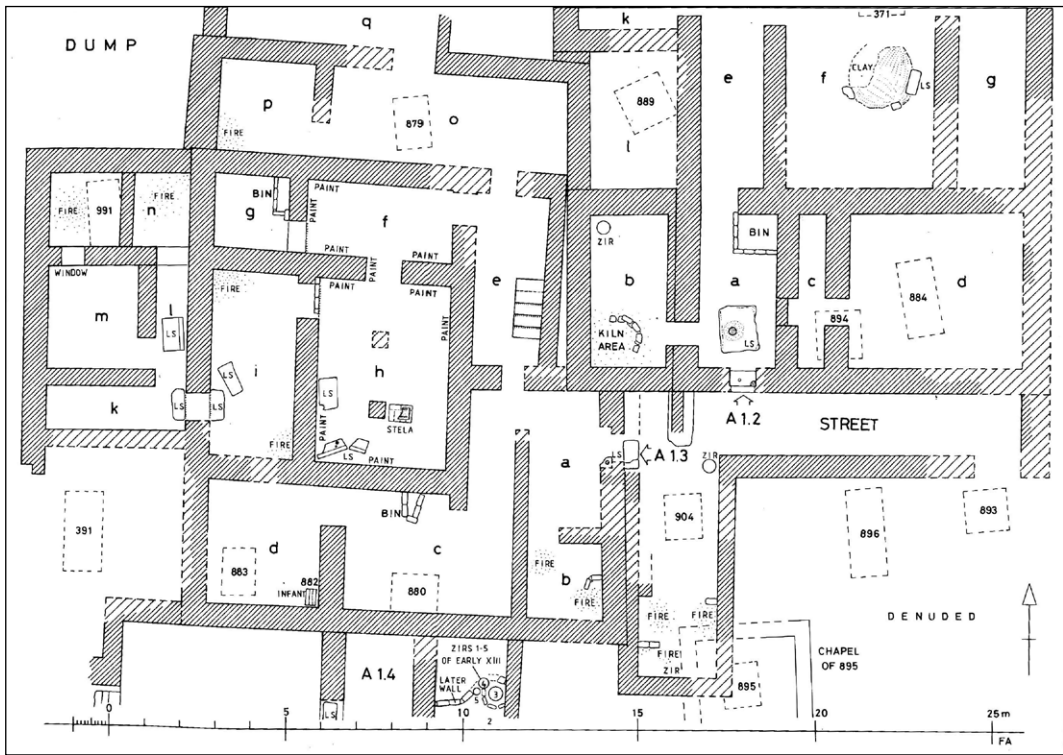
Figure 4: Plan of domestic buildings built above shaft tombs at Lisht North, including Houses A 1:2, A 1:3 (faience workshop?), from Arnold 1996, fig. 4.
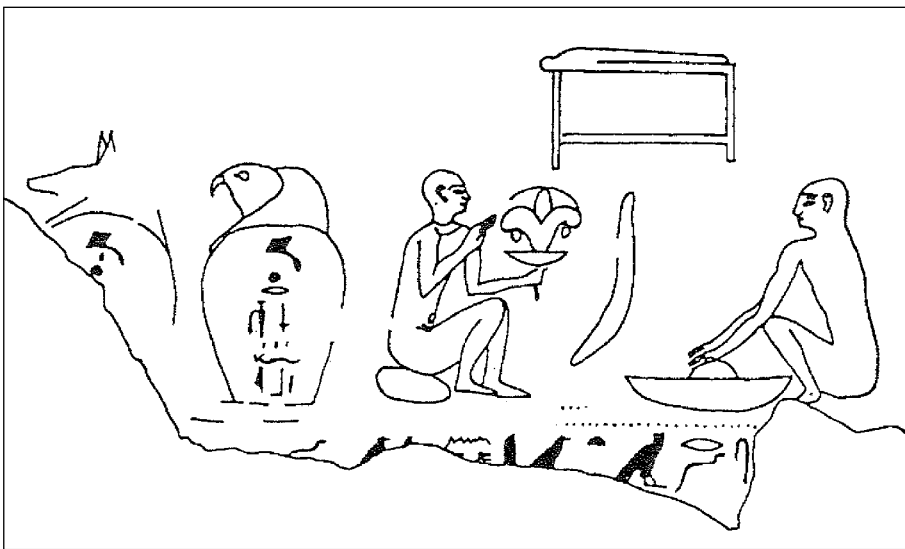

Figure 5: A possible scene of faience production from the tomb of Ibi (TT 36), 26th dynasty (ca. 664-610 BC), after Davies 1902, pl. 25.

that the faience production at Kerma was based on the reuse of imported faience pieces from Egypt, employed as raw material (Lacovara 1998, 49).

b) The identity of the makers

Remarkably, scenes of faience production are virtually absent from ancient Egyptian representations, even though these show a wide range of crafts and expertise at work (*cf.* van Walsem 2005; Hartwig 2004). Paul Nicholson has tentatively identified a possible scene of faience production in a 26th dynasty tomb at Thebes (TT 36, belonging to Ibi: Nicholson 1998, 56, fig. 31) but several doubts remain on this hypothesis (see Fig. 5).

Similarly, specific mention of faience production is missing from literary evidence: the Teaching of Kheti (also known as the Satire of Trades: Roccati 2000; Vernus 2001, 239-264; Jäger 2004, Teil I) takes into consideration a broad range of manual professions yet does not mention faience-workers (Quirke 2004, 121). In the absence of visual representations and direct textual sources that could help clarify the process of faience production, the titles born by craftsmen are the ultimate criterion to decode methods of manufacture.

Unfortunately, for the Middle Kingdom only three titles are attested which could refer to the production of faience: i) *imy-r wꜥrt n ṯḥn.tyw* "section overseer of glaze workers", attested in the stela of Kebu, purchased in 1859 by the British Museum (BM EA 844, *HTBM* V, pl. 13; Quirke 2003, 86; see Fig. 6a); ii) *imy-r ṯḥn.tyw* "overseer of glaze-workers", attested on a gilded (?) wooden coffin fragment belonging to Debehni found in the shaft-tomb 879 at Lisht (Bourriau 1996, 110-111; see Fig. 6b); iii) *ṯḥn.ty* (?) "glaze-worker", attested on a greywacke statuette belonging to Sehetepibre set into a limestone offering table found in the shaft-tomb 883 at Lisht (MMA 22.1.107a, b; Hölzl 2015, 229-30, cat. no. 167; Quirke 2016, 170; see also Quirke in this volume; see Fig. 6c). The ancient Egyptian word, *ṯḥn.t* (*Wb.* V, 390.11-391.16-18), which derives from the stem *ṯḥn* "gleam", "shine", "dazzle" (*glänzen; leuchten; erhellen; erheitern*, *Wb.* V, 391-393.22) was usually employed to refer to faience and glass (Nolte 1968, 138); as suggested by John Raymond Harris, it is unlikely that ancient Egyptian distinguished between glaze and glass (Harris 1961, 137). The attestation of the phrase *ṯḥn.t mꜣꜥ* "true *ṯḥn.t*" seems to indicate the existence of faience imitations. It could also shed some doubt on the correct association between this word and faience (Harris 1961, 135, 137-138), but a faience vessel found at Tell el-Yahudiyeh with an inscription describing it as *ṯḥn.t* seems to remove any doubt over such an interpretation (Naville, Griffith 1890, pl. 8).

Textual evidence, though scarce, suggests that already during the Middle Kingdom if not earlier (*cf.* Kuraszkiewicz 2015, esp. 47), the production of faience required the elaboration of devoted specialists for the supervision of the work: evidently, supervisors needed to oversee the work of makers and artisans; therefore a specialised overseer may imply also specialised makers. In addition, as noted by Stephen Quirke in this volume, the producer and the manager of faience production at Lisht (points ii and iii) had resources that indicated a rather wealthy social status, as they both managed to have inscribed objects and luxury materials as gold and greywacke (*cf.* Klemm, Klemm 2001, 633-634).

It is worth extending the lexicographical analysis slightly further to investigate the immediately following periods, as a possible shift in the titles related to faience production could mirror changes in the production technique and technology, hence
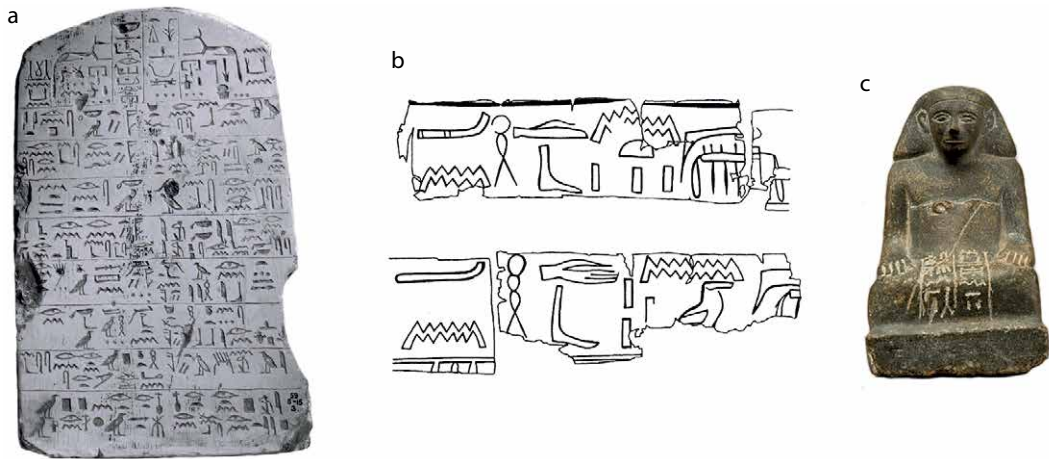
Figure 6: a. Stela of Kebu, BM EA 844 © Trustees of the British Museum; b. facsimile of the name and title of Debehni from the shaft 879 at Lisht, from Bourriau 1996, fig. 7; c. greywacke statuette belonging to Sehetepibre MMA 22.1.107a, b © Creative Common Metropolitan Museum of Art in New York.

also in market demand/supply and, ultimately, the social value of faience. During the New Kingdom, the word *ḥsbḏ* may have entered the administrative vocabulary side by side with (or replacing?) the term *ṯḥn.t* with regard to faience production (but not in the material vocabulary, as *ṯḥn.t* is still attested in the Late Period and Ptolemaic lists among the precious and semi-precious stones to be used for making small figures, amulets of various types, seals and beads, see Harris 1961, 136 for bibliography). The word *ḥsbḏ* (*Wb.* III, 334.1-13) was in use since the Old Kingdom for lapis lazuli and it could have been more generally employed as a basic term for the blue colouring (in the inscription of Niankhsekhement of the 5th dynasty, it is stated that the "hieroglyphs were inscribed in blue-*ḥsbḏ*", Baines 1985, 286, see also n. 23). However, *ḥsbḏ* may also be referring to materials imitating lapis lazuli, like blue frit, faience and glass (see *ḥsbḏ mꜣꜥ*, Harris 1961, 128-9; Aufrère 1991, 465). In some titles appearing in the New Kingdom there are no traces of *ṯḥn.t* anymore: Hatjay and Ptahmose bear the title *ḥry irw ḥsbḏ n nb tꜣwy* "chief faience/glass/lapis worker of the lord of the Two Lands" (respectively, stela false-door, Cairo JE 25641, Gaballa 1979, 46, fig. 2, pl. 2; and papyrus Krakow MNK IX-752-4, Luft 1977, 48-9); while Qenenhor, apparently a supervising official attached to the treasury and bearing ranking titles, is a *imy-r irw ḥsbḏ* "overseer of the faience/glass/lapis workers" (Papyrus Vatican 64, Bellion 1987). Although the use of *ḥsbḏ* may be related to the introduction of glass production and therefore be a term employed for the glass, the inscription *irw ḥsbḏ n ʾImn Rḫ-ʾImn* "*ḥsbḏ* maker of Amen Rekhamen" (19th dynasty stela of Rekhamen, Edinburgh, National Museums Scotland, A.1956.153: Friedman, Borromeo, Leveque (eds.) 1998, 156, 250 [166]; Shortland 2012, 71) reported over a stela made in faience would suggest that, at least

in this case, *ḥsbḏ* was employed to refer to a faience – rather than to glass[2] or lapis lazuli – maker. In addition, in the New Kingdom, another term, again not involving the term *ṯḥn.t*, was employed to refer faience makers, *bꜥbꜥ* (*Wb.* I, 447.5; Ward 1977, 276; Gardiner 1947, 67*-69*; Drenkhahn 1976, 45-9; Steinmann 1980, 155-6).

Therefore, it seems that, during the New Kingdom, *ṯḥn.t* was excluded from the administrative vocabulary but not from the lexicon used for indicating faience. This can be connected with the rise of glass production but may also be a lexical indicator that deeper changes in the technology of faience occurred by the New Kingdom, probably in relation to a more massive use of moulds (*cf.* Quirke, Tajeddin 2010). Regardless of the cost of the raw material, moulds allow a seriation in production and accordingly more rapid fabrication: the faience production with the support of moulds required less advanced skills (see below).

The social index of faience products in the Middle Kingdom society

In a comparative analysis of the production phase, points a) the *geographical setting of production* and b) the *identity of the makers* are conflicting, as the value and the provenance of the raw materials, easily accessible and widely dispersed across the country, contrast with the high degree of specialisation and the advanced technical skills required by a Middle Kingdom craftsmen. The scarcity of identified production places (only one in Egypt; the other possible one in Nubia) strongly conflicts with the abundance of faience artefacts in use during the Middle Kingdom, and in general during all of Egyptian history.[3] In turn, an abundance of faience artefacts also conflicts with an inexplicable absence of faience production from the widespread pictorial scenes of material manufacture and the deafening silence in the literary Satire of Trades, set against the wide range of manual professions mentioned. Therefore, Middle Kingdom faience production continues in its inflexibility to fit into a polar division of materials, and, in this respect, it can be considered semantically 'promiscuous' and 'ambiguous'.

However, such a faience ambiguity fades when we "revise" two primary consumption criteria: c) the *taxonomy of the artefact types produced* and d) the (geographical) *identity of the end-users*, when appropriately linked to the different branches of point c) (the *type of artefact produced*). As highlighted by Mario Liverani for the ancient Near East, crafts have a plurality of customers, and the workshops which exclusively produce for the elite or the temple/palace needs (*cf.* Di Paolo 2014) can adapt/reinvent their productive system for producing (similar/alternative) commodities for a wider segment of society (Liverani 2005, 55).

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2 It is possible that the production of faience and glass were strongly interconnected, as in the New Kingdom the advance in glass and metal technology led to the development of stronger faience body, see Nicholson 1993, 30. However, it must be acknowledged that ancient Egyptian glass was produced with a completely different technology from that of faience and, during the New Kingdom, it seems to have been strictly confined to palace production (Tite, Shortland, Kaczmarczyk, Vandiver 2008, 58).

3 The scarcity of documented production places can be explained by the archaeological incompleteness (excessive focus on funerary contexts) and/or by difficulty in identifying workshop areas (probably because its production may have been combined with other crafts).

c) A revision of the taxonomy of the artefact produced

Faience artefacts in the Middle Kingdom span from the small disk beads for body orna-
ment and amulets to statuettes and models of medium size to large funerary masks and
vessels (see Bourriau 1998 for examples). However, for the type of analysis carried out
here, unambiguous criteria for isolating categories of objects must be targeted clearly.

Heike Wilde divided faience artefacts of the Middle Kingdom into five main
classes: *Votivgaben*; *Gefäße*; *Kleinplastiken*; *Perlenschmuck*; *Besonderheiten* (Wilde 2011,
115-124). However, such a division is based on a functional analysis of the artefacts,
which reflects a modern etic approach involving our current taxonomic perception of
artefacts. In order to move closer to the nature of ancient faience producers, I propose
here a division of faience artefacts according to the manufacturing technique used for
their creation. Faience manufacture is based on two methods, both implemented by
different degrees of surface grinding, painting, incising, inlaying:[4] a) moulding on a
form, which often included pressing the paste into open face moulds; b) free hand
modelling, complemented by additional handling.

In technique a), the moulding can provide sophisticated shapes to the paste and
requires careful work and high skills, above all in crafting the mould. Yet, the faience
production for the persons who were in possession of the mould is relatively simpler
than technique b) and could be carried out by less skilled craftsmen/workers because
it involves simpler mechanical gestures (pressing the paste into the mould) and rela-
tively basic technology (Tite, Shortland, Kaczmarczyk, and Vandiver 2008, 58-9. *Cf.*
Quirke, Tajeddin 2010, 341-361; Vanthuyne 2012-2013, 395-429). This can be ac-
quired through empirical experience and an elementary knowledge of firing processes,
as, in fact, faience-making is essentially a cold technology (Peltenburg 1987, 20). The
main obstacle is given by the control in the proportion of the ingredients, as a lower
proportion of silica will probably not produce a crystalline material.[5]

Technique b), by contrast, is less common and requires particular skilfulness in the
craftsmanship, as the hand modelling of the paste demands a high degree of accuracy
and attention for details. Forming fine details in faience is a difficult task to achieve:
the body material is too coarsely particled to be very plastic and tends to slump and
deform under its own weight once shaping is complete (Vandiver, Kingery 1987, 32;
Vergès 1992). When shaping is too rapid, the material cracks or splits, and although
the addition of water can help shaping, the finished objects may crumble once dry
(Nicholson, Peltenburg 2000, 187).

In this way, faience artefacts do not risk to be homogenised by the nature of their
own overshadowing materiality, "the faience", neither to be grouped according to mor-
phological and iconological criteria, which are mainly based on modern observation.
For instance, among the objects produced with technique b) (Miniaci forthcoming B),
there are small faience figurines, reproducing a vast array of themes (Miniaci 2014; *id.*
2017; *id.* forthcoming A). None of the faience figurines of the late Middle Kingdom

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4   A third method, namely wheel-throwing, was in use only from the New Kingdom onwards and it is
    not taken into consideration here; see Nicholson, Peltenburg 2000, 189.

5   The techniques in use were most probably the same as those practiced during the Old Kingdom. For
    the process of efflorescence, application and cementation, see Tite, Freestone, Bimson 1983, 17-27;
    Vandiver, Kingery 1987, 19-33; Nicholson 1998, 58; Nicholson, Peltenburg 2000, 189-191; Tite,
    Shortland, Kaczmarczyk, and Vandiver 2008, 59.

Figure 7: Faience figurine representing a female dwarf from the Petrie Museum UC4505. Courtesy of the Petrie Museum of Egyptian Archaeology © Photo: Gianluca Miniaci.

2 cm

were mechanically reproduced and reproducible, and only the expert hand of a trained and skilled artisan (or circle of artisans) could have created artefacts that share similarity in manufacture, shape and decoration (see Fig. 7). This type of object can be considered of a social value different from others, as for instance faience beads (Xia 2014, 38-39) and amulets (Grajetzki 2017), which were produced with the same materials but with a different technique, and widespread across a much wider segment of society.

d) The identity of the end-users
Faience artefacts during the Middle Kingdom have been found in all strata of society, from the uppermost to the wealthy, the middle segements and the lowest ones. Clearly, faience cannot be considered a privilege of the royal entourage. This can lead one to suppose that faience was quite widespread and considered a lower product regulated by autonomous modes of production and local demand. However, by analysing the distribution of artefacts produced with manufacture technique b), the picture immediately changes. Faience figurines, although attested throughout the country from the Delta to its southernmost end (Kom el-Hisn, Memphis, Abusir, Dahshur, Lisht, Tarkhan, Riqqeh, Hawara, Lahun,[6] Harageh, Beni Hasan, Deir el-Bersha, Meir, Asyut, Rifeh, Matmar, Mostagedda, Badari, el-Mahasna, Abydos, Hu, Dendera, Thebes, Esna, el-Kab, Edfu, Elephantine)[7] are mainly concentrated in the diagnostic late Middle Kingdom sites: Lisht (ca. 128 items), Abydos (ca. 79 items), Harageh (23 items), Thebes (21 items),[8] and Lahun (16 items + 14 items from a British Museum purchase lot -?-) (Miniaci forthcoming B (see Fig. 8)). In the rest of Egypt only sporadic cases – with one, two or, more rarely, a handful of specimen – have been recorded.[9] Three of the spots in which these figurines are concentrated are key sites that are specifically representative of late Middle Kingdom power centres: Lisht, Lahun and Harageh. Thebes and Abydos, which played a key role as places of power, religious, ideological and cultural significance in the late Middle Kingdom.

As can be seen, threfore, these figurines were not equally accessible in all parts of Egypt but concentrated in key late Middle Kingdom sites. In addition, the homogeneity in iconography and style of these figurines found in sites far away from each other seems to point to a centralised production with a voluntary (intellectual) control both over the type of manufacture and the choice of iconographic repertoire. The range of subjects would at first

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6   In order to avoid confusion, I will use here the name Lahun to designate the site labelled by Petrie as Kahun.

7   They have been attested also in peripheral areas: Serabit el-Khadim, Gebel Zeit, Tell el-Ajjul, Byblos, Aniba, Faras, Mirgissa, Kerma. This is discussed in Miniaci forthcoming A.

8   The number of faience figurines coming from Thebes should be higher, but I have excluded all items whose provenance was not confirmed by evidence.

9   For complete bibliographic reference, see Miniaci 2017 and *id.* forthcoming A.
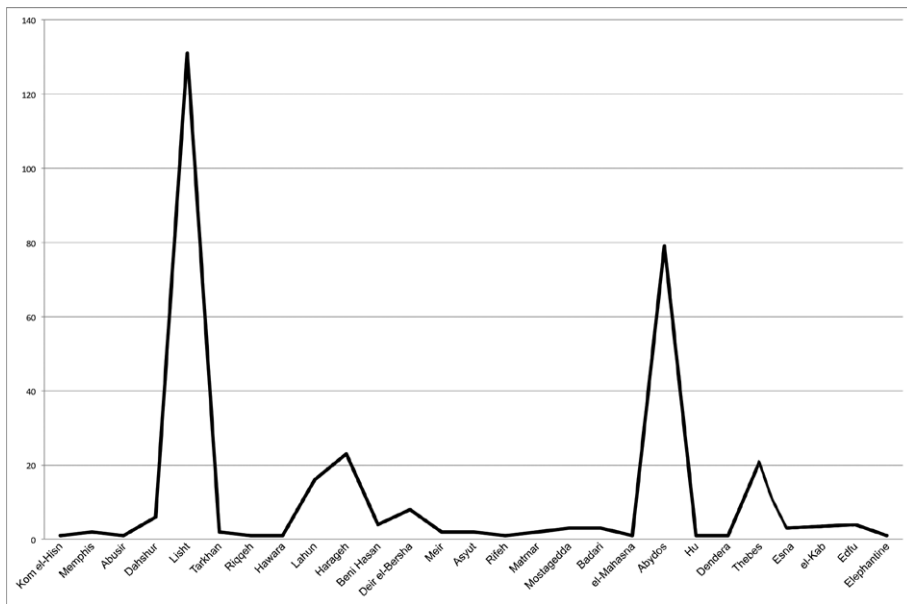
Figure 8: Table showing the geographical distribution of Middle Kingdom faience figurines across Egypt © Gianluca Miniaci.

appear to point to 'variety' and 'autonomy' since the themes are rather broad, but in the end turn out to be very exclusive and distinctive since they are frequently recurring and they often copy one another very closely. This implies a common complex vocabulary, dictated by a narrow segment of society that exercised intellectual control over the artefactual production. Faience figurine genesis, i.e. the mental elaboration which gave birth to the material inception, is not a neutral operation but aimed at encapsulating and conveying a message (Miniaci forthcoming A). This was given by physical qualities that are naturally striking, such as the visual brilliance – to engage the senses and rivet attention – and by the intrinsic symbolic vocabularies, as the themes chosen were closely related to rebirth, regeneration, childhood/youth and protection. Therefore, faience figurines unlike for instance beads were commissioned and employed by a narrow circle of persons.

Conclusion

Faience production cannot be easily controlled in all steps of its *chaîne opératoire*; and, as something that cannot be fully controlled, it can easily escape the control of the wealthy. Accordingly, faience cannot be considered *per se* a prestige good, especially if the primary components can be found everywhere and the technology employed is not extremely complex. The only segment in the operational chain that could be controlled is the manufacture: the control over the technical skills of the artisans. The labour, i.e. the skilled artisan, can convert common objects into prestige goods. All this makes faience an ambiguous media, which straddles between the categories of prestige and daily-life goods, and can be produced for and used by both the wealthy and the non-wealthy.[10]

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10   *Cf.* Xia 2014, 103. In the Middle Kingdom, 83% of beads were made in glazed composition, including also lower strata of society. See also Wilde 2011, 121-123.

Acknowledgements

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Leather Processing, Castor Oil, and Desert/Nubian Trade at the Turn of the 3rd/2nd Millennium BC

Some speculative thoughts on Egyptian craftsmanship

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Abstract

Studying leathercraft in pharaonic Egypt and, more particularly, the supply and tanning of hides, opens new perspectives on both "invisible" trade and the use of vegetable oils in "industrial" processes. On the one hand, Nubia played an important role as a provider of hides and skins, and, in some periods, Nubian influence is evident in Egyptian leather processing as well as in Egyptian fashion. On the other hand, castor oil is frequently mentioned in pharaonic sources; in some periods and places (as in Achaemenid Kharga), this was a key crop, exported to the Nile Valley and essential in lighting (oil lamps), medicine and in the production of cosmetics. Ethnographic research reveals an additional but neglected role of castor oil as an essential ingredient in tanning. This article explores the possibility that Nubian trade, castor oil and the production of sandals in selected trade crossroads (such as Thinis and Elephantine) give some clues about "invisible" trade as well as about crafts and technical processes hardly evoked at all in official records.

Keywords: Ancient trade, castor oil, Egypt, hides, leather, Nubia, sandals, tanning, Western Desert.

Sandals, leather processing and Nubians in the late 3rd millennium BC

Sabnef-Ibi was an Egyptian official who lived around the 6th Dynasty (CGC 1497: Borchardt 1964, 201-202). The stela inscribed with his name and functions reveals that he bore the rather unique title *jmj-r gs ṯbw.w 'T3-wr* "overseer of sandal-tanners/ tanning (lit. sandal-anointing[1]) of the Thinite nome". Other titles help understand his connections. Being *w'b nzwt* "*wab*-priest of the king" and *rḫ nzwt* "acquaintance of the king", he apparently enjoyed some sort of close relationship with the royal domain, perhaps as performer of rituals for the pharaoh in the local temple at Abydos (he was also a *ḥm-nṯr* "priest"). His title *ḥq3 ḥwt* "governor of a *ḥwt*-centre" (a production and storage centre of the crown) shows that he also carried out economic and administrative duties for the king on a local level. The case of Sabnef-Ibi is not unique. Slightly later titles from the Thinite province, going back to the very end of the 3rd millennium, confirm that the processing of hides and leather and the manufacturing of sandals were important local activities, especially in the temple sphere. Thus, for instance, an official called Khuti was *jmj-r ṯbw.w m ḥw.t-nṯr* "overseer of sandal-makers in the temple", whilst another man called Weser was *jmj-r ṯbw.w* "overseer of sandal-makers" as well as *wr ḏḥ'* "chief of leathercraft" (Brovarski 1999, 693-695); Heneni, for his part, was *wr ḏḥ'* "chief of leathercraft" and *jmj-r m3sw 100 m ḥw.t-nṯr nt Jnḥrt* "overseer of 100 *m3s*-animals in the temple of Onuris" (Brovarski 1999, 328-337).[2] The stela of an official called Kaiwedja mentions his administrative functions as *wr ḏḥ'* "chief of leathercraft", *jmj-r pr ḏḥ'* "overseer of the house of leather" and *jmj-r js.wj ḫ3.wt* "overseer of the double chamber of pelts", but the exact provenance of this monument is unknown (Brovarski 1973, 455 n. 13; Jones 2000, 129 no. 509).

Why leather and sandal making were so prominent in the epigraphic record of the Thinite nome, especially when compared with the inscriptions from other provinces and from the Memphite area, is not easily explained. Another intriguing fact is the reference to sandal tanning, particularly in light of the otherwise very scarce (archaeological, written and iconographic) evidence for tanning and leather processing in the 3rd millennium BC. A further question with broad economic implications concerns the supply of hides in order to produce leather: did they come from local herds? Or were they partly supplied instead by pastoral populations, considering that the Thinite province was an important departure point for caravans leading to the oases of the Western Desert? In this perspective, I would like to explore a rather speculative possibility regarding potential trade networks linking the processing of leather in Egypt with three elements: first, the supply of hides from Sudan across the routes of the oases of the Western Desert; second, the influence of Nubian techniques in the treatment of leather; and, finally, the use of castor oil for tanning leather – the last in light of written

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1   The tools represented with the sandal-makers in the tomb of Rekhmire include a pair of awls in handles; the more sharp-pointed one corresponds exactly to the determinative that follows the term *gs ṯbw.w* in the inscription of Sabnef-Ibi (Davies 1943, pl. 53; Schwarz 2000, Kat A17). Such awls illustrate the sign U23 in Gardiner's list. The Old Kingdom title *jmj-r gs(.w)* is translated as "overseer of leather-workers" (Jones 2000, 267 #963). His discussion of the title shows the uncertainty about the translation of the term *gs*: leather-worker, shoe-maker, shoe-repairer, cutter, but also tanner. Strudwick translates the title as "overseer of tanning" (Strudwick 2005, 425, #323).

2   *M3s*-animals were a category of cattle (Brovarski 1999, 333-336 n. 218).

evidence from the mid-1st millennium BC that reveals that the oasis of Kharga produced substantial amounts of castor oil that was exported to the Nile Valley. Despite the scarcity of archaeological and written evidence (Drenkhahn 1976, 1-17; Schwarz 2000; van Driel-Murray 2000; Veldmeijer 2008), which is scattered over a very broad chronological, geographic and ethnographic range, I hope that all these elements may converge in providing new insights into the history of techniques in late 3rd and early 2nd millennium BC Egypt. They could also cast some light on "invisible" trade networks and economic activities for which documents become relatively abundant only much later, by the second half of the 1st millennium BC. Finally, processing leather at specific (specialized?) sites, such as 3rd millennium BC Thinis, could help us understand how "marginal" areas and populations were well integrated and, in fact, indispensable in specialized craft activities involving division of labour, supply of raw materials and the integration of a diversity of ecosystems and economic factors.

Beginning with the sources of hides, these were requested by and delivered to the central administration by the provinces during the Old Kingdom. According to the Coptos decrees, hides were delivered as taxes to the overseer of Upper Egypt, and only special exemptions granted by the king precluded the agents of the crown from collecting hides from the temple of Min of Coptos (Strudwick 2005, 111-112). In other cases, exotic hides and skins arrived into Egypt from Nubia and beyond, as in the case of the panther skins brought from Nubia by Harkhuf or the lion skin that Sabni brought back from one of his expeditions to the South (Strudwick 2005, 241 and 336 respectively). Recent archaeological discoveries in Egypt reveal the excellent quality of Nubian craftsmanship in leather processing (van Driel-Murray 2000, 309). This is the case of loincloth and other delicately elaborated pieces of leather recovered from cemetery HK27C at Hierakonpolis (from the 11th to the middle of the 12th dynasty),[3] especially from tomb 9 (perhaps dating to the Middle Kingdom: Veldmeijer 2008, 2),[4] including the use of dyed leather (tombs 9 and 10: Skinner and Veldmeijer 2015). The examples from Hierakonpolis are particularly important as they involve the arrival of Nubian populations (Pan-Grave) into Egypt. The cemeteries of these populations were scattered all over Upper and Middle Egypt during the first centuries of the 2nd millennium BC, perhaps because they moved in small caravans that crossed the deserts into the Nile Valley (Näser 2012; 2013) – the kind of caravans that are recorded both in administrative texts (like the Semna dispatches: Liszka and Kraemer 2016) and in literary compositions (such as, in the *Oasian* or *Eloquent Peasant*, the small caravan of donkeys led by Khun-Anup that included leopard and wolf skins: Lichtheim 1973, 170). "Nubians of the desert" are mentioned, for instance, in the inscriptions of the overseer of priests Mereri, an official from Dendera who lived at the end of the 3rd millennium BC (Fischer 1968, 138 and 140). A magic text from this period mentions *"the Nubian woman who has come from the desert"* (Koenig 1987, 104), and archaeological evidence for Nubians becomes increasingly important in the oases of Dakhla and Kharga during the first half of the 2nd millennium BC (Manassa

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3   http://www.hierakonpolis-online.org/index.php/explore-the-nubian-cemeteries/hk27c-c-group (consulted the 30th November 2016).
4   http://interactive.archaeology.org/hierakonpolis/field/loincloth.html (consulted the 30th November 2016).

2012). The recent discovery of a late Old Kingdom burial of a Nubian woman in the vicinity of Bersheh, in Middle Egypt, may point to the arrival of Nubian pastoral populations in this area of Middle Egypt (Vanthuyne et al. 2008). Nubian soldiers are also well attested at Gebelein and other sites in Middle and Upper Egypt during the late 3rd millennium BC (Moreno García 2010). In fact, two pairs of sandals from an unpublished tomb in Gebelein show a double sole folded at the toe, a characteristic of Nubian C-Group leather sandals not found in Egyptian footwear (Hagen 2010, 194).[5] Also from Gebelein, the tomb of Ini, "great chief" of this area around 2100 BC, contained a complete cowhide among the funerary offerings placed in the tomb – a funerary practice alien to the Egyptian traditions but attested in the almost contemporary Kerma burials in Nubia, as if Ini was of Nubian origin and had been buried following some of his ancestors' rites (Donadoni Roveri 1990, 26). Finally, Egyptian raids against the Medja people of the desert were accompanied by the capture of cattle (Vernus 1986, 141-144).

Several texts dating to the very end of the 3rd millennium BC evoke the close relationship between the Western Desert and the area of Thinis, and the goods that reached Egypt from the Western oases (Darnell 2008, 98-102; Moreno García 2010, 27). This is probably why officials based in Middle Egypt during the Old and Middle Kingdom included among their duties the control of check-points/forts or even the entire deserts, in order to monitor the tracks leading to the Nile Valley from the desert (archaeological evidence discussed in: Darnell 2002; Monnier 2013). In other cases, Egyptian officials controlled mobile populations and it is not by chance that they are attested in areas at which routes leading to the deserts converged, especially at Thinis, Dendera and the Fayum (Moreno García 2015, 96-97). Given the importance of hides and leather in the Nubian economy, it is quite possible that these commodities were exported from Nubia to Egypt, across the Western Desert to Thinis, thus contributing to the supply of raw materials for the sandal-makers of the local temple at Abydos. As speculative as this idea may seem, officials such as Sabnef-Ibi, whose activities encompassed the whole Thinite province, would have needed a regular supply of hides and skins, and Nubian traders and pastoral populations may well have provided them directly or through the mediation of royal authority. According to the administrative documents from the Middle Kingdom settlement of Ilahun, sandal-makers received such materials from the administration (Wente 1990, 73-74). Other documents from the same period show that leather, as well as copper and wooden tools, were also distributed by the authorities to the craftsmen working for the state (papyrus Reisner II: Simpson 1965, 27 and 37-38).

In any case, temples managed substantial herds of cattle that represented a source of hides and skins. The Old Kingdom decrees of Coptos are not unique in describing these activities. Thus Wepwawetaa (reign of Amenemhat II, 1911-1877 BC), who boasted about being *ḫntj n j3.wt m ḥw.t-nṯr* "foremost of offices in the temple" at Abydos, stated that *"His Majesty granted me to slaughter oxen in the temple of Osiris Khentamenthes in Thinite Abydos. There accrued to me (income) from their hides"* (Lichtheim 1988, 79). A Ramesside administrative document, probably from the temple of Medinet Habu

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5 A New Kingdom ostracon mentions a type of sandals known as *tjw.t nḥsj* "Nubian sandals" (Hagen 2010, 193).

(P. BM 9997 = K*RI* VII 392-394), contains lists of cattle as well as accounts of skins and leather, while another Ramesside papyrus (Papyrus Harris I) mentions 3720 pairs of leather sandals donated by the king to several sanctuaries all over Egypt (Grandet 1994, 249). A fragmentary passage from Papyrus Turin 1887 vso col. III 10-11 mentions animals slaughtered and their hides taken as corvée (Porten 1996, 56). As for the provision of hides, the Ramesside Papyrus Amiens+Baldwin provides some complementary information about sandal-makers and the potential sources of the hides and skins they used (Janssen 2004, 47-48). A section of this document mentions a sandal-maker who lived in close proximity to an overseer of hunters as well as to an overseer of cattle. The interests of this leather craftsman apparently covered a relatively broad area around the locality of Khemenu (Hermopolis, in Middle Egypt), as he delivered grain and was listed together with two different agricultural domains; in another passage he is mentioned close to the domain of a herder (Janssen 2004, 52). It is probably not by chance that the neighbours of this sandal-maker were involved in hunting and cattle breeding. The importance of cattle in this area is highlighted by another Ramesside papyrus, which mentions a group of soldiers who confiscated cattle belonging to the people of Hermopolis (Fischer-Elfert 2003). The importance of leather in craft activities connected to the needs of the monarchy and its institutions (temple, army) explains why hides were so actively sought, even exacted from private citizens (Kruchten 1981, 80-95). Furthermore, leather was widely employed as writing support and many documents from the pharaonic period were actually written on this material, from letters to accounts, administrative documents and ritual texts (some examples: de Buck 1938; Gardiner 1947, 30-32, pl. 16-18; 1948, xix-xx, 60-63; Porten 1996, 35-40; Lindenberger 2003, 81-106; in general: Eyre 2013, 31-32).

Under these conditions, it is not surprising that Nubia delivered huge amounts of hides, leather and leather-made goods (shields, chairs, etc.) as tribute to the king, his officials and the temples, especially in the New Kingdom. This is evidenced in both the iconographic record (for example, the 18th dynasty tombs of Huy and Rekhmire, the temple of Beit el-Wali in Nubia, etc.: Stocks 2001) and the epigraphical record (Nauri decree; Török 2009, 193, 271 and 290 n. 39). Even in Middle Kingdom times, a leather workshop discovered at the fortress of Mirgissa, just north of the Second Cataract, reveals that leather was used there in the production of shields (van Driel-Murray 2000, 309). Wenamun's report (dating to the very end of the 2nd millennium BC) records the delivery of 500 linen mats and 500 ox-hides, among other items, to the king of Byblos in exchange for wood (Lichtheim 1976, 227; for exports of hides during the Greco-Roman period, *cf.* Forbes 1966, 34-36). Later on, during the first half of the 1st millennium BC, hides and leather goods were exported from Nubian rulers to Egypt and the Levant, as they appear for instance in the lists of foreign tribute collected by the Assyrian kings (Mumford 2007, 159). It has been argued that the Nubian knowledge of leather and the high quality of their workmanship might even be one of the reasons that the Nubian population found a continued role in Egyptian society (Veldmeijer 2011, 28-29). The techniques used in processing leather support this view.

Leather, castor oil and trade routes across the Western Desert

The activities of sandal-makers such as Sabnef-Ibi and, more specifically, the techniques used in the treatment of leather, might provide another clue about potential trade activities across the desert. Given the scarce information about vegetable tanning in pharaonic Egypt, a much-debated passage from the "Teaching of Khety" describing the activities of the sandal-maker (pSallier VIII, 1-2, section XVIII) is of particular interest. Vernus (2016, 250) translates it as follows: *ṯbww bjn sw rsy ḥr dbḥ.t=f r nḥḥ wḏ3=f wḏ3 m-ˁ ẖ3.wt psḥ=f m msk3.w=f* "The sandal-maker, he is very bad, busy with his necessaries for eternity. If he is prosperous, it is in the way one is prosperous thanks to the corpses (*lit.* it is in a manner-of-being-prosperous thanks to the corpses that he is prosperous)! It is his skins that he has to put-between-his-teeth." However, other scholars have proposed different interpretations, most recently Raedler (2015, 1818): "the shoemaker – he is very miserable between his *nechech*-oil jars, his storage is filled with hides and what he chews is leather." The crucial point here is the interpretation of the term *nḥḥ*, either "eternity" or "*nḥḥ*-(sesame-)oil" (discussion in Vernus 2016, 250 n. 15). Whether "eternity" might be the best suited or not, oil was used in tanning and workshops in which leather was processed must have used significant quantities of oil. Schwarz, for instance, states that oil (sesame, perhaps also olive oil) was used in skin processing, but the identification of the type of oil employed still remains uncertain (Schwarz 2000, 58-62, 118-119, 122-123; Veldmeijer 2011, 18) – especially when considering that sesame oil was apparently not produced in Egypt before the Ptolemaic period (see *infra*) and that olive oil only became common in the Nile Valley towards the New Kingdom (Newton, Terral and Ivorra 2006). Veldmeijer has also stated that the predominant skin processing in pharaonic Egypt was oil curing, while the evidence for the use of alum and minerals in making skins durable is ambiguous (Veldmeijer 2011, 18). After having been soaked in oil, the skin would have been staked to make it supple and the remaining oil would have been worked into the skin. Finally, the skin would have been dried. Veldmeijer (2008, 3) also thinks that Nubian leatherwork (including leatherwork of the Nubian C-Group) used vegetable tanning. Nubian influence is noticeable both in fashion and in the use of leather in Egypt from (at least) the late 3rd millennium BC on (herders wearing leather cloaks are well attested in Egyptian art since the 3rd millennium BC, while Nubian leather cloaks left their mark in Egyptian art in the 1st millennium BC: Hallmann 2007; Moreno García 2017, 119-120). Bearing this in mind, it is quite possible that such influence could not but reinforce the use of oil for tanning by Egyptian leatherworkers.

In any case, tanning was a common practice in the preparation of hides and inspired metaphors. Thus, a late hieratic text described the condition of the skin of a messenger who had been traveling for a month in a desert environment in these terms: "(he) was blackened like dried-up flesh abandoned on the desert-edge, or like tanned bull-hide (*ḥnt-k3 ḏrjw*)" (Caminos 1977, 57). Tanning (more precisely "anointing leather"; see *infra*) was also present in titles, not only in Sabnef-Ibi's *jmj-r gs ṯbw.w T3-wr* "overseer of sandal-tanners/tanning of the Thinite nome", mentioned before, but also and more precisely in the titles borne by Weta (4th dynasty, around 2613-2494 BC), who was *gs(.w)* "tanner", *jmj-r gs(.w) ḥrj-ˁ nzwt* "overseer of tanning of royal documents", *jmj-r gs(.w) ṯbw(.w) nzwt jr(j) ẖt m ṯbw(.w) nzwt* "overseer of tanning of the king's sandals

who executes (any) task relative to the king's sandals" and *jmj-r ʿrtjw jr mdꜣ.t nt ʿr.t nt ẖrj-ḥb* "overseer of manufacturers of parchment who makes the leather roll of the lector-priest" (*Urk.* I 22; Strudwick 2005, 425; Jones 2000, 80).

While solid evidence concerning the use of oil in tanning and in leather processing in pharaonic Egypt is scarce, some evidence suggests that the beginning of the 2nd millennium BC witnessed a resurgence in interest in leatherworking (as also occurred in the textile industry). It is also probable that such interest was in part due to Nubian influence. It was then, during the early 2nd millennium BC, that leather loincloths were introduced into Egypt, perhaps as a Nubian fashion (Vogelsang-Eastwood 1993, 31), and that a hide account mentions tanned hides (Simpson 1965, 38). As for depictions of skin tanning and the use of the half-moon knife, these only appeared in tomb scenes at the very end of the 3rd millennium BC. They are attested for the first time in the tomb of general Intef (Theban Tomb 386: Jaros-Deckert 1984, fig. 3, pl. 13; Schwarz 2000, 118 fig. 83), as well as in the early 2nd millennium BC tombs of Baqet III and Imeny at Beni Hasan.[6] Unfortunately, these scenes hardly contain any textual description of the technical procedure followed by the leather workers, that of Baqet III being the exception. The brief texts that accompany the scenes depicting different stages in sandal making provide a schematic sequence of the operations involved: *tḥs* "stretching (the hide)", *wdʿ ṯb.wt* "cutting the sandals" and *pnʿ dbḥ.t* "to turn over the piece" in a container (Newberry 1893b, pl. iv; Schwarz 2000, Kat A8). A comparable description appears in the much later tomb of Ibi, who lived under the reign of Psamtek I (664-610 BC): *tḥs ṯb.w* "stretching the sandals" and *wdʿ bs.t* "cutting the sandal (?)" (Kuhlmann and Schenkel 1983, pl. 30; Schwarz 2000, Kat A24). However, the most ancient description of the activities of a sandal-maker, in the tomb of Ty (first half of the 25th century BC), introduces a variant: *gs ṯb.t* "anointing sandal(s)" and *tḥs hn.t* "stretching the hide" (Wild 1966, pl. 147B and 174; Schwarz 2000, Kat A2). In fact, the expression *tḥs hn.t* "stretching the hide" was common in other tombs dating from the Old Kingdom, such as those of Iymery, Nyhotepptah and Shedu of Deshasha (Schwarz 2000, Kat A1, A5 and A4 respectively). In other scenes the operation of tanning is defined as *gs ṯb.t* "anointing leather" when, after soaking the leather in oil (*pnʿ dbḥ.t* "to turn over the piece"), it is taken out and beaten with a mallet to facilitate the penetration of the oil (Forbes 1966, 25-26). It seems then that the use of oil in the processing and tanning of hides was regular at least from the middle of the 3rd millennium BC on, and that this practice perhaps expanded during the early 2nd millennium BC, in a period when contacts with Nubians increased and when Nubians settled or were employed in several areas of Egypt, particularly Middle Egypt. However, a crucial question remains open: what kind of oil was used?

The recent discovery that ricinus, the plant that produced castor oil, was largely cultivated in the oases of the Western Desert around the middle of the 1st millennium BC, might point to a particular but neglected "industrial" use of this plant, tanning leather.[7] It is well known that castor oil was employed for cosmetics, medical remedies

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6 Tombs BH 15 (reign of Amenemhat I: Newberry 1893b, pl. iv) and BH 2 (reign of Senwosret I: Newberry 1893a, pl. xi), respectively (*cf.* also Schwarz 2000, Kat A8 and A9; Kanawati and Woods 2009, fig. 111, 114).

7 Traditional tanning in Africa used and still uses castor oil, but this function is not mentioned in Morris, Wang and Morse 2011.

and lighting in oil lamps. For instance, the medical Ebers papyrus (*ca*. 1550 BC) contains several recipes against diseases and infections in which castor oil and castor beans were used (Dawson 1929, 52-57). Castor-oil was widely employed by the workers in the community of Deir el-Medina, who were issued rations of this produce at regular intervals, perhaps for skin anointment and as lamp oil (Manniche 1989, 143 n. 37), to the point of being the most common (Janssen 1975, 334-335). The Chronicle of Prince Osorkon (8th century BC) lists several donations of huge quantities of castor oil in order to provide oil for lamps: 1215 *hin* (one *hin* = 0.48 litres), which should make 607,5 *deben* of copper (Ritner 2009, p. 357); 5 *hin* of castor oil every month for the altar of Re in the temple of Amun, perhaps equal to 3 *deben* and 3 *kite* (Ritner 2009, 372). Under the reign of Amasis, the priests of Amun of the small temple at Teudjoi offered a mediator an annual payment of 300 sacks of grain and 200 *hin* of castor oil, among other goods, in order to gain his support before the king (Vittman 1998, 531). A papyrus of the late Ramesside period records, among other taxes, the delivery by the sanctuary known as House of Haroeris, Lord of Kom Ombo, of one *khar* (one *khar* = 76.8 litres) of ricinus fruits (*dgmy*) by the hand of a prophet, thus showing that ricinus was produced or collected by the temples and subsequently subject to taxation (pBM 10401, col. I, 18: Janssen 1991). This papyrus also gives the price of one *khar* of ricinus fruits, as equivalent to one sheet (*jfd*). According to other sources one sheet was equivalent to one piece of *ḏꜣy.t*-cloth that, according to the prices operative in Deir el-Medina, cost 20-50 *deben* of copper. Elsewhere, in Deir el-Medina, one sheet (*jfd*) cost 8-10 *deben* of copper (Janssen 1991, notes t, ff and kk). Other texts from Deir el-Medina reveal that one *hin* of castor oil = ¼ *khar* of barley = ½ *deben* of copper (one *khar* = 160 *hin*; one *deben* of copper = 0.91 gr). The price of castor oil in early Ptolemaic times was half that of sesame oil (Muhs 2005, 61 n. 419), as was the case in the community of Deir el-Medina almost a millennium earlier. The data for the the Ramesside period can be summarized as follows:

Castor oil: one *khar* = 80 *deben* of copper
Ricinus (fruit): one *khar* = 20-50 *deben* of copper
Sesame (oil): one *khar* = 160-320 *deben* of copper[8]
Barley: one *khar* = 2 *deben* of copper

Judging from these prices, castor oil appears to have been a rather lucrative crop, especially when considering that an alternative oil producing plant such as sesame, also suitable for tanning, was probably not cultivated in Egypt until the late 1st millennium BC.[9]

Ethnographic evidence from Africa reveals that castor oil has been widely used for hide processing in traditional tanning, as in the case of Zululand (Forbes 1966, 10; Badenhorst 2009, 40), Ethiopia and among the Fula, who used to sell the seeds of rici-

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8   According to the data analyzed by Janssen (Janssen 1961, 92-93), one *hin* of sesame oil cost between one and 1 ⅔ *deben* of copper.

9   While some documents from the New Kingdom (Deir el-Medina) mention the delivery of sesame oil, there is no secure evidence about the cultivation of this plant in Egypt prior to the Ptolemaic Period (Serpico and White 2000, 397-398; Fuller 2003, 133). Its high price perhaps suggests that it was a luxury item imported into the Nile Valley.

nus to tanners (Le Bourgeois and Seignobos 1995, 112). The same practice is attested among the peoples of the Rift Valley, who also sold hides and seeds of ricinus to tanners (Chouvin 2009). The Konso people, in Ethiopia, grind castor oil beans and work them into the hide through pedulation to soften the hide; ochre is used in combination with the mixture of ricinus oil beans to colour hides used for clothing (Weedman 2005, 193; 2010, 231-232). In general, the Gurage, Oromo, Konso, and Wolayta Ethiopian hideworkers soften their hides with their feet by grinding in butter and/or castor seeds and sometimes eucalyptus leaves (Brandt and Weedman 2002). Ndebele people from Zimbabwe prepared thongs by cutting an ox hide into a continuous strip subsequently stretched by hanging from a tree; then castor-oil was applied to the hide while stretched, improving the tensile strength of the thongs (Hooper, Davison and Klinghardt 1989, 393). Castor oil was also traditionally used as a skin ointment and for the curing of hides in Dodoma region, in Tanzania (Lomøy 1986), as well as by the Kikuyu people in Kenya (Tate 1904, 260). Castor beans were also planted or collected in Nubia in pharaonic and post-pharaonic times. Thus, castor oil beans have been identified in the medieval archaeobotanical record at Nauri and El-Hamra (El-Ga'ab Depression), whereas sesame (sometimes thought to have been the preferred oil in tanning) was absent there (Fuller and Edwards 2001, 99, 101 and 103; Madani, Tahir and Hamdeen 2015). At Qasr Ibrim, also in Nubia, the archaeological layers dating to the Napatan, Roman and medieval periods have also yielded archaeobotanical evidence of ricinus; sesame appeared only later, during the Meroitic Period (Clapham and Rowley-Conwy 2007, 159, 161). In early Kushite Kawa, the plant species recovered included ricinus as well (Fuller 2004, 71). It is therefore possible that the cultivation of ricinus in the oases of the Western Desert, and the rather probable export of castor oil to the Nile Valley, were not only to provide oil for cosmetics and lighting but also to supply tanners with a product used in the preparation of hides and in processing leather. The epigraphical record reveals that castor oil was cultivated in the oasis of Kharga (Newton, Whitbread, Agut-Labordère and Wuttmann 2013; Agut-Labordère 2016), while its export to the Nile Valley finds some support in the huge locally produced containers (*siga*) used to export liquids to Elephantine, Edfu, Dendera, Karnak, Abydos and Tebtynis, in the Valley (Agut-Labordère 2016, 42-45; Marchand 2008; Defernez 2012). Furthermore, it cannot be excluded that containers originally intended to carry wine and other liquids were reused to transport castor oil. A good example is the African pottery recovered at the burned warehouse of the port area of Classe (Ravenna), dating to 490-500 CE (Pecci, Salvini, Cirelli and Augenti 2010).

The Aramaic archive of Elephantine provides additional clues, as it shows that hides and castor oil were quite common. Castor oil appears there as a regular item in brides' dowries (letters B28, B36 and B41: Porten 1996, 177-183, 208-211, 226-233). It was frequently requested by correspondents from their relatives living in Elephantine (letters B2, B4-B5; see also B14: Porten 1996, 93-95, 99-103, 127-129). And, in one case, castor oil thus obtained was to be exchanged for olive oil later (letter B1: Porten 1996, 91). In other letters, the sender asks for five handfuls of castor oil as well as for skins, enough to manufacture a leather garment (letter: B4: Porten 1996, 99-101), or he requests castor oil and leather skins, among other goods (B14: Porten 1996, 127-129). Bearing in mind that the petitioners stayed in important cities such as Memphis and the Theban area, their demands appear surprising, as if hides and castor oil were, appar-

ently, not so easy or not so advantageous to obtain there as they were in Elephantine. A possible explanation is that Elephantine was probably an important centre of leather production during the Late Period, judging from the large number of sandals, shoes and other leather objects found in houses from the western half of the city, inhabited by families of foreign mercenaries who served in the Persian army (Veldmeijer 2016, 12 and 102-138). In fact, Persian leather sandals were explicitly evoked in the Aramaic letters found at this locality (B41: Porten 1996, 229). Elephantine, moreover, is one of the two sites in the Nile Valley where archaeobotanical remains of castor from this period have been identified (the other one is El-Hibeh) and the only one in which safflower (*Carthamus tinctorious*) has been recovered, a plant used in dying (Newton, Whitbread, Agut-Labordère and Wuttmann 2013, 11-12, 27). When considered together, all this evidence points to a local industry of leather processing that used castor oil produced locally or imported from elsewhere, such as from the oases of the Western Desert, as the archaeological data suggests. Unfortunately, no archaeological remains of such leathercraft activities have been found in Elephantine. A final element to consider is that Egyptian leather was renowned in Antiquity for being stretchable and soft (Habermann 1990): this suggests the existance of rather developed leather processing techniques in which oil was indispensable in order to obtain such qualities.

Conclusion

Little is known about the techniques employed for tanning leather in pharaonic Egypt. However, in the absence of sufficient archaeological and written sources, some clues emerge from a diversity of historical and ethnographic data. Individuals and institutions provided hides and skins used by leather craftsmen but, at the same time, Nubia also supplied these goods and it seems that (not only exotic) hides from this region flowed into Egypt. In fact, Nubian populations crossed Egypt as well as the routes that linked the oases of the Western Desert to areas such as Thinis and Asyut; moreover, from the late 3rd millennium BC on, Nubian influence in the use of leather (clothes, fashion, etc.) is well attested in Egypt. As for the quality of leather produced by Nubian and Egyptian craftsmen (elasticity and softness, among others), it is quite possible that the use of castor oil played a major role, despite its having been neglected in modern research. The demotic ostraca from the oasis of Kharga, dating to the Achaemenid period, reveal the importance of the production of castor oil in the local economy, while the archaeological evidence suggests that it was exported to several localities in the Nile Valley and beyond. Elephantine was one of them. Here, Aramaic documents from the Achaemenid period show that hides and castor oil were abundant enough to be requested by people living in some cases hundreds of miles away. The rich corpus of sandals and other leather goods found in the Achaemenid layers from this period points to a thriving local leather industry during the 5th century BC. Scarce and speculative as it may be, this combined evidence suggests new avenues for research into topics such as "invisible" trade, regional economic specialisations (pastoralism, production of particular plants, etc.) and their integration into specific "industries", the development of crafts, etc. The supply and processing of leather is one such avenue and it points to a period (the very end of the 3rd and the beginning of the 2nd millennium BC) that was rich in technical innovations and economic contacts with neighbouring regions (Moreno García 2016; 2017).

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Languages of Artists: closed and open channels

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Abstract

Middle Kingdom sources for specialisation in material production include the objects produced, the architectural evidence for places of production and use, the depictions of production and storage, and the manuscript and inscriptional evidence for organisation and religious and literary expression. For such varied datasets, only collective effort can develop effective research, through comparative studies. Towards that aim, I consider our access to the aspect of language in production, from that small proportion of the archaeological record bearing inscription or depiction. For a critical philology I draw on the 1929 publication Voloshinov, *Marxism and the philosophy of language*. Following a model established by Oleg Berlev for study of Middle Kingdom social terminology, I separate written sources into categories, each offering different ranges of information. Examples within these distinct sets of sources illustrate the possibilities for access to ancient artists in writing and across the wider record.

Keywords: Artists, art, linguistics, philology, vocabulary, historiography, Middle Kingdom.

A place for the word

Disciplinary debates between archaeology and history can lead to deeply polarised positions in the study of any historical period (Andrén 1998, Sauer 2004, Moreland 2006; for Egypt see Giddy 1999). A fieldwork archaeologist might avoid ancient writing for being too biased, and an ancient historian might study written words to the exclusion of any material, even the surface or medium of the words themselves. As abstract ex-

in: Miniaci, G., Moreno García, J.C., Quirke, S. and A. Stauder (eds.) 2018: *The Arts of Making in Ancient Egypt*, Sidestone Press (Leiden), pp. 175-196.

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tremes, the dismissal of ancient writing as propaganda and the indifference to material context share a mechanical approach to reading. In the present, an exclusive focus on ancient writing does seem the more acute obstacle. Contributors to this volume and to the conference that inspired it have considered the material products, the often ephemeral locations of production, and depictions of artists in the act of making. Inscription and manuscript populate only a small proportion of this archaeological range, and the social partiality of written records seems compounded by the isolation of philologists from wider disciplinary concerns (Wendrich 2010). Yet social bias affects all archaeological sources and all who produce disciplinary writing, including in the discipline of archaeology (Matthews 2005, 32-33). As the connection between writing and power is such a strong topic of debate (Bowman and Woolf 1996), researchers into writing have special grounds, and potential, for developing self-critical analytical approaches applicable across archaeologies (as Pinarello 2016).

Within sciences of the word, similar clashes arise between those focussed on speech and on script. Attacks by linguists on the negative impact of philology may be more productive for both archaeology and history, because the word remains a central object of study, not as a flat documentary presence, but precisely in its internal social contradictions. One point of entry into problems and potentials of the written record is *Marxism and the philosophy of language* (Voloshinov [1929] 1995: English translation by Matejka and Titunik, Vološinov 1973, from which some passages are reproduced with commentary in Morris 1994, 25-37, 48-73), itself a writing from a past now hard to read in context (Sériot 2011). The work predates the tighter political controls on debate from 1929 on, and, equally crucial for understanding it today, the academic terminological precision that social scientists now assume (Sobral and Giacomelli 2016). Voloshinov belonged to an informal and constantly changing circle of poets, philosophical thinkers and artists, united against contemporary disciples of the psychology of Freud and the linguistics of Saussure, and against any idealist thought which excluded or downgraded the social aspect of being human (Hirschkop 1999). In its own historical context, *Marxism and the philosophy of language* sought space for a dialogical materialism, which Sobral and Giacomelli see as indebted to a 1909 publication by Vladimir Lenin, *Materialism and Emprio-criticism*, itself "a not strictly Marxist proposal" according to their interpretation (Sobral and Giacomelli 2016, 171). Whatever its inspiration, this discursive space would be most fully explored over the following decades by Mikhail Bakhtin; Voloshinov himself died of tuberculosis in 1936 (Hirschkop 1999).

From his studies in linguistics, Voloshinov argued against reducing words to a single dimension, and insisted on the social dimension of language. "To observe a feature of language, the subjects producing and hearing the sound must be located, as must the sound itself, in the atmosphere of the social" (Voloshinov [1929] 1995, 257). His simultaneously collective and individual focus avoids any concept of people as abstractly equal discussants, and foregrounds instead "the enormous importance the hierarchical plays in processes of interaction in speech" (233). "Every word is a little stage for the mingling and struggle of social accents in different directions" (256); "Contexts do not stand side by side, as if oblivious to each other, but find themselves in a condition of tense and uninterrupted interaction and struggle" (296). Philology and anti-philology alike may tend to simplify ancient script to a mechanical signal, installing "singular

meaning and single accent of the word, in place of its vibrant multiple accents and multiple meanings" (292). Philologists stand accused of killing the spoken word by treating it as an inscription in a dead language, with equally lethal effect for our present readings of past words: "The inevitably passive understanding of the philologist-linguist is also projected onto the very monument studied from the point of view of language, as if the monument had been made itself for such understanding, as if it had been written for the philologist" (288). Significantly, instead of denouncing philology, which may offer useful techniques, Voloshinov rejects the whole style of thought in "philologism" (286). This shift in target opens the way for a dialectical turn, whereby linguistic researchers on contemporary living words can bring the ancient word back to life, by helping historians to recognise written words too as simultaneously social and personal (287):

> *"Every monologic utterance, including the written monument, is an inseparable element of social intercourse. Every utterance, even one completed and written down, responds to something and is set up for some response. It is only a link in a single chain of speech performances."*

We can expect then that, in the inscription or the manuscript too, "precisely the multiple accents of the word make it alive" (296). This vital principle forces us to appreciate the extreme difficulty and complexity of any material philology, the low chances of a positive success, and therefore the need for plural hypotheses and source-critical experimentation. Following Voloshinov in his approach to the word as material and social, I agree that the material products of art offer the most direct access to the producers, and at the same time I propose to search ancient writing for any further, less direct evidence of the voices of artists.

Artist in words: source base

Despite the restricted social scope of written sources, then, language itself offers features crucial for research into any period. On the numerous depictions of manual producers, Oleg Berlev noted the questions unanswered by visual analysis alone: who are these people, what is their position in their society? Only lexical analysis would allow us "to hear the answer from the lips of the Egyptians themselves" (Berlev 1972, 4). In its varying degrees of mediation, ancient script brings a chance to hear the maker in and with languages that are theirs and not ours. As the "we" of academic writing denotes primarily academics, others would better lead both this and every other conversation with past peoples. The philologist and archaeologist may have other roles, to emphasise the importance of that conversation, and to share their knowledge of the data base.

People active in material production are present in the written sources through the terms that designate their specialised skills, often with associated name. I apply the word artist to all those engaged in material production, without prejudging either their role in choosing forms and materials (ideation and composition), or the quality of their products. In this paper I do not cover the arts of food provision, or relations between that and other areas of material production: these topics require integration in further research, building on previous studies (e.g. Murray 2000a, 2000b, Berlev

	1. items made for burial	2.1 scenes in large offering halls/ monuments	2.2 items from smaller offering chapels	3. rock inscriptions	4. seal-amulets	manuscripts					10. objects made for life-use
						5. ritual	6. literary	7. letters	8. legal	9. accounts	
A goldsmith	-	-	1, 2, 3	1	1, 2, 3	(1)	*(1)*	-	-	-	-
B coppersmith	-	-	1, 2, 3	1	2	-	*(1)*	-	-	1	-
C craftsman	-	1	2	1, 2	-	-	*(1)*	-	-	1, 2	-
D glaze-worker	2	-	1, 3	-	-	-	-	-	-	-	-
E stone-former	-	1	1	1, 3	-	-	-	-	-	-	-
F sculptor	-	1	1, 2, 3	1, 2	1, 2	(1)	(2), *(1)*	-	-	(1)	2
G man of the land bearing the god	-	1	1, 2, 3	1, 3	-	-	*(1)*	-	-	(1)	-
H builder (or potter)	1	1	1, 2, 3	-	-	-	*(1)*	-	-	1	-
I carpenter	-	2	1, 2	-	-	(1)	(2), *(1)*	-	-	-	-
J maker of animal-leg furniture	-	-	1, 3	-	1, 3	-	-	-	-	-	-
K leatherworker	-	-	2	1	-	-	*(1)*	1	-	-	1
L weaver	2	2	2	-	-	-	*(1)*	2	1	-	-
M draughtsman	-	1	1, 2, 3	1, 2	1	-	(1)	-	-	(1)	-

Table 1: Attestations of designations for artists, by source type.
Table key: 1 the artist, 2 overseer of the artists, 3 overseer of section/ work-shift of the artists. Entries in brackets denote attestations only without personal name; Entries in brackets with italics denote attestations in the Teaching of Khety, all without personal name (Widmaier 2013).
Sources for entries (by Ward 1982 index number if not otherwise specified):
A1 824; A2 230; A3 112; B1 955-957; B2 281; B3 114; C1 959; C2 282, 282a, 283; D1 Lisht 883 (see text); D2 Lisht 883 (Bourriau 1996); D3 119?; E1 801; E3 111; F1 1561; F2 407-408; F3 118; G1 1227; G2 311; G3 332, 410; H1 570c, 1550; H2 48-49, 397; H3 Vienna ÄS104; I1 812; I2 218; J1 558, J3 109; K1 1593; K2 417, Rio 2423; K3 stela Rio 2423; L1 1343, Papyrus Brooklyn 35.1446; L2 421, 197-200 (together Berlev 1972, 131-132); M1 1444; M2 359a, 1596; M3 114.

1978, Verhoeven 1984). For the words used to designate other artists, the Middle Kingdom source base is as uneven as any other archaeological record. In addition to the chronologically variable distribution of writing on material surfaces (Jurman, this volume), there are all the modern and ancient factors which archaeologists of prehistory have identified in taphonomic studies (Sommer 2012): patterns of ancient use and deposition; preservation chances of organic and inorganic materials at different sites; changing excavation priorities of archaeologists and collectors.

Ancient writings contain not only designations of artists, but also their words, as reported speech in direct or indirect mode (see section V). Sometimes, artists may depict or name themselves, as when painters outline their own images and names, or sculptors carve theirs (section IV). For these different possibilities of self-presentation and direct /indirect reported speech, attention to source type offers greater precision on the context of each "event of utterance" (Sobral and Giacomelli 2016, 171 on this term in Voloshinov 1929, translating "concrete utterance"). Therefore, a first step in assessing the fragmented written record is categorisation by source type, where I follow the example set by Berlev for research into Middle Kingdom terms for the working population (notably Berlev 1972, 45-67). Provisional results are summarised in Table 1

	1. items made for burial	2.1 scenes in large offering halls/ monuments	2.2. items from smaller offering chapels	2.3 scenes in temples to kings or to deities	3. rock inscriptions	4. seal-amulets	manuscripts					10. objects made for life-use
							5. ritual	6. literary	7. letters	8. legal	9. accounts	
vizier	X	X	X	X	X	X	-	X	X	X	X	X
treasurer	X	X	X	X	X	X	-	-	-	-	X	X
high steward	X	X	X	X	X	X	-	X	-	-	-	X
general	X	X	X	X	X	X	-	X	-	-	X	-
overseer of fields	X	X	X	-	X	X	-	X	X	-	X	-
overseer of the forecourt	X	-	X	X	X	X	-	X	-	-	-	-
overseer of sealers	X	-	X	-	X	X	-	X	-	-	X	-
overseer of the enclosure	-	-	X	X	X	X	-	-	-	-	-	-
director of the broad court	-	-	X	-	-	X	-	-	-	-	-	X
king's secretary of the Presence	-	-	X	X	-	X	-	X	-	-	X	-
overseer of marsh-dwellers	-	-	X	-	X	X	-	X	-	-	-	X
other	X	X	X	X	X	X	-	X	-	-	X	X

Table 2: Attestations of high officials by source type, after Grajetzki 2000.

(from Ward 1982, Franke 1984, Fischer 1985). A massive imbalance emerges between organic and inorganic fields of production, but also between artists of stone and those in the igneous industries of metal, glazing and pottery. Strikingly, there are no wood or metal objects in this initial dataset. Degradation and recycling doubtless account in large part for this result, but ancient patterns and choices of inscription are other significant factors, along with different access to inscription experts.

The attestations for named artists can be compared with, and calibrated against, the published evidence for named high officials of the period (Table 2, after Grajetzki 2000). This dataset does include wood and metal as well as faience items, but just nine of some 500 entries are not on stone or papyrus, though they cover diverse object types: chisel, faience vessel, staff, votive mast-tip, weight, writing palette. Even without modern disciplinary distortions, the survival chances of ancient sites would already form a material ancient Egypt with limited relation to the life of the country at any period. Yet the stone core of both Tables also reflects how a philological instinct to prioritise written evidence has compounded the effect of conservation needs for large-scale stone architecture in the Saharan Nile. As a result, Egyptology reduces the two lands of Egypt to one: not so much Upper Egypt without Lower, as, in both those halves, the Red Land of rocky ground without the Black Land, the floodplain. In order to see writing in its context, conscious effort is needed to turn the archaeological or Egyptological map inside out and stand at the river. Fieldwork at settlement sites can correct our chart of the distribution of writing, and choice of scripts. Corroboratory evidence survives from the low desert, thanks to the sporadic ancient deposit of objects which had been made for use in life. These sources extend the range of inscribed

object types to boxes, cup-stands, head-rests, mirror-handles, and pottery vessels. In every case, the writer selected the hieroglyphic script, with the sole exception of some more cursive signs on a pottery saucer from Lahun (Petrie 1890, pl.10.67, context not recorded). The strength and implications of that script choice are considered below.

The following sections explore the scatter of diverse data from Table 1. From assessing the framing qualities of each source type for communication (III), analysis can turn to aspects of the written record, first on self-presentation and indirect presence in inscription (IV-V), and then on the ambivalence between appreciation and control in handwritten sources (VI), before widening the scope to the full range of the archaeological evidence-base (VII).

Source types as frames for the languages of artists

As an event, each utterance owes its effect to its exact time-space of production and reception (Voloshinov [1929] 1995, 257-258):

> "What is language? what is speech? It is necessary that speaker and listener would belong to one linguistic collective, to a specifically organised society. It is necessary, further, that our two individuals would be embraced by the unit of the immediate social situation, that is, that they communicated as person to person on a specific ground."

Recording words, including self-recording, multiplies the time-spaces. As distinct historical, geographical and functional environments, each source type frames a language-space for its group of written "speech-events", in which we participate as outside listeners. As a rough initial guide, the table of written sources can be divided between the hieroglyphic world, horizon of eternity, and the more cursive world, horizon of mortality (Assmann 1991, Vernus 1990). Source types 1-4 enlisted the hieroglyphic script to secure eternal existence and well-being: items made for burial; objects and surfaces in temples, halls or chapels to receive offerings for sustenance; rock inscriptions, also for sustaining a person; and, less immediately obvious to us in our separation of economic and religious spheres, the seal-amulets used both for protection and for sealing containers and papyrus scrolls. Source types 6-9 are manuscripts of varying content, in the more cursive hieratic script: literary narratives or teachings, letters for communication on a sporadic basis, legal documents, and accountancy documents. Manuscripts for the correct conduct of ritual (type 5) occupy a liminal space, eternal content on fragile papyrus, and bear a cursive form of the hieroglyphic script, with still recognisable forms for all signs. Rock inscriptions and offering-chapel elements also breach the analytical line between the two horizons, by sometimes veering into hieratic forms of signs, despite their sacred ground and aim.

The two horizons identified by Assmann, eternity and mortality, carry different framing characteristics. As unintended users, we may understand manuscripts within the time-terms most familiar to us: the manuscript was written for its time and speech-group, and we can choose to locate ourselves as "future" of its completed "past". Hieroglyphic inscription involves a more subversive intervention into the flow of time. The inscriber installs from one moment a content which is then to last from that "now"

into eternity. The communicative time-frame therefore disrupts linguistic aspect (complete, incomplete) and tense (past, present, future): the act of writing is complete and past, but its effect is unending, ignoring any distinction between the present and future of its readers. These various mediating frames constitute our possibilities for reading and hearing the Middle Kingdom maker.

The mediating effects of language itself also require direct assessment as one further frame in interpretation. Designations of activity in society change as rapidly as pottery forms, and can be equally shy in identifying their function. Between the "sculptor" and the "carpenter", for example, Middle Kingdom inscriptions do not specify whether one or both designations would apply to the artist carving a statue of wood. Beyond source-critical lexicographical study, further analysis depends on deeper understanding of the operational webs or zones, within which artists produced their works. Sources which collect multiple artists, such as offering-halls and offering-chapel stelae, may then contribute useful further evidence to assess the interpretations of ancient art in practice.

Self-presentation in writing

On a strict definition of signature, only the literate would be able to present themselves in words. Even if another person is directed to name or portray them, the product would be indirect. In some societies, a personal signature is a regular, even endemic feature of life. In other, particularly part-literate societies, the habit and opportunity to sign may be much more infrequent. Regular signers, such as university staff, may find it harder to identify the sources from past societies where signature was not normative practice. Differences between adjacent periods can be instructive, and the distinction of sources by type may be helpful for precision here. Whereas no examples of self-presentation by artists appear in the surviving Middle Kingdom letters, the late New Kingdom corpus includes numerous records written by the draughtsmen and sculptors who worked on the tomb of the king at Thebes, and especially the letters of Amennakht, a carpenter for the palace in the same context (Wente 1990, 52-53, 167-170).

In the Middle Kingdom, inscriptions for eternal offerings provide most examples of what could be categorised either as direct or as directed "signature", in keeping with the source distribution in Table 1. The cult of offerings for one or more named persons is the dominant motivation for creating stone monuments in Bronze Age Egypt (c.3000–1000 BC), for the architecture as a whole or for elements in a brick-built structure. The person may be a deity, king, or human being, three categories that are distinct in ancient writings but not mutually exclusive. The category *netjer* "deity" includes entities which are not considered as divine persons in monotheistic traditions (Fitzenreiter 2004), while the king occupied an ambivalent space, called most often *netjer* but sometimes also *se* "man" (Posener 1960, Hornung 1971, Berlev 2003). As at other periods, Middle Kingdom offering-spaces of the third category, for mortal humans other than kings, may be rock-cut or free-standing structures, and range in size from massive monuments for high officials and regional governors, to modest installations. At both ends of the scale, some artists created an eternal presence for themselves, by inscribing or having someone else inscribe their names in hieroglyphs, with or without depictions. Artists appear by name and title in company with kin and colleagues of

varying professions on many stone elements from mud-brick or stone offering-chapels. At Abydos, ground-level chapels, some over burial-places, some not, overlook the processional way from the temple of Osiris to the tomb of the 1st dynasty king Djer, identified as the tomb of Osiris in Middle Kingdom and later times (Simpson 1974, Effland and Effland 2013). At other sites, such chapels are most often above burial-places, as at Saqqara, Thebes and Elkab, but several cluster around the monuments for revered late Old Kingdom governors at Edfu (Farout 2009) and Elephantine (Franke 1994). The chapels without burials at both Abydos and Elephantine may have been for passing officials on commissions, or those involved in constructing kingship monuments at Abydos (on the sources behind the Egyptological notion of a "pilgrimage" to Abydos, see Volokhine 1998). As outlined above, the hieroglyphic script appropriate to sacred ground would project verbal content into eternity. Inscriptions in offering-spaces often address the collective of future readers through an "Appeal to the Living" to read a formula for offerings inscribed on the monument (Ilin-Tomich 2015). The communicative frame of offering-spaces displays two further features: (i) collective of beneficiaries, though most often with one primary beneficiary, (ii) identification of each beneficiary by name and by "title", that is, officially or socially recognised function, most precisely conveyed in the late Middle Kingdom (Vernus 1986 for second names, Berlev 1978, 44-48 for designations of function).

For monument production, Pascal Vernus distinguished "degrees of responsibility" in creating inscribed surfaces: composition (ideation), draughting (painting the outlines), and sculpting or incising (execution), adding the fourth set of talents in supervision and co-ordination for larger-scale activity (Vernus 1986, 588-589). One person might combine roles, or more than one person might join each task. In addition to providing a substantial number of named artists in social context, the chapel elements include instances where the artist may be the maker of the monument. Sometimes the main beneficiary of the monument is a named artist with compositional and/or inscribing skills, again suggesting that this person is the maker. From the end of the late Middle Kingdom or early Second Intermediate Period, Vivian Davies has noted the case of Sedjemnetjeru, whose unusual name is matched by the exceptional combination of the titles draughtsman and greatest of tens of Upper Egypt (Davies 2001). This artist dignitary is present in two rock-cut offering-chapels for regional officials: the overseer of fields Horemkhauf at Nekhen, and, across the river at Nekheb, the governor Sobeknakht. In both monuments, Davies emphasises, the decoration includes a dynamic scene where perhaps the same ẖrty-nṯr "necropolis-worker" Horherkhutef appears in the act of chiselling away the stone (Davies 2001, 119-120, pl.44.1-2 and 45.1). The titles and name of Sedjemnetjeru are also inscribed on the jamb of a third rock-cut chapel, again at Nekheb (Davies 2016, 75, pl.IX, tomb 39 of an official Hormen). The most outstanding development in written self-presentation is the extended inscription on the stela of the sculptor and draughtsman Irtysen (Stauder, this volume). The relation between named artist and monument remains implicit in most cases, and here the modern concept of "artist signature" is particularly anachronistic (Vernus 1986, 588). However, identifications of a person responsible for the monument do install the presence of the maker before us. One stela gives the names and kinship ties of three sculptors: brothers Sara' and Sobekhotep and father Djehuty (Garstang 1904, 12, 66, pl.33); in the absence of an explicit assertion, all, any or none might have been

involved in creating the monument for this family collective. In one striking example, the outsize inscription "sculptor Nefertem" under the main field visually overpowers the images and names of the main beneficiaries, a temple works-officer Heku and his family (Brooklyn 37.1347E: Adela Oppenheim in Oppenheim *et al.* 2015, 154-155, no.88). Most often, a named sculptor and/or draughtsman occupy secondary or border spaces on a monument, as where the limestone offering-table for Abydos mayor Rehuankh includes a formula of offerings for the sculptor Gem (Egyptian Museum Cairo CG 23045: Kamal 1909, 39-41: further examples in Vernus 1986, 588).

Another type of source, and so context, for names of artists is the rock inscription, abundant at sites for mining and quarrying semi-precious stone, and along the river through occupied Lower Nubia. Like the chapel elements, the scripts used vary from full hieroglyphs to more cursive, sometimes entirely hieratic forms. Examples at Sehel island in the First Cataract (Gasse and Rondot 2007, 97-99, 464, 538) include two inscriptions of Iufniersen, "overseer of a section of draughtsmen" (nos.168-169), one beside a short line "sculptor Heqaib" (no.170, a name local to this area), while another rock outcrop bears an isolated line "sculptor Sobekaa" (no.171). In comparison with the chapel monuments, these inscriptions with names of sculptors and draughtsmen seem closer to the modern category of signature, in the field of self-presentation.

A third major source for named artists is the corpus of scarab-shaped and other seal-amulets, mainly in glazed steatite or faience (Martin 1971). Here the frame of communication is the practice of sealing, rather than directly of writing. The hieroglyphic script is used almost without exception; signs are irregularly formed on many examples, but cursive script is avoided. Within an inscription arena of just a few centimetres, usually a single individual is identified by name and, most often, title, often with epithets to secure offerings and blessed status for eternity. Some examples, on the same small scale, bear formulae for eternal offerings, indicating a horizon shared with the offering-chapels. Artists in seal-amulet inscriptions include one sculptor (Kemes, no.654, UC11482, unusually of limestone, perhaps the regular material of his art), four overseers of sculptors (Amenyankh, no.220; Saptah, nos.1287-1288; Senebtyfy, 1592), and one draughtsman (Saneit, no.1300). Any or all of these might have been involved in the material production of the object bearing their name. By contrast, I know of no glazed or faience seal-amulet of a glaze-worker, and no seal-amulet of a goldsmith or overseer of goldsmiths with a gold setting or inlay. A seal-amulet from Tell el 'Ajjul burial 424 is inscribed with hieroglyphs which might identify its owner as a *ḫtmy* "seal-cutter" (?) named Seth (Martin 1971, 127-128, no.1665, pl.11, 10, Keel 1995, 33 = Ben-Tor 2007, pl.40.2). However, the upper break in the spiral border and the forms of the hieroglyphs may have closer parallels in south Levantine seal-amulet production, where imitation hieroglyphic inscriptions are attested (Ben-Tor 2007, 173, especially pl.93.9). The Seth animal occurs in Levantine small glyptic art, and the hieroglyphs possibly reading "seal-cutter" are uniliteral signs as most often used in that context without their Egyptian phonetic values. Possibly the seal-cutter Seth is a phantom, or perhaps the seal gives a glimpse of a phase when border artists were releasing the script from its role in communicating Egyptian language, to focus exclusively on protective power.

From the prevalence of stone-workers in self-presentation, ancient Egyptian practice might seem to define art as sculpture. In a study covering Old to New

Kingdom, Dimitri Laboury has compared European art history, where practices of artist self-presentation and name-signing emerged when the commissioning entity acquired benefit from being known to engage one artist rather than another (Laboury 2016, 388-390). For the ancient Egyptian contexts, Laboury notes, kingship works might have regularly attracted the most skilled producers, and therefore a sense of competition would arise only in projects outside kingship. These structural relations would account for the concentration of artist self-presentation in offering-spaces for persons other than kings and deities. However, goldsmiths, faience-workers, and other artists may also have created works for individuals outside kingship (see the monuments discussed in section V). Perhaps their absence from self-presentation reflects only the limited number of inscribed examples of those arts. In script itself, perhaps too they were involved less often in either drafting or inscribing the hieroglyphic signs on their products. For this possibility, further attention is needed to the points at which objects received inscription, to consider whether each artist, including the draughtsman or sculptor, could produce a successful and legible result in each material.

Indirect presence: depictions and reported speech

"Reported speech is conceived by the speaker as the utterance of another subject, which is originally completely independent, constructionnally complete, and lying outside the given context. It is from this independent existence, that reported speech is transferred to the context of the author, preserving at the same time its thematic content and at least the rudiments of its linguistic wholeness and original constructional independence." (Voloshinov [1929] 1995, 331).

All examples of reported speech of artists known to me from this period are from the spaces for offerings to secure eternity (source-type 2). During the Old and Middle Kingdoms, the temple complex for the cult of the reigning king, at his burial-place or elsewhere, would be the largest undertaking in a reign. These offering-cult spaces of kingship generated the largest output of sculpture in two and three dimensions, and doubtless set a model for genres and motifs in contemporary production and into posterity (Arnold 1999). From the acutely fragmented Middle Kingdom record (*cf.* Arnold 1987, 1992, 2002, 2015), I can cite no examples of named artists on kingship temple wall-reliefs (and see above for one argument against expecting any, from Laboury 2016). Continuing publication and excavation may reveal where kingship temples inspired creators of monuments for persons other than the king. Artists might also have found motifs in other monuments in their locality, or may have devised new motifs: the degree of indirectness in the reported speech varies according to each creative path, and must be assessed case by case. For example, the artist composing a line of inscription in a Middle Kingdom offering-hall for a governor at Meir might have drawn on his contemporaries, or might have drafted the composition out of material in Old Kingdom monuments for governors at Meir, which in turn might be drawn from Old Kingdom Meir society or from the centre of kingship around Memphis. Closer linguistic analysis can help identify any time-lag between the language of the content and the date of the inscription. Thus an uncertain sequence and number of steps intervene between the first occasion of an utterance, and

the inscription of that utterance at a particular location and time. Writers from the late Middle Kingdom literary sayings of Khakheperraseneb to the *Author and his Doubles* by Abdelfattah Kilito offer reflections on this social quality of language and words as always already spoken (Vernus 1995, Kilito 1985).

Monuments for the highest officials are located around the kingship cult complex at the burial-place of the king, and have suffered the same degree of destruction (for Lisht, see Arnold 2008). The largest extant surfaces in this corpus are the painted and incised walls of offering-halls for the cult of regional governors, cut into the living rock cliffs above their burial places. At least nine offering-halls at five sites include depictions and inscriptions of artists in action (Drenkhahn 1976, 164: see the fuller dataset in the Meketre project website, Jánosi *et al.* 2013, *cf.* Mader *et al.* 2013). At Beni Hasan, the offering-hall of Baqet (Tomb 15) shows two main strategies of inscription: some scenes have no captions (potters), while others give a verb of action without titles or names (spinning scene). A third strategy can be found in the offering-hall of Khnumhotep (Tomb 3), whose autobiographical inscription includes artists in its opening lines on the purpose of the monument (Newberry 1893, pl.25, lines 7-13, *cf.* Lloyd 1992, translation here after Berlev 1972, 111):

> "He has made his monument …
> making firm the name of his court, made effective according to their positions,
> (and the name of) the effective ones, who are inside, of his house-men, whom he has distinguished in front of his estate-staff,
> (and) every position he directed,
> (and) every art (*determinative*: men) as it came to be."

Khnumhotep might be either "making firm the name of" or just "making firm" every position and every art, in parallel to "his court" and estate-staff. This ambivalence may inform the variability in captioning artists on the walls above the autobiographical inscription. A particularly prominent position is assigned to the "overseer of carpenters Netjernakht", depicted in the act of finishing a wood block with an adze, as if to evoke the hieroglyph used to write *stp* "(to) select" (Newberry 1893, pl.29, over upper left corner of entrance). Netjernakht is at work directly in front of the seated governor, and a sacred lion-form bed facing towards the governor. The "overseer" titles can sound bureaucratic to modern ears, but Netjernakht is an artist producing furniture here, rather than an expert confined to writing, organisation and accountancy.

In contrast to the profusion of Old Kingdom scenes with reported speech, I can cite only three Middle Kingdom examples involving artists. In the offering-hall for governor Senbi at Meir, a scene of stone vase production shows three men preparing vases for eternity (Tomb B1, Blackman 1914, 30, pl.5). The accompanying inscription does not name them, but gives three snippets of perhaps one conversation:

> Man at right, drilling a vase: "Can you see how this quartz (?) is not standing, because it has no gum?"
> Man at centre, pouring from a small vessel into a bowl: "Then [add (?)] the stuff on its underside – I should push to you with (?) the …"
> Man at left: "I have … the grinding […]"

If we read the sequence from the right, one vase-maker begins with a complaint about lack of adhesive for the bow-drill or abrasive. The man at centre may be adding more gum to a mixture; his advice is obscured by the uncertainty over its final word. The man at left may be demonstrating a successful outcome, as the scene is to secure an eternal supply of stone vessels for the governor, as well as to entertain him and his visitors.

Two further examples of reported speech are among scenes of artists in the monument for vizier Dagi at Thebes (Theban Tomb 103). A textile production scene shows a woman energetically spinning, and turning back towards the women supplying her with thread (Davies 1913, 35, pl.37). If it was present, her name does not survive, but a short line of hieroglyphs alongside contains the commands "Come! hurry!". As these imperatives are in the singular, the spinning woman is addressing just one of her suppliers. A second scene shows two men busy making papyrus mats beside the marshes (Davies 1913, 33, pl.35; for the twining technique depicted, see Wendrich 2000, 256, cited in Jánosi *et al.* 2013). Inscriptions give a title for the scene, and the names of each man as well as the conversation between them. The herdsman Khetyherkhenet, on the left, says "Do your heart", interpreted by Davies as "Put your heart (into it)!", to which the herdsman Khetyankh replies "I shall". The word "herdsman" in this mat-making scene usefully disrupts our habits of reading work labels. Each period and place may develop its own degree of overlap or exclusivity between work labels, and context-focussed research must assess the scope intended in each vocabulary in context. Thus the profusion of specialist terms in ancient Roman monuments might indicate a wish to demonstrate advanced expertise in a trade, rather than as proof of a highly differentiated division of labour (Tran 2013, 225-226). Evidently more lexicographical context must be fed into the initial indexing of terms in Table 1.

Appreciation and control: manuscript evidence

One late Middle Kingdom papyrus preserves the end of the literary narrative of a man named Sanehat, describing preparations for his afterlife (Papyrus Berlin 3022, 300-310, after Koch 1990):

> "A pyramid of stone was built for me amid the pyramids,
> the overseer of carpenters (scaffolders?) outlining its ground.
> The overseer of sealers did the drawing,
> the sculptors the cutting.
> The overseers of works who were at the pyramid temple ferried for it.
> Every tool that is set to the temple-terrace, it found its task there."

Here we read the articulation of tasks necessary for monumental architecture and its depictions and inscriptions, echoing the identification by Vernus of different degrees of responsibility (above, section IV).

The largest single find of late Middle Kingdom papyri is a box-full of damaged manuscripts, from a tomb later covered by store-rooms built under Ramses II for his Theban cult-centre, the Ramesseum. One is a fragmentary guide to correct conduct of a ritual, rare in the surviving evidence for this period (Gardiner 1955). Following Old Kingdom patterns (Díaz Hernández 2014), processions circle around the raised

mound at the burial-place, and participants in the closing rites include artists; as this manual presents general procedure for any performance, it gives no personal names. In one section, three vertical lines each identify one artist: "woodworker for joinery; woodworker of chairs; drill-borer with drill in his hand" (lines 80-82). A horizontal line in red gives the heading "bringing the chests from […]", over vertical lines which define further artists by name and characteristic tool: "all artists of [every?] art: goldsmith, with goldsmith-tool in his hand; woodworker for sawing, with saw in his hand" (lines 95a-100). The following lines are less easy to fit into the theme of material production, but include "ornament-maker (?); seal-maker (?)" (lines 105-106). Ritual experts including women to sing burial chants may belong to the end of this procession, with three sets of porters: "carriers of […]; carriers of the chests; carriers of 100 sealed boxes" (lines 113-115). The scale of personnel and material implies a very wealthy beneficiary, as confirmed by the presence of persons designated as "children of the king" (line 71: for the term, see Grajetzki 2014, 185-188 with p.221 nn.25-41). In the late Middle Kingdom, the burial-places of kings and their courts are farther north in the Memphis-Fayum area and at Abydos (on Abydos, see Wegner 2014, Wegner and Cahail 2015). However, a few tombs of high officials have survived massive later reuse of the Theban necropolis (Grajetzki 2000, 30-31 I.36 vizier Amenemhat, 180 XI.6 overseer of marsh-traders Senebni; Graefe 2007, overseer of fields Redinamun), enough to show that the papyrus could have served its original function at Thebes. The presence of artists with their emblematic tools at such burials suggests the value attached to the persons and processes of art in regeneration for the afterlife.

For co-ordination of artistic collectives, other sources convey the other mode of appreciative organisers: control. Four papyri from a tomb at Nag ed-Deir preserve extensive construction records for a temple at Tjeni, near Abydos, from the reign of Senusret I (Simpson 1963-1986). One itemises the detailed control of tools handed out to coppersmiths, with checks on the metal after work (Berlev 1969). On the same manuscript, a copy of an order from the vizier Intefiqer to the estate-overseers shows a fear at the highest level of losing skilled workers to competing authorities, in the complex web of obligations and responsibilities (Simpson 1965, section G):

> *"anyone of you who is docked at a dockyard-workshop, and whose carpenters have been requisitioned, is to write to me on his carpenters who have been requisitioned, so that I may have them returned to him."*

Shadowing the decrees for exempting local institutions of labour demands (Moreno García 2013, 134-138), this order implies an environment of intense competition for skilled labour. A web of obligations and demands evidently constrains the capacity of the even highest official to deliver resources for projects of kingship.

Textile production is a major focus of a legal document to transfer estate-staff from one person to another, as listed on a papyrus beside the copy of an appeal, perhaps against that transfer. The full listing of servants gives name, designation of activity, and, if from the Levant, ethnicity. The surviving fragments preserve the "profession" of twenty-nine women, and twenty of these are textile-producers, all but two of them "Asiatic" (Hayes 1955, 108). The women are engaged in weaving and an unidentified activity (spinning?) to make two qualities or types of cloth (Hayes 1955, 105-106).

Multi-ethnic labour should intensify our awareness of the issues of language, and remind us to listen also for inflection and accent by region, gender, class or age, within any group. In one other late Middle Kingdom document, a letter from Lahun, the lady of the house Ir rejects a complaint about her failure to supply textiles, perhaps because the women provided for the task are unable to weave (UC32203, Wente 1990, 82-83; Collier and Quirke 2002, 114-115). Her isolated comment reminds us of the multiple strands of negotiation in any product of art, between producers and managers, or suppliers and commissioners, or generations or genders.

Across the archaeological record

Across the different types of source, different combinations of evidence are already a regular feature within philological research. Pascal Vernus identified the lector Hormeni as the artist who prepared the images and inscriptions for the stela of Horemkhauf at Nekhen and the offering-hall of Sobeknakht at Nekheb (Vernus 1986, 590), and Vivian Davies noted the prominence of the lector Hormeni also in the offering-hall of Horemkhauf at Nekhen (Davies 2001, 119-121). As Vernus recalls, the designation "lector" implies a knowledge of the hieroglyphic script, and therefore the training necessary for drafting an inscription for eternity (*cf.* Laboury 2016, 384-385 with n.32). The draughtsman Sedjemnetjeru worked on the same monuments (above, section IV), suggesting collaborative work in which Hormeni might be, for example, the composer of the layout and motifs which Sedjemnetjeru outlined. In another instance, we find the artist Iufniersen (above, section IV) paired at different career stages with a sculptor Inadjut, as traced by Detlef Franke through rock inscriptions and chapel elements from the First Cataract and Abydos (Franke 1994, 115, *cf.* Stefanović 2012, 189, Franke 2013, 110-111).

Egyptologists also frequently combine the evidence of script and figural depiction, which form an integral method in ancient Egyptian arts for eternity (Fischer 1986). For his study of the early to mid-2nd millennium BC *Teaching of Khety to Pepi*, Stephan Jäger considered the scenes of production in the offering-halls over tombs of high officials and regional governors from the Old Kingdom to the Late Period (Jäger 2004, with data tabulated in Anhang I, pp.i-xix, *cf.* for New Kingdom scenes Widmaier 2013). In the *Teaching*, Khety gives advice to his son Pepi on their way south to the Residence, where Pepi is to learn writing among the children of dignitaries (on the composition and its date, see Widmaier 2013). Khety exhorts Pepi to study hard, as all other occupations bring only grief, whether trades to procure food and materials (sections 8, 12-13, 16?, 20-21), trades of production (sections 4-6, 9-11, 14-15, 17-18), or trades of service (sections 7 barber, 19 laundryman). The comprehensive kaleidoscope of work vividly conveys the succession of activities which a traveller sees from a boat along the Nile, but it also captures well the bewildering plenitude of the scenes in offering-halls. A guest or visitor to the rock-cut halls over the tombs of governors at Beni Hasan could experience the positive depiction of the arts, while reading the negative portrayal in the *Teaching*. Once, this contradiction is directly documented. The offering-hall for the First Intermediate Period governor Itibiqer at Asyut, from about 2050 BC, contains an extraordinary series of hieratic literary passages copied on the walls by early 18th dynasty visitors, five centuries later or more. Among these, the

passage advising Pepi not to be a sculptor, goldsmith or blade-wielder is written on the kilt of the large figure of Itibiqer, directly above a scene of men carving and polishing or inlaying sacred objects including a *djed*-pillar and *tiyet*-symbol (Khadragy 2007, 116, 134 pl.4, Kahl in Kahl *et al.* 2008, 203).

In contrast to the wall-scenes, the vivid models of estate production from early Middle Kingdom burials convey no audible conversations, as their few inscriptions do not include titles, names or speeches of artists. However, the third spatial dimension greatly expands the clarity of many features, which may remain obscure to us in the particular principles of ancient Egyptian two-dimensional depictions. Thus, model weaving workshops add exceptional detail to our understanding of textile art. Its three-dimensional guide magnifies the impact of written sources considered above, the spinning scene for Dagi and the letter of Ir about her weaving consignment. Publication of the model from the tomb of Meketra enabled textile researchers to explain one previously unidentified tool as a heddle jack, used in weaving on a horizontal loom (Ling Roth and Crowfoot 1921). Among the rare examples of inscribed tools, one heddle jack from Lahun bears a line of signs foreign to Egypt, and apparently related to mid-2nd millennium BC Levantine scripts (Petrie 1890, pl.27.85, find-spot not documented within the site, now British Museum EA70881). Like the list of Asiatic weaving-women listed on the Theban papyrus (above, section VI), this object through its inscription speaks simultaneously inside and outside Egypt (Dijkstra 1990).

The varied contents and locations of archaeological assemblages can widen the scope most insistently back to the full range of the excavated record, even when the assemblage is that most conventional staple of Egyptology, the funerary deposit. Named artists are almost absent on items made for the afterlife, reflecting both the rarer use of titles on early Middle Kingdom examples, and the smaller number of items preserved from late Middle Kingdom burials. From the Middle Kingdom cemetery at the frontier fortress town Mirgissa, in Nubia, one cartonnage mask to be placed over the face of the embalmed and wrapped body is inscribed for the *ḳd* "builder", or perhaps "potter" (Vercoutter 1975, 245, 247-248, mask T.130-36). Among finds from multiple burials in shaft-tomb 883 at Lisht, fragments of gilt foil from a coffin preserve the title and name *ỉmy-r ṯḥntyw* "overseer of glazeworkers" Debehni (Bourriau 1996). The shaft of this tomb is under one of the late Middle Kingdom houses in the shadow of the pyramid of Amenemhat I; the house adjoins a building identified as a "faience workshop" from production debris there (Arnold 1996, 15-17, house A1:3, workshop A1:2). Given this location, house A1:3 "may have been the residence of the chief craftsman" (Arnold 1996, 15), and its size would then be a precious tangible indicator of social status. Closer comparison with the Middle Kingdom houses at Lahun is possible following the studies by Florence Doyen (Doyen 2000). Most of the Lahun houses are all far below the scale of the 40x60m palatial mansions at the site (Bietak 1996), though at 8.4x5.25m (10x10 cubits) even the very smallest are still larger than the barracks of 5x5m houses of one Middle Kingdom sector at Tell el-Daba (Czerny 1999, 21). At about 12.5x12.5m (25x25 cubits) in its first phase, Lisht house A1:3 stands in the middle range of the medium-sized Lahun houses (Doyen 2000, 81-83). Another find from Lisht shaft-tomb 883 is a statuette set into an offering-table, and inscribed with a prayer formula requesting offerings for a man named Sehetepibra, with a title perhaps to read as *ṯḥnty* "glaze-worker" (MMA 22.1.107a,b, see Regina Hölzl in Oppenheim *et*

al. 2015, 229-230 cat.no. 167; Quirke 2015, 170 for the reading). Both the producer and the manager had sufficient resources or connections to have a draughtsman prepare an inscription in hieroglyphs and an artist (goldsmith for Debehni, sculptor for Sehetepibra) to create an inscribed product. At this stage, it might seem, archaeometry and philology have succeeded in introducing us to named artists beside their workplace and production materials. However, a vital element in our own operational web is still missing.

Across time

> *"Each epoch and each social group has its own repertoire of speech forms of vitally ideological communication."* (Voloshinov [1929] 1995, 233).

Henry Fischer reconstructed from the philological evidence of a rock inscription, a statuette and a chapel stela, one late Middle Kingdom family with holders of a title *imy-r sꜣ n ḫrtyw-nṯr* "overseer of a crew of necropolis-workers" over three generations: Sobekhotep, Senbebu and Ptahwer (Fischer 1959). Necropolis here is a conventional short-hand for *ḫrty-nṯr* "land bearing a/the *netjer*", in which again convenience rather than research underlies a correlation between *netjer* and words such as "god" in modern languages (as noted in section IV, following Fitzenreiter 2004). However, the combination of verbal and visual evidence in the rock-cut offering-halls of Horemkhauf and Sobeknakht at Elkab provides sharper definition: there, the artist Sedjemnetjeru showed us the *ḫrtyw-nṯr* at work, cutting away the living bedrock. Material and contextual philology within an archaeological and historical interface can then bring us to multiple dimensions in material production, technical, ideological, functional and aesthetic. Yet our routine translations remain difficult to dislodge, as do our divisions of economic, political and sacred spheres, or of body, mind and soul.

Experimental archaeology can advance our technical understanding and appreciation, just as comparative anthropology and history can open our eyes to different worlds of possibility. In history the genealogy and monuments of Ptahwer can meet the memoires of Hajj Ahmed, a 19th-century mason whose self-narration survives in the summary by one of his clients, a famous and influential government official (Artin 1914, 248, 251):

> *"Since I finished and live in this house, Hagg Ahmed comes here almost every day. It is during these visits that he related to me the episodes of his life, the memory of which I keep here in resume. I leave him to speak: … 'I then had the good fortune to meet a master mason who … taught me his art and, moreover, my religious duties and holy practices according to the Sunnet of the Prophet (may God glorify him). … Considering me sufficiently advanced, my master led me one year to Tantah and had me join the Holy Corporation of Sayed Bedewy (may God cover him with his grace).' "*

The fusion of technique and piety leads us beyond the operational chain in archaeometry, and may signal already a terrain where the academic "we" no longer

feels so comfortable (see el-Hawary, this volume). However, we are still far from a living artist, in this distantly reported speech, a summary of unnumbered conversations from five decades before its publication. For a more recent anthropology, a Smithsonian exhibition led to an opportunity to record interviews with masons of different generations working on the mosque at Jenne, Mali (Marchand 2014). Recalling the contrast drawn by Voloshinov with ancient inscription, even in translation these words resonate with a more vivid complexity and humanity in their agreement and disagreement on different points, and their varying styles of reflection. Yet the anthropologist and museum still dictate the agenda and tone of interview, so that the artist is still an interlocutor for a more powerful anthropology (Said 1989), and the self-narration is still a response, however fully autographed, to an invitation from that more powerful source (Boast 2011).

Instead of reading the variously mediated examples, we could introduce Ptahwer to contemporary masons, and hand over the control of the story. A contemporary foreman in construction could then start a different conversation, and might invite us to listen and learn. Any artist in the Nile Valley today, whether mason or carpenter, is better placed than the academic "we" can be, by work and location, "to hear the answer from the lips of the Egyptians themselves" (Berlev 1972, 4). Modern researchers have a role in sharing their knowledge of ancient material for a new dialogue. However the possibility for this event depends on a cession of power, in which disciplinary disputes between philology and linguistics, or history and archaeology, are an academic distraction.

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Craft Production in the Bronze Age

A comparative view from South Asia

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Abstract

This paper discusses the issue of craft specialization in the framework of redistribution, the importance of labour, and the state sector of the Bronze Age economy. It also intends to differentiate between craft aptitude and workmanship on the one hand and the domestic creations of inexperienced persons on the other.

Keywords: Non-market economy; early state; bronze age; South Asia; products of craft specialists.

I thank the editors for suggesting that I contribute to this volume with a perspective from beyond Egypt and the eastern Mediterranean. Although the civilizations of Egypt and South Asia in the 3rd millennium BC are different in many ways, I need here to connect with Egyptology's ways of thinking. So this paper is cast in a framework that theorizes the early state and society of the Bronze Age and focuses on redistribution, on labour as a factor of production that is largely state-organized, on the importance of storage, and on the sorts of specialization that we can detect in craft work. Although it concerns these aspects of the Harappa civilization (2600-1800 BC), this paper will make occasional forays into lands to the west. The earliest states in Mesopotamia, Egypt, and present-day Pakistan-India, though not the same (leave alone the only states of their time), emerged among societies in which kinship was the social glue that framed the relations of production; simple technologies and subsistence economies were in place, so that, initially, comparable constraints and much the same potential for development would have prevailed. In the Early Bronze Age the market system had not emerged. Besides, an item known to have

in: Miniaci, G., Moreno García, J.C., Quirke, S. and A. Stauder (eds.) 2018: *The Arts of Making in Ancient Egypt*, Sidestone Press (Leiden), pp. 197-210.

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been made here but found there was not necessarily an indicator of "trade" as we know it (Ratnagar 2004b): there was also tribute, gift giving, marriage payments, and young persons taking their acquired skills to their marital villages, not to speak of the largesse bestowed by chiefs on their clients or subjects.

In tribal or kin-based society, lineages are joint owners of their natural resources. As kin, members have moral obligations of assistance and generosity to one another. Village self-sufficiency in basic needs does not rule out obligations to the residents of other villages, expressed in marriage gifts or ceremonial exchanges during festivities. For those brought up on the notion that technological advance brings about increased harvests that engender production in the non-subsistence sphere (administrators, priests, craftsmen, merchants), the question remains why any family would consistently produce more than its needs, and under what circumstances it would yield a part of its output to others, a point appreciated by Childe (1957). "Surplus" extraction is actually an aspect of distribution and not production; larger-than-necessary harvests, even if continuously produced, would not themselves create "demand" for stone statues or shell necklaces. There would also be uncertainty if not conflict about how much grain was fair exchange for, say, a lapis lazuli pendant.

Even so, in societies where the elders played an important role in dispute resolution or during crises, and some men led war parties, the seeds of institutionalized chiefdoms could be sown. Success in war and the distribution of booty were paths to power. Also, elders could enhance their status or aura by holding feasts for the ancestors, and families could enlarge their circle of influence by taking brides from various lineages. Institutions such as the rules of succession, the rituals of investiture, ceremonial for ancestor remembrances, or the prerogative of a ruler to judge cases involving death or murder, and norms about access to pasture and agricultural land, would develop apace with social stratification. An inchoate rulership would, besides, need to retain political control by enlarging its following or militia, and by seeking ways and means to provision that militia.

When land was not the privately owned instrument of political power it later came to be, it was the large household of a deity or a ruling house that produced and stored food-grain on a large scale. It could organize the procurement of metal ores or specific sea shells or certain stones (the stuff of craft traditions), for which the ordinary household or clan had neither the means, the personnel, or the social reach. Ultimately, it was new elites who could direct non-kin, war captives or destitute individuals of their neighbourhood to labour on agricultural work and building projects. Thus it was labour, and not the harvest tax, that was the earliest means of mobilizing a surplus. Patterson (2005) argues that craft specialization and increased socio-political hierarchization developed in tandem: in fact for early Egypt, Eyre (1987, 39) sees the palace or "great house" multiplying its functions over time, so that elite administrators grew in number, and many households, though dependent on the king, began to organize production for themselves. Thus a huge area at Giza was utilized for processing food for pyramid workers – one of the adjunct industries of pyramid building (Moreno Garcia 2014, 245).

To revert to theory, Rueschemeyer (1986, 6-11) gives power the key role in the origin of the economic division of labour. For him the production of craft items arose not because of market demand, but because of coercion or demand from those who

directed production and organized the labourers. Because craft producers did not themselves own land in the Early Bronze Age, they remained dependent on the ruler or palace for their needs, and this is the context in which Hudson (1996, 51) places the palace workshops mentioned in the cuneiform tablets of 3rd millennium Ur in Mesopotamia. The workforce here was allotted rations from the stores. Redistribution, which many scholars say is the keynote of the earliest state economy, is a process that involves direction and the management of food and basic necessities, and the control and command of labour. The Harappan archaeological evidence for harvesting tools helps us appreciate the complexity of the process. Both unworked and processed (fluted) cores of chert have been found on the limestone Rohri ridge west of the Indus, not far from Mohenjo-daro. Blades removed by the pressure-flaking of such cores (Biagi and Cremaschi 1990; Inizan and Lechevallier 1990) have been found in Harappan settlements near and far. Archaeologists here and in northern Mesopotamia have independently interpreted such blades as equipment for harvest teams. At Titris Hoyuk on the upper Euphrates about 1,600 "Canaanean blades" were found (Hartenberger *et al.* 2000); and at Shikarpur, a small Harappan site on the Gulf of Kutch, 650 blades were of Rohri chert (Gadekar *et al.* 2014).

Writing on the cuneiform archives of the temples and palaces -the great households- of Mesopotamia, Waetzoldt (1987) found that the state was the biggest employer of agricultural labour and of weavers, followed by the temples. The Sumerian term for "ration" derives from the word for apportioning; ration lists have been found by the thousand in 3rd millennium southern Mesopotamia. The amount of grain apportioned depended on gender and on the skills required. Wool rations were annual and cloth too was disbursed. For persons engaged in high level administration, or for priests, it was land that was allotted, the parcels varying in size, but it is not clear whether recipients were expected to cultivate the holdings themselves. (See Neumann 1994 for the enormous scale of employment by the Ur III state).[1] In Egypt too, although the evidence is indirect, compulsory labour for agriculture was important (Eyre 1987, 18-19, 28). Other kinds of "mass" mobilization are also evident in the Bronze Age. The production of thousands of baked bricks for various building works at Mohenjo-daro -puddling the mud and shaping bricks *en masse*, drying these in the sun, stacking them, firing the stacks, and then transporting baked bricks to a building site- though unskilled, would have required co-ordination and direction. Egyptian corvée workers were sent to quarries and mines in the Eastern Desert and Sinai, together with oxen and donkeys laden with provisions and equipment; the remains of rows of narrow rooms at building sites suggest temporary housing or stores. In parallel, Nageswar, a coastal establishment in Saurashtra at an appreciable distance from the Harappan heartland was apparently the settlement of a state expeditionary force not far from some shell fisheries. We shall revert to this evidence later.

For the large-scale recruitment of workers, food stores were necessary. In Harappa and Mohenjo-daro there existed facilities that appear to have been used for storage, built on elevated ground in both cases. In Mesopotamia, a row of six long and narrow rooms in the Early Dynastic temple enclosure of Ur, termed "shrines" by Woolley

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1   According to one calculation in a single year in Lagash 10,000 people worked at weaving for the Ur III state.

(1939, 17-20, pl.66), were later identified as storerooms. Each had a floor of fifteen courses of baked brick, the lower courses set in bitumen, obviously a means of keeping the floors dry. In the Ur III period, a nearby shrine had long and narrow storerooms on three sides (Woolley 1956, 45 ff.), the whole raised on a 2 m platform. As for Middle Kingdom Tell Edfu in Upper Egypt, there were silos for grain storage (Moeller 2012 and 2016); seven large circular mudbrick structures (5.5 to 6.5 m in diameter) are crowded in a courtyard and this administrative building was littered with clay sealings originally affixed on the containers that would have been officially received here.

And what of craft specialization? When a few individuals or families make certain things for others, part or all of their livelihood depending on this, we speak of specialist craftspersons – not everyone in society has the skills, experience, or manual dexterity to make such things for themselves. A few families of "independent" specialists (Costin 1991, 4-5, 11) may make utilitarian items with no particular customer in mind; this would include caste-based household work and, following Saitta (1994, 1997), one might call it "community-embedded" specialization. Costin and Patterson refer to the rural beginnings of independent specialization under conditions in which families could not survive on agriculture and animal rearing; the seasonality of subsistence work may also have been a factor.

In contrast, production for the elite by "attached" specialists (Costin 1991; Kerner 2010; Patterson 2005) is associated with states and rulers. For instance, the seal carver's knowledge and manual dexterity would have been of a high order, especially in intaglios carving and, in Mesopotamia, working around the circumference of a stone cylinder without a break or overlap in the imagery or writing. We surmise that those who carved seals did not have to labour in the fields in order to lay in their family stores, or to report for brick-laying. Used to secure consignments or authenticate messages, Bronze Age seals also conveyed, with their writing and imagery, the official position and social status of the owner, some seals probably also thought to contain the power of the supernatural beings depicted on them.[2]

Some crafts were organized in royal or temple workshops (Egyptian metallurgy is a classic case of workshop production, as tomb paintings show), often in urban centres, others were located near the sources of raw materials, as fine craft work proceeded simultaneously with subsistence production and unskilled stone and brick shaping. Among the rare crafts, other than seals used in government activities, there existed goods produced for the rulers' gratification, for their kin and their entourage, and to forge social linkages with their peers in the course of diplomacy and the search for mineral resources abroad. The production of long tube-like translucent carnelian beads, "high-end" Harappan consumables, a single one of which could take more than three days of sustained drilling to perforate down its length (Kenoyer 1998, 161), is one such craft, present also in Mesopotamian royal burials. Stoneware bangles fired in specially-made and sealed saggars at Mohenjo-daro (Vidale 1990) have been identified in number only at Harappa and Mohenjo-daro. The finesse required for making Harappan miniature steatite beads and glazes, amazing

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2   The small number of illustrations of Egyptian seals other than scarabs in art books, remains to me a
     mystery.

achievements of pyrotechnology and chemistry described by Kenoyer (2010), may also have constituted personal adornment for prestige.

The nucleation of attached specialists in urban centres, besides being politically convenient, would have been needed by the logistics of raw material procurement and transportation, the need to promote and develop rare skills as part of a technological tradition, and the need for installations such as special hearths and querns, charcoal supplies, or tanks of water, that workshops could share. The administration would oversee the allocation of materials and tools. That stamp seals of Harappan vintage, inscribed stoneware bangles, long carnelian beads, etc., did not outlive the Harappa culture, testifies to their manufacture for, and under the organization of, an elite stratum that did not survive the cities.

While craft waste is not unknown in Mesopotamian palaces, e.g., pebble weights, copper ingots and a hearth in room 15 of the Kish A Palace (Mackay 1929: 87) and a workshop with hundreds of stone cores, blades and piercing tools used for working shell in the Early Dynastic Mari palace (Coqueugniot 1993), there were other Mesopotamian establishments that show craft activities. In the Tell Asmar Northern Palace (Delougaz *et al.* 1967; Henrickson 1982, 24-33) which is 1825 square meters in area, Henrickson identified kitchens, hearths, bread ovens, grinding stones, and eating vessels for a large number of residents, as well as lapidary work and shell and stone-inlay crafts. Henrickson concluded that this was an elite residence with craft activities, "sequestered within an architecturally fortified compound" (ibid.: 31-32).

I had written (2004*a*) about apparently elite houses in Mohenjo-daro and their craft residues as an enigma, but am now aware that when people were not just making things but were actually cooking, sleeping, interacting with visitors, and regular cleaning after eating every day in those houses, not to speak of tethering the odd goat in the courtyard – craft-production debris had a low chance of survival in the domestic space. Halim and Vidale (1984) and Vidale (1990), however, have reconstructed with precision and ingenuity a facility for firing stoneware bangles in the uppermost stratum at Mohenjo-daro, together with an associated building with a narrow entrance and open courtyards and a row of firing saggars. The hard bangles were, incidentally, inscribed in very small letters. While no workshop has been found for the luxury beads of carnelian, Kenoyer (1984) found an extra-mural area apart from the main lower-city mound of Mohenjo-daro where shells had been given the initial chipping in preparation for carving. A large quantity of bangles and ladles appear to have been made in other parts of the city and there are residues in what appear to be private houses in the VS and HR areas of Mohenjo-daro.

Other kinds of establishments have been termed complexes and administrative buildings by Harappan archaeologists. In Saurashtra-Kutch the complex at Kuntasi (Dhavalikar *et al.* 1996) is important for two reasons. First, its structures (actually wall foundations) do not look like rural huts or family cottages. There are four wings of stone-built rooms around an irregular central space, together occupying a 3.3 hectare mound. Several furnaces, kilns, and firepits in different forms; and a large number of querns, 279 rubbing stones, and 78 hammer stones are the remains of one set of rooms, with a hoard of some valuable metal artefacts (*ibid.*, 60). In an independent structure were two stone mullers, two rubbing stones, two saddle querns, and a stone hammer, equipment for food preparation on a community scale *(ibid.*, 76). This stand-

alone house, then, could have been the canteen. But this is not all. In a multi-room suite, "Structure 16" (*ibid.*, 80-82), were found five buried storage jars, three platforms probably for basketry bins, mullers, rubbing stones, and also a mass of fish bones in a 60-cm deep jar. The excavator suggested (*ibid.*, 80) that in this unit a "most important person" was doling out food-grain to the craft producers, probably indigenous people of the area. Without reference to ration systems in other civilizations, he had inferred that food was being distributed here.

It is known that small villages were incorporated in the institutional sphere of the great Mesopotamian households (van Driel 2001, 108). Similarly in India, on the Gulf of Kutch, are located small Harappan settlements that show evidence of shell crafts. (Fig. 1) Nageswar for instance lies near the northwestern tip of the Saurashtra peninsula. It is a disturbed mound, 2 ha extant; the depth of the occupation in any one place is at most 2.5 m. *Turbinella pyrum*, the main shell found on the site, was harvested in waters about 20 m deep (Hegde *et al.* 1992) not far from the coast. Of all Harappan sites known so far, this village stands closest to shell fisheries in the Gulf. Interestingly, the Harappan habitation here was at first a temporary one; it is the upper stratum that has permanent architecture. Even more significant, there are no artefacts here to indicate the presence of a local culture. The excavators concluded then that Nageswar was a unique Harappan Gujarat site in this respect (*ibid.*, 11). On a clay-rammed floor lay a neat pile of 413 sawn interiors of Turbinella shell; in another locus, just 1.3 × 1m, were 714 shells without the anterior, 430 with the lip margins cut off, and 11 apex portions of this species of shell (Bhan and Vidale 2014: 286). Here, then, was a shell supply station with an industry of bangle and ladle making, and a greater volume of shell remnants than at Mohenjo-daro.

Bagasra, at the narrow eastern end of the Gulf of Kutch, is a Harappan site of 1.9 hectares (Sonawane et al. 2003; Bhan and Vidale 2014). Stocks of uncut shells (more than 5,000 in all according to K.K. Bhan) lay in three heaps against the settlement enclosure wall. Traces of a wooden chest that had contained about 5,000 circlets -unfinished bangles- of the same species of shell were also found, and constitute a remarkable find. Bhan observed that a large proportion of uncut shells at Bagasra, unlike the shells excavated in Nageswar, were worm eaten. This means that they were collected

after the creature had died, *i.e.*, these were shells that had washed up on beaches and obviously had been picked up without inspection for quality. So short-distance sailing to shell fisheries and diving for shell (as took place at Nageswar, 500 km to the west) were not known to craftsmen further east. We cannot infer, then, a seasonally alternating rhythm on the coast of diving in fair weather and shell carving during the monsoon.

Perhaps it was from Nageswar that Harappan settlers moved east to places like Bagasra for the shell industry and stone bead production: aside from debitage, 927 complete bangles were found
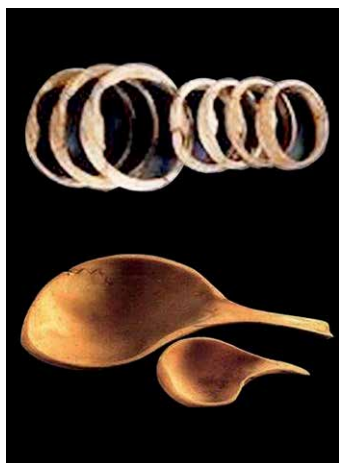
Figure 1: Shell bangles and ladles (not to scale).

at Bagasra (K.K. Bhan, personal communication) where, interestingly, the pottery of earlier cultures has also been found. The local culture of Gujarat, the chalcolithic "Anarta", is attested here and also at a few sites on the eastern margins of the Little Rann of Kutch, and there is evidence of contact with the Amri culture (pottery and biconical stone beads), one of the developmental stages of the Indus civilization in the southern Indus valley. Near Bagasra, Kuntasi (described above) has about 36 unique pendants of translucent windowpane oyster, 3 to 11 cm in diameter (Deshpande 1996, 344-45). Such ornaments, of "very fine [but] simple workmanship" do not occur at any other Harappan site. Perhaps we have a *rare* instance here of independent specialization for local consumption. In the same coastal area lies Shikarpur with some shell bangle waste and also the large number of chert blades mentioned above, together with hints of metallurgical activity. Bead manufacture was the second major industry in the region, especially at Bagasra, where, in addition, green-red-white agate stones were stored in quantity.

The soils of this sea-washed region are not the best for agriculture, and fishing would have been seasonal. Even so, crafts do not all appear to be seasonal work to augment livelihoods as independent specialization. In order to cut the shells, fine bronze saws, thus skilled metallurgists, were needed. "A specific technology of chipping and cutting shell was used at all [Harappan shell] workshops, to the extent that the width of the copper/bronze saw blade appears to be identical" (Bhan and Gowda 2003, 78). Also, interaction with other specialists such as seafarers and boat builders was required. The bangles are not particularly aesthetic but it is obvious, considering their occurrence in number at various Harappan sites and in burials with dead persons, and also the extremely laborious work required to shape the ladles, that they were important enough in social life for their use to spread to regions incorporated in the Harappa civilization.

"Trade" as an explanation for the dispersal of such Harappan craft items has thus been avoided in this paper. Artefacts such as weights and seals that we associate with states and external trade, emerged together with totally revolutionary intellectual phenomena such as writing and precision weighing, and at approximately the same time in Egypt, the Aegean, Mesopotamia, and South Asia. We cannot say that one was the cause of the other, but there is Rahmstorf's (2010; 2012) acute observation that systems of recording and accounting (writing[3]) and accurate measurement[4] (Fig. 2) are often connected with highly developed craft work such as metal alloying, the heat treatment and cutting of steatite, and the production of metal chisels and saws with extremely fine working edges. There was a spread across these regions of balance weighing of very small units, seals, the potter's wheel, tin alloying, gold granulation, *etc*., and according to Rahmstorf (ibid.), these together crossed cultural frontiers, especially between 2500 and 2200 BC. The microscopic steatite bead technology and the invention of faience and glazes in the Harappa civilization studied by Kenoyer (2010) reinforce the argument for a spate of innovations.

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3 Writing in its early stages writing was a means of asserting ownership, proclaiming a pious act such as the construction of a temple, identifying oneself and one's social or administrative position through an inscribed seal, or keeping accounts of disbursements and receipts in a great household. Also important were communication at a distance, and, in case such as the inscribed copper leaves /tablets of Mohenjo-daro, naming supernatural beings who could protect the user from danger.

4 In Mohenjo-daro the smallest known weight was 0.87 g.

Figure 2: Harappan chert weights.

In spite of what has been said we cannot attribute all crafts to the state sector. After all, even within Mesopotamia, the state sector of Assyria was nowhere comparable to that of Ur under the 3rd dynasty. I have mentioned the shell pendants at Kuntasi that no other Harappan site yielded. Moreno Garcia (2014, 249-51) has written about itinerant traders and mobile pastoralists in Egypt, about a trade station in the Dakhla oasis outside state control, and about text references to small quantities of fabric, hides, and papyrus moving to the Levant. A word of caution is nevertheless needed. The documentation Menon (2003, 113) found, showing that mobile pastoralists may develop their textile production to an extent that they need to outsource some weaving and dyeing tasks to other people, means that a traditional craft may become differentiated amongst various small groups.

In contrast to the standardized bricks of which individual Harappan towns were built, the chert blades for harvest work, and the almost identical ways in which shell bangles were formed, are a range of household and kitchen goods: terracotta tools and aids such as flat triangular "cakes", beads, cart models and wheels, and bangles, and simple stone ornaments, for instance. Also, if thread was made in individual households, that may explain why terracotta spindle whorls at Chanhu-daro are flat and round with constricted waists, but at Surkotada they are flat and round at the top with straight profiles, while at Kuntasi they are round and bead-like.

I now move to the baked clay statuettes of women, found in large number (475 in Mohenjo-daro according to Ardeleanu-Jansen (1993, 103) and about 1900 fragments at Harappa according to Clark (2007: 93)), in discard contexts together with household rubbish. Since their discovery and publication (1931) by Marshall it has

Figure 3 (left): Clay figure from Mohenjo-daro, National Museum, Delhi.

Figure 4 (right): Figure from Harappa in profile, Indian Museum, Kolkata.

been held that these were images of a goddess, made by specialists. A case can be made, however, that they were not objects of veneration and were made by women residents of the two cities in their own homes. The first reason for this is the attributes of the pieces. The second is their distribution. Third, there is a social context that we may hypothesize: the stress and strain of life during an urban revolution, especially for women, the kind of situation in which cults have been known to proliferate in history.

These solid and fairly large images of clay were modelled individually (Fig. 3), and not duplicated in moulds. Most depict a woman in a standing posture, the rare one showing a woman at a quern. There are women with various hairstyles and headdresses; many have ornaments around the neck, and a bare torso, and wear a girdle. In contrast to the head, hands and feet if surviving have little detail showing fingers and toes. Backs are often flat and featureless (Fig. 4) and on many pieces the arms were clumsily luted on to the torso under the stubs of the shoulders. In spite of variations, the female figurines of these two sites constitute a corpus, and this is quite different from the human terracotta art of the earlier period at Mehrgarh and Nausharo. The variation in hairstyles shows that it was not a stereotype of femininity that was portrayed, but individual women of the cities, and, it appears, women of different ages (Ardeleanu-Jansen 1993: 129).

These female figurines were found in the two large cities, Mohenjo-daro and Harappa. Their absence is almost total at the other sites, large and small. So the production of such clay work had something to do with city life. Moreover, these figurines were never carefully interred in pits under house floors or placed in symbolic tanks at religious sites as in later periods in India. They are found broken in city garbage.

Flat backs and frontality, lack of proportion, and clumsy appliqués of eyes and ornaments, point to the work of lay persons, not specialists. In the rare case where the feet survive, a figurine cannot stand by itself: the spoon-like feet slope down from heel to toe. So while the figures are straight, they do not actually stand. (Fig. 5) It is difficult to comprehend why Mackay (1938), Ardeleanu-Jansen (1993, 79-82) and Clark (2007, 169), suggested that these images could have been made by specialists, when their remains do not cluster near pottery kilns as they sometimes do in Ptolemaic Egypt.

There are other significant features. Even though the women are depicted without clothes, below the navel they invariably have a rectangle of clay or a girdle. Their near nudity, but not total nudity, is striking. It contrasts with the total nudity of many male terracotta figurines from the two cities. Also, there is the famous totally nude bronze "Dancing Girl" of Mohenjo-daro (Fig. 6), 11 cm high extant. It is not as if Harappan

Figure 5 (left): Nude male from Harappa that cannot stand despite feet being intact, Indian Museum, Kolkata.

Figure 6 (right): The "Dancing Girl" of Mohenjo-daro, National Museum of India, Delhi (copyright F.R. Ratnagar).

2 cm

urban society shunned the idea of nudity! Instead, it can be suggested that the authorship was different. The small bronze on the one hand and the dozens of terracottas on the other were the work of a skilled metallurgist and modeller in one case, and, in the other, individual women, perhaps identifying with the image but too inhibited to bare all. We are dealing with different makers, different viewers, and different meanings.

Going by the initial analysis of Ardeleanu-Jansen, it emerges that the distribution of the figurines between the several excavated houses of Mohenjo-daro was decidedly uneven. In a couple of houses seven figurines were found, but in many others there was not a single such image.

My third argument reverts to the start of this paper. In the 3rd millennium BC people were coming out of a social structure based on kinship -in which work groups, war parties, sacral practices, and resource ownership had been small-scale and organized in descent-groups- they were beginning to live in large cities, which would have meant a radical change in human relationships, *e.g.*, the obligation to obey the commands of those in power. Class domination and coercion and labour obligations were very likely a prime source of stress in society.

State formation could also have brought about a dispersal of ancient lineages and clans. The settlement studies of Mughal (1990) show that many village settlements were abandoned in the transition to the urban Harappan period. Who was it that took the place of the elders to exercise moral authority when the old villages were abandoned? In the new urban setting was there continuity in the roles of men *vs* women, wives *vs* husbands, children and parents? One can imagine also that settlement shifts moved some people away from their ancestral deities and shrines.

A state could not have been maintained over centuries unless there were repeated armed action for suppressing revolt. Contrary to the view that this was a civilization without combat or conflict, the heavy fortifications of several Harappan sites, missiles for defence, and a seal image, tell another story. There would have been loss of life in

war, and a marginalization of defeated groups. Traders who sailed to Mesopotamia may not all have returned safely. Unburied skeletons in streets and courtyards in the last levels of Mohenjo-daro, as well as hidden metal caches are signs of stress and conflict. This is the kind of social milieu in which multiple cults emerged in history, as Hayden (2003, 347-79, 365-66) has found. In the Harappan case one such cult could have brought together city women, shamans and the ancestors, the terracottas representing the women and being used in rituals for them in their homes.

A challenge to this theory is the question of terracotta firing. One found that it would have been fairly easy to model clay in the form of a woman, especially given the range of clay objects in everyday use in Harappan households. But when it has repeatedly been stated that the female figurines were well fired, can it be inferred that firing too was done in the home? Could they have been thoroughly baked in the hearth? Repeated trials for firing figurines of the same dimensions as the Harappan ones, and in elementary fireplaces that a professional potter Satish Joshi and I constructed for ourselves – ended in either partially oxidized cores, or else with the figurines exploding in the hearth. This in spite of the use of slow-burning fuels like dung cakes which burn with an incandescence rather than a flame[5], and in spite of waiting for various lengths of time for the pieces to dry in the atmosphere. Do we then have to accept that it was specialists who fired these? Alternatively, our failures could be attributed to the impregnation of clays with minerals and salts in recent times, in contrast to the Indus clays of 2500 BC which would have been salt-free. There is another consideration. According to Anupam Sah, Conservation Consultant at the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya, Mumbai's museum, excavated "terracottas" can be stable even when they had not been thoroughly fired in antiquity -they can last for decades in a museum environment. So it is not impossible that in Harappan times the images were actually only "pre-fired" and not thoroughly baked to the core.[6]

None of the figurines found is totally intact. A figurine may have been thrown into a fire[7] some time after a curative ritual had been conducted, to ensure that the negative properties it had acquired from a sick or unhappy woman or household, were themselves destroyed. Perhaps the broken sections appear oxidized only because they had been exposed to flames or embers in the final act of the ritual (one can hardly apply to a museum director for permission to crack open a four-thousand-year old figurine just to examine the core!). So it is not impossible that that the clay images of women, not qualifying as "craft" work, were the domestic and private creations of individual householders for ritual and magic. The content of the ritual and the reason for conducting the cult remain a mystery. But as Roger Moorey (2003,10) said about a similar context, the efficacy of magic often depends on the ultimate complete destruction of the images that were used.

I hope to have distinguished sporadic domestic activity from what we call craft or regular and customary, if not professional, work. The one is loaded with meaning, the other takes its form within a cultural tradition, and is part of a socially transmitted technological tradition.

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5   Wood, dry grass and straw, and wood charcoal were also tried.
6   It is important to note that traditional terracotta figures for various Indian festivals are hollow and unbaked.
7   Potter Paulomi Abhyankar planted the seed of this idea in my mind.

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The Egyptian Craftsman and the Modern Researcher

The benefits of archeometrical analyses

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Abstract

Archeological studies cannot exist today without archeometry. This discipline applies physico-chemical methods to improve the understanding of materials and techniques used by craftsmen. These tools enable deeper knowledge of the technical, artistic and social contexts in which objects were made.

Keywords: Archeometry, X-ray radiography, scientific imagery, UV light, infrared, xylology, archeodendrometry, dendrochronology, Carbon-14 dating, polychromy analyses, Mirgissa, Deir el-Bersha, Meir.

Archaeometry -the application of physico-chemical methods to research the techniques and materials used by ancient craftsmen- is essential to present-day archaeological studies. Analytical tools can reveal new aspects or complement existing information, thereby furthering knowledge of the technical, artistic and social backgrounds to the creation of the artefacts under study.

An archaeometric approach should begin with a review of existing information on the artefact and its context. Rather than an optional extra, this phase lays the foundation for the study by defining the information it is hoped to obtain, as analyses are always carried out with one or more goals in mind rather than "blind." For example: has all or part of the original decoration survived under modern overpainting? Is there

in: Miniaci, G., Moreno García, J.C., Quirke, S. and A. Stauder (eds.) 2018: *The Arts of Making in Ancient Egypt*, Sidestone Press (Leiden), pp. 211-224.

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a sketch or a first version under the ancient decoration? How was the artefact put together? Of what materials is it made? Can its date and provenance be established?

An initial material assessment can help outline these aspects and orient the research. The results of the analyses will then provide information on the multiple facets of the artefact – inscribed on its surface, contained within its structure, partly visible to the naked eye or completely hidden.

This paper focuses on the principal archaeometric techniques useful to Egyptology, with no claim to completeness. As it focuses principally on polychrome wooden artefacts, methods such as thermoluminescence, for instance, are not dealt with. Its aim is to provide an overview of the potential benefits of these methods in terms of their contribution to our understanding of the techniques used to make the artefacts and the context of their production.

To begin with, a distinction must be made between two kinds of artefacts that may be analysed. Those that have undergone no treatment or restoration of any kind since leaving their discovery site can be studied directly. A condition report assesses the damage they may have suffered; imaging provides information on construction and assembly techniques; and finally, the wood and original polychromy are studied and the materials originally used are identified. However, artefacts that entered museum collections in the past have undergone treatment and restoration that complicate their study, which therefore involves three phases. First, a condition report and imaging are used to assess the extent of the restorations, their interaction with the original materials and the damages done to the paint layer and support. The chances of recovering the original materials under the modern overpainting can thus be estimated. Secondly, the restoration and overpainting -which have blended with or covered the original materials and decorations- are analysed and identified, and the damage done to the decoration and support is located. Finally, analysis of the wood and original polychromy can help to identify the original materials and determine the intention of the Egyptian craftsman.

Imaging campaigns provide essential information about the components and techniques used to produce the artefact under study.

Imaging campaigns: X-rays and images in ultraviolet, visible, raking and infrared lights

Radiography is an imaging technique using X-rays, which leave a more or less opaque image on a plate depending on the density of the materials they pass through. Radiography can reveal internal elements that are invisible to the naked eye, thereby providing information on the elaboration of the artefact and details that can shed useful light on previous interventions.

Figure 1 gathers X-ray radiographies that show assembly techniques and modern interventions. The lion protome on the left reveals two mortise assemblies that have been coated and painted, while on the right the head of the coffin shows a dovetail and an important number of modern nails.

Photographic campaigns show the effects of different types of lighting on the same object. This is exemplified by images taken during the conservation treatment of the
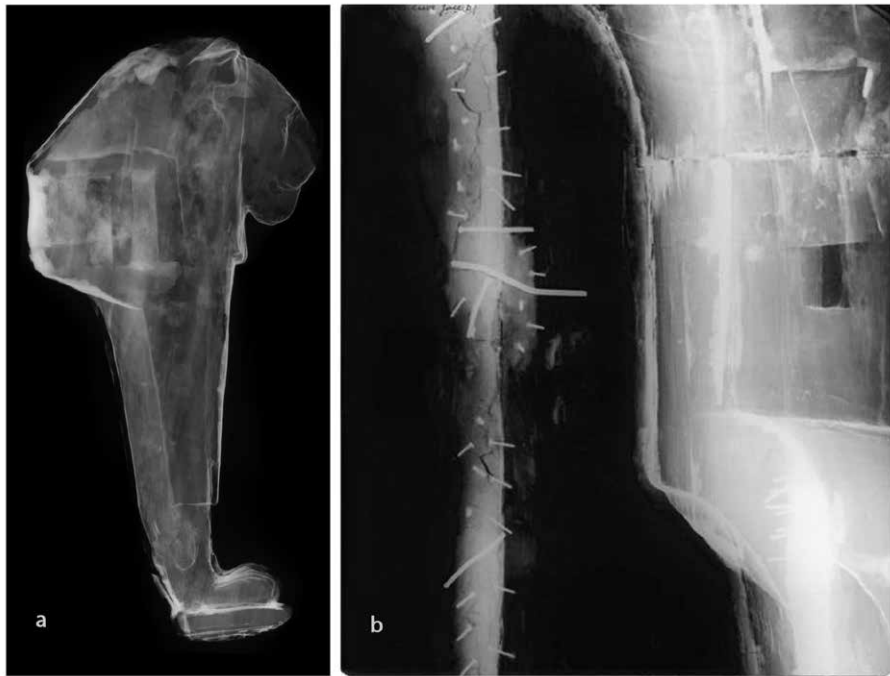
Figure 1: Radiographies: (a): lion protome, Musée du Louvre E 13238 © C2RMF / Elsa Lambert et Jean Marsac. (b): head of Nehemsimontou's coffin, Château-musée de Boulogne-sur-Mer inv. 1b © C2RMF / Jean Marsac.

panels of the Middle Kingdom coffin of the lady Ibet, from Mirgissa.[1] Visible light photography -the most common type- creates a faithful record of the appearance of an artefact. Photographs taken in raking light, which accentuates the slightest relief, provide much information on the surface state of preservation. Ultraviolet and infrared radiation record the reflection and fluorescence emitted by the component materials of an artefact, which can help to characterize and locate them; pigments of different kinds that look similar in visible light can be differentiated under ultraviolet or infrared light. So-called "false colour" images can be made to facilitate the interpretation of an infra-red examination and help identify the pigments used. Fluorescence under ultraviolet light is also very useful for analysing the surface, particularly in the case of varnishes, as it helps in assessing their homogeneity and the size of the area covered.

Photography and infrared reflectography are also very useful in the interpretation of texts or decorations that have faded or almost disappeared if they were applied using carbon-based pigments and have not been covered by a paint layer. The gain in legibility can sometimes be considerable. This technique was used to study a funerary bed dating to the 12th dynasty, one side of which is covered with cursive hieroglyphic texts written in black and red ink on a pale yellow ground layer. In many places, pho-

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1   The conservation treatment of these panels from the Halma Ipel collection, held in the Musée des Beaux-Arts de Lille, was carried out at the C2RMF by Geneviève Delalande, conservator, and her team under the supervision of Fleur Morfoisse and Noëlle Timbart in 2013.

C2RMF71082 - Moyen Empire, XIIIᵉ dynastie, Panneau de sarcophage: convoi funéraire - Lille, musée des beaux-arts, Inv. L 1653 ; Peinture sur bois;
Photographie en lumière directe - CLL593 - © C2RMF L.Clivet - 16/04/2013

C2RMF71082 - Moyen Empire, XIIIᵉ dynastie, Panneau de sarcophage: convoi funéraire - Lille, musée des beaux-arts, Inv. L 1653 ; Peinture sur bois;
Photographie en lumière rasante haute - CLL596 - © C2RMF L.Clivet - 16/04/2013

C2RMF71082 - Moyen Empire, XIIIᵉ dynastie, Panneau de sarcophage: convoi funéraire - Lille, musée des beaux-arts, Inv. L 1653 ; Peinture sur bois;
Photographie de fluorescence U.V. - CLL597 - © C2RMF L.Clivet - 16/04/2013

Figure 2: Panel of the lady Ibet coffin under different lights: (a) visible light, (b) raking light, (c) ultraviolet light, (d) infrared light. Halma Ipel collection inv. L 1654, Palais des Beaux-arts de Lille © C2RMF / Laurence Clivet.
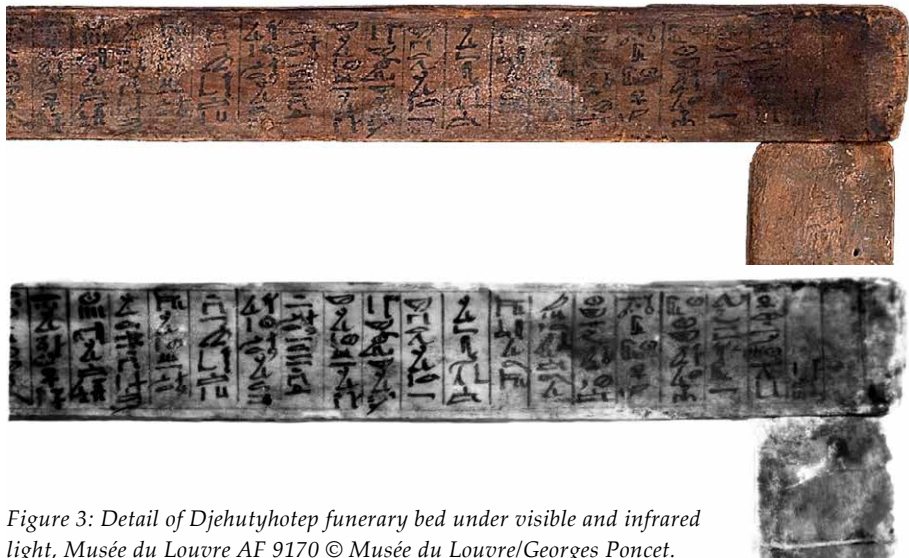
C2RMF71082 - Moyen Empire, XIIIᵉ dynastie, Panneau de sarcophage: convoi funéraire - Lille, musée des beaux-arts, Inv. L 1653 ; Peinture sur bois;
Photographie infrarouge - CLL594 - © C2RMF L.Clivet - 16/04/2013

Figure 3: Detail of Djehutyhotep funerary bed under visible and infrared light, Musée du Louvre AF 9170 © Musée du Louvre/Georges Poncet.

tographs taken in infrared light made it much easier to read parts of the texts that were barely visible (Rigault and Delange 2009, 63-110 and pl. VI à XIX).

Analysing wood: xylology, archaeodendrometry and dendrochronology

Specific analytical techniques -such as xylological identification, archaeodendrometry and dendrochronology- can be used on wood artefacts. These methods can determine and date the type of wood, show how it was worked and shed light on issues such as sources of supply, workshop practices and the circulation of raw materials.

First of all, xylological identification can determine a wood type through micrographic analysis, which consists of examining the anatomy of the wood under a microscope on its transverse, radial and tangential planes (Asensi Amoros, Thomas, Guichard and Laronde 2009, 56-62). In addition to the identification of the wood species, this kind of analysis can also provide precious contextual information, exemplified by the case of the canopic chest of Khakheperreseneb, illustrated below (Musée du Louvre E 17108, late 12th Dynasty. See Rigault 2015, 325-331). Analysis of this artefact brought to light the presence of four different species of wood,[2] two of which were imported and rarely used in Egypt: yew, probably from the Amanus Mountains in southern Turkey and principally attested at Meir (more rarely at Deir el-Bersha), and Aleppo pine. These two imported coniferous woods were used for the largest parts – the sides and lid – but local woods were used for the small assembly elements (a frequently-attested practice) and the rectangular pieces on the upper section. This diversity of materials prompts a number of questions, particularly concerning the reasons for such a combination of materials in the same object. Was it a deliberate choice? Was it motivated by economic reasons related to the cost of the materials? Was it simply a means of "recycling" pieces of wood left over from the construction of larger pieces? Finally,

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2   This study was carried out by Victoria Asensi Amorós (wood anatomist), Xylodata laboratory.

Figure 4: Canopic chest of Khakheperreseneb, Musée du Louvre (E 17108) and detail of the fragment of coffin with tunnels made by insects, Musée du Louvre (E 17109) – © Musée du Louvre/Georges Poncet.

were there reasons of a symbolic nature? Whatever the answers to these questions, the complete xylological analysis established that the workshop in which the chest was made had an abundant supply of imported woods. It is also noteworthy that the use of yew wood, a species rarely found in Egypt, seems to be typical of the Meir region, which was therefore probably involved in regular trade with the producing regions.

When the Musée du Louvre acquired the canopic chest of Khakheperreseneb, its base consisted of a fragment of a Middle Kingdom coffin, probably also from Meir (Musée du Louvre E 17109, 12th Dynasty); this piece was removed when the chest entered the museum, and underwent conservation treatment a few years ago. Xylological analysis showed it to be made of sycamore fig wood.[3] Plant debris was found in insect tunnels made before the ancient preparation layer and polychromy were applied. The hypothesis that the rather large holes and very short tunnels could have been made by "marine borers" (which include small, wood-eating crustaceans that are only active on immersed materials) needs to be verified and confirmed. If this theory is correct, however, it would suggest that this piece of wood was submerged in water before being used – but only for a fairly short time, in view of the limited damage. This hypothesis is only based on the type of tunnels, but if confirmed it might echo a tradition recorded by Theophrastus, according to which sycamore fig wood was immersed in water after being cut, to dry it out and make it stronger.[4]

Among the other types of wood analysis, dendrochronology is a technique for dating wood by comparing growth ring patterns with reference chronologies according to geographical zone (Pousset, Locatelli and Heginbotham 2009, 31-36). The date established is the date when the tree was felled, usually just prior to the construction of the artefact. As dendrochronology requires access to the growth rings, it is not always applicable to polychrome objects.

In parallel, archaeodendrometry uses qualitative and quantitative observations to evaluate some of the physical characteristics of the wood (Lavier 2012, 87-91). It can

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3 Study carried out by Victoria Asensi Amorós (wood anatomist), Xylodata laboratory.
4 Theophraste. *Recherches sur les plantes*. Vol. III, chapter XIX, 'Du Sycomore', 288. We thank Victoria Asensi Amorós for this reference.
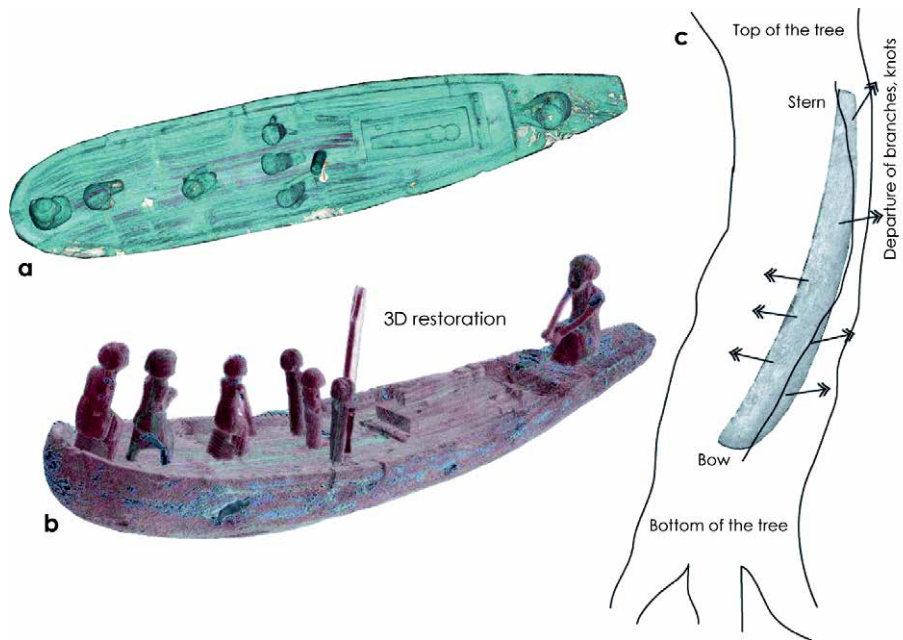
Figure 5: Use of archaeodendrometry to establish steps of production from tree to artefact, from © V. Asensi Amoros, G. Eschenbrenner-Diemer, C. Lavier, S. Pagès-Camagna, Etude des modèles du Musée des Beaux-Arts de Lyon.

even be used to determine the position of the pieces of wood in the tree from which they were taken, or to evaluate the diameter of the tree and the age at which it was felled. When used in conjunction with traceology, this technique can identify, to a certain extent, the kind of tools that were used and the various steps in the manufacturing process between the tree and the artefact.

All these techniques, therefore, make a precious contribution to our understanding of the economic and cultural issues related to the use of wood. This can be understood with a study of the set of coffins of the intendant Sepi, held in the Musée du Louvre. These pieces, from the site of Deir el-Bersha, date from the 12th dynasty (Musée du Louvre E 10779 a and b. See Rigault, Asensi Amoros, Pagès-Camagna, Lavier and Couton- Perche, in press). The coffins had been placed in one of five shafts in the forecourt of the famous tomb of the nomarch Djehutyhotep. Their analysis included studies of their polychromy and wood. The panels are made up of fine, smooth planks of cedar wood, and most of the dowels are also made of cedar, except for one in jujube wood and another made of tamarisk.[5]

Dendrometric analysis of the inner box yielded some important information about the wood used to construct this coffin.[6] Legible growth rings were examined all over the outside of the box and on the crosspieces. Measurements were made from macro-photographs, then represented by curves showing the relationship between tree-ring widths and years. It was possible to ascertain how the original trunk had been used; for

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5   Study carried out by Victoria Asensi Amorós (wood anatomist), Xylodata laboratory.
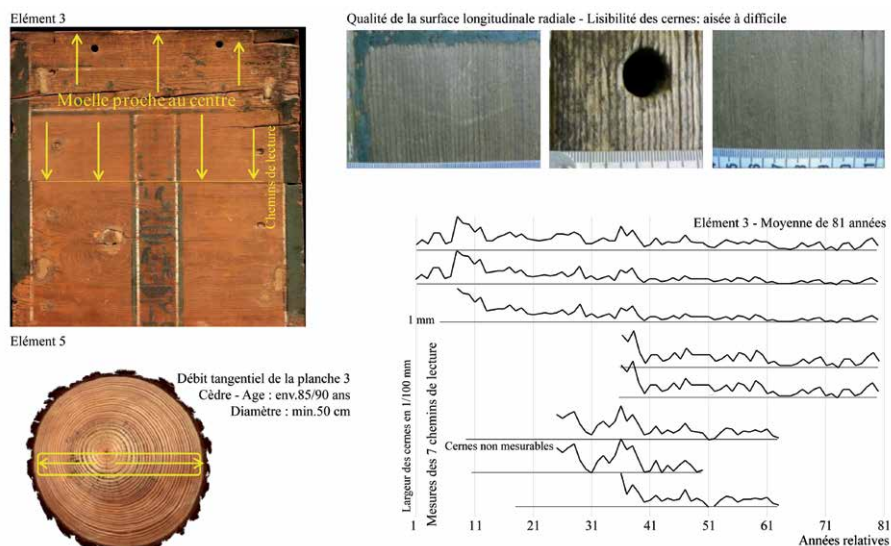6   The dendrometric analysis was carried out by Catherine Lavier, LAMS.

Figure 6: Inner coffin of Sepi, Louvre E 10779 B, Representation of dendrochronological series in the form of curves for the crosspieces and of "cones" schematizing the growth of other planks from the same period, © Lavier.

example, it was established that the planks were made by cutting the wood tangentially then cutting the planks to size. The four crosspieces came from the same tree, but from two different parts of the trunk. The study also revealed that all the woods were contemporary. They came from three different trees, two of which were about ninety years old with a diameter of about 25 to 30 centimetres, while the third was at least 125 years old with a diameter of 18 to 20 centimetres.

Continued study is planned on the box of the outer coffin, which should allow us to refine these observations. For example, other planks were probably cut from the trunks of the three trees used for the inner coffin, and it will be interesting to see whether they were used for the outer coffin; this type of investigation could also be extended to coffins found in the shafts near that of Sepi.[7] Dendrochronological analysis will be carried out once the outer coffin has been studied.

The carbon-14 dating method is based on the presence of radiocarbon in all living organisms – a presence that decreases exponentially from the moment of death. By measuring the ratio of carbon-14 to normal carbon, we can calculate the age of the organic material under study. This method, which can be used to date wood, ivory, bone and textiles, has various applications ranging from the establishment of an absolute chronology to relative dating of objects within a defined period of time. The series of objects analysed at the Musée du Louvre include the mummy masks found in Cemetery MX at Mirgissa during excavations conducted by the French Archaeological Mission to the Sudan, under the direction of the archaeologist Jean Vercoutter (Vercoutter et al. 1970, 1975, 1976).

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7   Primarily the coffins of two other men named Sepi and those of Gua and Sen, held in the Museum of Cairo and the British Museum.

The study of the mummy masks and fragments of decoration from this cemetery, usually dated to the Second Intermediate Period, made it possible to define typological and stylistic criteria relating to relatively differentiated periods and often associated with specific tombs (Rigault 2012, 28-56). Carbon-14 analyses carried out on fabrics associated with masks or isolated fragments, principally from these tombs, yielded results that mostly span the period from the 12th dynasty to the late Second Intermediate Period and, in the case of one object, to the mid-18th dynasty (Quilès 2012, 279-289). These results match perfectly with those suggested by the stylistic study of the masks and their archaeological contexts (wherever possible, as the cemetery was often robbed and its tombs reused). The stylistic study and analyses confirmed the settlement of an Egyptian colony in Mirgissa in the late 12th and throughout the 13th dynasty.

Analyses of polychromy

Finally, studies of polychromy can establish the steps in the application of decoration and identify the materials used for preparatory and paint layers, varnishes and gilding. There are several complementary methods, invasive or otherwise, for conducting these analyses. X-ray fluorescence spectroscopy can determine the overall composition of the material under study without taking samples, and can be supplemented by structural analysis.

Analyses of polychromy provide information not only on the nature and quality of materials, but also on their provenance and circulation. By cross-referencing the results of these analyses with the data from the stylistic and iconographical studies, hypotheses can be suggested concerning the use of certain materials.

Again the mummy masks from Mirgissa constitute a good example. The pigments used on them were identified by analyses[8] that brought to light the presence of a synthetic, copper-based green, corresponding to the experiments made before "Egyptian green" was developed. The presence of this synthetic green was detected on a few masks dating to the late 12th dynasty, in particular on the mask of the lady Ibet (and on her coffin too). However, the green tint perceptible on many other masks is actually a pale Egyptian blue; the green hue is thought to be due to a change in the colour of the binder, or to a superficial organic layer coloured by time. Analysis of the blue of the masks also yielded some important information. Its tone varies according to the degree of grinding of the pigments, and it is often paler than that of other contemporary artefacts. The grey tint on four of the masks is fairly unusual for the period; it was obtained by mixing carbon black with a white calcium-based pigment. Two yellows are also visible: a bright and shiny one containing orpiment, present on most of the skin tones (even the very pale or almost white ones); and a more orangey, ochre-based yellow used for details on necklaces or headdresses. The red was obtained from an iron-based pigment; the black is a carbon black derived from combustion. Finally, huntite was detected in some of the whites.

The lavish gold leaf gilding on these mummy masks often has a red tint; this is due to the alteration of the gold leaf, rather than that of the base layer used as a support.

Figure 7: Mummy masks from Mirgissa, Musée du Louvre (a) E 26061 -(b) E 25703: iden-
tification of egyptian blue pigments and synthetic egyptian green © Musée du Louvre/
Christian Décamps (a)/Georges Poncet (b) - *(c) Pigment samples* © S. Pagès-Camagna.

The composition is a blend of gold and silver with larger or smaller amounts of copper
(Pagès-Camagna 2012, 274).

The results of these analyses have provided a considerable amount of information.
We know that the Egyptian population occupying Mirgissa during the late 12th and
13th dynasties was far from wealthy – a fact that seems at variance with the very high
quality of the materials used for the mummy masks found in the cemetery associated
with this period of occupation. This apparent contradiction can probably be explained
largely by the important role of the fortress of Mirgissa in trade with Nubia, though
a supply from Egypt cannot be totally excluded (at least for the 12th and early 13th
dynasties). The systematic presence of orpiment from the East suggests importation
from Egyptian workshops or a trade route via Mirgissa, while the lavish use of gilding
can be explained by the proximity of extraction sites.

The analysis of polychromy also shows evolution over time in terms of material. For
example, huntite was not used systematically; it seems more specifically associated with
certain tombs[9] and masks that are stylistically datable to the late 12th and early 13th dy-
nasties; tombs from the second part of the 13th dynasty do not seem to have contained
any. This evolution could be explained by the hypothesis that grave goods were partly
imported from Egypt or made by Egyptian craftsmen until the late 12th dynasty, but
were made locally from the 13th dynasty onwards.

To conclude, we would like to mention the Vatican Coffin Project, a research pro-
gram concerning the "yellow coffins" characteristic of Theban workshops of the 21st and

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9   Tombs 102, 115, 117, 118, 124, 125 and 131. See Rigault 2012, 134-135, 164-167, 178-179, 193-
     195,216-221, 252-253.

Figure 8: Lid of Tanetchedmout coffin, under visible light, infrared false colour and radiography. Musée du Louvre N 2612. © C2RMF / Gérard de Puniet de Parry.

early 22nd dynasties.[10] Although this project lies outside the time frame established for this conference, its approach seems relevant to our purpose. The institutions involved aim to establish a common protocol for the technical analysis of these coffins. Scientific imaging campaigns are conducted, component materials are analysed and their technical application is correlated with the Egyptological interpretation. The main aims of the project are to specify known dating criteria for the coffins and to refine knowledge of the Theban workshops. Each museum has begun by working on its own collection,

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10   This project is led by Alessia Amenta, head of the Egyptian Museum of the Vatican and gathers several institutions. The current team is as followed: Alessia Amenta, Ulderico Santamaria and Giovanna Prestipino, for the Vatican museum and laboratory; Hélène Guichard and Patricia Rigault-Déon, for the Louvre Museum; Sandrine Pagès-Camagna, Lucile Brunel, Noëlle Timbart and Caroline Thomas, for the C2RMF in Paris; Lara Weiss and Helbertjin Krudop for the Rijksmuseum van Oudheden in Leiden; Christian Gréco and Enrico Ferraris for the Egyptian Museum in Turin; Michela Cardinali, Marco Nervo, Paola Buscaglia and Tiziana Cavaleri for the Centro di Restauro e Conservazione Venaria Reale in Turin; Luc Delvaux, for the Cinquantenaire Museum in Bruxelles; and Victoria Asensi Amoros, Xylodata Society.

basing its work on this analytical protocol which will eventually make it possible to cross-reference and synthesize the data.

The methods mentioned above are used for the scientific imaging. For example, the image above shows the lid of the coffin of Tanetchedmut (Musée du Louvre N 2612) in visible light, infrared false colour, and X-ray radiography. The presence of Egyptian blue is indicated in red in the false colour image and, because of the different densities, the X-rays reveal the structure and details such as the filler materials.

For analyses, the characterization of materials concerns the wood and the polychromy. Findings can differ according to position in the same coffin (inside or outside the box, for example), and between different coffins from the same group. This data will be all the more significant once it has been collated to provide an overview of the production of these coffins.

Furthermore, decorations and texts are being subjected to detailed paleographic, stylistic, iconographic and genealogical study. A database will eventually include all the coffins in the project and reference all the above-mentioned analyses and studies, so that the styles of craftsmen can be compared and links between technical groups and families can be drawn.

This research project, therefore, will cross-reference the findings of a material, technical and technological study with those of a historical, stylistic, paleographic and iconographic analysis. It will further our knowledge of the Theban workshops that produced these artefacts and, more generally, shed light on the historic, sociological and artistic context of the Third Intermediate Period. Although it does not concern the Middle Kingdom, it provides a perfect illustration of the ways in which archaeometry, coupled with traditional Egyptological approaches, can improve knowledge of the contexts in which artefacts were produced and provide a more tangible perception of Egyptian craftsmen.

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The Representation of Materials, an Example of Circulations of Formal Models among Workmen

An insight into the New Kingdom practices

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Abstract

The representation of materials is a widespread practice in pharaonic Egypt. Alongside iconographic representations, there is a significant amount of funerary objects, mainly in wood or pottery, which are decorated to imitate the appearance of various other materials such as stones, glass, leather. The making of such a copy requires the reproduction of several distinctive features of the original material, which can be determined by its natural appearance or by the manner it is usually shaped by a craftsman. This paper considers the role taken by a craftsman's action in the constitution of formal models of materials, and the way in which purely technical information can be seized, transformed and reproduced on a different medium. This study is mainly based on the funerary equipment from the Theban necropolis of the New Kingdom. In the first part, several examples of skeuomorphs are presented in order to determine the "degrees" of intervention of technique in the creation of formal model. In the second part of this paper, through a case study about the representation of basketry, it is suggested that there may have been a form of technical circulation, which was less a praxic than an intellectual one, from a medium to another.

Keywords: Basketry, decorative pattern, material metaphor, materials, skeuomorphism.

When one looks at works produced at different moments in the history of art, one finds that artists often took great pains to represent materials.[1] For instance, in his *Madonna with Canon van der Paele* (completed 1436, Groeninge Museum, Bruges), Jan Van Eyck made use of the new technique of oil paint to reproduce the texture of cloth, the brightness of precious stones and the smoothness of fine-grain wood. The rendering of materials allows artists to create genuine effects of reality. Sometimes, the contrast between the starting material used by the artist and the one he intends to represent is so strong, that to succeed in doing this is a real *tour de force*. Thus, in the 19th century, the Italian sculptor Giovanni Strazza managed to express in marble the delicacy, transparency and lightness of a fabric veil in the *Veiled Virgin* (Presentation Convent, Cathedral Square, St. John's, NL, Canada). Therefore, the representation of matter has a very important place in artistic creation because it highlights the special link between the representation of reality and technical mastery.

These general reflections are put into practice in a very singular way when one deals with the history of ancient Egyptian art. First, because traditional forms of iconographic representation question notions of realism and effect of reality in a specific manner. Indeed, the aim of the adopted artistic conventions is to show in the best possible way the very *essence* of an object and not its appearance as perceived by sight, a principle conceptualised by Emma Brunner-Traut (1974, 421-446) under the name of *aspectivity*. Second, because representation of materials is expressed there with a sort of evidence and immediacy, it makes ancient Egypt an ideal background for the study of this practice. Of course, materials have been represented in iconography and statuary by Egyptian artists: to mention only one example, the painted decor of the tomb of the vizier Rekhmire (TT100), from the 18th dynasty, includes a workshop scene showing two monumental statues made of red granite (Davies 1963, 58, LX), precisely represented by the use of pink colour with red dots. But it is in the production of "dummy" artefacts, called "statues of objects" by Valérie Angenot (2011, d7), that the reproduction of materials reaches its highest level of expression. These objects were certainly produced for a specifically funerary use, to be part of the equipment left in the tomb at the side of the deceased. If this type of artefact are found in all periods of ancient Egyptian history (Angenot 2011; Gander 2012), it is probably during New Kingdom that this art of fake is brought to its climax. Indeed, the funerary material of the Theban necropolis includes a large amount of objects (mainly vases and boxes) made of wood or ceramic and painted to look like, for instance, stone or glass. This, together with the documentary abundance of the period, makes it an ideal point of observation to question the whole of Egyptian history.

To reach his mimetic goal, a craftsman has to imitate a certain amount of formal features particular to the matter he intends to reproduce, selected on the basis of their relevance and their ability to allow the recognition of the target material. After this selection process, they constitute a real formal model, a model which could be afterwards translated by a craftsman in his own medium. This "reproduction of significant characteristic of a material into another one" is the very definition of the phenomenon of

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1   This paper presents ideas that are currently developed in a PhD thesis that focuses on the phenomenon of representation of materials in the archaeological and iconographic datas from the Theban necropolis during the New Kingdom. It is thus to be considered part of a work that is still in progress.

skeuomorphism (Frieman 2010, 33). This concept is key to my purpose. As it describes a widespread practice, this notion has been largely used by archaeologists and analysed in many different ways (from technological, cultural or economic points of view): one can refer to an overview by Catherine Frieman (2010, 33-38) on this subject. In my perspective, it seems important to me to remember that it is not raw materials that skeuomorphs show, but manufactured objects, that it to mean matters put in shape by a technical intervention. Henry Colley-March, the author at the origin of the concept of skeuomorphism, precisely described it as "*an ornament [...] derived on structure*" (1889, 166), according thus a central role to the technique gesture. Therefore, the formal model reproduced in such a transposition derives from both the natural appearance of the material and the way it has been transformed.

In this paper, I will thus analyse the subject of circulation in skeuomorphism of formal models considered with their relationship to techniques. Are there any marks of the fabrication process itself in the skeuomorphic objects? In other words, does the circulation of forms imply a circulation of skills? The idea I will propose is that skeuomorphism can indeed lead to a sort of technical circulation, but that the latter comes less under the field of praxis than it is an intellectual process.

Formal models in skeuomorphism

First, it is my intention to present different types of Egyptian skeuomorphism in order to analyse the nature and production mode of the formal models one can find with them, together with their link to the technical gesture of the workers. I will try to show that the place of technique in skeuomorphism seems to be unequal and linked to the degree of structuring of the material in the represented object.

Aspect of the matter: a natural motif

Sometimes, in the elaboration of a model, the slider is completely on the side of the inherent characteristics of the material and not on the side of the technical gesture which modifies this material. It is especially true for stones which are reproduced on ceramic and wooden vases or dummy vases (Baldassari 1981; Gander 2009; Marchand 2011, 607-611) (fig. 1-2), like for instance the beautiful set discovered in the Tomb of Yuya and Thuyu (KV46), parents of the wife of Amenhotep III, Tiye, now held in the Egyptian Museum in Cairo. It includes several wooden false vases, painted like calcite, red granite, black diorite and decorated glass (Davis 1907, 32, XXVII, XXVIII; Quibell 1908, 42-45, XX, XXI). By the fineness of their realisation, they are probably the most exquisite examples of this type of production. In this case, the formal model clearly relates to the appearance of the stones and not to the cutting technique. In my opinion, this is in due to two reasons. The first is that these stones have a decorative appearance which make them easily identifiable and constitutes their main feature. The easiest way to reproduce them is thus to translate this appearance into a graphic motif by means of a stylisation process. The second is to be found in the nature of the technical gesture, which creates a special link between form and matter. Indeed, here, the technique of the craftsman is literally to bring the form out of the stone block, by removing matter from it. We are thus very close to the traditional philosophical theory of form as a "container" and matter as "contents". In this view, the form acts

Figure 1: False vase imitating calcite. New Kingdom, 18th dynasty. Thebes. Wood, paint. Metropolitan Museum of Art no. 12.182.25. Rogers Fund, 1912 (www.metmuseum.org).

Figure 2: Jar imitating black stone. New Kingdom, 18th dynasty. Thebes. Pottery, paint. Metropolitan Museum of Art no. 29.2.18. Rogers Fund, 1928 (www.metmuseum.org).

as a geometric limitation of matter in space. So, another craftsman who would like to reproduce such a stone vase will act exactly the other way round: he will first make the "empty" shape of the vase, with his own medium and thus his own craft; then, by painting it, he will "fill" this shape with the appropriate pattern suitable for the original stone. The technique is all his, and has no connection with the gestures needed for stone working.

Layout of matters: an artificial decorative motif

In other cases, the reference formal model is linked to a certain use of materials, and especially to their combination. This case is well exemplified by the wooden boxes that reproduce a marquetry of ebony and ivory. For instance, there is in the Louvre Museum (no. N 2915) a shrine-lid box from the 18th dynasty painted with black, white and red concentric rectangles (Killen 1994, 37, pl. 27). It can be compared with another example decorated with real inlays of wood, ebony and ivory, discovered in the tomb of Tutankhamon and held in the Egyptian Museum, Cairo (no. JE 61478) (Killen 1994, 95, fig. 118). Here, we do have a reproduction of materials but they are comprehended through a decorative pattern based on the way they are combined. The

Figure 3: Cosmetic box. New Kingdom, 19th dynasty, reign of Ramesses II. Thebes, Deir el-Medina, Tomb of Sennedjem (TT1). Wood, gesso, paint. Metropolitan Museum of Art no. 86.1.7. Funds from various donors, 1886 (www.metmuseum.org).

reproduced model is thus based on both an inherent feature of the affected matters (mainly their colour) and on the result of a technical gesture. The strong geometrisation together with the alternation of dark and light colours, create a highly visual rendering. What is at stake here is thus a formal model which rises from the marquetry technique, but that eventually breaks free to become a sort of decorative formula present in mind of the painters. Some later artefacts could support this idea. For instance, a cosmetic box from the 19th dynasty found in the tomb of Sennedjem (TT1) and held at the Metropolitan Museum of Art (no. 86.1.7) presents the same type of black, white and red decoration but in a less realistic way than the box in the Louvre, especially on the lid where the geometric pattern is more imaginative (fig. 3). Thus, it reminds us of the decoration derived from marquetry, but at the same time it gets away from the original model to develop a specific decorative language. In this type of skeuomorphic ornament, the form refers to its model while it emancipates from it concrete mimetic referent, that is to mean the materials.

Matter put in shape: clues of fabrication

If the painter can get away from his original model, it is thanks to the unconstrained nature of painting. This make it the ideal medium to reproduce a formal model based on a pattern, a "filling" of the form. What, however, when it is the way the material is shaped, which constitutes one of this remarkable features? The example of flexible materials is actually very appropriate to shed light on this subject. Their main property is indeed their "*permanent flexibility*" (Leroi-Gourhan 1943, 243), which has an influence on the shape they will take naturally or following a craftsman's intervention. The appearance of the finished product, and thus the influence of technique, are more important.

An example from Middle Kingdom represents this idea very well. It is a wooden simulacrum of a quiver made in a bovid skin, held in the Louvre Museum (no. A 12016) (Chassinat and Palanque 1911, 47, XIII.1; Guichard 2014, 146, cat. 126). Here, we can distinguish three main signifying features of the material "cattle skin". First, its appearance in terms of motif: the black marks on a white ground allow us to identify the nature of the animal whose skin is represented. Second, its general shape. The great flexibility of the skin enables it to roll in on itself, creating the effect of curves, emptiness and fullness. The woodworker who intends to represent this aspect has thus to prevail over the constraints of his own rigid medium, to suggest this specific appearance of flexible materials. Here it is about reinterpreting of the model of rolled skin, by choosing a wood block which already has a cylindrical shape. Next, the piece of wood has been hollowed out to reproduce the empty space. Finally, the third significant feature can be found in the visible marks left by the assemblage technique peculiar to flexible solids, which means the threads used for sewing. It is important to note that the wooden object has been sawn, then pieced together again with pegs (Guichard 2014, p. 146). The painted representation of the seams in red on the precise area where the wood is split is not insignificant. This visual marker takes place where the object is affected by the same technical process in both concerned materials (wood and skin): it is the joining of two surfaces (Leroi-Gourhan 1943, 274). Therefore, we have here a real example of technical reinterpretation, with a sort of sliding from one matter to another, the apparition of a shared space of dialogue between craft fields. This implies that the woodworker understands both the nature of this technical gesture and its role in the global process of producing skin products.

Figure 4: Vase. New Kingdom, 18th dynasty. Probably from Thebes. Pottery. Metropolitan Museum of Art no. 25.7.26. Gift of Dr. and Mrs. Thomas H. Foulds, 1925 (www.metmuseum.org).

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Sometimes, the presence of technical pointers is a key argument to allow the identification of a represented material. A good example is the comparison between two ceramic flasks, one held by the Metropolitan Museum of Art (no. 25.7.26) (Hayes 1959, 209, fig. 123) (fig. 4) and the other by the Penn Museum (no. E15426) (Marchand 2011, 611; Roehrig, 2005, 230-231, no. 158). If the general prototype is the same in both cases, only the example from the Penn Museum is explicitly connected to a clear material referent: leather. This reference is made possible by the addition of a layer of red paint, which insists that this semiotic feature is often associated to leather, but even more by the depiction of incised and painted seams on the top and sides of the flask's belly. Here, the reproduction of a step of the technical process is crucial, because it is an explicit mimetic clue, which supports the referential link to leather and thus allows us to confirm the intentionality of the craftsman in his wishes to render this material. Indeed, red is also the main colour on the second flask, but as no insistence is put on it or on another distinctive feature, the identification to leather is not so obvious. The object appears much as an example of the ceramic flask type, and the leather prototype is not reactivated, appearing thus as a distant evocation.

With this example, one can see that pure technical information can be apparent in skeuomorphism, but its role strongly depends on the nature of the original material, its recognizability features and the way it is worked. In the case of seams, this technical information seems to be given with a sort of evidence, because it is quite simple and visual, so it can be easily detected and understood from the original skin product. But there are other cases where the technical process is the very origin for the appearance of an object. It is true for artefacts that have a structure that can be described as internal, that is to say whose appearance and main features are all due to the technical gesture. The prime example, perhaps the only one, is that of basketry.

Case study: reproducing basketry works

In a second part of this paper, I would like to analyse a specific case of skeuomorph in which the role of technique in the constuction of the formal model is absolutely crucial: the reproduction of basketry. Indeed, we should point out that basketry is not in itself a material, but a technique which consists in assembling organic elements. This is thus the extreme case of a matter that is "put in shape", because the final shape takes priority over the raw material. So, what one represents, imitates, transposes, it is not organic blades put in shape but the *very structure* of this shaping.

Representations and imitations of basketry are a widespread practice in pharonic Egypt with a broad range of expressions: architectural ornaments, pictorial representations, small-scale models, *etc*. inspired by baskets and mats are rather common (Gander 2012, 265-266; Marchand 2011, 611; Wendrich 2000, 262-263). However, one very singular case is of great interest: a wooden dummy vase, held at the Metropolitan Museum of Art (no. 41.2.4) and discovered in the 18th dynasty Theban tomb of Nebseny (fig. 5a-b). In my opinion (and although this is not the commonly shared interpretation), it should be understood as a representation of basketry work. Moreover, in this perspective, it would exemplify very well the idea of the circulation of a technique adapted to a different medium. Thus, I will propose in the following pages some arguments in favour of this hypothesis.

Figure 5: Vase. New Kingdom, 18th dynasty. Probably from Thebes. Wood, gesso, paint. Metropolitan Museum of Art no. 41.2.4. Rogers Fund, 1941 (www.metmuseum.org).

Identifying the ornament: a differential analysis

As a preamble, it is necessary to come back to the identification of this decoration. Whilst I argue it reflects basketry, it has often been analysed as stone, in the tradition of other wooden painted vases of this period. Thus, William Hayes (1959, 154) described it as an imitation of a decorative stone, such as mottled black and white breccia. It has also been suggested to me that black porphyri (De Putter and Karlshausen 1992, 122-123, 54g.26), like the one used in the head of a statue held at the Louvre Museum (no. E 10973), should be an appropriate referent. I would like to show that these proposals, in my opinion, do not withstand a differential analysis. Indeed, my study of codes of representation used for materials in the corpus of painted vases and iconographic examples from the Theban area during New Kingdom strongly suggests that stones are always associated with a random organized pattern. It is impossible to draw up an exhaustive list of the existing examples, but to mention only three of them which can be very probably associated to porphyri, reference can be made to two cylindrical vases painted in the TT38 (Davies 1963, I), to a wooden dummy vase held in Marseille (Wozny and Simoes 2002, 187) and to a ceramic vase in the Metropolitan Museum of Arts (no. 29.2.18) (Hayes 1959, 228) (fig. 2). This use of a random pattern is true even in cases of very geometric pictorial choices, like in two cylindrical vases painted in TT45 (Davies 1948, II), which do not present the very regular alternating of Nebseny's dummy vase.

Identifying the technique of basketry in the decoration: an input from the technique.

But beyond this differential approach, my argument will be that the decoration of this vase offers a structuring which depicts the very production mode of basketry. If one

Figure 6: Gaps and irregularities in the decorative pattern of the vase no. 41.2.4 (www.metmuseum.org).
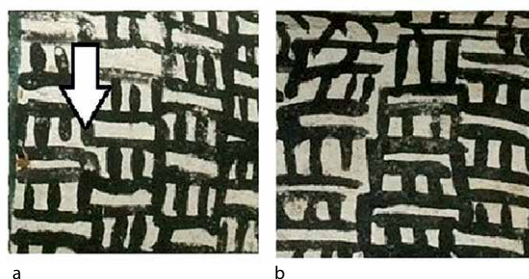
analyzes this decorative pattern more closely, one will discover that it shows a very clear and regular vertical alternating pattern of rectangles, sometimes empty, sometimes filled by little vertical lines. Here we find the regularity specific to the representations of baskets that Willeke Wendrich (2000, 262, 10.8a-c) describes as grids, or at least horizontal lines (sometimes with vertical additions). However, if this vase does have the regularity of these images, it also gets away from them, because it reproduces the appearance of a grid without using the structure of a grid itself. As shown by the low unevenness of the lines, there was no grid initially drawn. And yet one can assume it would have been the easier way to conceive the general decoration of this vase. Actually, a fine analysis of the tiny irregularities of painting suggests that the basic formal unity used for this pattern is the *empty* rectangle. This seems to be supported by the presence of numerous gaps (fig. 6a), revealing an empty space between two clear rectangular forms. Thus, empty rectangles appear to be drawn following an oblique, down to the right, direction. Or sometimes, they seem to be "closed" (fig. 6b) by another series on the right, suggesting perhaps an attempt of vertical result in certain parts of the vase. Therefore, it is the empty rectangles which actively structure the decor, whereas the in-between space is limited to the status of background, of an inert matrix. It is by the addition of vertical lines that this in-between space in semioticized again, gaining thus a unity that allows us to see it also as a rectangle.

I purposefully speak of "active" pattern and "inert" background: this difference is the very base for any basketry or weaving technique. It has indeed used to distinguish two type of "systems" (that is to mean a set of strands) in the basketry technique: a passive one and an active one. The passive system forms the base of the structure, while the active system is composed of the elements that the basket maker handles most of the time, giving thus its coherency to the whole work (Wendrich 1999, 27-28, 85, 461, 463). By disappearing and emerging from under the passive system, strands draw simple geometrical forms one can often relate to a sort of quadrilateral. Therefore I propose to see this process, translated into paint, in the formal choice made by the artist who decorated this vase.

Objections and answers

However, one can point out that the general shape of this object has nothing to do with the form of baskets as they could be known by either archaeological or iconographic sources. Moreover, if we try to associate this representation with a specific basketry technique, it would correspond to the "twined basketry", well-known for instance in Roman Antiquity for the making of baskets (Cullin-Mingaud 2010, 62 ff.) but which does not seem attested in pharaonic Egypt for this type of production. Actually, baskets

in pharaonic Egypt were apparently made by the very different technique of coiled basketry (Wendrich 2000, 258-259), which consists in the wrapping of a strand around a bundle of organic materials, in order to fix this bundle in a coil (Wendrich 2000, 256, 10.1a). In this type of basketry, the general pattern tends towards a horizontal organization, which is not the case in the painted vase, dominated by a vertical visual appearance. Regarding the technique of twining, it was used for making mats, sieves and carrying bags used for outdoor activities (Wendrich 2000, 265). In my opinion, one must thus abandon the idea that this artefact is a representation of *basket*, but it can still be interpreted as an expression of a *basketry technique*.

A first solution is to think of another type of archaeological object which can match this example. Indeed, one can imagine that what we have here is not a basket but a vase wrapped in a mat, in order to protect or carry it. However, to the best of my knowledge, this habit is once again well known in Roman world, for instance to protect the amphorae during transport (Cullin-Mingaud 2010, 220), but is not attested in this form during pharaonic Egypt, either by archaeological or iconographic sources. Actually, examples of carrying system for vases, which appear for instance in a model stone vase from the funerary equipment of Djoser (3rd dynasty), evoke a sort of system of ropes or a net with large holes instead than a real mat (Angenot 2011, 5, fig. 2). However, and as several forms more or less openly twined exist, it would be interesting to carry out a more thorough investigation on this matter.

A second solution, which joins the main discourse I intend to develop in this paper, is to be found in another way to understand the phenomenon of the circulation of the technique, which shall not been considered as a praxic reality but more as an intellectual understanding, that is to say as a conceptualized knowledge. Indeed, what one shall see in this vase is probably less the faithful representation of the visual rendering of a technique than that of its mental conceptualization. To paraphrase an expression of Scott Ortman (2000, 639) in an article dealing with the links between pottery designs and textile in the Mesa Verde region of the American Southwest, what would be shown here is not physical basketry, but the "*conceptual structure*" of basketry, which exists as a "*mental imagery in the minds of the [painter]*." To me, this structure derives more from the production process of baskets than from their final appearance as finished products. Thus, this phenomenon implies a circulation of this "theoretical" technique from the basket maker to the painter. It could happen in an informal manner, by simple observation in a domestic context or in a sort of community of practice.

To end my development upon this vase, I would like to quickly come back to its status as an unicum. Indeed, as far as I know, it is the only one example of representation of materials that uses this graphic proposition. It is therefore rather difficult to give a truly satisfactory interpretation, and prudence should be maintained: the analysis of its decoration as an evocation of basketry remains an hypothesis, although it seems in my opinion the more appropriate for the moment. Its distance to traditional representations of basketry may be linked to the particular nature of the medium (a vase), which offers a large surface proper to experimentation, and already subject to be used for mimetic representations of materials. It thus presents a real creativity, which does not forbid us to consider the presence of a strong individuality, of a true artistic personality behind its creation.

Conclusion

To conclude, one can affirm that skeuomorphic objects can give us a very special insights into the phenomenon of circulation of formal ideas among craftsmen. The question I asked was whether the circulation of forms from some materials to others implied any circulation of the techniques themselves. The appropriate answer appears to be: not necessarily, because it strongly depends on the structure of the original object. Generally, it seems that one can discover some marks of the manufacturing process of the object that reproduced in a skeuomorph when the technical gesture involves a sort of assembly: the association of materials, their joining (by a seam for instance) or their more close association (as it is in basketry). This is because these processes of assembly can leave technical marks that are strictly visual (like seams). But beyond that, we can assume that it is probably easier to reconstruct and reproduce a sort of "positive" process, which goes on by adding some matter, than the reverse one which proceeds by suppression of matter.

In any cases, skeuomorphic objects still have to deal with the resistance of matter, which imposes its own appropriate ways to be worked (Leroi-Gourhan 1943, 18). If there is any technical transfer, it can only relate to a specific part of technique: the one that comes under the field of intellectual reflection, which designs and produces a concrete gesture or process. This processual device can be isolated from its material roots to be conceptualized and thus gaining a true existence in the mind, for itself. It is this "conceptualized technique" which can be translated and expressed in different media, mostly by graphic processes.

Insofar as skeuomorphism is for the most part based upon the rendering of a visual appearance, it questions in a very acute way the notion of realism, understood here as mimetic fidelity. To the extent that the graphic transcribing of an idea implies processes of selection and codification, it is perhaps with the examples which precisely go away from this so-called "realism" that this intellectual circulation could be grasped more easily. These "unrealistic" skeuomorphs let us see a more intellectual idea of the original object, its pure technique, as it was understood, intellectualized, aside from the visual rendering it can lead to. They are an ideal starting-point to study the creation of motifs and the way these latter can become independent and gain an existence of their own.

In a nutshell, thanks to their ambivalent nature, skeuomorphs allow us to study the relationships craftsmen have with their material environment together with their own practice in a very special way. Their analysis from a cognitive and semiotic point of view offers then a great potential that should interest anybody who intends to grasp the mental universe of the workers of matter.

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Staging Restricted Knowledge

The sculptor Irtysen's self-presentation (ca. 2000 BC)

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Abstract

Irtysen's hieroglyphically inscribed mortuary self-presentation (stela Louvre C 14, ll. 6-15; ca. 2000 BC) has often been read as a prime source for ancient Egyptian material production and craftsmanship, yet strongly resists such exploitation. Although it occupies the functional slot of an autobiography on the stela on which it is inscribed, Irtysen's self-presentation is not an autobiography in generic terms and alludes to the genre only at crucial junctures; a composition lacking parallels in the preserved record, it has Irtysen speak a uniquely original voice. The carefully composed, laid out and metricalized text presents Irtysen's *ḥmw*-ship ("art/expertise") in the terms of ritual and transformative knowledge, an art, therefore, that is truly creative in bringing things about, not mimetic. This knowledge consists in the proportions in (raised and sunk?) relief sculpture and in the repertoire of divine and royal representations, with matters of material production ("making") being limited to the indestructible materiality of what is "inside" such sculpted relief. The inscription focuses on representations of kingship, a focus that on a primary level may well reflect its date, broadly coeval with the restauration of royal art under Mentuhotep II. On a less context-bound level, Irtysen's ritual knowledge is transformative precisely because it (re-)creates royal and divine ritual representations that are performative in nature. Knowledge is displayed as such without specifics being given any elaboration, because this is restricted in-group knowledge (as discussed already by Fischer-Elfert 2002); it is accordingly transmitted only to the speaker's son under the "god's" authorization, frustrating an historian's expectations further. The text is at times enigmatic or under-specified, in all likelihood intentionally

in: Miniaci, G., Moreno García, J.C., Quirke, S. and A. Stauder (eds.) 2018: *The Arts of Making in Ancient Egypt*, Sidestone Press (Leiden), pp. 239-272.

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so, and replete with double entendres on both the linguistic and the graphic levels, the latter being the locus of a rich elaboration with graphic puns of various sorts. In its deliberate opacity and its hinting at what more lies beyond the primary meaning of the words, the composition entices. It also, not only displays, but stages, reflexively, the restricted nature of Irtysen's knowledge.

In elite textual productions,[1] ancient Egyptian artists and craftsmen are typically manifest in other people's voices and spaces, not in their own (for a discussion of ancient Egyptian artists' "words" in relation to diverse types of inscribed materials, the associated socially embedded situations of communication, and the resulting hermeneutic opportunities, see Quirke, this volume). Thus in the Middle Egyptian literary *Teaching of Kheti* (a.k.a. *Satire of Trades*, 2000-1450 BC; Jäger 2004),[2] artists and craftsmen are, among a great many other types of professionals, subjected to a strongly ideological treatment in the scribal sub-elite's voice, which defines itself notably in viewing trades other than their own in distancing, often derogatory and arguably ironic terms (Widmaier 2013, with a detailed comparison with pictorial representations of the same trades in New Kingdom funerary chapels; Laboury 2016, 373-377). In the highest elite's funerary chapels, pictorial representations of artists and craftsmen are partly labelled with designations of occupations, titles and/or names (Jurman, this volume), and at times associated with segments of direct speech (so-called "*Reden und Rufe*": Quirke, this volume, section V; Gulgielmi 1973; Junker 1943; Erman 1919; Scheel 1985-1986 for metal-workers). These "*Reden und Rufen*" purport to evoke the craftsmen's *sermo quotidianus* only by virtue of a fictionalizing convention in a genre that is itself strongly intertextual and codified (Vernus 2009-2010; 2015). The images and inscriptions combined are expressive of an ideological representation of dependents' activities and relative social position in spaces designed for the funerary self-presentation of the highest elites, while also contributing to the performative quality of funerary chapels as ritual spaces. Still on other people's monuments, artists specifically may speak their own voices in artists' signatures. These turn out to be surprisingly numerous, speaking to the status of artists and to the commissioners' interest in being associated with them (Laboury 2016; 2013, 34; Quirke, this volume, section IV). A few are developed to include elements of self-presentation by the artists themselves (*e.g.*, Meryre's signatures in the late 20th dynasty tomb of Setau at el-Kab, ca. 1100 BC: Laboury 2016). Artists could also leave their names inscribed as marks in places they had travelled or had been sent to (*e.g.*, the draughtsman Neb, ca. 1350 BC: Rondot 2013; on rock inscriptions by artists, further Quirke, this volume, section IV).

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1   I thank Stephen Quirke and Dimitri Meeks for commenting on, and suggesting additional references for the present paper.
2   For "Kheti" as the authorial identity of the teaching, Verhoeven 2010; for the dating, which is debated, provisionally, Stauder 2013, 468-476.

On their own monuments, artists speak their own voices in mortuary autobiographies, yet generally not in specific reference to their being artists per se. Egyptian autobiographies are a tightly codified genre, allowing for deviations and evolving over time. Inscribed in hieroglyphs on stone and set in ritual spaces (funerary chapels, later on temples), they have strong mortuary determinants and present an individual's worth in relation to points of culturally centripetal reference such as the king and/or, later on, the gods; they do not carry any of the detailed descriptive, introspective and/or self-finding narrative dimensions of the Western similarly named genre. Prior to the emergence of the autobiographical genre proper, the inscription of the leatherworker Weta (probably 5th dynasty, ca. 2600-2500 BC; see Appendix, A) thus includes epithets that are oriented entirely on expressing that Weta worked for the king's pleasure. Specific reference to Weta being a leather-worker is concentrated in the titles of which the epithets are an elaboration. At a time when the autobiographical genre had long coalesced and evolved further, the "overseer of sculptors" In[…]-nakht (Mentuhotep II, ca. 2000 BC; see Appendix, B), a contemporary of Irtysen, focuses entirely on his acting for, and loyalty to, the king. References to In[…]-nakht being an "overseer of sculptors" follow the narrative part of the inscription in the final string of titles: they stand outside the continuous text itself, which conforms fully to the format of the mid-11th dynasty Theban autobiography; a similar autobiography could have been inscribed for any other type of higher official. In the "overseer of sculptors" Shen-Setji's autobiography (Senwosret I, ca. 1950 BC; see Appendix, C), the short narrative part of the inscription is in reference to the speaker's activity as an organizer of works for the king, successively in Lisht then on mission in Abydos, expressed in a terse, two-sentence, format. The inscription conforms fully to the common format of contemporary autobiographies of officials in mission for the king. In the New Kingdom, the 'overseer of draughtsmen' Dedia (CGC 42122; ca. 1300 BC; Frood 2007, 133-136; *cf.* Laboury 2016, 385, and n. 33) similarly presents his activity as a mission for the king. Reflecting a broader evolution of the autobiographical genre in the 1st millennium BC, the "master sculptor" Ser-Djehuty (Klotz 2015; 3rd century BC) emphasizes his relation to the gods through titles, hymns and prayers, making only marginal reference to his activity as a sculptor working for the gods.[3] Unlike artists' signatures, artists' autobiographies are in general not determined primarily, or not at all, by the fact that the speakers are artists specifically.

All the more remarkable are then the relatively fewer autobiographies of artists that include elements to do with the specific nature of their trade. In the New Kingdom, the "chief sculptor (lit. chief chisel-bearer) of the Lord of the Two Lands" Hatiay (early 19th dynasty, ca. 1300 BC; see Appendix, D) proudly emphasizes his initiation to restricted knowledge in relation to the fabrication of statues. Playing upon clichés of (early post-)Amarnian autobiographies, Hatiay presents this as a distinction that has accrued to him as a result of the king's recognition of his exceptional worth in spite of humble origins. In the "chief goldsmith" Amenemone's inscriptions (late 18th dy-

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3   Front text, 14-15 (said to Amun) *km.n=i ḥsb wḏt.n=k n=i iw=i ḥr mḥ pr=k m kꜣt-ꜥwy=i* "I completed the time you decreed for me filling your estate through my handiwork"; Left side, 8 (said to Khentimentiu) (*ink …*) *ḳsty pw smꜥr ḥꜥw=k srnp ḥm=k m kꜣt-ꜥwy=f* "(I am …), that is, a sculptor who renders your body perfect and rejuvenates your Majesty through his handiwork".

nasty, ca. 1325 BC, Frood 2007, 129-133), access to restricted knowledge is featured as well if in a more allusive way, complementing references to Amenemone's work for the king. In both cases, no detail of artistic activity is given textual elaboration. For Amenemone, it has been suggested that references to his role as a chief goldsmith may rather be found on a non-textual level, in the highly elaborate pictorial renderings of ornamentation and jewelry in his funerary chapel (Ockinga 2004, 20).

Against the background just outlined, Irtysen's funerary self-presentation (stela Louvre C 14, ll. 6-15) is unique for its being focused fully on matters to do with the speaker being an artist specifically. The stela[4] (photograph: fig. 1-2, below; other photographs: Bryan 2017, pl. 1; Delange 2015, 152; partials: Andreu-Lanoë (ed.) 2013, 50-51 [close-up]; Barbotin 2005, 57; Barta 1970, pl. I) derives from Abydos,[5] the main centre of Osirian cult in Upper Egypt, and dates to the later part of the reign of Mentuhotep II (ca. 2000 BC),[6] thus broadly to the era of the reunification of Egypt ushering into the Middle Kingdom. Irtysen bears the titles of "director of craftsmen, scribe and sculptor" (*ỉmỉ-rꜣ ḥmwwt sš ḳstỉ*,[7] l. 6). The individual's name, *ỉrty=sn* (lit., "Their-eyes") could read alternatively as "Who-makes-their-forms" (*ỉr-ỉr(w)=sn*: Barta 1970, 18-20); assuming that the former, traditional, reading is correct, a pun could be intended with the latter, given its appropriateness for an artist. No other monuments of Irtysen are known.[8]

In its apparent focus on technical detail to do with craftsmanship, Irtysen's inscription is unparalleled in the preserved Egyptian record. Its textual format, a self-presentation yet one that lacks the typical framing elements and formulations of the contemporaneous autobiography (see below, "Irtysen's self-presentation"), is similarly unique. In addition, the text is infamously replete with philological difficulties. Irtysen's self-presentation has accordingly attracted a considerable amount of scholarly interest and merited a great many in part widely diverging translations (the most detailed study remains Barta 1970; among subsequent studies, *e.g.*, Bryan 2017; Mathieu 2016; Landgráfová 2011, 80-82; Barbotin 2005, 56-57; Fischer-Elfert 2002; Aufrère 2000, 26; Barta 1970; Badawi 1961; Baud 1938; for discussions of individual passages, see references below). Yet, the text has resisted a commonly agreed upon interpretation in terms of the referents, the realia of artistic practice, for which it is generally read.

The extreme difficulty of the text may derive in part from its reflecting an "idiolectal extract" of a technical lexicon that is bound to remain opaque as long as no further comparable textual material becomes available (Fischer-Elfert 2002, 29). All the more so if this extract relates to restricted knowledge that Irtysen displays as such

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4   Material description: limestone; height 117.5 cm., breadth 56 cm.; some typical First Intermediate Period epigraphic features in the inscription (Barta 1970, 13).

5   The stela was found during Thédenat-Duvent the Younger's collecting activity in Abydos in 1820 and acquired by the Louvre museum from the Erard collections in 1838 (Delange 2015, 152; on the Thédenat-Duvent collection, further Guichard 2007). The stela is mentioned by Champollion already in 1826 (Barta 1970, 11).

6   The stela bears the third version of the titulary of Mentuhotep II (Postel 2004, 150).

7   Or *gnwtỉ*, as an alternative transcription for the last term.

8   The proposal that the contemporary "overseer of sculptors" In[…]-nakht (Cairo TR 3/6/25/1; see Appendix, B) could be the same individual as Irtysen (Barta 1970, 128-130) is based solely on the observation that both are sculptors; it cannot be confirmed by independent evidence and has accordingly been met with cautious scepticism.

(*ibid.*, the same author's main argument, on which the discussion below elaborates), the difficulty of the text could be intended, and thereby loaded with signification in itself. The inscription would then frustrate modern expectations aimed at extracting referential information on craftsmanship not primarily on philological grounds, but on hermeneutic ones: Irtysen would defeat a reading as a directly referential and informative "source" because it is not amenable to be made into one. Rather, it will be argued, the difficulty and complexity of the inscription are integral to what, in more oblique and thereby all the more effective ways, it expresses and stages.

The main textual self-presentation: transcription, translation and philological notes

The following provides a transcription and translation of Irtysen with basic philological notes. Depending on issues discussed, the text will be referred to subsequently in the present article in three different ways: through lines on the stela (in the transcription and translation, superscript (6)-(15)), through metric lines (in the right margin, (i)-(xiv)) and through the sections that can be identified based on structuring features in the text (the added headings, I-VI). The transcription incorporates metric analysis, broadly, though not fully, adhering to Fechtian rules revised by Allen (for a previous, substantially different, metric analysis, Barta 1970, 136-144). The aim of the metric analysis is practical and twofold: to demonstrate that the text is metrically formed (whatever the individual details) rather than mere free-flowing discourse, and to make appear how certain structural relations in the composition are also emphasized at the level of its metric structure.

Section I: Irtysen's *ḥmw*-ship defined as ritual and transformative knowledge

ỉw(=ỉ)–rḫ.[7]*kw sštꜣ n–mdw–nṯr*	*sšmt-ꜥw nw–ḥbyt*	(i)
ḥkꜣ–nb ꜥpr.n(=ỉ)–sw	*nn–swꜣt ỉm ḥr=ỉ*	(ii)
[8]*ỉnk–grt–ḥmww ỉḳr m–ḥmt=f*	*pr ḥr–tp m–rḫt.n=f*	(iii)

I kno[7]w the hidden knowledge of hieroglyphs,   (i)
      the conduct of festive rituals;
All generative force, I have equipped myself with it,   (ii)
      without anything there escaping me.
[8]Thus[a], I am an expert-artist efficient in his art,   (iii)
      one who has come out on top through what he knows.

a) Against traditional additive renderings as "moreover", *grt* here has argumentative force (Oréal 2011, 460) signalling that the contents expressed in metric lines (i)-(ii) form the basis for asserting (iii) (see further below, "Irtysen's *ḥmw*-ship").
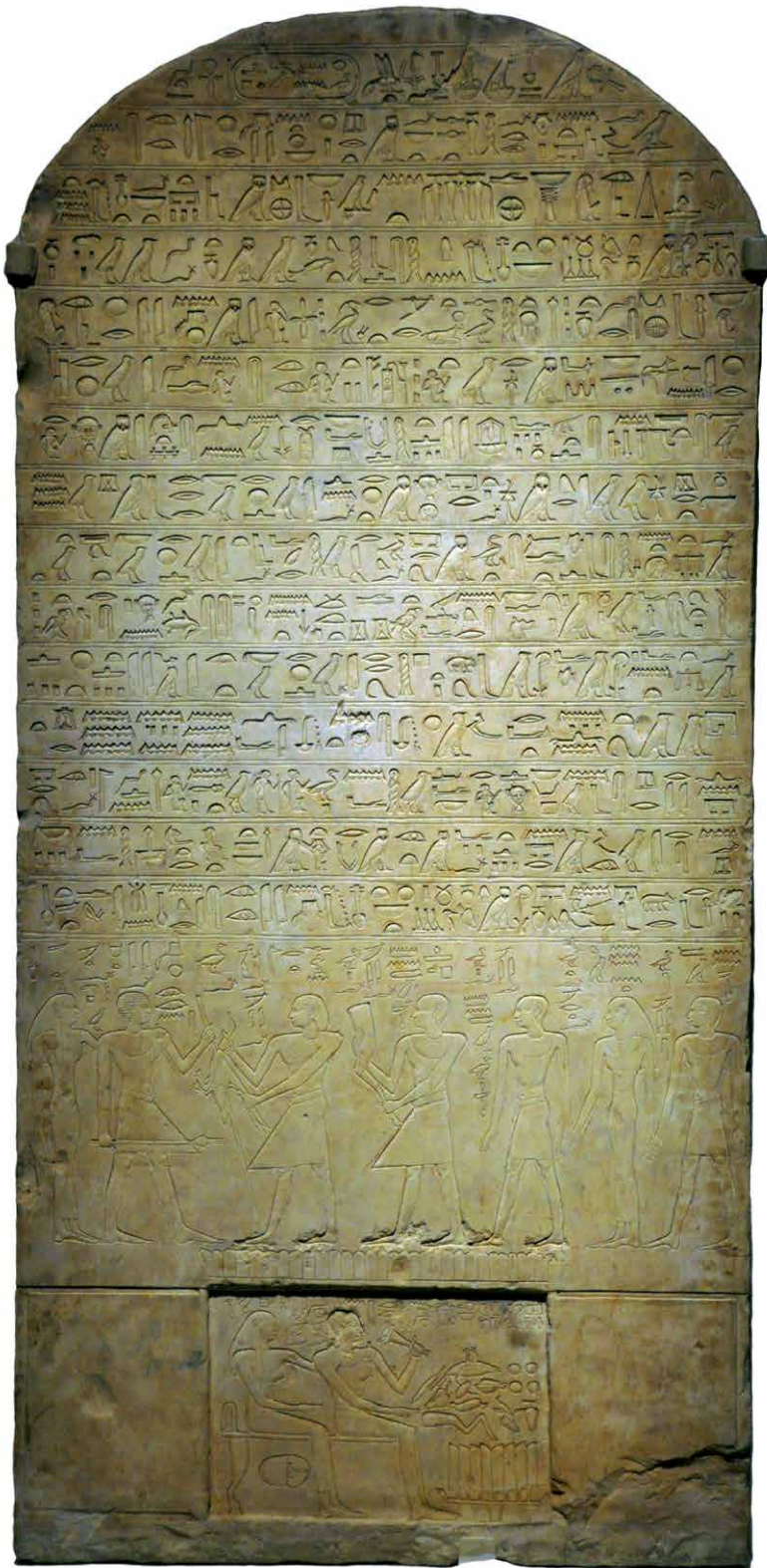
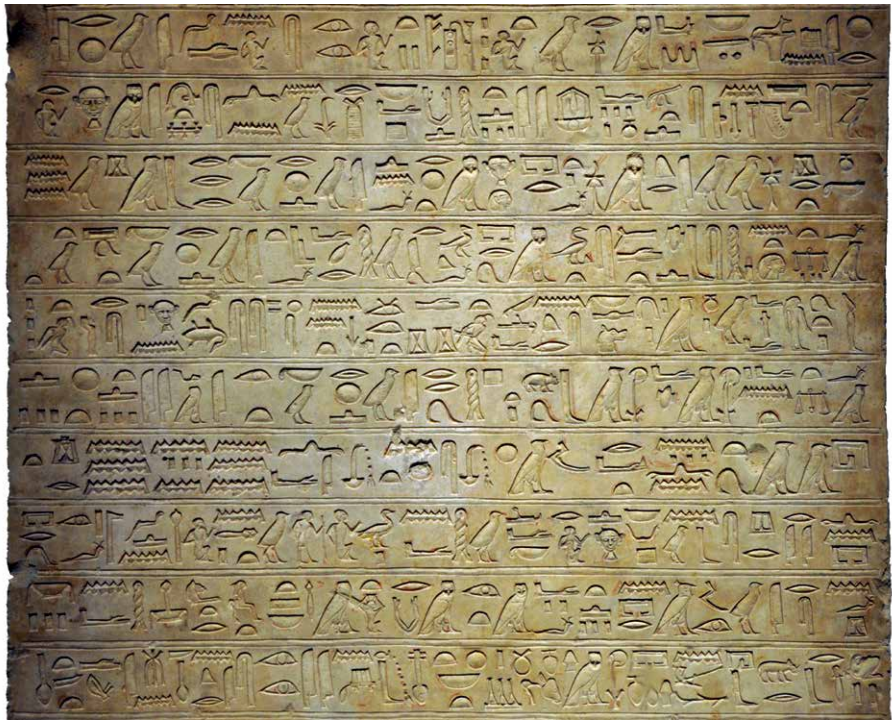*Figure 1: Stela Louvre C 14 (Irtysen), courtesy Dimitri Laboury.*

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Figure 2: Stela Louvre C 14 (Irtysen), ll. 6-15, courtesy Dimitri Laboury.

Section II: Proportions in (raised and sunk?) relief sculpture

ỉw(=ỉ)–rḫ.kw rꜣw–bꜣgw	*⁽⁹⁾fꜣt nt–tp-ḥsb*	(iv)
šdt sꜥḳt m–pr–ꜥḳ=f	*r–ỉw ḥꜥ r–st=f*	(v)

I know the parts[/formulae – b] *of the …*(?)[c],   (iv)
      [⁹]the weighing[d] of the norm of exact reckoning,
the taking out[/recitation – e] and letting get in as it goes out or in   (v)
      so that a limb will[f] come to its right place.

b) *Rꜣw bꜣgw* is a crucial phrase, as the following depends on it, yet remains opaque. For *rꜣw*, "parts" would seem to be the primary reading (perhaps also with the contextual implication "parts", hence "stages" of work, as suggested on an admittedly speculative mode by D. Meeks, p.c.). The similarly written "formulae" is possibly present as well, if so as an overtone or double entendre (see below, "Double entendres, hieroglyphic elaboration").

c) The much discussed phrase *bꜣgw* remains opaque. Proposals that have been made fall in four broad groups. (α) Based on a verb *bꜣg* "coagulate, be(come) thick (of fluids)" attested in medical texts (von Deines and Westendorf 1962, 241-243; *Wb.* I 432.12), Baud (1938, 26) proposed "ciment, pâte, mortier"; by a similar derivation, Barbotin (2005, 56) had "solidification (du métal en fusion ?)". These

readings of the text for matters of material production remain speculative and are, moreover, problematic in the context of section II which reads coherently if understood in reference to proportions (Badawi 1961, 273, n. h; Barta 1970, 94-100; Mathieu 2016, 13, n. f). (β) Based on the water determinative, it has been proposed that *bꜣgw* in Irtysen ( ) could be derived from a root documented in *bgꜣw* "shipwrecked man" (in the Middle Kingdom, *e.g.*, *Eloquent Peasant* B1 169). Cautiously positing a not otherwise attested meaning *√*bgꜣ* "sink", Schenkel (1965, n. e) thus suggests that *rꜣw bꜣgw* in Irtysen could be for "(sunk) relief"; it remains uncertain, however, whether a semantic relation similar to the one between "sink" and "(sunk) relief" in modern Western languages would have obtained in Egyptian; moreover, the following seems to be about both sunk and raised relief. Following Edel (1955-1964, 189), Barta (1970, 99) relates *bgꜣw* "shipwrecked man" to the singularly attested *gꜣi* "to capsize(?)" (Pyr. §662b[TP], PT 377; *cf.* Allen 1984, 574) and proposes "Teile der Umwandelbarkeiten" ("parts of convertibility") for *rꜣw bꜣgw* in Irtysen, in reference to the canon of proportions; the suggested etymological and semantic connection remains speculative, however. Also based on *bgꜣw* "shipwrecked man", D. Meeks (p.c.) suggests, on an admittedly speculative mode, a metaphorical implication "shipwreck", hence "failure": thus, *rꜣw bꜣgw* as "stages (of work: cf. n. b above) and failures". (γ) Mathieu (2016, 11, 13, n. f) proposes to read with a root *bꜣgi* "be weary, languid, slack", so that *bꜣgw*, lit. "ce qui est inerte", would be in reference to a "représentation"; this reading would fit the context in which proportions seem to be at stake, but faces the problem that the root *bꜣgi* regularly has another determinative, not , but . (δ) Bryan (2017, 5-6, n. e) proposes to read as an allusion to an epithet of Osiris, *imi-bꜣgw*, lit. "the one in the shipwreck" which would accord with the water determinative in Irtysen; this faces the opposite problem, namely that section II otherwise seems to be about proportions. Making matters more complex yet, Irtysen may be playing with the determinatives intentionally while simultaneously alluding to esoteric knowledge, so that Mathieu's reading may be correct in spite of the unexpected determinative, while Bryan's may be present as well, not as a primary meaning to be sure, but as a possible overtone of the text (see below, "Double entendres"). Should Mathieu's reading be followed, the phrase could also be understood, quite literally, as "the inert ones", to be brought alive (*sꜥnḫ*) by the artist (see below, "Irtysen's *ḥmw*-ship").

d) With *fꜣi* "raise, carry", here "weigh", in the sense of "evaluate" (compare *Eloquent Peasant* B1 266, B1 355; *cf.* Parkinson 2012, 217, 287).

e) With "taking out" as the primary reading, and "recitation" possibly an overtone or double entendre (see below, "Double entendres").

f) With *iw* a prospective *sḏm=f*. Alternatively, "according to how it comes to its (right) place", with *iw* a *mrr=f*.

Section III: Repertoire of (divine and royal) representations

ỉw(=ỉ)–rḫ.kw šmt–twt[(10)]   *ỉwt/nmtt–rpwt*   *ʿḥʿw nw–ꜣ–10*   (vi)
ks n–sḳr wʿt(ỉ)   *dgg–ỉrt n–snt–snt=s*   *ssnḏ–ḥr n–rstw*   (vii)
[(11)]*fꜣt-ʿ nt–ḫꜣ-ʿ–ḫꜣb*   *nmtt–pḥrr*   (viii)

I know the going of a male figure[g (10)],   (vi)
      the coming/stride[h] of a female figure,
         and the stance of many[i] birds,
the bent[(/striking power – j)] of the one who strikes a single (captive),   (vii)
      how the eye looks at its two sisters[k],
         and the making fearful of the face of the bound enemies,
[(11)]the lifting of arm of the one who harpoons the hippopotamus,   (viii)
      and the stride of the one who runs.

g) *šmt twt* is the "going of a male figure" (or statue), paired with *ỉwt/nmtt rpwt* "the coming/stride of a female figure" (or statue) (for similar pairings of *twt* and *rpwt*, Mathieu 2016, 13, n. i). In a demotic papyrus of the 1st-2nd century AD, and possibly already before, the phrase *šmt twt* also refers to the register representation in a temple (Vittmann 2002/2003, 120-121; Bryan 2017, 6, n. h), prototypically a procession of divine figures.

h) If interpreted in reference to (free-standing) sculptures, the passage could read "the going of male statues and the coming (*ỉwt*) of female ones", possibly in reference to "die Art und Weise ihrer bildhauerischen Umsetzung" (Fischer-Elfert 2002, 29). If interpreted in relation to relief sculpture, as the preceding lines (iv)-(v) suggest, a reading "… the stride (*nmtt*) of female ones" is more likely, in reference to the slightly open position of the feet of a female figure seen from the side (Mathieu 2016, 13, n. i). On the regular gender distinction between male and female figures in the same procession ("walking" and "standing", or perhaps "striding" and "(less perceptibly) walking", see further Wiebach-Koepke 2003, 145-147.

i) The phrase has been read as "the stance of *eleven* birds" (*ꜣ 11*, ⌢|✦) and interpreted as pointing, reflexively, to eleven bird-hieroglyphs present on stela Louvre C 14 (Baud 1938, 28; also Mathieu 2016, 13, n. j). This is problematic in view of the epigraphic detail of stela Louvre C 14 (Schenkel 1965, 247, n. k; Meeks forthcoming). Rather than as *11*, ⌢| would be the number 10, marked as such by the logographic stroke. In line with other similar occurrences, the expression is idiomatic for "many" (Meeks forthcoming).

j) On *ks*, see, further, Fischer 1964, 115, n. i. An overtone "striking power" is possibly being evoked through the unexpected graphic determinative (see below, "Double entendres").

k) *snt sp 2 s* is a ludic writing for *snt snt=s*, itself for *snt 2=s* "its two sisters" (Bryan 2017, 7, n. l). The reference is to the frightened gaze of the captive being smitten

(or one several captives being smitten, distinguished through its frightened face directed at the king). This signification is enhanced by a complex chain of graphic play (see below, "Double entendres"). Mathieu's (2016, 14, n. l) *snty=s* "son semblable", in reference to two anthropomorphic figures facing one another like the king and the gods in temple reliefs, does not fit the context of metric line (vii), the first and third part of which are both about the king and his enemies; moreover, *snty* "likeness" would require a different spelling of its radical part and a different determinative. *snty* "likeness" is therefore certainly not the primary reading of the text; there remains the possibility, however, that the word is hinted at, as an overtone, through a graphic pun (see below, "Double entendres").

Section IV: Indestructible materiality of what is "inside" sculpted relief

ỉw(=ỉ)–rḫ.kw ỉrt–ỉmyt	*ḫt* (12)*ḥꜣꜣt–n(ỉ)*	(ix)
nn–rḏt mꜣḫ=sn ḫt	*n–ỉꜥ.n(ỉ) n–mw–grt*	(x)

I know the making of what is inside them[l],	(ix)
that is[m], the materials (12)that go down into them[n],	
without letting fire burn them,	(x)
and without them possibly washing away[o] through water either.	

l) With a view on Nefermaat's statement regarding his paste-filled figures and inscriptions (see below, "The domains of Irtysen's knowledge"), *ỉmyt* is interpreted as the *nisba* of the preposition *m*, thus "the ones that are inside (*scil.* the reliefs)" (Edel 1959, 24: "die vorgeschnittene Vertiefungen im Stein, in die die Pasten hineingestrichen wurden"; Schenkel 1965, 248, n. d: "die im (Relief) befindlichen (Farben)"). Spiegelberg's (1929, 94-95) reading "Farbenpaste" was based on the same comparison with Nefermaat and a proposed derivation of *ỉmyt* from the rarely attested *ỉm* "clay, mud, gesso(?)"[9]. Barta's (1970, 120-125) "exterior", based on *ỉmꜣ* "schöne Gestalt", is speculative; based on the same root *ỉmꜣ* "be kind, gentle, pleasing", Oréal's (2011, 443) "enjolivures" would fit the context; both, however, face the problem that the spelling (both of the root and the determinative) points to *ỉm* "which is in", not to *ỉmꜣ* "be pleasing". Note also the word *ỉmyt* "Pulver (? Abfall?) von Alabaster, offizinell verwendet" (*Wb.* I 76.2, quoting P. Ebers 69.19; see also Harris 1961, 97-98), which, however, seems less fitting in context.

m) With Edel (1959, 23-24), *ỉmyt* and *ḫt ḥꜣꜣt n(ỉ)* are probably related to one another as through specifying (*badal*) apposition. The more common reading as a coordination ("… and of the materials …") is not excluded but would seem somewhat redundant.

n) On *ḥꜣꜣt n(ỉ)*, Edel (1959, 23-24).

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9   *E.g.*, Ameniseneb, Louvre C 12, 8-10 … *sšw-ḳd ḥr mḥ m ḏrwi m tỉt m ỉmw m smꜣwi ỉrt.n nsw-bỉty ḫpr-kꜣ-rꜥ mꜣꜥ-ḫrw* "… painters filled it (*scil.* the temple) with pigment and figures of gesso(?), renewing what the King of Upper and Lower Egypt Kheperkare, justified, had made" (Kubisch 2008, 139-142; Baines 2009).

o) On *n iꜥ.n(i)*, Edel (1959, 23-24).

Sections V-VI: Transmission of restricted knowledge to son

(13)*nn–pry ẖr=s n–bw-nb*　　　　　　*wpw-ḫr=i̯ wꜥ.kw*　　　　　(xi)

　　　　　　　　　　　　　　　　　　ḥnꜥ–sꜣ=i̯ smsw n–ẖt=i̯

wḏ.n nṯr ir=f　　　　　　　　　*pr–*(14)*n=f ẖr=s*　　　　　　(xii)

(13)′There is none revealing[p] it to anyone　　　　　　　　　　　(xi)

　　　　except me alone

　　　　　　　with my firstborn bodily son,

for the god has ordered that he act　　　　　　　　　　　　　(xii)

　　　　(as) one to whom (14)it has been revealed[q].

iw–mꜣ.n=i̯ prt-ꜥwy=f　　　　　　*m–irt imi̯-rꜣ–kꜣt*　　　　　(xiii)

　　　　　　　　　　　　　　　　　　m–ꜥꜣt-nb špst

ḥꜣt-r–ḥḏ ḥnꜥ–nbw　　　　　　　(15)*pḥwy-r–ꜣb r–hbn*　　　　(xiv)

I have seen his activity　　　　　　　　　　　　　　　　　(xiii)

　　　　in acting as director of works

　　　　　　　in every precious material

ranging from silver and gold,　　　　　　　　　　　　　　(xiv)

　　　　(15)to ivory and ebony.

p) *pri̯ ẖr* is "to divulge, reveal (a secret, hidden knowledge)", lit. "come forth with" (*Urk.* IV 1031.14; 1410.10: cited below, "Restricted knowledge"). The construction is with an active participle, lit. "There is none coming forth with …", in reference to the revelation of knowledge. The interpretation in reference to being knowledgeable ("Kundiger": Schenkel 1965, 248; Barta 1970, 126) does not fit the lexical meaning of *pri̯ ẖr*.

q) *pr n=f ẖr=s* is an extended construction of the passive participle (that is, with the antecedent of the participle corresponding to an oblique case in the relative construction), lit. "one to whom there was coming forth with it". Active readings ("… daß er darin kunding sein sollte": Schenkel 1965, 249; sim. Barta 1970, 126) do not fit the lexical meaning of *pri̯ ẖr* (above, n. p). Mathieu's (2016, 11) "… et à moi de le lui divulguer" (*pr(=i)*) is unlikely for graphic reasons (the suffix pronoun of the 1st person singular is otherwise written out in forms of the suffix conjugation in Irtysen) and for stylistic ones (it would go against the intended echo between both instances of *pri̯ ẖr*, both of which are impersonal in formulation).

Irtysen's self-presentation on stela Louvre C 14

Stela Louvre C 14, on which Irtysen's self-presentation is inscribed, consists in the following elements:

- "⁽¹⁾Long live … (titulary of Mentuhotep II)"
- "⁽²⁾His true servant of his affection, who does all he (*scil.* the king) praises in the course of every day, the *imakh* by the Great God, Irtysen."
- "⁽³⁻⁶⁾An offering that the king gives … consisting in an invocatory offering … for the *imakh* …, the director of craftsmen, scribe and sculptor Irtysen, who says:"
- ⁽⁶⁻¹⁵⁾*the self-presentation proper* (see above)
- "⁽¹⁵⁾An invocatory offering … for the *imakh* Irtysen-iqer, justified, born of Idet, justified."
- *in the lower section under the text, pictorial representations of Irtysen and his wife standing before their children bringing offering; Irtysen and his wife seated before an offering table.*

The material of the stela (limestone), the fact that it is inscribed in hieroglyphs (a restricted symbolic resource) and the length of the inscription, as well as the placement of the stela in a mortuary space in Abydos, converge in presenting Irtysen as a member of the elite (on other Egyptian artists' access to written or monumentalized death, Laboury 2016, 384). The self-presentation proper (ll. 6-15) is embedded in mortuary texts (ll. 3-6; 15) and therefore an integral component of a mortuary monument in which the textual and pictorial representations combined have performative power: to make the name and voice of the speaker live, and to bring offerings about. In its layout, the stela is also expressive of a hierarchically ordered twofold relationality: to the king on the topmost, hierarchically superior, part of the stela (ll. 1-2; implicitly also in Irtysen's titles as implying work for the king, immediately before the self-presentation proper: l. 6); and to Irtysen's family on the, lowermost, hierarchically inferior, part of the stela (pictorial representations in the lower part; also the transmission of knowledge to the son expressed in the closing, lowermost part of the self-presentation, ll. 13-15).

Combined, these elements are typical of (early) Middle Kingdom (Abydene) stelae as bearers of autobiographical inscriptions, and Irtysen's self-presentation in ll. 6-15 may therefore be viewed as occupying the functional slot of an autobiography on such monuments. Yet, Irtysen's self-presentation is not an autobiography in the sense of the contemporary, early Middle Kingdom incarnations of the genre (anthology: Lichtheim 1988; autobiographies on stelae: Landgráfová 2011). It does not include developed sequences of self-laudatory epithets to do with courtly etiquette and relation to other officials, calm and composedness, moral qualities and social solidarity, etc. Nor does it overtly feature the official's action in relation to the king's order, mission or praise.

While not an autobiography, Irtysen's self-presentation clearly alludes to two of the main elements of the genre. The first is self-laudatory formulations and statements of exceptionality. At a textual juncture that structurally heads, and thereby has scope over, the whole composition (section I, metric line (iii)), Irtysen defines himself: "Thus, I am an expert-artist efficient in his art, one who has come out on top through what he knows" (*ink grt ḥmww iḳr m ḥmt=f pr ḥr tp m rḫt.n=f*). The phrasing echoes formulations of the type *ink … iḳr …* "I am … excellent …", as well as such of the

type … *iḳr m ḥmt=f* "… efficient in his art/expertise". The former is overly common in autobiographies, and the latter finds parallels in autobiographies and other types of texts, notably in relation to scribal art (compare, *e.g.*, "I am a very excellent scribe, one truly efficient in his art", *ink sš iḳr wrt mnḫ mꜣꜥ n ḥmwt=f*; Antef, Louvre C 167, C.1; Senwosret I, ca. 1950 BC).[10] In the second part of the inscription, the phrase "… except me alone …" (*… wpw-ḥr=i wꜥ.kw …*, (xi)), in reference to the transmission of restricted knowledge, echoes statements of exceptionality that are otherwise typical of autobiographies.[11] Significantly, these two passages in which the autobiography is hinted at ((iii), (xi)) are located at strategic junctures in the overall composition (sections I and V, framing the whole composition: see below, "Irtysen's *ḥmw*-ship" and "Restricted knowledge"). The second main element of the autobiography is the expression of the official's relation to the king (*e.g.*, Stauder-Porchet 2017 [for earlier times: the Old Kingdom]; Guksch 1994 [for later times: the 18th dynasty]). This is here given on top of the stela (ll. 1-2), and therefore outside the self-presentation (ll. 6-5). Following immediately the royal titulary (l. 1), l. 2 provides a direct and synthetic statement of how the official's daily actions merit royal praise in standard autobiographical terms. In addition, the king is present, if obliquely, in the self-presentation itself, insofar as Irtysen's knowledge of royal representations implies working for the king and taking part in contemporary developments in the royal sphere (see below, "The domains of Irtysen's knowledge", "Irtysen's voice").

The relation of Irtysen's self-presentation to the genre of the autobiography is therefore oblique. The self-presentation in ll. 6-15 occupies the functional slot of an autobiography on the stela; moreover, it hints at central elements of the genre; yet it does not adopt the generic format of the autobiography. Instead, it develops a highly original discourse, centring around *ḥmw*-ship ("art/expertise") and the restricted knowledge that, for Irtysen, is associated with this.

Irtysen's *ḥmw*-ship ("art/expertise") as ritual and transformative knowledge (section I)

The composition is structured in two parts, the first marked by the fourfold anaphora *iw(=i) rḫ.kw …* "I know …" (sections I-IV), the second centring around the transmission of such knowledge to Irtysen's son (sections V-VI). This second part begins with a new line on the stela (l. 13), probably a deliberate effect of layout. Various structural elements relate sections I and V, the initial sections of both parts, with one another, so that these frame the composition as a whole (see below, "Restricted knowledge").

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10   Further, *ḥmww m ḏbꜥw=f* "one expert with his fingers" (Mentuhotep, Cairo 20539, vso 6; autobiography, Senwosret I, ca. 1950 BC). Compare also the phrase *iḳr m ḏbꜥw=f* "excellent with his fingers", in *Shipwrecked Sailor* 188 (of Ameny, the copyist; literary composition, ca. 1900 BC), *Neferti* 2c (of Neferti being picked by the king, ca. 1800-1450 BC), in Meryre's artist signature (Kruchten, Delvaux 2010, 211; Laboury 2016, ca. 1100 BC), as well as, in a slightly different form, in Hezi's autobiographical inscription (ca. 2350 BC) stressing the official's worth (col. 2: Stauder-Porchet 2015, 193).

11   With *wꜥ* "be alone", *e.g.*, in a specific context, Weni (autobiography, Abydos, ca. 2250 BC; col. 3 (*Urk.* I 99.5); col. 11 (*Urk.* I, 101.2); more generally, see the formulations of the type *n zp … mrtt … "Never … the like …"* (for the Old Kingdom, Stauder-Porchet 2017).

Section I (l. 6-8; metric lines (i)-(iii)) defines Irtysen's *ḥmw*-ship. As the particle *grt*, here with argumentative force, signals (see above, textual note a), the first two sentences (i-ii) provide the foundation for Irtysen's statement in (iii): "*Thus* (*grt*, i.e., *given, or based on, the above*), I am an artist/expert efficient in his art/expertise" (*ink grt ḥmww iḳr m ḥmt=f …*). This statement, which begins with a new line on the stela (l. 8), probably another deliberate effect of layout, forms the core of section I. As such, it also functions as a heading to the whole composition, over which it has scope.

In general, a *ḥmww* "artist, expert" is distinct form a mere *irw* "maker", or material producer (Laboury 2016, 374-377; 2013, 30-31). "Art/expertise" (*ḥmwt*) can also refer to medicine, ritual or magic, demonstrating that *ḥmwt* is about an art or expertise that is efficient in making things happen or even in bringing things about, and not a matter of mimesis (*ibid.*, 375, n. 7).[12] Irtysen defines his *ḥmw*-ship in terms of "knowledge" (*rḫ*), as is underscored by the general anaphoric articulation of sections I-IV (*iw(=i) rḫ.kw …*). Internally to section I, "knowledge" is also emphasized chiastically, with *rḫ* appearing at the beginning of the first metric line (i) and at the end of the last (iii), thereby framing section I. The phrase *ḥkꜣ nb* "all generative force" (also, depending on contexts, "magic")[13] is emphasized as well, syntactically an extraposed topic that is thus set at the beginning a new metric line (ii). The phrase *ḥkꜣ nb* is prominent on the stela also physically, sitting just underneath Irtysen's title *ḳsti* "sculptor" (Baud 1938, 24), while *rḫt.n=f* "what he knows" sits just underneath *ḥkꜣ nb*. Thus:

Layout on stela (vertically)		Metric structure	
… *ḳsti* …	(l. 6)	*iw(=i) rḫ.kw* …	(i)
… *ḥkꜣ nb* …	(l. 7)	*ḥkꜣ nb* …	(ii)
… *rḫt.n=f* …	(l. 8)	… *rḫt.n=f*	(iii)

The knowledge that Irtysen invokes consists more specifically in "the hidden knowledge of hieroglyphs", in "the conduct of festive rituals" and in "all generative force". While painters or artists with varying, including high, degrees of literacy were not uncommon in ancient Egypt (Laboury 2016, 381-386), the first expression here means substantially more, referring both to the restricted and possibly arcane knowledge associated with hieroglyphs (see further below "Double entendres, hieroglyphic elaboration") and to their performative power of bringing things about. Opening the list of what Irtysen knows, "the hidden knowledge of hieroglyphs" (*sštꜣ n mdw-nṯr*) has scope over all subsequent elements that define Irtysen's *ḥmw*-ship (similarly, Darnell in press).

As the immediately following mention of *ḥbyt* "festive rituals" implies, Irtysen's knowledge includes ritual dimensions. In general, artists can be among the funerary celebrants from the Old Kingdom onward and can themselves be ritualists (Chauvet 2015; Vernus 1986; Laboury 2016, 384-385), and the creation of a statue is described

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12 Further domains of application include rhetoric (in Middle Egyptian literary texts: *Teaching of Ptahhotep* 56, cited below; *Merikare* E 32) and intellectual ability (notably of the king, in the phrase *ḥmw-ib* "of expert intellect": Stauder 2013, 191).

13 For the rendering of *ḥkꜣ* as "generative force", compare also the possible etymology *ḥ-kꜣ*, with *kꜣ* both an agentive component of personhood and "sustenance" (D. Meeks, p.c.). On *ḥkꜣ* further, *e.g.*, Borghouts 1987; Rittner 1993,

in highly ritualized terms in the Ritual for Opening the Mouth (Fischer-Elfert 1998). In Irtysen's self-presentation, this ritual dimension is emphasized further on the lexical level, by the combination of the expressions *rḫ* "knowledge", *sštꜣ* "hidden knowledge", *ḥkꜣ* "generative force, magic", *ꜥpr* "equipped", and *iḳr* "efficient" in Section I. A similar clustering of expressions is found in ritual formulae in Old Kingdom tombs in typical association with an appeal to the living, with texts for ensuring the protection and ritual integrity of the tomb, and/or with the so-called "ideal biography" (Stauder-Porchet 2017, 201-202, 204-207; Kloth 2002, 116-119; Edel 1944, 19-26, §21-22); after the Old Kingdom, the lexical clustering recurs notably in the Coffin Texts (Coulon 2004, 122-123). *E.g.*, "I am an efficient and equipped *akh* and I know every efficient magic" (*ink ꜣḫ iḳr ꜥpr iw(=i) rḫ.k(i) ḥkꜣ nb iḳr*, Mehu, architrave, 9: Hawass 2002); "I am an *akh* more equipped than [any *akh* …] (…) I am an efficient lector-priest, who kn[ows every rite, a ma]gician more than anyone: never has any efficient magic been hidden to me" (*ink ꜣḫ ꜥpr r [ꜣḫ nb …] (…) ink ẖri-ḥb iḳr r[ḫ ḫt nb ḥ]kꜣy r rmṯ nbw n zp štꜣ ḥkꜣ nb r(=i) iḳr*, Merefnebef F7A, 1-5: Willems 2008; Myśliwiec 2004). Irtysen thus invokes *ḥkꜣ*, "generative force, magic", and the associated ritual dimensions as a model for the efficiency of *ḥmw*-art (Coulon 2004, 124-125): this is presented as a transformative process, an art that is truly creative in the strong sense of bringing things about.

Elsewhere, this conception of art as a transformative, rather than mimetic, process[14] underlies, *e.g.*, the representation of Mereruka painting the seasons at the entrance of his tomb (Laboury 2016, 391-392) or the metallurgist Ankhy's reference to himself as the "interpreter of Horus' eye" (*iꜣꜥw n irt ḥr*), who "transform(s) raw material into the trappings of ritual" (Darnell in press). In Irtysen's self-presentation, it resonates with the performative power of "hieroglyphs", of which Irtysen invoked the "hidden knowledge" at the beginning of section I; it could also be hinted at in the expression *bꜣgw* (beginning of section II, (iv)), which among various possibly simultaneously relevant readings, may mean here, it has been proposed, "inert ones", then to be understood quite litteraly as to be "brought alive" by the artist (*sꜥnḫ*; for the latter expression, *e.g.*, Barta 1970, 86-90). In the closing section of the composition (VI), the emphasis on luxury materials deriving from beyond the confines of the Nile Valley seems significant as well, as these are the very materials on which the transformative knowledge of the artist can otherwise be applied (Darnell in press, conclusion).

The domains of Irtysen's knowledge (sections II-IV)

In sections II-IV, Irtysen provides a structured list of the domains of his knowledge. Frustrating an historian's expectations, the speaker hardly informs about processes of material production and instead outlines what to him matters in defining his ritual

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14   This conception is not contradicted by a literary text that in reference to eloquence reads: "The limits of art (*ḏrw ḥmt*) cannot been attained, there is no artist fully equipped with its *akh*-power (*nn ḥmw ꜥpr ꜣḫw=f*). Perfect speech is more hidden than green-stone, yet can be found with maidservants (*ḥmwt*) at the mill" (*Teaching of Ptahhotep* 55-59; ca. 1900 BC). The context is here, not a mortuary self-presentation, but a literary teaching emphasizing humility (*cf.* also the word-play between *ḥmw* "artist" and *ḥmwt* "maid-servants"). Moreover, only full *akh*-power is denied, because this is reserved to the gods and to the deceased *akh*-spirits (Borghouts 1987, 40; Mathieu 2016, 11, n. d), not, however, the transformative power of art as associated with *ḥkꜣ* "generative force" in Irtysen.

and transformative *ḥmw*-ship. In the interpretation of the text offered here, Irtysen's knowledge may be summarized as follows:

- Proportions in (raised and sunk?) relief sculpture (II);
- Repertoire of (divine and royal) representations (III);
- Indestructible materiality of what is "inside" sculpted relief (IV).

Sections II and III take the form of a list of items that Irtysen knows; they do not feature the term *irt* "making". In the line of interpretation pursued here (previously, *e.g.*, Badawi 1961, 273, n. h; Barta 1970, 94-100; Mathieu 2016, 13, n. f), section II (metric lines (iv)-(v)) concerns proportions in (raised and sunk?) relief sculpture: "I know the parts of the … (?), the weighing of the norm of exact reckoning, the taking out and letting get in as it goes out or in so that a limb will come to its right place." In particular, "the taking out and letting get in as it goes out or in" would be in reference to projection and receding in relief, and perhaps to raised and sunk relief sculpture (Badawi 1961, 273, 275).

Section III (metric lines (vi)-(viii)) consists in a repertoire of specifically divine and royal representations: "I know the going of a male figure/register representation the stride of a female statue and the stance of many birds; the bent of the one who strikes a single (captive), how the eye looks to its two sister eyes and the making fearful of the face of the bound enemies; the lifting of arm of the one who harpoons the hippopotamus, and the stride of the one who runs." The first metric line (vi) here refers to register representation, specifically to the positions of divine and royal figures. The second (vii) refers to the foundational icon of the king striking the enemy and dispelling the evil this embodies, a cultural matrix of sorts (e.g., Swan Hall 1986; Schoske 1994; Luiselli 2011). The third (viii) refers to the royal ritual of the hippopotamus hunt (Säve-Söderbergh 1953; also Bryan 2017, 8, and Parkinson 2012, 197-198, noting that the large-scale pictorial representation of the active hippopotamus hunt is restricted to the king prior to the New Kingdom). Irtysen focuses specifically on royal art, representations, that is, that have a strong performative force, bringing what they represent about.

Section IV is the only to mention material aspects of production and, significantly, the only to have the expression *irt* "making": "I know the making of what is inside them, that is, the materials that go down into them, without letting fire burn them, and without them possibly washing away through water either." While references to specifically material aspects of production remain uncommon in Egyptian autobiographies or self-presentations more broadly[15], Irtysen's statement immediately brings to mind Nefermaat's in Atet's chapel in Meidum (ca. 2650 BC) "He is the one who

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15   In his autobiographical inscription, Ineni (ca. 1450 BC), among other titles a "director of works", says: "I created 'fields of clay' to overlay their tombs of the necropolis: this is a work that has not been made since the predecessors" (*Urk.* IV 57.9-11; Dziobek 1992). Unlike in Irtysen, the statement is about the bearer of representations, not the representations themselves, and is made by an organizer of other peoples' work, not a *ḥmw* himself. Ineni's statement fits into a series of claims of innovations that are more broadly characteristic of the early Eighteenth Dynasty horizon (Popko 2006; Vernus 1995, *passim*). In Ameniseneb (Louvre C 12), 8-10 (see above, n. 9), technical detail is given in the context of restoration work carried out for the king in the temple of Abydos.

made his godly (signs) in writing that cannot be rubbed off, Nefermaat" (*swt ir nṯrw=f m zš n zin=f nfr-mꜣꜥt*; panel OIM 9002; Harpur 2001, 84, n. 7 with references, and pl. 27; Stauder-Porchet 2010). Not part of a continuous text, Nefermaat's statement is in direct relation to the monumental standing figure of Nefermaat himself, thus to a pictorial representation, which it frames vertically. Provided the above traditional reading is correct (for an alternative reading, Osing 1994, 282-283), the statement is self-reflexive with respect to the paste-filled reliefs and thus its own materiality, stating the indestructible nature of representations and signs that are explicitly presented as *nṯrw* "godly (signs)" and thereby as having a performative quality. In Irtysen similarly, the reference to materiality is made, not for the sake of the craftsmanship it implies, but in specific relation to the indestructible nature of (royal and divine) representations that have a performative quality (see above).

In the preserved earlier inscriptional record, Irtysen is unique in addressing proportions (section II) and repertoire (section III). The date of the text, the later part of the reign of Mentuhotep II, may be contextually significant (Barta 1970, 65-77). In the wake of the re-unification of the country, the period sees the restoration of a royal art sponsored by the king and expressive of kingship (*e.g.*, Lorand 2016; Bussmann 2010, 177-187; Postel 2003) after the preceding generations during which representations such as listed in section III had been by and large discontinued. In referring to the repertoire of such representations and to their proportions, Irtysen indexes his participation in the most innovative contemporary developments, as well as its close relation to the royal sphere.

Beyond, proportions (section II) are central in the fabrication of a statue in the Ritual for Opening the Mouth (Fischer-Elfert 1998, 23), a quintessentially transformative process. Furthermore, sections II (proportions) and III (repertoire) combined can be read in reference to what has been variously termed "canonical tradition" (Whitney Davis), "Kanon" (Jan Assmann) or "formal culture" (Barry Kemp). On a different plane, hieroglyphic writing itself, which may be viewed as another defining element of formal culture and of which Irtysen had initially claimed to know the "hidden knowledge" (i), is distinguished by two similarly correlated dimensions: its ordination in space ("investissement de l'espace": Vernus 1990) and its "sacralizing" function, with performative force (Vernus 1989)[16]. The representations that Irtysen mentions as his repertoire (section III) are described in terms of positions, actions of arms, and gazes (Bryan 2017, 9-10), thus more broadly of actions. Irtysen's focus on royal art (the positions of divine and royal figures in the register; the foundational icon of the king smiting his enemies; royal rituals of hippopotamus hunting) and the description of these representation in terms of actions accord with the ritual dimensions of Irtysen's *ḥmw*-ship emphasized in section I: Irtysen's art is transformative because it (re-)creates (royal and divine) representations that are performative.

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16 Defined as: "… consiste à insérer une réalité quelconque parmi les éléments constitutifs de l'ordre du monde tel qu'il a été institué par le démiurge et que la société s'efforce de maintenir" (Vernus 1989, 24).

Restricted knowledge, displayed and staged as such

Irtysen's self-presentation centres around knowledge but does not communicate the contents or specifics of this knowledge. Irtysen frustrates an historian's expectations: he states that he knows, but frames his knowledge in a "nearly onomastic" format, for example a list of "nominally framed postures" in section III (Bryan 2017, 10). The first occurrence of the anaphoric *iw(=i) rḫ.kw* … "I know …" is immediately followed by the word *sštꜣ* "hidden knowledge", contextually in reference to hieroglyphs (i), but also with scope over the whole composition. The type of ritual knowledge by which Irtysen defines his *ḥmw*-ship in section I is typically associated with the expression *štꜣ* "hidden" in mortuary texts (see above, "Irtysen's *ḥmw*-ship").

The anaphoric *iw(=i) rḫ.kw* … "I know …" has been compared with similar statements in the Coffin Texts consisting in a question the deceased is asked regarding his/her knowledge, followed by an answer that he/she knows; only rarely do a second question and associated answer regarding the specifics or contents of such knowledge follow: as in Irtysen, knowledge is stated as such, without further elaboration of what more precisely it consists of (Fischer-Elfert 2002). It has been proposed that this format could be modelled on similar exchanges in the situational context of a final examination dialogue leading to the admission of a new member into a professional guild, whereby only the first part (the statement about knowledge as such) would be open to being reproduced (*ibid.*, 34-35). Going further, the fabrication of a statue in the Ritual for Opening the Mouth has been analysed as featuring two linguistic norms corresponding to different degrees of restrictedness of the associated knowledge: first the *sm*-priest in dialogue with the *imi-ḫnt*-priest, then the *imi-ḫnt* priest "translating", as it were, such restricted knowledge into a less restricted linguistic register to instruct the *ḳsti* "sculptor" (Fischer-Elfert 1998, 48ff.; 2002, 33). Following Egyptian and broader cross-cultural patterns in this respect (Baines 1990, 7, 9; Fischer-Elfert 2002, 35), Irtysen displays knowledge as such while withholding specifics; through this very act of withholding, he points effectively to the particular quality of the knowledge he has access to, namely its restricted nature itself.

The second part of Irtysen's self-presentation concerns the transmission of the speaker's knowledge to his son (sections V-VI). In ancient Egypt as in many societies, a craftsman would often have been trained in a family setting, notably by his father (Laboury 2013, 32). Beyond, the transmission of offices from father to son, where the latter is to perform the funerary rituals for the former, represents a cultural ideal in ancient Egypt commonly expressed for example in the appeal to the living.[17] A "sculptor" when working for the king may be compared to an office-holder broadly understood so that this cultural ideal may have served as a hypotext to Irtysen's text. Against this background, Irtysen's text is remarkable on two accounts: first, knowledge, rather than an office strictly

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17   Compare the common formula "May you transmit your offices to your children" (*swḏ=tn iꜣwt=tn n ḫrdw=tn*). On the father-son "relational paradigm" in relation to the funerary cult, *e.g.*, Donnat Beauquier 2014, 89-90, with references; in the so-called "ideal autobiography", Stauder-Porchet 2017, 198-208. On the transmission of office from father to son expressed in other types of inscribed texts, Favry 2016.

speaking, is here transmitted; second, this transmission is given a textual account, not in an appeal to the living, but exceptionally within the self-presentation itself.[18]

The transmission of knowledge that merits textual elaboration in Irtysen concerns restricted knowledge specifically, to wit the expression *prỉ ḥr* "divulge, reveal (lit. come forth with)" (xi, xii). The expression recurs twice in the early New Kingdom in significant contexts: said by a vizier, "I did not divulge the words of the King's House" (*n pr=ỉ ḥr mdwt pr-nsw*; *Urk.* IV 1031.14, Useramun's Uriage Stela, 7); and said by a High Priest of Amun "I did not divulge the initiation of the hidden knowledge that I knew" (*n pr=ỉ ḥr bs št*[ȝ] *rḫt.n*(*=ỉ*); *Urk.* IV 1410.10, Amenemhat: Gardiner 1910, 96-97). That restricted knowledge is not to be transmitted freely is also thematized in Coffin Texts spell 156 (Fischer-Elfert 2002, 34; Morenz 1996, 80).

The textual structure and layout of the inscription converge in underscoring the importance of this transmission, to which no less than the last four of fourteen metric lines are devoted. Section V begins with a new line on the stela (l. 13), echoing Irtysen's self-definition ("Thus (*grt*), I am an artist efficient in his art …") which also begins with a new line on the stela (l. 8). This initial self-definition of Irtysen's is reminiscent of autobiographical formulations (see above, "Irtysen's *ḥmw*-ship"), just like the mention of exceptionality in l. 13 is (see above, "Irtysen's self-presentation"): autobiography-like material thus appears concentrated in these two structural junctures in section I and V. At the level of metricalization, finally, *prỉ ḥr* "divulge" frames section V chiastically, just like *rḫ* "know" does in section I:

section I		section V	
ỉw(*=ỉ*) *rḫ.kw* …	(i)	*nn pry ḥr=s* …	(xi)
… *rḫt.n=f* (iii)		… *pr n=f ḫr=s*	(xii)

Irtysen makes explicit that he transmits his knowledge to his son alone (xi), who is worthy of receiving it (xiii-xiv), and that the transmission is sanctioned by the "god" (*nṯr*) (xii)[19]. The son's worthiness that is observed by Irtysen (*ỉw mȝ.n=ỉ* … "I have seen …", echoing the anaphoric "I know …", *ỉw*(*=ỉ*) *rḫ.kw* … in sections I-IV) consists in the son's "activity" (*prt-ꜥwy*), punning with "divulge" (*prỉ ḥr*).

Like Irtysen, the "chief chisel-bearer of the Lord of the Two Lands" Hatiay (ca. 1300 BC) takes great pride in his access to restricted knowledge, which he does not reveal (see Appendix, D); all other things are different, however. In the context of an inscription that is an autobiography generically, Hatiay emphasizes the exceptional nature of his initiation as a strong testimony to the king's out-of-the-ordinary favour in spite of the speaker's humble origins, a classic trope of the genre and an (early post-)Amarnian topos specifically; he does not insist on this restricted knowledge any

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18 While not an autobiography (see above, "Irtysen's self-presentation"), Irtysen's inscription alludes to the genre. Another "autobiography" that includes a mention of the transmission of offices to the children is *Sinuhe* (B 238-241). Like Irtysen, *Sinuhe* is significantly not an autobiography proper, but a literary work and a fictionalized palimpsest of the genre.

19 In a literary text similarly, Ptahhotep transmits his teaching (which, however, is not restricted knowledge) to his son at the king's behest and thereby under the king's guarantee (*Teaching of Ptahhotep* 36ff.: Mathieu 2016, 15, n. s).

further. Irtysen's self-presentation, by contrast, is all about restricted knowledge itself, which is displayed as such.

Through its onomastic format, the text points to a series of referents, yet does not inform about these referents which therefore remain mere naming labels of sorts. While the lexicon may in part reflect a not otherwise documented technical register, it also seems to be in part intentionally underspecified as in deceivingly simple lexical selections such as "the taking out and letting get in as it goes out or in" (*šdt sꜥkt m pr-ꜥk=f*, (v)). Various elements are clearly understood (*e.g.*, "the bent of the one who strikes a single (captive)" (vii), in reference to the icon of the king smiting the enemy and dispelling disorder), although not all would have been similarly clear to various ancient audiences depending on their degree of exposure to icons of kingship (*e.g.*, "the lifting of arm of the one who harpoons the hippopotamus, and the stride of the one who runs", in reference to royal rituals, the performance of which may itself have been restricted, either in actuality or at the level of the effective visibility of representations in royal art). Other elements remain outright enigmatic (see further below, "Double entendres"), hinting at additional, not immediately apparent, layers of meaning.

The difficulty of Irtysen's self-presentation would have struck ancient readers no less than present-day Egyptologists. The text is not about conveying information, but, quite to the contrary, about staging a withholding of such information: through multiple strategies, it consistently points to what more it does not say. The difficulty and partial opaqueness of the text are then features integral to the its expressive intent. They function, reflexively, as indexicals of the restrictedness of the knowledge staged in and by the text itself.

Double entendres, hieroglyphic elaboration

On both the linguistic and the graphic levels, Irtysen's self-presentation includes additional layers of meaning beyond what the words say in a directly referential mode. The inscription features instances of possible double entendre in a remarkable density. Irtysen's own name (*irty=sn* "Their-eyes(?)"), to begin with, permits an alternative reading as "Who-makes-their-forms" (*ir-ir(w)=sn*), which would certainly be fitting for a sculptor.

More than one linguistic expression is enigmatic and some could carry ritual and mythological allusions. Thus, *bꜣgw* (iv; see also above, textual note c) may refer to the representations (the "inert ones"(?)) that Irtysen sculpts in relief (thus Mathieu 2016, 13, n. f), yet may also include an allusion to Osiris (*imi-bꜣgw* "the one in the shipwreck", *Wb*. I 413.13, thus Bryan 2017, 5-6, n. e, 9). An Osirian allusion would be fitting in a mortuary monument and is possibly supported by the Osirian determinative of *twt* in šmt twt "the going of a male statue"/"register representation" (vi) (Bryan 2017, 6, n. h, noting the determinative's extraposed position at the beginning of l. 10 on the stela). The "lifting of arm of the one who harpoons the hippopotamus" (viii) refers to a royal ritual whose representation Irtysen masters, and simultaneously evokes Horus slaying Seth (Bryan 2017, 7, n. n). "The stance (ꜥḥꜥw) of many birds" (vi) may recall the onomastic display of birds in Beni Hassan (as in the tomb of Baket, no. 15: Newberry 1893, pl. IV; *cf.* Bryan 2017, 7, k, and 8) and thereby evoke Irtysen's art, yet could also be punning on the ꜥḥꜥw birds, "the grey herons, who were likened in

the Pyramid Texts to the deceased as rain clouds, no doubt due to their color" (Bryan 2017, 6, n. j, 8). In the present author's interpretation, these possible ritual and mythological allusions are not the primary meaning of the text (differently, Bryan 2017), which concerns Irtysen's knowledge of proportions in relief sculpture (section II) and of the repertoire of representations of kingship (section III). However, the clustering of such instances of possible double entendre suggests that at least some of these are, rather than an Egyptologist's musing with the text, effectively woven into the text as an additional layer of meaning, reserved to the very few.

The graphic level is complex as well and multivalent beyond its function of solely representing language. Speaking to the deliberate graphic elaboration of the stela, determinatives other than the expected ones are found in various places (ḫꜣꜥ (viii), ks (vii), possibly bꜣgw (iv)), or an expected determinative is lacking (šdt, (v)). The phenomenon is dense and therefore significant.

Specifically, in fꜣt-ꜥ nt ḫꜣꜥ ḫꜣb "the lifting of arm of the one who harpoons the hippopotamus" (viii), ḫꜣꜥ is not determined with any of the regular signs of striking (𓂇 or 𓌂), but exceptionally with 𓎟. While the image of a striking arm is lexically evoked in the immediately preceding expression fꜣt-ꜥ … "the lifting of arm …", this exceptional use of 𓎟 could carry additional significations on various non-exclusive levels. In the context of an artist's self-presentation, the sign 𓎟 may evoke the word ḫpw "figures, sculptured reliefs" in which it is occasionally used.[20] Intratextually, it makes ḫꜣꜥ resonate with ḥsb "(norm of) exact reckoning" (iv), in which the same sign is used in regular fashion. The identification of this graphic echo as intentional is supported by the observation that both phrases begin with fꜣt, and that both instances of fꜣt open new lines on the stela (ll. 9 and 11, respectively). Perhaps more significantly yet, the selection of the sign 𓎟 could evoke the word ḫꜣt "corpse" in which it is regularly used, thus expressing that the king's (or Horus') enemies are already dead by the very representation of the king lifting his arm to strike or shoot. In its performative quality, hieroglyphic writing would here point to the performative quality of the representation itself:

- "the weighing (fꜣt, beginning of l. 9) of the norm of exact reckoning (𓎟)" (iv);
- "the lifting (fꜣt, beginning of l. 11) of arm of the one who harpoons (𓎟 - evoking ḫꜣt "corpse") the hippopotamus" (viii).

In (vii), ks "bent" is exceptionally written 𓎡𓋴, not with its regular determinative (𓀒). The determinative used in Irtysen is otherwise found in ꜣt "striking power (of the king)", evoking overtones that enhance the context: "the bent (𓎡𓋴 – evoking ꜣt, "striking power") of the one who strikes a single captive". In the following clause, "how the eye looks at its two sisters" (vii), the graphic realization is ludic: 𓏏𓈖𓂝𓏏𓊃𓊃, with snt (sp-2)=s ("sister, twice, its"); that is, snt snt=s ("sister, sister, its"); hence, by homophony, snt 2=s "its two sisters". In addition, the sign sp (○) in sp-2 may be viewed

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20   Djehuti, Northhampton Stela, B.5, B.10 (*Urk*. IV 422.11, 425.2; early Eighteenth Dynasty, ca. 1450 BC). (The motivation for the use of the sign in ḫpw "sculptured reliefs" is phonetic, via ḫpꜣ "navel", *cf.* Gardiner 1957³, 539).

at as a "pupil" (ḏfd), itself metonymically standing for the eye (Bryan 2017, 7, n. l). Read as a metagraphic indicator, the same *sp-2* may hint at an alternative punning reading of *snt* (*sp-2)*, lit. "*snt*, twice"; hence "*snt*, dual"; hence, read aloud, "*snty*"; and thus, by homophony *snty* "likeness, representation". On the phonetic level, the phrase *snt snt=s* is also in alliterative resonance with the following *ssnḏ* "make fearful (the face of the enemy)". Spanning through metric line (vii), a visual chain thus expresses how the king's gaze as a manifestation of his "striking power" (⬡) meets and terrifies the gaze of the ritually bound enemies he smites:

- "the bent (⬡ – evoking *ꜣt* "striking power") of the one who strikes a single captive (𓀀)
- how the eye (⬡) looks (⬡) at its two sisters (*snt snt=s*, o ludic, metonymically for the eye -possibly also punning on *snty* "likeness"),
- and the making fearful (*ssnḏ*) of the face (𓁷) of the bound enemies (𓀀)"

As noted above, *bꜣgw* (iv) may or may not refer to the representations (the "inert ones"(?)) that Irtysen sculpts, in which case another determinative, 𓀀 , would have been expected. The spelling on the stela, with the water determinative (〰𓃀𓄿𓀀), may or may not have been purposefully selected to allude to the expression *imi-bꜣgw* "the one in the shipwreck", i.e. Osiris, an epithet that itself possibly puns on the god's "inertness" (Bryan 2017, 5-6, n. e, 9). In the next metric line, (v), *šdt* is paired with *sꜥkt* just like the immediately following *pr* is paired with *ꜥk=f*: the primary meaning of the text must therefore be in reference to sunk and raised relief sculpture ("the taking out and letting get in as it goes out or in"), and not to "recitation" (also *šdt*, proposed by Bryan 2017, 4). This being established, the spelling of *šdt* (𓂋) is noteworthy in lacking any determinative, a graphic under-determination that may have served the purpose of making a double entendre possible: beyond the primary meaning "taking out", also, indeed, an allusion to ritual "recitation". In (iv), the context makes it likely that *rꜣw* is in primary reference to the "parts" or "components" of a sculpted relief representation, yet an homophonous word is *rꜣw* "formulae". The spelling of the plural with triplication (⚌) is neutral as to which reading is intended but attracts attention to the word, however to be read. *Rꜣw* and *šdt* sit at the beginning of two successive metric lines (safe for the anaphoric "I know …" for the former). In the double entendre described here, they would also be allied semantically ("formulae", "recitation") to resonate with one another:

"I know the *parts*(/formulae) (⚌ (triplication attracting attention))   (iv)

of the inert one(?)(/Osiris?) (〰𓃀𓄿𓀀), …

the *taking out*(/recitation) (𓂋 (lacking any determinative))   (v)

and letting get in as it goes out or in, …"

On a higher level, both *rꜣw* and *šdt* (section II) resonate further with the ritual knowledge alluded to in section I. More generally, the complexity of the graphic

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realization of Irtysen's self-presentation echoes his initial statement on knowing "the hidden knowledge of hieroglyphs", including, as becomes clear now, their potential for pointing to multiple layers of meanings beyond those directly expressed in the linguistic sequence.

The hieroglyphic dimension of Irtysen's self-presentation thus creates an additional level of texture beyond the linguistic texture. Graphic double entendres make the text thicker, both more polyphonic and opaque. In suggesting that more lies behind what the words say, they point to how much more the text does not say: the graphic realization of Irtysen's self-presentation is integral to its necessarily oblique representation of restricted knowledge.

Conclusion: Irtysen's voice

Most immediately, stela Louvre C 14 is a mortuary monument geared at Irtysen's rejuvenation and simultaneously a memorial inscription in and through which the speaker presents himself, as part of the elite that has access to written monumentalized death and, in Irtysen's case, as an individual. Irtysen's partaking of the higher elite of his time is indexed on various levels, including metricalized language and composition of the sort that develops with the ascent of the Theban 11th dynasty (for which see, *e.g.*, Lichtheim 1988, 40). While the mortuary dimension concerns the stela as an integrated whole, it is also strongly present in the self-presentation proper (ll. 6-15): possibly in Osirian allusions (? - sections II-III); certainly in formulations of the speaker's knowledge that resonate with similar formulations of ritual knowledge as in, *e.g.*, the Coffin Texts (sections I-IV); and arguably in double entendres such as in the associated terms *rꜣw* and *šdt* "parts" and "taking out", alternatively read "formulae" and "recitation" (section II).

On the stela, Irtysen's self-presentation occupies the functional slot of an autobiography, and, moreover, hints at major semantic elements of the genre at central junctures in the composition. Yet, unlike, *e.g.*, Hatiay's, Irtysen's self-presentation is not an autobiography in generic terms. Instead, Irtysen chooses to speak in a highly original voice to display what his *ḥmw*-ship, "art/expertise", consists of, as a ritual and transformative knowledge. The most fundamental structural and semantic articulations of the composition (sections I and V) presents this knowledge as "hidden", to be divulged only to Irtysen's son under "the god's" authorization. In Irtysen's definition, it includes the proportions in (raised and sunk?) relief sculpture, the repertoire of (divine and royal) representations, and elements of a materiality that makes these indestructible. Performative representations of kingship are strongly emphasized.

Restricted knowledge is exclusive in-group knowledge; its display accordingly implies a marked element of social and professional indexicality, and thus of distinction. Similarly indexical of distinction is Irtysen's emphasis on representations of kingship, inasmuch as this points to a close proximity with the royal sphere; so does the probable contextual occasion of Irtysen's presently unique composition, arguably to be related to the restorative efforts regarding royal art during the later part of Mentuhotep II's reign. As noted, Irtysen's departing from the generic expectations associated with the autobiographical genre results in a highly original voice. The layered complexity of the text is enhanced by an oftentimes virtuosic display of literary and especially hieroglyphic

prowess. These combined dimensions, all of which further occasions of distinction for the speaker, are directly expressive of Irtysen's projected inscriptional identity.

While a self-presentation implies a pronounced addressive dimension in general, this is in Irtysen's case reinforced through the originality and virtuosity of the speaker's inscribed voice. In addition, this is a voice that would have sounded partly opaque to most ancient readers even among the most literate. Much as practices of enigmatic (so-called "cryptographic") writing in private inscriptions[21] among other things serve to display scribal prowess, attract attention and cause the passer-by to pause and read (Espinel in press; Darnell in press), Irtysen's difficult-to-understand hieroglyphic voice would have had a strong enticing effect on ancient readers.

In a public setting such as a mortuary monument, restricted knowledge can be mentioned as something one has access to and displays for the distinction it implies (Hatiay, Irtysen). In addition, restricted knowledge can be represented in onomastic form and explicitly thematized in terms of its conditions of transmission (in the record uniquely in Irtysen). By its very definition, it cannot be explained further other than by pointing to all things not said: its representation, if any such is given, must remain oblique. In his textual self-presentation, Irtysen speaks as someone who masters the ritual and transformative knowledge that makes possible the creation of performative images of kingship. His discourse, enhanced by its highly elaborate hieroglyphic realization on the stela, is in part opaque, underdetermined and suggestive of double entendres, more generally of a deeper layering of additional yet ultimately elusive meanings. It entices and makes one pause. It not only displays, but also, reflexively and obliquely, indexes and stages restricted knowledge as such.

Appendix: Selected other craftsmen and artists' self-presentations

A. The leather-worker Weta (ca. 2600-2500 BC (?))
(Sarcophagus Cairo CG 1787, from South Giza, cf. PM III2, 311; Text: Borchardt 1964, 205-206, Bl. 110; Urk. I 22; Study: Junker 1957, with a discussion of leather-working and Weta's titles, on which see also Moreno García, this volume; Stauder-Porchet 2017, 90-92; Dating: Menkaure-Neferirkare-Kakai/Niuserre, ca. 2600-2500 BC, cf. Baud 1996, 24-25, with discussion of contrary views; also Strudwick 2005, 425, for a late Old Kingdom dating)

Inscribed on the leatherworker Weta's sarcophagus, the inscription, probably from a time prior to the rise of the Old Kingdom autobiography proper (for which see Stauder-Porchet 2017), is a non-continuous text. It adopts the format of epithets inserted between titles and the name (compare, *e.g.*, the musician Iti's inscription who is similarly said to cause the king's heart to rejoice: *Urk.* I 45.13-17; Stauder-Porchet 2017, 91,

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21 On enigmatic spellings in late First Intermediate Period and early Middle Kingdom private inscriptions contemporary with Irtysen, Darnell 2004, 1, n. 3-4; in press, n. 3-4; on visual-poetic compositions in the same periods, Morenz 2008, 90ff, 214-216. The phenomenon would become more widespread in the New Kingdom (Espinel in press; Darnell in press).

n. 51), a format that is here developed in a small tripartite form with *Steigerung* (*Ibid.*, 90-92) to express a distinguished relationship of Weta with the king for whom he works. (i), lid; (ii), left side; (iii), right side:

(i)*wꜥb nsw rḫ-nsw nb ỉmꜣḫ ḫr nb=f ḫnt(ỉ)-š ḥrỉ-sštꜣ nṯr(ỉ)-mn-kꜣw-rꜥ*
        gs wtꜣ

(i)*The king's wab-priest, the royal acquaintance, possessor of imakh in the sight of his lord, the khenti-she and keeper of hidden knowledge of Divine-is-Menkaure,*
        the tanner Weta.

(ii)*ỉmỉ-rꜣ gs nsw ḫrỉ-ꜥ ḥrỉ-sštꜣ*
        ỉr ḫt r st-ỉb nt nb=f m kꜣt gs wtꜣ
ỉmỉ-rꜣ gs ṯbw nsw
        ỉr ḫt m ṯbw-nsw r st-ỉb nt nb=f wtꜣ

(ii)*The overseer of tanning and assistant of the king's documents, the keeper of hidden knowledge,*
        who acts according to his lord's pleasure in the work of tanning, Weta.
The overseer of tanning and the king's sandal-maker
        who acts on the king's sandals according to his lord's pleasure, Weta.

(iii)*ỉmỉ-rꜣ ꜥrtỉw*
        ỉr{t} mḏꜣt nt ꜥrt nt ḫrỉ-ḥb r st-ỉb nt nb=f mr wḏt
        ỉr{t} ḫt r st‹-ỉb›n(t) nsw ḫpr{t}‹=f›? ḥms m ḏꜣdw wtꜣ

(iii)*The overseer of the scroll manufacturers,*
        who makes the lector-priest's written scroll of according to his lord's pleasure like has been ordered,
        who acts according to the king's pleasure when he happens to be seated in the djadou-courtyard, Weta.

B. The overseer of sculptors In[…]-nakht (Mentuhotep II, ca. 2000 BC)

(Stela Cairo TR 3/6/25/1, from el-Tarif (Thebes West); Text: Clère and Vandier 1948, 44 (no. 30); Translations: Schenkel 1965, 239; Landgráfová 2011, 59; Landgráfová and Dils, TLA; Barta's (1970, 128-130) proposal that In[…]-nakht may be the same individual as the contemporary Irtysen is based solely on both being "sculptors")

In an inscription that dates to the same reign as Irtysen, the continuous text does not make reference to In[…]-nakht's trade as a sculptor specifically and fully conforms to the generic format of the autobiography of a mid-11th dynasty Theban official working for and loyal to his king. The professional identity of the speaker is displayed through the title string at the end of the inscription, in a prominent position after the continuous text:

(1)*ḥr … nb-ḥpt-rꜥ* (2)*ꜥnḫ-ḏt*
bꜣk=f mꜣꜥ n st-ỉb=f ỉrr ḥsst=f nbt m (3)*ḫrt-hrw nt rꜥ nb […] ỉn[…]-nḫt ḏd*

ỉw ỉr.n=ỉ […] *m pr-ẖty wn*[(4)]*n pr-nsw ꜥt=f nb ẖt st-ḥr=ỉ ḥr srwd pr-nsw r-ḏr=f {ḥr srwd pr-nsw r-ḏr=f} ḥr s*[(5)]*ḥtp nṯrw m ḥwwt-nṯr nt šmꜥ*
ỉmỉ-r�ꜣ ḳstỉw n […] [(6)]*… ḥmww? ỉmỉ-rꜣ {ṯ}ms<ṯ>(t)w? ỉmỉ-rꜣ […] ỉmỉ-rꜣ* [… [(7)]…]

[(1)]*The Horus … Nebheptere,* [(2)]*may he live forever!*
His true servant of his affection, who does all he praises in [(3)]*the course of every day, In[…]-nakht, says:*
I spent [… (period of time) …] in the domain of Kheti, [(4)]*the royal house, its every chamber, being under my authority, fortifying the royal house entirely and pa*[(5)]*cifying the gods in the Upper Egyptian temples.*
The overseer of sculptors of […] [(6)]*… artists?, the overseer of quarry-workers?, the overseer of […] the overseer of […* [(7)]*…]*

C. The overseer of sculptors Shen-Setji (Senwosret I, ca. 1950 BC)
(Stela Los Angeles County Museum of Art 50.33.31, in all likelihood from Abydos; Text: Faulkner 1952; Lichtheim 1988, 90-92; Translations: Obsomer 1995, 542-546; Landgráfová 2011, 124-126; Oppenheim 2015, 153-154; http://collections.lacma.org/ node/230235)

The bulk of the inscription consists in funerary texts and texts dealing with temple of Osiris at Abydos and Shen-Setji's mortuary monument. In the terse narrative part (ll. 16-17), Shen-Setji speaks of his working for the king, first in the royal residence Itjtawi (Lisht), then the Osirian cult center Abydos (on the mobility of sculptors in the Middle Kingdom, Quirke 2009, 117-119; Connor, this volume; on artists in mission for the king more broadly, Laboury 2016, 377-379). The inscription and autobiographical part conform to the format of contemporary Abydene stelae:

ỉw ỉr.n(=ỉ) ỉmỉ-rꜣ gnwtỉ m ỉmn-m-ḥꜣt-ỉṯ-tꜣwỉ ḏ-ꜥnḫ ḏt
ỉỉ.n(=ỉ) grt<r> rꜣ-pr pn r kꜣ<t> [(17)]*ḥr ḥm n nsw-bỉt ḫpr-kꜣ-rꜥ mry ḫnt-ỉmntỉw nb ꜣbḏw ḏ-ꜥnḫ mỉ rꜥ ḏt r nḥḥ*

I have acted as overseer of sculptors in Amenemhat-Itjtawi, given life forever.
I have, moreover, come to this temple for work [(17)]*under the Majesty of the King of Upper and Lower Egypt Kheperkare, beloved of Khentamentiu lord of Abydos, given life like Re forever and eternally.*

D. The chief chisel-bearer (ḥrỉ ṯꜣy mḏꜣt) Hatiay (a.k.a. Userhat; ca. 1300 BC)
(Leiden V.1; Text: Boeser 1913, 1-2, pl. 1; KRI VII 26-29; Translations: Kruchten 1992; Frood 2007, 123-129, also 117-123 for lintels and door-jambs = KRI I 357.5-362.10; Studies: Kruchten 1992; Willems 1998)

Preceded by a hymn to Osiris and Thot, the autobiography focuses on the distinction that accrued to Hatiay by the king. Playing with a general trope of the genre and a recurrent (early post-)Amarnian topos, Hatiay's being raised above the courtiers is presented as remarkable in view of the speaker's humble origins. The distinction con-

sists notably in Hatiay's "initiation" (*bs*) to the House of Gold (Kruchten 1992) to create statues for the gods (possibly in the context of the post-Amarnian restauration: Willems 1998). This initiation to restricted knowledge is also alluded to on the lintel in the epithet "who had access to House of Gold" (ʿ*ḳ n ḥwt-nbw*, Leiden K.9, 12 = K*RI* I 360.1). Inserted into the autobiography, a lengthy list of gods associated with possibly complex theological contents (Willems 1998) is another occasion for Hatiay to display knowledge, arguably similarly restricted in nature. Unlike Irtysen's, Hatiay's inscription is a genuine autobiography, conforming to the format of the genre of his time, and focusing on the speaker's distinguished relation to the king. The inscription mentions restricted knowledge but, unlike Irtysen's, is not wholly about it, nor does it stage it in any reflexive manner:

… (address)
ỉnk pw ḥwrw n hзy=f ktt n dmỉ=f
⁽⁶⁾*rḫ.n wỉ nb tзwỉ ỉp.kw wr(t) ḥr ỉb=f mз=ỉ nsw m ḳmз=f n rʿ m ḏsr ʿḥ=f*
sʿз.n=f (w)ỉ r smrw šbn=ỉ ⁽⁷⁾*wrw ʿḥ ḥr.n nb=ỉ ḥr ṯsw=ỉ mkḫз=f wrw r=ỉ …*
dhn.n=f wỉ r ḫrp kзt ỉst wỉ ⁽⁹⁾*m nmḥ gm.n=f wỉ ỉp.kw ḥr ỉb=f bs.kw r ḥwt-nbw r*
ms(t) sšmw ʿḫmw ⁽¹⁰⁾*nw nṯrw nbw n(n) ỉmnw ỉm=sn r=ỉ*
… (address)

The fact is that I was a poor one of his family, a little one of his town.
⁽⁶⁾*The Lord of the Two Lands recognized me with the effect that I counted greatly on his heart so that I used to see the king in his form of Re in the secluded part of his palace.*
He made me greater than the courtiers so that I mingled ⁽⁷⁾*with the great ones of the palace; my lord was content with my utterances so that he neglected the ones greater than me …*
He appointed me to conduct works even as I ⁽⁹⁾*was only a private citizen, because he had found me counting on his heart; I was initiated to the House of Gold to fashion (lit. give birth to) seshemu and the akhemu statues* ⁽¹⁰⁾*of all the gods, none among them remaining hidden to me.*

ỉnk pw ḥrỉ-sštз mзз rʿ m ḫprw=f tmw m mswt … (list of gods)
The fact is that I am one introduced to the hidden knowledge, one who sees Re in his manifestations and Atum in his births … (list of gods)

ỉnk pw ḏd ḥtp=s⁽¹⁷⁾*n m ḫmw=sn n nḥḥ* … (continues)
The fact is that I the one who makes them re⁽¹⁷⁾*st in their sanctuaries of eternity* … (continues)

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The Nubian Mudbrick Vault

A Pharaonic building technique in Nubian village dwellings of the early 20th Century

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Abstract

The paper presented here focuses on the sophisticated building technique of the so-called Nubian mudbrick vault through an investigation of two abandoned Nubian villages in Upper Egypt dated to the turn of the last century. The vaults, built without wooden support, are known since pharaonic times and are especially valuable in sparsely wooded areas such as the Nile Valley. The research carried out by the Cairo Branch of the Austrian Archaeological Institute examined building details of this technique, its origin and the circumstances of the passing down of the knowledge of the technique until the modern era and its occurrence in particular in Nubian settlements south of Aswan.

Keywords: Nubia, Adobe Architecture, Vault construction, Social Anthropology.

Introduction

Two abandoned Nubian villages, lying south of Aswan and located at the east bank of the Nile in the area between the High Dam (1960-1970) and the old British Dam
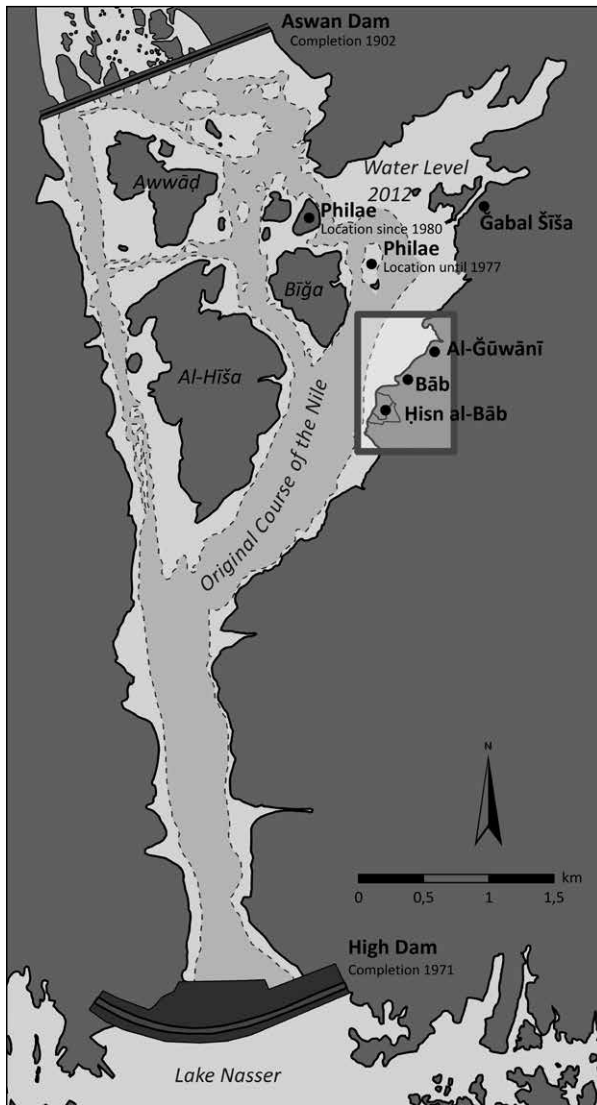
in: Miniaci, G., Moreno García, J.C., Quirke, S. and A. Stauder (eds.) 2018: *The Arts of Making in Ancient Egypt*, Sidestone Press (Leiden), pp. 273-284.

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Figure 1: Location of the abandoned villages *Bāb* and *Al-Ǧūwānī* (C. Kurtze © Austrian Archaeological Institute).

(1898-1902) were investigated by the Austrian Archaeological Institute/Cairo Branch.[1] This was carried out as part of a historical-anthropological case study, using an interdisciplinary research strategy drawing on a combination of methods and techniques from architectural studies, archaeology and cultural and social anthropology (fig. 1). The traditional adobe structures of the villages, named *Bāb* and *Al-Ǧūwānī* are still in surprisingly good condition and are mostly preserved up to the roof construction. An investigation of early, photographic and cartographic material provided evidence these

Figure 2: Abandoned Nubian village of Bāb at the East bank of the Nile (L. Fliesser © Austrian Archaeological Institute).

houses were not built before 1909 when the rising water from the first heightening of the British Dam (Reisner 1910, Pl. IX) necessitated relocation of the settlement, and were abandoned in the 1930s prior to the flooding caused by the second heightening of the British Dam in the years 1929-1934. The official cadastral maps of 1932 give a very detailed analysis of the two villages before the second heightening, indicating that the dwellings were expected to be lost due to the increased water level. Interviews with resettled locals from these villages confirm that they were indeed abandoned after the second heightening of the British Dam, even though parts of both villages were undamaged and intact. As soon as the old roads along the Nile river bank were flooded, the remaining dwellings were cut off and were accessible only over the high plateau of the nearby desert or by boat (fig. 2). Due to the difficult access, no large-scale scavenging or displacement of deposits for reuse or similar occurred after the last inhabitants left the settlements, ahead of the rising water.

Roofing with Mudbrick Vaults in the Nubian Villages of *Bāb* and *Al-Ğūwānī*

The following data was compiled through a structural analysis of the settlements and the basic building documentation of selected representative housing units. The social anthropological part of the project gathered additional information about the building process through a series of structured interviews with the resettled families of the villages and their descendants.

The network of paths within the villages consists of main routes parallel to the Nile, with smaller ones branching off as access routes to the housing units, which are in groups of 4-6 units. A distinctive feature of the preserved buildings is the different

Figure 3: Village of Bāb. Flat and vaulted rooms (L.Fliesser © Austrian Archaeological Institute).

roofing techniques, using both flat and vaulted roofs (fig. 3). In over a quarter of all preserved housing units both roofing techniques were used. The mapping of all roofing shows that in *Bāb* only 16 of 44 covered rooms have vaults (36%), 28 are flat roofed (64 %). In *Al-Ǧūwānī* from 32 covered rooms 10 are (31.25 %) vaulted and 22 (68.75%) flat roofed. Therefore in both villages a similar ratio of roofing techniques appears, in which the flat roof is the more frequent choice. These facts are likely to be explained by the difficulties in sourcing the building material of clay needed for the vaults, which was no longer easily within reach after the flooding. After the first flooding, numerous palm trunks from the dead date groves were available, and were used generally as roof beams. The roof was then covered with a layer of straw or palm leaf mats, followed by a layer of unprocessed mud for thermal insulation. Besides the easy availability of building material, other circumstances such as costs, time requirement and the necessary knowledge of building a mudbrick vault might have determined the choice of roofing.

In the village of *Bāb* 12 mudbrick vaults in 16 vaulted rooms are still preserved, in *Al-Ǧūwānī* just one of 10, thus overall 13 mudbrick vaults were examined in detail. The span width of the mudbrick vaults range from 2.24 m to 3.08 m, with a peak in frequency between a room width of 2.70 m and 2.90 m.

The technical possibilities of a maximum span were far from exhausted in *Bāb* and *Al-Ǧūwānī*, as it could be up to 8.60 m in pharaonic times (Arnold 2000, 92).[2] However, the pharaonic mudbrick vaults of these dimensions usually needed

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2   The largest documented spans are 7.70 m in the funerary temple of Amenophis Son of Hapu and 8.60 m in the stables of Medinet Habu (18th and 20th Dynasties respectively).

Figure 4: Inclined ring layers of a vault at the village of Bāb (L. Fliesser © Austrian Archaeological Institute).

Figure 5: Vaulted rooms in the village of Bāb with high narrow sides (L. Fliesser © Austrian Archaeological Institute).

superimposed multiple arches, which increased the stability of the vault and the spanned room width.[3]

The construction system of such a mudbrick vault was developed to avoid the necessity of a wooden centring, to ease the building process in sparsely wooded countries like Egypt and Nubia. It is therefore a self-supporting construction body, which can be built without any wooden supporting structure. The vault is a composition of ring layers, with an inclination of 65-70° (fig. 4). Before the construction of the vault, the wall of one narrow side has to be built up to the rise, such that the vault body leans against it during the building process. As a result, wooden centring becomes obsolete (fig. 5). Moreover, the load on the masonry abutment can be decreased by this construction technique. The vault always inclines towards the back wall facing the entrance, which is thus not weakened by the entrance opening and is built from inside the room, in contrast to vaults constructed with centring which are always built from the outside. Openings such as windows and doors are closed during the building process to relieve stress on the walls.

To span a room width of 2.80 m, around 16 adobe bricks were used for one single ring layer of the vault. A room length of 4.50 m required 93 ring layers, which corresponds to 1488 mudbricks. The mudbricks used for the vaults differ from the wall bricks in their measurements. The wall bricks (ca. 20 × 10 × 5 cm) are of more compact proportions, to bring more stability to the walls. For this purpose, sand was used as additive, lending the building material more compressive strength. The mudbricks for the vaults are larger (23-26 × 13-14 × 4 cm), and possess a larger surface for the loam mortar joint preventing the bricks from slipping in inclined position. Moreover, all vault bricks show lines made with a fingertip in the still moist surface, increasing the adhesion of the bricks on the loam mortar. Within the vault bricks, organic additives such as chopped straw and threshing residues are found, preventing shrinkage deformation, and act as reinforcements to increase tensile strength. Within the bricks, frequent inclusions of charcoal, bones and ceramic fragments can be observed, indicating a reuse of building material, without the elaborate processing of the clay (cleaning and desalination).

The mudbricks, shaped using a form, were dried around one week before they could be used. During the drying process, the mudbrick loses around 30 % of its volume. To balance the dry shrinkage and to ensure a load-carrying connection, small wedge stones or ceramic sherds were placed between each mudbrick of the ring layer (*cf.* fig. 4). These were positioned with part of them visible on the outside of the barrel vault, to achieve a longer durability for the covering clay plaster.

Between the mudbricks of the ring layers forming the barrel vault, wire or metal loops were almost always inserted, which are placed at regulars over the whole interior of the vault and are used as attachment for hanged up hanging supplies. In some cases, instead of metal loops, perforated fired bricks were used in the same way (fig. 6). This place of storage is safe from rodents, and was cooled by a constant flow of air coming through the air slots placed in the narrow sides of the room within the vault

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3   Clearly visible at the storerooms of the Ramesseum in the Theban necropolis dating to the 19th Dynasty with a span of 3.70 m. Arnold 2000, 92.

Figure 6: Interior of vaulted room in the village of Bāb with metal loops and fired bricks for hanging up supplies (L. Fliesser © Austrian Archaeological Institute).

Figure 7: Vaulted rooms in the village of Bāb with decorated high narrow sides covering the vault (L. Fliesser © Austrian Archaeological Institute).

Figure 8: Detail of the blind niche façade ornament of a vaulted room in the village of Bāb (L. Fliesser © Austrian Archaeological Institute).

(El-Embaby 1979, 28-29). Often cords were suspended on the metal loops, to create a harness in which pottery, porcelain or enamel bowls were placed.

The most common location for building decoration in Nubian house architecture is on the narrow front and back walls of the vaulted rooms. The height of these facades corresponds with the rise of the vaults, so that the barrel vault is covered and not visible from the front (fig. 7). The ornamented part is always to be found in the upper third of the façade, which forms the shield wall of the vault lying behind it. The central ornaments are oblong ventilations slits, which appear mostly in pairs, to ensure the ventilation of the vaulted room. These slits are flanked by blind niches with triangular, square and rhombic patterns as the central motifs, made of mudbricks positioned vertically, transversely and at an incline (fig. 8). The described vault construction combined with this type of decoration seems to be a specifically Nubian feature in the architecture of village dwellings.

The vault builders of *Bāb* and *Al-Ǧūwānī*

The embedded survey carried out by the social anthropologist Nadia El-Shohoumi, based on interviews with the local communities of resettled Nubian families, indicates that the knowledge of the method of building a vault without centring was kept by specialists from the nearby located village of *Dābūd* on the west bank of the Nile, from which it seems likely the vaults in the villages of *Bāb* and *Al-Ǧūwānī* were made by builders from *Dābūd*. The village of *Dābūd* lied at a distance of 15 km south from *Bāb* and *Al-Ǧūwānī*, but was completely flooded after the commissioning of the High Dam in the year 1971 when their residents left to move near Komombo, Aswan or Cairo. Interestingly, in recent decades, builders from *Maḥamīd*, an upper Egyptian village in

the province Edfu, took over exclusively the task of constructing vaults, and are now brought to Aswan as well as to other parts of Egypt for the building process.[4]

The origin of the so-called "Nubian" mudbrick vault

The earliest evidence for mudbrick vaults in the technique mentioned is found in grave contexts in the Old Kingdom (von Pilgrim and Müller 2011, 7 fig. 9). Early examples, used as roofing for dwellings and granaries, were documented by Walter Emery in the fortress of Kuban on the east bank south of el-Dakka, dating to the 12th dynasty (El-Hakim 1993, 37). The preserved storerooms at the Ramesseum in western Thebes (19th dynasty) show vaulted rooms with a width of 3.70 m and a height of 3.80 m (Arnold 2000, 92). Due to their greater resistance to insects such as termites, a targeted use of this type of vault construction for storage and depot buildings can be assumed (Fauerbach 2014, 85). After the 20th dynasty vaults became more common in settlement architecture and seem to have replaced wooden beams for the roofing of corridors, small rooms and basements (Spencer 1979, 130).

The vaulting technique without centring, which was therefore already known and commonly used in pharaonic times, is also frequently found in contexts of residential buildings in hellenistic-roman times (Spencer 1979, 137; von Pilgrim et. al. 2011, 140; von Pilgrim et al. 2012, 15 fig. 24, von Pilgrim and Müller 2013, 4-5; Koch and Müller 2014, 41), and later for church buildings as well as residential profane buildings (Abdel-Meguid 2002, 58). In the Islamic Period the vaults disappear almost everywhere throughout the country except for the area from Daraw to Wadi el-Arab, north and south of the first cataract, where the Kenuz Nubians were settled (Jaritz 1973, 50; El-Hakim 1993, 37; Herzog 1957, 65; von Pilgrim 2010, 197).

It is interesting to note that early itineraries, such as those of Richard Pococke (Pococke 1743, 121), John Lewis Burckhardt (Burckhardt 1819, 140) and Eduard Rüppell (Rüppell 1829, 39), contain no reference to the use of the mudbrick vault, but speak of simple dwellings. This led to the assumption that the knowledge of vaulting technology was reintroduced later to the area. Horst Jaritz takes the view that builders from Daraw, 20 km north of Aswan, kept the knowledge of the method of building the vault over time, and revived the tradition only after the erection of the British Dam, when the use of such vaults was considered appropriate again (Jaritz 1973, 50). Charles Callender follows Jaritz and, moreover, points out that compensation money would have allowed the Kenuz Nubians the opportunity to build spacious new houses with the more elaborate vault constructions (Callender and El Guindi 2010, 115). The information gained in the course of the research project presented here, however, tends to contradict this theory. In the study area immediately south of the British Dam, the local Kenuz Nubians received either no, or only very little compensation money. In addition, photographs of the Kenuz area around 1900, before the British Dam was built, show houses roofed by vaults with inclined ring layers.[5]

Hassan Fathy and Georg Gerster are convinced that the old vaulting technique was revived only after the second heightening of the British Dam in the year 1933 (Fathy

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4   Information from various interviews by Nadia El-Shohoumi.
5   D.S. George, Philae from the East, N.104, 24.5.1900, University of Tennesee, Inv. 09-09-96.

1966, 4; Gerster 1964, 211). However, the geologist John Ball had already described the vaulted houses of Nubian villages in detail in 1907 (Ball 1907, 38). George Reisner carried out the official Archaeological Survey in Nubia before the first heightening of the British Dam in 1907-1908, and noted that these vaults were being replaced by flat roofs since the Aswan reservoir covered the salt-free clay supplies with water. Besides this, the trunks of the dead palm trunks from the flooded areas were numerous and easily accessible, and encouraged the frequent use of flat roofs (Reisner 1910, 305).

These partly conflicting statements demonstrate the unclear origin of the knowledge of how to build a vault without centring with inclined ring layers, and of who preserved and passed it down over the centuries. It is furthermore uncertain if the building of the early dam provoked its rediscovery and resulted in its increasing use, or the opposite, so that the flat roof now replaced the vault.

The only certainty is the survival of the knowledge about the construction of mud-brick vaults from pharaonic times down to the present day in the Nile Valley, a technique which today has regained considerable attention as a traditional, efficient and, above all, sustainable method of construction (Fathy 1973, 6-9).[6]

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6   A Non-Profit-Organisation called "La Voûte Nubienne" successfully promoted the Nubian vault in Burkina Faso, Mali, Senegal and Zambia, see www.lavoutenubienne.org.

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THE ARTS OF MAKING IN ANCIENT EGYPT

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