

Quantifying Regalia: A Contextual Study into the Variations and Significance of Egyptian Royal Costume Using Relational Databases and Advanced Statistical Analyses

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During my time at the University of Memphis, I had the great privilege to study with Dr. Murnane. Those seminars, one on Amarna history and the other focused on Egyptian imperialism, were some of the most stimulating I have experienced. Dr. Murnane's sharp mind, depth of knowledge, and probing questions made each meeting a beautiful challenge. His unfettered generosity with his time, always happy to provide guidance, references, and suggestions made a huge impression. So too did his absolute passion for Egypt and his drive to record her endangered monuments as thoroughly as possible. It is with this in mind that I dedicate this article, an initial presentation of my dissertation project, to the memory of Dr. Murnane.

Introduction

The hundreds of scenes at the temple of Medinet Habu usually feature the king in a variety of contexts (ritual, ceremonial, battle, etc.) and allocate to him regalia involving an array of attributes. For example, in many scenes he wears a *hprš*-crown. In others, he wears a *hdt*-crown, a *šnjt*-kilt and a royal beard (the *šnjt* and the beard seemingly never appear with the *hprš*). Do these and other attributes form significant clusters of spatial distribution and association that would enhance our understanding of the various levels of meaning potentially embedded in the scenes? But how would we study such patterns of clustering and association given the massive number of attributes and the variability of the contexts/scenes involved?

Thanks to generous awards from the American Research Centre in Egypt, the Samuel H. Kress Foundation and the Institute of Fine Arts of New York University, I hope to be in a position to help answer such questions and much more. With their assistance, I was able to spend January to May 2006 in Egypt gathering essential data for my Ph.D. dissertation, *The Regalia of Ramses III: A Contextual Study into the Variations and Significance of Royal Costume*. This dissertation is under the astute direction of Dr. David O'Connor and aims to provide a comprehensive understanding of the contextual importance of select royal regalia in the New Kingdom through detailed examination of depictions of the pharaoh in a variety of settings.¹ The mortuary temple of the king at Medinet Habu, with its abundance of well-preserved relief, is the focus of this project.

The primary goals of this dissertation project are: 1) to create a total digital color photographic record of Medinet Habu, of which approximately 90% is completed; 2) to develop a relational database to track all Medinet Habu scene attributes (and those of comparative data sets); 3) through advanced statistical analyses, to discover pairs and/or triads of correlated attributes of royal regalia; and 4) to provide a methodology which would be valuable for similar studies by others in the future.

¹ For his sage advice and focused direction, I am also most grateful to Dr. Ogden Goelet. In addition, this project has benefited greatly from discussions with Dr. Ann Roth and I would like to thank her for her guidance.

Using the visual data assembled during my field season, individual elements of royal dress, as well as attributes and signifiers appearing in association with the king (such as chariot equipment or insignia), are being examined in conjunction with accompanying texts and epithets. This will facilitate an exploration into the ways in which those elements interact with each other and with the body of the king, as well as how they function together as a whole to provide him with a visual projection of royal power, divine strength, and apotropaic protection. The communicative aspect of royal regalia and the ways in which items of pharaonic costume impacted audiences will also be explored.

For this particular project, rather than attempting to examine all of the depictions of Ramses III and the contexts in which he appears at Medinet Habu (a daunting task to say the least), a reduction of focus depth to a more manageable amount of material was clearly necessary. While an entire dissertation could certainly be written on an examination of the variations in royal regalia that are seen within a single genre of scenes, a more productive and interesting angle is a comparative study of the regalia that appears in the battle cycles and the festival reliefs.²

There are several reasons to approach the topic in this way. Both types of scenes display the king engaged in terrestrial interactions—quite unlike the cultic and mortuary scenes where he is focused solely on the divine realm. Both groups portray the pharaoh as ‘facing off’ against chaotic forces, albeit forces of differing types. Both are also venues where pharaoh had a human audience, although those audiences were disparate in nature. Additionally, the reliefs themselves would have had a living, if limited, audience. This audience points to the importance of the communicative aspect of royal regalia and the ways in which items of pharaonic costume interacted with and conveyed information to those who saw his image, whether in the flesh or etched in stone. The physical locations of the festival and war reliefs also speak of an implied connection, especially in the courtyards of Medinet Habu where they are directly juxtaposed.

By comparing the two ‘public’ venues of warfare and festival, selected patterns of regalia related to the particular powers to be emphasized and/or different levels and different types (i.e. physical vs. cultic) of vulnerability the pharaoh experienced may become discernible. Within each broad group of war and festival and in each individual cycle (e.g. Sokar festival, First Libyan war, etc.), I will be searching for regalia patterns of geographical, temporal and seasonal elements. Patterns may emerge of certain elements being used in scenes with specific enemies at particular times of the year, or discernible shifts in selected elements may be visible over a span of time (e.g. First vs. Second Libyan wars). Differences in costume related to the type of audience, how they would have seen the king, and how they were *intended* to view the king could be most telling.

These data should be most revealing in terms of the selection of particular attributes, or combinations thereof, for specific contexts and duties. Individual components will be carefully examined in an attempt to determine their distinct natures and the powers they suggest. Ensembles will be investigated to ascertain how individual accoutrements symbolically integrate to provide support and divine strength to the king while outwardly projecting different aspects of

² By ‘battle cycle’ I refer to the entire sequence that begins with the commission from the gods to carry out a military action and finishes with the presentation of spoils to the gods, following (most recently) Susanna Heinz, *Die Feldzugsdarstellungen des Neuen Reiches* (Vienna: Verlag der Osterreichischen Akademie der Wissenschaften, 2001).

those powers. The role of regalia as an apotropaic unit functioning to shield him from any potential danger, terrestrial or otherwise, will be explored. Now that field-based research is completed, detailed analyses of the symbolic, historical, and ideological associations of select elements of royal regalia is currently under way.

‘Regalia’ applies to more than headgear, and this project will also examine the contextual interactions of dress, jewelry, apron, sandals, scepters, and many other elements. Previous research into pharaonic costume has tended to focus on individual aspects or has approached the topic from a more technical standpoint.³ Useful information has emerged as a peripheral result of research on specific rulers in specialized contexts, but is by its very nature limited in scope.⁴ While a number of studies have been written about crowns and other items of pharaonic dress, they are generally examined in isolation.⁵

To date, no analysis has attempted to investigate comprehensively all elements of royal costume to determine how they function together as a whole. There is good reason for this. Put simply, tracking thousands of variables across hundreds of scenes, and more importantly being able to actually utilize that data, would be quite impossible without current technology. Even the core task of acquiring these images in the field would have been time and cost-prohibitive before the recent advent of affordable, high-resolution digital photography. The questions of *why* particular attributes were selected for certain contexts and *what* their specific functions have understandably not been quantifiably addressed.

During the research season, my primary goal was to collect high-quality color digital photographic documentation of several royal monuments from the New Kingdom that have either not been entirely published or have been published only in grayscale.⁶ My photographic documentation supplements the irreplaceable work of the University of Chicago’s Oriental Institute Epigraphic Survey at many of these sites.⁷ For my project, it was not only necessary to fully photograph the painted scenes of my core monument, Medinet Habu, but also to document in color other locations of great comparative value. Many elements of royal costume were rendered exclusively in paint and, thus, are not generally discernible in epigraphic drawings,

³ Such as G. Vogelsang-Eastwood, *Pharaonic Egyptian Clothing* (Leiden - New York – Köln: E.J. Brill, 1993), Studies in Ancient History, p. 2.

⁴ For one example, see W. R. Johnson, “Monuments and Monumental Art under Amenhotep III: Evolution and Meaning,” *Amenhotep III: Perspectives on his Reign*, eds. D. O’Connor and E. Cline (Ann Arbor: University of Michigan Press, 1998), p. 84, where he discusses the elaboration of costume that accompanies the deification of the living king.

⁵ For a few instances, E. L. Ertman, “More Comments on New Kingdom Crown Streamers and the Gold Temple-band They Held in Place,” *JSSEA* 23 (1993), pp. 51-55; S. Collier, *The Crowns of the Pharaohs: their Development and Significance in Ancient Egyptian Kingship* (Ph.D. Dissertation: University of California Los Angeles, 1996). K. Goebis, “Some Cosmic Aspects of the Royal Crowns,” *Proceedings of the 7th International Congress of Egyptologists*, ed. C. Eyre, OLA 82 (Leuven: Peeters, 1998), pp. 447-60. One very useful study that examines the related attributes of a specific royal costume is D.C. Patch, “A ‘Lower Egyptian’ Costume: Its Origin, Development, and Meaning,” *JARCE* 32 (1995), pp. 93-116.

⁶ For his generosity and support in Luxor, I would like to sincerely thank Dr. W. Raymond Johnson, director of Chicago House. In Abydos, I was warmly welcomed and greatly aided by Dr. Matthew D. Adams. In addition, I must mention the extraordinary support given by my Supreme Council of Antiquities inspector, Salah el Masekh Ahmed Mohamed. He was a great asset to my project and I am extremely grateful to the Council for their choice.

⁷ Especially at Medinet Habu. Epigraphic Survey, *Medinet Habu*, 8 vols. (Chicago: University of Chicago Press, 1930-1970).

which do not always record painted details and rarely indicate color (figs. 1 and 2). The color of specific elements of regalia is clearly significant for this project and, therefore, even full black and white documentation was insufficient for my research.

Due to the well-preserved state of his monuments and their rich variety of scenes, this project focuses on depictions of Ramses III (c. 1184-1153 B.C.E.). Often called the last great pharaoh of the New Kingdom, the costumes of Ramses III can be viewed as representative amalgams of the period. It is well known that he had strong affinities for his eminent namesake, Ramses II, but he was also heavily influenced by Amenhotep III, as evidenced by the many statues of that king found re-used at Medinet Habu.⁸

Much of the regalia utilized by Ramses III was also worn by his powerful predecessors of Dynasty Nineteen, while other attributes were more commonly seen in the later Eighteenth Dynasty. Falcon clothing, which usually identifies the king with Horus or Montu, depending on the context, became particularly prominent during the Eighteenth Dynasty.⁹ Amenhotep III, for instance, made extensive use of falcon-garb at Luxor temple;¹⁰ one example being the feathered back apron well known from the quartzite image of the king found in the Luxor Cachette.¹¹ Ramses III also wears such an attribute, in the Sokar festival at Medinet Habu (fig. 3).¹²

Falcon shirts appear on many images of the king (figs. 4 and 5). Often seen on Dynasty Eighteen kings, especially at Deir el-Bahri where there are a number of well-preserved relief examples, this ‘falcon-jacket’ appears on blocks belonging to Amenhotep III that were reused at Medinet Habu.¹³ These shirts certainly continued to be worn by rulers of the Nineteenth Dynasty. Although they may not seem to be as common on Seti I or Ramses II in their mortuary temples in Thebes, this is likely due to the level of preservation.¹⁴ With very few exceptions, these falcon shirts are executed entirely in paint; with any image stripped of paint where pharaoh appears to be bare-chested, the potential exists that he was originally depicted wearing one of these attributes.

In the tombs of his sons, Ramses III is also frequently depicted in elaborate falcon-garb (fig. 6),¹⁵ often combined with another intriguing garment—a shirt apparently made of a material known primarily from the late Eighteenth Dynasty, and most famously from Akhetaten.¹⁶ This textile, known as ‘royal red fabric,’ was particularly prominent during the Amarna period and

⁸ As Johnson (*Amenhotep III: Perspectives on his Reign*, p. 73) points out, none of the statuary found at Medinet Habu appears to belong to the time of Ramses III, but rather seems to have originally come from monuments of Amenhotep III.

⁹ For some discussion of falcon costume, see T. Podgórski, “Royal Plume Dress of XVIII Dynasty,” *MDAIK* 40 (1984), pp. 103-121. Note that he discusses a specific ceremonial garment, not the falcon-jacket.

⁹ Podgórski, “The Horus dress as represented in the temple of Amenhotep III in Luxor,” *Studies in Ancient Art and Civilization* 4 (Kraków, 1992), pp. 27-31.

¹¹ J838—now on display at Luxor Museum. This type of apron also appears on Thutmose IV, in the relief scenes on his chariot (Cairo CG 46097).

¹² Epigraphic Survey, *Medinet Habu*, pl. 223.

¹³ C. Van Siclen, “Three blocks of Amenhotep III from Medinet Habu,” *VA* 2 (1986), pp. 189-206. The scenes on the blocks show Amenhotep kneeling and receiving a series of crowns from the gods.

¹⁴ There is at least one certain example of a falcon shirt at the Ramesseum, in the *ished*-tree scene of the hypostyle hall. Several other images from the same temple preserve hints that a falcon shirt was originally depicted.

¹⁵ Such as Amun-her-hepershef (QV 55) and Kaemwaset (QV 44) where he interacts with (among others) Isis, Hathor and Geb.

¹⁶ Prominently appearing in the painting of the princesses from the King’s House now in the Ashmolean Museum, Oxford (1983.I-41).

has been suggested to have strong solar connections.¹⁷ It appears used as an element of regalia, specifically as an under-kilt, in a royal tomb from the end of Dynasty Eighteen before seeming to vanish from the pictorial record.¹⁸ However, besides the numerous occurrences in QV 44 and 55, I have cataloged several additional instances where the fabric ‘reappears’ through the photographic survey of Medinet Habu performed this season (fig. 7).¹⁹

For such reasons, Ramses III was an ideal subject for this topic, since he is often portrayed wearing complex costumes displaying a combination of elements which in many cases had their origins and/or symbolic significance grounded in the heights of New Kingdom power.

More so than his predecessors, Ramses III faced civil unrest and enemy attacks on Egypt itself. This tangible threat may have exerted a discernable influence on the appearance patterns of certain regalia elements, particularly those that are strongly apotropaic or embody the ‘rage’ of the divine king. Hypothetically speaking, if an attribute appeared rarely under Seti I (falcon shirts worn in battle scenes, for example) but was very common on Ramses III, this might indicate that the more vulnerable the office of pharaoh became, the more the symbols of power were emphasized.²⁰ A parallel could be made to the extreme elaboration of the regalia of Amenhotep III after his jubilee—all designed to visually solidify the identity of the king with the solar deity.²¹ A concentration of regalia elements connected with the physical and military prowess of the king under Ramses III might have served a similar purpose in exemplifying the ideal pharaoh for a dangerous and chaotic time.

Methodology

The technical goal of this relational database will be to identify attributes with the strongest correlations. Correlation (values range between -1.0 for a perfect negative correlation to 1.0 for a perfect positive correlation) is defined as a mutual relationship or connection between two or more variables. Imagine finding correlations between weather-related variables. Although the appearance of rain and the appearance of umbrellas are connected, rain does not cause umbrellas. Neither is the reverse true, which is why correlation studies are not about cause and effect, but rather are intended to discover significant patterns and tendencies. Negative correlation means when you see one variable, you usually do not see the other—such as how rain and sunglasses rarely appear together. Such a relationship can be just as telling as a positive correlation. Basic correlation results from the current data set (figs. 9 and 10) shows, for

¹⁷ See L. P. Brock, ‘The Amarna ‘Royal Red Fabric’, *JSSEA* 25 (1995), pp. 7-14. She also links the material (possibly leather) with the military, foreigners (specifically Syrians), and strongly suggests a connection with the diamond-patterned *heb-sed* robe. Personally, I find the military aspect more viable—note, for example, that the Nubian archers on the Dynasty Eleven wooden model of Mesehti from Asyut (Cairo JE 30969) wear red loincloths embellished with blue diamonds.

¹⁸ Brock, *JSSEA* 25 (1995), p. 7.

¹⁹ This fabric also appears (among numerous other instances) as a shirt on Ramses II, layered underneath a falcon shirt, on the facade of the temple of Seti I at Abydos. Seti I wears the red fabric shirt and falcon shirts, albeit independently, inside the temple. There is but a single occurrence of the pairing preserved at the temple of Ramses II at Abydos (Figure 8). Additionally, I. Rosellini depicts the pairing in his record of the reliefs from the temple of Ramses II at Abu Simbel and Baltzar Cronstrand likewise shows traces of the two shirts together at Karnak, in the Great Hypostyle Hall; my thanks to Dr. Peter Brand for bringing these instances to my attention. See I. Rosellini, *I Monumenti dell’Egitto e Della Nubia*, pl. 79; B. George and B. Peterson, *Die Karnak-Zeichnungen von Baltzar Cronstrand*, Medelhavsmuseet Memoir 3 (Stockholm: Medelhavsmuseet, 1979), p. 21.

²⁰ However, it is highly likely that there were many more instances of these attributes and it is problematic to make any historiographical arguments based on the whims of preservation.

²¹ Johnson in *Amenhotep III: Perspectives on his Reign*, p. 88.

example, that the headgear elements horns, feathers, and multiple *uraei* have a high positive correlation with one type of crown, the *nms*, while fans are shown to rarely appear in scenes where the king interacts with divine beings.

Instead of randomly picking scenes or blindly choosing an element of regalia on which to focus, by utilizing a combination of FileMaker Pro, Microsoft Excel, and SPSS, this suite of technological facilitators allows for an open, unfiltered approach. Through its powerful analytical capabilities, this custom tool will *instantly* identify statistically significant attributes in need of further study from the pool of thousands of images and attributes.

During the season I was able to amass more than 15,000 high-quality color digital images.²² This documentation includes a full photographic survey of several monuments from the reign of Ramses III, including his tomb (KV 11) and those of his sons (QV 42, 43, 44, 52, and 55). Only portions of Ramses III's temple to Amun at Karnak were photographed since it has little preserved paint and is fully published in epigraphic form and grayscale photographs.²³ I photographed the mortuary temple of the king at Medinet Habu in its entirety, except for a few inaccessible areas including the interior of the Eastern High Gate.

In addition to the monuments of Ramses III, it was very important for me to photograph other royal monuments where color is preserved. This comparative data will be absolutely essential in my study of how elements of regalia change (or remain the same) in function and form over a span of time. Of particular importance in this regard are the Dynasty Nineteen temples of Seti I and Ramses II at Abydos, both of which retain a great deal of paint and preserve scene types comparable to those at Medinet Habu. The interior of the temple of Seti I was photographed in its entirety (excepting the column reliefs in the hypostyle halls), as was the facade and the exterior pillars. Portions of the interior walls surrounding the two courtyards were also documented, although their ruinous state, dearth of paint and existence in epigraphic publication made them less essential²⁴. The more destroyed but still vibrantly painted temple of Ramses II was completely documented, including the exterior walls.

Through special permission,²⁵ I was also able to photograph relevant comparative sections of several other royal tombs in the Valley of the Kings. These were the tombs of Merenptah (KV 8), Seti II (KV 15), Siptah (KV 47) and Tausret and Sethnakht (KV 14). Also greatly appreciated was the permission I received directly from Dr. Zahi Hawass during his March 10 visit to the Valley. He generously allowed me to photograph in the tomb of Ramses VI (KV 9), since it contains several well-preserved images of unusual royal costumes that will be important comparanda.

²¹ Photographs were captured with a Canon EOS Digital Rebel XT (8-megapixel), a telephoto lens where appropriate, and a polarized filter for exterior images. Where possible, a tripod was utilized (my sincere thanks to Sandro Vannini for allowing me to borrow one of his tripods after mine was damaged by a tourist). Much of the painted relief at Medinet Habu was shot from atop a ladder generously loaned by Dr. W. Raymond Johnson of Chicago House.

²³ Epigraphic Survey, *Reliefs and Inscriptions at Karnak I: Ramses III's Temple Within the Great Enclosure of Amon*, part 1 (Chicago: University of Chicago Press, 1936), and part 2 (Chicago: University of Chicago Press, 1936).

²⁴ A. M. Calverley and M. F. Broome, *The Temple of King Sethos I at Abydos*, 4 vols (London and Chicago: Egypt Exploration Society, 1933-1958).

²⁵ My sincerest thanks go to Ali Ibrahim Alasfar, the General Director of Qurna, and Dr. Mohamed Adb el Aziz, Chief Inspector of North Qurna, for allowing this access.

Now that the research season is completed, the images are being used in conjunction with the invaluable work of the Epigraphic Survey to form an extensive relational database. I am building the database with the skilled help of D. Craig Calvert, using a combination of FileMaker Pro, Microsoft Excel, and SPSS. This suite of tools is designed to track an unlimited range of points in each relief image, including not only all costume elements but also body position, interactions, wall placement, epithets, and key textual markers, to name but a few.

The custom database is an absolutely essential tool for this project, and its high level of complexity has required more than a year of development. The first stage of designing and populating the database for this project was an exhaustive study of the approximately 6,000 high-resolution digital images of Medinet Habu acquired during my season. During this stage, I compiled a comprehensive list of scene attributes, more than 1,600 in number. Once the list was completed, each scene was marked with all of the attributes it contained. Now that the current group of data entry is completed, analysis has begun, looking for any and all correlated connections within and/or between any of the scenes across the complete range of attributes ('variables').

There are two main layouts now in use. One of these is designed to hold all the variables in the scene, and I have termed it my 'Main Layout.' In order to handle such an expanse of data, this is designed as a tabbed layout with each tab representing a different focus. Along the top of the layout is the static data that stays visible regardless of which tab is displayed. This includes the record number, the plate number and the scene title. The top tab, 'Pharaoh' (fig. 11),²⁶ contains fields to track all items in direct association with the king, such as all his costume attributes, his body position, the king's actions and items held in his hands. I have also included a key plan with the appropriate plate highlighted for ease of visual location identification.

For the next tab, 'Text,' (fig. 12), I have separated some of the text into sections using structural divisions, such as marginal texts and the name block.²⁷ However, spoken text directed at the king is tracked based on who is doing the speaking; bound enemies calling out praise clearly should be recorded separately from deities who address the king. The Text tab is for general text, names and epithets, and the speech of the king, while actual interaction between the king and deities or humans is tracked in the 'Context' tab.

'Context,' as always, is very important (fig. 13). It contains fields related to practicalities such as location, scene orientation, and relief type, but more of the layout deals with the king's appearance and actions. The position, type, and number of fans and sunshades held in association with pharaoh are tracked here. Also cataloged are elements that hover above the king, such as the sun discs, vultures, and falcons, taken along with their textual identifiers. In addition, I am tracking the many variations in the specific wording of the lines of protective text that appear behind the king.

One of the most potentially productive lines of questioning in terms of regalia selection is "with whom is the king interacting and what are they saying to each other?" This is tracked here on the 'Context' tab (fig. 14 shows a record with both divine and human actors). They have been separated into Divine and Human actor groups, for obvious reasons.

²⁶ The record for Epigraphic Survey, *Medinet Habu I*, pl. 19, is used in the following series of figures.

²⁷ This phrase is used here to refer to the discrete grouping of text which includes the cartouches of the king, associated epithets, titles, and sometimes, as in the case of the plate in Figure 11, additional elements.

Each actor listed in the ‘Context’ tab has a separate dedicated layout (figs. 15 and 16). The actor layouts are accessed through the ‘Context’ tab (see fig. 14) by clicking on the small grey button at the end of the ‘actor’ field, which brings up the layout for that individual actor. On these related layouts, I can keep track of the actor’s titles, actions, accoutrements, and their words to the king. In addition to the fields tracking the individual’s (or group’s) speech, all of the actor layouts contain a text field with the entire text of the scene in which they appear. This is simply to provide ease of data entry, and though duplicative, this also allows their comments to be viewed in context.

A separate layout was also necessary to deal with the royal chariot (fig. 17). The ‘Chariot’ tab allows the collection of data such as the type of horse headdress and chariot body, the names of the royal span, and whether they are rampant or not. The number and types of bow cases, quivers, and staff-cases shown attached to the chariot of pharaoh are also tracked.

The ‘Visual’ tab (fig. 18) allows for a number of details to be easily accessed; clicking the small button in the corner of each image brings up a full-sized version of that image. The ‘Preservation’ tab, which is still under development, deals with the surviving amount of paint, percentage and types of damage to the relief surface, such as intentional destruction of relief during the Coptic period and the countless grooves worn into the walls by centuries of local inhabitants rubbing sand from the stone for ritual use. In addition, this tab will record any special treatment, such as inlay or sections of relief that were originally veiled.

As one can discern, this layout is extremely detailed in the number and variations of the attributes tracked. When I first showed this database to Adam Soran, an experienced research analyst who initially assisted me with the statistical side of this project,²⁸ he was rather overwhelmed by the sheer complexity of the data. In order to perform the first level of analysis, he suggested that I pull from this layout approximately 30 pointed ‘yes/no’ questions and analyses would begin there.

Clearly, use of this new layout does not ignore all the data in the full layout just discussed. This dichotomous approach simply allows larger patterns to be perceived in a more efficient manner while the ‘Main’ layout will be used in the second research phase to permit focused analysis of greater detail.

The current version of the ‘Dichotomous’ layout (fig. 19) contains 132 questions, divided up into the same general groups as the ‘Main’ layout: things worn by the king, objects in the hand, his immediate context, textual markers, interactions, and scene location and type. Note that there are currently two basic ‘types’ of scene in this layout—all relief is considered either one or the other. ‘Battle’ refers to the full sequence of battle narrative scenes, not simply to depictions of actual battle. Scenes of hunting at Medinet Habu are also considered ‘Battle,’ due primarily to parallels in their placement, the king’s posture, and immediate context. ‘Ritual’ is obviously much broader. This heading covers festival, offering and ‘smiting’ scenes as well, although they are also tracked separately. This is the layout currently being used to calculate attribute correlations.

Organizing the thousands of photographs from the research season and database

²⁸ Since Mr. Soran’s return to his homeland of Turkey last year, this project has been taken up by another talented professional research analyst, Li Li Gerrard, who has been absolutely invaluable. My sincerest gratitude also to Justin Musterman and Andy Gage for their efforts.

construction took more than a year after my return from Egypt. As the reader can discern simply from glancing at it, entering a record in the ‘Main’ layout takes considerable time. Currently, I have 125 scenes from Medinet Habu entered in this exhaustive manner, and the remaining pertinent reliefs will soon join them. One of the great boons of this second, ‘Dichotomous,’ layout is the speed with which the ‘big’ questions about a scene can be entered. Since designing this layout in March 2007, I have entered the ‘yes/no’ data for the same 279 scenes currently recorded in the ‘Main’ layout, and have also answered these questions for an additional 232 scenes, for a current total of 511.

Most of the 511 scenes (357 of the current set) are from Medinet Habu. These appear on the exterior walls and in the first and second courtyards and, thus, could conceivably have been viewed by humans other than the pharaoh and temple staff during times of festival. Of these 357 scenes, 41 are considered ‘Battle’ scenes and 316 ‘Ritual’ scenes. Since one of the foci of this dissertation is the communicative facet of regalia, it is because of their ‘public’ aspect that these scenes represent the main study set.

Currently, the remaining 154 scenes are from Karnak. Specifically, these include the war sequences of Seti I and the reliefs from the temples of Ramses III, all recorded by the Epigraphic Survey.²⁹ These data sets are being used as comparanda; one set because of subject matter and the other due to similarity of scenes and date. I plan to continue to add further comparative data of different types. For instance, including relief from Ramses III’s tomb or those of his sons would provide well-preserved examples of some of the costumes appearing in Medinet Habu. Karnak and Habu are fundamentally different types of temples and it is problematic, though potentially interesting, to directly compare sections of them. However, by adding relief from the other royal mortuary temples such as the Seti I temple at Gurna, the Ramesseum, and Hatshepsut’s temple at Deir el-Bahri, comparisons of their iconographic programs may elucidate details that shift in usage or meaning over time.

After months of data entry, a basic paired correlation analysis was performed on all records from Medinet Habu, as well as an additional analysis on the *entire* data set, comprised of all recorded scenes from Medinet Habu and Karnak.

We serendipitously discovered that the suite of tools also provided solid error checking abilities. For example, a slip of the wrist at the end of a long day of entry, which dropped a ‘Yes’ instead of a ‘No’ in one field, was immediately caught when a correlation analysis was run. Another odd relationship that confounded us for a few days was a .76 correlation between variables that should have been total opposites—interior and exterior. We searched the data set, but there was no overlap in ‘yes’ answers. Then we realized there was an overlap in ‘no’ answers—location has *three* fundamental possibilities in data entry: all scenes are exterior, interior, OR portal. The instances where the scenes were located within a portal, and thus ‘No’ was the answer in both interior and exterior, created false connections.

Therefore, of course, one must always look at the data with a trained eye. Just because a computer insists that there is a *correlation* does not mean that there is a true connection through *causality*. As an example, the results of one search showed scenes where horns and feathers appear together atop the *nms*. There are 21 other examples of this combination, from a variety of

²⁹ Epigraphic Survey, *Reliefs and Inscriptions at Karnak IV: The Battle Reliefs of King Sety I*, (Chicago: University of Chicago Press, 1986).

contexts, in the complete data set, which suggests that the connection is worth investigating. The search results for scenes with aggressive enemies and horses appearing together, unlike the above combination, show that this has no likely *causal* relationship—it is no surprise to find horses in battle. Thus, for any perceived relationship, the custom suite of tools allows rapid retrieval of all possible images to study and immediately investigate the viability of their connection.

In short, if I want to know which scenes from the entire data set have Pharaoh wearing a *nms* and a beard while facing right, it takes no more time using this suite than it would take to use an internet search engine like Google (figs. 20 and 21).

While waiting for advanced statistical analyses to be carried out by the professional analyst, I have been working with the data set directly in FileMaker and have noticed a number of interesting attribute patterns (Table 1). For instance, of the 85 occurrences of the *nms* in the Medinet Habu set, only two appear on the exterior of the temple, and both of these are on the main portal. A sole *nms* appears in one of the battle narrative scenes; that of the king's presentation of Sea Peoples to Amun and Mut located on the east face of the second pylon. It is likewise the only *nms* appearing at any point in a battle sequence in the entire current data set.³⁰

Another suggestive pattern is related to the apron, or sporan, of the king. Of the 375 Habu records, in 290 of them he wears one of two basic types of apron; these I have grouped into 'multi' and 'flanking,' referring to the number and placement of the *uraei* (figs. 22 and 23). Of the 290 found, 54 were 'multi,' with 20 of those being 'Battle' and 34 'Ritual.' In contrast, the remaining 236 'flanking' were primarily 'Ritual', with only 9 examples appearing in 'Battle' scenes. Another search of the entire data set brought out that the 'multi' apron never occurs with any of the crowns related to Upper Egypt, Lower Egypt, or the unified lands (the *ḥdt*, *dšrt*, or *šhmtj*), but appears in 26 of its 54 occurrences at Habu with the *hprš*.

It is important to point out that, to date, only the most basic of analyses have been applied to the data set. The suggestive patterns noted above are likely but a hint of what lies hidden in the visual record. Currently, this dissertation project is focused on continued analyses of the current Medinet Habu data set. In early fall, advanced analyses began for selected potentially significant attribute correlations. To date, several factor analyses have been performed which demonstrate succinct groupings of related attributes. These analyses are in turn leading to other, more intensive search methods which will include: covariance, cluster analysis, and multiple logistical regression. As analyses progress, additional questions inevitably emerge. When this occurs, changes can be made to the database layouts to track the new attribute—compare, for example, the first and most recent versions of the 'Dichotomous' layout (figs. 24 and 19).

With each addition or change, of course, new analyses must be run. The final product of this dissertation will likely be a thorough study of one set of correlated attributes with high statistical significance. However, this research will continue long after the dissertation is completed. I plan to constantly expand the database, focusing first on temples from the late New Kingdom, but I expect to eventually include royal images in funerary art and also those captured in sculpture and other media. It is my (decidedly) long-term goal to use this database to capture

³⁰ This scene appears on the south tower of the pylon and is balanced on the north tower by an inscription of year 8 (Epigraphic Survey, *Medinet Habu I*, pl. 46), where the Sea Peoples event is recorded. The presentation of spoil to the gods provides a visual completion of the sequence.

and analyze royal depictions from *all* periods of ancient Egypt. Many elements of royal regalia appeared at the very inception of Egyptian civilization.³¹ By means of such a thorough study, larger patterns of attribute usage related to Egypt's relative strength at the time, her interconnections or interactions with foreign powers, or even the individual desires of pharaoh may become evident.

It is my intention to make this project fully digital, web-based, and permitting user interaction with the database—allowing others to investigate for deeper levels of correlation in line with their own research interests. In addition, I hope that this project will provide a framework for future interdisciplinary studies. Far from being purely Egyptological, the model developed here can easily be adapted for *any* study of *any* image or group of images from *any* time period.

Different ensembles of regalia were necessary to support the king in different roles, to provide a physical embodiment of his myriad royal powers, and clearly communicate that information to the deities and people who interact with him, while simultaneously protecting him from malevolent forces. Through this examination of the variations of the king's regalia in what could be considered publicly accessible wall reliefs, a more complete picture of the *public* image of pharaoh may be achieved. Unlike the mortuary cult reliefs or those of the temple proper, where the king interacts only with the divine, the scenes in the main data set portray pharaoh also surrounded by a human audience. The enemies of Egypt who flee in terror at his appearance and the people of Egypt who rejoice at it both do so in response to the dazzling and *intentionally* created image of divine kingship in their midst.

By delving into this topic through the use of this newly assembled corpus of images and by analyzing these data with such powerful analytical tools, a greater comprehension of the various roles of the ruler, and of kingship itself, in ancient Egypt may be achieved. Through this study we should gain further insight into not only the selections made to design such an image of pharaoh, but also the reasons behind the choices. By adding to our understanding of the purpose of the individual elements of royal regalia, we will develop an enhanced perception with which to view depictions of pharaoh.

³¹ Clearly evidenced by the Narmer palette (Cairo JE 32169), to name just one example.

Figures

All photographs are by the author

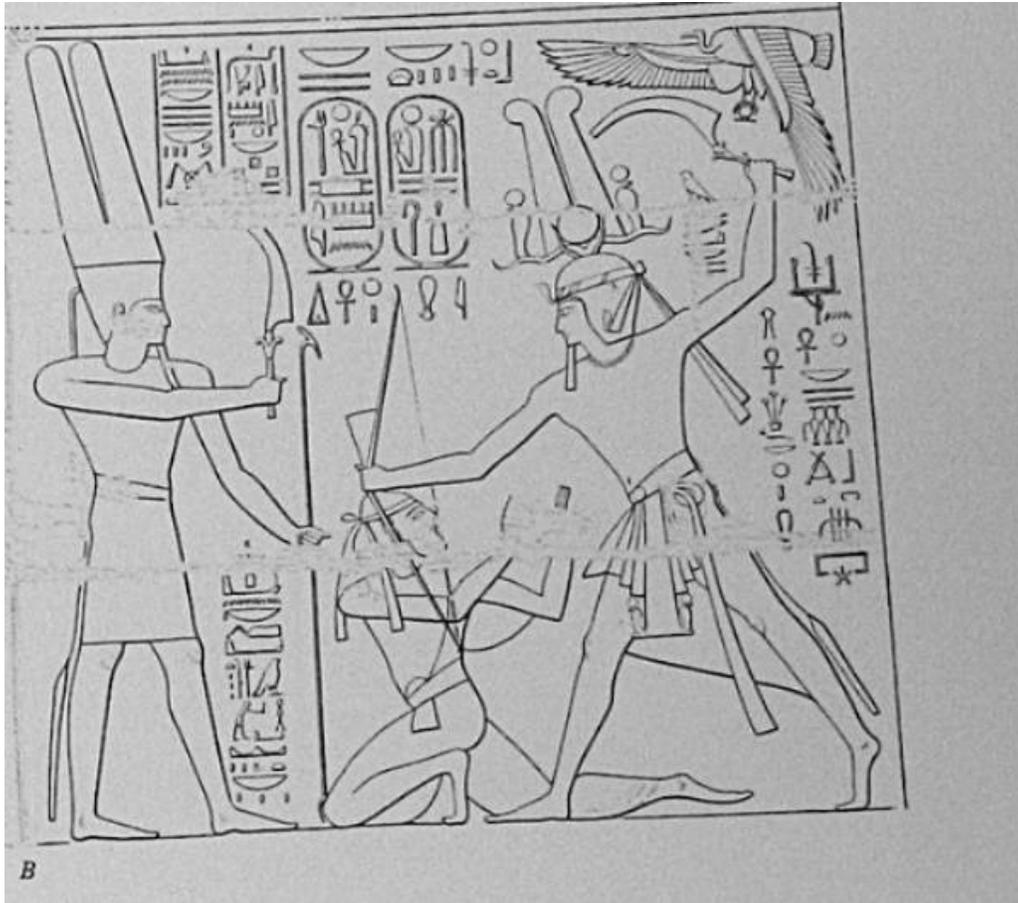


Fig. 1:Detail of Medinet Habu Epigraphic Survey plate 121.



Fig. 2(left): Photograph of same showing preserved paint.

Fig. 3 (right): Detail of Ramses III wearing feathered back apron.



Fig. 4: Detail of Ramses III wearing falcon shirt in battle.



Fig. 5: Ramses III wearing a falcon shirt.



Fig. 6: Detail of Ramses III in QV 55 wearing red textile shirt topped by a falcon shirt.



Fig. 7a-b: Details of Ramses III at Medinet Habu showing preserved sections of red textile shirts.



Fig. 8: Ramses II wearing red textile shirt topped by a falcon shirt at his temple at Abydos.

	A	G	H	I
		HORNS	MU	FEATH
HPRS		0.24	0.24	0.27
RWIG		0.56	0.58	0.61
LWIG		0.38	0.33	0.42
LANDS		0.32	0.30	0.36
NMS		0.69	0.62	0.71
HORNS		1.00	0.88	0.96
MU		0.88	1.00	0.85
FEATH		0.96	0.85	1.00
STREA		0.38	0.35	0.37
DEADD		0.58	0.58	0.55

Fig. 9: Example of high positive correlation: horns, feathers, and multiple *uraei* with *nms*.

Correlations	YN HORSE	YN BIRD	YN FLABE	YN
YN AMUN	-0.40	0.06	-0.41	
YN DIVIN	-0.71	-0.22	-0.72	
YN HUMAN	0.47	0.52	0.57	

Fig 10: Example of high negative correlation: fans and divine interaction.

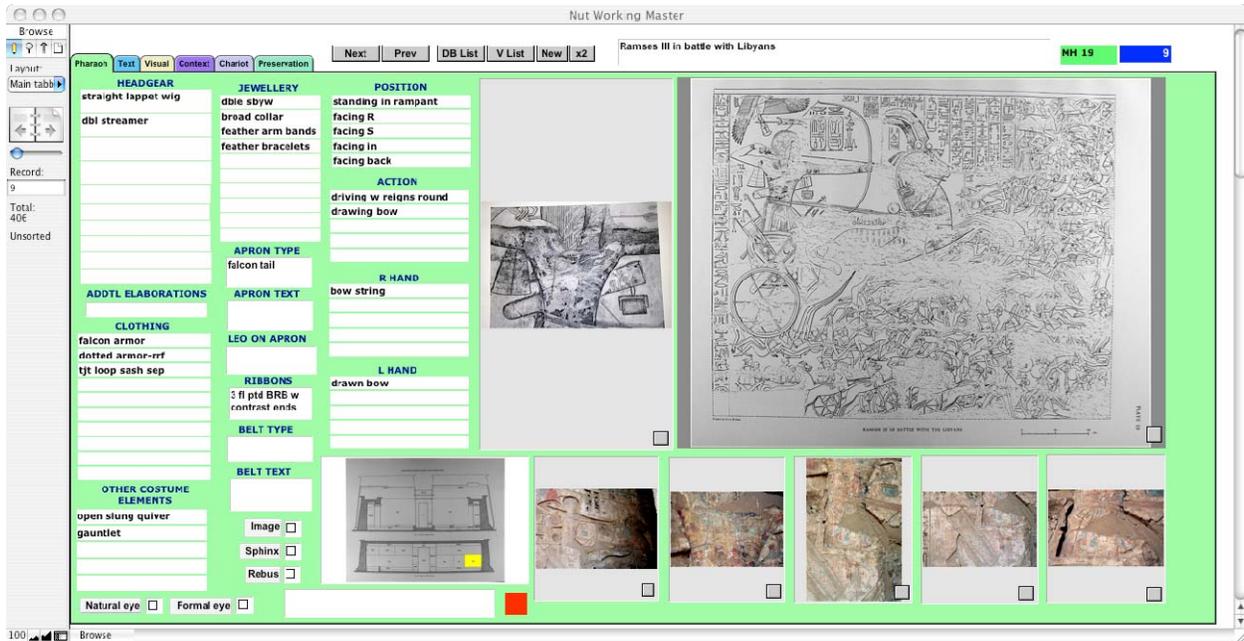


Fig. 11: Main Layout: Pharaoh tab.

Browse

Pharaoh Text Visual Context Chariot Preservation

Next Prev DB List V List New x2

Ramses III in battle with Libyans

MH 19 9

Record: 9

Total: 406

Unsorted

TITLES

Dual King

NAMES

Wsmare Mrjamun
Ramses hka lunu III

EPITHETS

lord of the two lands
lord of diadems

TEXT REFERRING TO KING

good god in the form of Montu
great of strength like the son of Nut
powerful of arm
great of dread
like the devouring flame before him
firm of right arm stretching the bow
swift of left arm holding the arrow
charging ahead
conscious of his strength
like a young lion

KING'S SPEECH

ELEMENTS ASSOCIATED WITH NAME BLOCK

UE uraeus on lotus clump extending ankh facing pnenom

MARGINAL TEXTS

mighty king
sending arrow to its spot w/o fall
valiant and capable

GENERAL TEXT

BEFORE THE KING- The good god in the form of Montu, great in strength [like] the son of Nut, powerful [of arm, great] of dread when he sees the fray, like the devouring flame before [him]: firm of right arm, stretching the bow, swift of left arm, ..., holding the arrow, charging ahead, conscious of his strength [in] the encounter, he smites hundred-thousands. Overthrown is the heart of the lad of Tameh. Their lifetime and their soul are finished, for the son of Amun, the strong of arm, is after them like a young lion recognizing its strength, heavy of voice, throwing out a roar, so that the [very] mountains are in travail at its name: Lord of the Two Lands: Wsmatre-Mrjamun; Lord of Diadems: Ramses III.

SCENE DIVIDER ON L- The mighty king, valiant and capable, send[ing] the ar[ow] to its spot without fail. Those who assail him are overthrown heels over head, cast down prostrate before his horses; King of upper and Lower Egypt: Wsmatre[-Mrjamun]

OVER THE SPAN- the great chief span of his majesty, [Vic]tory in Thebes.

Fig. 12: Main Layout: Text tab.

Browse

Pharaoh Text Visual Context Chariot Preservation

Next Prev DB List V List New x2

Ramses III in battle with Libyans

MH 19 9

Record: 9

Total: 406

Unsorted

DIVINE ACTORS

HUMAN ACTORS

hostile foreign enemy
army

STANDARDS

BORDERS/FRIEZES

FLABELLA TYPE

FLABELLA #

FLABELLA HOLDER

ABOVE and BEHIND KING

vulture sn khu ankh 2was nb
'Wadjet, Lady of the Sky'
'protection, stability and dominion h3.f nb like Re'

SCENE LOC

Medinet Habu
second courtyard
second pylon
SE wall
SE corner

SCENE TYPE

battle
Libyan-first
fighting

Fig. 13: Main Layout: Context tab.

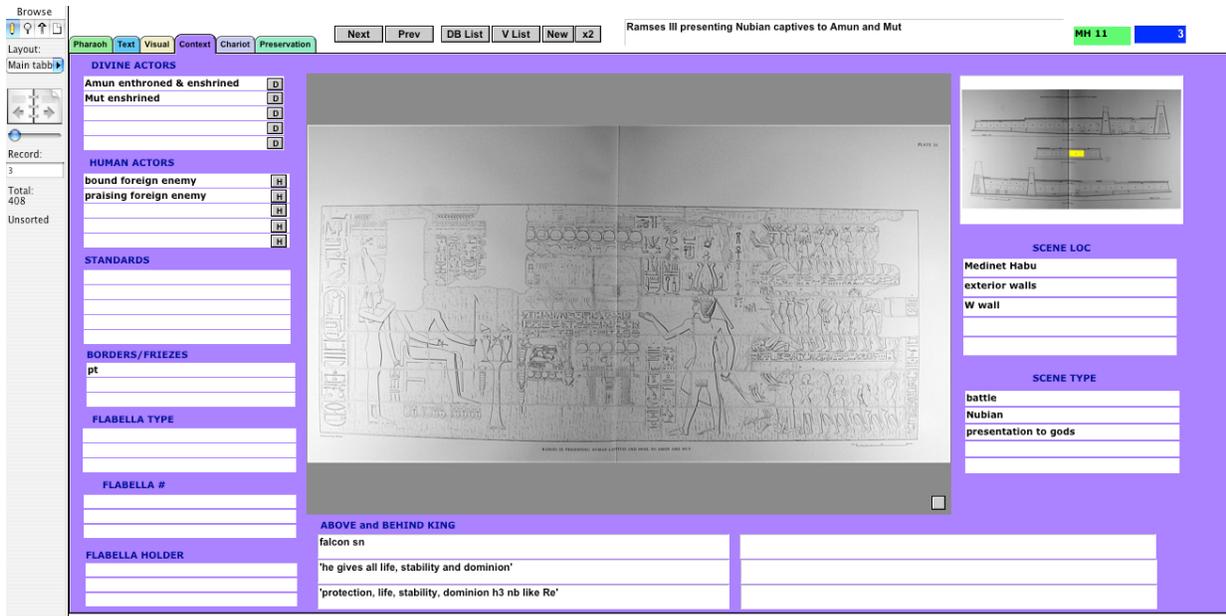


Fig. 14: Main Layout: Context tab with both types of actors.

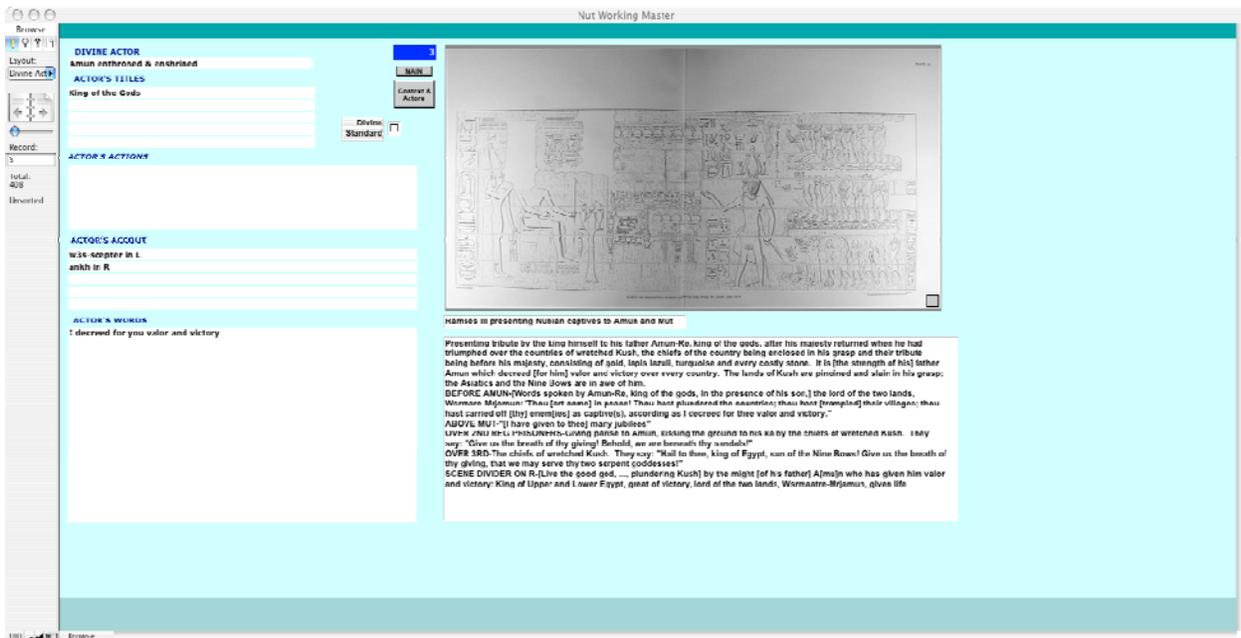


Fig. 15: Main Layout: Divine actor screen (related to Fig. 14).

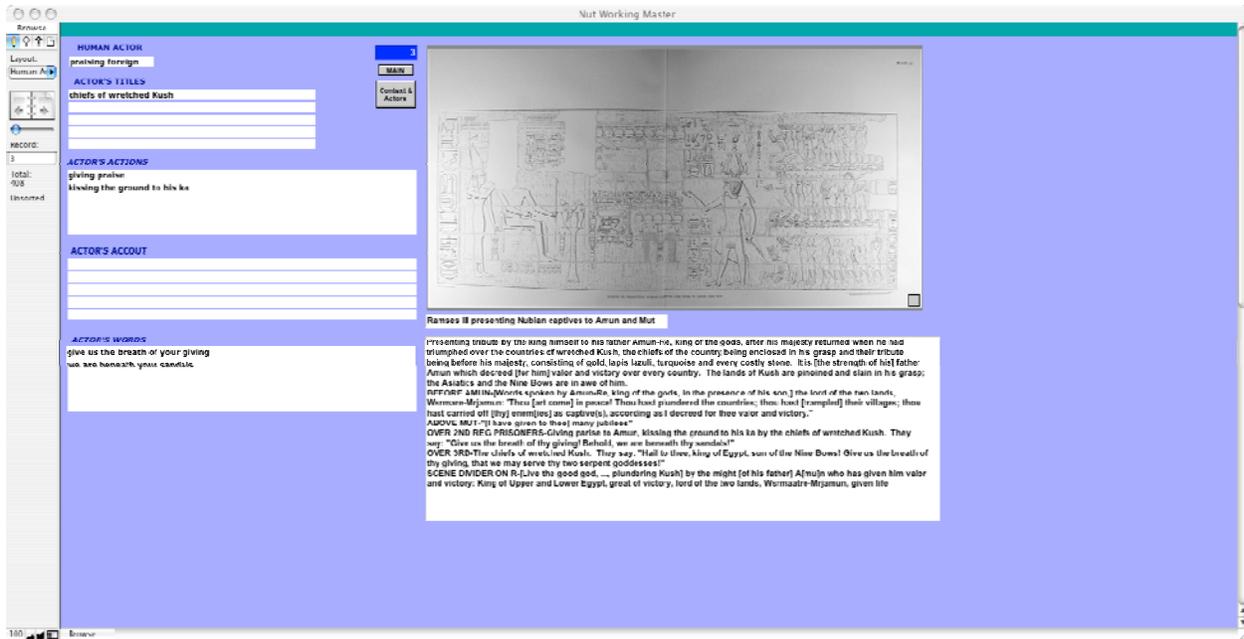


Fig. 16: Main Layout: Human actor screen (related to Fig. 14).



Fig. 17: Main Layout: Chariot tab.

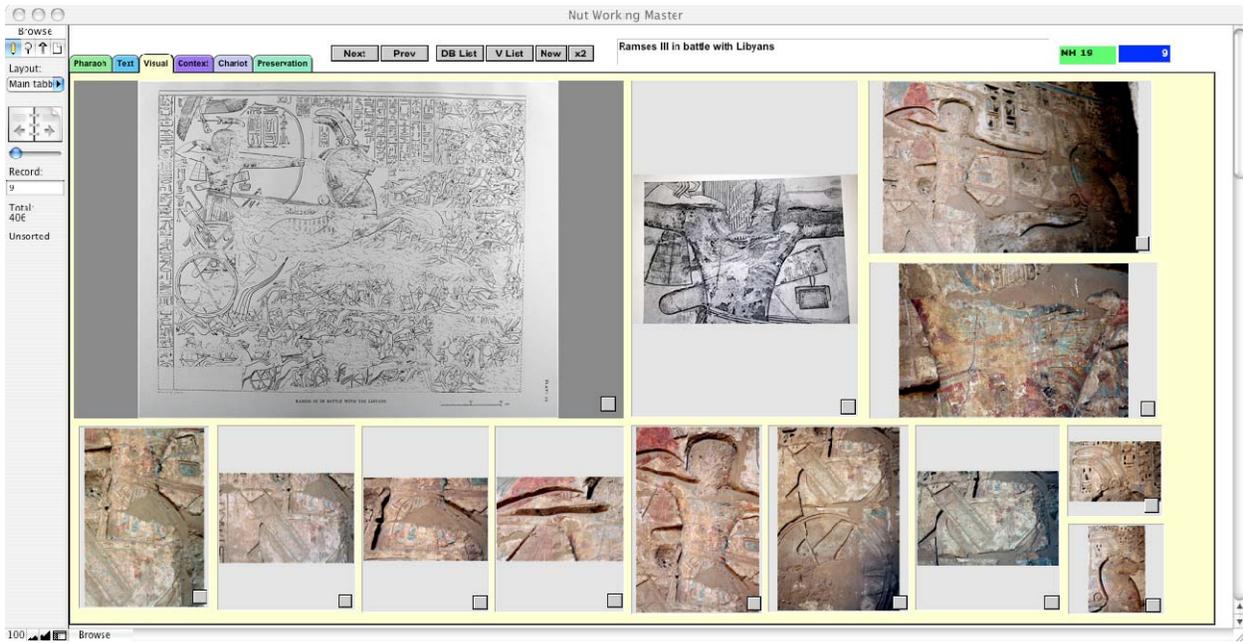


Fig. 18: Main Layout: Visual tab.

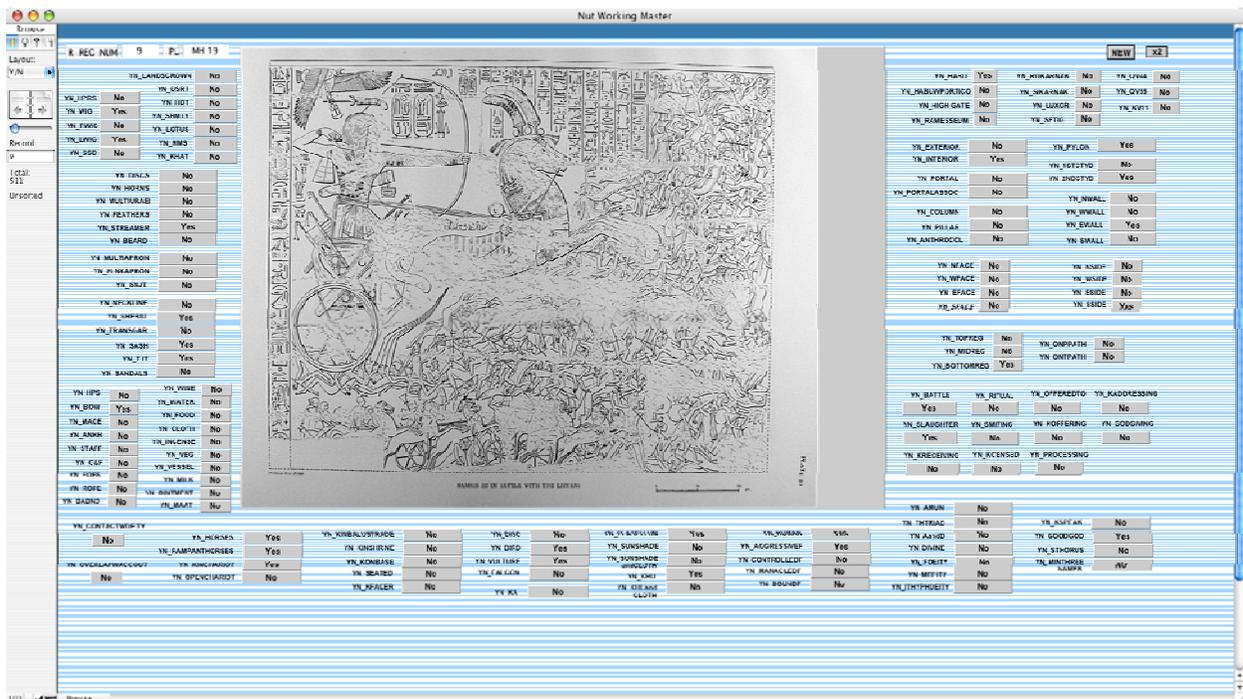


Fig. 19: Dichotomous Layout.

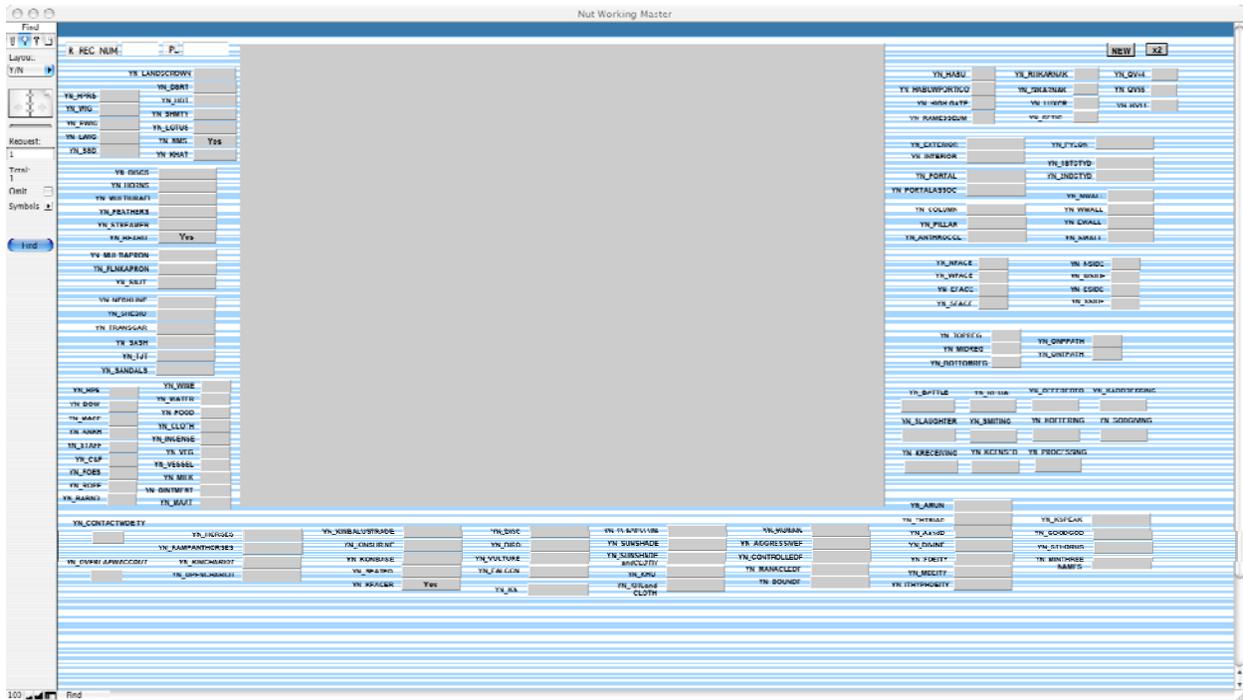


Fig. 20: Search for images of the king wearing selected attributes.

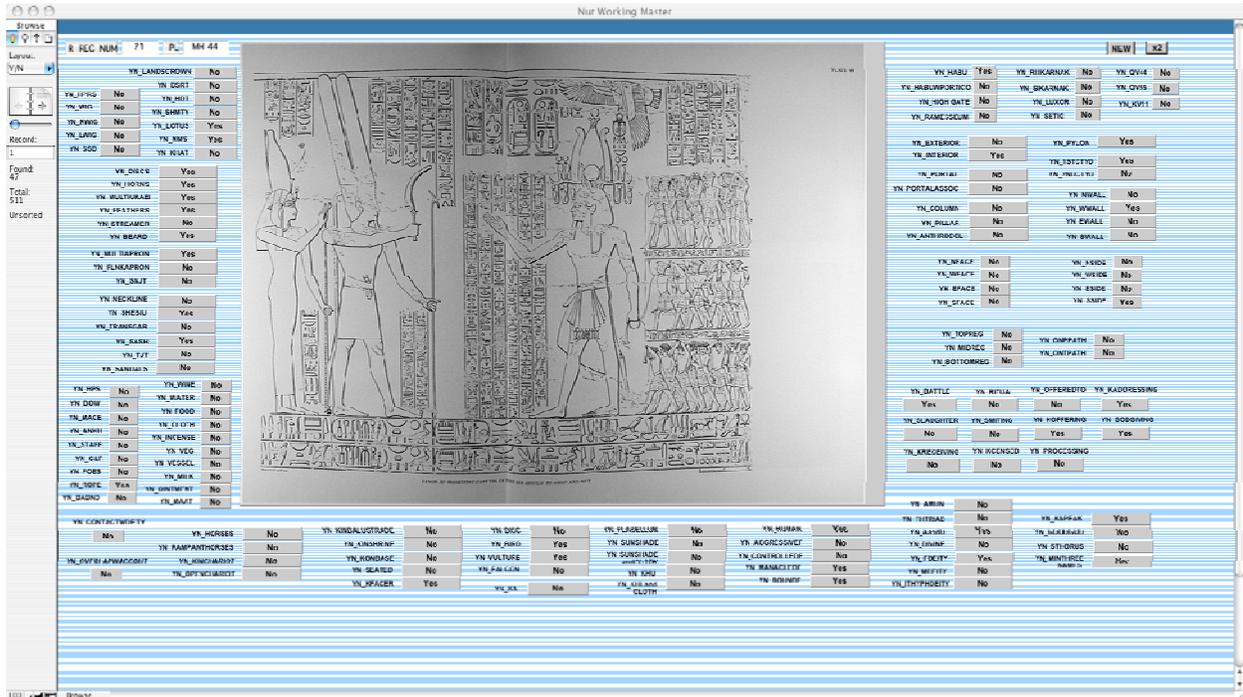


Fig. 21: Results of search.



Fig. 22 (left): Example of a 'multi' apron.



Fig. 23 (right): Example of a 'flanking' apron.

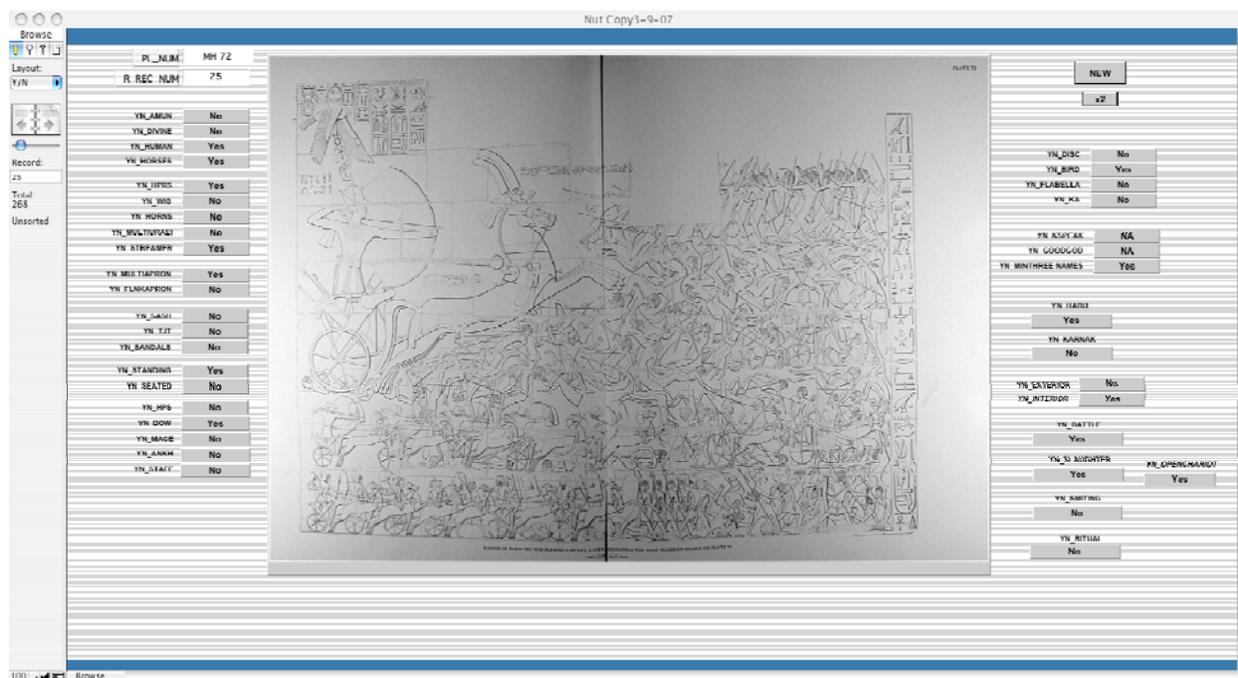


Fig. 24: Early version of the Dichotomous Layout.

Arranged by Battle Scene Percentage

ATTRIBUTE	BATTLE (41)	BATTLE %	RITUAL (316)	RITUAL %	TOTAL (357)	TOTAL %
Human actor	39	95.1%	54	17.1%	93	26.1%
Streamer	34	82.9%	161	50.9%	195	54.6%
Shebiu	31	75.6%	177	56.0%	208	58.3%
Exterior	30	73.2%	19	6.0%	49	13.7%
Bird above king	29	70.7%	139	44.0%	168	47.1%
Horses	27	65.9%	2	0.6%	29	8.1%
Bow	26	63.4%	9	2.8%	35	9.8%
King facing right	26	63.4%	152	48.1%	178	49.9%
Sash skirt	25	61.0%	128	40.5%	153	42.9%
North wall	24	58.5%	26	8.2%	50	14.0%
Vulture above king	22	53.7%	124	39.2%	146	40.9%
Bound foreign	22	53.7%	11	3.5%	33	9.2%
King in chariot	21	51.2%	1	0.3%	22	6.2%

Arranged by Ritual Scene Percentage

ATTRIBUTE	BATTLE (41)	BATTLE %	RITUAL (316)	RITUAL %	TOTAL (357)	TOTAL %
Interior	11	26.8%	268	84.8%	279	78.2%
God giving	7	17.1%	265	83.9%	272	76.2%
Flanking apron	9	22.0%	227	71.8%	236	66.1%
King offering	7	17.1%	213	67.4%	220	61.6%
Second courtyard	4	9.8%	209	66.1%	213	59.7%
Shebiu	31	75.6%	177	56.0%	208	58.3%
Divine actor	1	2.4%	163	51.6%	164	45.9%
Streamer	34	82.9%	161	50.9%	195	54.6%
Beard	3	7.3%	161	50.9%	164	45.9%

Arranged by Total Scene Percentage

ATTRIBUTE	BATTLE (41)	BATTLE %	RITUAL (316)	RITUAL %	TOTAL (357)	TOTAL %
Interior	11	26.8%	268	84.8%	279	78.2%
God giving	7	17.1%	265	83.9%	272	76.2%
Flanking apron	9	22.0%	227	71.8%	236	66.1%
King offering	7	17.1%	213	67.4%	220	61.6%
Second courtyard	4	9.8%	209	66.1%	213	59.7%
Shebiu	31	75.6%	177	56.0%	208	58.3%
Streamer	34	82.9%	161	50.9%	195	54.6%

Table 1: Initial results from database searches of Medinet Habu set.