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The World According to Basketry



An Ethno-archaeological Interpretation of Basketry Production in Egypt

CNWS

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This book was originally published in 1999 by the Leiden University, Center of Non-Western Studies. This is an unabridged re-publication of the 1999 edition, and the one-hour movie that is an integral part of the book. You can download the movie as mp4 file under the tab “Supporting Material”. At a future date the full integration of text and video (as specified in Appendix C of the book) will be offered through this stable URL as well.

The World According to Basketry
An Ethno-archaeological Interpretation of Basketry Production in Egypt

Willeke Wendrich

Cotsen Digital Archaeology Series 2

"If you are careful," Garp wrote, "if you use good ingredients, and you don't take any shortcuts, then you can usually cook something very good. (...) With writing, I find, you can have all the right ingredients, give plenty of time and care, and still get nothing. Also true of love."

John Irving, 1978 p. 176

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NEDERLANDSE SAMENVATTING
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PREFACE AND ACKNOWLEDGEMENTS

Some critical readers might think the title "the world according to basketry" a delusion of grandeur of a modest kind of artefact and a sign of megalomania, on the part of the author, who claims to pronounce upon the world by studying only basketry, while even interdisciplinary research projects do not succeed in giving a full interpretation of Egyptian past.

When I started the study of basketry I was only mildly interested in baskets while my main interest was Egyptian religious text and practices. Gradually the baskets took over with surprising force and stamina. I had not realised this before, but the world is truly riddled with baskets. They are everywhere in large numbers. Once you have lost your innocence, you cannot stop noticing them.

The person I have to thank for my involvement is my dear friend Gillian Vogelsang-Eastwood. I was interested in archaeology and fascinated by her work as a textile specialist. She cunningly averted my attention, because next to her textiles in Amarna there was this pressing quantity of basketry. She brought me in contact with the Amarna team. To Barry Kemp and many of the Amarna team members, I owe a great deal. The stimulating discussions and the fact that everybody was doing a PhD quietly guided me into the track of which I have now reached the end. Discussions with Paul Nicholson, Delwen Samuel, Pam Rose and Margaret Serpico were the start of stimulating friendships.

In my work I have been influenced and inspired by many. The dilemma of acknowledgements is that there are always people who do not get mentioned, although at one moment or another they have been, or still are important in my professional or personal life. With apologies to those whom I have forgotten, I would like to thank Magdi Anwar Abdeen for all his help over the years. Many a pleasant afternoon was spent with Asim Suleiman, who translated Magdi's Arabic notes into English. Boyce Driskell, who was my predecessor at Qasr Ibrim and also worked extensively with Nubian basket makers, gave me all his notes. I cannot say how much I value this grand gesture. I wish the academic world would count more like him among its ranks.

For three months I was given the opportunity to learn fibre identification, thanks to Ferry Bouman of the laboratory of plant taxonomy of the University of Amsterdam, followed by a practice on Scanning Electron Microscopy taught by Bill Cooke at the University of Manchester Institute for Science and Technology. Finally, due to a lack of time, I did only the fibre identification in the field, while most of the identificatory work was done by Edwin van de Heijden and Otto Brinkkemper. They have written the first appendix.

Other colleagues that have contributed to the work at hand, mostly without even realizing it, are John Peter Wild and Freek Colombijn, the first a textile specialist, the second an anthropologist. Through my appointment at the Centre of Non-Western Studies (as it was then still called), I have met many students of different disciplines, which has strongly influenced my work. Through the CNWS I also got into contact with the department of ethno-cinematography. Metje Postma and especially Dirk Nijland have taught me all I know about video, but more importantly, about watching. Carinda Strangio and Ciska van Beek have had an important contribution in the editing of the video.

I would like to thank Ben Haring for giving me his notes on ancient Egyptian basketry terms, Jacques van der Vliet for sending literature on Coptic monastic basket makers and Klaas Worp for discussing Greek basketry terminology.

To understand basketry, meant that I had to take lessons of basket makers, both in the Netherlands and in Egypt. I want to thank my teachers, Tonnie, Mohammed, Rawhayya, Umm Ali, Khadidja and Sophie. Inspirational was also my contact with the board members of the foundation Wilg & Mand, Tutein Nolthenius, Arie 't Hoog and especially Mia Pot-Van Regteren Altena, in whose beautiful garden we have had the most delightful and exciting conversations.

In Egypt I have had the opportunity to discuss my work with Fayza Haikal and Nessim Henein. I would also like to thank the Supreme Council of Antiquities and their succesive directors, professor Abd el-Halim Nur el-Din and professor Gaballa Ali Gaballa for their ongoing support of my work in Egypt. Hamam's good care of papers and cars allowed my mind to wander towards less practical matters.

Kate Trott has checked the English in an early stage, and later patiently acted as my personal grammar book via e-mail. My parents never said: "why don't you do something useful", and never complained that for four years I spent the only month of summer leave from Cairo glued to their computer.

Finally, I want to thank Hans Barnard, my partner for more than half of my life, for drawing and planning and cooking and teasing and so many other things I cannot even think where to begin.

PART ONE

Methods and Materials

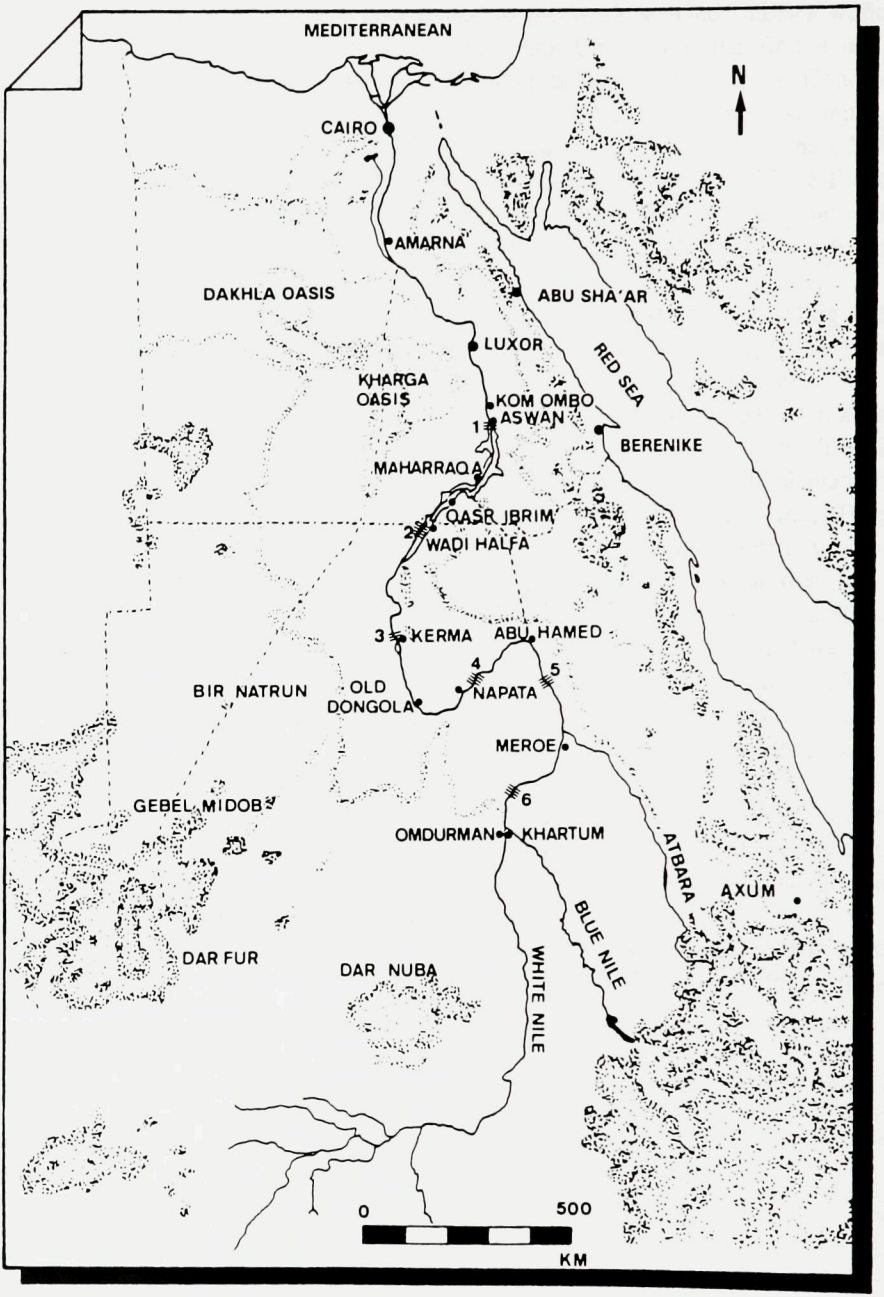

Figure 1-1 Egypt and Nubia

CHAPTER ONE

INTRODUCTION

The world according to basketry is an introduction to basketry analysis, focusing on ancient Egyptian basketry production and its parallels in the present, as well as ancient and modem basket makers.[1] Even though it is impossible to interpret ancient society from the study of just one artefact group, the title expresses exactly what this book is about: concentrating on one aspect of the material culture in order to draw conclusions on a much wider scope.

The reason for using basketry analysis to pronounce upon society is partly a prosaic one: it's there. At a considerable number of excavations in Egypt basketry is found. Recording material without any reason other than that it is present is, however, of little use and tends to result in archaeological bureaucracy.

The potential of basketry analysis has long been underestimated. Basketry was an important artefact in the daily life of ordinary people. During excavations at Qasr Ibrim (Egyptian Nubia), where the preservational circumstances are exceptionally good, the quantity of basketry artefacts came second, right behind pottery. Assuming that a large amount of basketry never was deposited, because discarded baskets were probably used as fuel, we could even maintain that the number of basketry containers will have approximated the number of pots.

The large quantity of basketry artefacts at Qasr Ibrim shed light on the information that is missed at many other sites. Since the preservation of organic material is dependent on either anaerobic circumstances (be it extremely dry, extremely cold, or waterlogged), only specific sites yield basketry. Although it is quite obvious that baskets and mats were used in every household in Egypt, on many sites this is not reflected in the archaeological record.

But even when basketry was found in excavations, the attention was often focused on other artefacts, as Trigger remarks while mentioning criticism of the cultural historical approach: "Pottery and lithic material were studied much more carefully than was surviving evidence of basketry" (Trigger 1989, 276).

The baskets which form the basis of this book, were found during excavations in the workmen's village of Tell el-Amarna, in Middle Egypt, and at Qasr Ibrim, in Egyptian Nubia. Both excavations were funded by the Egypt Exploration Society. The Amarna project was directed by Barry Kemp, and the

---

[1]Basketry is defined as a class of artefacts made out of vegetable fibres of limited length or with a shape which is specific to the raw material. Basketry thus defined comprises various objects such as: baskets and bags; food covers, mats, awnings and wind shields; brushes and brooms; sandals, hats and belts (cf. Wendrich 1991c, 4).

excavations at Qasr Ibrim by Mark Horton. The basketry from Amarna and Qasr Ibrim was recorded on site by the author between 1987 and 1992. In some instances reference is made to basketry found in other excavations.[2] The publication of the catalogue and interpretation of the Amarna and Qasr Ibrim basketry will appear elsewhere as part of a study on function, meaning, use, re-use and discard. The present work concentrates on basketry production. A large section is dedicated to the method of analysing basketry technology and the use of ethno-archaeology in an attempt to identify the ancient basketry producers.

The one hour video tape which is part of this book includes sequences of the production of five basketry types. The first sequence, which is the longest, shows the production of a *sewn plaits basket,* made in Middle Egypt. It follows the production from beginning to end. Two short sequences, one filmed in Middle Egypt, the other in Egyptian Nubia, show the start of making *coiled basketry*. The last two sequences show the finishing off of two types of *matting* (sack matting made in Middle Egypt and furniture matting made in Egyptian Nubia).[3]

The video can be watched separately from the book, merely as a record of the production process. The voice over is designed to elucidate the questions that arise while watching.[4] The power of using video, however, lies in its relation to the text, as illustration, addition and replacement with its own narrative. Watching the actions of basket makers is preferable over reading lengthy and perhaps boring descriptions. On the other hand, the sequences which have been fully written out in Chapter 17, draw attention to aspects in the video, which are easily missed even after repeated viewings. In order to link the text and the video, a time code is included in the right bottom corner of the image, which functions as a reference to remarks made in the text. Furthermore, at intervals a code is displayed in the left top corner which indicates the aspects highlighted at that particular moment. The main value, however, is the analysis of the filmed material, an introduction to which is included in Chapter 6.

The video displays the world according to basketry: the baskets are the protagonists, the basket makers are the supporting actors (cf. De France 1989, 41). Nevertheless, the book focuses not only on the baskets, but also on the production process and the basket makers. The use and function of basketry are considered briefly, because many of the basket makers produce for their own use only. Some

---

[2]These are the excavations at Abu Sha'ar, directed from 1987 to 1993 by Steven Sidebotham (University of Delaware) and the ongoing excavations at Berenike, directed by Steven Sidebotham and the author (University of Delaware, Leiden University).

[3]In Appendix C section 1 these sequences are listed together with the timer codes where they can be found in the tape.

[4]The edited version of the video has been shown individually with only original sound to 30 persons. Their questions were noted down and used to design the text of the voice over.

remarks are made in the conclusion in respect to the meaning of basketry in Egyptian society.

It has been maintained that there is a great continuity in the Egyptian basket making tradition (Blackman 1927, 304). In the course of this study it appeared that, indeed, there is a clear continuity in basket making traditions (plural), but that the opposite is true also: there have been many changes over time, for instance in the technology and the use of raw materials. Still, it is possible to draw some clear lines from 1350 BC to the present in Middle Egypt and from the third century AD to the present in Egyptian Nubia. There also appears to be a clear difference between the (Middle) Egyptian and the Nubian basketry traditions, to the extent that the main conclusion of this book is that the regional traditions over time are stronger than similarities between regions at a given time. In other words: present day basketry from Middle Egypt has a closer resemblance to basketry from the Amarna region during the New Kingdom than to basketry from present day New Nubia. In the following chapters these similarities will be defined using formal criteria.

Studying archaeological basketry in its context gave information on the technology. This is a static kind of knowledge, represented by the finished product. Some installations, tools, raw materials or half products were found, which gave an indication of the earlier stages of the production process. Mostly, however, the archaeological context reflected a late stage in the life of a basket: discarded on the refuse dump, or re-used on roofs or in pits.

In order to understand the production as a process, considerable time was spent with present day basket makers. In the outset, the basketry of Amarna was compared with basket making in the villages in the immediate vicinity of the ancient site, namely the villages of el-Till, el-Hagg Kandil and el-Amariyya. For a parallel with the Qasr Ibrim basketry a study was made of Nubian basketry in the area where the population was resettled after the Aswan High Dam was built (around Kom Ombo, north of Aswan). The implicit supposition that there was a continuity and that using ethno-archaeology was valid as a direct historical approach, was abandoned. Instead, the comparison between then and now was used in a more flexible way, which allowed for conclusions on a larger scope.

This resulted, among other things, in the urge to record the dynamics of basketry production by using moving images. With the help of video the aspects of time and movement could be introduced into the analysis of basketry production. This leads to an understanding of the physical demands of the process and the time involved. Perhaps the most important aspect of the ethno-archaeological work, however, was on a much more basic level: archaeological basketry, stored in a computer file, suddenly came alive when I realised they once had owners and creators. This is not an impressionist addition to the archaeological material, but the creation of new and different questions, with which higher demands are put on the study of the archaeological material.

The book is divided in four parts, of which the first five chapters are best read as an introduction to the method used in the rest of the book. These introductory chapters can be considered answers to concise questions:
Why is it important to study basketry? (Chapter 1, introduction)
How have archaeology and ethno-archaeology been applied? (Chapter 2, method)
Who has been writing about basketry? (Chapter 3, classification)
What method was used in collecting the information? (Chapter 4, field work)
How is basketry systemized? (Chapter 5, basketry analysis)
When do time and movement get involved? (Chapter 6, video analysis)
Where was field work done? (Chapter 7, introduction of sources).

The second part of the book (Chapters 8 to 12) presents a model of the basketry in Egypt and Nubia, both in the past and at present. This part generalizes the basketry techniques, by studying ancient and modern baskets according to a fixed body of criteria. In Chapter 9 twenty different Egyptian basketry techniques are defined on the basis of a basketry classification, which forms the basis of a presentation of the basketry techniques occurring in Amarna, Qasr Ibrim, present day Middle Egypt and Egyptian Nubia.

The third part of the book (Chapters 13 to 18) concentrates on the production process. In this section the twenty basketry techniques which were defined in Chapter 9 are brought to life, by studying present day basket makers and referring this information back to the archaeological material. Chapter 17 focuses on the analysis of the video images in order to determine the actions and movements of basket makers. In this part the emphasis shifts from the general (classification of basketry techniques) to the particular (the movements of an individual basket maker).

In part four (Chapters 19 to 20) the individual approach of Chapter 17, which concentrated on a particular (modern) basket maker, is reflected onto the ancient basket makers. From the particular a new generalization is made, trying to visualize the ancient basket maker.

Specialists' knowledge is a prerequisite to analyse artefacts, because sweeping statements about something that has not been studied in detail, are of little value beyond the obvious. Specialists run the risk of getting completely submerged in their specialism. In order to prevent this, and to succeed in finding the wider scope of the world according to basketry, communication with colleagues is of vital importance. Therefore, the presentation has to be clear and open to criticism. I have attempted to keep these standards throughout the book, by making my presuppositions and assumptions explicit. I also tried to use a minimum of specialist jargon, although this could not always be avoided. The terminology has been explained in the text and is also listed in the glossary (Appendix D) and index.

CHAPTER TWO

THE FABRIC OF ARCHAEOLOGY

2.1 Introduction

Basketry is made of interweaving strands that form a fabric. One strand keeps the next in place and creates a system of interconnections, which in a larger frame also encompasses the life of the basket makers and the society in which they live. Likewise, archaeology is built of different interlacing strands. Fieldwork, description and analysis are part of one fabric, as well as colleagues, students and friends. The fabric of archaeology is complicated and rests on a long tradition of methodological discussions. Some strands are deemed important to account for what has been done in the pages that follow.

Western scientific research has been concerned with absolute values in finding the truth, and reflecting reality. The eerie phenomena in the world had to be explained: falling objects, thunder and lightning, the change of the seasons. The concept of truth is deeply rooted in our society. In our legal system witnesses are asked to vow that they will tell the truth. Jewish-Christian-Islamic traditions, the religions of the book, are concerned with absolute values: not only the truth in religion, but also the notion that there is one true religion. Likewise, it is a western idiosyncrasy to try to define one true scientific method, reflecting one true reality. In ancient Egypt the existence of several parallel truths was apparently acceptable. The god Horus was a powerful sky god and a weak child. Images of the afterworld differ widely, without any indication that they were adhered to by groups, which considered other explanations and images as heresy or superstition.

In the era of the Enlightenment scientific research was contrasted with the superstitious explanations of previous periods. The Western scientists have been concerned with constructing theories to pronounce upon reality in physics, in mathematics, but also in history, anthropology and archaeology. Science was not only thought to reflect reality, but through understanding also geared to make the world manageable, to provide control. Reality was thought to be absolute and existing outside and independent of those who study and interpret it. By running tests, comparing the consequences of a theory with empirical data, it could be determined to what level theories were reflecting the truth. This method became well established in science, to the extent that it was claimed to be true science. Truth, however, is a complicated concept and implicitly we accept this: though a witness is compelled to tell the truth, still judge or jury are needed to decide.

Perception is highly personal: ask two people to describe a situation to the best of their knowledge and two different accounts will be given. Two realities have come into being, which do not exist in duplicate worlds, but in this one world

and we have to find a way to live with them. Perception is linked to cultural background, past experiences, and present interests, to name a few aspects. Gradually it is accepted that the perception of reality is subjective and that it is ruled by preconceptions such as the belief in truth, in progress, in creation or in reason. These preconceptions are not fixed, but they fluctuate with time and (sub) culture. Studying the history of science brings to light which preconceptions rule a certain era (cf. Trigger 1989), but determining them in our own time and surroundings is difficult. Therefore, it is extremely important to recognize that we are working under certain preconceptions and attempt to explicate these, while realising that we can easily fail in this endeavour.

The realization that research is not the objective action which positivist science thought it to be has resulted in a multitude of new theories, methods and research agendas.[1] At present, archaeologists work with methods ranging from a positivist to a relativist approach. The basic division of these approaches is the way the relation between data and theory is perceived. In the positivist view empirical data and theory are opposites, while in the relativist approach they are part of a continuum. In both ends of the present research scale the relation between data and theory is problematic.

In the positivist approach the two opposites, empirical data and theory, are kept apart to ascertain objectivity. At some point, however, theory and data have to be confronted in order to make sense. If research is to tell us more than the obvious, there is an immediate gap between theory and empirically retrievable data.

The solutions to close the gap and still maintain 'objective science', range from insisting on building a pyramid of generalizations, which in the end forms a high level theory, to deducing middle-level theories from high level theories and testing them against the low-level theories induced from the empirical data. Thus, the division of theories in high-, middle-, and low-level is used to indicate levels of inference, or empirical content, low-level theories having a more direct link with the database than high-level theories.

Trigger uses an example with which the difference of high and low level theories can be clarified (Trigger 1989, 23). The geologist Buckland (1784-1856) found strata with gradually more developed fossil remains. The implication was (and this can be considered a low-level theory) that geologically stratified finds represent successive temporal phases. The high level theory, Bucklands' explanation of the phenomenon, was that a series of disasters had ended the existence of the species found in the strata. Each disaster was followed by the creation of a slightly more developed species. The Darwinists, although working with the same low-level theory (strata represent temporal phases) gave a completely different explanation. The two explanations were due to different high-

[1]Shanks and Tilley 1987 and 1992; Tilley 1998; Hodder 1999; also Whitley 1998, 2).

level theories: one based on the biblical notions of creation and deluge, the other on adaption and evolution.

Dunnell defines theory as "the principles by which explanation is achieved" (1971, p. 32). The structure of archaeological science is thus as follows: "one starts with a set of explicitly defined notions (theory) which are capable of being organized according to some of the defined relations in a model for the solution of a particular class of problems (method), which in turn is capable of being matched with phenomena (technique) in order to produce a testable hypothesis capable of being used as an explanation (prediction/control)." (Dunnell 1971, p. 41).

Dunnell uses the term *model,* in the sense of *model of explanation*, free from empirical content. A *hypothesis* is "a proposed explanation for a specific set of things or events" (Dunnell 1971, p. 37). Thus, he makes a strict division between theory and data. Ideally the theory is formulated first and the testing of the theory is performed by dressing the theoretical skeleton with empirical flesh.

Although Salmon does not agree with the order in which Dunnell sets up scientific work, first formulating theory, then filling the theory with empirical data, she equally separates theory and data. In her definition, *theory* is "a set of interrelated, rather high-level principles or laws that can provide an explanatory framework to accommodate a broad range of phenomena" (Salmon 1982, p. 140). For archaeology these phenomena are patterns of connection between human behaviour, material remains and the physical settings in which they are found. Social-political and economic organization are aspects that are to be explained by theory as well. The *laws* of archaeology which form the explanatory framework that constitutes a theory are defined as "the regularities or empirical generalizations that relate various aspects of material culture to one another, or connect aspects of material culture with patterns of human behavior" (Salmon 1982, p. 20).

In archaeology the positivist approach of the 'New Archaeology' and subsequent processual archaeology consider archaeology as a science and a means to gain knowledge about past reality. The past can be reconstructed provided that sufficient information can be retrieved. The central concept of processual archaeology is that theories, for instance about the relation between material culture and societies, have to be tested. In order to enable testing the complex whole is divided into manageable portions. Middle Range Theories have been developed to close the gap between theory and data (Binford 1977).

A similar attempt to come to grips with the cluttered, complex whole that makes up human society (past or present) is a deliberate simplification by defining spheres of human activities as different systems that interact. Thus economy, religion, subsistence and social interaction can be considered as subsystem of society, each answering to different laws. They can be analysed and brought together in the system that forms the whole (Clarke 1978[2]).

The research questions of processual archaeology concentrate on long term developments, functional and behavioural patterns, although in recent years on the

basis of a processual approach social and cognitive theories have been developed (Renfrew 1973, 1982).

Increasingly, however, the idea has eroded that data can be collected without the influence of either subconscious preconceptions or conscious, well pronounced theoretical structures. Observing is interpreting. Accepting that making a clear division between theory and data is not possible, does imply that we can only distinguish between results that are more or less influenced by our assumptions. Probably we are not even able to observe if we do not start from certain preconceptions (cf. Hodder 1999, 53, 92). In post-processual publications the term *interpretation* indicates that our ideas about the past are firmly rooted in the presence. Interpretation is specifically used to describe those phases of the research process in which uncertainty exists (Tilley 1993). Since in the post-processual approaches theory and data are no longer considered an opposition, the widely accepted method of testing theory against data, such as employed by the hypothetico-deductive method is not possible.

Several solutions have been proposed to solve this dilemma. A mild form of empiricism is used by those who test their theories against 'close-to-data' data, *i.e.* by using data as if they were 'pure' data. It is a practical solution that grants that there is a fundamental problem, but on the other hand, prefers to use the well developed and established positivist methods.

Other solutions are to test the theory on its internal coherency, rather than its empiricist values; to follow an ethical line of reasoning and test theories by holding the results against (ethical) values or social consequences. The most rigorous consequence is that theories cannot be tested and that the best scholars can do is to produce a construction, a narrative that is deeply rooted in our own society.

In the terminology used by archaeologists this change in approach is expressed most vividly in the diminishing use of the word *explanation* and the increasing importance of the term *interpretation* (cf. the contributions in Hodder e.a. 1995). With the realization that data collecting is part of interpretation, the attention has shifted to a more complex subject matter: from a mere functional or behavioural interpretation to an integration of the influence of culture groups and even individuals Hodder states that in order to widen the subject in this manner, a theory of material culture is needed (Hodder 1982, 212).

In his later work Hodder develops this line of reasoning, focusing on the meaning of material culture. He considers material culture as language, a narrative which includes rhetorical devices such as irony and metaphors, which can be easily misinterpreted (e.g. Hodder 1995, 165). The approach to understand the meanings of texts is *hermeneutics*, a term originally used specifically for a discipline within theology dealing with the explanation of biblical texts.

The analogy of (material) culture with text is one that has taken great hold in archaeology and the social sciences (Shanks 1996, 126). Material culture is thought to be a form of communication, a social production, made up of relations such as parallelism, opposition, linearity, equivalence and inversion. "Material culture is

polysemous, located along open systems of signified-signifiers" (Shanks and Tilley 1987, 117, cf. 103).

Hermeneutics in social theory is a dialectic process. "According to the *hermeneutic circle*, the meaning of a part derives from its relationship to a whole, while the whole is understood from the relationship with the parts." (Hodder 1999, 32-33). The terms 'part' and 'whole' can be used at many different levels. The part is the basketry and the whole is the site, or the part is the site and the whole is a region. What matters is the *relation* between the parts and whole. During the hermeneutic process information is gathered from a set of prejudgements, which enable us to see and observe, rather than just look.

From scattered information a narrative is formed, which helps is finding new information, by allowing changes and augmentations. The procedure is judged by internal coherency and 'fitting' of all available information (Hodder 1999, 33).

Past reality is a present realization of the past, a fluent entity, which constantly has to be adapted to new insights. The narrative is ours to create and this leaves us to consider at least the ambiguity of texts in which we report our finds and interpretations, an ambiguity that has to be communicated to colleagues. To speak with Shanks and Hodder: "To argue a relativism which maintains objectivity is socially constructed is to argue simply for relationality" (Shanks and Hodder 1995, 19). Thus, interpretation is closely linked to its original meaning in human communication: translating and relating.

The metaphor of material culture as language is in some respects an unhappy one. No doubt material culture carries messages and communications, but these are non-verbal. What we, archaeologists, try to do is bring to a conscious level, that what never was supposed to be formulated in words. Hodder calls it "deciphering a system of signs" (Hodder 1999, 32), but a system of signs has been designed to be deciphered, while material culture for the most part has not. Chances are that we read what was never written.

Our study and experience give us a role in society to interpret for others (colleagues, the public). We can do this in different guises, either as the great masters of interpretation, or as humble translators who indicate exactly which terms are unknown to us and where the interpretation might have gone wrong. Needless to say the latter approach is perhaps less exciting, but such self-reflexivity, although vulnerable, enables discussion and cooperation.

The narrative of archaeology is the structure we weave around our perception of the material remains of the past. The way that narrative permeates the archaeological work from excavation to publication, makes one wonder: is narrative in fact not the post-modern form of the empiricist's high-level theory? Both are the all-encompassing result, which forms the crown on the scholarly research. The fundamental difference, however, is that the narrative has been built by interweaving data and theory, rather than by confronting 'independently' developed theory with theory-free data.

Where Shanks states ominously that "Elements of the methodological hegemony of processual archaeology have been identified as positivist; and in

philosophy and social theory a positivist is not a good thing to be" (Shanks 1992, 25), Hodder poses that "It could be argued that the different theoretical perspectives in archaeology are not contradictory but complementary. For example, the overall division between processual and post processual archaeologies can be interpreted in terms of different objects of study." (Hodder 1999, 12). While the first quotation tends towards rigidity, the second is too flexible in smoothing out some fundamental differences.

In this light, we should re-evaluate the careful approach of recording data, as advocated by processual archaeology. Employing formal analysis has been given great incentive and although the method of formal analysis has a different status and function than in a positivist approach, its value for a post-processual approach is perhaps even greater. When we abandon the claim that we can make an objective representation of the past, two persons involved in archaeological research no longer have the past as stable common ground. The subject of their research is related to the present, and common interpretations of the past are based on intersubjectivity. When the communication between scholars is a central concept in the research method, it is of utmost importance to present one's work in a manner that is both self-reflexive and open to the criticism of others. The well-developed recording methods and formal analysis of processual archaeology can be adapted to serve the purpose of open communication.

In the following paragraphs I will survey several issues that are of direct importance in respect to the analysis of archaeological basketry. Section 2.2 surveys classification and terminology, while section 2.3 concentrates on analogy and ethno-archaeology. The end of this chapter, section 2.4, gives a summarizing account of the method used in the second, third and fourth part of this book.

2.2 PIGEONS AND POTS

Travelling through Egypt, the landscape is adorned at regular intervals with towering white shapes, which are dwarfing the date palm trees. These are pigeon towers, built completely out of pots. The openings of the pots are facing inwards. Through a number of openings the pigeons can enter the tower and build their nest in one of the pots, until the day they are served on the dinner table, their little bodies stuffed with wheat.

Each pigeon has its own pot, which is a good way of maintaining the pigeon population. Pigeonholing in archaeology, however, is a method that has great weaknesses and has been used too often. Observation presents us with a chaos of information, which is processed in a constant action of ordering. One way of ordering is making a classification, which tells us where things belong in relation to each other according to specific criteria. This is something else than pigeonholing, ordering things for the sake of ordering. In Section 2.2.1 examples of both classification and pigeonholing are given, based on an inventory of a hypothetical kitchen area.

Descriptions and designations are based on classification and consequently terminology is given some consideration in this paragraph too.

2.2.1 *Classification*

In the second part of this book, classification is used as part of context-dependent formal analysis of recorded data. This seems to be a contradiction in terms, since formal analysis, as applied by positivist scientists, consists of filling in a context-independent frame with data. By using formal analysis as a heuristic, rather than explanatory procedure its advantages can be maintained, while its disadvantage, no surplus value of information beyond the theory from which the analytical frame is derived deductively, is avoided. Although formal analysis is a rigid procedure, its application as a tool to formulate imaginative hypotheses solves this drawback. The most important gain of formal analysis is clarity and precision, rendering the results specifically open to discussion.

The application of formal analysis as a tool gives no guarantee that the results will make sense. Classification cannot be applied to 'let the material speak for itself'. Instead, classification is used as a means to check hypothetical answers to explicit research questions, to generate new questions and build the narrative simultaneously.

In this respect explicating all assumptions is important, including the 'common sense' decisions made continuously while doing scholarly work. By always explicitly accounting for presuppositions, keeping a check on the entire procedure is possible. Involving the many aspects, which are of influence on a given situation, in the analysis, results in a black box, a mechanism of which the outcome may be predictable, but the working is unclear. Classification can be used to make a well-considered simplification, which is not a representation of 'reality', but a construction by the scholar, a point in the line of reasoning.

Although I disagree with Dunnell (1971) that first a theory has to be formulated, before the analytical structure can be filled in with data, I find his discussion on classification extremely useful. Dunnell distinguished grouping and classification, in which the first is a division of an existing corpus of objects in groups. The aspects that are important in grouping are dictated by the composition of the group-as-it-happens-to-be. If a new object is added, it is easily possible that it does not fit any of the existing groups and a new 'class' or 'type' has to be created on the spot.

In contrast to grouping, classification is a division into classes according to certain aspects judged relevant for a specific research question. It can be maintained that there are as many classifications as there are hypothetical answers.

Dunnell discerns hierarchical and paradigmatical classifications (Dunnell 1971, 69-86). The paradigmatical classification procedure involves the selection of relevant aspects, which form the *dimensions* of the classification. Every dimension has several features, or as Dunnell calls them: *attributes*. Every combination of the attributes of the different dimensions forms a class. Although the selection of

relevant dimensions and attributes is inspired by known objects, and specific research questions, the classes are created formally. They are filled with objects only after the formulation of the entire classification.

As an example of a paradigmatical classification of objects, Figure 2-2 shows a classification of shape, function, and material of objects found in a hypothetical kitchen area. All three dimensions have most attributes. Shape is specified as cylindrical, globular and flat. Three functions are considered relevant: things to put other things in, on or under. There are two material attributes: vegetable and mineral. The number of classes that have thus been created is 3 x 3 x 2 = 18. These 18 classes are assumed to represent a relevant reflection of the research question, which will have been something like "what is the relation between form, function and material of objects found in the kitchen area"?

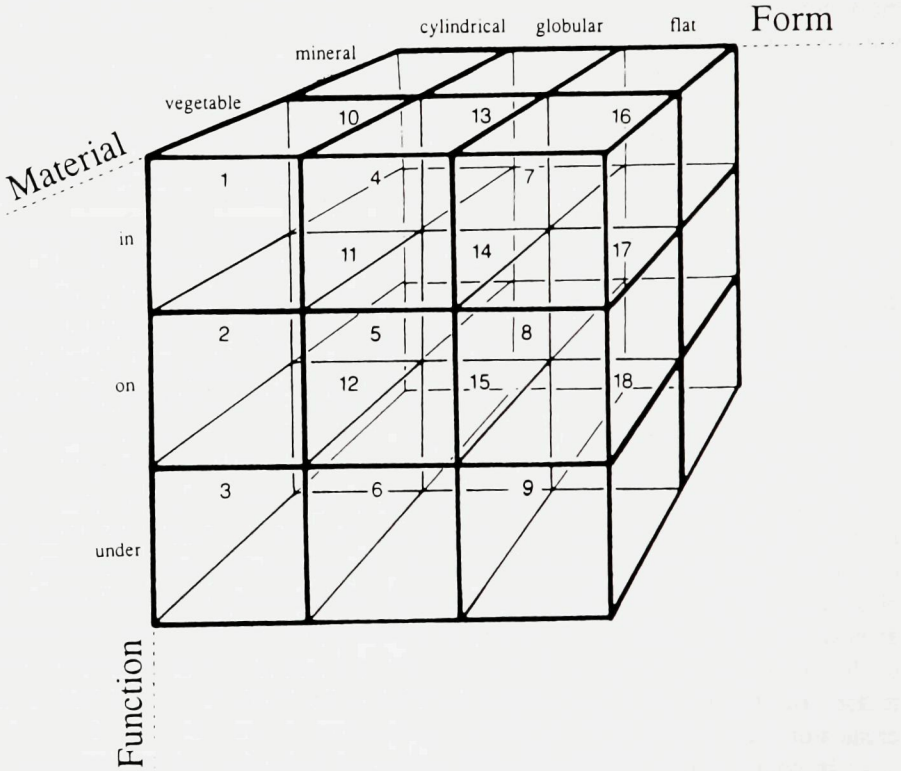

Figure 2-1 Paradigmatical classification of objects in a hypothetical kitchen area, classified according to three dimensions: *material* (mineral / vegetable), *form* (cylindrical / globular / flat) and *function* (to put things in / on / under). The 18 classes are occupied by the following objects:
1=baskets, 2=pot stands, 3=covers, 6=stoppers, 8=mats, 9=awnings, 10=vases, 11=pedestals, 13=pots, 17=plates/coasters, 18=lids.
The classes 4, 5, 7, 12, 14, 15 and 16 are empty.

When designating the objects to the classes, it appears that some classes are filled, others are empty. It is predictable that classes 7 and 16 are empty, because it is not possible to put something in a flat object, be it a mat (made of a vegetable material) or a pottery coaster (mineral). A similar explanation occurs for the empty classes 5 and 14, because spherical baskets and pots are not suitable for putting things on. At this stage, the classification appears futile, since everybody knows that coasters and mats are flat and that baskets and pots are supposed to contain things.

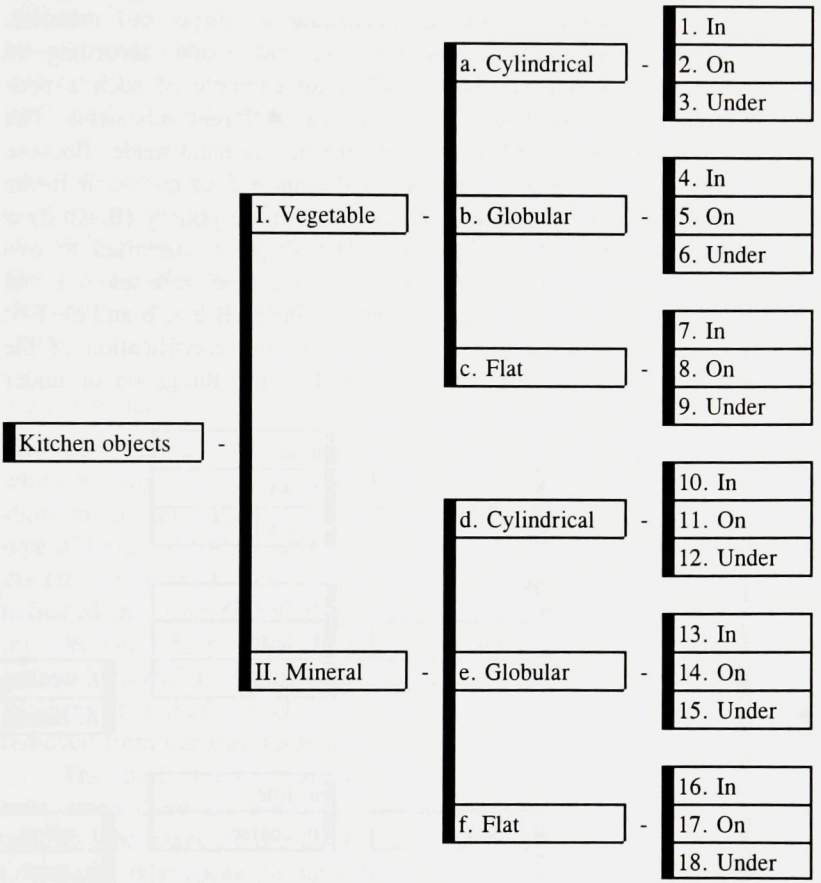

Figure 2-2 A hierarchical classification of objects found in a hypothetical kitchen area according to the same criteria as used in Figure 2-1.

Above, it was stated that classification also has a heuristic value. Here the classification of the kitchen inventory reveals a surprising phenomenon: there are no globular baskets (class 4: "globular objects to put things in, made of vegetable materials"). The heuristic value of classification lies in the need to explain these unexpected phenomena. The objective of using classification as an analytical tool is

not to devise a magical method, in the sense that it produces results by itself, but to use common sense in a systematic and explicit manner.

Classifications can also be used hierarchically by giving some criteria more weight than other. The result is a system of classes and subclasses. Using the same dimensions as in the example cited above, the first level is *material* divided in *vegetable* and *mineral* (see Figure 2-2). On the second level a division is made into *cylindrical, globular* and *flat* and the third level divides these subgroups into the three functional categories *in, on* and *under*. Making a division in function is equally possible, while creating subclasses according to shape and material.

Most published classifications, however, are not made according to dimensions, with several attributes. Figure 2-3 is an example of such a non-dimensional hierarchical classification. Every class has different subclasses. The coarse red pottery (B.1.b) is divided into wheel thrown and hand made. Because all the white pottery is wheel thrown, this technical feature does not occur in the classification of the white pottery. Because all red hand made pottery (B.1.b.ii) is globular no division of shape is incorporated. The shape is classified at two different levels: for the vegetable objects on the second level (classes A.1 and A.2), for the white pottery objects on the third level (classes B.2.a, b and c). Flat white plates (B.2.c) are not used to put things in, so the classification of the function of these plates only list that they are used to put things on or under (B.2.c.i and ii).

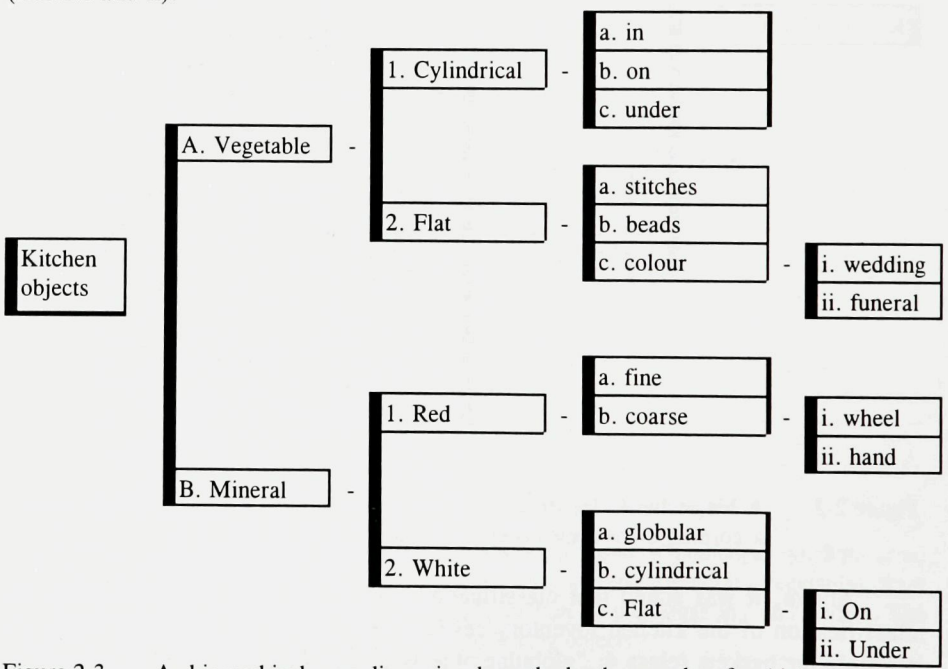

Figure 2-3 A hierarchical non-dimensional method, the result of which is not a classification (Figures 2-1 and 2-2), but grouping according to different criteria at each level and in each 'branch'. This is merely pigeonholing.

When a white hand made pot is found, however, this classification is outdated. A new class has to be added between level 2.(white pottery) and level a. b. and c. (forms of the white wheel thrown pottery). Furthermore, there are no empty classes. The globular baskets, which did not occur in the hypothetical kitchen area and resulted in an empty class in Figure 2-1, do not feature in the classification of Figure 2-3. This type of classification, which is in fact *grouping*, has lost all heuristic power and is nothing more than a set of pigeon holes neatly arranging a number of objects. It gives an average of what occurs in a specific context. It does not enable a comparison to what occurs in a different context, because each assemblage requires its own grouping. Criticism of classification (for instance Shanks and Hodder 1995, 9), refers mainly to the shortcomings of this method of 'classification'.

As said before, classification is assumed to be a relevant reflection of a research question. In a dimensional classification, be it paradigmatical or hierarchical, the relevant aspects are used to build classes. Differences in opinion or developments in insight on what is relevant can be incorporated and the strategy can be adjusted anytime. Several classifications can be used alongside each other, to highlight specific aspects such as technique, shape, form or function in more detail.

2.2.2 Terminology

The most general term for basket in Arabic is *sella*, but when I used this term while making an inventory of household basketry, trying to get the families to show me all the baskets they used in the house, the term *sella* produced just one type of basket. I had to ask for all basketry and matting types specifically. Clearly, the terms referred to very distinct objects. On the other hand, using the term that indicated the material (*khus,* palm leaf) brought out all locally produced baskets (cf. Section 4.5, p. 75). Studying present basket makers brings home that the terminology and the implicit classification on which it is based, differs from ours. Working in Egyptian archaeology is studying a culture and language, which are removed from our own in both time and region.

The implicit classifications underlying the terminology are hard to discover even when there are people available who can be asked. Apart from this, the persons who make or use the baskets often have a more specialised terminology than those, who speak the same language, but are relative outsiders. It makes you wonder how well the tomb decorators of pharaonic Egypt knew the basketry terms, which they quote in the 'captions' of the tomb reliefs with daily life scenes.

Furthermore, everyday object names are referring to different aspects, such as function, technique, material or origin, e.g. 'Egg-basket', 'Coiled basketry', 'wicker work' and 'Nubian basketry'. Developing a consistent terminology is often considered a primary task for those who study material culture and is directly connected to classification. The existence of several basketry terminologies is a reflection of different classifications (see Chapter 3). It is therefore not surprising

that those terminologies are usually incompatible, in spite of their internal coherency. Furthermore, there is the horror of terminologies designed to encompass every possible type and subtype. Without the handbook in which the types are defined and drawn, such terminologies are completely incomprehensible.

Using classification as an analytical tool, rather than a set of pigeon holes to organize material culture, creates a problem and a liberation at the same time. The problem is of course that almost every question requires a separate classification, which could result in a large number of internally consistent terminologies. The liberation is that we can stop attempting to create an all-embracing classification *cum* terminology. It is preferable to stick to a number of generally known terms and make *ad hoc* specifications, definitions and drawings, whenever needed.

2.3 COMPARING APPLES AND ORANGES?

An archaeo-botanist, who finds a small fragment of an apple core, has a reference collection to which he can compare the unknown fragment and identify it. If he has seen many fragments of apple cores, then he 'recognizes' the fragment, without the need of comparison.

Without thinking, purely based on experience, a pottery specialist picks up a sherd and puts it on the stack of spouted vessels. From known equivalents, a sherd with a hole under the rim is described as part of a spouted vessel, although the spout itself has disappeared. This is an implicit analogy with complete vessels made of the same fabric, with a spout under the rim.

Analogy is a comparison of an entity, with a better-known entity to come to an interpretation. The entities that are compared range from aspects of single objects to complete cultures. A widespread form of analogous reasoning in archaeology is based on a comparison of archaeological and ethnographic information. Ethno-archaeology is a method to make this comparison, based on research which focuses on the material expression or reflection of culture. Metaphors form a relation between material culture and the symbolic world.

In analogous reasoning one should be critical of what is compared with what. When apples are compared with oranges, the outcome will differ from a comparison of apples with apples. It depends on the research question if the first or the latter is useful, but seemingly far-fetched analogies (apples and oranges) are not necessarily useless.

2.3.1 Analogy

Using analogy for heuristic purposes is a means of generating new research questions by comparing a known with a lesser known situation. Referring to a present day situation as an 'inspiration' for archaeological research, is implicitly using the heuristic powers of analogy.

Explaining archaeological phenomena is often done by using analogies. A pattern of post holes is reconstructed as a silo, house or corral, based on examples

known from other sites or from the present. Traces of use are linked to human behaviour by comparing the patterns or residues of present behaviour.

Analogy, however, can go seriously wrong for several reasons. When the aspects that are compared bear no relevance to the interpretation, analogy goes limp. For instance, if there are red spouted pots and red bowls then the analogy of the colour of the fabric of a single sherd does not help to distinguish the shape.

Although the use of analogy is widespread in archaeology, the validity is subject to debate among archaeologists. Implicit use of analogy muddles the argumentation. Naive use of analogy may lead to farfetched conclusions: a Fatimid green glazed incense burner that looks conspicuously like an orange squeezer may provoke the idea that orange juice was part of the diet in 10th century AD Cairo. Hodder gives an overview of criticism of misleading and amateurish use of analogies (Hodder 1982, 11-27).

Rather than rejecting analogous reasoning altogether, or restricting its use drastically, a critical and explicit use makes analogy an important tool for interpreting material culture (Wylie 1985). By discerning two kinds of analogy, formal and relational, the conditions of using analogy become much clearer.

Formal analogy compares aspects of objects or situations. Formal analogy looks at the *existence* of similarities and the *strength* of the analogy, the number of aspects that are similar. In case of a strong analogy, other aspects are supposed to be similar as well

Relational analogy, according to Hodder, focuses on the natural or cultural relations between aspects of the analogy. Relational analogy not only looks for the existence and strength of the analogy but also for the *nature* and *cause*. The questions that Hodder asks of an analogy thus are:

are there similarities between A and B
how many similarities are there between A and B
what are these similarities like
what caused these similarities (Hodder 1982)

However, the opposition of formal and relational analogies is artificial at best. Formal analogies are usually followed by explanations, which focus on causality and in that respect come close to relational analogies which focus on causal relations.

To my understanding it is more important to highlight relations other than causality, by making an inventory of similarities and dissimilarities. In such a use of analogy the subject, object, purpose and relevance should be defined. The subject is the archaeological situation that has to be interpreted. The object is the analogous situation, for instance another part of the site, another excavation or a present day culture. The task of the researcher is to define why the object is thought analogous to the subject.

Classification can be used as a means to make analogy more controllable. In a dimensional classification both the similarities and dissimilarities can be made visible. In order not to use formal criteria doggedly, defining the relevance of those criteria to the research question is important. Determining the relevance is

not an objective exercise, because it involves judgement and selection. Making such decisions is an internal argumentation, which, when made explicit, can be criticized by colleagues.

The variation in archaeological research questions is great. Some examples of archaeological research using analogy are the appearance, function and meaning of objects, the lay out of work shops, the formation of archaeological sites, subsistence strategies or social structures and relations.

2.3.2 Ethno-archaeology

Comparing archaeological and ethnographical data is a form of analogy frequently used by archaeologists. The discussion on analogous reasoning based on comparing the present and the past has focused on the *object* (which aspects are compared and what are the preconceptions connected to it) and the *purpose* (cf. Hodder 1982, 40-46; Ochsenschlager 1998, 103). The critical discussions centre on the value and validity of ethno-archaeology and the preconception (either implicit or explicit) that govern the analogous thinking.

In the discussion of the object of ethno-archaeology, the reasons given of why a comparison between past and present should be considered possible are:

- There is a continuity of tradition and thus it is valid to study the present, to understand the past as long as this is done in the same area (direct historical approach). This approach centres on a study of a region in past and present.
- People in present and past exploit similar material resources and their actions, way of life and material culture are determined by those circumstances. Here, the researcher will concentrate on the properties of the material resources and their effect on human behaviour.
- People living in the same natural conditions are compared, because they have to cope with the same problems. This is also a behavioural approach, concentrating on the manner in which humans cope with natural circumstances as cold, drought, etcetera. This approach, sees human behaviour primarily as a reaction on the surroundings.
- There are behavioural laws that are valid for humanity as a whole (cross-cultural laws). Thus it is useful even to study ideas, for instance, about family, society, religion and ethics, within two or more societies.

Based on arguments such as these, processual archaeology has made extensive use of ethno-archaeology, in two main functions: first, it has a heuristic purpose. The validity of the hypotheses suggested by ethno-archeology has to be screened by testing the hypothesis against archaeological data (Binford 1972, 33). Secondly, ethno-archaeological research is used for testing theories about the past, on the basis of an analogy of the residue of specific actions, which are thought to be the same in the past and at present (Binford 1967, 1980).

Ethno-archaeology focuses on processes instead of artefacts. It brings the past alive and people, rather than objects, back into view. In this context the dichotomy of static and dynamic is often introduced (Binford 1977).

The processual use of ethno-archaeology centres around behavioural and functional interpretations. Gould, for instance, argues that ethno-archaeology is a systematic exploration of present human behaviour, from which material correlations are inferred, providing a basis for ideas about past human behaviour (Gould 1978, 292). Hodder, on the other hand, stresses that arguments of relevance should not just be functional or behavioural. By applying a relational analogy, conclusions on a much wider scope can be drawn (Hodder 1982).

There is a difference, between ethnographic analogy and ethno-archaeology. The former uses existing descriptions made by ethnographers or anthropologists, the latter is based on field work in present society with a specific archaeological focus. Because interpretation is part of even the first stage of basic research, doing ones own ethno-archaeological fieldwork is highly preferable to using existing ethnographies.

The material remains of human actions are all that is left for the archaeologists. Furthermore, these material remains are not simply the residues of 'frozen' actions, but the result of a wide variety of processes and motives. The processes, such as production, use, re-use, deposition and post-deposition are understood better by studying them at present. Objects get lost, are thrown away, are taken from the world of the living in a different world by burying them with the dead or storing them in a special place. Studies of the motives of present day informants may give less tangible results, but are of importance in understanding that things might not be what they seem.

The major problem of ethno-archaeology is to what extent the present can be used to interpret the past. An analogy which just puts the two side by side, without making an attempt to interpret the one in the light of the other, is not very powerful. On the other hand intertwining past and present is easily done too quickly and too simply. An example of such an intertwining of present and past by ethno-archaeological research, is found in the work of McGregor. At some point the author, who writes about archaic life ways of the lower Pecos, Texas, is referring to the past, in a description which is based on the present:

> "*Women*, with few exceptions, are the basketmaker (...). Most basket makers depend upon two or three *culturally preferred* materials for the majority of their work. Although the weaving of baskets is *not done by specialists*, there must be *superior* basket makers." (Mc Gregor 1992, 10, emphasis added).

In this paragraph Mc Gregor has applied analogy descriptive ("Women are the basketmaker"; "not done by specialists" and "superior basketmaker") and explanatory ("culturally preferred materials"). Is this a good illustration of the wide scope of analogy as advocated by Hodder? Mc Gregor's use of ethnographic information on American Indian peoples is a direct historical approach bridging 5000 years. Without hesitation the present situation is transplanted onto the past. In this interpretation there is no firm link to the archaeology. The result is an

impressionistic rendering of ancient basket makers which is a possible interpretation, but by no means the only one, as Ochsenschlager has shown (Ochsenschlager 1998, 116-118).

The present work on Egyptian basketry production started on the one hand from the archaeological baskets and the context in which they were found, on the other hand, the present day basket makers have been studied in order to understand the present production process. These were not two independent research projects. They were intertwined from the beginning, because my interest in the modern basket makers was born from the ancient baskets.

On the basis of the results of archaeology and ethno-archaeology the similarities and differences of four groups of basketry have been determined (Chapters 10 and 11). These four groups were the ancient Middle Egyptian basketry (Amarna), the ancient Nubian basketry (Qasr Ibrim), the present Middle Egyptian basketry and the present Nubian basketry. The focus of the research was to understand the ancient production processes, to identify the basket makers (i.e. to determine their gender, economical and social position), and to find their objective for making the baskets.

Understanding the ancient production processes involved understanding the properties of the raw materials used and the strength and skill needed to work these materials. For these aspects I have taken lessons from the basket makers.

Parts two and three of the book focus on static and dynamic aspects of basketry. This arrangement is not based on Binford's division, but stems from the involvement of time and movement through the use of video in the study and interpretation of ancient and present basket makers.

2.3.3 Meaning and Metaphor

Traces in the earth are perhaps the result of practical subsistence strategies or may have a symbolic meaning. Ethno-archaeology has been concentrating mainly on matter, but is learning from anthropology that sometimes there is more to an object than appears on first sight, sometimes less.

Tilley quotes some examples of the rich meaning of material culture of two kinds of basketry. The *bilum* net bag from New Guinea is utilitarian, decorative, but has also a symbolic and social meaning. It is connected to child birth, protection, but also acquired a new cultural value as a neo-traditional symbol of independent Papua New Guinea (Tilley 1998, 62-68). The basketry of the Yekuana (south Venezuela) has a strong symbolic and powerful social meaning. "The process of basket-making is one of a constant metamorphosis of reality into a comprehensible, coherent and *legible* order" (Tilley 1998, 68). Textile production also carries a rich and important symbolic meaning, which is expressed in the weaving and decoration patterns (Geirnaert-Martin 1992). On the other hand, the main motive for a recent spectacular change in Iraqi pottery is an attempt to attract customers (Ochsenschlager 1998, 116-118).

Technological processes are used metaphorically also. The creation and production of objects are often linked to ideas of spiritual or ancestral involvement in the production process (Trigger 1998, 57). In ancient Egypt, the act of knotting had a strong magical side to it. Knotting stood for protection as well as hampering (in child birth, but also for the dead, cf. Wendrich 1988). Both Hodder (1982) and Ochsenschlager (1998) give ethno-archaeological examples that contain warnings for oversimplification while interpreting material culture.

Hodder focuses on the symbolic meaning of material culture in an attempt to formulate a theory of material culture (Hodder 1982). He states that material symbols are value laden; that symbols should be understood by reference to the particular historical situation; that visual images are ambiguous and multifocal, in contrast to spoken text; that meaning can be composite and can change over time; that material culture can be used actively to have an emotive effect; that material culture is not only functional, but often refers to an ideal, symbolic, world; that symbolic meaning may be subconscious; that the common scholarly language might not be sufficient to express the emotional values of material culture; that material symbols are important in ideological and social strategies. Hodder lists these nine aspects of a theory of material culture, without proceeding actually to formulate the relation between them and without a clear link to archaeology. In his opinion, the key to the interpretation of material culture is the underlying structure, but it is a key of wax that Hodder presents, because he does not elaborate on how to define this underlying structure.

Seventeen years later he has refrained from attempts to formulate such an all-encompassing theory of material culture, but points instead at the pluralism and multivocality of archaeology (Hodder 1999, 159). This is combined with some very down to earth examples of how the major post-processual themes work out in the field.

2.6 THE FABRIC

Perhaps the positivist approach can be compared with the fabric of a textile: the warp is formed by empirical observations, which are held together by the weft of theory. Warp and weft are two separate systems which interact systematically and are beaten to a tight fabric with the beating rod of method. Or, as Dunnell describes the procedure: "one starts with a set of explicitly defined notions (theory) which are capable of being organized according to some of the defined relations in a model for the solution of a particular class of problems (method), which in turn is capable of being matched with phenomena (technique) in order to produce a testable hypothesis capable of being used as an explanation (prediction/control)." (Dunnell 1971, p.41).

The underlying work, however, is better compared with the fabric of basketry: a complex interaction of oddly shaped leaves and branches. The observations on present day Egyptian basket makers and ancient Egyptian

archaeological baskets have to be interwoven with care, in order for the fabric to hold. Or, as Shanks has formulated it: "The archaeologist can only weave connections that establish insights and plausibilities and are as much about the present as the past" (Shanks 1996, 128).

The method used is a hermeneutic spiral: a constant confrontation in which theory and observations are not considered opposites, but as part of the same continuous process (Hodder 1992,188-193, 239). The spiral represents the process of learning. In principle nothing makes the spiral end, in practice the deadline for publication does.

'Testing' theories developed in the course of the spiral, is problematic in this set-up. For one thing the theory is built on top of its own earlier stages. Secondly, since a confrontation of theory and observation is not possible, because they are considered part of the same continuum, the positivist procedure of testing theory against data is not possible. As has been indicated in section 2.1 there are a number of alternatives in testing theories, which have to be checked for suitability.

Testing theories on their *internal coherency* is useful when a theory is formulated deductively. However, spiral theory building is a mixture of induction and deduction. This does not present a problem when judging theories from their *social implications*. This method of testing is linked to the important and extensive subject of ethical implications of archaeology. Even a seemingly 'innocent' subject as basketry may have political and ethical implications: the social position of basket makers can be presented in several ways.

A practical solution is accepting that observation and theory cannot be parted, while acting as if they can. As long as it is kept in mind that this is a makeshift measure, it is possible to check ones construction of reality by referring to the data base as if it were an independent entity. Avoiding this self-deceitful solution would be preferable, however.

In post-processual archaeology the *construction of a narrative*, built up by linking small elements to a meaningful whole is presented to the outside world. Therefore, the central demand is that the work has to be presented with maximum openness to critique. This can be achieved by using explicit presuppositions and use formal analysis wherever relevant. As indicated in section 2.2 classification and analogy are the most important tools used in basketry analysis. Via a flexible application of classification correspondences and differences are being found.

In Chapter 9 classification is used to analyse four groups of basketry (ancient Middle Egyptian basketry, the ancient Nubian basketry, the present Middle Egyptian basketry and the present Nubian basketry). To check the degree of correspondence and difference, a fifth group is involved which is supposed to have no historical links with the Egyptian material and uses different raw materials. Following this, the use and properties of raw materials are considered.

Analogy between ethno-archaeological material and archaeology is determined by following four steps. The degree of *similarity* is determined. Secondly, attention is paid to *dissimilarities*. Next the *relevance* of both similarities and dissimilarities to the interpretation of the object or residue is determined. After

having benefited from analogy, the last step is putting it aside, in order not to be limited by an interpretation that is mainly focused by the analogy.

The example of the lower Pesos basket makers in section 2.3.2 shows that without additional information, such as Hodders' relational reasoning, the results give but a possible variant. Analogy thus applied forms even a threat to interpretation, first because it gives one-sided information, secondly because it blocks the search for alternatives.

In the following chapters an attempt has been made to avoid this trap, by making increasingly bold analogies. Part II gives a 'static' image of basketry production by comparing ancient and modern basketry techniques and raw materials on the basis of well-defined criteria. Part III focuses on the 'dynamic' aspects of the production process by presenting the time involved in the present day process and the movements of the basket maker. Part IV tries to identify the ancient basket makers and their motives, by making a comparison with the present day basket makers.

Thus this is a book on basketry production, with two interlinked starting points: archaeological basketry and present day basket makers. Comparisons are made between basketry remains from the New Kingdom (thirteenth century BC) and the Ballana-culture (third to sixth centuries AD); between Middle Egyptian and Nubian basketry; between modern and ancient basketry. These are gaps that have to be bridged. Perhaps the biggest gap, however, is that between the researcher, a west European highly educated female, without first hand experience of having to make a living by producing a craft, and the informants, mostly barely educated Egyptian and Nubian men and women, who have been living in the same village for their entire life and use their craft to survive or to improve their lives.

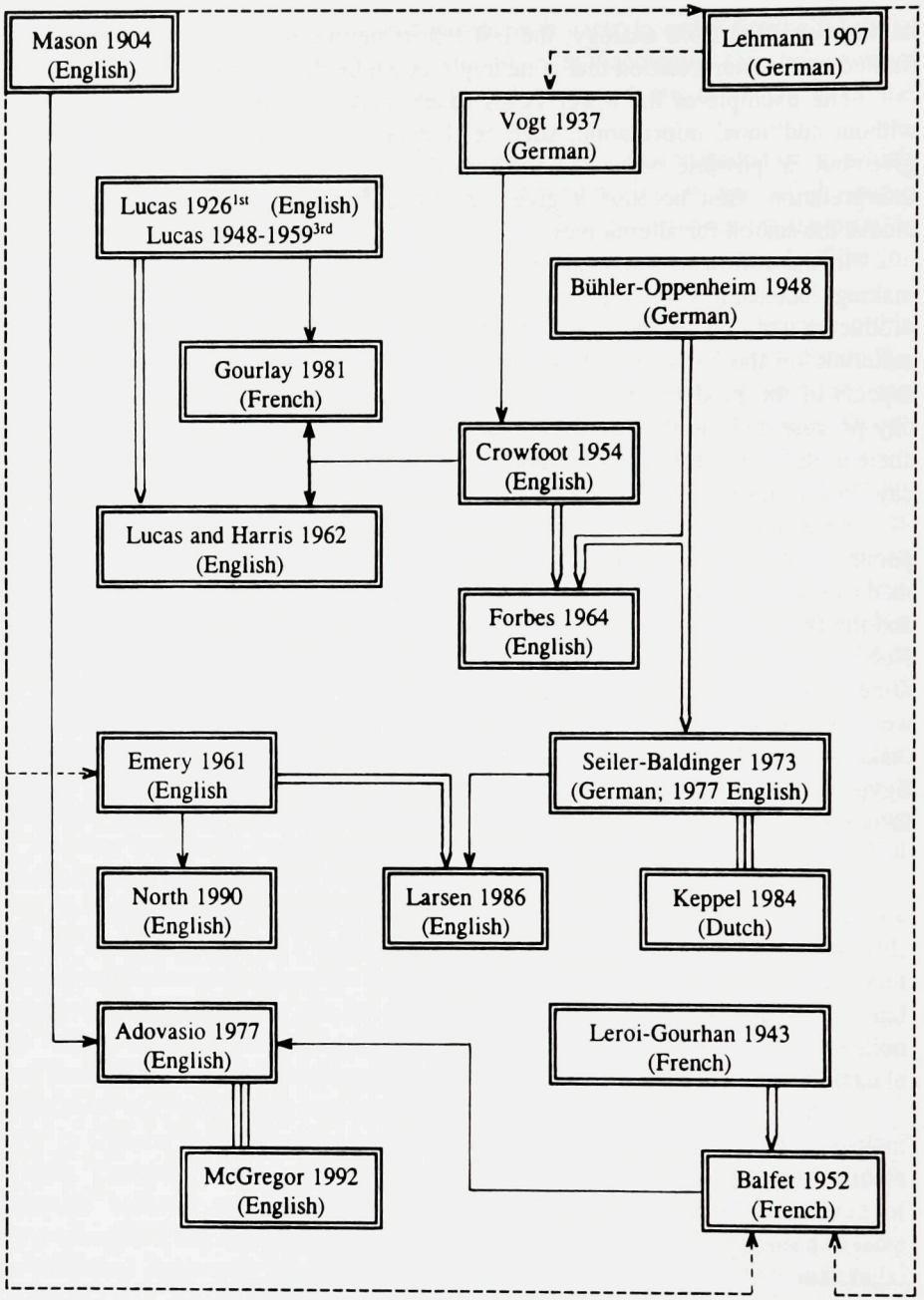

Figure 3-1 Influence of major publications of basketry classification on each other.

----- A is known to B ═══ B is developed out of A

——— B is influenced by A ≡≡≡ B is using method of A

CHAPTER THREE

CLASSIFICATION

3.1 INTRODUCTION

In section 2.3 a kitchen inventory was used to illustrate the nature of classification. In Chapter 3 a survey is made of basketry classifications used in literature on archaeological and ethnographic basketry from different parts of the world.

An introduction to the literature on basketry classification gives a firm basis for the analysis of Egyptian basketry. The literature that will be discussed in this section includes publications of Egyptian archaeological material and world wide classificatory systems. Within the field of basketry different subjects are emphasized, due to the specific interests of the authors. To be able to compare these different classificatory systems, four aspects are highlighted. The first aspect on which the classifications are compared is the purpose of classification (section 3.2). In section 3.3 a comparison is made of the definitions given of basketry. Furthermore the opinions of the different authors on the relation between textiles and basketry are presented. Section 3.4 gives a brief outline of the different classificatory systems, by concentrating on the research question and the criteria used. The drawings and photographs, which form an important part in any work on basketry, could not be included. In the last section some concluding remarks will be made, resulting in an outline of the use of classification in Part II.

The terminologies used in books and articles differ considerably, not only because they are in French, German and English, but more importantly because they reflect different classificatory principles. It is possible to discern a number of 'traditions', by identifying the extent to which the work of one author is source material for the others (see Figure 3-1).

The purpose of each of these books and articles differs, as does the subject matter as far as region and period are concerned. The publication of Mason (1904) describes American Indian ethnographic basketry. Adovasio (1977) and McGregor (1992) deal with American Indian archaeological basketry. Lehmann (1907) has developed a general classification, inspired mainly by material of the Dresden Museums, from South-East Asia, Africa and South-America. The objective of Leroi-Gourhan (1943) is to give a description of world technology, including the technology of making baskets. His work is extended and improved by Balfet (1952), who studied basketry from all over the world from the collections of six ethnographic museums.

Bühler and Bühler-Oppenheim (1948) base their classification on the ethnographic collection of Iklé-Huber in the Museum of ethnology in Basel. Seiler-Baldinger's (1973) update and reorganization of the work of Bühler and Bühler-Oppenheim, amounts in what can be considered a standard work on textile techniques. Keppel (1984) uses Seiler-Baldinger's classification in her work on the basketry of the Mentawai Islands (Indonesia). Emery (1961) has written a classification of world textile techniques, which has been internationally accepted as a standard. Larsen (1986) elaborates on her work, concentrating on the subject of interlacing. A brief introduction to basketry techniques is included in a recent work on conservation of plant material by North (1990).

Vogt (1937) is a publication of a collection of stone age basketry and textiles of the Schweizerisches Landesmuseum. Crowfoot's (1954) world history of basketry technology is based on archaeological evidence. Her work is used, in places almost literally, by Forbes (1964), who includes a short section on textiles, basketry and mats in his *Ancient technology*, in which he also uses the work of Bühler and Bühler-Oppenheim. Two editions of Lucas's *Ancient Egyptian Materials and Industries* should be considered here. The third edition (Lucas 1959) concentrates on raw materials and hardly mentions any techniques. The fourth edition (Lucas 1962), which has been revised by Harris, uses Crowfoot's classification of techniques (Crowfoot 1954).

Crowfoot, Forbes and Lucas (1959) are the main source of information for Gourlay (1981) in his publication of the archaeological basketry from Deir el-Medina (Egypt, New Kingdom period).

	World-Wide	Regional
Ethnographic	Lehmann (1907) Leroi-Gourhan (1943) Bühler and Bühler-Oppenheim (1948) Balfet (1952) Emery (1961) Seiler-Baldinger (1973) Larsen (1986) North (1990)	Mason (1904) Keppel (1984)
Archaeological	Crowfoot (1954) Forbes (1964)	Vogt (1937) Lucas (1926) Lucas and Harris (1962) Adovasio (1977) Gourlay (1981) McGregor (1992)

Table 3-2 Division of publications in those dealing with ethnographic and archaeological basketry, on a regional as well as a world-wide scale.

In Table 3-2 the publications have been divided into four groups to clarify their subject matter. The largest part of the literature, eight of the eighteen publications, has been based on information on ethnographic basketry of different continents, with the objective to give a survey of basketry techniques on a world wide scale. Two publications, Mason and Keppel, concentrate on ethnographic basketry from one region. Although Mason's book covers a large area, it deals with basketry from the American continent only, and, more specifically, American Indian ethnographic basketry, with some attention to archaeological material. Keppel describes basketry from a specific Indonesian region.

The same division in *world wide* and *regional* can be made in respect to the work done on archaeological basketry. The publications of Crowfoot and Forbes both describe a history of basketry technology, which is meant to be world wide. Different regions are subject of the work of Vogt, Lucas, Lucas and Harris, Adovasio, Gourlay and McGregor. The work of Adovasio focuses on ancient American basketry, while McGregor describes archaeological basketry from specifically the Lower Pecos area (Texas). Vogt's work deals with archaeological material from Switzerland.

There are three publications on ancient Egyptian basketry, Lucas, Lucas and Harris, and Gourlay. Lucas mainly lists archaeological basketry, found in Egypt. In the later edition, revised by Harris, there is more attention for the different techniques. The publication of archaeological basketry, which can be considered the most closely related to material from the workmen's village at Amarna, is Gourlay's catalogue of the finds from the workmen's village at Deir el-Medina.

In the next sections the above-mentioned publications will be compared in more detail. Because of the difference in terminology used, all classifications will be 'translated' into a basic description, using a limited number of terms[1]. Apart from the wide range of terms that are direct quotations or representations of those used by other authors, the following expressions will be used:

- *Technique* is used as a general term for the structure of the basket. The technique can be recorded by studying a basket or fragment of a basket.
- *Technology* is used to indicate the production method of the technique. This includes the use of tools and the working order. Technology can be recorded by observing modern basket makers, or (partly) inferred from the technique.
- *Strand* is used to indicate the smallest unit with which a basket is made, be this a string, leaflet, twig or tree.
- *Element* is a strand, or number of strands worked up together. When an element consists of more than one strand, the element has several *members*.
- *Set of elements* are a number of strands, which have the same function in a technique. This function can be *active* or *passive*. Thus, a basketry fabric can be made from one long element or several parallel elements.

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[1]More definitions can be found in Chapter 4 and the glossary. The terms are explained and illustrated in Wendrich 1991c.

• *Passive* and *active* indicate the function of elements. Passive elements make up the body of a technique, while active elements hold the technique together. Together, the active elements form the *active system,* which causes the coherency of the technique. Without the active system, all the passive elements (the *passive system)*, would just be a number of loose strands.
• *Basic structure* is the way in which a technique is made up of several strands. The basic structure consists of a number of systems. The systems each consist of an element, or set of elements, that have the same role in the technique. The interaction of the systems results in a coherent structure that makes up the technique.

3.2 PURPOSE OF CLASSIFICATION

In the earlier works on basketry the reason for making a basketry classification is often not made explicit. One should, of course, be aware that searching for an explicit purpose is looking with late-twentieth century eyes to work that has been done from the beginning of this century onwards. By reading between the lines, a reason can always be detected. They are presented here in chronological order.

Mason sets out to formulate criteria to identify the source of production of American Indian basketry. In his own words: "In basket-making there are several characteristics to be observed which will enable one to classify the objects and to refer them to their several tribal manufacturers." (Mason 1904, 190).

For Lehmann the purpose is to create an order. He does not discuss the gain of such an orderly arrangement extensively, but he remarks: "Schon um die einzelnen Geflechtsarten systematisch ordnen zu können und nicht später mit anderen ähnlichen Arbeiten zu kollidieren, ist eine systematische Übersicht über sämtliche existierenden Geflechtsarten unbedingt erforderlich." (Lehmann 1907, p. 1) Lehmann is convinced that a classification is imperative, because all attempts of studying basketry and making a classification clash with work previously done, if a complete system is lacking. Reading between the lines, it may be concluded that Lehmann sets out to classify basketry to create the possibility of comparison between different people's work.

The presentation of the collection of stone age basketry and textiles at the *Schweizerisches Landesmuseum* forces Vogt to make models to explain the technical differences between the objects. He presents these 'models' (drawings of the technical construction) in a specific order, but Vogt does not mean to make a classificatory system. For that he refers to Lehmann's system, which he mentions and declines as too complicated and yet not detailed enough for his purpose.

Leroi Gourhan uses basketry from the *Museé de l'Homme* and his own observations during field work as the basis for the description of basketry technology. This is part of an attempt to create a complete technological description of the world. "Aucun chercheur ne pourrait décrire l'activité des hommes en tous les temps et dans tous les pays, mais les grandes classifications se font, bien avant qu'une science soit complètement exploitée." (Leroi Gourhan

1971, 14). Thus Leroi Gourhan implies that a good classification contains knowledge of which scholars are still unaware.

The purpose that Balfet has in mind is not made explicit, but can be inferred from what is written in her book: "Si quelques formes bien étudiées sont connues avec toutes leurs variantes dans certaines aires géographiques, il est encore impossible de se faire une idée des rapports de certains types entre eux, et le défaut de terminologie rend difficiles les descriptions et incertaine l'interpretation des données publiées." (Balfet 1952, 295). The purpose of classification is, in her view, to find correlations on a worldwide scale between types of basketry, rather than just concentrating on describing a certain region in detail, and to develop a terminology that makes it possible to communicate on basketry.

Partly basing herself on Vogt, Crowfoot does not give a purpose. In her introduction to the section called "Types of basketry", she writes: "Before discussing these finds it is necessary to describe in some detail the main techniques in use." (Crowfoot 1954, 415). Although she does not make explicit why this is necessary, she does give a clue to what she is really interested in, when describing basketry techniques, namely the evolution of techniques: "The evolutionary story of these techniques is still full of gaps" (Crowfoot 1954, 414).

Emery's purpose for classification is creating a consistent terminology. In her own words: "The bewildering inconsistencies and incongruities (...) led me to undertake a detailed and systematic investigation of the essential characteristics of ancient and primitive fabrics." (Emery 1980, xi).

Both Lucas' and Forbes' objective is comparable to that of Crowfoot: to find the evolution of techniques, Forbes worldwide and Lucas in Egypt only.

Seiler-Baldinger does not give an introduction to her classificatory system. In a preface Bühler, whose work forms the basis of Seiler-Baldinger's system (Bühler and Bühler-Oppenheim 1948), gives two reasons for making a classification. First, classification provides the basis for a textile terminology, which was lacking before. The terminology as it was used until the publication of Seiler-Baldinger's book, is unclear, especially internationally. A classificatory system is necessary, to create a consistent terminology. Secondly, Bühler considers the production process as a source for detecting a development of technology. In his introduction to Seiler-Baldinger's book he writes: "Die Gliederung nach Anfertigungsprozessen hat den grossen Vorteil, dass man die einzelnen Verfahren nach ihrer technischen Entwicklungshöhe einstufen kann." (Bühler in Seiler-Baldinger 1973, XXVI).

Adovasio considers basketry classification analogous to the taxonomy of plants and animals. He expresses this as follows: "The entire procedure reduces the assemblage to progressively smaller units of increasingly greater taxonomic resolution or precision." (Adovasio 1977, p.1). The objective of making a classification is thus to create an order, but nowhere Adovasio specifies or hints to what purpose.

Gourlay notes that Lucas has provided a sketch of the evolution of basketry techniques in Egypt and he clearly states that he does not set out to do the same. Gourlay's purpose is to identify the date and place of the different techniques by studying them in detail, and putting them in an order according to known and

newly created criteria: "Il conviendra dorénavant de mettre en fiches, selon des critères définis dans ce présent travail si possible, sinon en créant selon les besoins des critères nouveaux rentrant facilements dans la classification ici employée. Seule une mise en fiches systématiques, répondant à des normes bien strictes, permettra une datation et une localisation de tout objet de sparterie avec un maximum de certitudes." (Gourlay 1981, vii-viii). Since he publishes basketry from one site, his material is not really suited for this purpose. He probably means that by ordering basketry according to clear criteria, the descriptions can be compared with the work of others, which makes it possible to compare the data and in the end develop a set of criteria against which every new find can be dated and placed. Interpreted this way, Gourlay's objective is close to that of Balfet, Emery and Seiler-Baldinger.

Larsen is convinced that classification is necessary, and that his classification fills a gap. He does not indicate, however, what the purpose of his classification is. "A sweeping view and survey of interlacing in all its forms is needed" and: "No classification has appeared that consistently and logically relates the weaves of textiles to other interlacings. Our classification is proposed as a further step toward the comprehension of all interlacings as a single entity, which can be described by one system of classification" (Larsen 1986, 10).

In a chapter on basketry techniques, North explains the importance of this subject for conservators: "Familiarity with construction methods is important to accurately document artifact construction and to understand the mechanical strengths and weaknesses of artifacts." (North 1990, 87). Her only objective is to give a simple, clear survey of techniques, in an order that is easy to grasp.

The question of the purpose of basketry classification thus receives a wide variety of answers, which range from none, to a heuristic application of classification.[2] In a nutshell the purposes as found above are:

- No clear purpose (Larsen, North)
- Creating an order (Lehmann, Adovasio)
- Identifying the source of production (Mason)
- Determining the evolution of techniques (Crowfoot, Lucas, Forbes)
- Determining the level of development of a technique (Bühler / Seiler-Baldinger).
- Make communication on basketry possible, by creating a consistent terminology (Balfet, Emery, Bühler/Seiler-Baldinger, Gourlay)
- Explain technical differences (Vogt)
- Give a technological description of the world (Leroi Gourhan)

Perhaps Leroi Gourhan's remark that great classifications can describe human action and contain knowledge of which scholars are still unaware (Leroi Gourhan 1971, 14), can be interpreted as the heuristic power of classification. On the other

[2]The purpose of classification within the scope of the underlying work, will be put forward in section 3.5.

hand, this remark could also be interpreted as a somewhat naive belief in 'letting the material speak for itself'.

3.3 DEFINING THE BOUNDARIES

Definitions of basketry are often concerned with defining the boundaries between basketry and textiles. Both aspects, definitions and defining the boundaries, are surveyed in the work of the different authors, introduced at the beginning of this chapter. Their statements on the subject are presented in order of publication date.

3.3.1 Survey of boundaries

Mason defines a basket as "A vessel or receptacle in textile material; a technic product resembling this" and basketry as: "A general term including (1) basket making, the process or art; (2) basket work, the technic or stitches, any textile motive resembling work in baskets; (3) basket ware, a collection of finished products."(Mason 1904, p. 193). He sees basketry as a variety of textiles, but considers the use of a loom and the rigidity of the material as the discriminating factors between basketry and cloth: "Basketry is differentiated from (...) loom products, not only by the material, which is usually less rigid, but by the workmanship, which is done by machinery. (...) No wide gulf separates the different varieties of textiles, however, beginning with such coarse products as brush fences and fish weirs and ending with the finest lace and needlework." (Mason 1904, p. 184)

Lehmann states that giving a definition of basketry with a limited amount of words is impossible, but nevertheless attempts to do so: "Flechten nennt man eine ohne oder mit Instrument, das jedoch nicht zur Versteifung des Streifenendes (Fadenendes) dient, vorgenommene Manipulation, die bezweckt, aus einem Material von geringer Breitenausdehnung und unbeschränkter Längenausdehnung durch Verschränkung entweder ein an Breitenausdehnung grösseres und somit festeres oder ein Gebilde zu erhalten, dessen Breitenausdehnung von der Willkür des Manipulanten abhängt." (1907 p 2.) A definition of basketry is not easy; that much may be clear. Lehmann proposes that basketry is made with or without instruments, but in any case without looms. It is made from material with limited width and unlimited length. This material is interlaced to make either bigger and stronger material, or shapes for which the size is determined by the producer. Lehmann does not concern himself with discerning textiles and basketry. He maintains that, although the boundaries between textiles and basketry are not easily drawn, in practice it will be clear what is basketry and what is a textile.

Vogt presents stone age textiles and basketry in two separate parts. Therefore, mentioning the criteria that rule this division is important to him. Vogt distinguishes two actions, rather than two artefact groups: "Als Hauptunterschied zwischen Flechterei und Weberei kann der Umstand gelten, dass bei der letzteren wenigstens ein Teil der Fäden mit einer gemeinsamen Vorrichtung zur Bildung eines Faches versehen sein muss." (Vogt 1937, p. 2). Weaving requires a loom that has a device to lift a part of the warp in one movement. Thus the

sophistication of the loom is what divides textiles from basketry, for example mat weaving, which might be done on a simple loom, is classed as basketry, because each strand of the weft is inserted by hand.

The third edition of Lucas's work on ancient Egyptian basketry (1948-1959) mentions that basketry is made without the use of any kind of machinery, whereas weaving requires tools, such as looms and a specific preparation of the fibres (spinning).

Leroi Gourhan uses the same word for basketry and textiles (*tissus*). The difference between the two groups is a practical one, made by common sense and based on shape, use and appearance (Leroi Gourhan 1971, p.268). In technique, however, Leroi Gourhan wants to incorporate many similarities in his classification: "L'essentiel de ce qu'on peut dire des tissus (vannerie et étoffes) est commun à toutes les techniques qui ont pour but l'enchevêtrement de deux nappes et la distinction apparaît comme secondaire." (Leroi Gourhan 1971, p. 272). This approach can be criticized, because although the technical structure of some baskets and textiles are similar, the manner in which this structure was made - the technology - often is not.

Balfet uses the same definition of basketry and textiles as Leroi Gourhan: "Vannerie est l'assemblage à la main de fibres relativement rigides et d'assez gros calibre pour en faire des surfaces continues, le plus souvent des récipients." and: "le tissage est l'assemblage sur un métier à tisser de fibres fines pour fabriquer une surface plane." (Leroi Gourhan 1971, p. 268) (Balfet 1952, p. 260) According to these two definitions the difference is determined by the flexibility and size of the strands, and the shape or function of the object (container versus flat surface). The use of words such as "le plus souvent" indicates that the limit between basketry and textiles is arbitrary, something which Balfet also states explicitly.

The title of Crowfoot's article "Textiles, basketry and mats", implies a relation between these three groups: "Basketry and mats are commonly distinguished from weaving, but it is often difficult to know where to make the division" (Crowfoot 1964, p. 414). She points to the function (baskets are vessels) and, with respect to the difference between mats and textiles, to the use of looms, notes: "Only with the fuller development of the loom did the techniques draw apart." (Crowfoot 1954, p. 414).

Emery gives ample attention to the manner in which basketry and textiles ("cloth" in her terminology) are separated. She lists four criteria from the work of others (see p. 34) and states that none of these criteria can be used to make a non-arbitrary separation. Since Emery uses the structure of the techniques as classificatory criterion (see section 3.4), she argues that a separation into two technical groups is counter productive. She considers it: "a false assumption that the terms *basketry* and *cloth* refer to mutually exclusive groups of fabrics. Both terms are broadly generic and actually refer to fabric groupings that overlap in so many areas that neither group can be properly studied or understood without reference to the other. (...) separation of the two groups is necessarily arbitrary. The habit of treating them as disparate subjects for investigation has led unhappily to the use of different terms for identical structures as well as frequent failure to

recognize and record structural identity or similarities in closely related fabrics that happen to have been relegated to separate categories. " (Emery 1980[2], p.210). Not only the four subjects that Emery mentions can be used as criteria to split the two realms. The technical structure of basketry and textile shows fundamental differences also, as will be illustrated below. Emery's endeavour to make one all-encompassing terminology focuses her attention on the similarities, rather than the differences.

Three years later, Forbes writes: "Baskets and mats are now commonly distinguished from weaving, but we cannot make this sharp division in earlier periods of human history" (Forbes 1964, p. 178). His argument is the same as Crowfoot's. Only after the development of the loom, textiles have moved away from basketry.

Just like Emery, Seiler-Baldinger does not make a distinction between textiles and basketry. She uses the term *textile techniques*[3], which she divides into two groups, the "primary" and the "advanced" techniques. The "advanced" techniques require more or less complicated instruments, such as looms. This division is thought relevant for detecting levels of development (see section 3.2). All basketry techniques fall within the first group.

Adovasio does not comment on the difference between basketry and textiles. He states that the term *basketry* applies to different kinds of items, such as containers, matting, bags, fish traps, hats and cradles. He does not give a clear definition of basketry. As a description of the general attitude towards basketry and textiles he states: "Specifically, all forms of basketry are manually assembled or woven without a frame or loom. Being woven, they are technically a class or variety of textile. Usually, however, that term is restricted to "cloth" fabrics with continuous plane surfaces produced on or with the aid of some sort of auxiliary apparatus" (Adovasio 1977, p. 1). He is much more precise in his definitions of the three subclasses, twining, coiling and plaiting, (see section 3.4).

Gourlay does not give a definition of basketry, nor considers the differences or similarities between textiles and basketry.

Larsen agrees with Emery, that cloth and basketry should not be considered as different techniques. His classification is limited to a specific group of techniques, referred to as *interlacing*, which he defines as: "A fabric structure interworked so that each element passes over and under elements that cross its path-*without other engagements such as twisting or linking*" (emphasis by Larsen). A fabric structure is: "The system by which linear elements or fibers are interworked or enmeshed" (Larsen 1986, p. 38).

North does not define basketry either. She implicitly includes basketry and textiles in one group, as far as they are made from plant materials. This may be

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[3] "Als Stoffe werden (...) sämtliche Produkte textiler Techniken betrachtet, die aus untereinander rein mechanisch verbundenen Grundbestandteilen (Faden oder Fadengruppen) bestehen. Die Feinheit der Fäden ist dabei von sekundärer Bedeutung." (Seiler-Baldinger 1973 p.4).

because the subject of the book she contributes to, is the conservation of plant materials.

3.3.2 Summary

Summing up the views of the different authors, we find that some authors (Gourlay, North) do not give the problem of defining basketry any thought. Others (Emery and Seiler-Baldinger) have decided not to make a distinction between textiles and basketry, because they think it counterproductive in the light of their purpose, whish is creating an all encompassing terminology of textile techniques.

All other authors mention a number of criteria according to which they made a division between basketry and textiles. Emery lists four criteria which she has found in the work of others (Emery 1980, p. 209), to which a fifth should be added to outline the criteria as mentioned by the different authors:

1. Implementation

Lehmann indicates that for basketry no instruments or only simple instruments are used. Both he and Mason insist that no looms are used for basketry, while Vogt, Lucas, Crowfoot and Forbes maintain that simple looms are used for basketry (i.e. matting) while textiles are made on complicated looms.

2. Preparation of elements

According to Emery it is often maintained that an important criterion to discern textiles from basketry is that textiles are made of elements that have been spun or plied into long yarns. She refutes this criterion, which is used only by Lucas, by pointing at the use of silk, which is often used unspun for weaving fine textiles.

3. Relative size and flexibility of the raw material

Mason and Balfet use this criterion when they say that basketry material is rigid, to which Balfet adds that it is coarse as well. Lehmann also refers to the aspect of raw material, remarking that basketry material is of limited width and unlimited length ("Material von geringer Breitenausdehnung und unbeschränkter Längenausdehnung"). In most basketry materials (e.g. leaflets, twigs and grasses) both width and length are limited. Seiler Baldinger indicates that a material criterion is not of primary importance, stating that: "Die Feinheit der Fäden ist dabei von sekundärer Bedeutung" (Seiler-Baldinger 1973 p.4). Leroi Gourhan points out that the division between basketry and textiles is often made because of the 'appearance', which is one of the common sense criteria he decided not to use in his classification. The criterion of relative size and flexibility is closely related to that of preparation of the strands, since the properties of the raw material can be changed through working them. A rigid twig, for instance, can be soaked and twisted into a flexible string.

4. Shape and quality of finished product
Balfet indicates that textiles are a flat surface, while baskets are containers. This criterion is a mixture of shape and function. The shape is one of the 'common sense' criteria, which Leroi Gourhan describes as not being essential.

5. Use and function
Leroi Gourhan mentions the function also as a common sense criterion to discern basketry and textiles. Balfet mixes functional criteria with criteria of shape (see under point 4). Crowfoot indicates that baskets are vessels and Adovasio lists a large number of functions of baskets.

3.3.3 Discussion
Emery is right in arguing that the division between basketry and textiles has been arbitrarily made, on the basis of an inconsistent use of a wide range of criteria. Still, I consider it important to make the distinction, because there are two aspects in which basketry and textiles differ fundamentally, which are relevant, especially in a publication which focusses on the production process. Analysing basketry as a textile technique results in missing out those aspects which primarily determine the basketry technique.

Insertion of raw materials
The first aspect to be considered is the relation between technique and raw material. Figure 3-3 represents a textile technique known as *1/1 tabby* or *plain weave*. The same basic structure is visible in both Figures 3-4 and 3-5: passive vertical elements ('warp') are crossed at right angles by active horizontal elements ('weft') in an *under 1 / over 1 - shift 1* pattern. Even though the structures of Figures 3-3, 3-4 and 3-5 are identical when considered purely schematical, the two basketry techniques differ fundamentally in the way the raw material has been inserted: In Figure 3-4 a number of willow rods have been inserted and are worked up simultaneously. In Figure 3-5 one willow rod is put in and worked up, then the next one is inserted and so on.

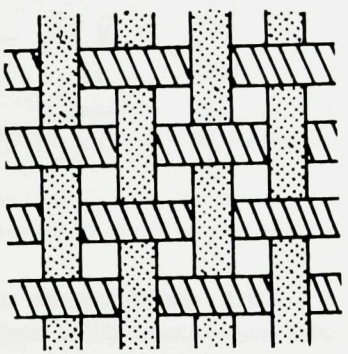

Figure 3-3 The *tabby*, or *plain weave*: weaving under one / over one

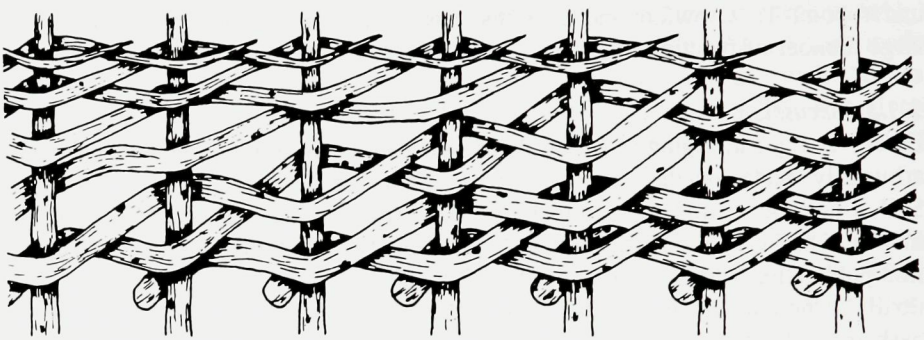

Figure 3-4 *French randing*: weaving under 1 / over 1 with a number of willow rods simultaneously, which are all layed in with the thick side.

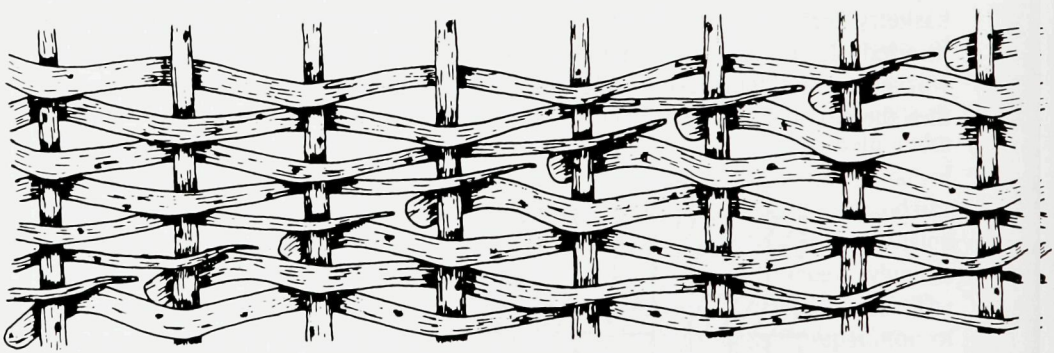

Figure 3-5 *English randing*: weaving under 1 / over 1 with one willow rod at a time. The first willow rod is worked around until it reaches the starting point. Then the next one is inserted, between the next two stakes, in order to divide the thickness of the butts is evenly.

The willow rods have a limited length (about 1.50 m) and a specific shape (the diameter varies from about 15 mm at the butt, to 1 mm at the top). In order to make a basket for which the sides are the same height everywhere, the willow rods cannot be inserted randomly. The thick butts and the thin tops have to be evenly distributed. Two methods to do this are illustrated by figure 3-4 and 3-5. Describing both basketry techniques as '1/1 tabby' would be missing the point.

Thus, the limited length and the specific shape of the plant parts determine the technique. Regular insertion is necessary because the raw material has a limited length and the shape determines in what manner the insertion is done. Textiles, on the other hand, are made from uniform materials of unlimited length.

Shape

Secondly, the intended shape of the end product determines the technique. Just as with some textile techniques (for instance knitting), a basket is shaped simultaneously with the construction of the basketry 'fabric'. The shaping of the object, such as transition from base to side, is an intrinsic part of the technique. The construction often needs strengthening at certain points, for instance, to maintain the shape.

Start, insertion of new material, shaping and finish

The combination of shaping the object as an intrinsic part of the technique and the requirements of the raw material results in four aspects which do not occur in textile techniques, but are important in understanding basketry techniques. These aspects are: the start, the insertion of new material, the shaping and the finishing off of the basket. The start of the construction, usually the centre of a basket, is the place where a number of elements are fastened from which the basket is built up. During the entire production process new material has to be inserted, since the raw material is of limited length. The number of strands has to be increased or decreased, in order to make a specific shape. Technical solutions are sought to maintain the shape, for instance by strengthening the basket in places. Lastly, all elements have to be fastened, usually at the rim. Often the fastening of the elements at the rim also fulfills other requirements, such as fixing the shape.

Thus, it is judged important to distinguish basketry from textiles, because an analysis of the production process needs focusing on the basketry-specific aspects mentioned above. The main reason for Emery and Seiler-Baldinger not to split basketry and textile techniques, is their interest in creating one terminology. This is not the purpose of the present work, however. On the contrary, in section 2.3.2 it was said specifically that an all encompassing terminology is not deemed important, because the classification on which such a terminology would have to be based, depends on changing research questions.

3.4 RESEARCH QUESTIONS AND CRITERIA

In this section classificatory systems with similar underlying research questions and criteria are presented together, rather than in order of their year of

publication. First Lehmann and Vogt will be considered separately. Then three classifications of American Indian basketry will be analysed (Mason, Adovasio and McGregor). Thirdly, the French tradition will be looked at (Leroi Gourhan and Balfet). Bühler and Bühler-Oppenheim wil not be discussed separately, but the continuation and expansion of their work by Seiler-Baldinger will be. A second American tradition is formed by Emery and Larsen. Crowfoot, Lucas and Forbes will be discussed together. Lastly, we will look at the classificatory principles used for ancient Egyptian basketry by Gourlay.

3.4.1 Lehmann

Lehmann classifies according to technique, which he calls *Geflechtsart*. He is particular about distinguishing this from *Flechtart*, the manner in which a technique is made (in my terminology the *technology)*. Other than this focus on technique it is not possible to find an explicit research question.

Lehmann is not at all interested in developing a basketry terminology derived from his classification. In Lehmann's opinion the peculiarities of different languages would only hamper international discussions on basketry. Therefore he uses a numbering system instead of terminology. His system harbours a large amount of techniques, which are partly classified according to formal criteria. Among these criteria are orientation and number of systems, weaving patterns and connection of the systems.

Class I, for instance, contains basketry made from strands orientated in two directions. This class has four sub-classes (Table 3-6).

A	*Geflechte mit Taftbindung*	tabby-weave
B	*Geflechte mit Köperbindung*	twill weave
C	*Geflechte mit Atlasbindung*	satin weave
D	*Zopf- und Bandgeflechte, sofern sie nicht zu A und B gehören*	plaited straps, other than those under A and B

Table 3-6 Representation of Class I of the classification of Lehmann 1907

These four subclasses are divided into the same subsubclasses:
1. made from strands of the same width
2. made from strands of different widths.

A further subdivision (indicated by letters of the greek alphabet) is in most cases made without explicit criteria. Class IAaα, for instance, is described as "Gewöhnliches Taftgeflecht" (*normal tabby weave*), while class IAaβ is divided into IAaβ1 "Geflechte, bei denen die Geflechsstreifen der einen Richtung aus verschiedenen Streifen bestehen" and IAaβ2 "Geflechte, bei denen alle Streifen aus verschiedenen Streifen bestehen".

Basketry techniques are thus indicated with a letter and number code, most of which are illustrated with drawings.

Indications such as "IAaβ2" do not give a clue to which technique they are referring, unless Lehmann's publication is at hand. The classification is thus hard to use, unless the system is known by heart. More importantly, the system is not a classification in the sense in which I have chosen to use it. It is a clear example of a non-dimensional hierarchical construction, which, as was shown in section 2.3, is an indication of grouping. The sheer quantity of different techniques gives the impression that his system is all-encompassing, but in fact it is not. Each new item of basketry might cause the need to formulate new 'classes' and there are no empty classes.

Despite its shortcomings Lehmann's classification is a valuable record of examples of basketry techniques and he gives some useful incentives for formal criteria.

3.4.2 Vogt

Vogt knows the work of Lehmann, but judges his system on the one hand too complicated and on the other hand not detailed enough to be of service (Vogt 1937, 5). He maintains Lehmann's terminology by discriminating *Geflechtarten*, the variety in techniques, and *Flechtart*, the technology, but he makes a much simpler division into seven classes (Table 3-7):

A	*Randparallele Geflechte*	straight angled plaiting
B	*Spiralwulstgeflechte*	coiling
C	*Geflechte mit Zwirnbindung*	twining
D	*Vliessgeflechte mit Zwirnbindung*	twining with inlay
E	*Netzgeflechte*	netting
F	*Geflechte mit Zopfbindung*	Neolithic braiding[4]
G	*Geflechte mit Leinwandbindung und Diagonalstreifen*	Four-Directional Plaiting[5]

Table 3-7 Representation of the classification of Vogt 1937

[4]Larsen calls this technique "Neolithic braiding" (Larsen 1986, 83).
[5]Term of Seiler-Baldinger (Seiler-Baldinger 1979, 30).

These classes are descriptive, and not based on criteria. Some are divided into subclasses, or 'variants' are indicated. Again we are dealing with a hierarchic non-dimensional grouping, rather than with classification.

3.4.3 *Mason, Adovasio and McGregor*

Mason uses vague criteria for his basketry classification, although he does point out the characteristics of basketry, which he considers important for classification: "These characteristics are the material, the framework, the methods of weaving, the coiling or sewing, the border, the decoration, the use, etc" (Mason 1904, 190). On the same page he proceeds by describing the typology as follows: "There are two distinct types of technic in basketry, namely, (1) hand*woven* basketry, which is built on a warp foundation, and (2) sewed or *coiled* basketry, which is built on a foundation of rods, splints, or straws." (Table 3-8).

	KINDS OF WOVEN BASKETRY	
A	Checkerwork	The warp and the weft having the same width, thickness, and pliability.
B	Diagonal or twilled basketry	Two or more weft strands over two or more warp strands.
C	Wickerwork	Inflexible warp; slender, flexible weft.
D	Wrapped weft, or single weft wrapped	The weft strand is wrapped, or makes a bight about the warp at each decussation, as in the Mohave *Kiho*.
E	Twined or wattled basketry	Weft of two or more elements.
	KINDS OF COILED BASKETRY	
A	Coiled work without foundation.	
B	Simple interlocking coils	
C	Single-rod foundation	
D	Two-rod foundation	
E	Rod and welt foundation	
F	Two-rod and splint foundation.	
G	Three-rod foundation	
H	Grass-coil foundation.	
K	Fuegian coiled basketry	basketry specific for the Fuego tribe

Table 3-8 Representation of the classification of Mason, 1904

In the section on woven basketry he introduces criteria for classifying the coiled basketry: "The sewed work goes by the name of coiled basketry, and is classed both by the foundation and the fastening. In addition to these technical methods on the body, special ones are to be found in the border" (Mason 1904, 222). The woven basketry is divided into groups without clear criteria. Like Lehmann and Vogt, Mason is grouping his material without classifying it (cf. Table 3-8). Lehmann in his book, criticises Mason's work for being too limited, because Mason he is only dealing with techniques that occur among the American Indians.

Adovasio, who writes also about (archaeological) basketry from American Indians is explicit about the aspects used for classification: "A variety of attributes have been and can be employed to classify basketry. Such diverse criteria as shape of the object, rigidity or flexibility of the weave, and elements of decoration (to name but a few) have been used with widely varying degrees of success. I believe that sub-classes should be defined exclusively by attributes of wall construction." (Adovasio 1977, 1) Implicitly, however, he also involves technological aspects, for instance the working position of the producer (Adovasio 1977, 15).

The techniques of making the wall construction, that is the technique in which the side of a basket or the surface of a mat is made, is divided into three mutually exclusive and taxonomically distinct sub-classes: twining, coiling and plaiting. Adovasio's definitions of these three classes are: "Twining denotes a sub-class of basket weaves manufactured by passing moving horizontal elements, called wefts, around stationary vertical elements, called warps. In the twining process the wefts are active while the warps are passive." (Adovasio 1977, 15) and: "Coiling denotes a sub-class of basket weaves manufactured by sewing a stationary horizontal element or set of elements, called the foundation, with moving vertical elements, called stitches. The stitches are active, while the foundation is passive." (Adovasio 1977, 53) and: "Plaiting denotes a sub-class of basket weaves in which all elements are active. Single elements or sets of elements, called strips, pass over and under each other at a more or less fixed angle (about ninety degrees), without any other form of engagement" (Adovasio 1977, 99).

A basket is allocated to one of these classes and then described according to different criteria for each group. As with the other three systems we have seen so far, this is a taxonomic approach. Consequently the subclasses of twining, coiling and plaiting cannot be compared (cf. Dunnell 1971, 76-84).

Twined basketry is subdivided by three criteria: the spacing of the weft rows, with three attributes (open, close and a combination, cf. Table 3-9); the number, arrangement and sequence of warps engaged at each weft crossing, with five attributes, and the stitch slant with three attributes. A combination of all possibilities results in 45 classes (3x5x3). Surprisingly, Adovasio only mentions 27 classes, although he claims to combine all of the construction attributes (Adovasio 1977, 20).

TWINED BASKETRY					
characteristic: \ no. of aspects:	1	2	3	4	5
A. Spacing of weft rows:	open	close	open + close		
B. Number, arrangement and sequence of warps engaged at each weft crossing	simple	diagonal	simple + diagonal	cross warp	wrapped
C. Stitch slant	S	Z	S+Z		

Table 3-9 Representation of the classification of twined basketry by Adovasio, 1977

A similar phenomenon occurs in respect to coiled basketry. The three criteria, in which the work of Mason can be recognised, are the spacing of the foundation (the coil) in close, open and a combination of both (see Table 3-10 A.) Secondly, there is the criterion of kind, number and arrangement of foundation elements. In fact these are two criteria bundled together: 'kind of foundation', with three attributes (rod, bundle, welt) and the criterium 'basic arrangement', with four attributes (single element foundation, horizontal foundation, stacked foundation and bunched foundation).

COILED BASKETRY				
characteristic: \ no. of aspects:	1	2	3	4
A. Spacing foundation:	close	open	open + close	
B. Kind of foundation elements	rod	bundle	welt	
B' number and arrangement of foundation elements:	single element	horizontal	stacked	bunched
C. Type of stitch	simple	intricate	wrapping	

Table 3-10 Representation of the classification of coiled basketry by Adovasio, 1977

The third criterion (Table 3-10 C) is the type of stitch, which has three main attributes. The first is the "simple stitch", subdivided in interlocking, non-

interlocking and split. The second is the "intricate stitch", the third is callled "wrapping stitch".

A cross reference of these criteria results in 108 classes (3x3x4x3, not counting the subdivision of the "simple stitch"). This time Adovasio explicitly decides to present just a number of classes: "Combining the attributes of wall construction can generate a very large number of coiling types. In fact more than a hundred types of close coiling alone are theoretically possible using the kinds of foundations and stitches listed above. The addition of rarer foundations increases the potential number significantly. In lieu of enumerating all the types that can be generated or even those that have been documented archeologically, I have made a representative selection of common open and close types for illustration" (Adovasio 1977, 62)

Plaiting is the most simple technique to classify, according to Adovasio. Only the number, orientation and composition of plaiting elements are used as criteria. The two classes are "simple-" and "twill-plaiting", which are further distinguished by the "appropriate interval designators" (Adovasio 1977, 109), which form the plait pattern. Furthermore, new classes can be made whenever necessary. "It is theoretically and mechanically possible to produce twill plaiting with an uneven principal interval (such as 2/3 or 3/4). While I have observed few specimens with these patterns, they do occur."

Adovasio's descriptions are clear and systematical, although hes is not fully consistent. The technique, which is usually indicated by the term *wickerwork*, or *stake-and-strand basketry*, is classed as a sub-class of plaiting. Wickerwork, however, is an example of basketry in which there are clear active and passive elements. According to his own definitions, Adovasio should have classed wickerwork as twining. The reason that this he did not do this, is that Adovasio implicitly added another criterium to the definition of twining: the horizontal, active elements are worked up in pairs. The two twining strands are twisted around each other, holding the passive vertical elements in place.

In a separate section, Adovasio describes other features than wall construction, such as centres, rims and decoration. He calls this the 'post-typing analysis', indicating that the typology of basketry is made solely on the basis of the wall construction, while the understanding of the other features is secondary.

Although Adovasio formulates criteria, and makes a partly dimensional hierarchical classification, he does not define consistently all classes that result from his own criteria. He does not feel the need to look at classes that remain empty and resorts partly to grouping, adding new classes if new material comes up. In contrast to Adovasio, I consider the centres and rims an intergral part of the techniques.

McGregor follows Adovasio's system exactly by referring to his classificatory system. In her classification of the basketry of the Lower Pecos (Texas) she only includes the classes that actually occur.

3.4.4 Leroi Gourhan and Balfet

In section 3.2 Leroi Gourhan's central interest was identified as being the technology. He emphasizes the importance of experiments in the present to better understand the ancient technological process, and he involves the working position of the producer and the orientation of the work towards the producer. His classification is a taxonomic system with three levels according to the criteria:

fundamental position of the strands (1. and 2.)
fundamental character of the interweaving (variable)
pattern of weaving (variable)

The system thus starts as a dimensional hierarchical classification. In the sub-groups, howere there is a less clear use of criteria.

1. *nappes superposées*	(strands arranged on top of each other and fastened by a third strand)
a. character of interweaving	
X. several patterns	
2. *nappes enchevêtrées*	(interwoven strands)
Fundamental character of interweaving:	
a. *vannerie à brins spiralés, étoffe à trame spiralée*	(coiling: the active element spirals around a fixed element)
X. several patterns	
b. *vannerie cordée, étoffe cordée*	(twining: a pair of active strands holding the passive elements)
X. several patterns	
c. *vannerie/étoffe tissée*	(weaving: active elements are woven through passive elements)
X. several patterns	

Table 3-11 Representation of the classification of Leroi Gourhan, 1943

Balfet supplements and re-organizes Leroi Gourhan's work from a hierarchical classification into a dimensional paradigmatical classification. Some of these are filled, others are empty. She combines properties of the *montants* (warp), with properties of the *brins* (weft).

The dimension which contains properties of the warp, has five attributes, which are defined by criteria of activity and orientation of the strands (see Table 3-12).

1	Passive and consisting of a number of parallel strands in one direction
2	Active and consisting of a number of parallel strands in one direction
3	Passive and consisting of a number of parallel strands in 2 or 3 directions
4	Passive and consisting of one strand which is spiraled
5	Active, and consisting of one strand

Table 3-12 Properties of the warp, Balfet 1952

These five groups of warp-possibilities are cross-linked with 13 weft-possibilities, divided into three groups (Table 3-13). The first group is that of the linked techniques *(lié)*, which has five subgroups (A 1-5). The second group is made up of twined techniques *(cordé)*, with four subgroups (B 6-9). The third group is that of woven basketry *(tissé)* which is subdivided in four groups (C 10-13).

A. *lié*	(linked techniques)	*1. roulé*	(wound)
		2. cousu	(sewn)
		3. tourné	(wrapped)
		4. demi-clef	(looped)
		5. noué	(knotted)
B. cordé	(twining techniques)	*6. simple*	(simple)
		7. croisé	(even twill)
		8. sergé	(uneven twill)
		9. tressé'	(waling)
C.*tissé*	(woven basketry)	*10. toile*	(plain, or tabby-weave)
		11. croisé	(even twill)
		12. sergé	(uneven twill)
		13. satin	(satin weave)

Table 3-13 Properties of the weft, Balfet 1952

The result is 5 x 13 = 65 combinations which form classes of which some have been filled, others are empty. Balfet introduces the techniques that are known to exist, with schematic drawings. In the accompanying text she gives a description of the different classes and indicates the variations that occur within the classes.

Although the properties of warp and weft are cross referred in a paradigmatical classification, the classes have not been based consistently on formal criteria. The warp and weft possibilities that Balfet includes are a selection for which the criteria have not been made explicit. Since her classification sets out to be a supplement of Leroi Gourhans' work, we might expect the criteria to be technological, but nowhere in the text is this confirmed. She was very explicit about rejecting the idea of classifying according to function or appearance (Balfet 1952, p. 261), but judged the latter important enough to introduce a 'side-line classification' in which she made a distinction between widely spaced basketry, closely spaced basketry and basketry which is widely spaced in one direction, closely spaced in the other.

Although this scheme is a 'real' classification, it certainly is not 'the' basketry classification, as Balfet designed it to be. She does not put forward a research question for this classification, but she does give the objective: "la nécessité de nommer les types, et ce faisant de tenir compte de la terminologie traditionnelle, sans toutefois sacrifier le besoin d'un cadre logique et cohérent de classification" (Balfet 1952, p. 260).

Because of her wish to take existing divisions and terminology into consideration, she rejects Lehmann's system. Her most important criticism of Lehmann is that his classification is not very useful, because of the formulas he uses instead of developing a terminology. Her decision to develop her own classification, rather than using for instance Mason's, is based on her criticism that existing classifications are restricted to a specific geographical area and, furthermore, that they are an orderly grouping rather than a proper classification.

Balfet's classification includes empty classes, but she does not utilize this feature. She seems to be interested in the classification itself but not in its consequences, because she does not ask herself why certain classes are filled and others are empty.

3.4.5 Seiler-Baldinger and Keppel

In the book of Seiler-Baldinger, it is again Bühler who gives a clear account of the basic assumptions of the systematization. The criteria are determined by technology, and not technique, as is the case in Emery's book (1961). Bühler: "Wie schon aus dem Titel ersichtlich ist, geht unsere Systematik primär von den Techniken, das heisst von den Herstellungsverfahren aus. Sie unterscheidet sich damit grundsätzlich von der Gliederung Emery's, die in erster Linie auf den Strukturen, auf der Beschaffenheit fertiger Textilien beruht." (in: Seiler-Baldinger 1973, p. XXVI) As shown in section 3.2 this is done in order to be able to determine the level of development of different techniques.

Seiler-Baldinger's classification starts with a division into primary and advanced techniques. The criterion for this opposition is the complexity of the instruments (read: looms) to produce the fabric. Since all basketry techniques are classed in the 'primary' section only these will be considered here. Weaving is considered an "advanced technique", since a loom is needed, and thus does not occur in Table 3-14.

A. SINGLE CONTINUOUS THREAD				
a.	mesh formation with threads of limited length			
	I	linking	*Einhängen*	6 sub-groups
	II	looping	*Verschlingen*	9 sub-groups
	III	knotting	*Verknoten*	11 sub-groups
	IV	meshwork lace	*Maschenstoffspitzen*	2 sub-groups
b.	meshwork with single threads of unlimited length			
	I	crocheting	*Häkeln*	4 sub-groups
	II	knitting	*Stricken*	3 sub-groups
c.	transition to plaiting			
	I	knotted plaits	*Flechtknoten*	2 sub-groups
B. SYSTEMS OF THREADS				
a.	half-plaiting			
	I	splitting	*Durchstechen des einen Systems*	no sub-groups
	II	wrapping	*Wickeln*	2 sub-groups
	III	binding	*Binden*	4 sub-groups
	IV	coiling	*Wulsthalbflechten*	7 sub-groups
	V	twining	*Zwirnbinden*	4 sub-groups.
b.	transitory forms to plaiting and advanced techniques			
c.	real plaiting or braiding			
	I	plaiting 2 directions	*Flechten in 2 Richtungen*	5 sub-groups
	II	multi-directional plaiting	*Flechten in 3 und mehr Richtungen*	2 sub-groups

Table 3-14 Outline of the classification of Seiler-Baldinger, 1973 / 1977

The primary techniques are divided into two groups: fabrics made from one thread, and fabrics made from a system of threads. These two classes are divided into different sub-classes and sub-groups, ordered according to complexity.

No real consideration is given to what the exact differences are between the techniques classified in sub-groups. The 4 sub-groups of twining (BaV), for instance, are discerned by: twining with two active strands around a passive system, twining with two active strands around two passive systems, twining with three or more active strands, braided twining with three strands.

When using the same criteria in a dimensional approach, one dimension would contain the 3 attributes of the active strands (twining with two active strands, twining with three or more active strands, braiding), and the other dimension the 2 attributes of the passive strands (one passive system, two passive systems). Cross-linking the two dimensions would result in 3x2 = 6 classes, rather than the four classes that Seiler-Baldinger discerns. Furthermore, the criteria she selects are too limited to describe all twining variations.

Two things may be clear. Even though Seiler-Baldinger's system is an attempt at classification, it is a hierarchical grouping. Secondly, the criteria chosen are not the only possible ones. Other criteria would lead to a quite different classification.

3.4.6 Emery, Larsen and North

In Emery's work it is the actual structural make-up of the fabrics that is the classificatory feature: "The details of structure provide a sound factual basis for more comprehensive description and, being determinable data, for comparative studies and for classification" (Emery 1980, p. xi). The phrase "being determinable data", probably refers to data that can be standardized. Emery standardised techniques by simplifying them to structures and classifying those. Emery does not clarify why looking just at structures is more "determinable" than looking at other things.

Using the structure as the central feature in classification means that the production method, the way these structures have come into being, is not considered. Emery is not consistent in this. She involved the edges of some techniques, while for other techniques she does not look at the edges at all. Clear examples are the techniques of 'oblique interlacing with one set of elements', which have exactly the same structure as the 'plain weaves with two sets of elements'[6] The only thing that sets them apart is the production process, which is exactly what Emery wants to avoid dealing with.

Table 3-15 shows the core of Emery's classification. The criteria she uses are not made explicit. We could interpret the criterion used at the Roman Number level as 'physical properties of fibres' (having the possibility of getting stuck together, or being woven). The criterion used at the level indicated by capital letters consists in fact of two criteria: the number of elements, and the element being used singly or as a set. The levels below that, are not grouped by dimensions, but indicate a number of variations. Looking at her classification makes clear than once again basketry is ordered by hierarchical non-dimensional grouping.

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[6]Compare for instance the following photographs in the book (Emery 1961): figure 74 and figure 90; figure 72 and figure 85; figure 75 and figure 115.

I. felted fibers	
A. natural plant forms	
B. agglomerated fibers	
II. interworked elements	
A. single element	
1. linking	2 sub-groups
2. looping	3 sub-groups
3. interlooping	2 sub-groups
B. two single elements	
1. linking stitches	
2. looping stitches (coiling)	
C. one set of elements	
1. interlinking (plaiting)	
2. oblique interlacing (braiding)	
3. oblique twining, single and double	
4. interknotting (macramé)	
D. two or more sets of elements	
1. interlacing warps and wefts	
a. simple weaves	
b. compound weaves	
2. interacting elements	
a. crossing and re-crossing	
b. twining	
3. wrapping wefts	

Table 3-15 Concise presentation of Emery's classification (Emery 1961)

Larsen classifies according to a mixture of construction (technique) and production (technology), although he insisted on dealing only with the first subject. "The classification (...) is concerned with the essential *orders* of interworking, not with the *methods* of achieving them."(Larsen 1986, p. 34)
Larsen gives the same reason as Emery: a classification based on production method breaks down when the production method cannot be determined. According to Larsen this is often the case with archaeological material and sometimes also with ethnographic material (Larsen 1986, p. 36).

The principles which form the basis for Larsens' system are: "count of elements x orders of interlacing x modifiers (including materials and color effects) x form (including size). It is this multiplication that produces variants numerous as the stars, with many as yet untried" (Larsen 1986, 50).

1. count of elements	5 attributes
1 element	A structure in which one strand circles about to interwork with itself.[7]
2 elements	Two interworking strands
1 system of elements	A structure in which all strands interwork in the same manner
2 systems of elements	Two interweaving sets of elements
3 systems of elements	Three interweaving sets of elements
2. orders of interlacing	**6 attributes**
over 1 under 1 over 2 under 2 over 3 under 3 over 1 under 3 over 1 under 4 patterned designs	
3. materials and modifiers	**numerous attributes**
material	size of the elements, count of elements per centimeter (fineness), shape of the raw material, longitudinal profile, basts, solidity, flexibility, twist, resilience and grouping
structure	density (open/close), balance, tension, take up, pitch, color effects
4. form	**4 attributes**
single unit linear planar 3-dimensional	

Table 3-16 The attributes of the four dimensions of Larsen's classification of interlacing (Larsen 1986).

[7]Larsen includes knots, but excludes knitting and crochet, because these techniques involve looping, which is not the subject of a book on interlacing (Larsen 1986, 39).

This suggests a dimensional classification, with four dimensions. The expression "numerous as the stars", indicates, however, that not every technique has been described.

The first dimension (count of elements) has five attributes, the second (orders of interlacing, which stands for the plait pattern) has six and, the fourth (form) has four attributes. This results in a classification with 120 classes (5 x 6 x 4), in which the third dimension (materials and modifiers) has not yet been included, because the number of attributes has not been given. The third dimension is the difference in appearance of two objects, which are made in the same technique. The criteria involved here are innumerous in itself and divided into two sub-groups focusing on the material as modifier, which involves size of the elements, fineness (count of elements per centimetre), shape of the raw material, longitudinal profile, basts, solidity, flexibility, twist, resilience and grouping. The second modifier is the structure, involving the density (open/close), balance, tension, take up, pitch and colour effects (Larsen 1986, 44).

In order to make this potentially enormous classificatory scheme manageable, Larsen makes two smaller classifications, one based on the count of elements and order of interlacing, with 5 x 6=30 classes, of which 12 are empty. The second classification is based on the count of elements and the form, with 6 x 4 = 24 classes, of which 9 are empty. In the first classification the dimension 'count of elements' contains five attributes[8], in the second there are suddenly six[9].

A system that Larsen presents in a separate chapter is a hierarchical dimensional classification. The first level (Roman numbers) refer to five varieties in the count of elements[10]. At the next level Larsen discriminates the *direction of interlacing* (single, linear, planar, 3 dimensional) and the *structure* (simple, complex, compound). Every class is thus constructed by the same criteria, which is typical for a dimensional classification. Larsen does not implement this system consistently, because some classes are ruled by new criteria. The classification has no empty classes. Larsen does not include technical combinations which he supposes do not exist.

Although North was interested primarily in technology, the way in which artefacts are made, she gave an overview of techniques mainly based on Emery, considering the structure, rather than the method of making that structure.

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[8]Five kinds of 'count of elements': 1 element, 2 elements, 1 System Of Elements (SOE), 2SOE, 3SOE (Larsen 1986, 56)

[9]Six kinds of 'counts of elements': 1 element and 2 elements are considered one attribute, the other five are: 1SOE, 2SOE, 3SOE, 4SOE, 6SOE (Larsen 1986, 66).

[10]The five kinds of 'counts of elements' in the final classification are: 1E+2E, 1SOE, 2SOE, 3SOE, 4 or more SOE.

3.4.7 Crowfoot, Lucas and Forbes

Crowfoot's classification is implicitly based on the technical structure. She is influenced by Vogt, the third edition of Lucas and by Bühler and Bühler-Oppenheim. Crowfoot discerns six major techniques, but uses no explicit criteria to do so. She then proceeds by dividing these into sub-groups.

Coiling	3 stitch types	3 centre variations
Twining	5 methods of spacing	
Wrapped work	1 type	
Matting work	3 weaving patterns	
Plaited work	1 type	
Wicker work	1 type	4 centre variations

Table 3-17 Representation of the classification as put forward by Crowfoot (1954)

Coiling is divided into four sub-groups, by the manner in which the winding element holds the coil. Furthermore she discerns three centre types. Twining consists of five sub-groups, based on the spacing of the rows of twining. The class of "wrapped work" contains only one type, while three types of matting work are discerned by their weaving pattern. Furthermore, she lists one type of plaited work and one type of wickerwork with four centre variations (Crowfoot 1954). It is another example of grouping, rather than classifying material and the criteria are not used consistently.

Even though Forbes gives a general classification of textile techniques, based on Bühler-Oppenheim (Forbes 1964, 167, 177), he follows Crowfoot's classification of basketry techniques exactly. He does not intertwine the two systems, which follow different criteria. Forbes seems to have no difficulty in using an inconsistent combination of two inconsistent classifications.

3.4.8 Gourlay

Gourlay 's description of the basketry of Deir el-Medina is quite detailed with proper attention for important feature such as centres, border and handles, as well as decoration and form. His catalogue of basketry techniques, however, is not a proper classification. Instead of ordering his material according to technical criteria (which would seem the most logical approach for a catalogue of techniques), he makes a main ordering according to the function of the basketry objects. As may be clear from Table 3-18 he divides the objects into brushes, brooms, mats, sandals, baskets, etcetera.

From this main division he starts a hierarchical grouping employing different criteria for each group and even within one and the same group. The clearest indication that we are not dealing with a proper classification is class V, containing

miscellaneous objects. 'Class' and 'miscellaneous' are a contradiction in terms, because a well formulated set of criteria encompasses all objects.

I	*Les balais de ménage*, (brushes, brooms)	
	Four types (A, B, B1, and C) discerned by technology, in which type B is divided in B and B1 and type C is considered a variation of type A	
II	*Les brosses et les pinceaux* (paint brushes)	
	Seven types (A, B, AB, C, C1, D, D1) discerned by technology (the way the were made).	
III	*Le garnissage ou le revêtement de meuble* (matting in furniture)	
	Five types of bed or chair matting (A-E). In this case the types are determined by the weaving pattern. A separate section is devoted to one type defined by material and technique.	
IV	*Les cordes et les noeuds* (strings and knots)	
	There is no classification of rope making techniques. Thirteen knots or knot-constructions are listed.	
V	*Divers*	
	A	Nine types of filling material for wigs (A, B, B1, C, C1, C2, D, E), discerned by diferent methods of production
	B	Two types of plaited palm leaf with unknown function (A, B), discerned by the size of the palm leaf
	C	Five types of raw materials (A, A1, B, C, C1) discerned by different rolling and folding methods
VI	*Les nattes* (mats)	
	Three types of mats have been discerned on the basis of two different techniques: A = twined, B=woven, C=twined (but with different materials).	
VII	*Les sacs, les résilles et les filets*	
	A	Bags and nets are divided into eight groups: A, AB, AC, AD are varieties of twined bags, group E are handles, F represent coarsely knotted nets, G is a twined bag, but made of different materials than A-AD and H is a plaited bag.
	B	There are two types of carrier nets, type A made of string, type B made of palm leaf.

VIII	*Les sandales* (sandals)	
	A	sandals made of rope: there are six types, of which B, C, D, E and F are presented as a variation of type A. The differences are formed by technical details
	B	sandals made of leaves: there are eleven types and variants discerned according to technical details: A are plaited sandals, A1 are plaited sandals with leather rims, B are plaited sandals with sewn strenghtening rims, C, C1 and C2 are plaited sandals with flexible wooden soles, D are plaited sandals with sides, E are coiled sandals, F are sandals of parallel leaf strips, then there is an unnumbered variety on sandal type A, with a curled toe F, which is a varient on the previous type, with a straight toe
IX	*Les anneaux et les erseaux* (rings)	
		classified according to use and technique
X	*La vannerie* (basketry), in total there are 27 types	
		A, A2, A3, A4, A5, A6, B, B2, C, D, D1, E, E1, F, F1, G, G1, H, I, represent variants of the centre of coiled baskets J and J1 are twined centres of sieves with a coiled rim K are sewn plaits baskets L and L1 are oval coiled baskets with different types of centre, while L2 is a centre variant of a round coiled basket. Q and Z have not been described

Table 3-18 Summary of the classification of Gourlay (1981).

The kind of information is unbalanced, because sometimes a class is defined by a brief description and a drawing, while in other instances an extensive disquisition on the production method of one object is given. Although these are of great interest, they do not belong in a catalogue of techniques.

The section on basketry ('X') contains three catalogues, based on respectively techniques, shape and decorations. Here we are concerned with the classification of techniques only and, therefore, the two other catalogues will not be considered. The technical types A-I and L are all coiled baskets with different centres, every type being sub-divided according to the variation that occurs in the centre of the baskets. Type J is a coiled sieve with a twined base, type K is a sewn plaits basket. The basketry is thus grouped according to centre construction, rather

than wall construction. In principle this could be a valid approach, if the purpose and the criteria are made explicit. Does Gourlay propose that the difference in centres has a specific meaning or relevance? No, he does not and, furthermore, he does not make clear why and along which criteria the subdivisions are made. Two of his classes, 'Q' and 'Z' have not even been described in the catalogue.

3.5 CONCLUSIONS AND CONSEQUENCES

After having made an inventory of the existing classifications of basketry, it is clear that with exception of those of Balfet, and to a certain extent Larsen and Adovasio, all classifications are in fact groupings in a hierarchical order. Some authors use explicit criteria, others do not. I could not agree more with Adovasio when he writes: "It is interesting that lack of systematization and taxonomic precision continued to characterize basketry research, despite the publication of an updated version of Leroi Gourhan's classificatory scheme by Balfet in 1952" (Adovasio 1977, 4) and I regret to see that even after this remark his own classification still lacks the systematization that characterizes Balfet's work.

The reason for this is quite obvious, and has been suggested by the authors themselves. Adovasio wrote: "Combining all attribute of wall construction can generate a very large number of (...) types" (Adovasio 1977, 62). Larsen indicated the same problem when he remarked that it is the multiplication of a large number of attributes "that produces variants numerous as the stars" (Larsen 1986, 50). Apparently many attributes are necessary to make a basketry classification. The cross reference of all those attributes results in a number of classes, that is too large to be of any use.

It is exactly in the definition of the use, or the purpose, that the power of a classification can be determined. In the previous sections an inventory was made of the purpose, limits, research question and criteria for basketry classification as used by different authors. There appears to be a great deal of variety, because all classifications have their specific point of view. This is only clear, however, when the purpose, research question and criteria of the classification are made explicit. A good example can be found in the work of Emery and Seiler-Baldinger. The two classificatory systems are both dealing with world wide textile techniques, but from a different point of view, namely technique (structure) and technology (production method). The two systems should not be considered as rivals, but as supplementary.

There are at least three solutions to the problem of the myriad of possible classes, all of which have been used by the authors whose work has been looked at in the previous sections. The first solution is to make a paradigmatic classification, but to eliminate the empty classes. This is what Larsen did when he decided to give examples of those techniques known to exist. Adovasio chose to make "a representative selection of common (...) types for illustration" (Adovasio 1977, 62), instead of presenting all theoretical possible techniques.

The second solution is to make a hierarchical, rather than a paradigmatical classification. By making subdivisions that are branching out like a tree, different

criteria are used for the separate branches. A taxonomic structure seems to be an organic solution and most authors have followed this method in one form or another.

The third solution is to make a paradigmatical classification based on a limited number of attributes, by selecting criteria that reflect explicit research questions. Balfet follows this line, without, however, formulating criteria based on a research objective.

All three solutions can be criticized. The first and the second solution both result in grouping, rather than classifying. Neither solution results in a classification with empty classes. Eliminating empty classes is throwing out an important source of information, since the question why certain combinations do *not* occur can be as important as the explanation why certain combinations *do* occur.

The third solution can be criticized, because it gives a very selected and limited image. Balfet's classification is vulnerable to this criticism, because she presents her work as 'the' classification of basketry, without making its limitations explicit. As long as the classification is linked to an explicit research question, however, this method is valid. The image may be limited, but it is a clearly selected subject of which the limitations are made known.

In Chapter 9 a classification is presented according to the properties of the *basic structure* of basketry techniques.[11] This classification is used as a basis for understanding the production process of the techniques found in Amarna, Qasr Ibrim, present day Middle Egypt and New Nubia. Twenty techniques have been discerned. The numbering from 1 to 20 has no meaning, other than that it is a convenient way to refer to these techniques throughout the book.

The classification presented in Chapter 9 is a way of ordering things, by simplifying the aspects associated with them. Too much simplification results in a misrepresentation, but too detailed a classification is as complex, chaotic and many-sided as life itself and, therefore, powerless to clarify. It is the task of the scholar to select the level of simplification necessary for handling existing, and generating new questions. It is important to realise that what is represented is a thought experiment, a way of turning the subject in one's hands and looking at it from different angles. Ultimately a complete image should be generated, a narrative that tells us more than the individual pieces can.

The function of classification in the next chapters is to get a grasp on the subject of basketry technology. It should be realised, however, that it is not more than a tool, which bluntly cuts off other aspects that are important for the interpretation of basketry production. These missing facets are taken up by looking at basket makers as well as at baskets (Chapters 16-19).

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[11] The term *basic structure* will be introduced in Chapters 4 (p. 58) and 5.

CHAPTER FOUR

FIELD WORK METHODS

4.1 Introduction

Fieldwork involves constant decision making. To keep this procedure of choice and selection controllable, this chapter accounts for the fieldwork methods used and the problems that occur. The interpretation of basketry is based on information gathered during field work and post excavation analysis. Because the latter is determined by the same research questions as field work, there is a constant creative interaction between observation, analysis and interpretation. For archaeologists and anthropologists who are writing up their work away from the field this is noticeable in the often felt need to go back into the field to 'check' things while formulating the results.

Over the four years that the field work took place there has been a shift in focus. In 1989 and 1990 the archaeological work concentrated on what could be indicated as the static aspects of basketry: the primary goal was to understand and clarify the basketry techniques and the materials used. Attempts were made to discern the production process, by deducting the working order from a detailed study of the edges and other technical details.

From 1990 onwards an increasing emphasis has been put on ethno-archaeological research. At the onset, the main reason for this was the apparent similarity of the ancient and modern basketry. By using the same method in recording the archaeological and ethnographic baskets, the similarities are made explicit, while the dissimilarities are made apparent. Based on this inventory other aspects, related to the production process and the identity of the basket makers, are involved. These are, for instance, the raw materials and instruments, the organization of time and space as well as the professionality, gender and social status of basket makers.

The object of study differs for the archaeological and ethno-archaeological research. Participating in archaeological field work involves recording the basketry objects and their archaeological context to contribute to the interpretation of the archaeological site. The object of the ethno-archaeological research project is the production process and the context of basketry production. This involves the basket makers, the place and circumstances of their work, their contacts and economic organization.

The attempt to use questions that are partly designed for ethno-archaeological research in the study of archaeological basketry opens new directions of basketry analysis. Furthermore, it gives the possibility to use the ethno-archaeological

material not only in analogous reasoning, but also as a confrontation with the archaeological results.

The fieldwork methods for the research on basketry production involve recording the archaeological and present day basketry and studying their respective contexts. Section 4.2 deals with recording archaeological basketry, which involves a description of the technology, measuring and drawing the shape, identification of the raw materials, and taking note of the wear, damage and repairs. A detailed description of the technical analysis of basketry technology has been incorporated in Chapter 5. More can be found on the subject of recording basketry in *Who is Afraid of Basketry?* (Wendrich 1991c), which deals also with aspects such as condition, treatment and storage. Although these aspects should be recorded during field work, they are part of finds processing and fall outside the scope of the present book. The method used for recording the production process is taken up in section 4.3. The selection and use of audio-visual means have been accounted for in section 4.4, while an account of the analysis of video images is elaborated on in Chapter 6. The problems and pitfalls encountered while doing field work are related in section 4.5.

4.2 RECORDING BASKETRY OBJECTS

4.2.1 Technology

The method used to record the basketry techniques featuring in this book, is the same for archaeological and ethnographical basketry. For each basket or fragment, five aspects are recorded, as shown in Table 4-1.

1	Basic structure
2	Beginning and end of the basic structure
3	Incorporation of raw material
4	Construction of the shape
5	Decoration
6	Additional features

Table 4-1 Features recorded to describe a basketry technique (cf. sections 4.2.1.1 to 4.2.1.6)

The five features mentioned in Table 4-1 have not been listed in the order in which they appear during the production of a basket, but follow the order in which a technique is recorded. They will be explained briefly in section 4.2.1.1 to 4.2.1.6.

4.2.1.1 Basic Structure

The *basic structure* is the basketry fabric of the base or the sides of a basket. It is considered the central feature in basketry recording and analysis, because it is the part of the basket that is most likely to survive. Even from the smallest fragment

of basketry the basic structure can be recorded. Baskets can be made up out of several different basic structures, for instance, the base can be made in a different technique than the sides.

To compare basketry techniques describing each according to the same parameters is important. The central concept for this is *system,* which is a number of strands which form a fabric by interacting with strands of another basketry *system*. Stake-and-strand basketry, for instance, consists of two systems: a skeleton of stakes, which are woven in with strands.

All basketry techniques can be described as systems that interact in a certain way. Each system consists of one long strand or several parallel strands, indicated as *elements*. The elements of a system are defined as: *all strands made of the same material and with the same orientation and function in effecting coherency in a basketry technique*.

In order to record the basic structure it has to be decided how many systems there are and which strands belong to each system. Secondly, the exact composition of the systems should be defined and, finally, the interaction between the systems has to be described. This procedure will be explained and illustrated in detail in Chapter 5.

4.2.1.2 Beginning and End of the Basic Structure

The basic structure starts at some point, usually the centre of a basket or the bottom edge of a mat where the strands which form the systems are fastened. After the main body of the basket or mat has been made, the strands are finished off. This is usually at the rim of a basket or the top edge of a mat. The centre, base, sides and rim sometimes show different basic structures, made with the same continuing strands. These strands may run throughout the basket, from centre to rim, but their function and interaction changes.

Figure 4-2 illustrates the patterns and change in systems in a two dimensional reproduction of the base, side and rim, as seen from the inside of a sixth century AD stake-and-strand basket found at Qasr Ibrim. The centre is made of eight strands, each of which consists of six parallel stems of a species of rushes. The strands are layed out crosswise and are held in place by two strands which twist around each other (indicated with number 1 in Figure 4-2).

This technique, known as *twining*, is continued in the base. The bundles which radiate from the centre are split into groups of three parallel strands in order to fan out and accommodate for the expanding diameter of the base (indicated with number 2 in Figure 4-2). All strands are fastened off at the end of the base and new elements are inserted to make the side (indicated with number 3 in Figure 4-2).

Before the sides are plaited, just above the base, a row of *waling* with three strands is inserted to put the elements of the side in their proper position (cf. section 5.1.4.3). The sides are plaited with six parallel rushes in an *over 1 / under 1* pattern (indicated with number 5 in Figure 4-2). All strands are fastened off at

the rim, but different methods are followed for the strands which run from right to left (indicated with number 6) and those running from left to right (finished off at 7 in Figure 4-2).

The rim of a basket, or the edge of a mat, has a double function: it is both the end of the elements which form the basic structure and the border of the entire object. The techniques forming the rim, therefore, have to safeguard the coherency of the object and the strength of the rim itself, since the object and its contents are often lifted by the rim, or by handles that are anchored in it. Determining the beginning and end of a basic structure requires insight into the production process.

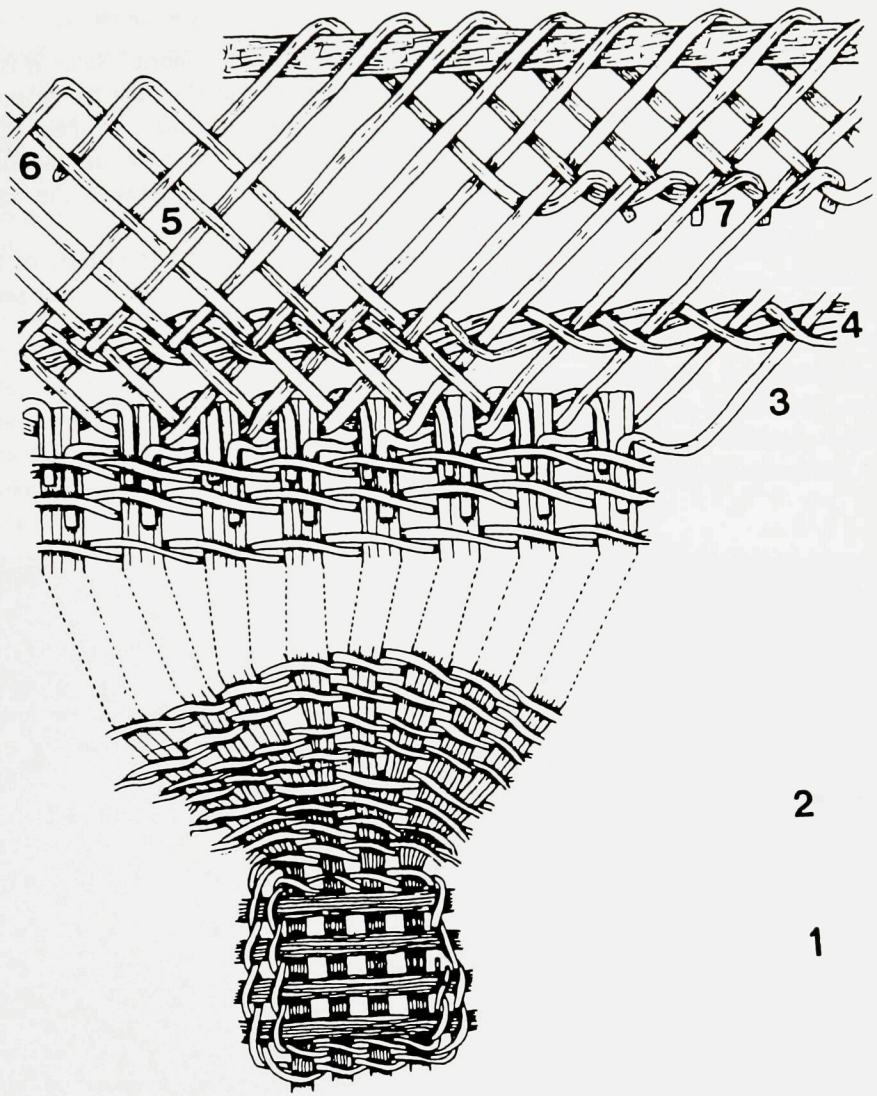
4.2.1.3 Incorporation of Raw Material

Because baskets are made of materials of limited length, such as strips of palm leaf strips or grass stems, new lengths of material have to be inserted regularly, during the production of the basic structure. Basket makers also have to compensate for the irregular shape of their raw materials. Sometimes this involves a separate production phase to make a more uniform material of unlimited length. Grass is, for instance, made into string and palm leaves are plaited into long strips.

If such measures are not taken, the limited length of the raw material makes it necessary that new leaves, stems or twigs are inserted throughout the production of the basic structure of the basket. An important feature is the way the material has been inserted and oriented. Willow branches, for instance, have a thick and a thin end, which have to be distributed evenly over the sides of the basket (see Figures 3-4 and 3-5 p. 36). The distribution, method of inlay and the degree of consistency are noted as part of the recording system.

In commonly occurring basketry techniques with little variations, such as coiled basketry, distinctions are made mainly by the details of adding raw materials, or the way the baskets were started and finished off. Furthermore, studying present day basket makers reveals that the solutions for technical problems, such as the insertion of raw materials, are very specific and passed on from the basket maker to his or her pupil. A detailed study of the insertions and exhaustions thus gives the best possibility to discern basketry traditions. In these details we find a knowledge that is handed down to the next generations, which forms a clue to tradition.

Figure 4-2 (on page 61) Schematical representation of the inside of a stake-and-strand basket found at Qasr Ibrim (fourth c. AD). Seven parts can be distinguished:
1. The centre, which is also the start of the two systems used in the base.
2. The basic structure of the base, consisting of *Z-twining*.
3. Transition base-side: the two systems of the base are ended and two systems for the side are inserted.
4. Row of *waling* in order to position the elements for the side.
5. Basic structure of the side (continuous plaiting in \1/1\\1 pattern).
6. Rim: exhaustion of the elements of the first active system of the side.
7. Rim: exhaustion of the elements of the second active system of the side.


6
5
7
4
3
2
1

Since the basket makers try to make the transitions of old and new strands invisible, by working them into the fabric as smoothly as possible, this important feature cannot always be recorded. Unless the baskets are damaged, this clue to tradition often remains hidden.

4.2.1.4 Construction of the Shape

The *shape* of baskets is formed gradually while creating the fabric. Since it is an integral part of the technique, the method to construct and maintain the shape of the object is recorded in direct connection to the *basic structure*. In most cases baskets are shaped by a radical change in angle between the base and the side. Therefore, special attention should be paid to the transition between the basic structures of base and side.

The range of variation is considerable and dependent on properties of the technique and the raw material. In some techniques, such as coiling, and sewn plaits basketry (cf. Plate 4-3), the transition is done gradually.



Plate 4-3 Sewn plaits basketry: coloured date palm leaf strands are incorporated in a plaited strip, which is sewn with strips of unspun doam palm leaf to form a basket (New Nubia, 1992).

In stake-and-strand techniques the base is often finished off and new material inserted to make the sides at the desired angle. This can be seen, for instance, in Figure 4-2 under 3. The transition of base to side has been strengthened by a row *waling,* a technique using three strands, as depicted in Figure 5-12 (f) and (g) (p. 96). Waling is often applied in shaping stake-and-strand baskets, since the multi-membered (e.g. three-strand) elements are stronger than single-membered elements and are used to force the elements of the side in place.

In some objects the side is made in a different technique than the base. This occurs generally in sieves, where the base is an open trellis work and the sides are made in the coiling technique in order to provide a strong rim. When the basic structures of the base and the sides differ, as is the case in a twined sieve with a coiled rim, the transition between base and side involves the ending of the strands of the twined trellis and the start of the systems making up the coiled sides.

4.2.1.5 Decoration

Often decoration is applied while making the basic structure, for instance by inserting regular pattern changes, or by using coloured elements. In present day Egyptian Nubia palm leaves are dyed and incorporated in plaits which are sewn into baskets and mats (Plate 4-3). Ancient as well as modern Nubian coiled basketry is given a decorative pattern by using coloured wrapping strands (Plate 4-4), a method applied also widely in present day Egyptian Nubia.



Plate 4-4 Decoration of coiled basketry as part of the basic structure: coloured wrapping strands are used to make a pattern, Qasr Ibrim, fourth c. AD, (Courtesy of the Egypt Exploration Society).

Another type of decoration which is made as part of the basic structure is a monochrome pattern of stitches of different length. The coiled bundle is fastened provisionally with a first layer of wrapping, which is then covered with a second layer of stitches wrapping around respectively one, two, three, four and five rows of coiling (Plate 4-5).

In specific Nubian villages in the vicinity of Aswan, a decorative technique, indicated as *imbrication* is used nowadays: coiled basketry is decorated with coloured strips of straw, which are fastened on top of the coiled surface. The strips cover (part of) the surface in an overlapping manner which is reminiscent of roofing tiles (Plate 4-6, Figure 9-17, see p. 166). [1]



Plate 4-5 Decoration of coiled basketry, making use of wrapping stitches over several coils. Qasr Ibrim, fourth c. AD, courtesy of the Egypt Exploration Society.

[1] Douglas (1935) named this decorative technique after *imbrex*, the Latin word for tile (cited by Adovasio 1977, p. 94, figure 113).

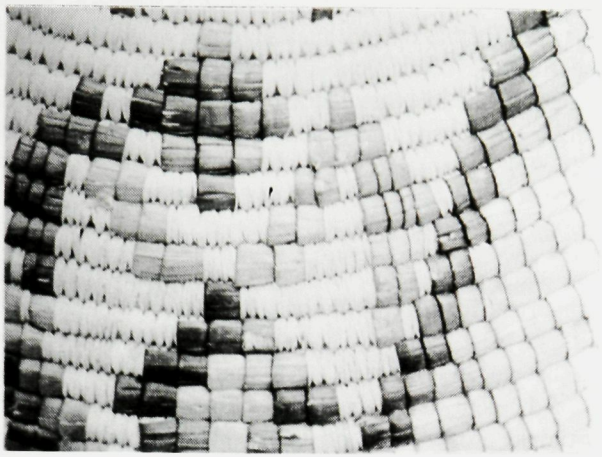


Plate 4-6 Decoration of coiled basketry, making use of coloured straw, fastened on top of the surface as part of the basic structure. The covering stitches have the appearance of tiles and are hence referred to as *imbrication* (cf. Figure 9-17, see p. 166, New Nubia 1992).

4.2.1.6. Additional Features

Features are considered *additional* when they have been applied separately after the main body of the basket was completed. These include the handles, foot and separately inserted decoration. Lids are often attached to the basket, for instance with a number of stitches, but are better considered and recorded as separate-but-connected baskets, rather than additional features.

Decoration is considered an additional feature only if applied after the production of the basket, for instance the application of a decoration with paint. Further examples are decorative stitching (comparable to embroidery) and the attachment of shells, beads and buttons. Most Egyptian coiled basketry, however, is decorated with coloured winders or by decorative stitching which is applied while making the basket and thus part of the basic structure.

Likewise, strengthening can either be applied during the production process or afterwards. An example of the first is the insertion of an extra string at the edge of a mat, which is recorded as part of the basic structure. Inserting a round of *waling* is another example of strengthening within the basic structure. Strengthening is an additional feature only when it concerns a secondary application, for instance in the form of stitches which anchor the base into the sides. Sometimes it is difficult to distinguish secondary strengthening from decoration, or, when applied sloppily, from repairs. Additional features are inserted at the end of the production process and are clearly part of it. Measures taken during the baskets' lifetime, to strengthen or repair, are considered in section 4.2.4.

4.2.2 Size and Shape

The size and shape of the baskets are measured and drawn to scale. It is important not only to measure the object, but also its different components, such as the diameter and length of the individual strands. A detailed description of the method used for measuring the objects that feature in this book can be found in Wendrich 1991c (pp. 67, 88-92).

4.2.3 Identification of the Raw Materials

Determining the plant species and the part of the plants from which the baskets were made is important for several reasons. In respect to basketry technology both aspects, species and plant part, give information on the original properties of the material. In archaeological basketry these aspects, such as length, flexibility, tension strength and colour, have altered over time due to ageing and deterioration. Knowing the original properties is of importance for understanding the technical features of the basketry raw materials.

Secondly, the plant materials used provide links to the place of origin of the baskets and show temporal differences. The 18th dynasty coiled basketry from Amarna, for instance, has been made exclusively of doam palm leaf, while the present day Middle Egyptian coiled baskets are made of date palm leaf.

The identification of the modern materials is done through information by the basket makers, who are usually able to give the vernacular names of plants and show the places they are collected. The archaeological material can be identified partly macroscopically, but frequently the analysis of the species has to be done by microscopic examination of the characteristics of the epidermis.

From the work of Greiss (1957) and Täckholm (Täckholm and Täckholm 1941, Täckholm and Drar 1950, 1954, 1969) it is apparent that the range of plants used for basketry production in antiquity is limited. Their list of species formed the basis for the list of criteria used for fibre identification of the Amarna and Qasr Ibrim material.

Because epidermis patterns are used as the main criterion for identification, only samples in which the epidermis is still present can be identified. Alternative methods, such as the identification of cross sections, appeared to be unsuitable. In the course of the research it appeared that when the preservational state was such that the epidermis had worn off completely, making a satisfactory cross section was usually impossible. Besides macro remains, which still have fragments of epidermis to be identified, part of the material consists of fibres only. This means that no epidermis is present and that, therefore, the only method open to identify them, is to compare the size and the shape of the fibre cells. The method of epidermis pattern identification will be described in detail in Appendix A.

Since most baskets and mats have been made in a two-system technique (one active and one passive system), each fragment requires minimally two analyses. The large amount of finds from Amarna and Qasr Ibrim, more than 2000 fragments, renders a microscopic analysis of all finds impossible.

A deliberate selection was made to economise, abiding the principle that some materials could be recognised macroscopically, provided they were in a good condition. Therefore, the group of objects selected for fibre identification is neither a representative nor a random sample. Especially if the condition of the fibre is bad, the macroscopical identifications are sometimes doubtful and occasionally prove to be wrong. Therefore, no precise percentages of materials used are given.

For the basketry from Amarna and Qasr Ibrim a diversified sampling procedure is followed in which three groups of material are discerned. The first group are plant materials that can be identified macroscopically. Provided they are in good condition, the two species of palm trees of which the leaves are used in basket making can be discerned without magnification. Only a number of control samples were taken to check the macroscopical identification. Therefore, the number of samples of palm leaf under represents the actual occurrence of palm leaf.

The second group are the grasses, which can be recognized macroscopically as different from palm leaf, but discriminating the two tall grass species used in ancient Egyptian basketry production it is not possible. During the first season at Amarna a random sampling strategy was followed to gain insight into the ratio of these two grass species. This strategy was abandoned in later seasons, because the results did not show a specific pattern and from ethno-archaeological work it appeared that present day basket makers used both grasses without discrimination (see Chapter 8). This strategy resulted in an over representation of grass samples.

The third group are the less common plant species, such as sedges and rushes. The ratio of these plants in the sample collection is even more askew, since most objects made of rarely occurring materials were sampled. The sample collection is thus not representative for the actual occurrence of raw materials.

The plant species from Amarna and Qasr Ibrim have been studied and photographed on site by the author and identified by Otto Brinkkemper and Edwin van der Heijden. The results of their work are incorporated in Chapter 8 and presented in Appendix A.

4.2.4 Wear, Damage and Repair

Wear patterns are important indicators for the use of basketry. Since most basketry is found as small fragments, the wear pattern shows, for instance, which side was the baskets' outside. Repairs are also important indicators for the use to which a basket was put. For carrier baskets repairs are usually found at the base (renewing the anchoring of the base in the sides) or at the rim and handles. Storage baskets are usually repaired at the base, while matting repairs are found mostly at the edge. Sometimes measures of secondary strengthening can be seen. These are applications of sewing after the basket has been taken into use, but before the basket was damaged. Since the present book concentrates on production, rather than use, the aspects of wear, damage and repair will not be dwelled upon in the following chapters.

4.2.5 Context

The context of the archaeological basketry was recorded partly by me, partly by others. In Amarna the excavations in the workmens' village, the area which had resulted in most of the basketry finds, had been finished a few years before I worked on the material. Checking the field notes and talking to the archaeologists who had supervised the excavations was the only means to understand the context of the baskets.

In Qasr Ibrim the situation was very different, because I had the opportunity to be present most of the season. This gave the possibility to keep in close contact with the developments on the site. Participation in excavating the areas in which basketry was found, enabled me to examine and record the archaeological context with specific basketry-related questions in mind.

For the understanding of the production process the context did not produce many new insights, compared with the information from the objects themselves. The basketry at Amarna and Qasr Ibrim was deposited mostly in a state of re-use or discard. Other items, such as tools and raw materials were, however, of great use for the interpretation. The excavated spaces did not show any particular features, wich is not surprising in the light of the results of the ethno-archaeological work. In most cases, basketry production does not require specialized work shops, or specific installations (see section 4.3).

4.3 RECORDING BASKETRY PRODUCTION

Understanding starts with participation and participation starts when I ask the basket makers if they can give me lessons. This is a useful approach for several reasons. In the first place, a pupil-teacher relation is very different from a relation between a researcher and an informant. It enhances the self esteem of the basket makers and in general gives them more credit for their knowledge and experience. Secondly, trying to make baskets, rather than just looking at them, is invaluable to get a feeling for the properties of the raw material and the specifics of the technique.

Apart from participation, the traditional methods used to gain information are observation and interviews. During field work these three actions preferably melt to a natural form of behaviour. When I visit basket makers, often and for longer periods, I try to sit and chat with them. Although I usually ask many questions during each session, no formal interviews are held. During the chats, I keep in mind the list of focusing points and the questions that go with these (see Appendix B), but never use interview forms. Observation continues while the work is going on. Sometimes I stop talking or listening because something interesting is happening in the process. This is usually picked up and explanations follow. In 1989 and 1990, however, my limited knowledge of Arabic forced me to organise a special session with an interpreter, to ask detailed and abstract questions. Observation is helped greatly by audiovisual recording: drawings, photographs and video, wich are introduced in Section 4.4

The interaction with informants brings the human factor back into archaeology, not in the sense that the present day basket makers are suddenly thought to be populating the past, but in the mind and daily schedule of the archaeologist. The exchange of information with basket makers on ancient and present production brings new questions to the forefront. Ancient basketry production becomes relinked to time, space and the position of people in a family and a society.

The production method of ancient basketry is inferred from technical details such as the edges and insertions of new strands. Finding similar technical details in modern basketry, gives a firm base to using present day basketry production for interpreting the ancient production processes.

To understand the production process, it helps to split the process in phases (cf. Section 4.3.1). Involving the aspect of time is a vital step in understanding production as a process (cf. Section 4.3.2). Studying the context of present day basketry production gives information that can be linked back to the archaeological context, but also on aspects that are immaterial, such as the meaning of baskets or the social status of basket makers (Section 4.3.3). Although linking such information directly to the archaeological material is difficult and sometimes impossible, it is exactly this kind of information that makes archaeology alive.

4.3.1 Production Phases

While observing a basket maker, it helps to organise the information by discerning production phases. Table 4-7 lists seven phases which occur, although not all baskets need all seven steps, nor are they necessarily executed by the same person. For most baskets and mats the raw materials need some preparation before the production is started (a in Table 4-7). Leaves are cut into strips and often the materials are soaked in water, to regain their flexibility. The phase of preparing the systems (b in Table 4-7) does only occur with the more complicated techniques. In the sewn plaits technique, for instance, both the active system (string) and the passive system (plaits) are prepared separately. Starting the systems (c in Table 4-7) involves setting up the basket or mat. Usually this is done at the centre of the basket or the starting edge of a mat. The interaction of the systems (d in Table 4-7) is the phase in which the basic structure of the object is made: the base and sides of a basket or the fabric of a mat. This phase include shaping the object and inserting new lengths of raw material. Finishing off the systems (e in Table 4-7) is the phase in which the rims or edges are made. The addition of handles, internal rims, feet and added on decorations is done in a separate phase (f in Table 4-7). The last phase is the finishing touch, in which irregularities are removed or the basket is pushed and pulled in shape.

a)	Preparing the raw materials	(soaking, cutting)
b)	Preparing the systems	(making string, plaiting a long strip)
c)	Starting the systems	(beginning of basic structure: centre)
d)	Interaction of the systems	(making the basic structure: base and sides)
e)	Finishing off the systems	(ending the basic structure: rim)
f)	Adding features	(e.g. handles)
g)	Finishing touch	(removing irregularities)

Table 4-7 Seven phases of the production process.

There are similarities between Table 4-7 and the list of aspects with which to record a basketry technique (Table 4-1 on page 59). Recording a basket starts with discerning the basic structure, while studying the production phases shows that the basic structure is created somewhere in the middle of the production process (Table 4-7, d).

4.3.2 Timing

If we want to know how much time a production process takes, it seems to be a logical step to break down the process according to the production phases as introduced in the previous section. Although such a schematization is very useful for understanding the process, in practice it is not a good base for timing. As will be seen in Chapter 16, the process is more complicated, than shown in Table 4-7. For timing the process such a simplification is too coarse.

Analysing the actions and movements gives a more precise tool to time the production process. It also provides the possibility to look at aspects such as working rhythm and concentration. For this aspect the video has proven to be an indispensable tool. A brief introduction to the analysis of moving images will be given in Chapter 6.

Apart from timing the process itself, it is also important to record other time-related aspects of basketry production, such as the time of day or the time of year in which production takes place. The former is determined by other daily duties a (part-time) basket maker might have. The latter bears a relation to the harvest of raw materials or specific seasonal tasks. Unless a complete year can be spent with the basket makers, this information can only be gained by asking questions.

4.3.3 Context

The material context of basketry production is observable: instruments are scattered around the work space, the basket makers' actions leave specific traces. These observations can be related back to the archaeological context, where similar patterns might be identified. A good example is the mat loom, which is a simple construction made of four wooden pegs in the ground. These pegs hold two cross bars in place, on which the warp is stretched. The archaeological remains of

a matting workshop can be no more than four round discolourations of the soil where the four pegs once were.

Apart from the material context, there are many aspects related to basketry production which could be dubbed the immaterial context. These are aspects which are not readily observable at present and certainly do not leave clear archaeological traces. The meaning of baskets, or the social status of basket makers are retrievable by interviewing basket makers. In some cases, they also have a material component. The Nubian baskets given as wedding presents are, for example, used to decorate the guest room. The location of the baskets and the care which is taken in hanging them on the wall, is indicative of their special status. For archaeological finds a special status can be proposed on the basis of the archaeological context, but the exact nature cannot be retrieved. Ethno-archaeological examples, however, give possible explanations.

4.4 AUDIOVISUAL MEANS

Photographs and drawings are used widely in archaeology as recording aids. They represent a given situation in a seemingly objective fashion and thus are thought to constitute proof of the writers' interpretation. This is not an unproblematic claim, as will be discussed in section 4.6. In ethno-archaeology, which deals with a world that moves, the video camera is an obvious tool. It adds not only movement, but also a sense of time to the representation.

True to the adage that 'one picture says more than a thousand words', drawings, photographs and video are used to support or replace descriptions. The importance of using images rather than words, however, is not only that a description of a basket, a production process or context requires a large number of words, or that the result is often awkward and unclear, but mainly that pictures tell a different story than words.

An important feature of visual means is that it immediately draws the readers' attention, which is much more difficult to achieve by text alone. The advantage of text is that certain aspects can be emphasized while a photograph, although it is a direct call for attention, and determined by the eye of the photographer, still leaves the viewer to interpret the message. This can be solved by marking parts of a photograph, or using the caption to give clear directions. Drawings combine the directness of a visual marker with the possibility to highlight specific features.

The most important benefit of using drawings, photography and video, is that they give a possibility to analyse situations or processes in a way which is not possible by observation alone.

4.4.1 Drawings

Drawing is a slow process which forces the eye and the brain into a thorough study of the object. Many times a basketry technique is not really understood, until a

detailed drawing has been made, which includes the patterns and irregularities. Drawing often also brings to light where the production is problematic.

Recording basketry and the present day production process requires different forms of drawing. Drawings to scale are made as part of the record of basketry objects (cf. Wendrich 1991, 124). Reconstructions, often based on paper models, are also made to scale. Of some objects it is useful to have axometric drawings, especially when the shape is irregular or complicated.

Schematical drawings are not made to scale. They represent the way in which the basketry has been structured by showing enlarged or simplified representations of the technique, sometimes elucidated with colours.

Plans and elevations of the archaeological context at Amarna and Qasr Ibrim were made by different site supervisors. The working areas of the present day basket makers was planned also.

4.4.2 Photographs[2]

In the course of the research on basketry production, photography has been a research tool as well as a recording tool (Collier and Collier 1986). Recording the general appearance of the basic structure as well as the shape and decoration, a selection of baskets has been photographed on colour slides and black and white film. This selection represents both the commonly occurring baskets as the rare specimens. Close ups are used to record the technical details and aspects of the raw material.

During archaeological field work photographs are made to record the context. The excavation files of the Amarna expedition contain photographs of the excavated areas including some of the baskets and mats *in situ*. Due to my presence at Qasr Ibrim during the excavations, I had the opportunity to study and photograph a large number of baskets and mats *in situ*.

Photography as part of the ethno-archaeological work is used extensively to record the context and the production process. In relation to this, the use and re-use to which baskets are put are photographed, the results of which will appear elsewhere. Recording dynamic processes, rather than static situations is done by taking series of photographs. In Middle Egypt the actions were observed

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[2]The equipment used for photography are two Olympus OM10 camera bodies, one for colour slides and one for black and white photographs. In order to avoid distortions I prefer to use a 50 mm lense. For overviews and inside photography I sometimes made use of a 28 mm wide angle lense. Technical details are photographed with a powerful 105 mm macro lense. In rare occasions I use a zoom-telephoto lense for outside photography. It gives the opportunity to photograph people without being obtrusive, but it also has a dishonest side to capture somebody close up without him or her being aware of it. The film used was mostly professional 125 ASA black and white or 100 ASA colour slide film It enables photography in the bright Egyptian sunlight, but also (often with the use of flash) inside houses and work shops.

repeatedly, and photographs were taken at one specific session. In Egyptian Nubia observation and photography were done during one visit.

Photographs as a research tool are used to communicate with Egyptian basket makers. Showing pictures of ancient baskets readily starts a discussion on technical features, applied materials and use. Photographs of European basket makers equally provoke and animate the discussions.

The position of the body in different stages of the work and during different actions is analysed by studying the photographs. Although it is possible to analyse not only the position, but also the actions from a series of photographs, I chose to use video.

4.4.3 Video[3]

Video is not an objective, unbiased medium. It can be maintained that a film is made during the editing stage. Although it is farfetched to state that the same footage can be made into a number of entirely different films, it is certainly true that editing determines much of the atmosphere and the contents. Through editing a messy production process can be smoothed into an organized one.

The objective of the video that is part of this book is to show the production process, but also to highlight a number of features and offer examples of the way the actions are analysed (see Chapter 6). The edited video, which lasts one hour, is a small selection of the total footage which encompasses approximately ten hours. The five production processes which have been represented in one hour, last in real time between 10 and 500 hours.[4] It may be clear that filming means selecting.

Not only how much is filmed, but also what is filmed and how things are filmed determines the video narrative even before the editing starts (cf. Heider 1976, 46-113). The most important of these choices have been accounted for here.

Selection of Equipment

In order to record moving images, I have chosen to use video rather than film, even though the latter gives a better quality. There are two main reasons for this. First of all video is less expensive than film, which gives the possibility to take long sequences. This gives a better base for analysis of the material and moves the selection of scenes partly to the editing stage.[5]

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[3]The equipment used in the field was a Super-VHS camera, without external microphones or light sources. The three hour S-VHS mother tapes were copied onto both Umatic and Betacam tape. The off-line editing was done on a Umatic editing set by the anthropologist C. van Beek and myself. The on-line editing was performed on a Betacam editing set.

[4]Sewn plaits baskets take one full day, coiled food covers are made in a period of three months, in which the basket maker works approximately six hours per day.

[5]Another advantage is that in the editing stage scenes or sound can be used more than once, since video is edited by copying scenes of the mother tape onto a second tape, while film is edited by cutting and re-arranging the mother copy.

Secondly, video is much more light sensitive than film. With video one can film until sunset and inside dim houses without using powerful lamps. It is, therefore, a less intrusive medium than film. For the same reason, I have not used external microphones.

Selection of the Subject
Only a small number of basket makers were selected to feature in the film. The area was limited to Middle Egypt and New Nubia, the techniques were those which were very similar to the ones occurring in antiquity. Preferably those basket makers were chosen with which I had been in contact for a long period, who had been my teachers and with whom I had a good rapport.

Selection of the Scenes
Although the production sequences of basketry are similar, they are not identical. At some point one particular sequence is recorded on video. Within this sequence another selection is made on what and how much of the process was filmed.
For short processes, such as turning pots on a wheel, the entire sequence can be filmed, but when the process takes a day or longer, it is a legitimate choice not to register the entire procedure, but to take shots at intervals. Among other things, this means that the complete duration of the process cannot be timed from the video.

Camera Position, Frame and Angle
The position of the camera and all the actions of the camera reflect implicitly the research question. Zooming in forces the viewer to concentrate on a specific subject or detail. Zooming out divides the attention between basket maker and context. Even an overview of the surrounding area is still a selection by the cameraman, and excludes more than it includes. The size of the frame (close up, half total, total or overview) and the position of the camera literally determines the angle of view and influences the interpretation. More will be said about this aspect in Section 6.1.

During filming there are constantly moments in which choices have to be made. Not all the selections mentioned above are well-considered decisions. At the filming sessions improvisation is unavoidable. It may be clear that, as any method of recording, filming does not give an objective representation. The film which accompanies this book is therefore not to be considered as a 'see-for-yourself' proof for the points made in the text. It is a separate account, which partly tells a different story than the text.

4.5 PROBLEMS AND PITFALLS

The problems and pitfalls in field work are many and mostly related to communication. In archaeological work the specialist working on a specific finds

group, needs to communicate with colleagues excavating and those studying other find groups. Ideally the specialists are present during the excavation season, but sometimes this is not possible, as was the case in Amarna where the basketry had been stored since 1986.

Communication is even more important in ethno-archaeological work. The researcher is removed from the informants in language, culture, social status and profession. Difference in sexe between researcher and informant sometimes proves problematic too, although in this respect being an outsider and a woman has the advantage of giving access to both the men's and the women's world. The problems and pitfalls are best illustrated by an account of the work of the past few years.

Introduction to the informants

A good introduction of the researcher is of the utmost importance. In Amarna such an introduction was given by several people working for years with the archaeological expedition. During the excavation seasons of 1989, 1990 and 1992, each of which lasted several months, I was given introductions to visit basket makers in the three villages in the vicinity of the Amarna dig house.

Such a combination of archaeological field season and ethno-archaeological work was not possible in Qasr Ibrim. There are no villages in the vicinity, because the entire area has flooded as a result of the Aswan High Dam. Around 1960 the people of Egyptian Nubia were moved to new villages in the south of Egypt around the city of Kom Ombo. This area is hence known as (Egyptian) New Nubia. The study of Nubian basketry and basket makers was done in two brief concentrated periods after the excavation seasons of 1990 and 1992. With an introduction by the Inspectorate of Antiquities I visited several basket makers near the town of Aswan. In 1990 I made a number of day trips to the New Nubian villages as an orientation on what knowledge and traditions were left after the forced migration of the Nubian people. In 1992 I stayed for three weeks in the village of Dabud, north of the city of Kom Ombo. Again the Inspectorate of Antiquities was a great help in organizing contacts and permission.

This village was the starting point for visiting a large number of Nubian villages in the area as well as the town of Daraw. The contacts with the basket makers in these villages were intensive, but less well balanced than the work done in Middle Egypt. After the first visit, during which the introduction took place and I observed and participated in the work, a selection was made of basket makers who were considered representative both for the work done in Nubia before the migration, and for the techniques as they developed afterwards.

Granted that hospitality is a Nubian life rule, the level of rapport was surprisingly high, considering that the introduction into the villages was minimal and the period to get acquainted was brief. The only way I can explain this, is that the informants and the ethno-archaeologist shared an interest in a very specific subject. Nevertheless, during the work there were regularly communication problems, which were caused by different factors.

Biases

One of the hardest tasks in ethno-archaeological research is the attempt to become aware of ones own biases. In retrospect, the two periods of ethno-archaeological research can be considered a gradual personal development. In 1989 and 1990 my observation of basket makers was steered by questions that had risen from studying archaeological basketry. My attention was directed mainly to the production process and the actions that resulted in particular technical details. It was not until the second period of ethno-archaeological field work that I gave full attention to the ethno-archeaological context.

Influence of my presence

My presence inevitably influenced the situation which I was observing or participating in. Sometimes the entire process was disturbed, because everybody was paying attention to my work, rather than their own. At other times we would all be working happily along, and apart from the occasional smirk in my direction because of my slow pace, the basket makers would seem to get on with their work, just as they would without me being present. It was impossible to rate the amount to which the 'normal' situation was influenced by my presence, other than by noting down the subjective impression that the process and atmosphere seemed to be disturbed or not.

The video sequence featuring the mat maker Amrit is a prime example of disturbance of the normal order of things by my presence (sequence 42:10-47:34). When the village school was over the pupils streamed into the little square before the mat makers' house. They were kept at a distance by two helpful neighbours who started beating the boys with sticks. At such moments it is difficult to decide if the session should be broken off or continued.

Communication problems

As a result of differences in classification, language and world view, several communication problems arose. An example of the first, classificatory differences, has already been mentioned above (p. 17). When I tried to make inventories of containers used in and outside the houses I had to name every single type of basket separately, because the English word *basketry* has no Arabic or Nubian counterpart. It was a vivid example of a classificatory problem, the things belonging together as 'basketry' in my opinion, being objects of different classes for my informants.

Furthermore, it was often difficult to explain the exact purpose of this excercise to the informants. Although most people were eager to help, the request to investigate the house, or have all basketry objects being gathered, was sometimes met with suspicion. Most often, however, looking at old baskets and pots was simply beyond anything considered of possible interest and the request was not understood.

The interviews presented still other communication problems, because the questions which I had posed myself, had to be translated into Arabic and had to be in keeping with the perception and experience of the informants. It was unconceivable to ask a Middle-Egyptian basket maker how he would characterize his social position. The question that was asked instead, depending on the specific situation, was something like: "Would you be proud if your son would become a basket maker too?". The answer was a matter of interpretation, since it not only reflected a level of 'social status', but also economic motives.

The questions as listed in Appendix B were adapted time and again to the specific situation of the basket maker. This implies that not all basket makers have answered the same questions. It was a deliberate choice to give precedence of good rapport with the basket makers over getting through the questionnaire.

During the first few years, when my knowledge of Arabic was insufficient, the problems of using a translator to do the interview sessions became very clear. In the village nobody spoke English, so the translator was an outsider, who was better educated and usually more wealthy than the basket makers. The major problem encountered was that sometimes a translator would look down upon the basket makers, which disturbed the rapport. In several cases an interpretor did not translate the answer of the informants, but presented his own ideas on the subject instead. Being better educated, he felt there was nothing he could learn from the basket makers, and that he knew the subject much better than they. In one case the interpreter, who was a Christian, flatly refused to translate a story about a Muslim Saint who was said to have introduced basket making into Egypt.

As soon as I posed questions on economic aspects, many informants appeared to become uneasy, especially those whom I was not acquainted with all that well. It was hard to discern to what extent the answers were governed by certain expectations. Although I presented myself as a scholar who was interested in ancient and modern basketry, questions about the prizes were sometimes interpreted as a means to investigate the market. Comparing information on prizes of different basket makers made me realize that some of them had mentioned considerably higher prices, perhaps in the hope that I would buy their products at an expensive rate. In some cases I confronted informants with the accepted market price. Being caught in an effort to 'cheat' was acknowledged good humouredly.

Usually a number of questions were posed twice in a slightly different formulation, in order to check answers. Sometimes this was recognized and informants would remark so or look surprised. At a few occasions the large quantity of questions provoked irritation and the interview had to be stopped.

Period of research

A number of problems rose because of the limited time that could be spent and specifically by the time of year in which the research was done. Ideally the research should take place the year round, to observe what happens in different seasons. By the time I realized the importance of long term research, there was no time left to organize such an enterprise. This was partly solved by asking the

basket makers if their actions were limited to certain periods of the year. From the answers it appeared that the basket makers of Middle Egypt and Egyptian Nubia were collecting raw material and making baskets all year round. There was no such thing as seasonal activities. This is not true for all basket makers in Egypt. A matmaker whom I visited in Dakhla oasis had a specific time of year in which he collected his raw material. He used rushes, which had to be collected before a lack of grass forced the goats to eat rushes.

The second period in which I did my research in New Nubia fell within the month of Ramadan. During this month Islamic people are fasting during the day and have two festive meals during the night. In Ramadan the entire society is unsettled, because of lack of food, water and cigarettes during the day and lack of sleep at night. Especially near the end of the month many people are tired and irritable. More importantly, during Ramadan Nubian women are very busy and have no time, or are to tired to make baskets. It was not until I had arrived in the village of Dabud that I realized that it was the worst possible time to study basket makers. Yet, the women were very helpful and sat down to work in order to show me their skills.

Photography and video

In the era of the Adobe photoshop images can be doctored to represent almost anything, but even photographs which are supposed to give an account which has not been tampered with, might give a biased representation. The influence of the photographer is considerable, not only in the selection of the subject, but also in the manner in which the photo is made. Including the surroundings gives a different impression than showing a close up of a basket maker.

Officially Islam forbids making images of people. For strict muslims it is therefore not allowed to be photographed. For most informants this was not a problem, most of them were very eager. Neither were there objections against being filmed. In Egypt television is known in the smallest villages, and video is increasingly popular to record special occasions such as weddings. However, in a few cases in Egyptian Nubia, wives whose husbands were not in the village, but working far away in Cairo, did not want to be photographed or filmed. It was impossible to decide if this was an Islamic rule, or an attitude ruled by modesty, but of course their wish was respected.

As mentioned in section 4.4.3 the use of video does not give an objective registration of the production process and context, not only since the film maker has a large influence on the end product, but also because the presence of a camera influences the situation. Although video was selected because of being less intrusive, the appearance of a camera usually caused pleasant excitement. In some cases, however, it disturbed the situation to the extend that the footage became quite useless. After working with a female basket maker in the vicinity of Amarna for weeks, we had established a good relation. She was teaching me and we spent several afternoons sitting in the dust of the court yard making baskets. When I asked her, she declared to have no objections to being filmed. The morning of the

video session, her husband was unexpectedly at home. He had taken the day off to be present and started to interfere immediately. He did not want her shown 'on television' in her old dress. The court yard had to be swept and moments later she came back in a beautiful dark blue velvet dress. Of course sitting in her usual shady corner would spoil her garment. Instead she was put in the sunny court yard on a chair, looking unhappy, uncomfortable and very warm.

Because there was a television in the village, I could show the footage to the basket makers, and their family and friends. Here my limited knowledge of Arabic was a real handycap, because it would have been extremely useful to get some more feedback.

Consequences

Fieldwork is a step into the unknown and a learning process. There is no procedure to prepare fully for what will be encountered and improvisation is often necessary. A multitude of factors are of influence on the result, which are as far apart as the mood in which the participants happen to be in, to the number of tourists that visit a community. The old fashioned ethnographer describes strange people and habits, without accounting for the points where he might not have understood what was happening, but the authoritive ethnography is slowly dying out and the present generation is aware of the limits of interpretation. Accounting for the shortcomings of one's field work is not just a matter of being honest, but it has become part of the research method.

Is it possible to build in a methodical safetey net to accomodate for the problems occurring during field work? There is no simple answer or fixed procedure, but the central concept is being aware and explicit about the strength and weakness of one's research. This is important in all stages of the work. During field work I attempted to articulate doubts and questions as much as possible in the interaction between myself and the informants. In writing up the research, I have indicated where and why I am in doubt.

CHAPTER FIVE

BASKETRY ANALYSIS

5.1 Analysing the Basic Structure

All baskets are made of strands, which are arranged in a specific manner to create a fabric, indicated throughout this book as the *basic structure*. A basket may consist of several kinds of basic structure, the base might be made differently from the sides, for instance. In order to be able to compare basketry techniques they have been abstracted into an interaction of *systems*. Table 5-1 lists the five aspects necessary to analyse the basic structure: determining the number of systems, the orientation and activity of each system, the nature of the elements of which the system consists and the manner in which the systems interact. These five aspects are the subject of sections 5.1 to 5.5.

A.	Number of systems		5.1.1
B.	Orientation of the systems		5.1.2
C.	Activity of the systems		5.1.3
D.	Composition of the systems:	1. Raw material (species)	5.1.4.1
		2. Element size, shape and flexibility (width/thickness/diameter)	5.1.4.2
		3. Preparation of elements (half products)	5.1.4.3
		4. One element / Set of elements	5.1.4.4
		5. Element members (number/orientation)	5.1.4.5
		6. Element mobility	5.1.4.6
E.	Interaction of the systems	(pattern)	5.1.5

Table 5-1 Five aspects involved in analysing the basic structure of a basketry technique (cf. Sections 5.1.1 to 5.1.5).

5.1.1 Number of Systems

In order to record the number of systems it has to be decided which strands belong to one system and which to another. *Elements* of a system are defined as: *all strands made of the same material and with the same orientation and function in effecting coherency in a basketry technique*. To define the number of systems it is, therefore, also necessary to look at the orientation (B in Table 5-1) and the *activity* of the strands (C in Table 5-1), the *raw material* (D1 in Table 5-1), the size of the elements (D2 in Table 5-1) and their *preparation* (D3 in Table 5-1).

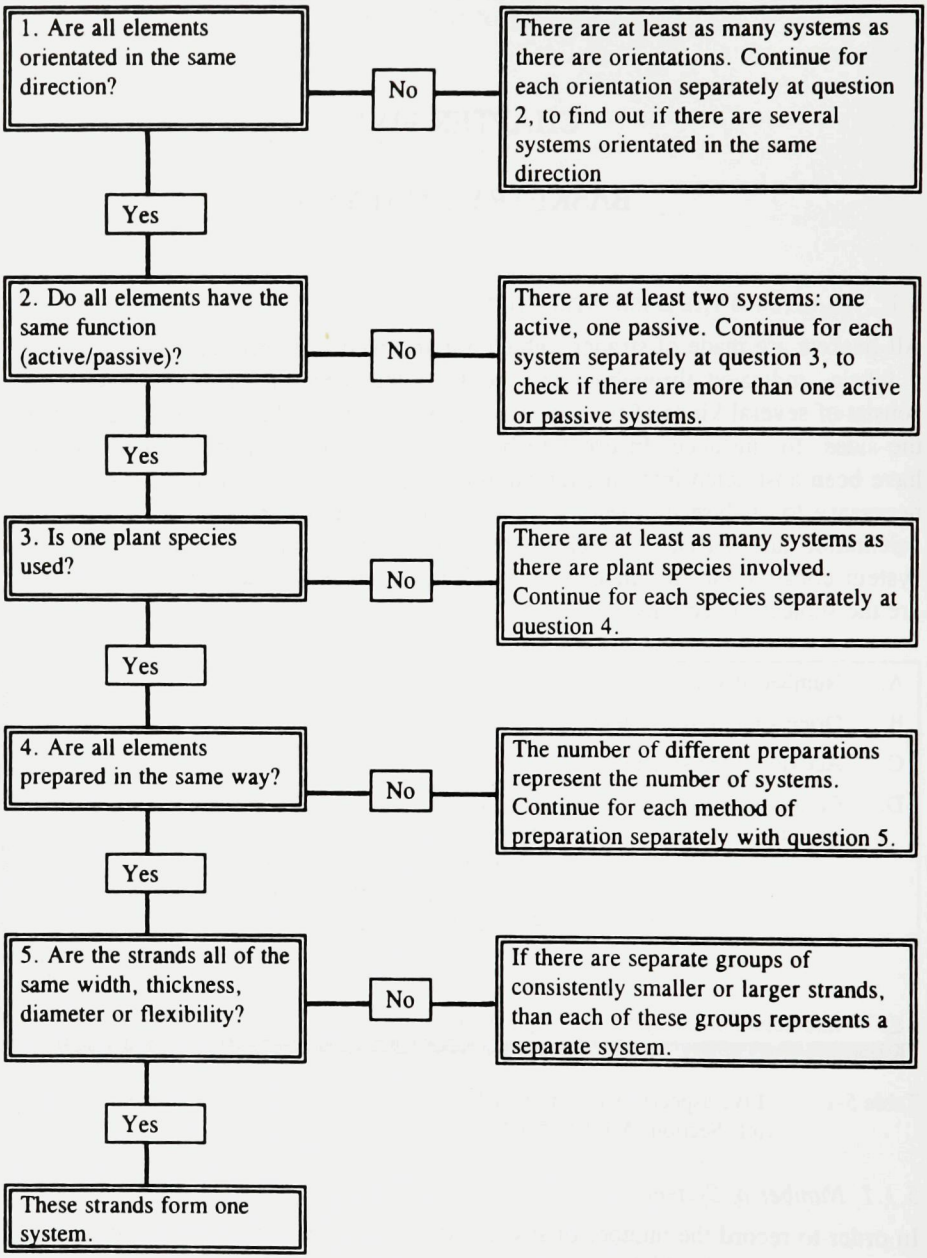

Figure 5-2 Flow chart for determining the number of systems in the basic structure of basketry techniques.

An example of how to use these aspects to determine the number and properties of the systems is shown in the flow chart of Figure 5-2[1]. By answering five questions the number of systems can be defined, as well as the criteria by which these systems are differentiated:

1. Are all elements orientated in one direction? (criterion B in Table 5-1)

If the answer is negative, the number of orientations indicate the minimum number of systems. Figure 5-3 shows a mat, made of string and grass leaves, which are orientated at a straight angle. Since two directions can be discerned, there are at least two systems. Figure 5-4 shows a technique with three orientations: vertical, diagonal and horizontal, which implies that there is a minimum of three systems. It is necessary to check these three systems separately by answering questions 2, 3, 4 and 5 for each orientation, in order to establish if the *minimal* number of systems found by the criterion of orientation is indeed the *total* number of systems. Figure 5-5 gives an example of a technique in which the orientation of two systems is the same: the grass rope core and the palm leaf loops are following the same direction: they are worked from left to right, the linked loops holding the rows of grass rope in place. If the answer to the first question is affirmative, as in Figure 5-5, then the second question has to be posed in order to find out if there are more than one system involved.

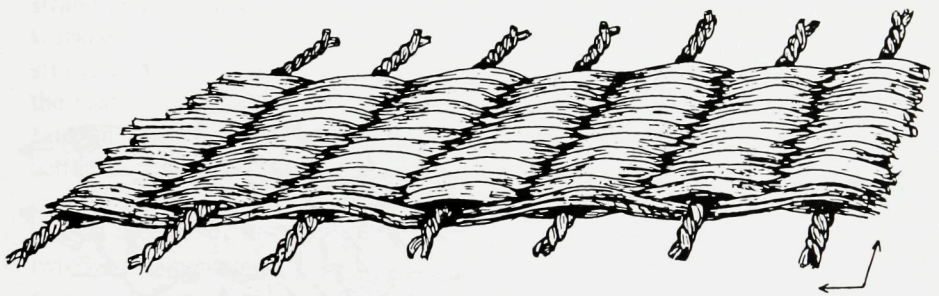

Figure 5-3 mat, made of string and grass leaves, which are orientated at a straight angle (Amarna, *ca.* 1350 BC)

[1] In Wendrich 1991c a similar flow chart was presented in which the questions were listed in a different order. The order is of no consequence to the end result, as long as all aspects are checked.

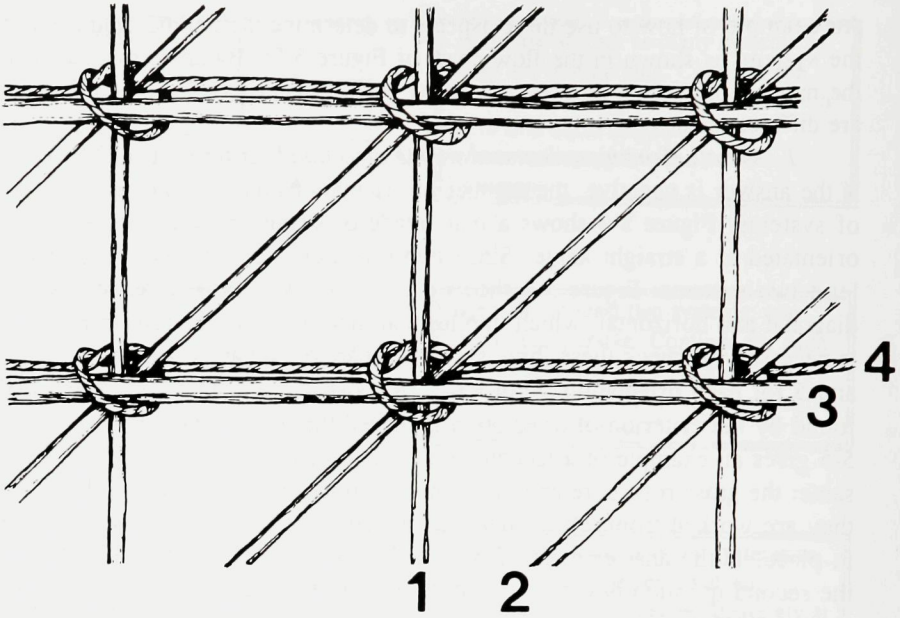

Figure 5-4 Basketry technique with three different orientations (vertical, diagonal and horizontal, and four different systems (three passive and one active). The string (system 4) with which the three passive systems are tied together, follows the same horizontal direction as passive system 3, but differs both in activity and material (found at the Roman fort of Abu Sha'ar, Red Sea coast, Egypt).

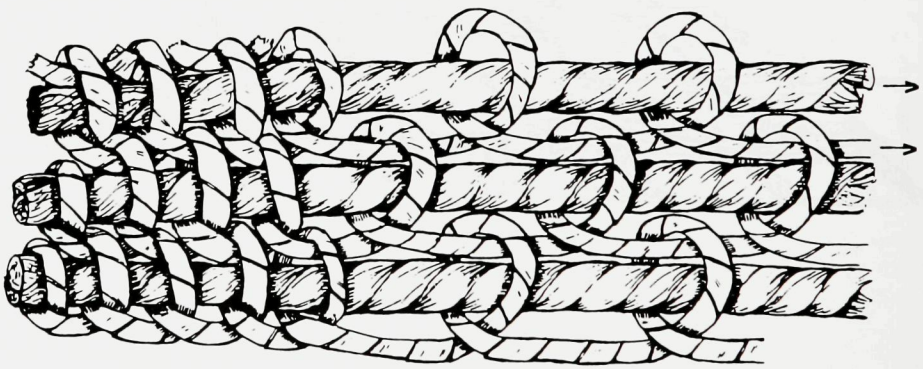

Figure 5-5 Basketry technique with two systems which follow the same orientation (from left to right). The passive grass ropes form the body of the technique, while the active palm leaf loops cause the coherency of the fabric (Qasr Ibrim).

2. Do all elements have the same function? (criterion C in Table 5-1)
The function of a system can be active or passive. The active system comprises the strands which are causing the coherency of an object, while the passive system forms the body. In many cases the passive system is made of less flexible material than the active system, or made rigid, for instance by fixating the passive strands in a loom.

In woven objects the difference between passive and active is quite clear: the warp, fixed in the loom, is passive, while the weft which is woven in, is the active system. In Figure 5-3 the string is passive, while the grass leaves are active. In Figure 5-4 the lattice is passive: the elements of three systems are layed out, the diagonal system 2 being sandwiched between vertical system 1 and horizontal system 3. As soon as this contraption is moved, however, it will fall apart. The coherency is caused by the fourth, active, system, formed by a piece of string which holds together the entire structure.

In Figure 5-5 the grass ropes are passive, and incorporated in the fabric by the active palm leaf loops which are linked to a previous row of loops. The two systems, ropes and loops, are oriented in the same direction, because the basket maker is following the length of the rope from left to right while making the loops. Ropes and loops thus have the same orientations, but a different function. The previous row of loops, to which the next row is linked, is indicated as *anchoring fabric*.

Similarly, in the coiling technique shown in Plate 5-6, the palm leaf strand is stitched into the previous coil. The finished central part of the basket has the function of *anchoring fabric* to which the next coil is fastened. The palm leaf strand and the bundle of shredded fibre follow the same direction. They are both worked in a coil from the centre of the basket to the rim. The palm leaf wrapping strand is active, holding the bundle of shredded material in place. The bundle is the passive system, forming the body of the technique. In Chapter 12 more will be said on passive and active systems in relation to the production process and the actions of the basket makers.

If question 2 of the flow chart in Figure 5-2 is answered with "Yes" then we can proceed to the next question. If the answer is "No", however, there are at least two systems: one passive and one active. In that case the third question has to be answered for each of these separately, in order to check if there are more than one active or passive systems.

3. Is one plant species used? (criterion D1 in Table 5-1)
If the answer is negative, for instance if one set of elements is made from palm leaf and the other consists of grass, then they are different systems. If the answer is affirmative, then one can proceed with the next question.

4. Are all elements prepared in the same way? (criterion D2 in Table 5-1)
Basketry raw materials often retain their original shape and require minimal preparation. Selection is an important part of the process, because uniformity of the shape of the raw materials enables the basket maker to make an end product with a regular appearance.

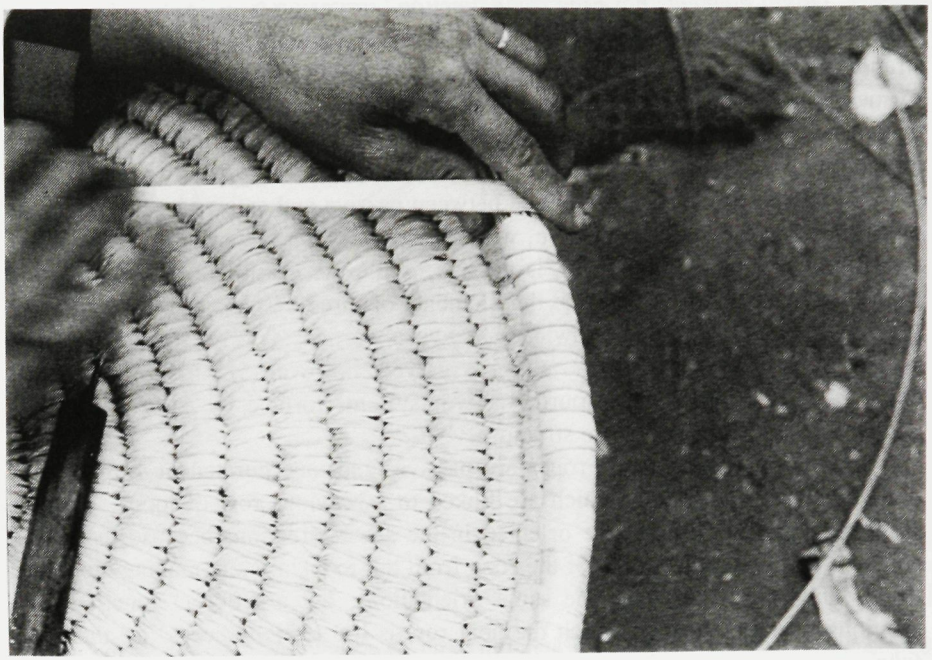

Plate 5-6 Coiling technique: two systems which follow the same direction, coiling from the centre to the rim. The passive bundle is held in place by the active wrapping strand which is fastened with a stitch through the previous bundle (Middle Egypt, 1992).

For some techniques, however, the preparation goes beyond selection. To correct the irregularity of their shape, materials are sometimes cut or split. To accommodate for the limited length of the leaves, twigs and stems, strands are worked up in a separate production phase: grass is made into string, palm leaves are plaited into long strips (cf. Figure 5-7 and Plate 4-2 on p. 61).

If the answer to the fourth question is "Yes" then one can proceed to question five. If the answer is negative because, for instance, one set of elements is made of unworked grass and the other of grass leaves which have been made into a string, they are different systems and the fifth question has to be answered for both of them separately.

5. Are the strands all of the same width, thickness, diameter or flexibility? (criterion D3 in Table 4-2). If the answer is negative, for instance when one set of strands is consistently made of thicker or tougher material than the other, different systems can be distinguished. This difference occurs, for instance, in stake-and-strand basketry, where the willow rods which are woven in are usually thinner and more flexible than the ones which form the passive system. Similarly in the three system technique

If the last answer is positive, then all strands belong to the same system.

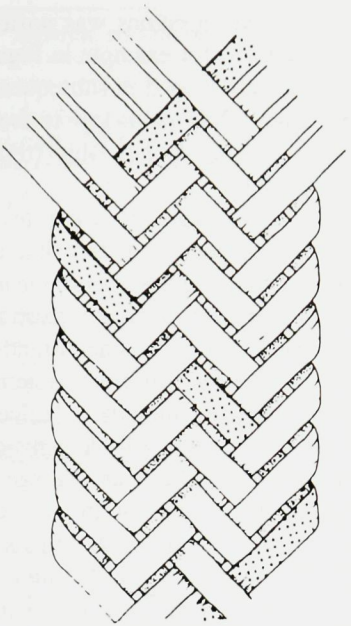

Figure 5-7 Plaiting with 9 strands, as preparation for making a sewn plaits basket. The strip is plaited with two active systems which are orientated approximately at a straight angle. The individual plaiting strands turn at the edge of the plait and are worked back into the plait from the other side.

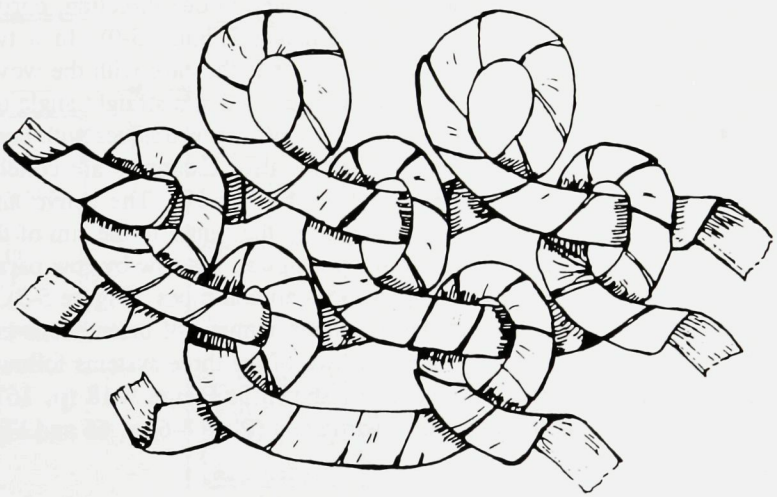

Figure 5-8 A one-system technique, made of rows of looped palm leaf strands (Amarna, *ca.* 1350 BC).

If the answer to all five questions was positive, we are dealing with a one system technique, as is shown, for example in Figure 5-8. In this example there is one orientation (all strands are looped in subsequent rows). The loops are made by one ongoing, active strand.[2] Only palm leaf is used, which has been prepared by twisting it to form an ongoing strand. This strand is uniform in diameter and flexibility over its entire length.

Figure 5-9 gives an example of using the flow chart for the technique depicted in Figure 5-4. The answer to the first question is that there are three orientations: vertical, diagonal and horizontal, meaning that we can at least discern three different systems. For each of these, question two is answered. All strands running vertically are passive, the diagonal strands are all passive too, but in the horizontal direction there are two different systems, one passive and one active. The latter is the string which ties the whole lattice together. For all four systems the next questions have to be asked. All elements of the vertical system consist of rushes, which are unworked and have an average diameter of 2.5 mm. Since no differences occur within the strands of the vertical system, all vertical strands belong to system 1. Similarly, the diagonal strands all consist of unworked rushes, which consistently have a diameter of 2.6 mm and thus form system 2. The horizontal elements do not have to be split up in more than two systems. The group of horizontal unworked rushes are all of the same average diameter of 3.7 mm, and thus forms system 3. The active system, which ties the three passive systems together, consists of cotton which has been made into a string with an average diameter of 1.5 mm.

5.1.2 Orientation of the Systems

A one-system technique is by definition orientated in one direction, corresponding with the working direction of the basket maker (Figure 5-9). In a two-system technique there are maximum two directions, as is the case with the woven mat in Figure 5-3, where the grass string warp is orientated at a straight angle to the weft which is made of individual grass stems. Two-system techniques with both systems following the same direction occur frequently also. Examples are coiled basketry (Plate 5-6) and sewn plaits basketry (Plate 4-3, p. 62). The active and passive system follow the same course, spiralling from the centre to the rim of the basket. Rectangular sewn plaits mats are not sewn in spiral, but row by row parallel to the edge of the plaits, just as the matting of loops around ropes (Figure 5-5).

In three system techniques the maximum number of orientations is three. In Egypt, however, it is more common that two of the three systems follow the same direction, as is the case in the technique shown in Figure 9-18 (p. 167) and the decorative coiled inlay technique of *imbrication* (Plate 4-6, p. 65 and Figure 9-17, p. 166).

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[2] In a one-system technique the strands are by definition active.

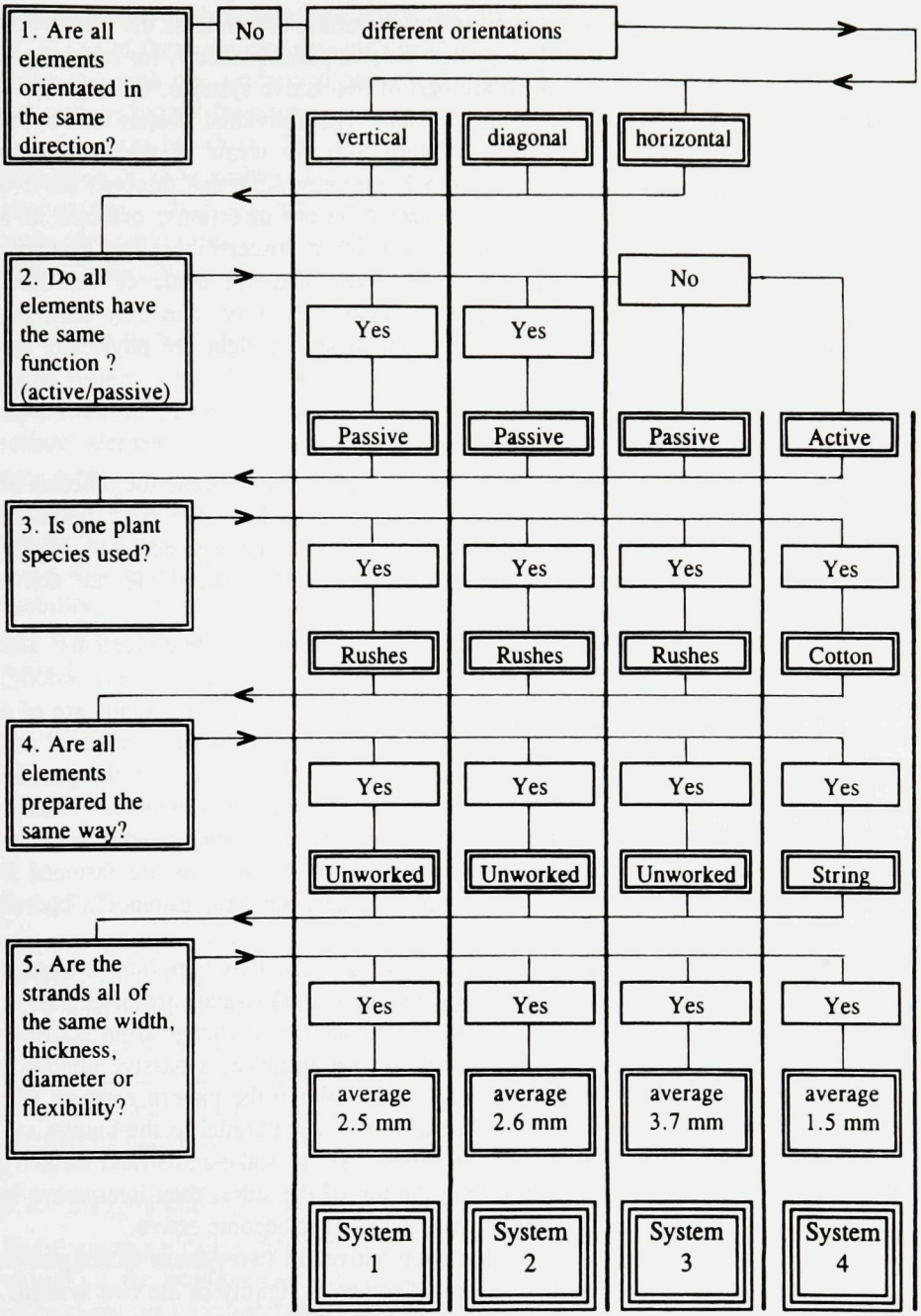


Figure 5-9 Example of using the flow chart (Figure 5-2) to determine the number of systems and their properties of the technique depicted in Figure 5-4.

The orientation of the systems is not by definition the same as the orientation of individual strands. The plaited strip used in sewn plaits basketry, for instance, is made with nine palm leaflets, which are part of two active systems. One system is plaited in from the left, the other from the right. The individual strands turn at the edge and form part of both systems (Figure 5-7). In terms of the criteria to determine the number of systems (Figure 5-2) the only thing that discerns the two systems is the fact that they are follow two different directions, oriented at a straight angle. There is no other criterion on which to discern these two systems, since all strands have the same function (active), and are made of the same material, with the same preparation and the same flexibility. Not only that, the strands coming alternately in from the left and from the right are physically the same palm leaflets.

5.1.3 Activity of the Systems

One of the criteria to discern *systems* in a technique is to determine the *function* of the strands in making up the structure. All strands that have the same function, either active or passive, are considered to belong to the same system (cf. Figure 5-2). The passive elements form the body of the technique, while the active elements cause the coherency.

The passive elements are usually less flexible than the active elements. The passive elements themselves can be rigid, because a different, for instance woody, material has been chosen for the passive strands, while the active strands are of a flexible material. Often, however both systems are made of the same material and the difference in rigidity is reached by selecting thicker material for the passive system than is chosen for the active system. Flexible passive strands can also be made rigid by putting them temporarily under tension. The general term to describe an external feature to which one or both of the systems are fastened is *frame*. A frame can be temporary (a loom) or permanent (for instance a bed or chair frame on which webbing is made).

Although basketry systems are made up of strands, It is important to regard individual strands as separate from the system. Individual strands are often part of different basic structures and their role in the technique can change from active to passive and back. In decorated coiled basketry, for instance, a passive bundle is fastened in a coil with differently coloured strips. When the pattern requires that coiling is done with a red strip, the white strip is layed parallel to the bundle and thus becomes temporarily passive (cf. Chapter 13). In stake-and-strand basketry the stakes are passive, but when reaching the top of the sides, they interweave in order to form the rim. Suddenly the passive stakes have become active.

One-system techniques are by definition active. In two-system techniques in which both systems are active there is no difference in rigidity of the two systems. All forms of plaiting, for instance, are made with two active systems (cf. Figure 5-7). Confronted with a structure in which all strands are made of the same material and have the same flexibility, it is difficult to determine the activity of the

strands. Either both systems are active, and we are dealing with a form of plaiting, or, if one of these systems was put under tension in a frame, we are dealing with a technique with one active and one passive system, such as weaving. Usually this can only be judged from the edges.

It may be clear that the description of the basic structure leans on presuppositions regarding the production process. In Chapter 13 the definition given above, which states that the passive system makes up the body, while the active system causes the coherency, will be replaced by a different one, which involves the actions of the basket maker.

5.1.4 The Composition of a System

Each system is built of *elements*, which are the units that interact. An element can be a stick or a palm leaf, a plait or a string, or five parallel grass stems. In other words: elements can be single or composite and have certain characteristics which are determined by six factors: the material (section 5.1.4.1), the size and flexibility of the elements (section 5.1.4.2), the preparation (section 5.1.4.3), the question if one ongoing element is used, or a set of parallel elements (section 5.1.4.4), the number and orientation of the *members* (section 5.1.4.5) and the mobility of the elements (section 5.1.4.6). In the following sections, as elsewhere, the word *strand* is used as a non-technical term for any length of material used to make basketry.

5.1.4.1 Raw material

The material of which an element consists is not only distinguished by plant species, but also by plant part. Leaves, stems, twigs, roots, veins or fibres are all used and have different properties.

5.1.4.2 Element size, shape and flexibility

The size of the elements, for instance the diameter of willow rods, is related to the flexibility. Furthermore, elements can consist of single strands, for instance individual grass stems, or of *bundles* of material. An example of the first are the elements of the active system of the mat of Figure 5-3, where single grass stems are woven in. An example of the second are the bundles of fibres used as the passive system of coiled basketry shown in Plate 5-6, where the active system consists of individual strips of palm leaf.

5.1.4.3 Preparation of elements

The preparation of the elements varies greatly. Most of the preparations are geared to making the strands more uniform. *Selection* of strands of the same size or shape often takes up a considerable portion of the total production. In stake-and-strand basketry, for instance, it is extremely important that the willow rods which form the passive stakes are all the same diameter and are slightly thicker than the

weaving strands. If the selection is not done properly, the result is an unevenly formed basket, which lacks strength. Cutting or splitting the material is another way of creating elements which are similar in size and shape.

Sometimes a separate production phase is dedicated to making uniform elements. For sewn plaits basketry, for instance, both the active and the passive system are separately prepared: string is made and a long strip is plaited.

Other preparations that occur is the removal of hard or weak parts. Finally, the material is often soaked to create a suppleness which makes it possible to bend the elements. After drying the shrinkage of the strands tightens the fabric.

5.1.4.4 One Element / Set of Elements

Plate 5-6 shows an example of two systems, both consisting of *one element*. The passive system consists of one bundle, which is coiled, the active system consists of one strand of palm leaf which winds itself around the passive bundle, and holds it in place (cf. Figure 9-5, p. 160). In theory, the active strand is one long element, but in practice the raw materials for basketry do not have a length sufficient to make an entire basket with one palm leaflet. Since new leaflets are not inserted parallel to, but at the end of an exhausted strand, and because the basket maker always handles one strip at a time, the sequence of different strips is considered as one element.

The same is true for the sewn plaits basket shown in Plate 4-3 (p. 62): the long plait (which is clearly one element) is sewn with many short strips of doam palm leaf. Since they are inserted one by one at the end of the exhausted previous strip, they are considered one element.

The clearest example of using a *set of elements* is in the stake-and-strand technique of *French randing* (Figure 3-4, see p. 36). The willow rods are worked in simultaneously and parallel to each other. In the woven grass mat of Figure 5-3, both systems seem to consist of a set of elements, a number of parallel strands which have the same function in the process. The elements of a set are used at the same time, parallel to each other.

In archaeological material it is often difficult to determine whether the basic structure is made with one element or with a set of elements. It takes a study of the edges to conclude if parallel single strands were used, or one ongoing strand. Comparison with the modern production processes is a great help to interpret the basket rims and matting edges. The fragment of grass matting, drawn in Figure 5-3, for instance, seems to have been made with a set of parallel strings, but from studying present day mat makers, a likely reconstruction of the production process is that the warp was made by winding one long string around the cross beams of the matting loom. The weft consists of a set of elements: many grass stems are woven in parallel to each other.

Since no edges are present, it is not clear whether the fragment of looped matting shown in Figure 5-8, is made with one element (similar to knitting with one ongoing yarn) or with a set of elements parallel to each other. The same

looping technique was used for making a large bag filled with doam nuts, which was found in the tomb of Kha and is now on display in the Egyptian Museum in Turin (Bongioanni 1987, 106; Schiaparelli 1927). From this complete example it is clear that the bag was made with one ongoing strand.

Edgeless fragments of bed matting, such as found at Qasr Ibrim, appear to have been made with a set of elements. From present parallels it is clear, however, that similar bed matting is made with one long rope.

5.1.4.5 Element members

If an element system consists of more than one strand, it has several *members*. The element may, for instance, consist of two or three parallel strands which are woven in together. Whenever an *element* consists of more than one *member*, the orientation of these members is recorded.

Parallel members are indicated by a capital *I*. When the members are twisted around each other, their orientation is indicated with a capital *S* or *Z*, following the slant of the middle strokes of these letters (Figure 5-10).

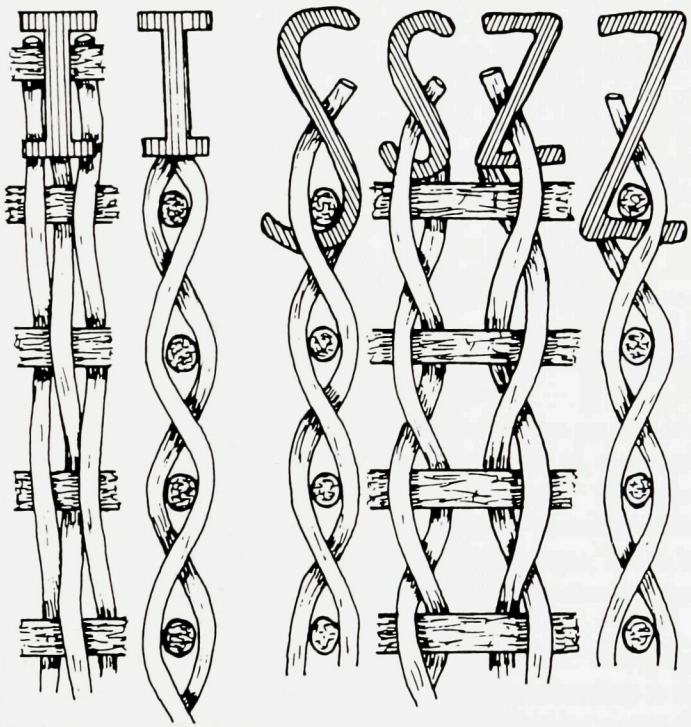


Figure 5-10 Orientation of the *members* of an *element*: I, S and Z direction

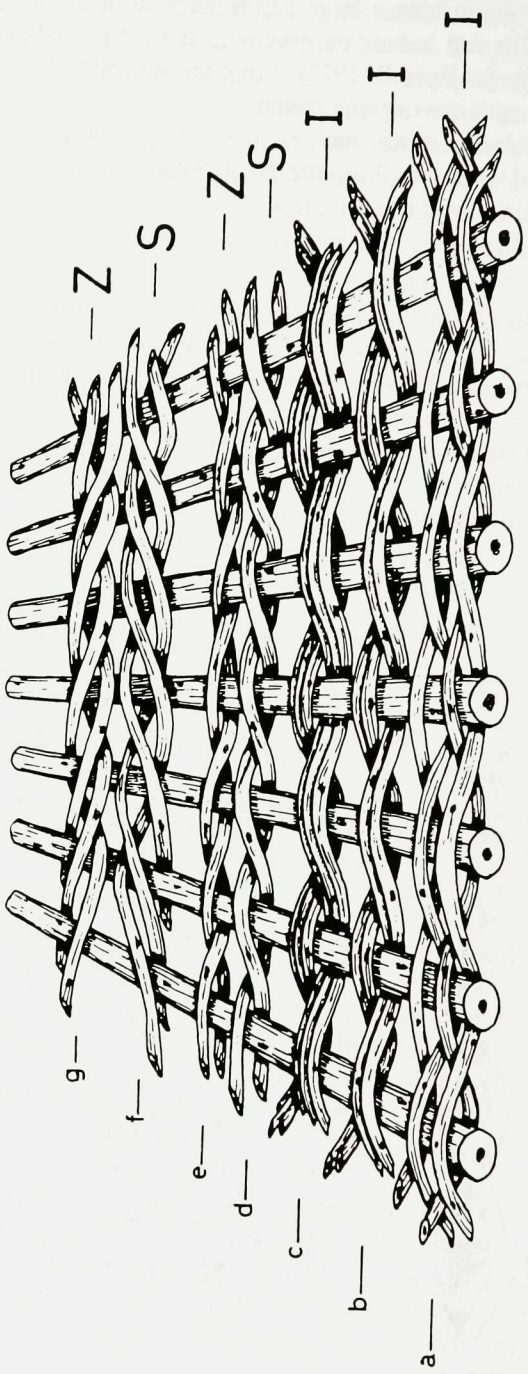

Z
S
Z
S
I
I
I
g
f
e
d
c
b
a

Figure 5-11 (see p. 94)

a. Weaving under 1 / over 1 with an element consisting of one member
b. Weaving under 1 / over 1 with an element consisting of two members
c. Weaving under 1 / over 1 with an element consisting of three members
d. One element consisting of two paired members in S-direction (S-*twining*)
e. One element consisting of two paired members in Z-direction (Z-*twining*)
f. One element consisting of three interacting members in S-direction, pattern: under 1 / over 2 (S-*waling*)
g. One element consisting of three interacting members in Z-direction, pattern: under 1 / over 2 (Z-*waling*)

In Figure 5-11 the variation shown lies in the number of members and the orientation of the way in which they have been twisted around each other. The active elements consist of one member (*a*), two members (*b, d* and *e*), or three *members* (*c, f* and *g*). The members of *a, b* and *c* are woven parallel to each (I-orientation).

Elements d and *e* consist of two interacting members, twisting around the passive system and each other. This technique is often indicated as *pairing* or *twining* and is done either in S-orientation or in Z-orientation. The same principle but then with three members, can be seen in *elements f* and *g*. In basket makers' terminology such an application of more than two members in a stake-and-strand element is indicated as *waling*. Combinations of *waling* with four or more members do occur as well. The pattern is adapted to the number of members involved. For a four-membered element the pattern can be *under 2 / over 2* or *under 1 / over 3* or *under 3, over 1*, as long as the total number adds up to four.

5.1.4.6 Element mobility

The passive elements are usually quite rigid or straight, while the active elements are mobile, in the sense that they wrap around the passive elements to hold them in place. The mobility of the active elements can be specified by indicating the number of *planes* in which they move.

Mobility in *one plane* is an undulating movement that goes up and down, but not left and right. An example of this is weaving. Mobility in *two planes* is a movement that goes up and down as well as left and right. The result is a corkscrew, such as found in the wrapping strand of coiled basketry. Mobility in *three planes* is a movement that goes up and down; left and right; and in addition turns back onto itself. Strands moving in three planes cross themselves and are a form of knotting, rather than wrapping.

Perhaps the concept of element mobility becomes clearer, when applied to actual basketry. Table 5-12 gives an overview of techniques according to the three kinds of mobility. In addition, the number of members that make up the elements of the active system are incorporated.

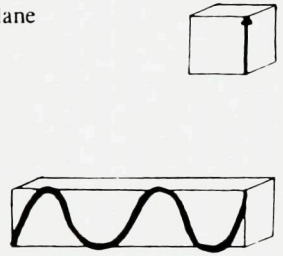
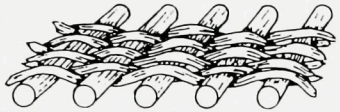
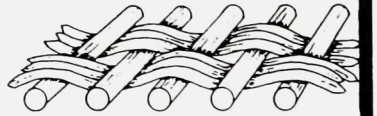
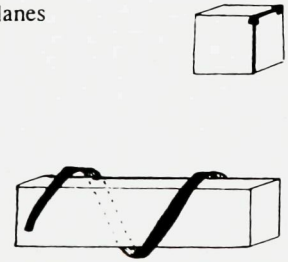
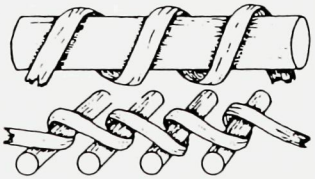
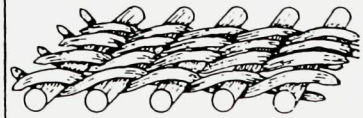
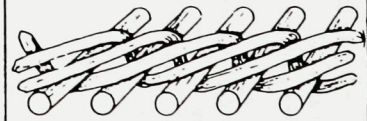
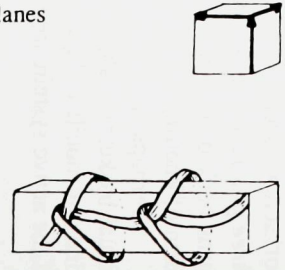
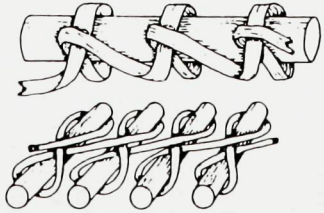
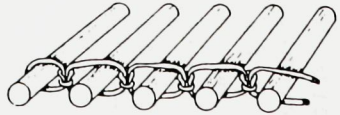
	1 member	2 members	3 members
1 plane 	 a. weaving / plaiting / sewing	 b. weaving	 c. weaving
2 planes 	 d. wrapping / coiling	 e. twining	 f. waling
3 planes 	 g. binding / knotting	 h. tying	(empty)

Table 5-12 (on page 96) Mobility of the active element in one, two or three *planes*, in relation to the *number of members* of which the active element is made up.

Moving in *one plane* is represented by weaving with single weaving strands (Table 5-12 a). The active strands are holding the passive elements, here drawn as sticks to emphasize their rigidity, in place. The weaving strands move up and down. If two or three strands are incorporated, they are woven in parallel to each other (Table 5-12, a, b and c).[3] The same up-and-down movement is found in sewing with a basting stitch, such as used in sewn plaits basketry.[4]

Moving in *two planes* results in a cork-screw like wrapping. In the table two examples have been drawn: if the active element wraps around a core which has the same orientation, then we see the wrapping as it occurs in the coiling technique. The second technique in this box involves wrapping a strand around a number of parallel strands (Table 5-12 d).[5] The same movement, with two active members is known as *twining* (Table 5-12e),[6] if three active members are involved the technique is known as *waling* (Table 5-12f).[7]

Mobility in *three planes* involves that the strands turn back on themselves and hold the passive elements by *binding* or *knotting* them (Table 5-12g).[8] If this is done with two members than we usually call this *tying* (Table 5-12h). There is no term for a technique with three members moving in three planes. Envisaging such a technique, the closest approximation would be a 'tangle'.

5.1.5 System Interaction

The interaction of the systems defines how the fabric holds together. Systems can be *engaged* or not. If the active system weaves or wraps around the passive system, then the systems are not engaged. If, on the other hand, the active system splits the passive system, then they are engaged. Examples of the former are weaving, twining, binding and plaiting. Examples of engaged interaction are pierced basketry (cf. Figure 9-12, p. 163) and sewn plaits basketry. In pierced basketry, the active system pierces through the passive system. The plaited strips in sewn plaits basketry are opened up to let the needle with string pass through the edge.

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[3]Weaving and plaiting: cf. Figures 9-8, 9-9 (pp. 161-162), 9-14, 9-15 (p. 164), 9-20 (p. 168).

[4]Sewing with a basting stitch: sewn plaits basketry (Figure 9-4. pp. 158-159).

[5]Coiling: Figure 9-5 (p. 160); Wrapping: knotless netting (Figure 9-1, p. 155), grommet (Figure 9-2, p. 156), wrapping (Figure 9-6, p. 160), coiled inlay (Figure 9-17, p. 166).

[6]Twining: cf. Figure 9-10 (p. 162).

[7]Waling: cf. Figure 9-11 (p. 162). In Europe waling is also done with four or even five members, but in the Egyptian material these varieties do not occur.

[8]Binding or knotting: cf. Figures 9-3 (p. 156), 9-7 (p. 161), 9-16 (p. 165), 9-18 (p. 167)

Coiled basketry can be either engaged or non-engaged. The most common form of coiling is engaged: the active strand wraps around the bundle and stitches through the bundle of the previous row. Another form of coiling wraps alternately around one and two bundles and is not engaged (Figure 5-13).

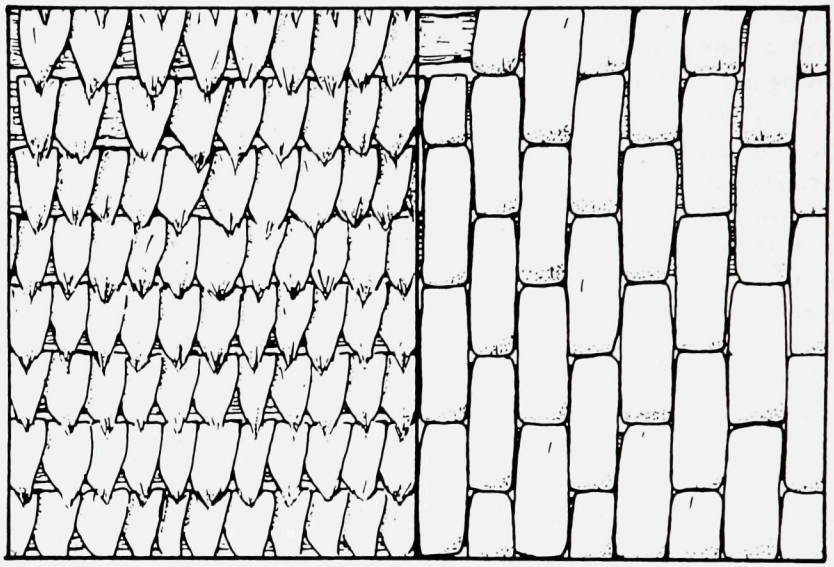

Figure 5-13 Engaged and non-engaged coiled basketry.

One system techniques are usually made by a non-engaged connection to the previous row, thus gradually adding on to the fabric. The fabric to which the new round of work is linked is indicated as *anchoring fabric*. Some of the *two system techniques*, such as coiling or sewn plaits basketry, are also added on to an anchoring fabric. The connection of a new row to an anchoring fabric can be engaged or non-engaged (cf. the two variations of coiling in Figure 5-13).

The techniques that do not attach to an anchoring fabric, usually involve that the strands of the passive system are layed out and are gradually connected by the active elements. In order to keep the passive strands from moving about, they are often fastened in a *frame*. The most obvious examples are weaving and twining.

During the interaction of the systems the *spacing* and *patterns* of the basic structure are made. The active, the passive or both systems can be widely spaced. The spacing often bears relation to the function of objects; to mention two of the extremes: sieves are widely spaced, while milk baskets are closely spaced. The interaction can be done in many different *patterns*, by passing the active elements

around a variable number of passive strands. When patterns are used to indicate variations within a technique, this implies a hierarchical structure in which pattern is considered less important than other features of the basic structure.

5.2 ANALYSING THE BASKET AS A STRUCTURE

After analysing the basic structure, the entire basket can be defined in terms of one or, often, as a combination of different basic structures. For this, it is important to make a distinction between strands and system elements. A single strand might run from centre to rim through the entire basket, but have a function in different basic structures. It is not uncommon that the side is made in a different technique than the base, for instance.

An example of a basket with has different basic structure in the base and the wall is depicted schematically in Figure 4-2 (p. 61). The centre is made of eight strands, each of which consists of six parallel stems of a species of rushes. The strands are layed crosswise and fastened by means of an active element, which consists of two Z-twined members (the centre is indicated with number 1 in Figure 4-2).

The twining continues in the base. Bundles of six parallel rushes form the passive elements, radiating out from the centre. The bundles are split in two bundles of three rushes to fill up the space between the passive elements, which grows with the expanding diameter of the base (indicated as number 2 in Figure 4-2). The active element consists of two rushes which are twined in Z-direction. The passive strands of the base are simply ending, but the active system (the two twining strands) continue in the side of the basket (not shown in Figure 4-2).

Because the passive strands of the base have ended, new passive elements are inserted for the sides (Figure 4-2 at number 3). They are pushed into the twined fabric of the base, parallel to the old passive bundles. Then they are bent around the bundles of the base. This has a double function: it anchors them into the fabric of the base and at the same time prevents the rows of twining of the base to slip off the passive bundles.

The newly inserted passive strands, radiating from the base, are put upright and fastened with the active system. As said above, the two active twining strands continue in the side, but they are joined by a third one. The three interacting strands twist around the passive stems and each other and form a row of *waling* (number 4 in Figure 4-2). This row of waling has the function to divide the newly inserted stems equally over the side and put them in their proper position (Figure 5-14). Waling is often applied in shaping stake-and-strand baskets, since the multi-membered elements are stronger than single-membered elements and are used to force the strands of the side in place.

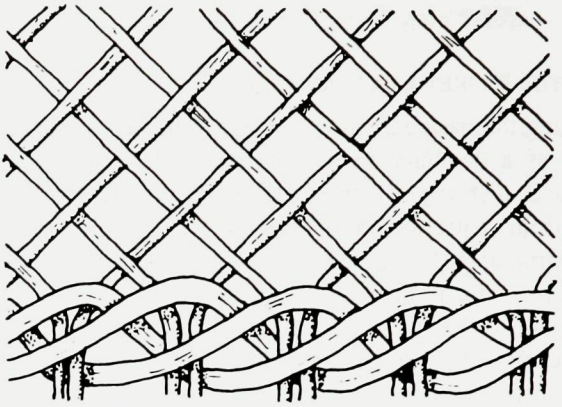

Figure 5-14 Detail of the transition from base to side of the stake-and-strand basket depicted in Figure 4-2 (p. 61).

After one row of waling, the active system is fastened off. The passive system is divided into two systems, which are both active (Figure 5-14). The rushes are plaited in an *over 1 / under 1* pattern (indicated as number 5 in Figure 4-2).

Both active systems are fastened off at the rim. The strands running from right to left are bent and fixed behind the previous strand (number 6 in Figure 4-2). The strands running from left to right are folded over a stick, plaited back into the fabric and folded behind the previous strand (number 7 in Figure 4-2).

Discerning different basic structures and the role of the strands in these (active/passive) forms the link to the production process. They not only represent different phases of the work (Chapter 15), but are also an indication of the actions of the basket maker (Chapter 16).

CHAPTER SIX

AND ACTION...

6.1 Video and Archaeology

What is the use of moving images in archaeology? Generally, this is thought to be restricted to the documentation of archaeological field work and the communication of archaeological activities to a broader audience (Struever 1995). Through an ethno-archaeological approach, however, the scope of film in archaeology is much wider. The days that 'primitive' society was thought to be an unchanged continuity of antiquity are long gone, however, so its value lies *not* in giving a lively impression of ancient society.

The use of video in archaeology depends strongly on the subject. For the study of production, with which we are concerned here, the possibility of a repeated viewing and analysis of the process, the use of space and time, and the actions makes video an extremely useful tool for analysis.

Since field work inevitably is a learning process, registration of the production process on video gives the possibility to correct or supplement earlier interpretations made with less understanding. This is only true to a certain extent, however, because the level of understanding of the person who holds the camera, is reflected in the record.

There is a difference between images and words, verbal treatise and visual narrative (Heider 1976, 4; Collier and Collier 1986, 151; De France 1989, 37). The use of the word *narrative* indicates, however, that in filming and editing there is an ordering principle at work. The film maker uses the subsequent images to bring across a point. The narrative is not only inserted in the editing stage, but even all unedited footage has some organization to it, determined, often partly unintentionally, by the person holding the camera.

Still, there is a clear difference between unedited footage, and the narrative that is a result of editing. The video that is part of this book sets out to give an overview of the production process of several basketry techniques. The process and action analysis, however, have been performed on the long sequences of unedited footage, while the edited video shows examples. The editing and its narrative, is based on these analyses.[1] The timer in the right-hand bottom corner of the screen enables references from text to image and *vice versa*. While watching

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[1] De France discerns *exposition* and *exploration*, which go hand in hand and are based on several filmed 'sketches' of the same situation from (literally) different angles (De France 1989, 317-320).

the video, passages in the book relating to particular sequences can be found through the video-timer index in Appendix C section 7.

Ethnography, anthropology and sociology have presented us with a wide range of documentaries and filmed narratives on subjects as far apart as Inuit life, African lion hunt, preparations of a French fashion model or basketry production.[2] Between these films there is not only a difference in region and subject matter, but also of reflection. There are several methods of using film in analysis of human actions and behaviour, which are strongly linked to anthropological theory.

This is partly expressed by the different terms indicating the use of visual tools in anthropology. Of American origin is the term *visual anthropology* (Heider 1976, Collier and Collier 1986), while the Dutch tradition (building on the work of the anthropologist A.A. Gerbrands) prefers *ethno-cinematography*. Several French anthropologists avoid the term *cinematography*, in favour of *anthropologie filmique*, because the former term has too many notions of directing and thus influencing that what is filmed (De France 1989, x). Although this is realized and accepted (De France, for instance, consequently uses the term *mis en scène*) it is also thought that the filmed events have their own narrative (its "*auto-mis en scène*").

John Collier describes how the camera is used to gather raw data, visual information, which is subsequently analysed. The visual is not an illustration of a text, but a separate basis of knowledge (Collier and Collier 1986, 13, 169-170, 178). In this positivist approach the camera is thought to record reality, and enables us to "observe accurately phenomena we do not understand" (Collier & Collier 1986, 19). Video is not an objective medium, however, and its use should not be compared with a laboratory situation where results can be repeated as a 'test'.

Watching the same video sequence twice is a repetition, rather than a reproduction of results. The value of repeatedly watching the same process, rather than a large number of similar processes, lies in the option to give a detailed analysis of one particular sequence. Such an analysis is not possible on even a large number of observations, because minor changes occur each time an action is executed.

Heider and De France are concerned with the influence of the filmer at all different stages of the process. Heider tries to make explicit what makes a film truly ethnographic (Heider 1976, 113), to be a tool for ethnography. De France starts at the other end by wondering how the use of film changes the observations and descriptions in ethnology (De France 1989, 3).

Although all ethnographical film makers are aware of the direct influence of the framing of the image (*cadrage*), it is De France who defines exactly *how* this is done. She distinguishes three types of dominant ethnographic subjects: material,

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[2]Robert Flaherty 1922, *Nanook of the North;* Jean Rouch 1965, *La Chasse au lion à l'arc*; Annie Comolli 1974, *La Toilette*; Claudine de France 1965, *La Charpaigne,* see also Heider 1983.

corporal and ritual techniques. Each of these require a different framing. The material techniques, such as basket making, are filmed mostly close up, to show the exact movements of the producers' hands. The corporal techniques, for instance grooming, dancing or putting on make-up, are filmed in larger totals, while the ritual techniques are mostly filmed in large overviews. In most sequences aspects of these three techniques, and thus the framing, are combined.[3]

Basket making is a material technique and the analysis of the production focuses, therefore, on the sequence of the process and the precise actions therein. At the same time, the video that goes with this book, highlights corporal aspects, such as working position, use of instruments and instrumental use of the body. The interaction with the surroundings (socializing) of the basket makers could perhaps be indicated as a ritual aspect, giving the widest frame of reference.

Comparing modern and ancient baskets is the first step in understanding ancient basketry as a product of human activity. Studying the present day processes is the next step and leads to an interpretation of ancient basketry production. Even more so, because the apparent continuity in Egyptian basketry techniques enables a comparison to great technical detail. Studying basketry production as a process can be considered the *macro-analysis* of basket making (section 6.2).

The *micro-analysis* of basket making involves a detailed study of the actions of present day basket makers. Such an action analysis gives insight in aspects of professionality, apprenticeship and skill of the producers. By comparing the actions with the material result of the end product, this information can be linked to the ancient baskets and gives us the possibility to pronounce upon the professionality, apprenticeship and skill of the ancient basket makers (section 6.3).

During filming and editing the film maker can highlight certain aspects, which automatically results in moving other aspects to the background (*soulignement* and *estompage* De France 1989, e.g. 27). In the basket makers' video some aspects have been clearly highlighted, not only by the frame and editing, but explicitly by using codes, symbols and even freezing the image (section 6.4). The verbal and the visual are joined in the voice over, which also directs the attention of the audience. In the basket makers' video the role of the voice-over has been restricted to a minimum.

6.2 PROCESS ANALYSIS

The analysis of the production process focuses on larger units in the continuous flow of actions, known as macro-analysis (De France 1989, 6; Collier and Collier

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[3]I am critical towards the separation of material techniques and non-reflexive corporal techniques (De France 1989, 40, 122), since both have an actor (*agent*) and an object (*objet/patient*). The corporal aspects of material techniques (the use of body weight, or parts of the body other than the hands) are of great importance to understanding the physical requirements of a technique. Nevertheless, to link one type of dominant framing (close-up or total) to a specific subject matter is helpful both during filming and editing.

1986, 181-182). To distinguish the phases, it helps to play the long sequences of unedited footage in fast forward. Fluctuations in working rhythm and changes in working position often indicate transitions from one phase to the next.

During observation of a production process, we tend to schematize the sequence, denoting the actions of the basket maker to their 'proper' production phase. For archaeologists, who only have (fragments of) the product itself, this tendency to simplify the production process is even stronger. Although a simplified representation of the production has its merits, it helps to understand the process, organizing and simplifying has serious limits too. By organizing the visual information in a different ways, putting emphasis on different aspects, room is given for new perspectives. The use of video enables this.

Based on the analysis of the production process through the actions, recording the working order is possible. Also, the use of work space and the interaction with the surroundings can be understood. A combination of macro- and micro-analysis gives an understanding of the movements, the working rhythm, the working position, and the physical demands of the work. Furthermore, it gives a means of measuring the time involved.

In Chapter 15 the production process is presented as a schematized phasing, based on the observation of basket makers at work, while Chapter 16 makes use of macro-analysis of video images to understand the relation between the actions of the basket maker and the sequences of the production process. The difference between production phases and sequences is that the first present a logical order (a generalized process), while the latter gives the actual actions of a particular production process.

6.3 ACTION ANALYSIS

Just as macro-analysis of video images is helped by watching in fast forward, micro-analysis benefits greatly from watching the video in slow motion or frame-by-frame.[4] Actions with a steady working rhythm, for instance, can be found by watching the video in fast forward, but the rhythm can be measured only by analysing the exact movements.

Both Collier and De France mention micro-analysis as a method to measure, track and describe particular aspects (cf. Collier and Collier 1986, 182). The aspects that I deem relevant for understanding ancient Egyptian basketry are the actions of basket makers and the results thereof.

Dauer (1980) gives criteria to analyse actions, by focusing on the individual movements which make up the action. He uses the term *Handlungsaublauf* to indicate the string of activities which leads to a certain result. In those activities Dauer distinguished a start (*Anfang*), a course (*Verlauf*), an end (*Ende*) and a transition to the next action (*Übergang*). Furthermore, he discerns movements (*Teilbewegung*) that are repeated several times and together make up one action

[4] A *frame* is the smallest unit in the video timer (25 frames per second).

(*Wiederholungen*). The micro-analysis which is performed in Chapter 17 is based on Dauers' approach, but has been focused on the actions as part of a production process, the major difference being that all actions are defined in relation to a material result.

To emphasize the difference between actions that consist of repeated movements and actions that do not, two types are discerned: *recurring* (repetitive) actions and *occurring* (non repetitive) actions. To give an example: to knit a sweater, many stitches have to be made. This is the *recurring action* of knitting, which is a repetition of four subsidiary actions: putting a knitting needle into the fabric, guiding the yarn around the needles, pulling the yarn through the previous loop and transferring the loop from one needle to the other. In the Netherlands, this action is taught to children with the help of a rhythmical rhyme.[5]

A knitting needle may hold 120 stitches, so after 120 repetitions of the knitting action all stitches are transferred from the left needle to the right needle. At that point, the right needle, which now holds the fabric, has to be taken over into the left hand and the empty needle is transferred to the right hand, to start the next row of knitting. This action occurs only when the complete series of knitting 120 stitches has been finished. It is an *occurring action*.

Determining the actions and the transitions between them is sometimes difficult. The *transition* between two actions is often very brief.[6] As a criterion it has been determined that a movement has to have a minimum length of one second to be considered as a separate action, transition or break.

In the video several examples of the action analysis have been incorporated as small codes in the left bottom corner of the screen. The code letters either refer to a *recurring* (r) or *occurring* action (o), a *transition* between two actions (t) or a *break* in the action (b). The numbers identify the actions, which are listed in Appendix C section 4. Thus r12 is the repetitive action of making a coiled basketry stitch, while o13 is the occurring action of inserting a new length of date palm leaf.

The working rhythm is most strongly present in the recurring actions. Long periods of repetitive movements are best sustained when the work is done rhythmically and are sometimes supported by work songs. These long periods of repetitive movements also constitute the image that onlookers have of the technique: coiled basket making is perceived as repetitive stitching only. The occurring actions, such as adding new lengths of material, are less obvious and often appear to be supportive.

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[5] "insteken, omslaan, doorhalen, af laten gaan"

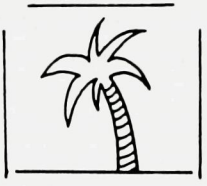
[6] In my experience Dauers' distinction between start, course and end of an action is too difficult to discern and too superficial, at least for my purpose of analysing production sequences. Often it is not possible to discern exactly where one action ends and the next starts. In the analysis of the basket makers' work both are considered as part of a moment of *transition*, which is often only one or two seconds long.

Micro-analysis not only gives the possibility to express the working rhythm, but it also gives a new angle on the production. Rather than considering production as a linear process, it is presented as a chain of actions (cf. De France 1989, 169-176).

De France gives also attention to 'weak times' where the action is slackening and 'dead times' where no action is undertaken (De France 1989, 9, 60-61). This aspect has not been incorporated in my analysis of basketry production, because there is no material link to archaeological concerns. All actions that occur during the production period, but which are not part of the production proper are, therefore, considered as *breaks*. It should be noted, however, that although there is no direct material result of a break, it often has a function in the process. Taking brief periods of rest, to stretch the legs or relax back and shoulders is important to be able to work for long periods. Communication with bystanders, an example of a 'weak' period, is of no direct use for the production of a basket, but is part of the social strategy of the basket maker.

6.4 HIGHLIGHTS IN THE VIDEO

Five aspects have been highlighted in the video by the appearance of symbols in the upper right-hand corner of the screen. These indicate sequences in the film where a particular aspect is clearly visible, but not in all instances where that aspect occurs. It is a rough guide to basket land, which asks attention for the properties of the raw material, the working position, the work-eye contact, the instrumental use of the body and the use of instruments. In Appendix C section 2 the sequences are listed where these symbols occur and specifically what they indicate.



Properties of the Raw Material

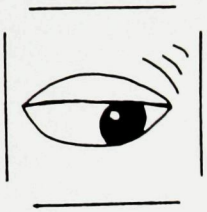
Materials differ in shape, size, tension strength, flexibility, colour, appearance, and touch[7]. In the video some scenes give a good impression of these properties. Several of these scenes are highlighted with the 'palm tree' symbol.



Working Position

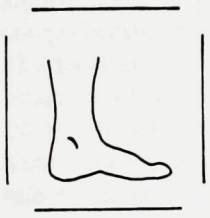
The basket makers are sitting with their legs crossed, or with one leg stretched in front of them. The bed maker stands bent over the bed frame. Frequently, a change in position coincides with a change in action. Apart from the position, it is relevant to note the orientation of the body towards the basket, the instruments and the raw materials. The working position has been indicated with the 'sitting man' symbol

[7]The "touch" of the material is the way in which it feels in the hands of the basket maker. Grass has for instance sharp edges, palm leaves have large spines.



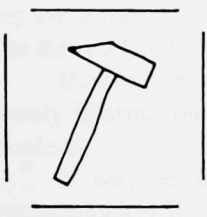
Work-Eye Contact

Often the basket maker takes the eyes off the work while talking to persons around him or her. When there is a difficult part, the eyes return to the work. Little work-eye contact can be interpreted either as an expression of skill, or as a lack of concentration, perhaps caused by disturbance due to the presence of the camera. In the first case, the action is purposeful and the work rhythm regular. In the second case the work is hesitant, while the eyes are averted. Some of these transitions between looking up and looking down are indicated with the 'eye' symbol.



Instrumental Use of the Body

Apart from the hands, often the feet, mouth, teeth, nails or body weight are used in the production of basketry. This occurs very generally and easily escapes attention. A number of instances have been highlighted with the 'foot' symbol.



Use of Tools

The *function* of tools can be found by asking basket makers which tools they use. The *use* of tools can only be recorded by observation of the action. Repeated viewing and slow-motion are useful to understand how the tools are wielded exactly. In several cases the use of tools is indicated in the video with the 'hammer' symbol, especially there where the same tool is used for different purposes.

To highlight the concept of active and passive systems, each of the five sequences has one or more frames that have been frozen. The action is stopped briefly to show which strand is passive, which active. These are listed in Appendix C section 3.

CHAPTER SEVEN

SOURCES ALONG THE RIVER NILE

7.1 Selection of Sources

Attention has been focused on basketry from two archaeological sites: Tell el-Amarna and Qasr Ibrim. Why these two? At the start of this study, not much was known about Egyptian basketry. There was no basketry dating sequence, no comprehensive work on the use of basketry, no analysis of basketry technology. The most extensive publication on archaeological basketry in Egypt is Gourlay's catalogue of the basketry from the workmen's village at Deir el-Medina (Gourlay 1981). His description of the basketry techniques is detailed and comprehensive. Vital information is lacking, however: there is no analysis of the raw materials, no references were given to the exact period, nor the context of the objects. Here not the author of the two volumes is at fault, as much as the excavators, who failed to use field methods and publication standards considered proper in our time.[1]

In general, basketry features only marginally in excavation reports. There are brief descriptions at the most, without technical details, drawings or information on the context. In short: publications of basketry are not to the standard necessary for the work to be undertaken.

Basketry in museum collections, often bought from antiquities dealers, has rarely information on period and provenance, let alone on the exact archaeological context.

It was decided, therefore, to base the study of basketry production on archaeological finds from recent excavations, which I could record on site.[2] The selection of sites was, therefore, limited to running excavations at which basketry was found. Because of the generally good preservational circumstances in Egyptian desert sites, there is a large number of projects that fit these criteria. The quantity of material at Amarna was considerable, at Qasr Ibrim overwhelming. Other sites were suitable too,[3] but the total amount of basketry became so overwhelming that

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[1] During the 1934-1935 season Bruyère excavated the workmen's village at Deir el-Medina and the eastern cemetery. In the course of this work most of the basketry retrieved from Deir el-Medina was found (Bruyère 1937b, Bruyère 1939).

[2] Since archaeological finds are not allowed to leave Egypt, all staff members work on site in a field laboratory. It gives the added opportunity to record the finds *in situ* and to discuss matters with the excavators and other specialists.

[3] In the same period I have studied basketry of the Dakhla Oasis Project (1990) and the University of Delaware expedition to Abu Sha'ar (1990-1993).

the number of sites had to be limited. The two selected sites represent different periods. They are both situated along the Nile Valley, but in different geographical regions (Middle Egypt and Nubia).

Amarna

Amarna is situated in Middle Egypt, and was occupied in the New Kingdom period, during the end of the 18th dynasty (around 1350 BC). All basketry was found in a workmen's village which existed for a period of about 20 to 30 years and was abandoned after that. The basketry from the excavations in the workmen's village, which ran from 1980 to 1986, were stored at the site and studied by me in 1987, 1989, 1990 and 1994.

Excavations at the beginning of this century in the workmen's village also yielded basketry find. These have been published as part of an inventory of the finds from each house and each room. Thus in a number of rooms baskets "of the usual kind" have been found (e.g. Peet and Woolley 1923 p. 75), without indication of technique, size and raw material. The finds from these excavations are partly in the stores of the Supreme Council of Antiquities in Egypt, partly in Museum collections in Egypt and Great Britain. In many cases it has proven impossible to find the reference of the baskets from these collections to the publication. Since the context is not known in detail, the basketry previously excavated at Amarna is mainly useful as comparative material for the techniques. For Amarna a number of publications of archaeological material are of importance.

Important comparative material is also found at another New Kingdom workmen's village. The basketry from Deir el-Medina is ranging from the late 18th dynasty to the Byzantine period. Most basketry probably has to be dated to the 19th and 20th dynasty. The excavations at Deir el-Medina have been published by the excavator (Bruyère 1937b, 1939). The basketry has been published in a separate and much later study (Gourlay 1981). As mentioned above, the drawback of Bruyère's excavation and Gourlay's publication, is the lack of provenance, and neither is there information on the approximate date of the objects. Since Gourlay partly groups his material according to function (cf. Section 3.4.8 p.52-55), New Kingdom and Ptolemaic sandals made in different techniques, appear side by side without being recognised as belonging to different periods.

Qasr Ibrim

Qasr Ibrim was a fortified town in Egyptian Nubia, the area which is now flooded by Lake Nasser. The remains found at Qasr Ibrim range in date from the Egyptian New Kingdom to the abandonment of the site in the early 19th century (1500 BC - 1811 AD). The basketry was found in deposits from the 3rd to the 19th century AD, with a strong emphasis on the earlier periods (3rd to 6th century AD).

Excavations at Qasr Ibrim started in 1963, but it was not until 1986, when Boyce Driskell and Melinda Blustain started a basketry recording system, that proper records were made. My work in Qasr Ibrim started in 1990 at which time

the previously used recording system was not brought under my attention or given at my disposal. Apart from the regular preliminary reports on the excavations in general, some preliminary work on the Qasr Ibrim basketry has been published (Driskell 1981).

The basketry from the early excavation seasons has largely been discarded. From 1974 to 1988 finds from Qasr Ibrim were divided between the Egyptian Antiquities Organization and the Egypt Exploration Society. With the shipping of boxes of antiquities to Great Britain, a considerable quantity of basketry, mainly from the Islamic and Christian levels were sent to Cambridge. Some of the large pieces of basketry and matting were used as padding for other materials, such as pottery, bronzes and stone ware. At the moment the Oriental Institute in Cambridge and the British Museum in London both hold part of the collection of basketry from Qasr Ibrim. This collection is not representative for the finds that occur at the site, but a study of the collection gives information on techniques and selection of raw materials. There is only a partial record on the context of these finds.

Basketry from the present

Between the basketry of Amarna and Qasr Ibrim lies a period of 1600 years and a distance of 1000 km. Differences and similarities in the basketry of these two sites can be attributed to a number of factors, of which the most important ones are temporal, regional, functional and cultural. By comparing modern basketry from the regions of Middle Egypt and New Nubia an attempt is made to understand the variation over time, the regional differences as well as the function and meaning of the ancient and present baskets.

For the Amarna region three villages in the vicinity of the archaeological site were used as a base for ethno-archaeological research. Qasr Ibrim's modern counterpart was slightly more complicated, since the entire area was flooded after the building of the Aswan High Dam in 1961. "New Ibrim" is one of the many Nubian villages which were built near the town of Kom Ombo in the south of Egypt to house the relocated Nubians. A survey was done not only in New Ibrim, but in a number of other villages as well.

Ethnographic literature, which could help this line of research is scarce. No studies have been published on Middle Egypt, but there is a detailed study of the Upper Egyptian village of Mari Girgis (Henein 1988). Henein has paid ample attention to material culture, including basketry.

No publications are available on present-day Nubian basketry, but the American archaeologist and anthropologist B.N. Driskell, who in 1986 has done field work in the same area as my survey of 1992, has kindly made his field notes available. This information on basketry techniques and the social context of basketry in New Nubia has been incorporated. In order to understand basketry production, the help of basket makers was sought in the two areas of the ethno-archaeological study.

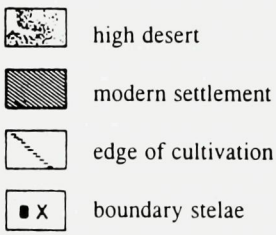
7.2 AMARNA

In this section a brief historical overview is followed by the excavation history of the Amarna workmen's village and a summary of the recent archaeological work in the workmen's village, which yielded the basketry finds. This is followed by a descriptions of the village and an attempt to sketch the cultural background of its inhabitants. The discussion who produced the baskets found in the workmen's village is subject of Section 19.1

7.2.1 Historical Context[4]

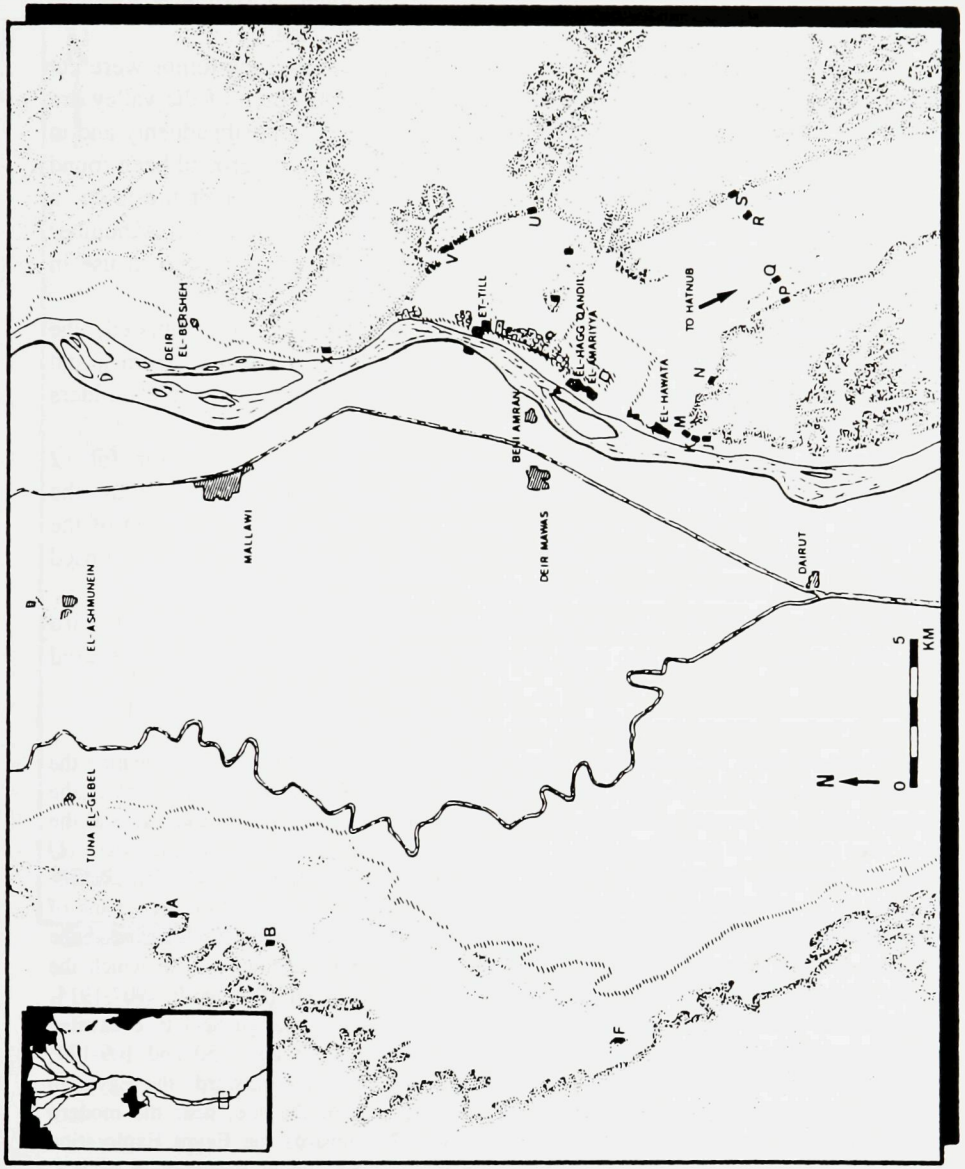
The archaeological site of Amarna is situated in a barren area on the east bank of the Nile with only a fringe of green land along the river (Figure 7-1).[5] The oldest remains encountered at Amarna are palaeolithic (French 1984). From the Old Kingdom period onwards the route to the limestone quarries at Hatnub led through the valley, which was virtually uninhabited at that time. It was not until the New Kingdom period that the area was used intensively. Around 1350 BC, towards the end of the 18th dynasty, the new capital of pharaoh Amenhotep IV / Akhenaton was built in the valley, to mark a new political and religious zeal. In approximately 20 years an entire city, including three major temples to the Aton, the single god which was worshipped, five royal palaces and a large number of private houses was built, lived in and deserted.

Figure 7-1 (on page 113)
The region of Amarna and the present day villages of el-Till, el-Hagg Qandil, el-Amariyya and el-Hawata. The limits of the ancient region are marked by boundary stelae (after Kemp 1985, 309).



[4] For a chronology of the Egyptian history see: Baines and Malek 1984, 36-37.

[5] Amarna is also known in the literature as Tell el-'Amarna. This name is probably derived from a misunderstood rendering of the name of el-Till (also indicated as el-Till el-'Amarna), the village where the Nile is crossed to reach the site. Amarna is not a *tell* (a hill formed by archaeological remains deposited over a long period of time). The name *Amarna* has possibly been retrieved from the Beni Amran, a nomadic people from the Eastern Desert, which settled down in the region in the 18th century (Kemp 1985, p.309; Aldred 1988, p. 16).


DEIR EL-BERSHEH
ET-TILL
EL-HAGG QANDIL
EL-MARIYYA
TO HATNUB
EL-HAWATA
BENI AMRAN
MALLAWI
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DAIRUT
EL-ASHMUNEIN
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Excavations have shown that during the relatively brief occupation of the city quite extensive modifications have been made to both official buildings and private houses.[6] Most of the town was built from mud brick, as was the majority of the official buildings. During the short life span of the town, a start was made to replace the mud brick with limestone blocks (Kemp *et al.* 1989).

In the face of the escarpment to the east of the city, 24 rock tombs were cut for important officials of the community. The tombs at the south of the valley are the earliest group. Work on the tombs seems to have been stopped suddenly and in none of them an interment has been found. Neither has a burial ground been found for the less important people of Akhet-Aton[7]. Six kilometre east of the town, a large *wadi* had been chosen to become the Amarna valley of the kings. A number of tombs were started, of which only one, the Royal Tomb, has been in use in antiquity.

In a hilly outcrop near the Royal Wadi two villages were situated, the workmen's village and the so-called stone village, situated 1 km. east from it and never excavated. The workmen's village is thought to have housed the builders and artists who worked on the tombs.

The city Akhet-Aton has been the residence of pharaoh Akhenaton for 12 years of his 17 year reign. Desertion came with the death of the pharaoh and the subsequent return to the old values and power equilibrium. After desertion of the town, all stone building elements were demolished, the stone blocks being re-used by inhabitants of settlements across the river.[8]

Although indications have been found of human activity during the 21st, 23rd and 24th dynasty, it was not until the Roman period that the valley was used

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[6]Flinders Petrie excavated large parts of the central city in 1891-92, investigating the Greater Aton Temple, the Smaller Aton Temple, the Great Palace, the King's House, the Records Office and several private houses (Petrie 1894). In 1896 Barsanti excavated at the Maru Aten palace (not published) and at the beginning of this century the temples were re-examined (Bouriant 1903). From 1907 to 1914 the Deutsche Orient Gesellschaft, under direction of L. Borchardt surveyed the entire region on both the east and the west bank of the Nile, and excavated the southern and eastern part of the city. This work included the mansions of high court officials and the house of the sculptor Djehutimes, in which the famous bust of Akhenaton's spouse, queen Nefertiti, was found (Borchardt 1907-1914, Borchardt and Ricke 1980). From 1921 to 1936 the Egypt Exploration Society excavated most of the public buildings on the site (Peet & Woolley 1923 pp. 1-50 and 109-174; Frankfort & Pendlebury 1933; Pendlebury e.a. 1951). From 1960 onwards the Egyptian Antiquities Organization has excavated at the southern part of the site, near the modern village of El Hawata and at Kom el Nana. From 1977 onwards the Egypt Exploration Society has been involved in a long term excavation project, under directorship of B.J. Kemp (Kemp 1980-1987, Kemp *et al.* 1984-1989).

[7]An exception to this is the workmen's village, where private tomb chapels and a cemetery have been found (Peet and Woolley 1923, 92-108; Kemp e.a. 1985).

[8]Many of these blocks have been found re-used in temples at Tuna el-Gebel, cf. Figure 7-1 (Cooney 1965, Roeder 1969, Hanke 1978).

extensively again (Kemp 1986, 118; Kemp 1985, 317). In the Christian and Islamic period the area seems to have been deserted, but no records are available until the first European travellers visited the site in the 18th century.

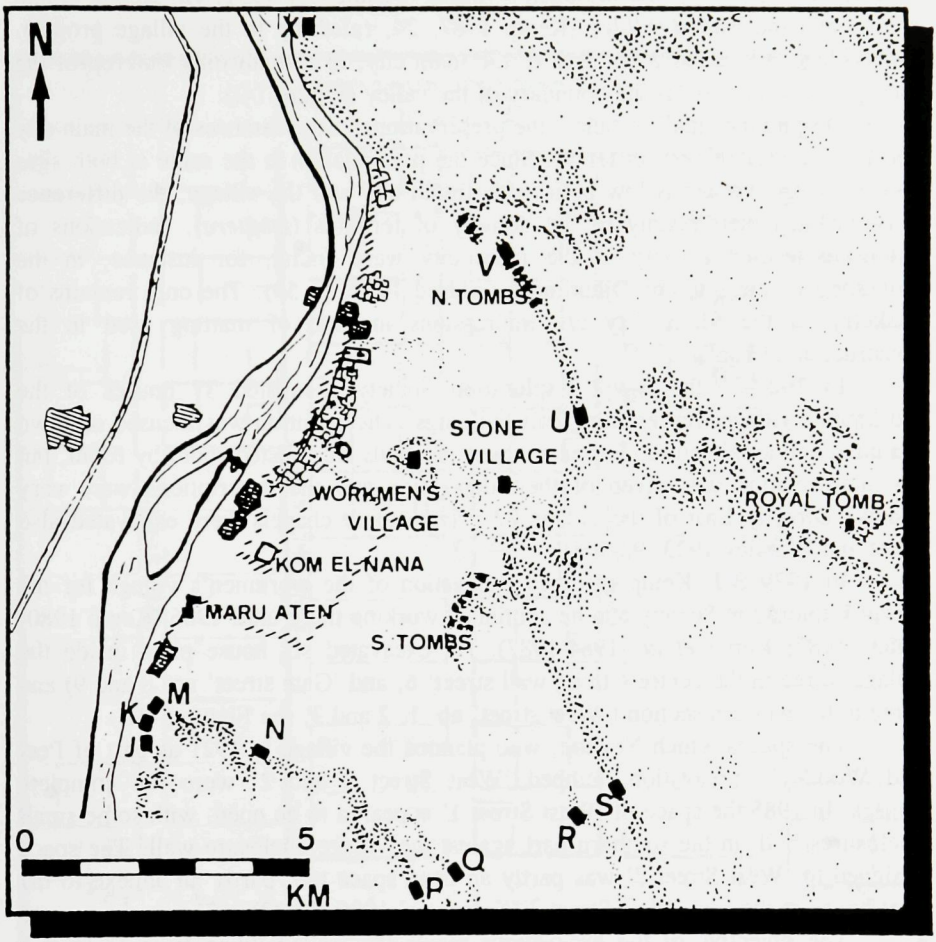

Figure 7-2 The region of the ancient city of Amarna. The workmen's village is situated in the foot hills of the high desert (after Kemp 1985, 309).

7.2.2 Excavation History of the Workmen's Village

The basketry found at Amarna comes without exception from an isolated settlement of the New Kingdom period, known as the *eastern village* (Peet and Woolley 1923, 51-91), the *workmen's village* (Pendlebury 1951, vii; Kemp, Kemp *et al.*) and the *walled village* (Kemp 1987, 24, referring to the village proper). This village is situated 2 km East of the main city, in a small hilly outcrop of the escarpment which forms the boundary of the valley (Figure 7-2).

Despite the small distance, the preservational circumstances of the main city and the village are very different. Since the precipitation is the same at both sites and the subsoil water is low both in the main city and the village, the difference must be attributed mainly to the activity of termites (*Isoptera*). Indications of extensive termite activity in the main city were found, for instance, in the workshop of the sculptor Djhutimose (Aldred 1988, p. 59). The only remains of basketry in the Main City are impressions in mud of matting used in the construction of roofs.

In 1920-21 the Egypt Exploration Society excavated 37 houses of the workmen's village, representing half buildings. The attention was focused on town planning and architecture. For each house the finds were listed room by room, but no interpretation was given of their deposition and the descriptions were very scanty. Directly East of the village 22 private tomb chapels were excavated also (Peet and Woolley 1923, 92-108).

In 1979 B.J. Kemp resumed excavation of the workmen's village for the Egypt Exploration Society and he continued working there until 1986 (Kemp 1980-1983, 1987; Kemp *et al.* 1984-1987). He excavated six house plots inside the village, three in the centre ('Long wall street' 6, and 'Gate street' no. 8 and 9) and three in the western section ('West street' no. 1, 2 and 3, see Figure 5-3).

The spaces which Newton, who planned the village in 1921 as part of Peet and Woolley's excavation, dubbed 'West Street 1 and 2' were not complete houses. In 1985 the space of 'West Street 1' appeared to be open, with some small enclosures built in the southern part against the village enclosure wall. The space assigned to 'West Street 2' was partly an open space too, partly an annexe to the next house in the row, West Street 3 (Kemp e.a. 1986, 28-33).

The objective of the excavations inside the walled village was to have a better understanding of the situation in order to interpret the mass of data from the excavations in the twenties. Most attention, however, was directed to the area outside the village walls (Figure 5-4). A number of activity areas could be identified, which raised the possibility of an economic and social interpretation of the village community. Three more tomb chapels were discovered and excavated, which led to a re-interpretation of the work done in 1921/22 (Kemp e.a. 1985). In 1987 the attention was directed towards the connection between the main city and the workmen's village. The well which supplied the village with water was identified at the edge of the main city in an industrial area with pottery workshops (Kemp e.a. 1989). The combination of large-scale clearance and selective

question-based excavation has given a good basis for interpretation, although in the process many new questions have risen (Kemp 1987).



Figure 5-3 Plan of the Amarna workmen's village (based on Peet and Woolley 1923, Plate XVI and Kemp e.a. 1986). Numbers indicate the standard numbering of the houses, as given by Peet and Woolley.

7.2.3 Description of the Workmen's Village

The village measures 69 metre square and has a very regular ground plan. Four rows of houses form four streets, which Peet and Woolley have named East Street, Gate Street, Main Street and Long Wall Street. West Street has a row of houses on both sides. The enclosure wall and the outer walls of the houses are made of Nile-mud bricks, similar to those used in the main city. The walls inside the houses are made of desert marl bricks and show considerable variations. All buildings outside the walled village are also made of desert marl bricks, which have been quarried just outside the village. Thus the Nile mud brick is used for a well-structured, government provided village structure, which was adapted by the villagers to their needs and taste with local desert marl brick.

Gate Street 8 probably had a second storey, whereas the excavation of houses in West Street only yielded traces of light awnings on top of the collapsed roof. In general the houses measure 5 x 10 m and are divided in a number of rooms. The interior structure of the houses showed some variation. Usually there is one room in the front and one large central room which is the main living area. The kitchen, the bed room and the stairs to the roof are placed in the back of the house.

There are two exceptions to the uniform size of the houses. In the south-east corner of the village there is one larger building, probably the house of a village official. The second exception is the entire west side of the village, which was added on at a later stage and had its own entrance gate, being separated from the rest of the village by the old enclosure wall. In this part of the village (West Street) the houses are smaller. Since Peet and Woolley did not find many artefacts, nor a large quantity of roofing material, they suggested that the houses of the west quarter were stripped of all wood and other useful items, because they had been abandoned before the rest of the village (Peet and Woolley 1923, p.67). During later excavations this did not appear to be the case. Kemp argued that the western part was a poorer quarter, which was probably occupied by a police force of about 20 men, whose task was to check the desert routes (Kemp 1987, p.27, 28, 48).

In the basin around the walled village a number of activity areas were identified. These were found to be made of locally derived materials, their arrangement was informal and their design was diverse. They can be interpreted as unofficial private enterprises of the village inhabitants. To the east of the village, situated on the side of the hills surrounding the village, at least 23 private chapels were excavated, established by the local community. Below and in between these chapels, there were a number of plant beds and animal pens. Although all fresh water had to be carried into the village on donkey back, the villagers were growing vegetables and breeding pigs. Seven sets of animal buildings were identified, which show many differences in lay-out.

As indicated above, the water was supplied by a well in the main city of Amarna. In an area near the village gate and the agricultural sites, about 50 implacements for large pottery jars were found. It is indicated as the *Zir-area*,

derived from the arabic word for large water storage jars. Here the water was distributed, the number of pot implacements suggesting that each household had its own jar to receive the water supply. A survey of the number of distinctive sherds found between the village and the main city, identified the route from the *zir* area to the well (Kemp *et al.* 1987, 1-14).

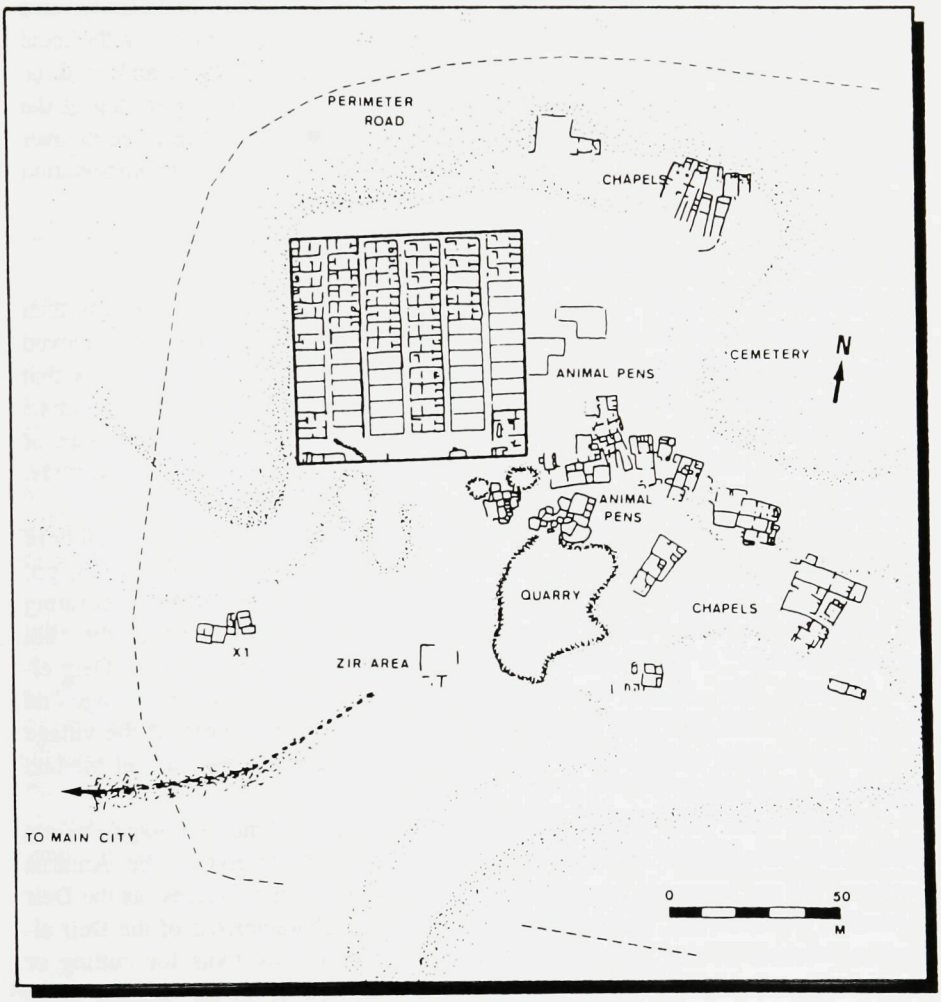

Figure 7-4 The wider area of the workmen's village, with the road to the main city (based on Kemp 1983, p.6, fig. 1).

Around and through the valley in which Tell el-Amarna is situated, a number of desert roads have been identified (Petrie 1894, pp. 4-5, pl. XXXV; Davies 1905, pp. 5-6; Timme 1917, pp.24-26). One of these paths encircles the workmen's village. On the spot where this perimeter road met with the main road from the village to the city, a guard house was found consisting of three well built rooms and an area in which goats and other animals were kept. This complex was excavated in 1979, and indicated as site X 1 (see Figure 7-4) (Kemp 1980).

Other extra-mural activities which could be identified archaeologically were the quarrying and discarding habits of the villagers. The desert marl for the local mud brick was quarried at an area 35 metres south of the village and in three smaller areas nearer to the enclosure wall. These pits must have been dug at the time of the construction of the village and have been used as rubbish dumps ever since. The stratigraphy and nature of the rubbish did yield important information on the history of the village and the activities of the inhabitants.

7.2.4 Population of the Workmen's Village

The village was designed and built in one go. This ready made village was then occupied over a very short stretch of time. Perhaps an existing community moved in, imported as one group from elsewhere. An alternative interpretation is that over a short period of time a new community was assembled of workmen or artists from all over Egypt. The population of the village consisted in the first instance of 48 households. Nothing is known about the size and nature of these households. Even the occupations of the inhabitants remain unclear.

Several authors have suggested that Akhnaton had the artists' community of Deir el-Medina move to this new workmen's village (Peet and Woolley 1923, pp. 51-91, Aldred 1988, pp. 61, 68). This community had been digging and decorating the tombs in the Valley of the Kings at Thebes from the beginning of the 18th dynasty onwards. A great deal is known about daily life and work at Deir el-Medina, since many ostraca were found giving a lively account of the village and its occupants (Valbelle 1985, 23-25; Bierbrier 1982). The similarity of the village lay-out and the cult chapels led to the conclusion that Amarna and Deir el-Medina housed the same people.

Apart from these formal features, the Amarna workmen's village did not yield many comparable remains from the occupants themselves. The Amarna workmen did not leave any personal messages and letters on potsherds, as the Deir el-Medina workmen did. However, this seems to be a characteristic of the Deir el-Medina workers of the 19th dynasty. Secondly, hardly any tools for cutting or decorating tombs were found at Amarna,[9] while at Deir el-Medina chisels, paint brushes and other tools were found (Bruyère 1939), but these probably stem from a later date in the history of the village.

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[9]The only tools from the extensive early excavations are two hammers and a brush for whitewashing (Peet and Woolley 1923, Pl. 19, 3,4).

It proves impossible to decide if the Deir el-Medina village has been deserted or not at the end of the 18th dynasty, a feature which could be decisive in the discussion if the community moved for two decades to Amarna (Kemp 1978, 44; Valbelle 1985). Barry Kemp has argued that it is not a given fact that the Deir el-Medina crew was transferred to Amarna. On the basis of the activity pattern at the Amarna workmen's village he suggests that the tomb workers might have come from the region of Memphis, where an equally capable team of workmen, responsible for building the Saqqara tombs, must have been available.[10]

The fact that no tools were found at the Amarna workmen's village might be due to the way in which the site was abandoned. If the inhabitants would have moved back to Memphis (or Deir el-Medina), they can be expected to have taken their tools with them. Alternatively it can be hypothesised that the base camp for the tomb workers was not the walled village, but the stone village, which is situated one km to the north east, near the entrance to the Royal Wadi. Since the stone village has not been excavated this is where the argument has to halt.

The abandonment of the site still is enigmatic (cf. Hari 1984). The simplistic supposition that Amarna and the workmen's village were abandoned at Akhnaton's death, or a few years after, does not hold. A large number of ring bezels from the reign of Tutankhamon was found at the workmen's village and a wall painting discovered during the 1986 excavations at the West street extension of the workmen's village, depicting a royal figure, was attributed to the reign of Tutankhamon (Weatherhead 1987). This painting was probably made when the house was first erected, which dates the building of the house to the reign of Tutankhamon. Thus West street was built at the moment that the site was thought to be abandoned.

The stratigraphy of the rubbish dump in the Main Quarry suggests that the village has been abandoned for a while, after which it was re-occupied. Until now it is not clear if the village was lived in by a tomb building community, which abandoned the site after the death of Akhnaton, and if so, who were the new occupants who lived in the village. It is not very probable that this was an entirely different group since the pig breeding went on until the final abandonment. Part of the village has been occupied by a police force, patrolling the desert roads and checking the entrance of the village, as has been inferred from the position of the guard house or check point X1 (see Figure 5.2). Such a police force is a likely

[10]Kemp argues that the village at Deir el-Medina has no parallels for the *zir*-area. Another feature that does not occur in Deir el-Medina is the breeding of pigs. As a parallel to the animal pens at Amarna, he refers to the breeding of pigs in the temple of Ptah at Memphis in the late 18th dynasty (Kemp 1987, pp. 44-45). Certain characteristics of the Amarna style are found in the work of memphite artists of the 19th dynasty (Berlandini 97, 250 note 1 and 2).

group of occupants of the West street extension[11]. Guards formed a professional group which might have been employed to watch the tombs in the turbulent period after the death of pharaoh Akhnaton. By the time of pharaoh Horemheb the village was abandoned (Kemp 1987, 43).

7.2 MIDDLE EGYPT

Ethno-archaeological research was done in three of the four villages which are located near the remains of ancient Amarna. From north to south these are: el-Till, built partly over the northern suburbs of ancient Amarna; el-Hagg Qandil and el-Amariyya forming one long string of houses parallel to the river bank near the southern suburbs of the ancient town; and el-Hawata in the south of the valley (see Figure 7-1). To the outsider el-Amariyya and el-Hagg Qandil might appear to be one village, but the inhabitants experience a clear difference. El-Hawata is the most isolated village in the valley. Traditionally the inhabitants of the other villages consider el-Hawata a 'bad' village, of which the population is not to be trusted. This prejudice is strengthened by the growing and trade of opium which at present is one of the illegal activities of some of the el-Hawata inhabitants. Because of this bad reputation my research was limited to the three other villages.

All three villages have basket makers. Of old, the two villages el-Hagg Qandil (supported by el-Amariyya) and el-Till are rivals, so when the inhabitants of el-Hagg Qandil are asked if there are basket makers in el-Till, the answer is negative. If the el-Till people are asked if baskets are made in el-Hagg Qandil the answer is negative too. Even though the two villages are only six kilometres apart, and the inhabitants have relatives in the other village, in both villages the answer was "We make baskets, they (from the other village) do not make baskets. But if you want really good baskets you have to go to Bersheh".[12]

In Bersheh both men and women make baskets which are sold on the market in Deir Mawas or Mallawi. The women of el-Till, el-Hagg Qandil and el-Amariyya make the same kind of coiled baskets the women of el-Bersheh, but they only produce them for themselves or for friends. Not all the women know how to make the coiled baskets.

The men never make coiled baskets, but they make carrier baskets using the sewn plaits technique (see Chapter 8). Many know how to make these baskets, but only a few men in el-Hagg Qandil actually produce them on a regular basis. They do this part-time besides farming and sell their baskets in the village and sometimes across the river. In el-Till there seem to be less men involved in semi-professional basket making.

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[11] Another indication of the presence of police or guards in the village, is the top of a wooden military standard, which was found in the Main Chapel in 1986. Such an object would be more consistent with a policing unit than with tomb builders (Kemp 1987, 46).

[12] Bersheh is a village just to the North of el-Till, but in the next side valley, separated by the escarpment of the high desert which forms a natural barrier (see below).

In Amariyya there is a producer of twined mats, used as door mats, donkey saddles and manure bags. He does this work full-time, as does the *qafas* maker, who has a workshop where he and his three sons are making crates out of the midribs of the date palm leaves. These crates are used to transport the harvest (especially oranges and tomatoes). For woven matting, which is not made in the area around Amarna, one has to cross the river. Rope making and knotting large rope carrier nets is a skill that all farmers seem to have, as is the production of wind shelters (*sabata*) from palm leaf and rope.

The range of professions in the three villages is very limited. Most inhabitants are small farmers. Recently the government has increased the area of arable land by a large irrigation project. The land is often worked by several members of the family, producing what is needed for daily sustenance. Crops that are grown are beans, peas, lentils, salad, potatoes, tomatoes, turnips, carrots, sesame and lucerne clover. The surplus is sold at the local market or across the river in the larger population centres at Deir Mawas or Mallawi.

Some of the men have a part-time profession apart from farming, being a village guard, a butcher, shopkeeper or basketmaker. There are very few full time professionals, even government jobs are performed alongside farming. Most full time professionals are living and working in the larger communities across the river where a division of labour is more common. In el-Hagg Qandil there is a fish farm, in which Nile fish is grown and caught with nets.

Apart from growing crops, most families own a number of animals: poultry, ducks, rabbits, goats, sheep and, for wealthy families, cows and water buffaloes. Donkeys are the most important means of transport. The animals are often kept in a separate building or enclosure, which also contains the bread oven. These enclosures are situated in the village near the house.

For a large part the families are self-sufficient, which is the result of the activities of the women. All women know how to bake bread and make cheese and butter. Apart from farming, cooking, cleaning the house and doing the laundry, many women know how to sew clothes or make baskets.

Until the 1980's most houses in all three villages were built of mud brick. With the building of the Aswan High Dam the yearly floods which brought new Nile silt have ceased. The government realised that the fertile soil should not be wasted to make bricks. Now, under government regulation, there is an increasing use of fired brick and concrete.

The four villages near Amarna were quite isolated. In Middle Egypt the course of the River Nile runs near the cliffs of the Eastern Desert. The flood plain of the Nile is 20 km wide on the west side and only 100 metres wide on the east side of the river. Only where the cliffs along the east bank recede, forming semi-circular side valleys, there is space for settlements.

The Nile has to be crossed for each contact with the larger towns on the west bank, but also tot travel to neighbouring villages on the east bank, because there is often no space for roads between the cliffs and the river of the west bank to travel from one semi-circular side valley to the next. The only way to get across

was by sailboat ferry's (*felucca*'s) and rowing boats. Since 1977 the isolation has diminished gradually with the coming of telephone lines, two car ferries and the Eastern Desert motor road, which runs a few kilometres to the east on the High Desert Plain.[13]

Traditionally there were also contacts with the Eastern Desert population. In the early eighteenth century a nomadic group from the Eastern Desert, the *Beni Amran*, settled in the Amarna area. The village across the river from el-Hagg Qandil is still called Beni Amran. The name of the village of el-Amariyya is also thought to have been derived from this nomadic group (Aldred 1988 p.16). The ancestry of the Beni Amran is not important in the identity of the villagers, who never refer to a nomadic background.

The river can be crossed from each village, but extensive contacts exist especially between east bank el-Till and west bank el-Till. The villages in the region of el-Till have profited most from the tourism to Amarna. Although the Amarna monuments are not on of the top ten tourist attractions, the northern part of the town and the North Tombs were visited regularly, before tourism dropped severely after the Luxor attack in November 1997. This decline in tourism also affects the women of el-Till, who had started to sell their baskets to the tourist.

This new market had gradually caused a change in the range of baskets they were making. Large flat bread baskets, with a diameter of 75 cm do not fit in a suitcase, so the women started to make the same model with a smaller diameter to accommodate the traveller. Also other small baskets, for storing trinkets, or serving biscuits, were produced because they were attractive for the tourists and easy to make. The haphazard sales at the tourist ferry, did not lead to a real professionalization of el-Till basket making.

7.4 QASR IBRIM

Qasr Ibrim, 237 km south of Aswan on the East bank of the Nile (See the map of Egypt opposite page 1), was an eagles' nest on a hill top, overlooking a large stretch of the Nile river. Steep cliffs ran straight from the fortifications into the waters of the river, 66 metes below. The construction of the Aswan High Dam, finished in 1960, has caused the River Nile to rise and spread over a large area. The villages along the river banks and the cemeteries in the valley are now 63 metres under water at the bottom of Lake Nasser.

Rescue excavations concentrated mainly on the cemeteries (Adams 1984, pp. 71-88, Trigger 1965 pp. 36-42). Qasr Ibrim is unique because it is one of the

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[13] Since 1977 el-Till has a car ferry, which accommodates the local inhabitant, the tourists and government trucks transporting limestone blocks quarried near the ancient quarry of Hatnub. From el-Hagg Qandil there is a regular ferry service to the village of Beni Amran. Since 1989 el-Hagg Qandil has a car ferry too, which is also used by the inhabitants of el-Amariyya. The most southern village, el-Hawata, has no regular link to the west bank.

few settlement sites excavated, it used to have an extraordinary level of preservation of organic materials and it is the only area in which excavations are still possible today. Since 1998 this site has come under immediate threat, however, because the level of Lake Nasser has been allowed to rise to its maximum.[14] Qasr Ibrim, at present no more than three metres above the water level, now is a small island.

In this section a brief historical overview is followed by the excavation history of Qasr Ibrim. A description of the town, concentrating on the area where the baskets that feature in the next chapters, were found precedes a sketch of the cultural background of the inhabitants of Qasr Ibrim in the late Meroitic and early Ballana period (*ca.* 100-600 AD). The discussion who produced the baskets found in Qasr Ibrim is subject of Section 19.2.

7.4.1 Historical Context

The earliest remains at Qasr Ibrim are from the New Kingdom period (1550-1070 BC) consisting of a stone temple and a number of shrines (Caminos 1968). Other New Kingdom remains are a number of re-used stone blocks and door jambs with inscriptions, but no evidence of fortifications were found. The habitation centre in the New Kingdom period was across the river, where the town *Mi'am* (the later Aniba) was situated. This was the administrative centre of *Wawat* (Lower Nubia).

The next evidence for building activity at Qasr Ibrim dates to the Napatan Period, which runs parallel to the Egyptian Late Dynastic Period (*ca.* 1000-300 BC). A strong dynasty arose in the southern Nubian city of Napata and ruled Egypt as the 25th dynasty. During the reign of king Taharqa, at least three temples seem to have been in function in Qasr Ibrim. Taharqa built a large temple, opposite wich the denuded remains of a second temple, have been found, perhaps dating to the same period (Plumley 1974, 228-236). A third temple, dedicated to several gods, including Isis and Horus of Mi'am, also functioned in the Napatan period (Driskell 1989).

The first indications for the use of Qasr Ibrim as a settlement and fort are dated to the Meroitic Period (*ca.* 300 BC - 350 AD).[15] In the early Meroitic period there were extensive building activities, both monumental and occupational. Remains have been found of a large Meroitic temple (Plumley 1978, pp. 31-33) which has been demolished in antiquity. In the temple area and on the desert road towards Qasr Ibrim a large number of life-size carvings of feet, often adorned with Meroitic inscriptions, have been found. These indicate that Qasr Ibrim was a

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[14] The high level is maintained as preparation for the Toshka project, a large scale government undertaking to create a 'second Nile River' to feed the ever increasing Egyptian population.

[15] The Napatan court moved from the old capital Napata, which was sacked in 591 BC by the Egyptian/Persian king Psammetik II, to the southern city of Meroe. Trigger indicated the Napatan and Meroitic period as the *Late Nubian* tradition and Reisner designated the term *W-group* to this culture of strong rulers in Napata and Meroe.

centre of pilgrimage in the Meroitic period. Finds within the Meroitic living areas at Qasr Ibrim indicate that there were contacts with Ptolemaic Egypt, but there is no indication of a Ptolemaic occupation of Qasr Ibrim.

The border between Egypt and Nubia at that time was established at Maharraqa, north of Qasr Ibrim. Soon after the Roman occupation of Egypt in 30 BC the Meroites reconquered the north of Lower Nubia and sacked Aswan. This led the Romans, under the prefect Petronius, to organise a punitive expedition in 23 BC which penetrated deeply into the Meroitic empire. On the way back, a Roman garrison of 400 men with supplies for two years was left at Qasr Ibrim (*Primis*) (Adams 1984 p. 340, Kirwan 1959, pp. 24-25). The Romans created a Nubian-Roman province, the *Dodekaschoenus*, between Aswan and Maharraqa.

During late Ptolemaic and Roman Periods the Nubian material culture is named after the type site of Ballana.[16] The historical sources of that time sketch a complicated image. A nomadic people from the Eastern Desert, the Blemmyes, flocked into Nubia. Because of the threat of the Blemmyan raids the emperor Diocletian moved the Roman border from Maharraqa to Aswan in 289 AD, and invited another tribe, the Nobatae or Nobadae, to settle in the abandoned area. *Prim* (Qasr Ibrim) was the seat of either a Blemmyan or a Nobatian king. Texts in Greek found at Qasr Ibrim in 1976 indicate the co-existence of a Blemmyan and Nobatian ruler in Lower Nubia, but it is not clear which of the two ruled from Qasr Ibrim (Adams 1984, 422-423; Plumley 1977, 74-75; Skeat 1977).

Towards the end of the Ballana period the role of Christianity became increasingly important. The formal conversion of Lower Nubia (the Nobatian Kingdom) took place under the emperor Justinian in 543 AD. The churches found at Qasr Ibrim indicate that Christianity had entered Nubia quite some time before that date. A Napatan temple which was dedicated to several gods including Horus of Mi'am, was intentionally destructed in the early Christian period. It has been maintained that the Cathedral at Qasr Ibrim was built in the sixth century, with financial and technical support of Justinian, from re-used meroitic stone blocks on top of an older church (Adams 1984, 474; Plumley 1975, 17).

By the time of the Arab conquest in AD 640, Qasr Ibrim was part of the powerful Christian kingdom of Makuria, with the city of Dongola in Upper Nubia as its capital. In Egypt, the Arab conquest was welcomed by the Christian Monophysites, who were suffering from oppression by the orthodox Christians. Makuria did not welcome the Arabs, however, and the inhabitants of Lower Nubia, managed to stop the Arab invasion at the Aswan border.

Although an Arab attack on Dongola took place in 652, Nubia did not become part of the Islamic world. The relations between the Caliphate and the Nubian Christian kingdoms were arranged in the *Baqt* treaty, which agreed on a steady supply of slaves by Nubia in exchange for Egyptian commodities. The

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[16] This so-called Ballana-culture is the same as Reisner's X-group and is usually dated from 350 - 700 AD.

treaty forbade Islamic merchants to settle in the area of the Christian kingdoms (Adams 1984, 450-458).

The period from AD 850 to 1173, which is indicated as the Classic Christian period, was again a time of relative quiet and prosperity. Qasr Ibrim held the seat of one of the three bishoprics of Lower Nubia[17]. Nubia lived in peace with Egypt during the Fatimid period and supported the Fatimid rulers against the Ayyubids. When the Ayyubid ruler Salah ed-Din came to power, this support resulted in a punitive expedition by Saladins brother Shams ed-Dauwlah. In 1173 Qasr Ibrim was attacked and the cathedral was pillaged. Despite the fact that Islamic troops were left in Lower Nubia to control the population, the area remained Christian for at least another century (Adams 1984, 531-536).

From the 12th to the 15th century, Christianity in Lower Nubia came more and more under pressure by the Bahri Mameluks from Egypt and Arab tribes from the Eastern Desert. It was an Ottoman army, however, which penetrated into Lower Nubia to make an end to the Beduin raids, occupied Ibrim and left a garrison to guard the Ottoman interests (Adams 1984, 609-621).

The garrison consisted mainly of Bosnian soldiers who, according to the European traveller Burckhardt (1819), were payed directly by the Ottoman Sultan. This rendered the troops independent from the Egyptian Pasha's, which were ruling Lower Nubia, from the Bosnian conquest in about 1520 onwards, by means of *kashefs* (local tax-collectors). The Bosnian garrison remained in the area and mingled with the local population.

The end of the occupation at Qasr Ibrim came in 1811, when a few Mameluke nobles, who had escaped the attack by Mohammed Ali, fled to the hill fort. Mohammed Ali's army attacked, conquered and ransacked Qasr Ibrim, chasing the Mamelukes further south to Dongola. After 1811 Qasr Ibrim was a ghost town, only visited by occasional western travellers, the people of the area living in the hamlets along the river bank.

7.4.2 Excavation history of Qasr Ibrim

The archaeological knowledge of Lower, or Egyptian, Nubia is relatively plentiful, since large area's were excavated in connection with the building of subsequent dams in the Nile. Three times an increasing area of Nubia was flooded, in order to ascertain Egypt's water supply and each time a large scale archaeological survey was organised, in an attempt to record the archaeological remains which were under threat.

The first dam was built between 1889 and 1902 and enlarged between 1908 and 1910. In connection to these constructions, the First Archaeological Survey of Nubia took place between 1907 and 1911 under direction of G.A. Reisner and

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[17]The other two traditional cultural centres, Faras and Qurta held the other two bishoprics, the capital being at Faras.

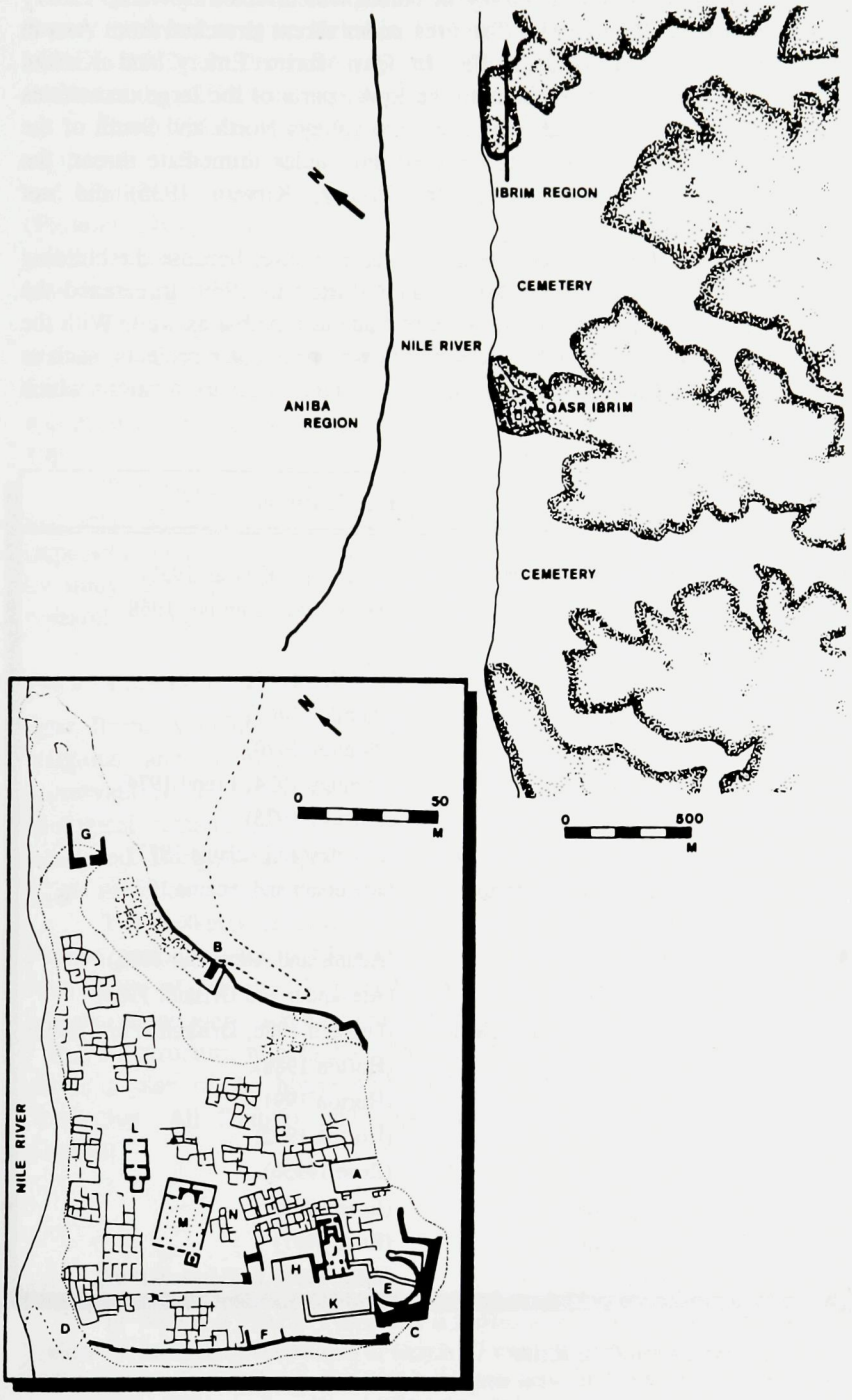
C.M. Firth.[18] This survey concentrated on Lower Nubia, the area under immediate threat. Although at that time the buildings on the mountaintop of Qasr Ibrim were by no means under threat, the cathedral of Qasr Ibrim was surveyed by the architect Mileham (published in 1910).

Figure 7-5a (on page 129, top)
Qasr Ibrim area, with the old course of the Nile River (after Mills 1982, Plate III)

Figure 7-5b (on page 129, bottom)
Plan of Qasr Ibrim (after a plan made by M. Horton in 1982). The dotted line indicates the water level of 1982.

A *Structure X 265*, excavated in 1990 and 1992 (cf. Figure 7-6).
B *East Gate*, destroyed by the water in 1982 (Plumley 1975, 21).
C *South-West Gate* (Plumley 1970, 17, Plate XXIV 1, 2, 3, Plate XXV 1).
D *West stairs*.
E *Bastion* or *South Bastion* (Anderson, Adams ea. 1987, 33-35).
F *Podium* (Frend 1984).
G *Temple 1*, of unknown date (Alexander, Driskell 1985, 23, fig. 1).
H *Temple 2*, Meroitic, dismantled in antiquity, also indicated as *Temple 4* (Anderson, Adams 1978, 32-33; Plumley, Adams, Crowfoot 1977, 40-42).
J *Temple 3*, New Kingdom temple rebuilt by Taharqa, incorporated in a Meroitic temple complex and modified into a church, indicated as *Church 3* (Plumley 1974, 228-236; Plumley 1975, 19-20).
K *Temple 5*, a much denuded rectangular structure, possibly from Napatan date (Alexander, Driskell 1985, 24-26).
L *Temple 6*, Napatan temple, modified in the Roman period, destroyed in the Christian period (Driskell 1989).
M *Church 1*, the *Cathedral* or the *Great Church*, modified to a mosque (Plumley 1964). Underneath the cathedral the remains of an older church (*Church 4*) were found (Gartkiewicz in Alexander, Adams ea. 1978, 37-38).
N *Church 2*, the *Small Church* or *South Church*, dismantled by the excavators (Plumley 1966, 10; Plumley 1974, 214)

[18]On the basis of his excavations of Cemetery 7 in Shellal, Reisner developed a classification of cultures, which he named A, B, C, D, W, X and Y-group. This cultural chronology has been used ever since, although some adjustments have been made. The term *group* illustrates that Reisner interpreted changes in styles of pottery and burial customs as different peoples which inhabited the area. Later archaeologists have explained changes in pottery and grave styles as the result of gradual developments rather than disruptive changes and migration.


IBRIM REGION
CEMETERY
NILE RIVER
ANIBA REGION
QASR IBRIM
CEMETERY
0 500 M
0 50 M
NILE RIVER
A
B
C
D
E
F
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N

The Second Archaeological Survey of Nubia was directed by W.B. Emery and L.P. Kirwan from 1929 to 1934. The area under threat stretched from Aswan to the Sudanese border at Wadi Halfa. In Qasr Ibrim Emery and Kirwan performed some small scale excavations in the lower parts of the large cemeteries from the Ballana and Christian periods in the two valleys North and South of the town (Figure 7-5).Because the cemeteries were not under immediate threat, the excavation and the subsequent publication (Emery, Kirwan 1935) did not concentrate on Qasr Ibrim.

The scale of the third salvage operation was immense, because the building of the Sad el-'Ali, or Aswan High Dam, which started in 1959, threatened the entire area of Egyptian Nubia and large parts of Sudanese Nubia as well. With the help of UNESCO funds became available not only for spectacular projects, such as the relocation of the Abu Simbel temple, but also for large scale excavations which took place from 1960 until 1964.

	Year	Director	Publications
1	1934	Emery and Kirwan	(Emery and Kirwan 1935)
2	1961	Emery	(Mills 1982; Caminos 1968)
3	1963	Plumley	
4	1966 (Spring)	Plumley	(Plumley 1966)
5	1966 (Dec.)	Plumley	(Plumley 1967)
6	1969	Plumley	(Plumley 1970)
7	1972	Plumley	(Plumley 1974, Frend 1974)
8	1974	Plumley	(Plumley 1975)
9	1976	Plumley;	(Plumley and Adams 1977)
10	1978	Adams and Anderson	(Anderson and Adams 1978)
11	1980	Adams	
12	1982	Adams	(Adams and Alexander 1983)
13	1984	Alexander	(Alexander and Driskell 1985)
14	1986	Alexander and Driskell	(Driskell 1986, Driskell *et alii* 1989)
15	1988	Horton (study)	(Horton 1988)
16	1990	Horton	(Horton 1991)
17	1992	Horton	(Horton 1992)
18	1995	Horton	(Rose 1995b)
19	1996	Rose (study)	(Rose 1996)
20	1997	Rose (study)	(Rose 1997)
21	1998	Rose	(Rose 1998a,b, Edwards1998)

Table 7-6 Excavations at Qasr Ibrim

Qasr Ibrim was also expected to disappear under the waters of Lake Nasser. Emery returned to Qasr Ibrim in 1961 to excavate the cemeteries (published by Mills in 1982). In the same year the epigraphic recording of the New Kingdom shrines in the cliff facade was done by Caminos (published in 1968).

From 1963 onwards Plumley directed excavations within the fortified town on the top of the hill. In the first season the attention was focused on the cathedral and another monumental feature, referred to as the *podium* (see Figure 7-5 F) (Plumley 1964). From that year on the Egypt Exploration Society has financed bi-annual expeditions to the site which are still continued. Until now 20 campaigns have been organised between 1961 and 1998 (cf. Table 7-6).

The long history of the excavations at Qasr Ibrim has known five different directors, all of whom have implemented their own approach. During these years there was a considerable variation in the composition of the staff. Furthermore, the approach of archaeology in general has changed considerably between 1961 and 1999.

The changes in approach over time and the large numbers of researchers and records, which are not all in the same place, make publication an almost impossible undertaking. Despite this, the utmost effort is made to publish the site by studying the preliminary reports, archives and filling in the gaps with limited research on site.

7.4.3 A Meroitic and Ballana Periods House

Qasr Ibrim is unique for two major reasons. First of all it was an important religious and political centre with an interesting history. Secondly, the preservational circumstances are extremely good. Apart from botanical and zoological remains, a large quantity of textiles, leather and basketry has been preserved. Research at Qasr Ibrim thus gives information on aspects of daily life which is seldom obtainable to this level of detail from other settlement sites.

The basketry studied for this thesis originates mainly from Meroitic and Ballana period levels. In 1990 and 1992 a settlement area was excavated near the south edge of the city (Figure 7-5 A). This area had been covered by Islamic houses, which were removed without proper recording in 1976. Underneath these, a Ballana structure was found which was designated number X-265.[19] Figure 7-7 shows a plan of the house with the room numbers used as means of general orientation. All features and deposits can be located precisely by their unit numbers.

[19]In 1990 and 1992 this area was indicated as trench 10, excavated by D. Edwards. Trench 14, situated directly south of trench 10 was excavated by H. Roberton. This was the southern part of the Ballana house and the area between the house and the girdle wall. A detailed report of the excavations in 1990 and 1992 is in preparation.

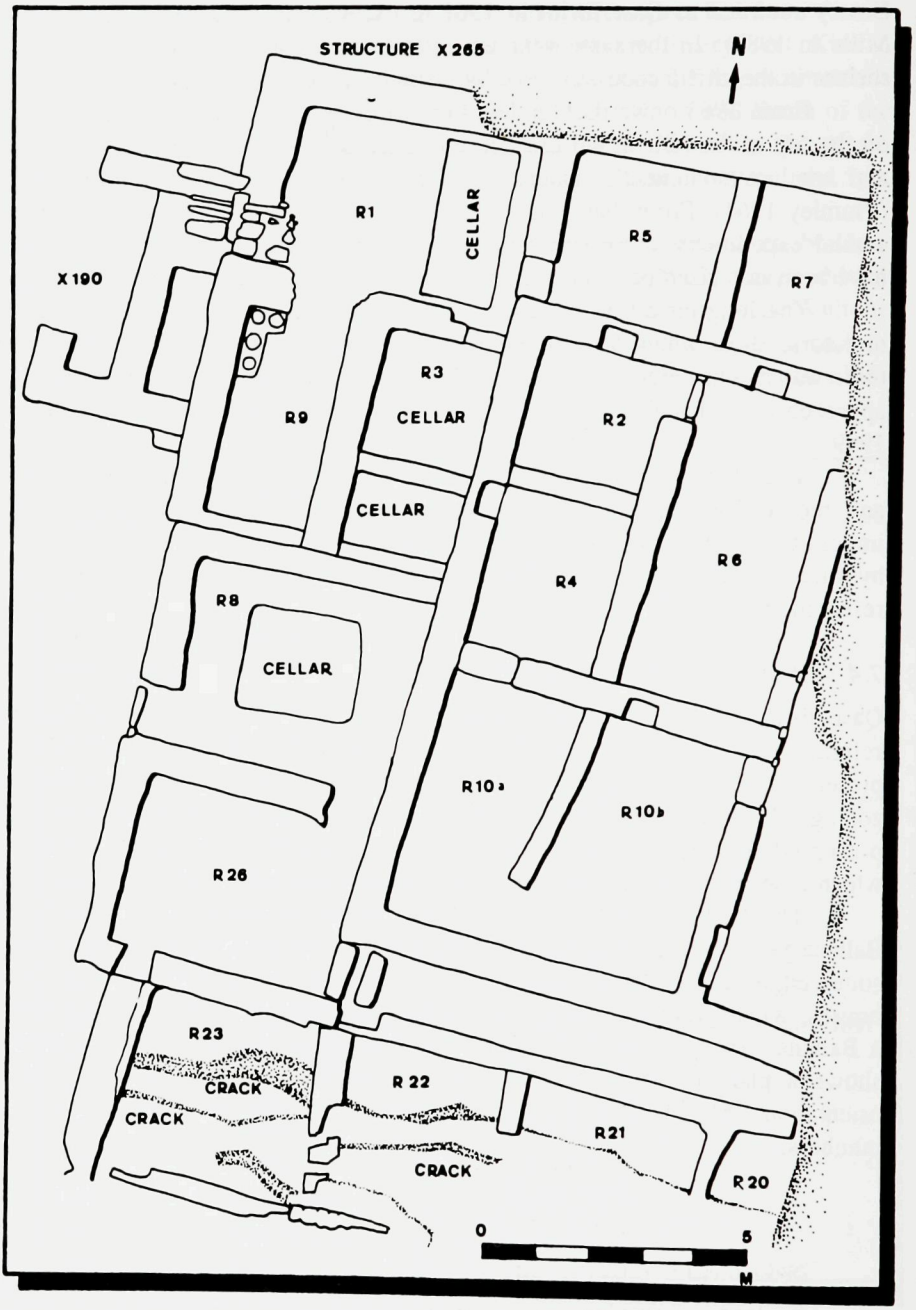

Figure 7-7 Structure X 265, excavated in 1990 and 1992 (after the original plans drawn by D. Edwards and H. Roberton).

Structure X-265 has known a long history and many modifications. The earliest remains in this area were dated to the Roman or middle Meroitic period. They consisted of stone walls with cement mortar and pink cement floors, found underneath rooms 2, 4, 6 and 10. After demolition of this stone building the area was abandoned until the construction of the Ballana structure. The oldest phase of this building consisted of the four rooms mentioned above. All walls were made of mud brick, the entrance being at the east side of the house. The wall dividing room 2 and 4 is a later addition.

A first extension was built over Meroitic street deposits to the west of the building (rooms 8 and 26). The walls of these rooms were constructed of rough stones with heavy plastering. In room 8 three floor levels were found, all dating to the Ballana period. A square cellar, which has not been excavated, predates the building of the room. To the north five more rooms were built at a later date, extending over street deposits (1, 3, 5, 7, 9). The walls were made of stone footings with a mud brick superstructure.

In room 1 a cellar was found with an almost intact roof, consisting of irregular wooden beams covered with date palm fronts, tied with dom palm leaf. The cellar contained organic deposits, many small basketry plates and Ballana pottery. In room 9 four pottery hearths were found, which identified it as a kitchen. The hearths were installed late in the Ballana period. Room 3 is a deep cellar, divided by a partition wall. A similar cellar is present under room 9, but as yet unexcavated.

The full extent of the house is not known, since it runs past the east baulk. The general impression of this house is that the wealth of the occupants increased gradually, which can be inferred from the gradual expansion of the house, not only with rooms, but also with a large number of storage cellars. The finds from the Ballana deposits give a similar impression. The occupants must have been leading a comfortable, quite luxurious life.

In the early Christian period the building went out of use, with exception of the southern part (room 10). At that time the room was divided by a stone wall laid in herringbone structure. Other early Christian remains were found in area X-190, which had been excavated partly in 1976.

All other rooms were gradually filled with organic debris interspersed with lenses of decayed mud brick and roofing material. The area was levelled in the Islamic period, creating a platform on which stone houses were built. The only traces of the Islamic period that were found in 1990, were a large number of storage pits, all lined with basketry and matting.

7.4.4 Cultural Background of the Population

Since the basketry from Qasr Ibrim is mainly associated with pottery from the late Meroitic and the early Ballana period (*ca.* 100 - 600 AD), some attention is paid here to the cultural background of the people who inhabited Qasr Ibrim at that time.

The Ballana culture was originally named X-group by Reisner, who found unique and novel pottery in his excavations at Shellal, which he interpreted as belonging to a culture that had swept over Nubia in the 5th century AD (Reisner 1910; Adams 1984, 390 -393). Reisner's migration theory was confirmed by the physical anthropologist Elliot Smith, who characterised the X-group people by their skeletal features as "strongly Negroid aliens" (Reisner 1910, p. 12).

During the second and third archeological survey it became clear that there was no sudden intrusion of a new people.[20] The Ballana culture (300 - 700 AD) was dated immediately after the Meroitic culture (350 BC - 300 AD). It became apparent that the designation of a new culture was provoked by a discontinuity of the wheel thrown pottery, inspired by contacts with Byzantine Egypt[21] and enhanced by the decline of the Meroitic empire (Adams 1984, p. 392)[22].

The basketry at Qasr Ibrim shows a clear continuity, however, as does the hand made pottery, which also seems to be a locally made commodity. The transition between Meroitic and Ballana period thus seems to be a gradual one. The discontinuities which occur besides the wheel thrown pottery, such as the burial customs of the Ballana elite[23], do indicate changes but not migrations.

Who were the people who lived in Qasr Ibrim in the Meroitic and Ballana periods? The Meroites represented a continuation of the Napatan influences in

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[20]Reisner made his succession of Nubian cultures on the basis of excavations at Shellal, a site not fully representative for Lower Nubia. The Meroitic phase, which immediately pre-dates the X-group period at Qasr Ibrim and in most of Lower Nubia, does not occur as northerly as Shellal. Reisner found the X-group on top of Ptolemaic-Roman pottery, which made the X-group pottery appear to be a complete innovation. Furthermore, Reisner did not compare the X-group remains with related Byzantine pottery from Egypt.

[21]The Byzantine influence on the Ballana pottery is concluded from decoration with "splash" and "blob" designs, which are considered probably (Adams 1984 p. 402) or certainly (Trigger 1965, p. 133) a degeneration of the Hellenistic vine motif.

[22]The forces leading to the decline of the Meroitic empire are not clear at present. Adams supposes that the trade with the Arabian peninsula enlarged the power of the rulers of Axum (Abyssinia) and therefore diminished the power of Meroe. The town of Meroe was not conquered by Axumite kings, however, but probably by another people, the Nuba, coming from the south (Adams 1984, p. 388).

[23]The cemeteries of the Ballana elite were found at Qustul and Ballana. From the latter site, Trigger derived the name *Ballana culture* for Reisner's X-group. The kings were buried in large tumuli at Qustul and Ballana, rather than in pyramids, such as found in Napata and Meroe. In a number of features the Ballana tombs can be compared to the much older Kerma culture. The tombs are tumuli, covered with white pebbles, the burial took place on an *angareeb* (bed with rope matting) and sacrifices of humans and animals were made. Trigger suggests that the changes in tomb style from pyramids to tumuli is not as dramatic as it seems. The minor Meroitic burials were never adorned with pyramids, but continued to be covered with small tumuli (Mills 1982). The Ballana tumuli could be considered enlarged versions of these. Adams, on the other hand, considers the Ballana tumuli a reaction against the Meroites and a reference to the Kerma culture (Adams 1984, pp. 413-424).

Lower Nubia. Meroitic seems not to have been the language of a ruling class, because numerous graffiti in Meroitic are found in the temple areas in Qasr Ibrim and on the road entering the town from the Eastern Desert. But did Qasr Ibrim have only Meroitic inhabitants who were replaced by the Ballana culture?

Adams formulates it as follows: "We may (...) epitomize the riddle of post-Meroitic Nubia by observing that historians tell us about two peoples, the Blemmyes and the Nobatae, where archaeology discloses only one culture, the Ballana; moreover, both history and archaeology leave us in ignorance of the fate of the earlier Meroitic population and culture.".[24]

Procopius names the two groups, living in the area in the 5th century AD. The Blemmyes are a nomadic people living in the Eastern Desert between the Nile valley and the Red Sea, the Nobatae are of unknown origin. In the texts there is no mention of Meroites, which gives the impression that the original population of Nubia suddenly had vanished with the decline of the Meroitic empire.

Although the cultural continuity in the archaeological material contradicts this, there is a discontinuity in the written language which needs explanation. The Old Nubian language, which was introduced at that time and lives on in the modern Nubian languages, is not related to the Meroitic language. This could be considered to support the suggestion that the indigenous population disappeared or was submitted to a group of strangers. Triggers explanation is: "We must thus assume that over a period of time Nubian-speaking people entered Lower Nubia in sufficient numbers to change the language of the region but not in such a way as to break major cultural continuities." (1965, p.137)

Adams connects the gradual introduction of Nubian speaking people with the introduction of the *saqia*, the waterwheel which enabled the land to support a larger population coming in from elsewhere. Both Trigger and Adams thus suppose that a gradual intrusion of Nubian speaking people took place in Meroitic times. Because the arrival of the Nobatae had no political consequences they were not mentioned in the official texts, until it was recorded by Procopius that the emperor Diocletian offered the zone between Roman Egypt and the Blemmyes territory to the Nobatae.

Along the same line of reasoning it could be maintained, however, that the Nubian speaking people were present in the area from much earlier times onwards. They would not be visible in written sources because the language that was written was Meroitic. It was not until much later that the Old Nubian became a written language. Although there is no clear indication for an early presence of a Nubian

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[24] In the Graeco-Roman harbour of Berenike, recent excavations have brought to light a distinctive well polished hand made pottery, which seems to occur in the southern Eastern Desert and the Nile Valley, where it is known from Wadi Qitna and Kalabsha South (Strouhal 1984, 265). A few sherds have been found at Qasr Ibrim This type of pottery seems to occur in the area that overlaps remarkably with the Blemmyes territory as indicated in written sources (Rose 1995).

speaking population, the continuation in the locally produced material culture, certainly does not contradict this.

The general impression of the houses of the Ballana period and the material remains found inside them, is that the inhabitants led a comfortable life in considerable luxury. One should be careful, however, with concluding that Lower Nubian in general was a wealthy area since Qasr Ibrim should not be considered a typical Lower Nubian settlement, but as a relatively wealthy urban centre within the Lower Nubian agricultural community.

7.4 NEW NUBIA[25]

Egyptian Nubia before 1961

After Qasr Ibrim was deserted in 1811, the inhabitants of the area were living at the river banks in small communities, which together formed the village (*balad*) of Ibrim. Those communities, or *nugu* (singular: *nag*) consisted of a group of houses of different size in which members of the extended families were living together. In general the houses were spacious with a number of rooms opening onto a central court yard.

Agriculture was the most important means of subsistence. Most crops were grown for private use, dates being the only crop to be exported in large quantities, mainly to Egypt. The animals that were kept were cattle, sheep, goats and donkeys. The cattle was not bred for meat or milk consumption, but employed mainly to propel the irrigation waterwheel (*saqia*). Donkeys were used as pack and riding animals. Fish never was important in the diet, the main source of meat were goats, sheep and poultry. There were hardly any full time professional craftsmen in Nubia, the major tasks of the men being farming.

Bricklaying and carpentry was done for private needs. Metal, glass and pottery were imported from urban centres. This is partly due to the fact that Nubian men have a long tradition of working outside Nubia. Nubians have been employed by the Egyptians as soldiers and servants since the Old Kingdom. This continued through the middle ages to the present.[26] The result of this migration was that the number of men in the Lower Nubian villages was relatively low.

However, the relation between the migrants and their village of origin was strong and their stay in Egypt was often temporary or intermittent. In the 1960's, many Nubian men working in Cairo, were married to a girl in their village. They would come home every two years, only to return to town when the financial need

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[25]This section is mainly based on information from Adams 1984, Curto 1965, Fernea 1973, Fernea and Rouchdy 1987, Geiser 1986, Herzog 1957, Hofmann 1986, Reinisch 1911, Rouchdy 1991 and the notes made kindly available to me by B.N. Driskell.

[26]In his description of his travels to Egypt and Nubia in 1664, J.M. Wansleeben writes: "Die Leute darin (=Ibrim) sind nicht Pech sondern Russ schwartz, kommen häufig daraus nach Cairo und dienen sonderlich den Europeern trefflich gern" (incorporated in appendix of Herzog 1957, p. 189)

was felt (Geiser 1986). Within the towns there were Nubian communities, often one representing each village.

Perhaps the access to foreign products, both financially and physically, diminished the need to be self-supporting in other commodities but food. The only important handicraft in Nubia was that of the women: basket making. The baskets were made in their spare time, after work in the fields was finished. The women made these baskets for their own use, to give away as presents and sometimes also in order to sell them on the market (see below Section 18.2).

The entire length of the river banks was divided into areas belonging to the subsequent villages. Urban centres of commerce were situated at both ends of this string of villages, Aswan in the north and Wadi Halfa in the south. In the area between these two towns three languages were spoken: Arabic, Kensi and Fadidja. The use of these languages was confined to very specific areas. The language spoken in the area south of Aswan is called *Kensi*. An alternative name the Kunus use for themselves is *Matoki*. South of the Kensi-speaking area, around the Wadi el-Arab, Arabic was the common language. In the southern part of Lower Nubia, the area stretching from Ibrim to Wadi Halfa near the second cataract, a second Nubian language, called *Fadidja*, was used. In these three language areas of Lower Nubia, there is also a distinction between other features such as architecture and clothing.

The term *Kensi* for the language and the people (plural *Kunus*), is connected to a geographical entity, the Wadi Kunus. The term Fadidja, however, does not seem to refer to a geographical name.[27] Since the inhabitants of New Nubia (see below) identify themselves as either Kensi, Fadidja or Arabic, these three terms will be used in the following chapters as indication of the three Nubian language and culture groups. Doing this, it has to be kept in mind, however, that the cultural identity lies primarily within the *balad* (village).

Egyptian Nubia after the Resettlement

The building of the subsequent dams in the Nile had far reaching effects on the people in Lower Nubia. Of the small quantity of arable land, an increasing portion was lost. Not only was most arable land permanently covered by water, but there was also no new supply of fertile soil.

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[27]There are indications that the use of this term is quite recent. In the writings of the early travellers the term *Fadidja* does not occur, but in the 1960's the people from the villages north of the 2nd cataract referred to themselves as *Fadidja*, as a group with a specific identity. According to Herzog, the people living in the area between Wadi el-Arab and the second cataract used to refer to themselves by the names of smaller units, such as the village (*Ibrimi*). The term *Fadidja* was probably used by the Kunus to indicate the language of the entire region with a name derived from one particular area, Fad, situated opposite Abu Simbel. Herzog considered the term as an innovation introduced by Reinisch and therefore proposed to use the term *Mahasi* instead (Herzog 1957, p. 25, 32).

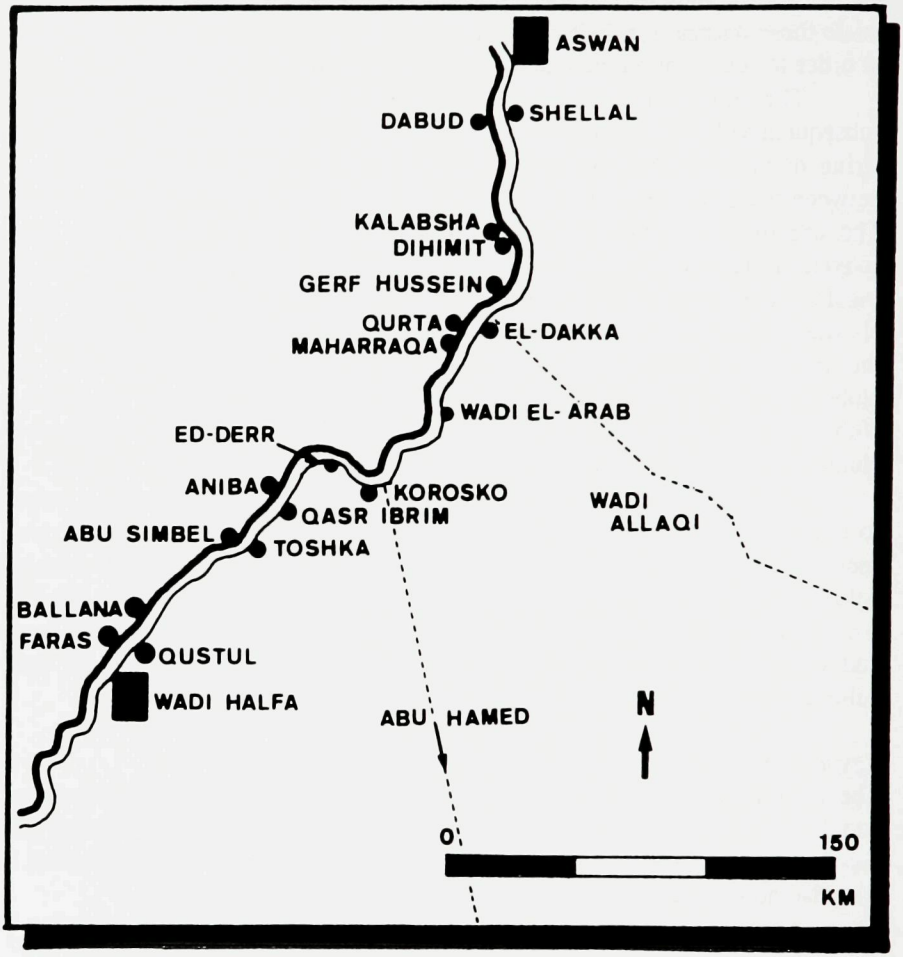

Figure 7-8 Lower Nubia. Indicated is the old course of the Nile and a number of settlements, which have been relocated in New Nubia (after Baines and Malek 1984; Fernea 1973, 2; Herzog 1975, Curto 1965; Rouchdy 1991, 74).

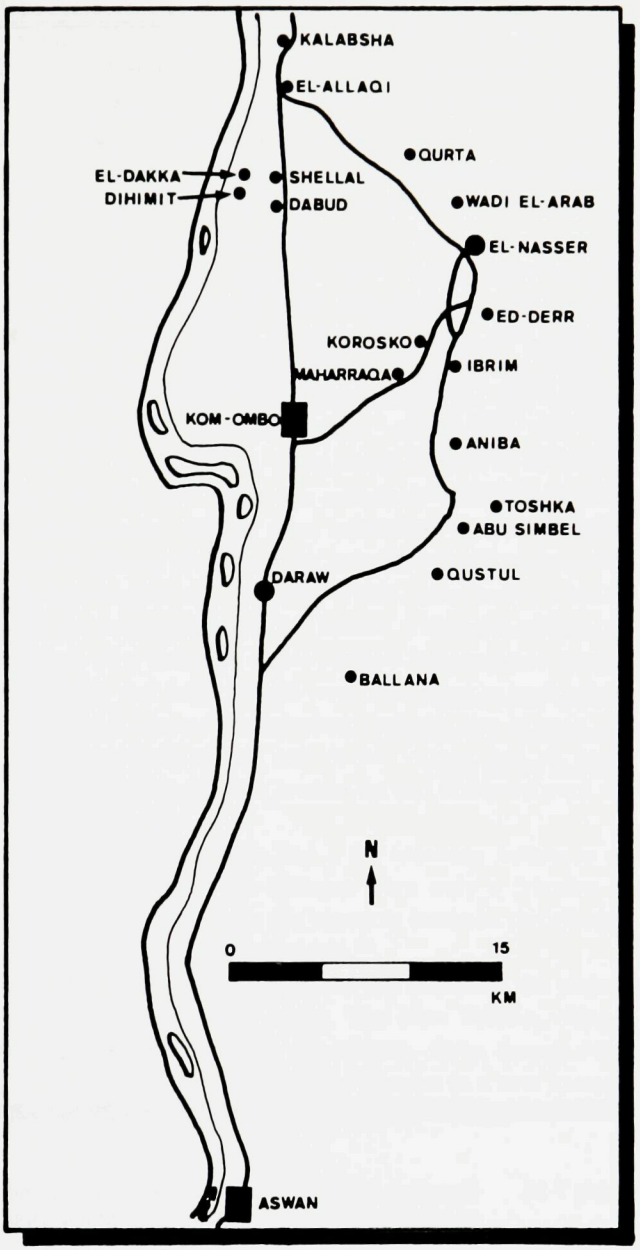

Figure 7-9 New Nubia, the relocation area of the Egyptian Nubians (after Rouchdy 1991, 75).

Kensi	Arab	Fadidja
Shellal (West bank)	el-Sebua (West bank)	Ginena wa Shebbak (West)
Dabud (West bank)	el-Malki (West bank)	el-Derr (East bank)
Umbarkab	Wadi el-Arab (East bank)	el-Diwan (East bank)
Meris (West bank)	Shaturma (East bank)	Tomas (West bank)
Dihimit (West bank)	el-Sinqari (East bank)	Afia (West bank)
Qirtassi (West bank)	el-Riga (East bank)	Qatta
Taffeh (West bank)	Korosko (East bank)	Ginena (East bank)
Beit el-Wali (West bank)	Nag el-Girgawi (East bank)	Shebbak (East bank)
Kalabsha (West bank)	Shablul (West bank)	Khor el-Aqiba (East bank)
Wadi Qitna (West bank)	Amada (West bank)	Karanog (West bank)
Dendur (West bank)		el-Lasiyyah (East bank)
Sabagura (East bank)		Aniba (West bank)
Mariya (East bank)		Ibrim (East bank)
Gerf Hussein (West bank)		Masmas (West bank)
Koshtamna (East bank)		Toshka (West bank)
Dakka (West bank)		Arminna (West bank)
Quban (East bank)		Abu Simbel (West bank)
Qurta (West bank)		Abahuda (East bank)
Allaqi (East bank)		Gebel Adda (East bank)
Maharraqa (West bank)		Gebel Shams (East bank)
Seyala (West bank)		Ballana (West bank)
		Qustul (East bank)
		Adindan (East bank)
		Faras (West bank)
		Aksha (West bank)
		Serra (East bank)
		Dibeira (East and West)
		Ashkeit (Eest bank)
		Argin (West bank)
		Wadi Halfa (East bank)

Table 7-10 Egyptian Nubian Villages (Kensi, Fadidja and Arab), approximately from North to South (sources: Baines and Malek 1984, 179; Fernea 1973, 1)

When in 1959 the building of the Aswan High Dam was started, it became clear that the entire region of Lower Nubia, from Aswan to Wadi Halfa would be lost.

Even large parts of Sudan were affected by this project. The people of Nubia were involved in two re-settlement projects, one in Egypt and one in the Sudan.

The Egyptian Government reserved an area north of Aswan, near Kom Ombo, for resettlement. Although an effort was made to compensate the Nubians by building new villages with good facilities, by providing land and means of irrigation and by paying each family a considerable amount of money, this could hardly make up for the loss of their homeland. The Kensi and Fadidja villages were built in separate areas, divided by the railroad and the main road leading from Aswan to Luxor (Figure 7-9, Table 7-10).

Moreover, in building New Nubia mistakes were made regarding the culture and the way of life of the Nubians (Fernea and Rouchdy 1987, 373). Thirty-three villages were built in New Nubia, in the same order and with the same names as the Old Nubian villages. While the villages were rebuilt North of Aswan, the distances between the villages were diminished, but the relative position of the villages was maintained. This meant that villages that had been situated furthest away from Aswan in Old Nubia, were rebuilt nearest to the city in New Nubia (Figures 7-8 and 7-9). The new setup was extremely confusing to most of the Nubian inhabitants: traditionally villages were orientated by their relative position to Aswan: Ballana and Qustul had been far removed from Aswan, but now were the first villages reached when entering New Nubia.

A second mistake was the arrangement of the houses within the village. In Old Nubia the villages consisted of a string of house-clusters belonging to groups of relatives. In these hamlets small and large houses were built next to each other. In New Nubia everybody received a house corresponding with the size of their old house. Since all large houses were built at one end of the village and all small houses on the other end, the original groups were broken up and scattered over the village.

Another aspect of the resettlement which had a far reaching influence on Nubian life was that the distances between the villages were only a fraction of those in Old Nubia. This had a direct impact on the contacts between the villages and even influenced rituals such as marriage and funerals.[28]

The relocation of the inhabitants of Old Nubia did not influence the pattern of the men working in Cairo, Aswan and other cities. The New Nubian villages still have a relatively large percentage of female inhabitants. Even though New Nubia is in easy reach, many men leave their families for months in a row to work elsewhere. The core of Nubian village life still is formed by the women.

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[28] Important festivities and rituals used to last several days. With the increase of the number of people who could attend marriages and funerals the costs of those occasions rose equally. This, and the fact that the villages are all within easy reach by public transport, has caused the duration of the festivities to diminish (Fernea 1973).

PART TWO

Static Aspects of Basketry

CHAPTER EIGHT

LEAVES AND BRANCHES

The static aspects of basketry tell us about a basket as a material object. The raw materials, technique and shape can be recorded and presented as an image of what an ancient basket probably looked like. Of these three aspects, the first two can be recorded from even the smallest fragment of archaeological bakery found. They are the basis for an interpretation of the dynamic aspects of basketry, which form the link to human activity: production, function and meaning of material culture (part three).

This chapter gives an introduction to the raw materials used in ancient Egypt. The dynamic equivalent is Chapter 14, which looks into the winning and processing of these materials. Appendix A, written by O. Brinkkemper, with contributions by E. van der Heijden, gives the fibre identification of the plant materials from Amarna and Qasr Ibrim. The sampling strategy has been explained in Section 4.2.3 (p. 66).

In ancient Egypt two palm species and two grasses are used for most of the basketry. Other materials, which are encountered rarely, are three other grasses, four species of sedges and two rushes.

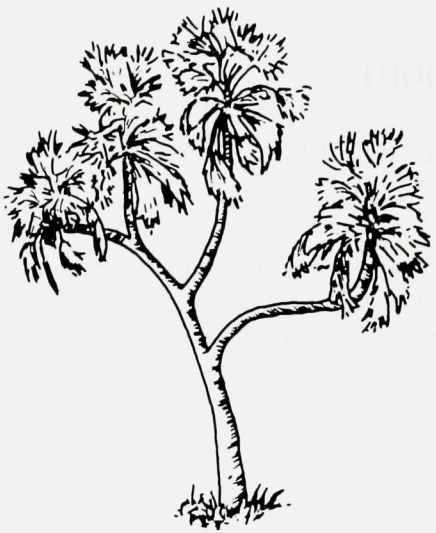
8.1 Palm Species *(Palmae)*

Two species of palm leaf have been identified at Amarna and Qasr Ibrim. A third, less common, palm species, *Medemia argun* Württemb. ex Mart. (Arabic: *argun*) has not been attested.[1]

It is important do discern the two species, because the palm leaf has different properties and there appear to be specific preferences. Date palm was not used at all for basketry in Amarna, the favoured basketry material was doam palm leaf. At Qasr Ibrim both palm species were used, but for one technique doam palm was favoured, while for the other date palm was chosen (see Chapter 11). In the latest period of occupation, however, doam palm leaf was used for the techniques which hade been made with date palm leaf in previous periods.

[1] See also Wallert 1962.

Doam palm (also: dom, daum)



Hyphaene thebaica (L.) Mart.
(= *Cucifera thebaica* Del.)
Arabic: *doam*
Fadidja: *anbi*, *ambi*
Kensi: *anbi*

drawing after: Germer 1985, 234

The doam palm is a tree with a branched stem and large fan-shaped leaves. Strips of the leaf, varying in width between 1 and 30 mm have many applications in basket making. The complete leaves can be used as brooms. At present the distribution of the doam palm is limited to upper Egypt and the Sudan. In the New Kingdom period the distribution will have been more general in Egypt and the doam palm probably was also found in Middle Egypt. In ancient Qasr Ibrim, the doam palm was probably quite common (Täckholm 1974, 763; Germer 1985, 234)

Date palm



Phoenix dactylifera L.
Arabic: *nakhla*
Kensi: *fenti*
Fadidja: *fenti*

The date palm consists of one straight stem branching out in palm fronts. These are feather shaped leaves, consisting of large midribs of 3-5 m. long, with small leaflets at two sides. The leaflets are used in basket making. The midribs of the leaves, which look like slightly curved branches, are used for making furniture, boxes, roofing and as fuel. The leaf sheaths at the base of the leaf midribs decay into a fibrous material, used for rope making.

At present, the date palm is common in all Egypt, as it probably was in Egypt of the New Kingdom period. Amarna might have be an exception, however: although many date stones have been found, there is little evidence of other parts of the date palm, such as stems, leaves, midribs or fibre. In the area of Qasr Ibrim the date palm was very common. (Täckholm 1974, 763; Germer 1985, 232-234)

8.2 GRASS SPECIES (*GRAMINAE*)

Two tall grasses which were used extensively in both Amarna and Qasr Ibrim, are known in Arabic under the same name (*halfa*). Apart from these there are four reeds, which are mainly distinguished by size. They are not used for baskets or mats, but for rigid screens, roofs and furniture. Wheat straw belongs also to the grass family and has been attested at Qasr Ibrim.

Halfa grass (1)



Desmostachya bipinnata (L.) Stapf.
(= *Eragrostis cynosuroides* Beauv.)

Arabic: *halfa*

drawing after: Täckholm 1974, pl. 255

This is a tall, strong grass species of which the leaves and culms are 1 m high. When flowering, the grass grows spiky dark ears. The grass stands at the edges of rivers and canals, but also in sandy surroundings, as long as there is some moisture in the upper layers. *Desmostachya* was common in Middle Egypt in the New Kingdom period, and it still is today. It did grow abundantly in the Qasr Ibrim area too. Both leaves and culms were used for making basketry and cordage.

Desmostachya occurs more often than *Imperata* in the basketry and cordage at Amarna and Qasr Ibrim (Täckholm 1974, 688-690; Germer 1985, 202).

Halfa grass (2)



Imperata cylindrica (L.) Beauv.

Arabic: *halfa*

drawing after: Täckholm 1974, pl. 279

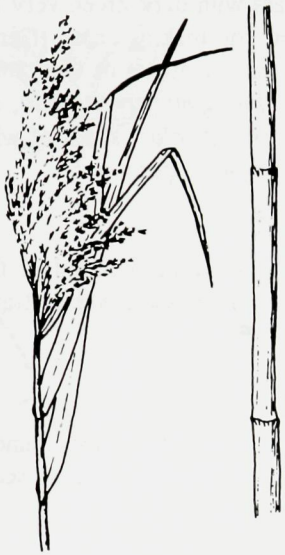
A tall, strong grass, very similar to *Desmostachya bipinnata*. When flowering, the grass grows plumy white ears. Both the leaves and culms were used for making basketry and rope. At present this grass is very common in the Amarna valley *Imperata* outnumbers *Desmostachya*. In ancient times, both at Amarna and Qasr Ibrim *Imperata* did not occur nearly as frequent as *Desmostachya*. For basket making, the two grasses are completely interchangeable. *Halfa* is the Arabic name for both which is an indication that the two grass species are not distinguished by the local population. *Stipa tenacissima* L., a grass species indicated by Germer as "real halfa-grass" (Germer 1985, 218), does not grow in Egypt (Täckholm 1974, 757; Germer 1985, 224).

Reeds

Phragmites, a tall reed, which can become 5 m high was used widely in ancient Egypt for making arrows, writing pens, furniture and roofs. Culms have been found at Amarna in remains of furniture. Impressions in the mud covering of the roofs, indicate that the culms of *Phragmites* or *Arundo* was used as roofing material in Amarna (Täckholm 1974, 696-697; Germer 1985, 205-206).

Arundo donax is a very tall, bamboo-like reed, which grows 4-6 m high. In ancient Egypt it was used for making roofs, furniture and flutes. Fragments of the first two, have been found at Amarna. At present *Arundo donax* is used in the Delta for making stake-and-strand baskets.

Common reed

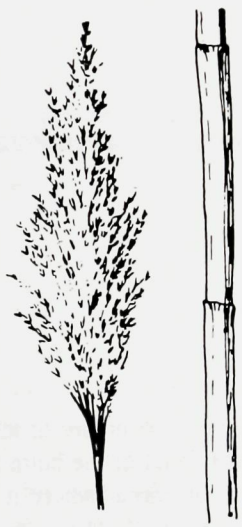


Phragmites australis (Cav.) Trin exSteud
(= *P. communis Trin.* ssp. *altissimus (Benth.) Clayton*
(= *P. communis v. isiacus [Del.] Coss. et DR.* = *Arundo isiaca Del.)*

Arabic: *ghaab, boos*, local variations

drawing after: Germer 1985, 206

Giant reed



Arundo donax L.

Arabic: *ghaab, boos,* local variations

drawing after: Germer 1985, 284

The fact that *Phragmites australis* and *Arundo donax* have the same name in Arabic is an indication of how difficult it is to tell them apart. Since they are mainly applied for the same use, exact species identification is not a priority. (Täckholm 1974, 696; Germer 1985, 203-205)

Other tall grasses

Saccharum spontaneum, wild sugar cane, is a tall grass with dark green very long stiff leaves, which according to Germer, were used for making mats (Germer 1985, 225-226, 245). This material has not been attested at Amarna or Qasr Ibrim, but the stalks, which are difficult to distinguish from *Phragmites* or *Arundo*, may have been used for roofs and shelters. Stalks of *Sorghum bicolor*, seeds of which were found in Qasr Ibrim, might have been used for the same purpose.[2]

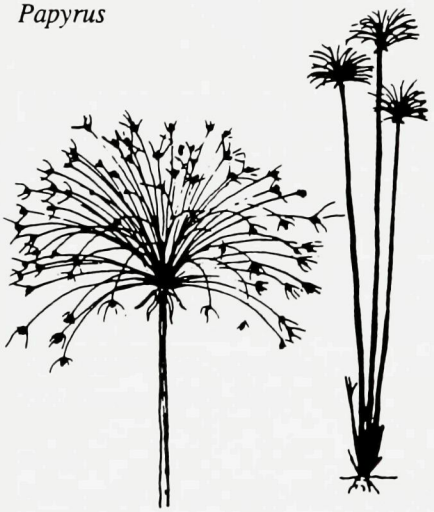
Triticum species

Wheat straw occurs seldomly, but a small finger ring has been found at Qasr Ibrim, which was knotted from a strip of wheat straw. At present, wheat straw is used for the *imbrication* technique (see Plate 9-17, p. 166 and p. 245).

8.3 SEDGES (*CYPERACEAE*)

All *cyperus* species grow in marshy areas, but *C. schimperianus* is also found on rocky grounds near the Nile or the Mediterranean coast. The culms of these sedges are 800 mm to 1 m long, with some leaves around the base.

Papyrus



Cyperus papyrus L.

Arabic: *bardi*

drawing after: Germer 1985, 248

This marsh plant can grow 5 m high. The soft white internal structure of the culm is used for the production of papyrus sheets and only the rhind of the culm is used for rope and basket making. Its use has been attested in Amarna, where it occurs rarely, but not at Qasr Ibrim.

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[2] At present, Egyptian farmers make huts and shelters *(sabata)* at the edges of their fields from reeds and stalks of several plant species which had not been introduced in antiquity, such as sugar cane *(Saccharum officinarum)*, sun flowers *(Helianthus annuus* L.) and maize *(Zea mays* L).

Other sedges



Cyperus rotundus L.
Cyperus alopecuroides Rottb.
Cyperus schimperianus Steud.

Arabic: *sa'ad, dees, samaar*

left: *C. rotundus*, right: C. *alopecuroides*
drawing after: Täckholm 1974, 787

The Arabic terms for these sedges are not specific. The terms differ regionally, but no distinction is made in Arabic between the three species (Täckholm 1974, 780-790; Germer 1985, 244-250). The long, leafless culms make that sedges are eminently suitable for mat making, for which they are used nowadays.

The sporadic use of sedges at Amarna and Qasr Ibrim is limited to the production of coiled basketry and rope. In contrast with *C. papyrus*, the entire culm is used. At Amarna *C. papyrus* and *C. rotundus* are found. These species do not occur at Qasr Ibrim, where the sedges used are *C. alopecuroides* and *C. Schimperianus*.

8.4 RUSHES (*JUNCACEAE*)

Rushes grow at moist fresh water sites and also on salty grounds. The culms are smooth and grow up to 1 m high. The two species of rushes can be distinguished by their colour (*J. rigidus* is a slightly darker green than *J. acutus*) and from their flowers and seeds (Täckholm 1974, 662-665; Germer 1985, 200-201).

The properties of the culms of these two species that matter for basket making (their length, flexibility and regular shape) are exactly the same. The Arabic term is used for both types and translates as 'bitter sedge'. At present both *Juncus* species are used widely for the production of woven mats.

At Amarna *Juncus* was used rarely. The few instances that it occurred, the exact species was not determined. At Qasr Ibrim *J. acutus* was found in an intricate basket with a twined base and plaited sides (Figure 4-2, p. 61). *J. rigidus* has been attested at a Late Roman site for making fish traps in an open, knotted

technique (schematized in Figure 5-4, p. 84) and in long bundles as part of the roof construction.[3]

Rushes



Juncus rigidus C.A.Mey.
(= *J. arabicus [Asch. et Buch.] Adams.*
(= *J. maritumus v. arabicus Asch. et Buch. ex Boiss.)*

Juncus acutus L. (drawing)

Arabic: *samaar morr*

drawing after: Täckholm 1974, 663

8.5 PLANT FIBRES[4]

Flax (Linum usitatissimum; Arabic: *kittaan)*
Flax has been grown in Egypt since at least the Old Kingdom, but probably much earlier. The long fibre cells of the culm were mainly used for the production of textiles, but also for fine cordage and fish nets. (Täckholm 1974, 314; Germer 1985, 100-101)

Cotton (Gossypium arboreum L.; Arabic: *qutun)*
Cotton is the fibre protecting the cotton seeds, each fibre consisting of one long cell. Cotton did not occur in Egypt before the 3rd century BC and was not cultivated in Egypt until the Islamic period (Watson 1977: 357). The species found in Egypt in ancient times is *Gossypium arboreum*. Cotton does not occur at Amarna, but is used in Qasr Ibrim for textiles and fine string (Täckholm 1974, 356; Germer 1985, 122-123).

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[3]Roman fort at Abu Sha'ar (Egyptian Red Sea coast, near Hurghada, 3rd-early 7th century AD). The basketry was studied by me as part of a team of the University of Delaware, directed by S.E. Sidebotham. The publication is in preparation.

[4]The plants are not depicted, because fibres are worked into yarns which have no specific shape. This is in contrast with the other plants mentioned here, because for most basketry raw materials the shape of the plant parts is of importance for the technology.

CHAPTER NINE

BASKETRY TECHNIQUES, A CLASSIFICATION

The classification of basketry techniques is based on the *basic structure* of the baskets. It is the static aspect (result) of production and forms the basis on which to understand the production process and the producers, although it is just one of six aspects of basketry technology (Table 4-1, p. 59). As long as this is kept in mind, it is useful to limit the classification of basketry techniques to a classification of the basic structure, the one aspect that can be recorded from all fragments found. Furthermore, a classification of the basic structure can be done with a limited number of criteria. Such a deliberate limitation is inevitable if the theoretically possible techniques and the variation of Egyptian techniques within that range of technical possibilities are to be shown.

In this Chapter classification criteria are put forward, according to which a paradigmatical classification is built (cf. Section 2.3.1, p. 13). The techniques occurring in Egypt are filled into this classification and an explanation is sought for the empty classes.

The classification is based on the method of analysis of the basic structure as introduced in section 5.1 (pp. 81-98). Specific terms, such as *system*, *member*, *plane*, have been introduced in Chapter 5 and are listed in the glossary.

9.1 Classification Criteria

Table 9-0 is a paradigmatical classification of the *basic structure* of basketry techniques.[1] Two criteria are involved, which are both dealing with basketry *systems*: the activity of the systems and the number of directions in which the systems are oriented. The relevance of these criteria to basketry production is that a basket maker follows the same actions in manipulating the strands that belong to one system. Also, as will be elaborated on in Chapter 13, he handles the active systems more frequently than the passive systems.

In section 5.1 it was determined that basketry strands belong to one system if the raw material, the orientation and function of these strands are *the same* (see flowchart 5-1 on p. 82). The *basic structure* of a technique is described by the interaction of the systems, in other words, by determining in what way the orientation or the function of groups of strands are *different*.

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[1]The Table number 9-0 is used, because it allows the Figure numbers 9-1 to 9-20 to correspond with the numbers of the techniques listed in the classification of Table 9-0).

activity / orientation	1 system	2 systems		3 systems		
	active	passive/active	active/active	pas/pas/act	pas/act/act	act/act/act
orientation in 1 direction:	9-1 knotless netting 9-2 grommet 9-3 knotted netting	9-4 sewn plaits 9-5 coiling 9-6 wrapping 9-7 knotting	9-13 rope making 2 strands	9-17 coiled inlay	-	-
orientation in 2 directions:		9-8 weaving with 1 strand 9-9 weaving with 2 strands 9-10 twining 6-11 waling 6-12 pierced	9-14 continuous plaiting 9-15 plaited strips 9-16 knotting	9-18 looping 9-19 binding	9-20 plaiting with core	-
orientation in 3 directions:				-	-	-

Table 9-0 Classification of basketry techniques, based on the *basic structure*. The classes have been filled with the four groups of material under study (from Amarna, Qasr Ibrim, Middle Egypt and New Nubia, cf. Table 9-21). The numbers refer to the schematical drawings of these techniques. The hatched area are classes which are empty by definition (cf. Section 9.3).

In Table 9-0 the aspect *number of systems* has three attributes, implying that a basketry technique can be made with one, two or three systems. Up to six-systems techniques are known to exist, but for the material studied here, the basketry from Amarna, Qasr Ibrim, Middle Egypt and New Nubia, all classes outside the part of the classification shown in Table 9-0 are empty.

For the one, two and three-system techniques the variation in the activity of the systems is determined. There is always at least one active system, so a one-system technique is per definition active. If two systems are involved then there may be two systems active, or only one, while the other is passive. Three system techniques can have, one, two or three active systems.

The second criterion is the aspect *number of directions*. This cannot mount up to more than three, since there are never more directions than systems. By cross referring the two criteria we get 18 classes (the 18 squares in table 9.0). In eight of these, a total of 20 basketry techniques have been listed. The numbers (9-1 to 9-20) refer to schematical drawings of these techniques.

9.1.1 One-system techniques

The first class in Table 9-0 contains basketry techniques made with one active system, orientated in one direction. These techniques are made with one strand at the time, or with several parallel strands, which all have the same function in the technique. The one-system techniques that occur in the basketry corpus under study are *knotless netting* (Figure 9-1), *grommets* (Figure 9-2) and *knotted netting* (Figure 9-3).

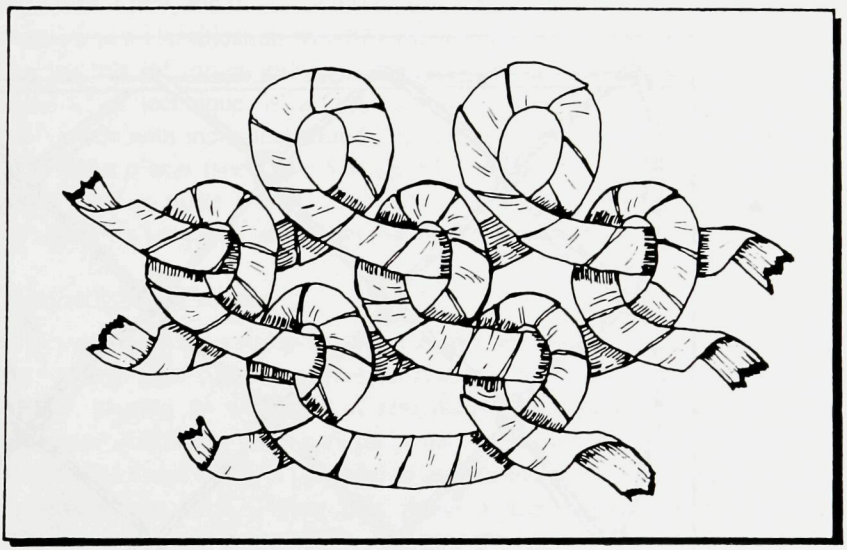

Figure 9-1 Knotless netting, a fabric made by looping a strand through a previous row of loops (the *anchoring fabric*). This is a one-system technique, the active system moving in two planes.

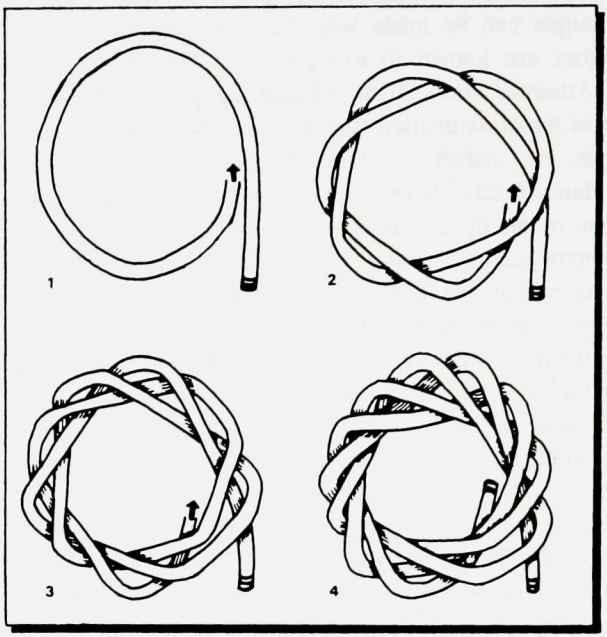

Figure 9-2 Grommet, a linear band made by wrapping a strand a number of times around itself. The strand in this one-system technique moves in two planes.

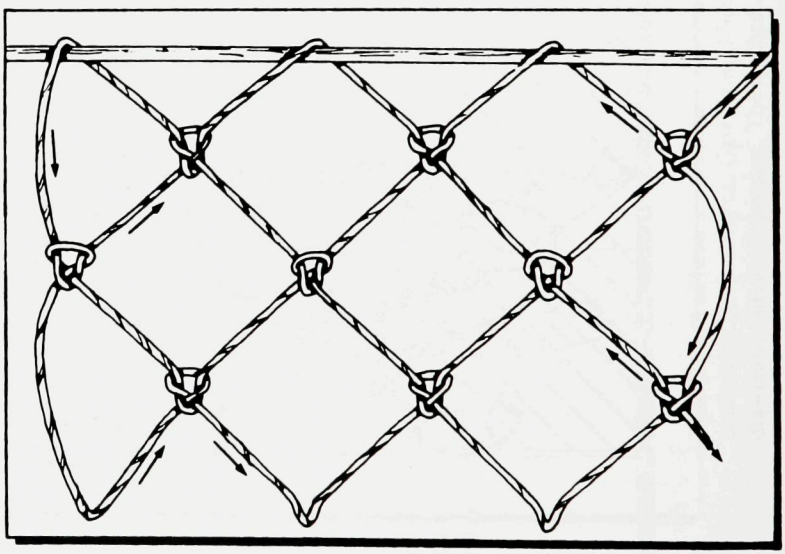

Figure 9-3 Knotted netting, a one system technique. The mesh knots are made with a yarn, moving in three planes.

One-system techniques are made with one long strand, or with short lengths of, for instance, palm leaf. An example of the first is knotted netting, which is made with yarn, an example of the second is knotless netting,[2] where strips of doam palm leaf are added whenever the previous strip has ended. Both knotless netting and knotted netting are made by adding on a new row to the previous one (the *anchoring fabric*).

Excurse: underlying criteria

The fact that three techniques are listed in the same class, means that other underlying criteria discern these techniques. The difference between a grommet and the two types of netting are that the first is a linear form, while netting is a fabric (cf. Table 9-22, p. 171). In this classification the criterion of form (linear or fabric) is considered less important than the system properties cross referred in Table 9-0.

A second set of underlying criteria relate to the properties of the active system only. As explained in Section 5.1.4.5 and 5.1.4.6 (pp. 93-97) the strands making up the active system can consist of several *members*, which move in one, two or three *planes*. The classification of active system mobility as shown in Table 5-6 (p. 96), has nine classes. This is another set of criteria that plays a role in the occurrence of more than one technique per class in Table 9-0.

The underlying criteria have been ordered hierarchically under the classification according to system activity. They have not been incorporated as separate dimensions in the classification of Table 9-0, because the exponent of involving these three additional criteria (*form*, number of *members*, number of *planes*) results in a classification with 324 classes (Table 9-22, p. 171).

The aspects of *orientation* and *mobility* should not be confused. The orientation of a technique is at system-level, while mobility refers to the movements made with individual strands. A yarn with which a net is knotted has a mobility in three *planes* (see Table 5-12, p. 96), it twists around the previous loop and around itself to make a knot. The main *orientation* of the yarn is limited to going up and down the fabric along one line only (*one direction*).

9.1.2 Two-Systems Techniques

The two system techniques occur in one or in two orientations. In the *sewn plaits* technique, a long plait forms the passive system. The plait is fastened with an active strand, picking up the edges of two plaits. Both plait and sewing strand follow the same direction. For a sewn plaits mat the passive system is formed by a number of plaited strips layed out parallel to each other, for a basket one long plait is sewn spirally into itself. Figure 9-4a shows a mat, made of wide 17-strand plaits. The sewing strand is not visible, because the edges of the plaits are drawn

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[2] Another term used for this particular type of knotless netting is: single interconnected looping (Emery 1966: 33).

inside each other. The dotted lines display where two plaits overlap. The edge of the mat is formed by a 9-strand plait sewn on top of the rough ends of the plait.

Figure 9-4b shows the same technique with one long plait which is sewn spirally. The right side of the start of the plait, in the centre of the spiral, partly overlaps the first round. The left side of the start of the plait is sewn to the right side of the plait after it has made one turn. Because the two edges are drawn inside each other, the sewing strand is not visible and the plaited strip seems to form one ongoing plait. The appearance is thus very similar to the plaiting technique depicted in Figure 9-14, but the principle is completely different: in continuous plaiting two systems are involved, which are equally active (see below).

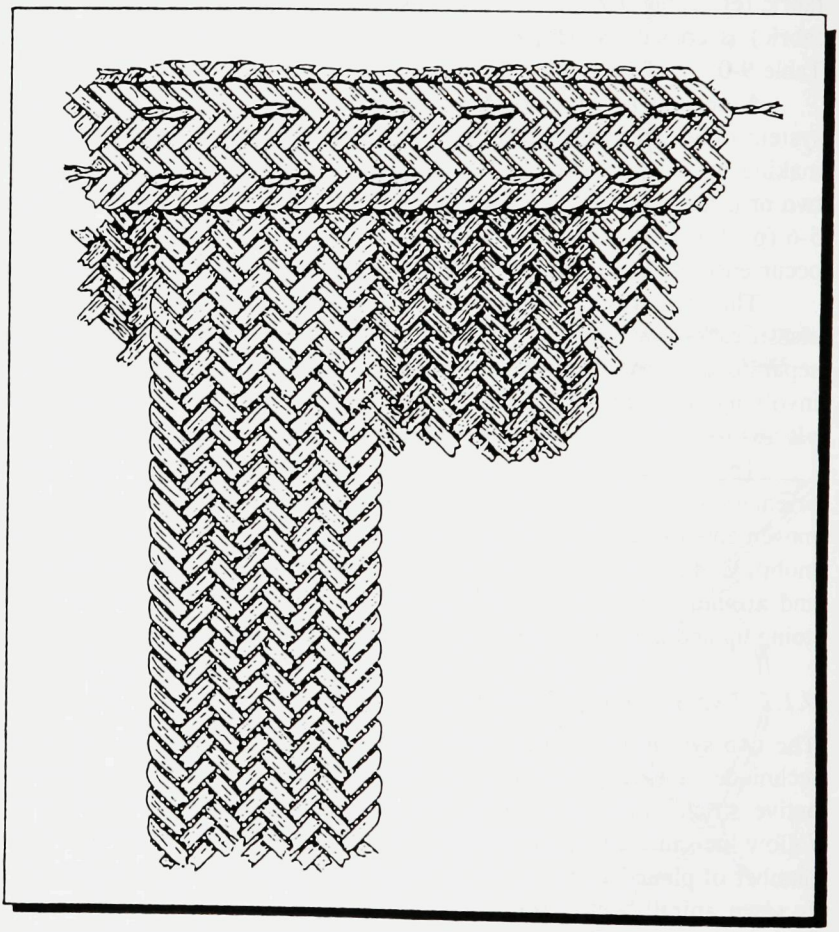

Figure 9-4a A mat made of plaited strips (passive system) which are linked with a sewing strand (active system). The latter is not visible, because it pulls the edges of the plaited strips inside one another. The sewing strand moves in two planes.

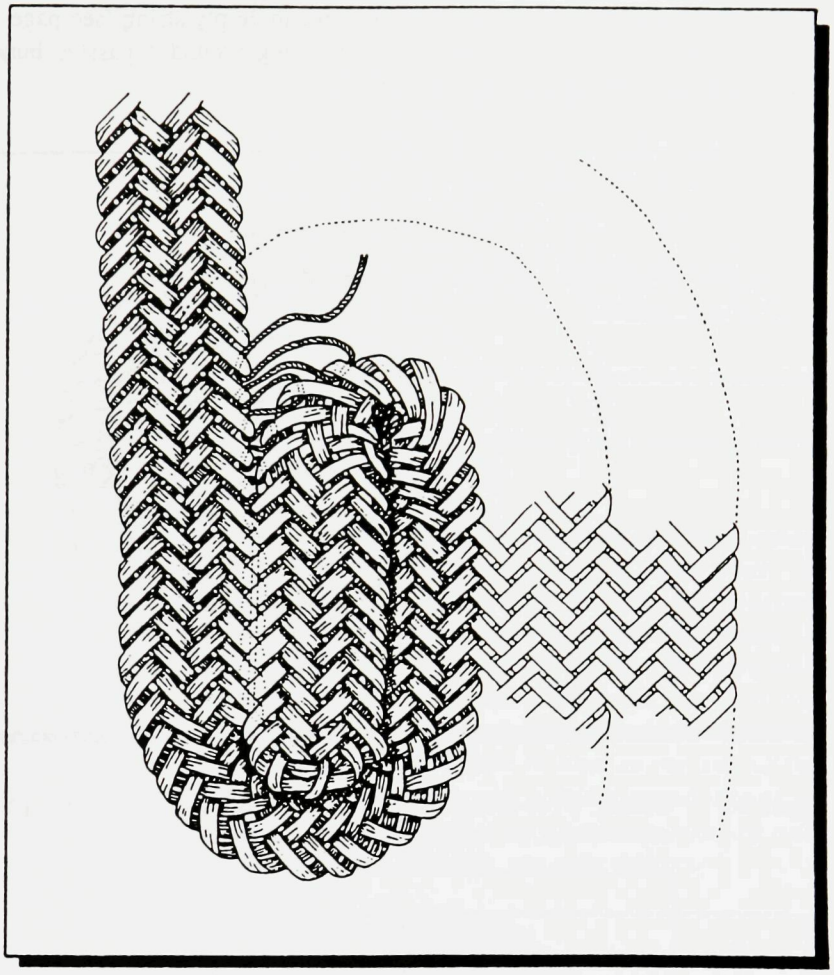

Figure 9-4b A long plait (passive system) is sewn spirally with a sewing strand (active system). In this example the start of the plait in the centre of the spiral partly overlaps the first round. The fabric seems continuous, because the edges of the plait are drawn inside one another.

Coiling (Figure 9-5) and *wrapping* (Figure 9-6) consist of a passive bundle and an active winder, both following the same direction. The difference lies in the form: coiling results in a fabric, a bundle of grass fastened spirally from the centre to the rim by palm leaf, which is wrapped around the bundle and follows the direction of the bundle. The wrapping runs parallel to the bundle hand holds the coil in place. Wrapping in a line or circle is used for instance to make brushes

(wrapping the bundle which forms the handle with palm leaf), or pot stands (a ring of grass wrapped with string), and also to make three ply string (see page 163). If the active strand is crossing itself while wrapping around a passive bundle, the term *knotting* is used (Figure 9-7).

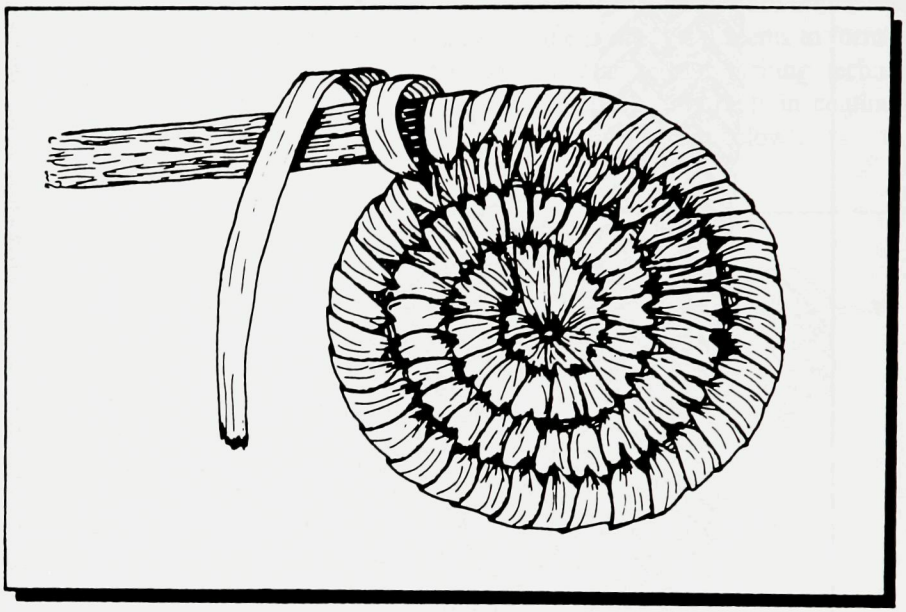

Figure 9-5 Coiling, a two-system technique with a passive bundle, held in place by an active *winder*, or wrapping strand (moving in two planes).

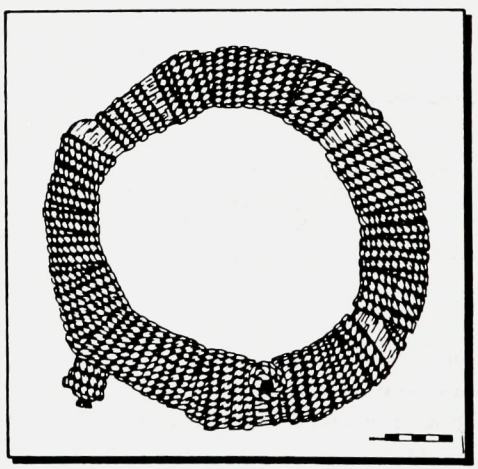

Figure 9-6 Wrapping, a two-system technique with an active strand wrapping (moving in two planes) around a passive bundle.

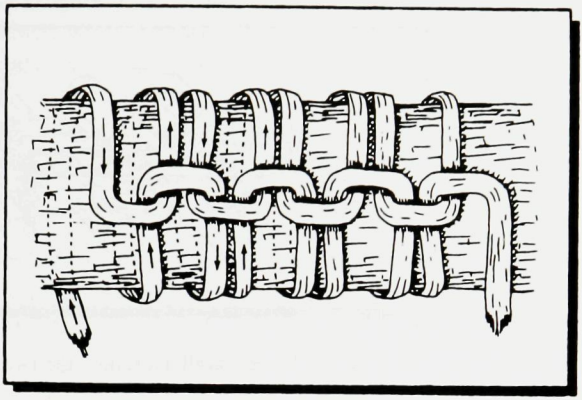

Figure 9-7 Knotting with an active strand (moving in three planes) around a passive bundle. This is an example of linear knotting.

In contrast to the previous two-system techniques, weaving, twining, waling and piercing are oriented in two directions, perpendicular to each other. In weaving the passive system, the warp, is woven in with the weft. The weaving strand is moved up and down (*one plane*). In mat making often single culms of rushes, sedges or grass are used, which are woven in one by one. Weaving with one long ongoing strand (a bundle of rope, for instance), forces the weaver to use a weaving shuttle, or to pull the entire strand through the weft with each row of weaving. A solution to this is to leave the total bundle of rope on one side of the loom and weave in loops. This results in weaving with a double strand (Figure 9-9). The basic structure of weaving with two strands is very similar to weaving with one strand. The actions of the basket maker, however, are quite different.[3]

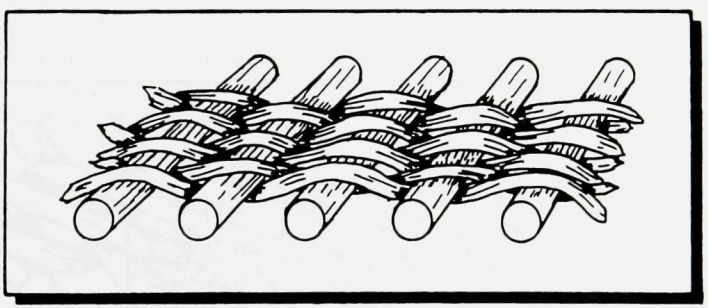

Figure 9-8 Weaving with one strand: an active weft is woven at a right angle into a passive warp. The weft consists of one member moving in one plane.

[3]This is an example where the basic structure does not give enough information on the production, and a study of the edges is necessary to understand the process.

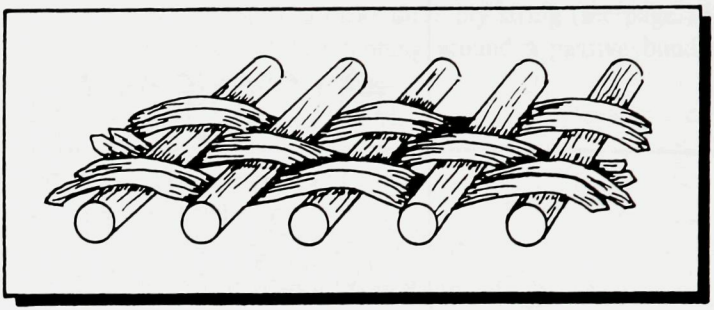

Figure 9-9 Weaving with two parallel strands: the two members moving in one plane.

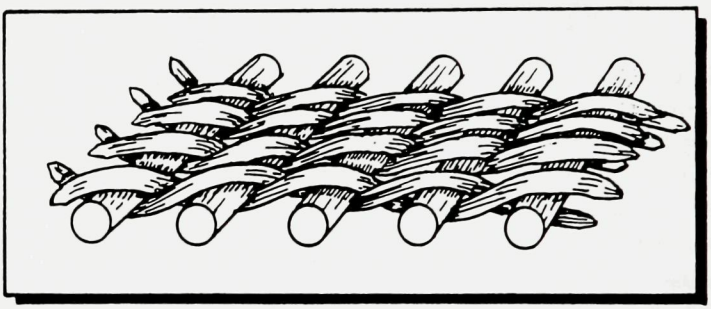

Figure 9-10 Twining is a two-systems technique in two directions, in which the active element consists of two strands (members) moving spirally (in two planes) around the passive elements.

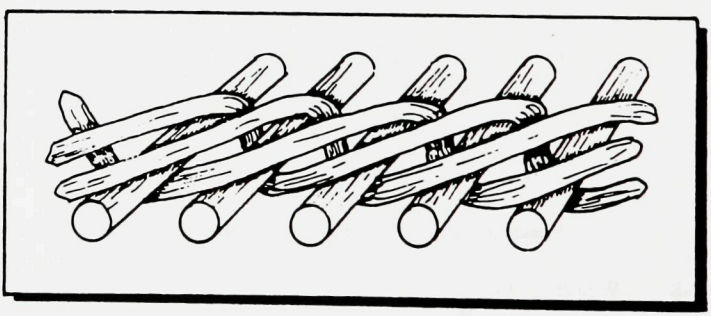

Figure 9-11 Waling is a two-systems technique in which the active element consists of three strands (*members*) moving spirally (*in two planes*) around the passive elements at a right angle.

The term *pierced* basketry (Figure 9-12), which occurs in Table 9-0, does not occur in Table 5-12 (p. 96) which is a classification according to the mobility of the active system. This is simply, because its active system is not 'mobile', but either rigid or fixed. Because of this it is often difficult to decide which of the systems is active, unless the production process is known. In Figure 9-12 the uprights are the passive system, the horizontal bars are the active system. The active system has been prepared beforehand by punching holes at the proper intervals. The indication 'active' is based on the observation of the production process, during which the basket maker first positions the uprights and then pushed on the horizontal bars. The pierced technique of Figure 9-12 is produced in present day Middle Egypt, but has not been found in Amarna or Qasr Ibrim (cf. Table 9-20).

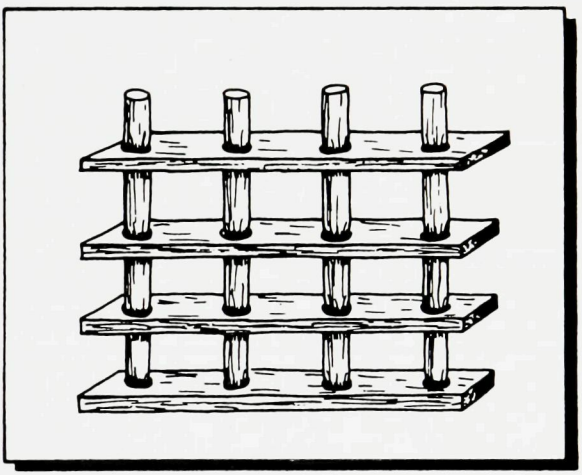

Figure 9-12 Pierced basketry: even if all systems are rigid, at least one system is active. In this case first the horizontal system (active) is pushed over the two vertical sticks (passive) to make the corners, and then the remaining vertical sticks (active) are hammered in through the pre-punched holes in the horizontal system (passive).

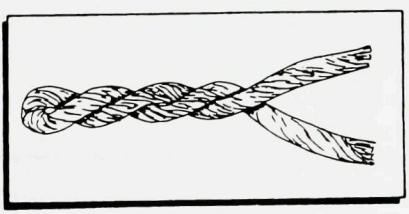

Figure 9-13 In Egypt, two-ply rope is made of two bundles of plant material, which in the same movement are spun and plied. The bundles are both active and are twisted around each other.

The next class (two active strands oriented in the same direction) contains only rope making (Figure 13). The fibre bundles used for rope making are rolled between the hands and twisted around each other. It is a kind of wrapping technique in which both strands are active. Three-ply rope, however is made by fixating a two-ply string and wrapping the third strand around it (cf. Wrapping p. 160).

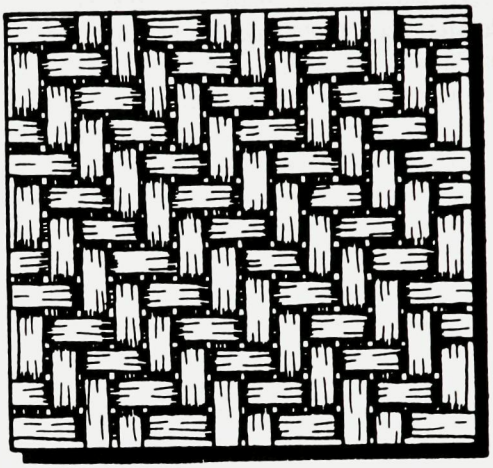

Figure 9-14 A continuous plait, made with two active systems, which are orientated perpendicular to each other. The plait pattern is \2/2\\1 (under 2, over 2, shifting 1) and the strands move in one plane.

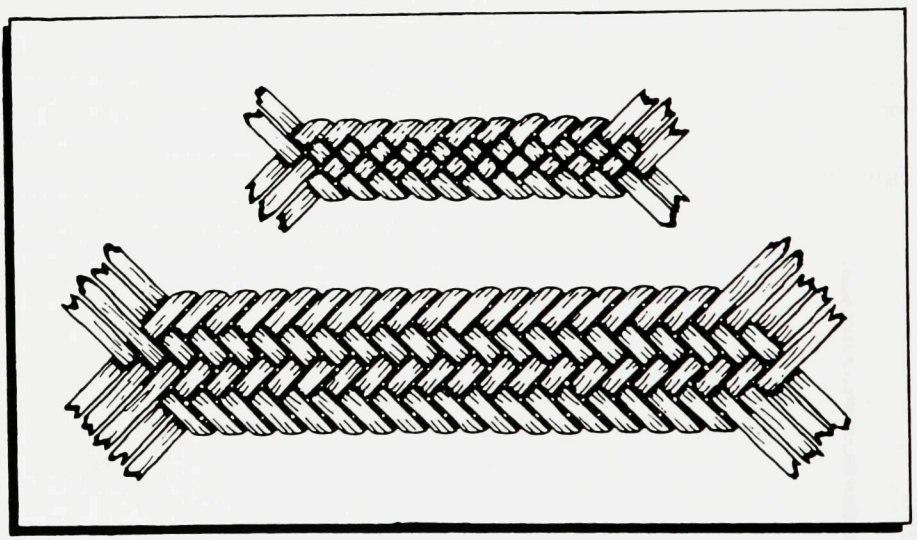

Figure 9-15 Plaited strips, made with two active systems, which are oriented in two directions, perpendicular to each other. At the edge of the plait the strands change direction. Top: five-strands plait in a \1/1\\1 pattern; Bottom: nine-strands plait in a \2/2\\2 pattern. The strands move in one plane.

Plaiting, which together with knotting makes up the next class, is divided in *continuous plaiting* and *plaited strips*. Just like the difference between knotless netting and grommets, this is a distinction between a fabric (continuous plaiting, Figure 9-14) and a linear strand (plaited strips, Figure 9-15) which is sewn to form a fabric (sewn plaits, Figure 9-4a and b). The main difference of plaited strips, compared with continuous plaiting, is that the strands of the former change direction at least twice at the edges of the plaited strip. Figure 9-15 shows a plaited strip made with 5 strands in a \1/1\\1 pattern and a strip made with 9 strands in a \2/2\\1 pattern (cf. Wendrich 1991, 65-66). For the sewn plaits technique the plaited strips have to be prepared beforehand, in a separate stage of the production process.

The *knotting* technique that occurs in the same class, is different from what is depicted in Figure 9-3, because it is done with *two* active strands. This technique is used in Egypt to make a fabric (Figure 9-16). In all knotting techniques the elements move in three planes, because the strands turn back and cross themselves.

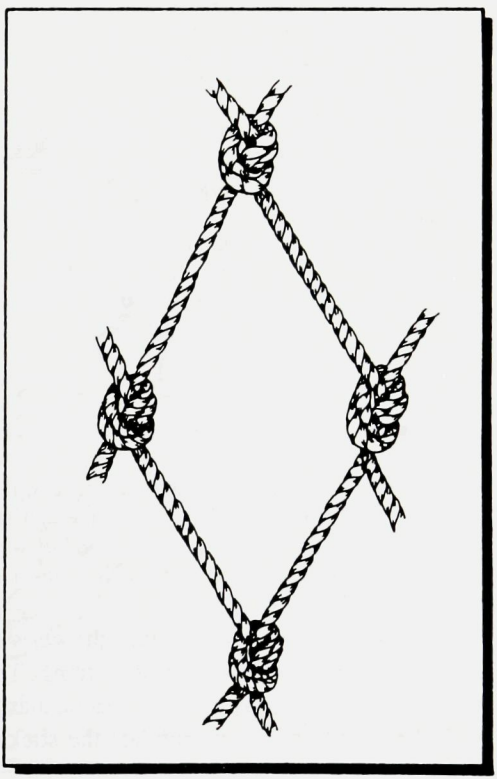

Figure 9-16 A netting fabric, knotted with overhand knots is made with two active elements.

9.1.3 Three-Systems Techniques

There are four kinds of three-systems techniques in the corpus of basketry classified here. The first is a decorative coiled technique, termed *coiled inlay,* which has two passive systems: the bundle and an extra strand or strands, which are fastened on top of the bundle with the active winder (Figure 9-17). All systems follow the same direction.

If more than one strand is used, the appearance is that of a blocked decoration on top of the coil. This occurs on some of the coiled basketry rims from Qasr Ibrim. When the entire coil is covered by a layer of folded wheat straw, the technique has the appearance of roofing tiles and is known as *imbrication* (Figure 9-17).

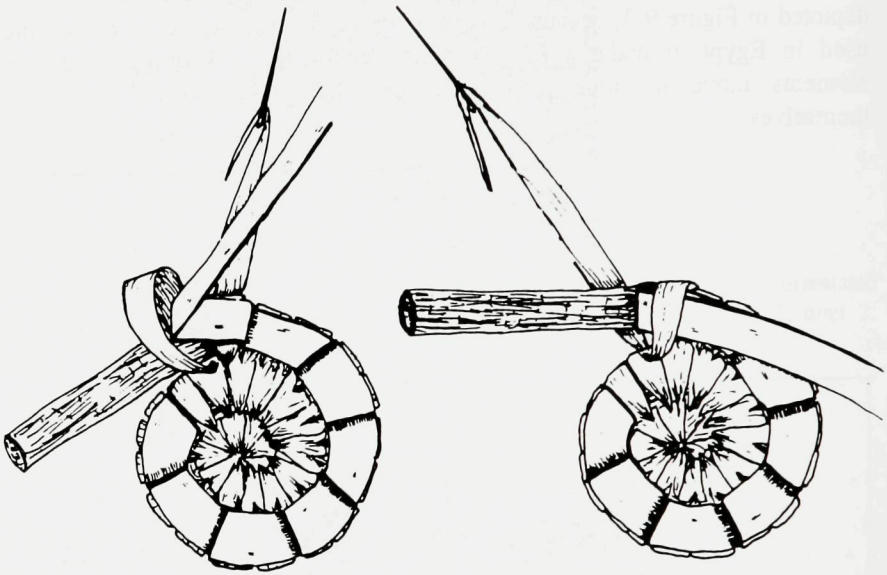

Figure 9-17 Decorative coiling technique with inlay of a second passive system, which runs parallel to the bundle and is fastened with the wrapping strand. This variation, in which a strand of wheat straw covers the coiled bundle, as if it were covered with roofing tiles is also known as *imbrication*.

Two variations occur within the class made of two passive systems and one active system oriented in two directions. The first is *looping*, of a strand around two passive systems layed out perpendicular to each other (Figure 9-18). The other is binding,[4] which is very similar: the sticks of one passive system are layed out,

[4] *Knotting* is done with active elements only, while *binding* involves both active and passive elements).

after which a second passive system, consisting of a few sticks is positioned perpendicular across the first passive system. The two passive systems are then connected with a third, active, system, which follows the orientation of the passive cross bars (Figure 9-19). The difference between 9-18 and 9-19 is that the active strand makes loops in the first case and is tied in the second.

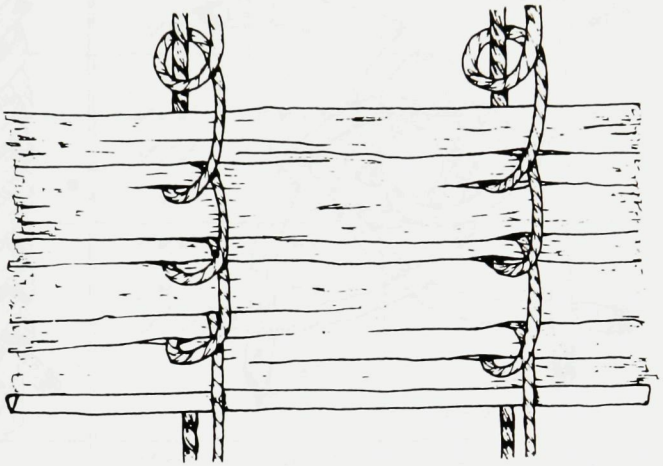

Figure 9-18 A passive string is stretched out, on top of which bundles of rigid fibres are layed out at a right angle. They are connected with an active strand that loops around both passive systems (moving in two planes).

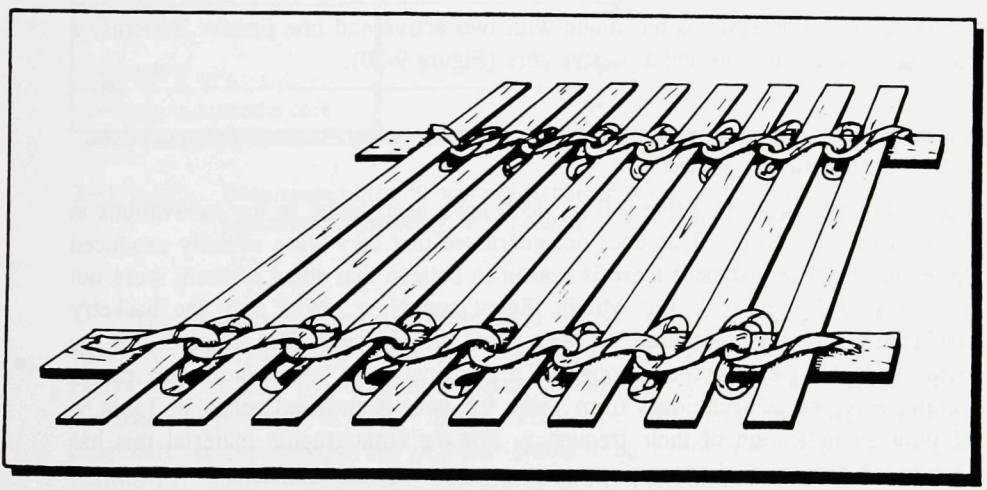

Figure 9-19 Two passive systems are layed out perpendicular to each other. They are connected by an active strand, which binds the passive strand together. The binding element moves in three planes.

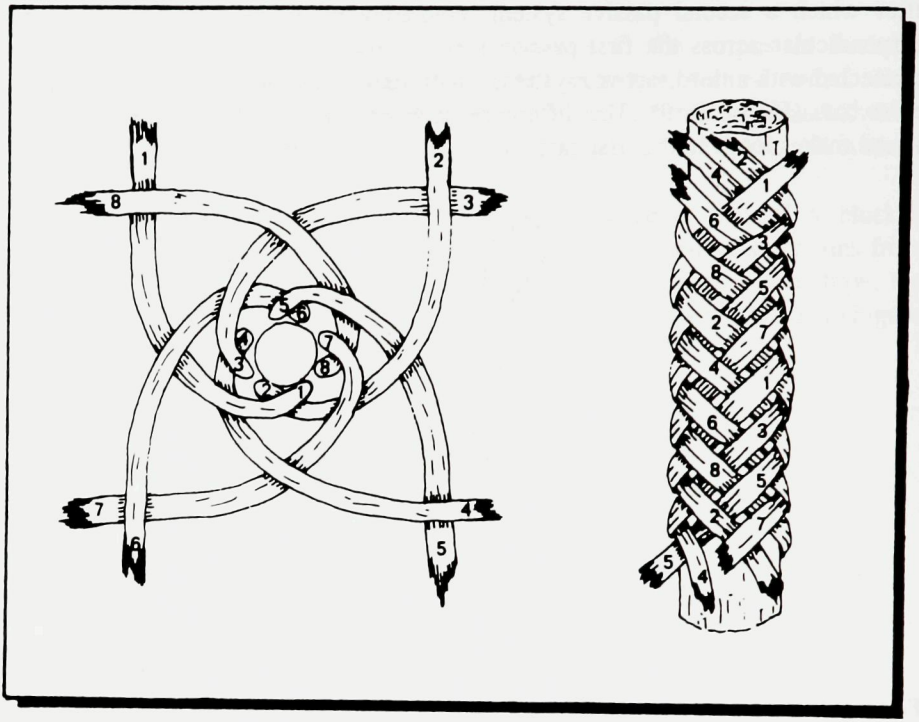

Figure 9-20 Plaiting around a core involves one passive system (the core) and two active systems (the plaiting strands). It is a linear form of plaiting.

There is one three-systems technique with two active and one passive systems, a variation of plaiting, around a passive core (Figure 9-20).

9.2 OCCURRENCE IN EGYPT

The techniques listed in Table 9.0 (p. 154) have been found in the excavations at Amarna or Qasr Ibrim. This does not guarantee that they were actually produced there and in some instances there is reason to believe that some of them were not (cf. Chapter 10 and 11). For Middle Egypt and New Nubia only the basketry produced at present in the area has been listed in Table 9.0. The frequency of the different techniques diverges strongly. To gain insight in how common or rare a technique is, the 20 techniques from Table 9.0 have been listed below in Table 9-21 with an indication of their frequency. For the ethnographic material this has been based on a general impression, without precise quantification.

Technique \ Provenance	archaeological material		ethnographic material	
	Amarna	Qasr Ibrim	Middle Egypt	New Nubia
1 knotless netting	✔			
2 grommet	✔✔	✔	✔	
3 knotted netting	✔✔	✔		
4 sewn plaits		✔✔✔	✔✔✔	✔✔✔
5 coiling	✔✔✔	✔✔✔	✔✔✔	✔✔✔
6 wrapping (brush, ring)	✔✔✔	✔✔	✔✔	
7 knotting	✔			
8 weaving, one strand	✔✔✔	✔✔	✔	
9 weaving, two strands	✔	✔✔		✔
10 twining	✔✔✔	✔✔✔	✔✔	
11 waling		✔		
12 pierced			✔✔✔	
13 rope	✔✔✔	✔✔✔	✔✔✔	✔✔✔
14 continuous plaiting		✔		✔
15 plaited strips		✔	✔	✔
16 knotting	✔	✔		
17 inlayed coiling		✔		✔✔
18 looping			✔✔	
19 binding		✔✔	✔✔	✔✔
20 plaiting around a core		✔		

Table 9-21 Occurrence of the 20 basketry techniques mentioned in Table 9-0.
Indication of frequency: ✔ = seldom; ✔✔ = common ; ✔✔✔ = frequent

The horizontal lines in Table 9-21 show the eight classes that contain basketry techniques from the corpus under study (cf. Table 9-0). Knotless netting (1) occurs seldom and only in Amarna. Grommets (2) are found regularly in Amarna, sometimes in Qasr Ibrim. They are still made in Middle Egypt, especially as pot stands, but in New Nubia I have not noticed them. Knotted netting (3) occurs where fishermen are at work. In present day Egypt and New Nubia nets are not produced, but bought from a factory in Alexandria. The only work done to them is regular repair.

In the New Kingdom period sewn plaits basketry (4) did not exist in Egypt. It probably was introduced in the Graeco-Roman period (cf. Wendrich 1997, p. 44). No sewn plaits basketry or continuous plaiting was found at Amarna (see Chapter 10). In Qasr Ibrim, however, it was found in large quantities and it is perhaps the most common basketry produced in Middle Egypt and in New Nubia at present.

Coiling (5) is another widely produced basketry type, which did occur in Amarna too. It is found in large quantities in Qasr Ibrim and is produced at present both in Middle Egypt and New Nubia.

Wrapped linear objects (6), such as brushes, were found regularly in Amarna and Qasr Ibrim. Very similar brushes are still produced today in Middle Egypt. Examples of a knotted brush (7), however, have only been found at Amarna.

Mats woven with one strand (8) have been found at Amarna and Qasr Ibrim. At present, they are produced in Middle Egypt. Weaving with two strands (9) has been found at Amarna and Qasr Ibrim as part of furniture webbing. This kind of bedding is still produced in the region of New Nubia today, but does not occur in Middle Egypt.

Twining (10) is the technique found most in Amarna. It also occurred frequently in Qasr Ibrim. It is produced in present day Middle Egypt, but I did not find any producers of twined matting in New Nubia.

Waling (11) was only found in two objects in Qasr Ibrim (Chapter 11). This type of basketry appeared in Egypt in the Roman Period. No stake-and-strand baskets are made in present day Middle Egypt or New Nubia and no waling occurs.

Pierced basketry (12) has not been found in Amarna or Qasr Ibrim. It is a technique which at present is used mainly to produce crates (*qafas*), cages, tables, chairs and beds. There are many workshops in Middle Egypt and in the region of New Nubia, although the *qafas* makers are not Nubian. Rope (13) is used and produced extensively throughout Egypt, ancient and modern. Often a length of rope is made on the spot

Continuous plaiting (14) has only been found at Qasr Ibrim, in the New Kingdom Period this technique probably did not occur. It was produced in New Nubia until recently, especially for the production of fans. Likewise, plaited strips (15) do not occur in Amarna, but they are a half product for sewn plaits basketry in Qasr Ibrim, present day Middle Egypt and New Nubia. Indicated in the table is the frequency of plaited strips that are *not* used in sewn plaits basketry. Knotted fabrics (16) have been found at Amarna and Qasr Ibrim, but are not made at present.

Inlayed coiling (17) has been found at Qasr Ibrim as a rim decoration, while a special form of it, *imbrication* occurs in present day New Nubia. Looping (18) is made in every farmer's household in Middle Egypt, to produce the *shinda*, or cheese straining mat. Binding (19), which is mainly used for rigid screens, has been found in several roof constructions at Qasr Ibrim. In present day New Nubia a similar binding technique is still used in roof making. Binding occurs also in Middle Egypt, for the production of the shelters built by farmers in the fields.

Plaiting around a core (20) is very rare, only three small fragments have been found in Qasr Ibrim (see p. 247). It is not produced in present day Middle Egypt or New Nubia. Similar cords, made in leather, are produced by the Ababda bedouin in the Eastern Desert of Egypt.

9.3 EMPTY CLASSES

Total Number of Classes

In Section 9.1 it was said that the underlying criteria, when all given similar weight in the classification, would give a classification with 324 classes (p. 157). This has been made visible in Table 9-22, which lists three groups of criteria. The first group cross refers the activity of the systems with the orientation. This produces the 18 classes (squares) which were shown in Table 9.0.

Subject	Criteria		
Systems (Table 9-0, p. 154)	activity of systems 1 system: act 2 systems: pas/act; act/act 3 systems: pas/pas/act; pas/act/act; act/act/act	6	
	orientation of systems (1, 2 or 3 directions)	3	18
Composition of the active system (Table 5-12, p. 96)	number of members (1, 2 or 3)	3	
	planes in which the members move (1, 2 or 3)	3	9
Form	linear or fabric	2	2
Total number of classes (for maximum three systems)			324

Table 9-22 Criteria on which Table 9-0 is based. The third column lists the number of attributes. The fourth column lists the number of classes in each of the three sub-classifications. Cross referring these attributes without weighing in one classification, results in 324 classes (by multiplication of the attributes).

When, however, the criteria of the mobility of the active system are involved, then we have to multiply the 18 classes with the nine classes of Table 5-12 (p. 96). This gives 162 classes, which are doubled if the third aspect is involved, which is necessary to discern linear forms (a wrapped ring) from fabrics (a coiled basket).

To keep the classification manageable, it is better to choose the criteria considered most important for the question at hand, and arrange the other criteria hierarchically under these. With the use of relational database programmes, making a new classification whenever a new question arises or a new point of view is sought, is easy enough, by ordering the data according to different criteria.

Because our main concern is the production process, the attention is focussed on the activity and orientation of the systems as presented in Table 9-0.[5]

Why are Classes Empty?

Of the 18 classes in Table 9-0, eight are filled, ten are empty. Four of these classes are empty by definition, because the number of systems is the maximum number of orientations: a one-system technique can only be oriented in one direction; a two-systems technique either in one or two directions. The area of classes that are empty by definition is shown with hatching.[6]

Six classes are empty without an obvious reason. Three system techniques, either with an orientation in three directions, do not occur in our basketry corpus at all. Furthermore, three-systems techniques with only active systems do not exist.

Some of these combinations are unlikely to occur. It is hard to imagine, for instance, a three-systems technique with two active systems oriented in one direction. It would be a coiling technique, for instance, with one passive coil and two active strands wrapping around the coil. Such a technique is feasible but complex and no improvement, either structurally or decoratively, to the simple coiling or the coiled inlay techniques.

Likewise, three-systems techniques with only active elements, are difficult to realise. This would force the basket maker to handle all strands simultaneously. Without fixating some of them (which makes them passive, according to our definition), these strands would soon form a jumble.

On the other hand, some classes are empty for no obvious or likely reason. The answer to the question why these empty classes occur, adds information beyond what can be recorded from the archaeological record. An aid in determining whether or not a class is empty for obvious reasons is to compare the Egyptian techniques with those from elsewhere (Table 9-23).

Table 9-0 listed Egyptian techniques, in Table 9-23 the same classification is used for techniques from the Mentawai, a group of islands west of Sumatra in Indonesia. The basketry from the Mentawai islands was collected by the anthropologist R. Schefold from 1967 to 1969 and published by Keppel in 1984.

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[5]There are other technical criteria, which are of importance for different research questions, such as the space between the elements, which is relevant, for instance, when determining the function of a basket (milk container versus sieve). There is also a difference between a fabric which is made as a spiral, or up-and-down (cf. Figures 19-4a and 19-4b).

[6]Another set of classes which remains empty by definition, and therefore has not even been incorporated in Table 9-0, are techniques with only passive elements. In the classification the classes '1 system, passive', '2 systems passive/passive' and '3 systems, passive/passive/passive' have been omitted, because they do not refer to a structure, but to a stack of sticks or strands, passively lying on top of each other. By definition, at least one of the systems in a basketry technique has to be active.

activity / orientation	1 system	2 systems		3 systems		
	active	passive/active	active/active	pas/pas/act	pas/act/act	act/act/act
orientation in 1 direction:	linking A.I.1 weaving B.II.3 wrapping A.I.2 knotting A.I.3	wrapping B.I.4 B.II.3	-	-	-	-
orientation in 2 directions:		weaving B.II.1.2 B.II.1.3 twining B.I.5 waling B.I.5	plaiting B.II.1.1 B.II.1.2 B.II.1.4	wrapping B.I.3 binding (Keppel 1984: 92)	wrapping B.I.2	-
orientation in 3 directions:				weaving B.II.2 piercing B.I.1	weaving B.II.2	-

Table 9-23 Classification of basketry techniques from the Mentawai Islands (Indonesia). The codes refer to the classification of Keppel 1984. The hatched area are classes which are empty by definition.

The publication is highly suitable for a comparison of techniques, since it consists of clear descriptions and technical drawings.[7]

From the classification of the Indonesian material, it is apparent that there are no technical objections to using three-systems techniques in three directions. Two forms of weaving and one form of pierced basketry are made by the Mentawai basket makers, with materials that have properties comparable to those available in Egypt (Keppel 1984). On the other hand, the Mentawai, masters in three-systems basketry, apparently refrain from making three-systems techniques with active strands only, nor do they produce three-systems baskets with an orientation in one direction.

While the Mentawai collection has a strong emphasis on three-systems techniques, they do occur infrequently in the Egyptian corpus (numbers 17-20 in Table 9-21). Only looping (no. 18) and binding with three systems (no. 19) occur regularly. The three-systems coiling technique (no. 17) is mainly used for decorative purposes. The three-systems plaiting technique (no. 20) gives a decorative and extremely strong rope with considerable pulling strength, but has not been used widely (only one fragment was found in Qasr Ibrim).

The difference can partly be explained from the raw materials used. The most important Mentawai raw material is *rattan (Calamus rotang)*, a slender palm species, in English usually referred to as 'cane'. From the stems strips of several metres long are cut for basketry production. In contrast, the length of Egyptian raw materials (palm leaf, grasses, sedges, rushes) varies between 0.5 and 1.5 metres only. The necessity to add new lengths of material continuously makes the three-systems techniques less suitable.

Secondly, the functional range of basketry and other available containers is an important factor. Basketry fabrics vary between fine, dense and coarse, widely spaced. Until recently, coiled basketry was even used to hold liquids.[8] The Mentawai three-systems basketry is mainly used for the production of coarse openly spaced carrier baskets and bags. Ancient Egyptian carrier bags with similar properties are made in knotting or twining techniques. Although function is not the subject of this study, it will be brought up in Chapters 10, 11 (the ancient and modern basketry from Middle Egypt and Egyptian Nubia) and Chapter 12. In these chapters the specific properties of the 20 techniques listed in Table 9-0 will be surveyed. By looking at the combination of material, technique, context and function of objects that have been found in Amarna and Qasr Ibrim an insight can be gained in the other important factors that determine the variety of basketry techniques: cultural preferences and tradition (see Chapter 20).

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[7]Since the criteria for the Keppel's classification are slightly different, some of her classes are divided over several classes, others are grouped in one class.

[8]The Ababda bedouin of the Eastern Desert of Egypt used finely coiled baskets for milking the camels. In the last ten years these baskets have been replaced by metal and plastic containers.

CHAPTER TEN

BASKETRY FROM AMARNA AND MIDDLE EGYPT

In the previous chapter, Table 9-21 (p. 169) lists the 20 techniques occurring in the basketry corpus from the four selected sites in Egypt. Eleven of these occur in Amarna, and eleven in present day Middle Egypt. These are not the same techniques, however. Only six out of these 11 techniques occur both in amarna and at present in Middle Egypt. This chapter gives a more detailed description of the baskets found and a better insight in the frequency with which they occur.

The frequency with which the different techniques occur, has been measured not according to the number of fragments that have been found, but according to their position in the archaeological context. The expedition records the context at Amarna in *units*, each *unit* an archaeological feature such as a layer or deposit. All fragments found in one unit which are showing the same features, have been counted as one object, unless it was obvious that the fragments represented more than one object made in the same technique.

There are two remarks that have to be made in relation to the quantification of objects in Amarna. The count has been based on the material excavated by B.J. Kemp between 1979 and 1986 and the report of the earlier excavations by Peet and Woolley (1923). The basketry as published by Peet and Woolley has been incorporated as far as it was possible to discern the techniques from the descriptions in the text. The 1920's material, of which only the complete or nearly complete objects were recorded, comes from a large portion of the walled village. All basketry fragments were recorded which were found in the recent excavations, which took place within the walled village and the neighbouring areas (cf. Section 7.2.3, pp. 117-120).

Throughout this section references will be made in foot notes to basketry registration numbers.[1] Technical features such as the insertion of new material, centres and rims are referred to in Chapter 15.

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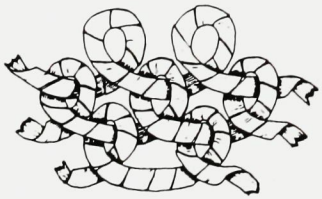
[1] A complete list of basketry finds from Amarna, including the interpretation of the context, use, function, meaning, re-use and discard, will be published in a separate monograph.

10.1 ONE-SYSTEM TECHNIQUES

Knotless Netting (1)



Fabric.
One active system (consisting of one member moving in two planes).
Orientated in one direction.
(Figure 9-1)

Amarna

This very distinctive technique (Plate 10-1), occurs in six instances in the Amarna material.[2] All fragments have been made of strips of doam palm leaf (*Hyphaene thebaica*), the width of the palm leaf strips show a variation of 6-10mm. All leaf strips have been twisted in an S-direction and in all instances the left side of the loops cross over the right side (S-over crossing).



Plate 10-1 Knotless netting re-used as roofing material, embedded in mud used to cover the roof (TAWV - 0344). Courtesy of the Egypt Exploration Society.

[2]Knotless netting: TAW 0303, 0344, 0376, 0581, 0825, 1039.

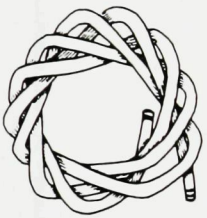
Apart from the six knotless netting fragments, a large number of isolated S-twisted looped fragments of doam palm leaf have been found in 15 different contexts.[3] In total there are 21 units in which fragments of knotless netting have been found.

In 1921 one fragment of knotless netting was found by Peet and Woolley. They described this fragment as "chain bag of palm leaf" (Peet & Woolley 1923, p. 74, pl. XXII,2).

Middle Egypt

The knotless netting technique does not occur in present day Egypt.

Grommet (2)



Linear.
One active system (consisting of one member moving in two planes).
Orientated in one direction.
(Figure 9-2)

Amarna

Depending on the size of the strand and the diameter of the circle, wrapping can result in a open ring (grommet), or a closed circular object (pad). Further variation is found by looking at the size and preparation of the strand: the appearance of the objects is depends on the material used. In the workmens' village 11 objects have been found, made in this technique. One small grommet has been made by one culm of a plant (*Juncus species*) wrapped around itself in three turns.[4]

Pads are made by wrapping a string or a twisted bundle of fibrous material. Three such pads were found, all made of tall grass leaves (both *Desmostachya bipinnata* and *Imperata cylindrica*).[5] The grass bundle, consisting of complete grass plants, roots and all, is twisted in S-direction. After the first coil, the grass bundle is wrapped around itself two or three times in Z-direction. Figure 9-2

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[3]S-twisted doam palm loops: TAWV 0052, 0370, 0423, 0437, 0452, 0458, 0469, 0472, 0476, 0478, 0493, 0541, 0604, 0651, 0659, 0697 (0052 and 0697 are from the same unit).

[4]Grommet: TAWV 1067.

[5]Grass pads: TAWV 0058, 0059 and 1185.

shows the four stages of construction of a grass pad as shown in Figure 10-2.[6] The same wrapping method was used to make a grommet which forms the core of a pad, covered with string or palm leaf (see *wrapping with 2 systems*, p.186).

In Peet and Woolley's excavation report from 1923, only one large grass pad was reported, described as "twist of 3-ply rope" (p.82, plate XXI, 1).

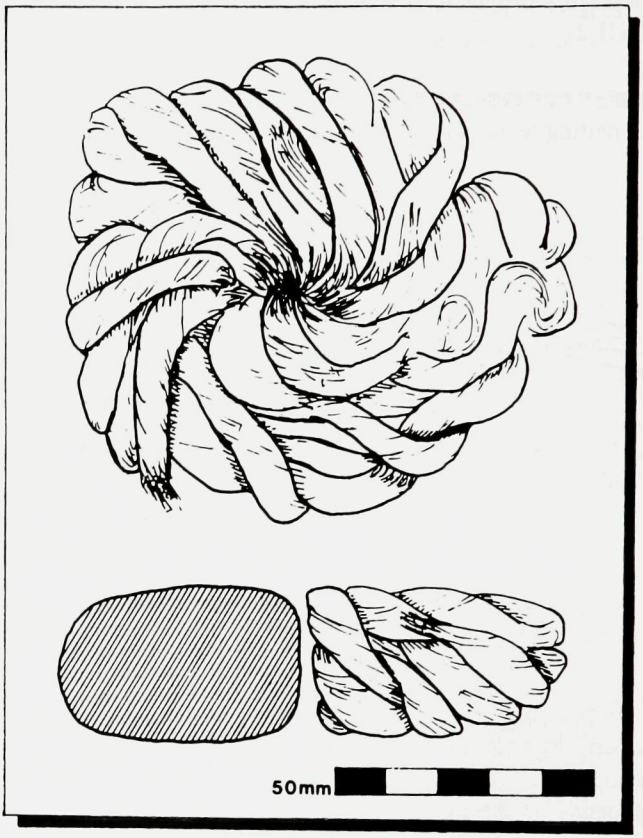

Figure 10-2 Grass pad, made by wrapping one S-twisted strand around itself in Z-direction, as shown in Figure 9-2 (TAWV 0744).

Middle Egypt

Pads and grommets do not occur often in the present day villages around Amarna. I have not seen any grass pads or grommets. The only ones that are made at present, are cloth head rings, used by both men and women to balance the loads they carry on their heads. The wrapping principle is also used to make coils of rope.

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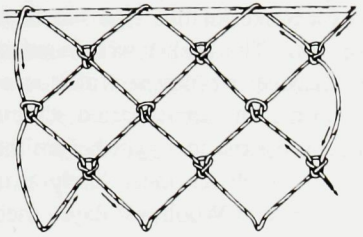
[6]Pad: TAWV 0744.

Knotted Netting (3)



Fabric.
One active system (consisting of one member moving in three planes).
Orientated in one direction.
(Figure 9-3)

Amarna

Two fragments of knotted nets have been found, both made of z-spun flax.[7] The flax yarns are irregular in diameter, ranging from 0.5 to 0.8 mm. The nets are made with mesh knots. Peet and Woolley do not mention any netting finds.

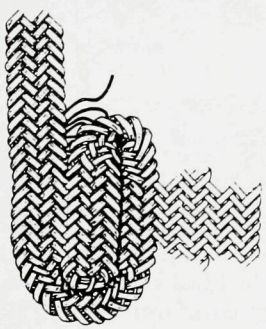
Middle Egypt

In present day Egypt netting is made by machine from synthetic fibres. Nevertheless, the knots used are still mesh knots and repairing the nets is seems to be done in the same way as in the past.

10.2 TWO-SYSTEMS TECHNIQUES

10.2.1 With one passive and one active system, orientation in one direction

Sewn plaits (4)



Fabric.
One passive system.
One active system (consisting of one member moving in one plane).
Orientated in one direction.
(Figure 9-4)

[7]Nets: TAWV 0339, 0340.

Amarna

This technique has not been found at Amarna during the recent excavations. In the report of the earlier excavations one photograph of a basket of this type has been published (Peet and Woolley 1923 pl. XXI,4 a, p. 85). The basket was found in the "bedroom of house Long Wall Street 11" and had been repaired with coarse textiles. Although plaiting does occur sporadically in the pharaonic period, this is the only basket in the *sewn plaits* technique is known to exist in Egypt before the Graeco-Roman period. The basket from Long Wall Street 11 most likely is a modern intrusion, considering that the workmen in Peet and Woolley's days, used similar baskets to move the earth from the excavation to the dumps.

Middle Egypt

Baskets made from plaited strips are at present an important local industry in Middle Egypt. They are produced in several standard sizes, which are expressed by the length of the plaited strip in *ba'at*. One *ba'a* is the length between two outstretched arms (approximately 1.50 m). Thus the sizes are not exactly standard, but depend on the length of the arms and the width of the basket maker's chest.

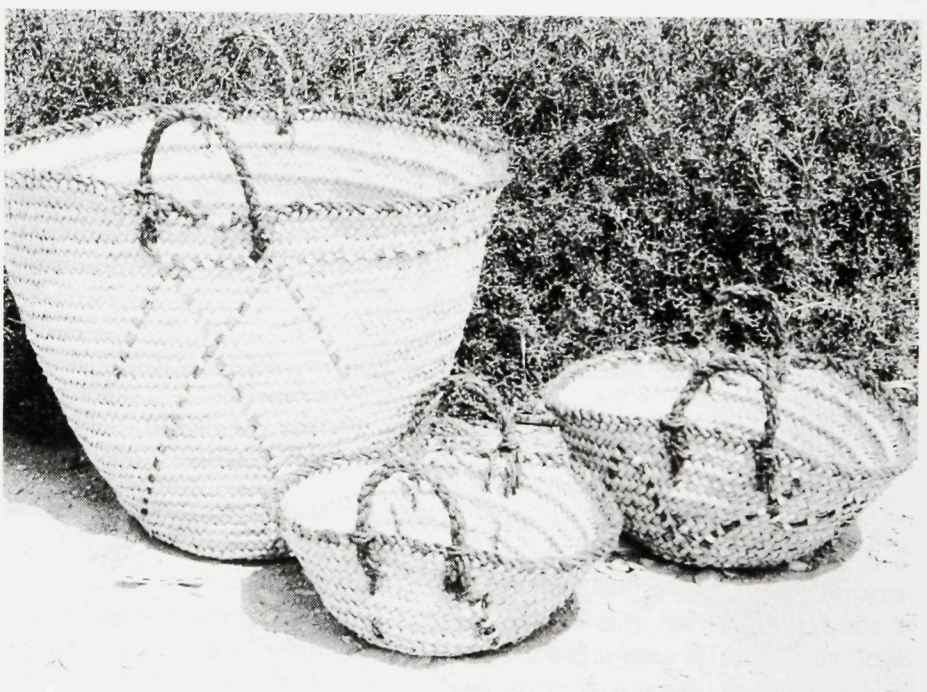


Plate 10-3 Modern sewn plaits carrier baskets from the Amarna region: one *'alaaga* of 8 *ba'at* and two bagutat of respectively 3 and 4 *ba'at*.

The *guffa* is the largest basket, sewn from a plait with a length of 15 to 18 *ba'a*. The *maqtaf*, which is, like the *guffa* used to transport and store goods, for instance flour, is 11 to 14 *ba'a*. Two of these large baskets are used, balanced on the two ends of a wooden stick, to move goods on donkey back.

The *'alāga* (6 to 10 *ba'at*) is used as a shopping basket, the *gauta* or *baguta* are the smallest baskets (3-5 *ba'at*) and mainly used for moving garbage, bricks at building sites and earth from farmland and, for instance, archaeological excavations (Plate 10-3).

In el-Hagg Qandil only plaits with nine *'uyun* (plaiting strands) seem to be produced. The more professional basket makers of el-Bersheh, a village 20 km to the North, make baskets from nine strands plaits and five strands plaits. The baskets designed for coarse work, such as garbage collecting, are made with five plaiting strands, with a \1/1\\ 1 plait pattern.

There is quite some variation in the sizes quoted for the different sewn plaits baskets.[8] According to the literature, Middle Egypt has a larger basket, called *zambīl* (Behnstedt and Woidich 1994, 191), comparable perhaps to the *gotwiyya* in upper Egypt. The *zambīl* is used as a carrier basket for dung and earth, or as a two-part transport bag, but in the region of el-Hagg Qandil, the *masbala* is used for this purpose (see below under twined basketry). There are also some differences with the sewn plaits basketry from Upper Egypt.[9]

In el-Hagg Qandil, the larger baskets (*'alāga* and *maqtaf*) have a slightly indented base, which makes it easier to carry them on the head This is also made easier by the use of a head ring, rolled from a cloth or a scarf (p. 178).

A very specialised basket made in el-Hagg Qandil is the *tala'a*, a basket used to carry the pollen from the male date palm tree up to the flowers of the female date palm tree. This small longitudinal flat basket with a long rope handle is made of a 4 *ba'at* plait sewn into a cylindrical tube with a diameter of 50 cm and 30 cm high. The tube is folded and the bottom is sewn (Plate 18-2, p. 398).

In the last decade the sewn plaits baskets are being replaced by carrier baskets made of old car tyres. These come in two different sizes and are referred to also as *guffa* or *zanbīl*. The terms are not related to the size of the basket, but represent regional differences, *guffa* is used in Upper Egypt, *zanbīl* in Cairo.

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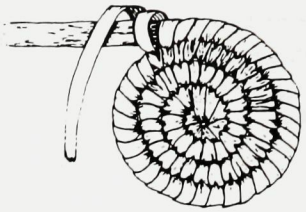
[8] Badawi and Hinds 1986, 711; Behnstedt and Woidich 1994, 4-386, 389, 321

[9] According to Henein, a seven strands plait occurs in the upper Egyptian village of Mari Girgis. He also spotted two types of baskets made of nine strands plaits, the *'alāga*, made of a plait with a length of eight or nine *ba'at*, and the much larger *gotwiyya* (Henein 1988, 183). These two basket types are also made from seven strands plaits, along with a *maqtaf* of 5 ba'at. The five strands plaits are sewn into three basketry types: "couffin" (*maqtaf* of 5 *ba'at*), "panier" (*guffa* of 10-12 *ba'a*) and "hotte double" (*gotwiyya* of 12 *ba'a* for each side of this double basket, carried by camels). Thus the terms seem te refer to the sizes and we find that the maqtaf is the smallest, followed by the *'alāga*, *guffa* and *gotwiyya*.

Coiling (5)



Fabric.
One passive system.
One active system (consisting of one member moving in two planes).
Orientated in one direction.
(Figure 9-5)

Amarna

Most of the basketry techniques are named after the appearance of actions of the active elements, but *coiling* refers to the passive bundle which is held in position in a coil by a wrapping strand

Fragments of 29 coiled objects have been found in Amarna, none of which complete.[10] From the fragments it appears that all coiled objects are made in the same technique, with a stitch through the previous bundle (Plate 10-4). The raw materials are also the same and the size of the bundle and winders do not show great variation (Table 10-5).

The passive element is a bundle of grass, either *Desmostachya bipinnata* or *Imperata cylindrica*. Two exceptions have bundles consisting of doam palm leaf, but these are small fragments from near the centre of the basket, which is often made from doam palm. One fragment was exceptional, because the bundle did not consist of unspun grass, but of grass sZ_2 string (Wendrich 1991c, 30-32).[11]

The active elements of all coiled basketry fragments consisted of strips of doam palm leaf (*Hyphaene thebaica*). In all fragments the coil of grass was kept in place by passing the strip of doam palm leaf through the previous coil, each time it wraps around the bundle (Plate 10-4). The variation occurs in the centres of the coiled basketry.

The size of the systems shows little variation. The diameters of the grass bundles range from 4.5-16 mm. The smallest bundle is from a fragment of the centre of a basket. In all baskets the diameter of the bundle is decreasing near the centre. The largest bundle is from a basket that has almost disintegrated. The bundles have become loose, which makes it impossible to infer the original diameter of the bundle.

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[10]Coiled fragments: TAWV 0302, 0358, 0359, 0360, 0361, 0362, 0374, 0378, 0404, 0487, 0512, 0552, 0652, 0653, 0657, 0687, 0698, 0734, 0775, 0822, 0965, 1035, 1113, 1170, 1182, 1184, 3 without a number.

[11]Coiled basket with bundle of grass string: TAWV 0657;

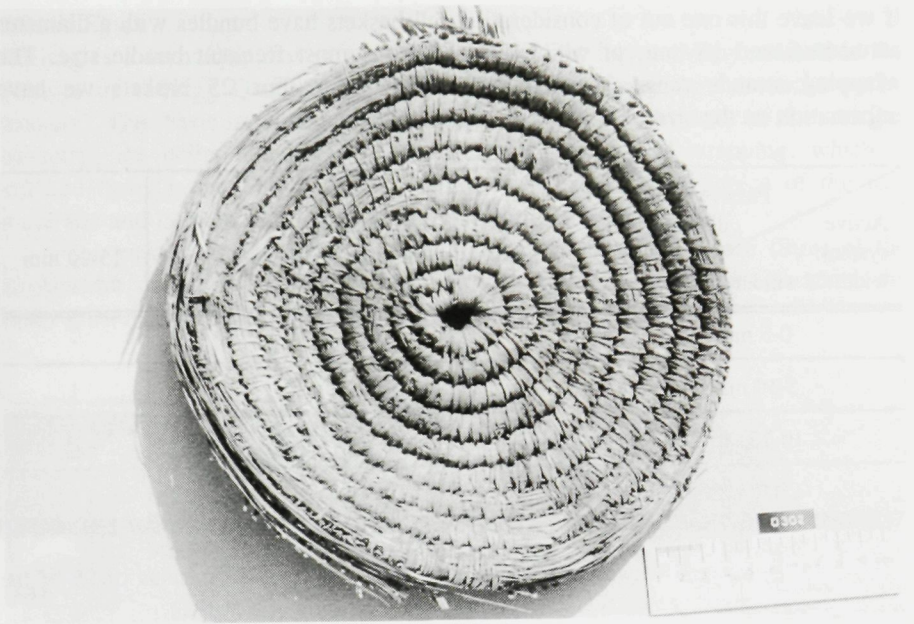




Plate 10-4 Detail of the centre part of a coiled fragment from Amarna (TAWV 0302). Courtesy of the Egypt Exploration Society.

If we leave this one out of consideration, all baskets have bundles with a diameter between 5 and 15 mm, of which 13 mm is the most frequent bundle size. The wrapping strands range between 4.5 and 12 mm. For 25 baskets we have information on the size of both active and passive elements.

Active system: width of winders / Passive system: diameter of bundle	0-5 mm	5-10 mm	10-15 mm	15-20 mm
0-5 mm	1	-	3	-
5-10 mm	-	8	10	1
10-15 mm	-	-	2	-
15-20 mm	-	-	-	-

Table 10-5 Relation between the size of the active and passive systems of 25 of the coiled baskets found at Amarna.

Table 10-5 shows the ratio of the size of the bundle and the wrapping strand. In all fragments the size of the palm leaf strand is the same, or smaller than the diameter of the bundle. In Table 12-4 (p. 256) the size of the elements will be compared with that of the coiled basketry from Qasr Ibrim.

The description of the basketry finds in the publication of Peet and Woolley (1923) is minimal. For each room that was excavated, a list of finds is published, in which basketry is described in very general terms, such as: "a basket of the usual kind". It seems safe to presume that such an entry refers to coiled basketry, since the 1979-1986 excavations showed that coiling is the only technique used at Amarna to make containers with rigid walls (baskets, rather than bags). Judging these limited descriptions, the number of coiled baskets recorded by Peet & Woolley is presumably 19. No details are given on technique, size and material. The context is not indicated, except for the street, house and room number.

The total amount of coiled basketry fragments from the excavations at Amarna is 48: 29 from the recent excavations and 19 from earlier excavations. Considering that the area excavated in the 1920's was about three times as large as the area excavated between 1979 and 1986,[12] there must have been a large number of coiled fragments. No estimation of the quantity can be given, since during the earlier excavations only the complete or almost complete objects were kept, while the smaller fragments were discarded.

[12]The recent excavations concentrated on the areas outside the walled village, rather than the houses. Kemp excavated in total 4 houses, while Peet and Woolley have excavated 37 houses.

Middle Egypt

Coiling is a technique that is widespread in Middle Egypt. Many women in the villages of el-Hagg Qandil, el-Amariyya and el-Till know how to make coiled baskets. The basic structure of the coiled baskets is identical to the ancient basketry, the coiled bundle being fastened with palm leaf wrapping, which is stitched through the previous coil. Differences occur in the choice of the raw materials and in the construction of the centre of the basket.

The raw material used at present for the bundle material are fibres of the *zaghauwah*, which is the Middle Egyptian term for the curved stem on which the dates grow. The bundle is fastened with strips of date palm leaf.



Plate 10-6 A coiled bread basket *(tabaq)* of three hand spans wide.

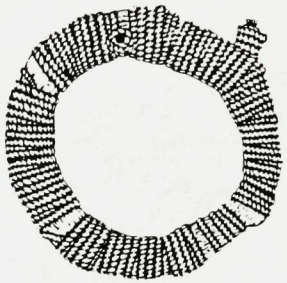
The baskets that are made in Middle Egypt are mainly the *tabaq*, a large flat bread basket, and the *sabat*, a deep basket with rigid, straight, slightly flaring sides, for storing flour. The base of the standard *tabaq*, is three *ashbaar* wide, which corresponds with the diameter of the flat bread which is made in the area. The *shibr* is the width of a hand span, three *ashbaar* is approximately 55 cm (Plate 10-6).

For the tourists a smaller version is made of two *ashbaar* (36 cm), or even one-*shibr* baskets which can be used for presenting sweets. Another variety on the

tabaq baskets is the *seniyya* (tray): a round shallow basket with two handles. Recently some other innovations have appeared, such as small baskets with lids, to store trinkets and a special *sabat-tilifon* in which the telephone can be carried from one side of the room to the other.

All baskets are executed in simple, undyed date palm leaf. Although the bundles have quite a large diameter (an average of 20 mm), the work is not coarse in appearance, because the stitches are very regular.

Wrapping (6)



Linear.
One passive system.
One active system (consisting of one member moving in two planes).
Orientated in one direction.
(Figure 9-6)

Coiling and wrapping require the same movement of the active element, but can be distinguished by looking at the interaction of the systems. In *coiling* the active strand passes through the previous coil to form a fabric. In *wrapping* a strand is just wrapped around a passive bundle, such as the core of a ring or the handle of a brush.

Apart from rings, pads and brushes other wrapped objects are sticks and reeds, wrapped in palm leaf or sedges. Furthermore, the production of three-ply rope at Amarna is also a form of wrapping: the passive system is formed by a two-ply rope and a third strand (the active system) is wrapped around to form a three-ply rope (cf. Section 15.6).

The dimensions of the wrapped rings differ, as does their function. Small rings, with a diameter of about 25 mm, are made from string or palm leaf, wrapped with doam palm leaf. Of these seven were found in Amarna recently,[13] while none were reported by Peet and Woolley (1923). The large rings are ranging in diameter between 170 and 550 mm. and consist of a bundle of grass, wrapped with string or twisted grass. Depending on their sizes, these rings were used as pot stands, supports for carrying objects on the head and as support for the pointed bases of amphoras in carrying nets (Figure 9-6). In total 19 large rings, or

[13]Small palm leaf rings: TAWV 0764, 0768, 0769, 0796, 1070, 1123, 1135.

fragments of rings have been found, seven by Peet and Woolley, 12 during the recent excavations.[14]

Seven small pads were found of which the core was not just a bundle of grass, but a grommet (see p.177), covered with a wrapping of string and palm leaf.[15] The pads are made in two stages: first the core is made, then the core is wrapped with palm leaf. In addition there is a group of small pads, with a diameter of 25 mm, made by wrapping doam palm leaf around a string or palm leaf circle. Three of these small pads have been found at Amarna.[16] Such pads have not been reported to have been found at the earlier excavations.

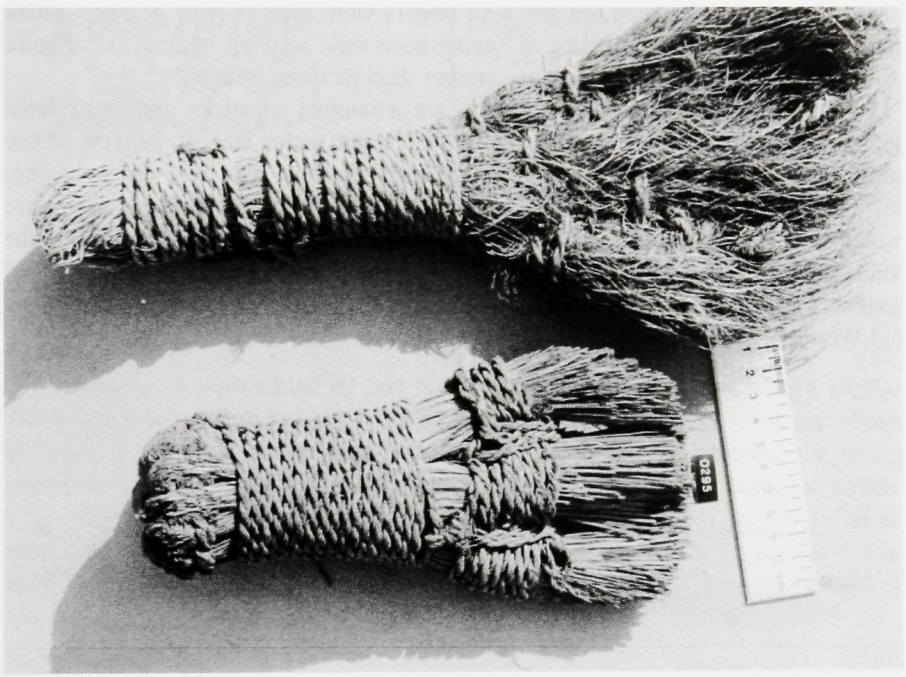


Plate 10-7 Two floor brushes with wrapped handles. At the top a modern brush from el-Hagg Qandil, made of date palm fibre. At the bottom a well worn brush with three *fingers* from the workmen's village, made of doam palm leaf strips and grass string. (Courtesy of the Egypt Exploration Society).

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[14]Large rings: TAWV 0302A, 0363, 0364, 0541, 0670, 0671, 0688, 0733 and four without number.

[15]Pads with traces of wrapping: TAWV 0296, 0297, 0298, 0299, 0658, 0744, one without number.

[16]Small palm leaf pads: TAWV 0766, 0767, 1066.

Brushes consist of a bundle of grass or palm leaves, with a handle made by wrapping a string around the bundle (Plate 10-7). Most brushes are tied a few centimeters above the middle of the bundle. The lower side of the bundle is folded back over the upper half and the string is wound from the folded end upwards to form the handle (cf. Section 15.6). The same string is sometimes used to form three to six divisions in the bundle, the *fingers* of the brush.

In total seven brushes were found between 1979 and 1986, of which six had a wrapped handle.[17] Two of these brushes are divided in respectively three and four fingers. The handle of the seventh brush was not wrapped, but knotted (see below).

Peet and Woolley report to have found seven brushes, two with fingers (three and six). From the wear pattern and depictions in the Amarna tomb paintings, it is clear that the short handled brushes with fingers were used as floor brushes. Small undivided brushes bear evidence of having been used as paint brushes (cf. Figure 10-9, for a paint brush with a knotted, rather than wrapped handle).

The last group of wrapped objects are a number of sticks and reeds lined with doam palm leaf and then wrapped with doam palm leaf or papyrus (Plate 10-8). Not the strong outer layer from the papyrus culm was used for wrapping, but the soft spungy inside. Although all sticks were found unattached, they were probably part of furniture. The shrinkage of the spungy papyrus core tightens the connections between the sticks which form a table, stool, or chest. In total 18 of such sticks were found between 1979 and 1986.[18] None have been reported by Peet and Woolley.

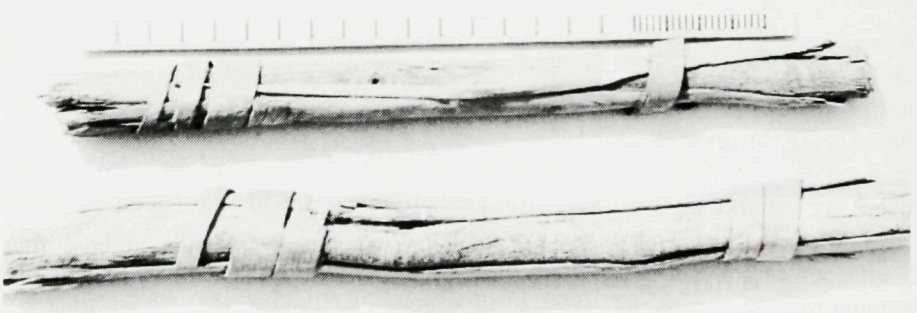


Plate 10-8 Two sticks lined and wrapped with doam palm leaf, probably part of furniture (TAWV 0453). (Courtesy of the Egypt Exploration Society).

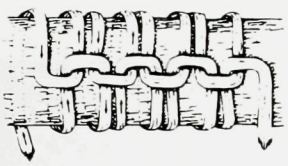
[17]Wrapped brushes: TAWV 0290, 0295, 0300, 0548, 0690, 1015.

[18]Sticks and reeds: TAWV 0266, 0267, 0272, 0273, 0453 (3x), 0454 (2x), 0486 (2x), 0528, 0593, 0709, 0710, 0810, 0811, 1183.

Middle Egypt

Rings, used as pot stands are not found in the modern villages around Amarna. Likewise, furniture made of wrapped reeds do not occur. Instead, furniture is made with the pierced technique (p. 201). The only wrapped objects that are found regularly produced in Middle Egypt are short-handled brushes. They are commonly used in households for sweeping the floor. Although they are now made from date palm fibre, rather than doam palm leaf, they are still made by wrapping string around a folded bundle (Plate 10-7). They are increasingly replaced by brightly coloured plastic brooms, however.

Knotting (7)



Linear.
One passive system.
One active system (consisting of one member moving in three planes).
Orientated in one direction.
(Figure 9-7)

Amarna

This technique is represented by one brush from Amarna. It is made in a similar way as the wrapped brushes, by tying a bundle of doam palm leaf strips just above the middle, folding back the bundle and fastening the fibres by tying the string around the bundle, forming a handle with the tying string. In this case, the handle is not wrapped, but knotted (Figure 10-9). The active system moves in three planes, that is to say: the strand is pulled through a loop formed by itself.[19] The brush has not been divided in fingers. Remains of lime in between the fibres indicates that it has been used for whitewashing.

Middle Egypt

This technique has not been attested in the villages around the archaeological site of Amarna.

[19]Knotted brush: TAWV 0291;

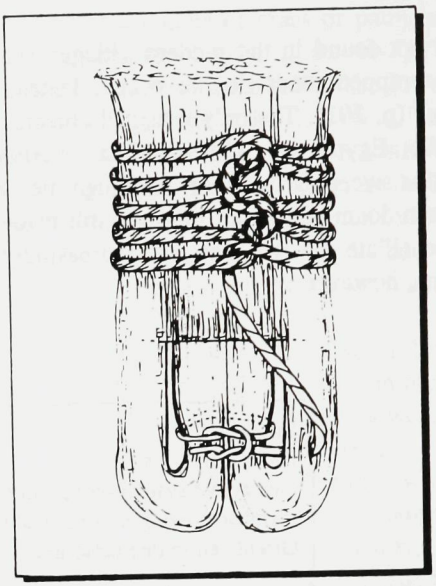
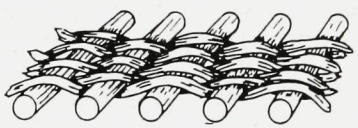


Figure 10-9 Construction drawing of a knotted brush (TAWV 2091). The bottom half is drawn in cross section to show the knot around the bundle, which is then folded back and fastened with the same string.

10.2.2 With one passive and one active system, orientation in two directions

Weaving with one strand (8)



Fabric.
One passive system.
One active system (consisting of one member moving in one plane).
Orientated in two directions.
(Figure 9-8)

Weaving is in the first place a textile technique, but if the warp or the weft are of limited length (e.g. plant culms or leaves) then it fits the definition of basketry. Unclear is, however, if weaving with string should be considered basketry. String, as a half product, has in principle an unlimited length and its shape stays the same throughout its entire length, even when made of 'basketry' materials such as grass and palm leaf. Mostly for practicle purposes, the Egyptian objects made with

'basketry' materials but applying 'textile'-techniques are incorporated in this survey (cf. Wendrich 1991 a and b).[20]

Amarna

Most woven fragments found at Amarna are made with a passive system (warp) of grass string and an active system (weft) of grass leaves (Plate 10-10). In 17 units a number of 21 large fragments of this type of matting have been found.[21] Many of these fragments have edges, which are useful indicators of the weaving procedures (see Section 15.8). The distance between the passive strings is consistently around 2 cm, ranging from 18,2-23,5 mm. Apart from the grass matting, a number of fragments of side edges were found. One of woven matting with bundles of straw, (TAWV 0308), the other with bundles of papyrus culm (Plate 12-3, p. 253).

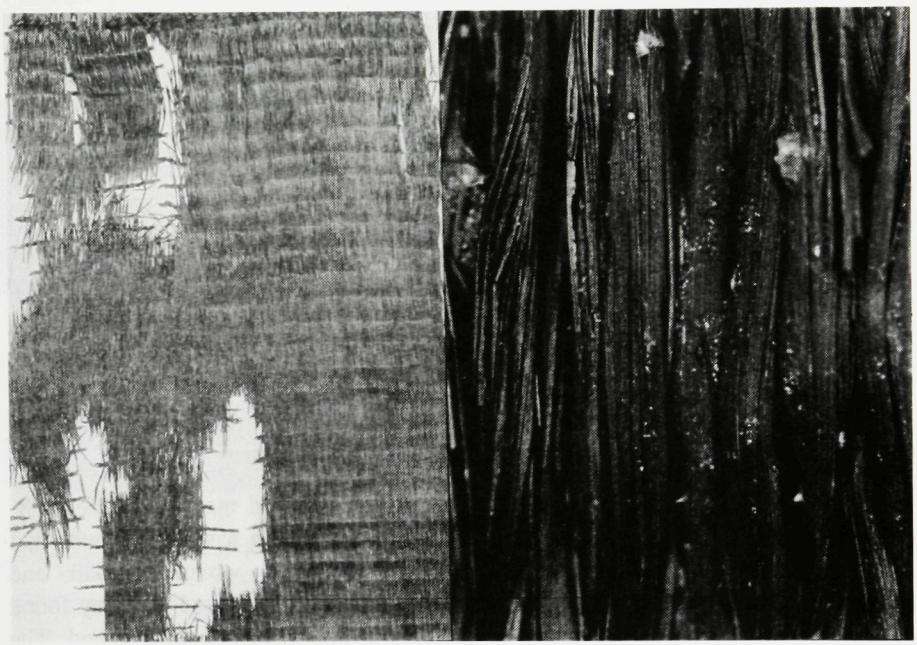


Plate 10-10 Woven matting made with a warp of grass string and a weft of grass leaves. To the right: detail (TAWV 0007/0008). (Courtesy of the Egypt Exploration Society).

[20]An important reason for not drawing the line too rigid is a practical one: objects made in a 'textile' technique, but of a 'basketry' material, such as grass or palm leaf, are in danger of not being studied: a textile archaeologist will not be inclined to regard such objects as textile on the basis of the raw material.

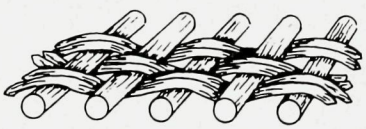
[21]Mat weaving: TAWV 0001, 0002, 0004, 0005, 0006, 0007, 0008, 0009, 0008, 0010, 0012, 0046, 0057, 0353, 0356, 0357, 0575, 0674, 0749, 1144.

From Peet and Woolleys descriptions ("fragments of matting" p.76, 77, 78, 82) it is often not clear to which technique they are referring. One fragment, which is definately woven is mentioned on p. 58 and a photo is available (pl. XX,4). For this fragment no context is given. Many of the mats found by Peet and Woolley are twined (see p. 194).

Middle Egypt

In Middle Egypt today mats are woven with grass or rushes. The thick grass mats are used as sleeping mats, and as cushioning for the *mastaba*, the brick benches in front of the houses where people sit in the evenings. The rush mats are used as floor mats. The grass matting is increasingly replaced by rag rugs, while the plastic mats take over the role of the rush mats.

Weaving with two strands (9)



Fabric.
One passive system.
One active system (consisting of two members moving in one plane).
Orientated in two directions.
(Figure 9-9)

Amarna

Peet and Woolleys photographs show woven chair and bed matting, made of S-twisted doam palm leaf. Such matting is made by stringing a wooden frame and weaving in the crossing elements after that. The pattern in which the chair- and bedmatting is woven is \1/1\\1, with two parallel strands. Peet and Woolley found three fragments of furniture matting, with parts of the furniture still attached. The descriptions they gave were: "fragment of basket work" (1923, p. 82, pl. XXI,1 obj. 22/29), "bed with twisted rush mattress" (1923, p. 63, pl. XVIII,4) and "fragments of wooden stool with wickerwork seat" (1923, p. 79).

Wickerwork in the original meaning of the word, is basketwork made of willow rods, a material not used in ancient Egypt. Chairmatting in ancient Egypt is either made with fine flax yarns, or with twisted doam palm leaf. No photo of the Amarna chair matting was published, but the term *wickerwork* suggests that the chair had a seat woven of robust material, for which twisted doam palm leaves would qualify. The bedmatting could not be identified from the photograph, but again the term "twisted rush matting", suggests the use of doam palm leaf. This

material does not resemble rush (*Juncus species*), but has some resemblence to bulrush (*Scirpus species*), a material used for chair matting in England (Peet and Woolley's country of origin). During recent excavations, no fragments of this matting type have been found, but several lumps of dried mud show the impression (cf. Plate 10-11). This indicates that furniture matting has been re-used as roofing material.

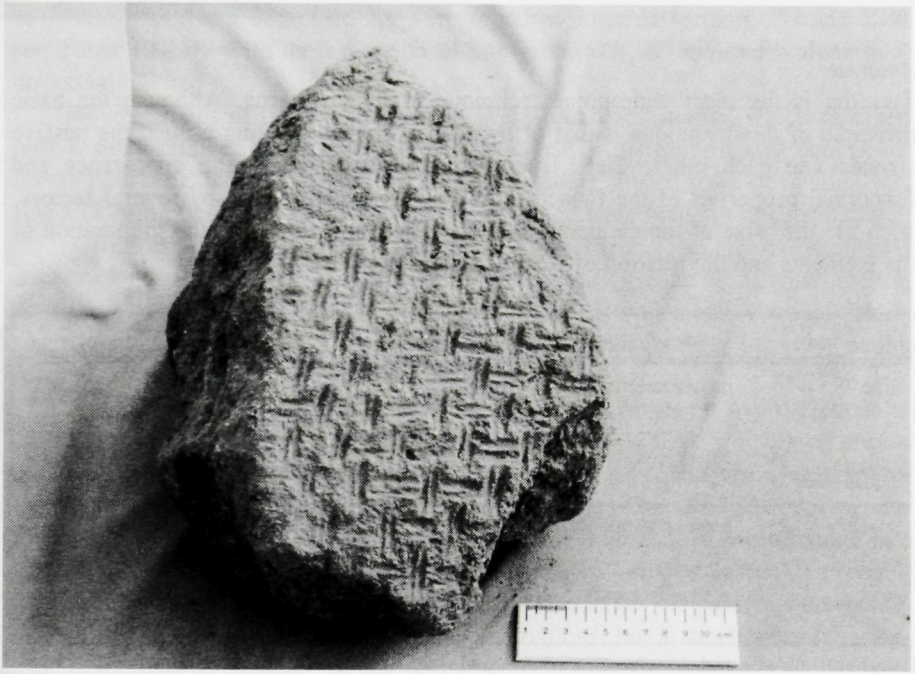
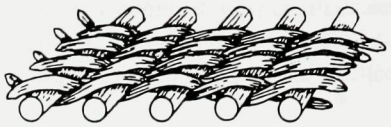


Plate 10-11 Impressions in a dried mud roofing fragment of weaving with double strands (Courtesy of the Egypt Exploration Society).

Middle Egypt

Today stringing beds and chairs are still practiced, but not in Middle Egypt. In Chapter 11 more will be said about bed matting, which, in spite of dwindling demand, is still made in New Nubia.

Twining (10)



Fabric.
One passive system.
One active system (consisting of two members moving in two planes).
Orientated in two directions.
(Figure 9-10)

Amarna

Twining is the most widespread technique used in Amarna. Although the basic principle of this technique is that of two active strands twisting around the passive strands and each other, there is considerable variation in the appearance and functional properties of the twined fabrics. This is determined by several factors, such as the size of the elements, the space between elements, the preparation of the elements and the relation of the systems (Table 10-12).

Elements (size and composition)			
size	passive elements	fine	(4 mm or smaller)
		coarse	(larger than 4 mm)
	active elements	fine	(4 mm or smaller)
		coarse	(larger than 4 mm)
space	passive elements	close	(space smaller than size)
		open	(space same or larger than size)
	active elements	close	(space smaller than size)
		open	(space same or larger than size)
preparation	passive elements	unworked	(leaf strip or bundle)
		worked	(string)
	active elements	unworked	(leaf strip or bundle)
		worked	(string)
orientation of twining	active elements	S-twined	
		Z-twined	
		combined S and Z twined	
Systems (interaction)			
number of rows	passive system	single	(twining around one strand)
		double	(twining around two strands)
	active system	single	(single row of twining)
		double	(double row of twining)

Table 10-12 Variations in twined fabric can be specified by looking at the size and make up of the elements and the interaction of the systems.

The size of the elements is divided into attributes *fine* and *coarse*, the space between the elements into *open* and *close*. The elements are *worked* or *unworked*, that is to say, they are either used without much preparation ('cut into strips' is here considered 'unworked'), or they have been prepared for use in a separate production phase: grass leaves are made into string.

A description of the interaction of the systems gives three possible orientation for twining: S, Z and a combination of both (see Wendrich 1991c, p. 58, Figure 36 d and e). Furthermore, there are single and multiple passive strands and rows of twining. Thirteen combinations were found at Amarna (groups A-I and K-N, see Table 10-13). With the exception of one group (G), all twining is done in S-direction.

Seven groups of fine twined matting were found at Amarna, which represent only a small number of fragments. Group A consists of fine S-twisted doam palm leaves (worked), which are held together with widely spaced rows of twining with fine zS2 string (worked). Only two fragments found were made in this technique.[22]

Group B is matting, made completely of fine string. The passive strings are double, held together by single rows of twining.[23] Group C is fine matting consisting of small grass bundles which are fastened with single rows of widely spaced twining with string.[24] Very similar fine twined matting, but with double rows of twining occurred in one instance (group D).[25]

Group E is fine twined basketry which is worked open in two directions an example of which was found by Peet and Woolley. It is a sieve which is at present on exhibition in the British Museum. Strips of doam palm leaf are evenly spaced by single rows of twined doam palm leaf.[26] This is very similar to a fragment found in 1985, the difference being that this small fragment has been twined in S and Z direction (group G). The result is a decorative V-shaped pattern.[27] Probably also part of a sieve is a fine open twined fragment with double passive elements.[28] Coarse twined matting occurs also in seven variations, but is much more common. The first group of coarse matting (H) is closely twined, both systems made of string.

---

[22]TAWV 0776, 0786 (twining group A).

[23]TAWV 1150 (twining group B).

[24]TAWV 1112, 1166, 0718 (plus 0719 from the same archaeological unit), 0726 (twining group C).

[25]TAWV 0717 (twining group D).

[26]TAWV 0354, Peet and Woolley 1923, Pl. XXII,2 (twining group E).

[27]TAWV 0011 (twining group G).

[28]TAWV 0583 (twining group F).

	size		space		preparation		rows		Or.
	pas.	act.	pas.	act.	pas.	act.	pas.	act.	
A	fine	fine	close	open	worked	worked	single	double	S
B	fine	fine	close	open	worked	worked	double	single	S
C	fine	fine	close	open	unw.	worked	single	single	S
D	fine	fine	close	open	unw.	worked	single	double	S
E	fine	fine	open	open	unw.	unw.	single	single	S
F	fine	fine	open	open	unw.	unw.	double	single	S
G	fine	fine	open	open	unw.	unw.	single	single	SZ
H	coarse	coarse	close	close	worked	worked	single	single	S
I	coarse	coarse	close	close	worked	worked	double	single	S
J	coarse	coarse	close	open	worked	worked	single	single	S
K	coarse	coarse	close	open	worked	worked	double	single	S
L	coarse	coarse	close	open	unw.	worked	single	single	S
M	coarse	coarse	close	open	unw.	worked	single	double	S
N	coarse	fine	close	open	unw.	unw.	single	single	S

Table 10-13 Variations in twined fabrics found at Amarna. The 14 groups are discerned by the criteria listed in Table 10-12, cf. Figure 10-14. (Qasr Ibrim: p.232).

Five fragments have been found belonging to group H.[29] Very similar in appearance is one fragment of closely twined matting in which the passive elements consist of pairs of string (group I).[30]

Group J has not actually been encountered, but can not be excluded either. Small fragments, which only consist of one row of the twining, could have been part of matting with a passive system of single strings. Since the passive system is unknown, these fragments could belong either to group J, K or L.[31]

---

[29]TAWV 0288, 0301, 0703 (0713, 0714, 0720 from the same archaeological unit) and 0741 (twining group H).

[30]TAWV 0712 (twining group I).

[31]TAWV 0436, 0928, 0951, 0989, 1165 (twining group J, K or L).

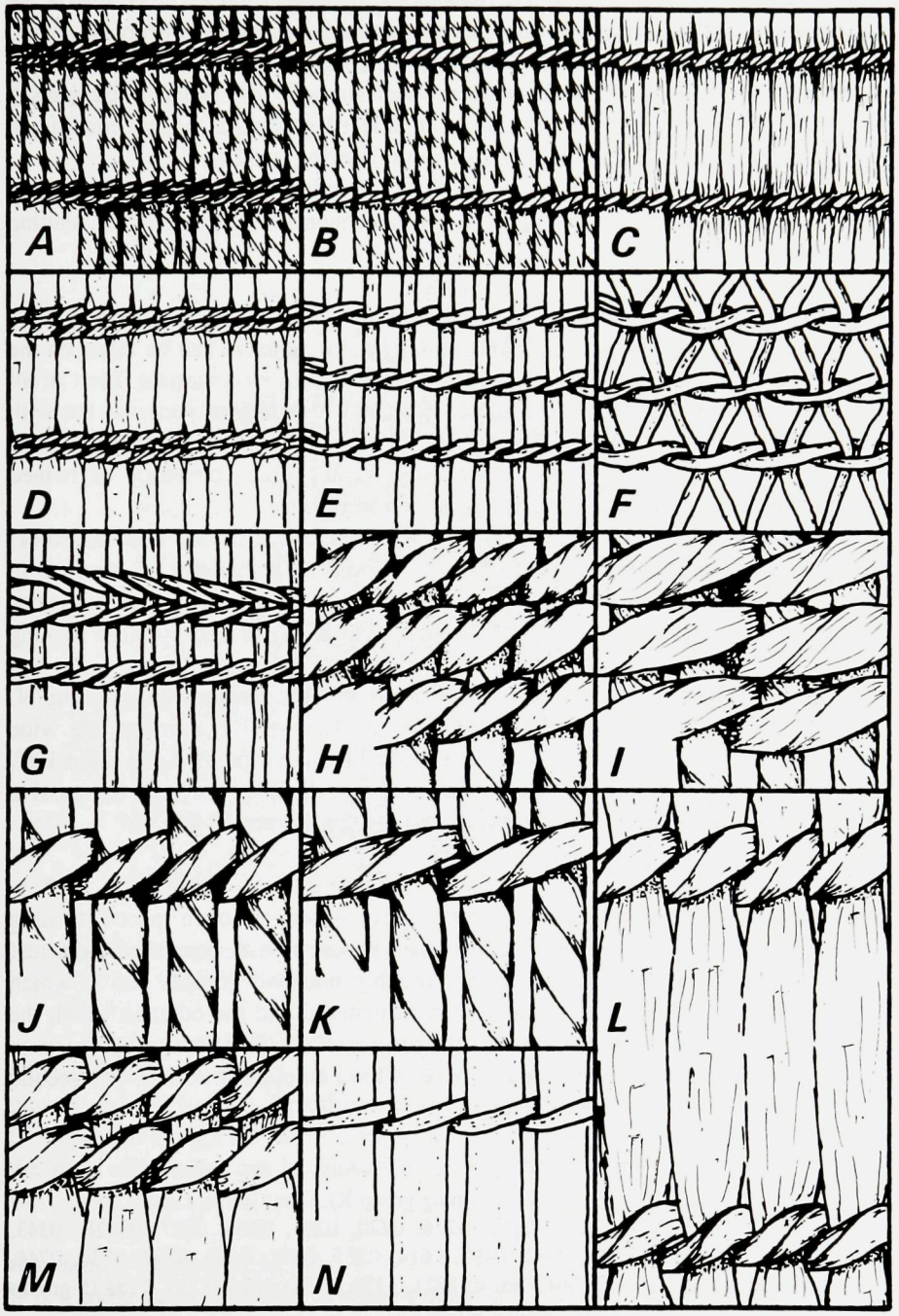


Figure 10-14 Variation in twined fabrics found at Amarna, as listed in Table 10-13.

Most probably, however, these are remains of matting group L, since this is the most common group. Group K consists of open twining, made entirely of string, the passive elements being grouped in pairs.[32] A coarse matting made of bundles of grass or palm leaf, twined with single rows of string L was found in 32 units.[33] The matting of group L is very similar to that of group M, which consists of bundles of grass or palm leaf with double rows of string twining.[34]

The last group of twining consists of 30 mm wide strips of doam palm leaf, twined with 2 mm wide strips. Only two small fragments of this kind of matting have been found.[35]

Reflections on Size

Looking closer at the 14 twining combinations, a few remarks can be made on the relation between the technique and the properties of the raw materials. First of all the size of the elements: both fine and coarse elements occur at Amarna, but with exception of twining group N, the passive and active elements are either both fine or both coarse. There is a technical reason for this: the coherency of twined matting would suffer from combinations of fine and coarse.

Coarse passive strands in combination with fine active strands does not work, because fine strands are not strong enough to hold large bundles of material in place. Fine passive strands in combination with coarse active strands are no good, because small bundles of grass would be squeezed and deformed by large twining rope.

The only instance where coarse and fine are combined is in twining group N, of which two small fragments have been found. The passive elements are wide strips of doam palm leaf, which are fastened with fine strips of doam palm leaf. The solidity of the leaf strips, which are not very flexible, prevents the passive elements from slipping out of the rows of twining (cf. Figure 10-14).

Reflections on Space

In a few fragments both the passive and the active system are open spaced (twining groups E, F and G), this is always fine twined basketry, with unworked elements. The fine twined basketry can be divided roughly into two groups: one in which both systems are made from the same kind of material and the other in which the active and passive systems consist of different materials. The first group seems to be confined to sieves, which obviously have to have an open structure. The second group consists of finely made matting.

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[32]TAWV 0122, 0505, 0702, 0711 (twining group K).

[33]TAWV 0003, 0045, 0111, 0161, 0216, 0278, 0281, 0286, 0287, 0342B, 0343, 0354, 0365, 0371, 0386, 0405, 0432, 0497, 0614, 0655, 0691, 0692, 0699, 0730, 0742, 0795, 0845, 0846, 0871, 0912, 0947 brush, 1021, 1176, 1191, 1214, 1253, 1254 (5 groups of fragments from the same unit) (twining group L).

[34]TAWV 0377, 0379, 0656 (twinging group M).

[35]TAWV 0473, 0673, 0677 (twining group N).

In coarse basketry only the active element is sometimes openly spaced: in coarse twining the passive system forms the body of the matting, which is kept together by widely spaced rows of twining. The distances between these rows vary between 20 and 100 mm.

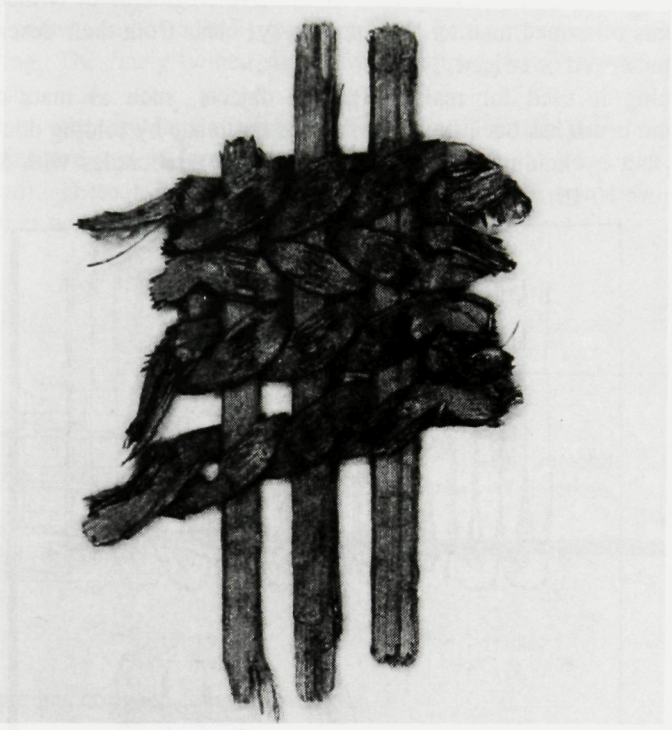


Plate 10-15 Fragment of a finely twined sieve grid, made of strips of doam palm leaf (TAWV 0011) (Courtesy of the Egypt Exploration Society).

Closely twined basketry in two directions occurs only in *coarse* basketry, although Plate 10-15 shows a fragment which seems to be *fine* basketry which is closely twined in both directions. This fragment, belonging to twining group G (TAWV 0011) appears to be closely twined, but the structure is very loose, and the rows of twining can be moved. It is probably a fragment of an open spaced sieve grid, with a small mesh.

Orientation (twining direction)

It is a trend in Amarna that twining is done in S-direction. Z-twined basketry does not occur, which is remarkable, because it would be technologically the most suitable twining direction. As with rope making, which is done by spinning and

plying the strands in opposite direction, to ascertain the coherency of the string (see p. 203, and Section 15.13), twining would ideally be done in the direction which is opposite of the orientation of the twining string. All twining string is spun in z-direction and plied in S-direction, which would make Z-twining the logical orientation. More is said about the orientation of twining in relation to the Qasr Ibrim twined matting (Section 11.2.2).

Peet and Woolley probably have found five fragments of twined sieves and 18 fragments of twined matting. It is not always clear from their description if the matting was woven or twined.[36]

Twining is used for making flexible objects, such as mats or bags. At Amarna one brush has been found which was not made by folding double a bundle of leaves, but by holding together a number of grass bundles with S-twined zS_2 string (Figure 10-16).[37]

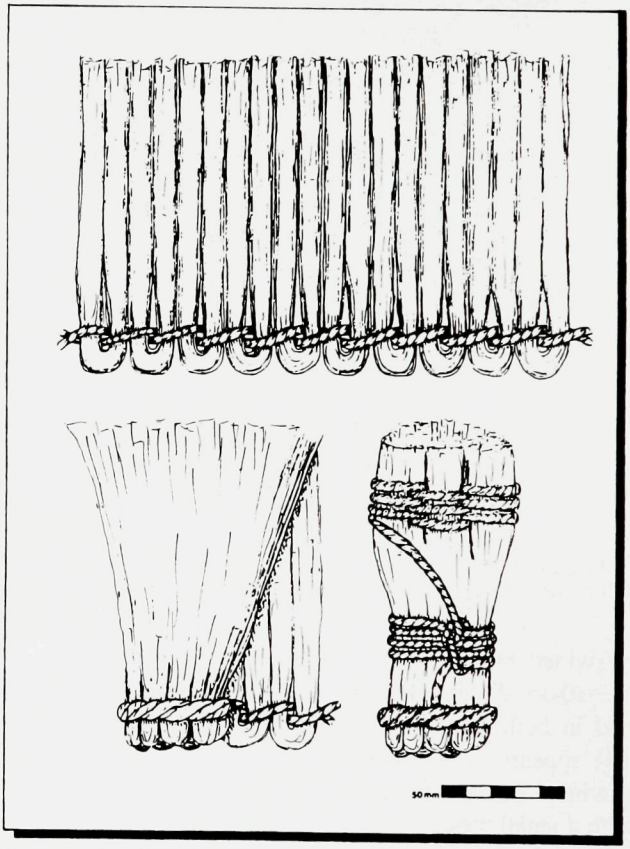


Figure 10-16 Brush made of a rolled twined mat (TAWV 0947).

[36]Peet and Woolley 1923, pp. 58, 68, 72-79, 82 (plates XX,4 and XXII,2).
[37]TAWV 0947, twined brush.

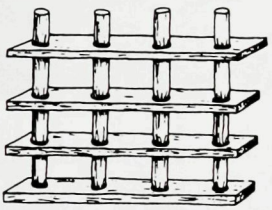
Middle Egypt

In present day Middle Egypt twined basketry is still used, but there are not many variations. Closely twined string matting (twining group H) is produced in the region of Amarna (Sections 15.10 and 16.4). They are made of date palm fibre string and used as door mats. Two mats sewn together make a large bag to put on donkey back for the transportation of earth and dung.

Grass floor mats with widely spaced rows of twining (group L) are not produced in present day Middle Egypt. At present floors are covered with (plastic) woven matting. The finely twined sieves from antiquity have modern equivalents of metal mesh.

The only other modern application of twining is in the production of rigid screens, which are part of farmers huts as protection against wind and sun in the fields (*sabata*). These are made of the culms of reed or sugar cane, bound or twined together with S-twined zS_2 string.

Pierced (12)



Fabric.
One passive system.
One active system, immobile.
Orientated in two directions.
(Figure 9-12)

Amarna

This technique has not been found in Amarna.

Middle Egypt

Pierced basketry is made in el-Amariyya. The mid ribs of date palm leaves are used for making crates, cages, chairs, tables, beds and a bat-shaped appliance for throwing bread in the oven (*matraha*, Plate 10-16).

The pierced technique consists of stakes, made of pointed split palm branches, and strips of the same material, in which holes have been punched with the help of a mould. The passive elements are always widely spaced. The spacing of the active elements is open or close, depending on the function of the object.

In the same area, the pierced technique is also with flexible elements: the string of the active system is 'pierced' through the ply of the string making up the passive system. All string is made in zS_2 orientation out of date palm fibre (Figure 10-17).

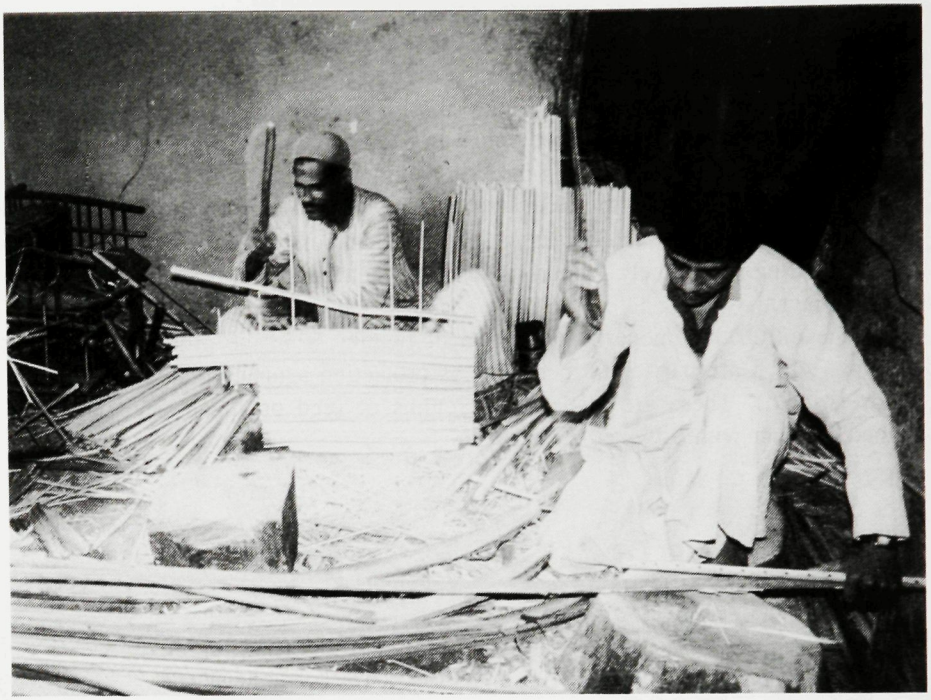


Plate 10-17 Workshop for the production of products from date palm mid ribs. A *matraha* (bread bat) is made by pushing pierced strips (active system) over stakes (passive system). To the left, in the corner, a small open cupboard, made in the same technique.

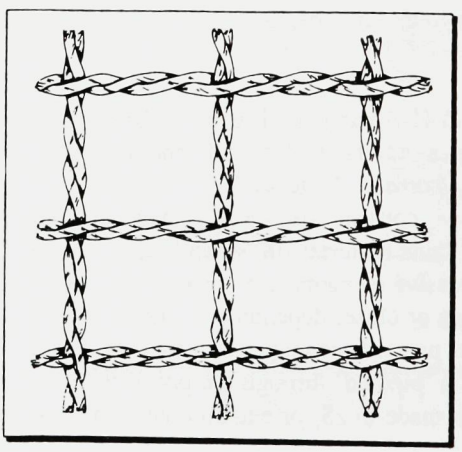


Figure 10-18 Carrier net, made in a pierced technique: the active string is pushed through the passive string to form a net.

10.2.3 Two-systems techniques with two active systems in one direction

Rope making (13)



Linear.
Two active systems (moving in two planes).
Orientated in one directions.

(Figure 9-13)

Amarna
Here *rope making* refers specifically to the production of two-ply rope (consisting of two strands). The grass bundles were spun and plied, in opposite direction, so that the ply holds the spin and *vice versa* (cf. Section 15.13).

10.2.4 Two-systems techniques with two active systems in two directions

Continuous plaiting (14)



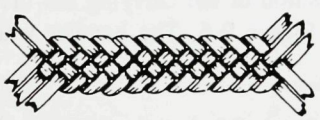
Fabric.
Two active systems (moving in one plane)
Orientated in two directions.

(Figure 9-14)

Amarna
Peet and Woolley found what seems to be a fragment of continuous plaiting in a \1/1\\1 pattern impressed in mud of(Peet and Woolley 1923, p. 57, pl. XVIII,6). No continuous plaiting was found during recent excavations and none is known from other New Kingdom contexts. The possibility must be taken into account that this fragment is a later intrusion.

Middle Egypt
No continuous plaiting is produced in Middle Egypt

Plaited strips (15)



Linear.
Two active systems (moving in one plane)
Orientated in two directions.

(Figure 9-15)

Amarna

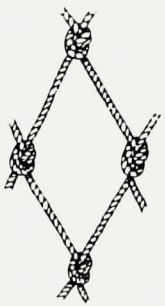
Plaiting is an old, but not an ancient technique in Egypt. The only plaited strips found during the recent excavations at Amarna are plaits with three strands.[38] The date of these plaits is uncertain, since they were found in drift sand, during cleaning, or in unsealed deposits. Judging from the materials used (papyrus and grass) they are probably old, but they might not date from the 18th dynasty. As mentioned before (p 180), Peet and Woolley reported to have found a basket in the sewn plaits technique, which is probably not ancient.

While twining and weaving occur from the earliest periods onwards, plaiting seems to have been introduced into Egypt in the 21st dynasty or later. In museum collections there are many plaited sandals, but these are in general badly provenanced. The earliest dated plaited sandal is on exhibition in the Egyptian Museum in Cairo and is reported to date from the third intermediate period (1070-712 BC). Among the many sandals found in the 18th dynasty tomb of Tutankhamon no plaited ones were found, all sandals were made in a variant of the coiling technique.

Middle Egypt

In the three villages of el-Hagg Qandil, el-Amariyya and el-Till plaited strips are made for the production of sewn plaits basketry. The strips are made both with five and nine strands (cf. Figure 9-15, see also p. 181).

Knotting (16)



Fabric.
Two active systems (moving in three planes)
Orientated in two directions.

(Figure 9-16)

Amarna

In one unit a large number of fragments were found of papyrus string with overhand knots. These were found in relation to a wrapped ring and a rope handle, also made of the rhind of *Cyperus papyrus*. The isolated knots are part of the only example of knotting with two systems known from Amarna, a large net for carrying amphoras. Figure 10-19 shows a reconstruction of the carrying net. The ring, holding the base of the amphora is shown in Figure 9-6. The handles were made of $sZ_2[S]_3$ rope (Figure 10-20).

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[38]TAWV 0584,0805, 0899, 1014, 1097, three-strand plaits.

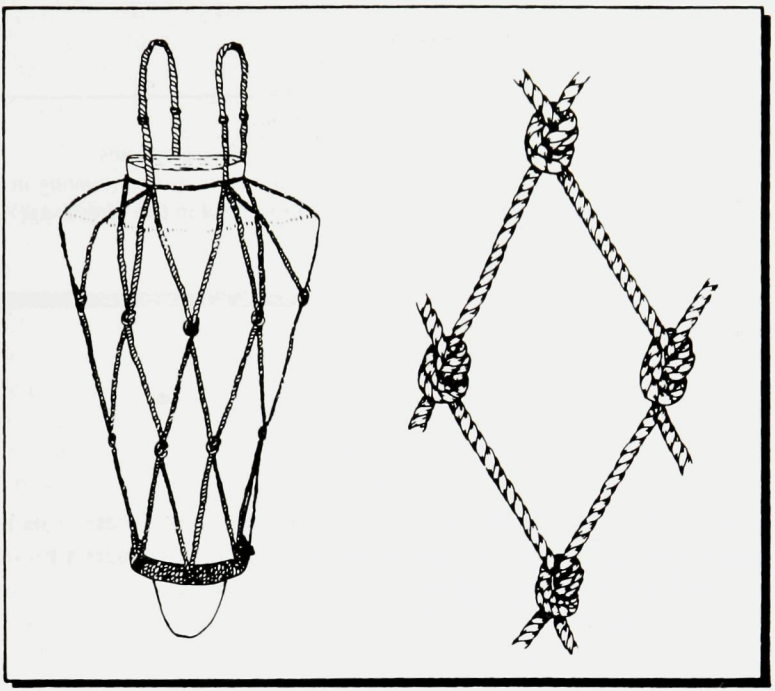


Figure 10-19 A knotting fabric which forms part of an amphora carrier net (reconstruction of TAWV 0292).

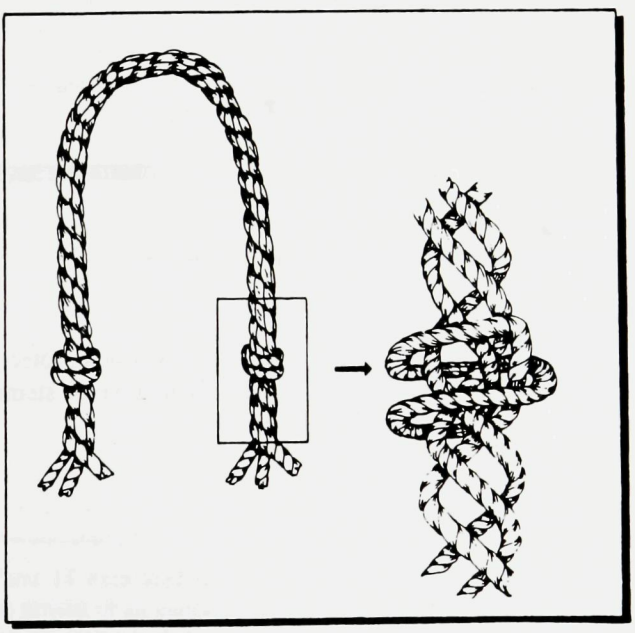
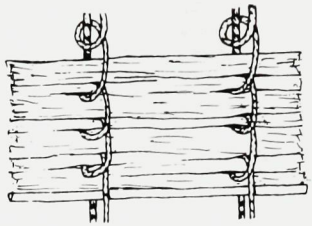


Figure 10-20 Detail of the handle of the amphora carrier net of figure 10-19.

10.3 THREE-SYSTEMS TECHNIQUES

Looping (18)



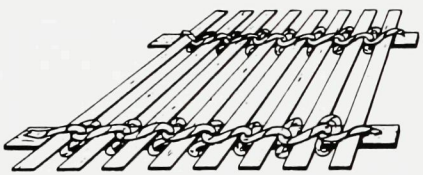
Fabric.
Two passive systems.
One active system (moving in two planes).
Orientated in two directions.

(Figure 9-18)

Amarna
This technique has not been found in Amarna.

Middle Egypt
Special mats are made to drain the young white cheese. These mats are known as *shinda* and are used and made by all Middle Egyptian farmers who own a cow or water buffalo and thus have milk to produce the cheese.

Binding (19)



Fabric.
Two passive systems.
One active system (moving in three planes).
Orientated in two directions.

(Figure 9-18)

Amarna
This technique has not been found in Amarna.

Middle Egypt
In order to make the walls of farmers' huts which protect the workers in the fields, stalks such as reeds or maize are tied to several stems which have been layed across.

CHAPTER ELEVEN

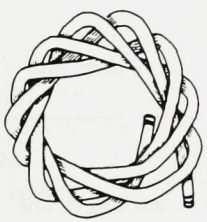
BASKETRY FROM QASR IBRIM AND NEW NUBIA

Of the 20 techniques listed in Table 9-21 (p. 169) 16 occur in Qasr Ibrim and eight in present New Nubia. The frequency in which the different techniques occur, has been measured not according to the number of fragments that have been found, but according to their position in the archaeological context. At Qasr Ibrim the context is recorded in *units*, each unit being an archaeological feature such as a layer or deposit. All fragments found in one unit and showing the same features, have been counted as one object, unless the fragments clearly represented more than one object made in the same technique. Although excavations have taken place from 1964 onwards, the material presented here is from only two areas, excavated in 1990 and 1992.[1] Throughout this section references will be made in foot notes to the basketry registration numbers.[2]

Technical features such as the insertion of new material, centres and rims are also important indicators of technical traditions, but will be considered in relation to the production process, subject of Chapter 15.

11.1 One-system Techniques

Grommet (2)



Linear.
One active system (consisting of one member moving in two planes).
Orientated in one direction.
(Figure 9-2)

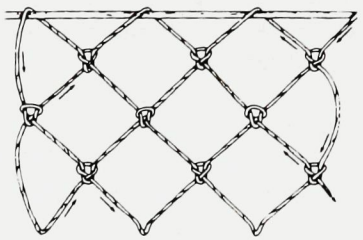
[1]These are areas 10 and 14 excavated by D.N. Edwards and H. Roberton. The basketry registration numbers consist of an indication of the area, three digits indicating the unit and three digits indicating the unique basketry number.

[2]A complete list of basketry finds will be incorporated in a separate publication on the Qasr Ibrim basketry.

Qasr Ibrim
Three grommets were found, made of three different materials: doam palm leaf, date palm fibre and grass.[3] These were all found in Ballana contexts (third to sixth century AD). They were probably used as pot stands.

New Nubia
There is no Information on the use and production of grommets in present New Nubia.

Knotted Netting (3)



Fabric.
One active system (consisting of one member moving in three planes).
Orientated in one direction.
(Figure 9-3)

Qasr Ibrim
Despite the wealth of organic materials surviving at Qasr Ibrim, only one small netting fragment was found.[4] The net was made of cotton yarn and mesh knots. The context has been dated to the seventh century AD.

New Nubia
As is true in Middle Egypt today, fishermen use netting made of synthetic fibres in a factory.

11.2 TWO-SYSTEMS TECHNIQUES

11.2.1 With one passive and one active system, orientation in one direction

Sewn plaits (4)



Fabric.
One passive system.
One active system (consisting of one member moving in one plane).
Orientated in one direction.
(Figure 9-4)

[3]Grommets: 10.103-537 doam palm; 10.133-539 date palm; 10.463-554 grass.
[4]Netting: 10.206-544.

This technique was very common at Qasr Ibrim. Variations within the class of sewn plait basketry, which is represented by 181 objects, is found by applying additional criteria, as was done for the twined matting from Amarna (pp. 194-201)

The variation of sewn plaits basketry is not determined by the same aspects as used for twined basketry do not grasp the variation in sewn plaits basketry. There is, for instance, no variation in the space between the elements and the interaction of the systems: all baskets and mats are closely spaced, since they consist of plaits sewn into a seemingly ongoing fabric (Table 11-1).

Elements (size and composition)			
size	passive elements	varied	depends on plait pattern and size of plaiting strands
	active elements	fine coarse	4 mm or smaller: strips of doam palm larger than 4 mm: string
space	passive and active	close	edges of plaits pulled inside each other
preparation	passive elements	worked	plaited strips
	active elements	unworked worked	strand of doam palm leaf, fine string, coarse
plait pattern	active elements	worked	see Table 11-2
Systems (interaction)			
no variation (sewing the edges of the plaited strips)			

Table 11-1 Variations in sewn plaits basketry can be specified by looking at the preparation of the passive elements (the plait pattern of the plaited strip) and active sewing strand (strand or string).

Although the size of the elements varies, this is not the core of the matter, since the size is mainly the result of the kind of plaited strips used. The variations in the plaited strips (the passive system) and the sewing strand (the active system) are what is of real importance in order to describe the variation within the sewn plaits technique at Qasr Ibrim.

Variation of plaited strips

The variation lies both in the number of plaiting strands and the plait pattern (Table 11-2, Figure 11-3). At Qasr Ibrim the most frequently used plait is made with 9 palm leaves at a time. The pattern, indicated with the formula \2/2\\1, is one strand passing under two, over two, with a *shift* of one (Wendrich 1991c, 65-66).

strands	pattern	frequency	%	sewing strand
5	\1/1\\1	21	11%	grass string
7	\2/1\1/2\\1	1	< 1%	doam palm leaf strip
9	\2/2\\1	122	67%	string or palm leaf strip
11	\2/1\1/2\\1	1	<1%	doam palm leaf strip
13	\2/2\\1	11	7%	doam palm leaf strip
17	\2/2\\1	23	13%	doam palm leaf strip
21	\2/2\\1	2	1%	doam palm leaf strip

Table 11-2 Variation in plaited strips. Of the 181 sewn plaits baskets 122 are made with 9-strands plaits (67%).

This pattern occurs 122 times,[5] considerably more than the second and third groups made respectively with 17 palm leaves in a \2/2\\1 pattern and with five palm leaves plaited in a \1/1\\1 pattern.[6]

The plaits used for sewing into basketry all have in common that their edges are orientated perpendicular to each other (SZ, cf. Figure 11-3). Edges oriented parallel to each other (SS) cannot be pulled inside each other and are, therefore, not suitable for making mats or baskets in the sewn plait technique. This is the 'Qasr Ibrim Plaiting Rule'.

The first plait shown in Figure 11-3, is made with fours. It has two S-orientated edges and is, therefore, not suitable for sewing into a fabric. The second

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[5]Strips plaited with 9 strands \2/2\\1: 10.001-397,398; 10.012-391, 393, 395; 10.024-011; 10.026-112; 10.032-008, 401, 402, 403, 404; 10.041-094, 095; 10.045-097, 099; 10.046-037, 038; 10.048-026; 10.049-005; 10.054-004, 029a+b, 030; 10.061-206, 411; 10.066-412; 10.069-091; 10.071-006; 10.072-086, 515; 10.073-417; 10.075-172; 10.082-087, 420; 10.095-421; 10.098-105, 110, 111, 424; 10.099-103; 10.103-082, 083, 106; 10.105-427; 10.121-107; 10.122-198; 10.124-429, 431, 432; 10.133-085, 434; 10.144-096; 10.152-435; 10.162-119; 10.172-514; 10.192-207; 10.197-208; 10.203-439; 10.303-283, 284, 285, 286, 288, 289, 290, 443; 10.306-291; 10.308-442; 10.310-446; 10.324-473; 10.340-495; 10.344-484; 10.349-301; 10.350-491; 10.372-505, 506; 10.373-497; 10.376-507, 508; 10.377-510; 10.380-516, 519, 520; 10.401-447; 10.402-448; 10.404-449; 10.405-323, 452, 455, 456; 10.406-461; 10.410-462; 10.413-326, 465, 467; 10.414-476; 10.419-479; 10.420-481; 10.423-487; 10.428-486; 10.429-488; 10.450-335; 10.480-499; 10.486-503; 10.487-513; 10.490-356; 14.063-370, 371, 372, 373; 14.157-374, 375, 386; 14.298-272; 14.321-358; 14.327-376, 377; 14.393-493, 494; 14.469-366, 367.

[6]Plaits of 17 strands in \2/2\\1 pattern (twenty-three fragments of matting): 10.001-399; 10.012-392, 394; 10.041-093, 409; 10.046-036; 10.064-033, 034; 10.069-090, 410; 10.078-413, 415; 10.082-088, 418, 419; 10.098-423; 10.099-102; 10.172-521; 10.404-450; 10.405-453, 454; 10.406-460; 10.413-464; Plaits of 5 strands in \1/1\\1 pattern (21 fragments of carrier baskets): 10.001-396, 10.015-400, 10.041-092, 10.045-100/101, 10.046-039/040, 10.049-005, 10.054-003, 10.071-007, 10.078-205/414, 10.082-089, 10.373-498, 14.063-379/382, 14.133-380/378/384/385, 14.157-381.

plait, made of five strands has edges in SZ orientation, as does the third plait with seven strands. Plaits with five and seven strands are suitable, but plaits with four and six strands are not.

Thus it follows from the 'Qasr Ibrim Plaiting Rule' that plaits made in a \1/1\\1 pattern are suitable to make into a fabric when plaited with an odd number of strands, but plaited strips made of an even number of strands are not.

Apart from the \1/1\\1 pattern, a *twill* pattern is found: a pattern in which the shift is smaller than the number of strands that are passed. The twill pattern used at Qasr Ibrim for making the strips is \2/2\\1 (under two, over two, with a shift of one). The number of strands used for twill plaits is governed by the same rule: the edges have to be oriented in an opposite direction (SZ).

Not all strips plaited with an odd number of strands are suitable. Figure 11-3 shows that a plait in this pattern made with seven strands is cannot be sewn into an ongoing fabric: both edges are oriented in the same direction (SS). A nine-strands plait, on the other hand, has its edges oriented in different directions (SZ) and is suitable for using in the sewn plaits technique.

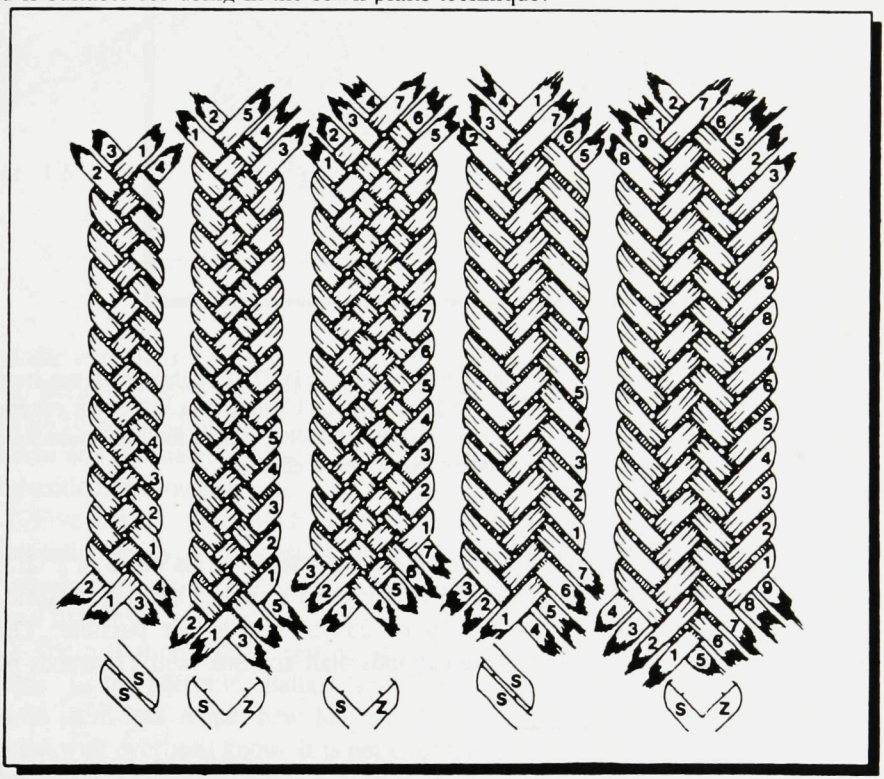

Figure 11-3 Plaited strips of which the edges are orientated perpendicular to each other (SZ) can be used for making fabrics, while strips with parallel edges (SS) cannot. From left to right: plait with 4, 5 and 7 strands in a \1/1\\1 pattern, plait with 7 and 9 strands in a \2/2\\1 pattern.

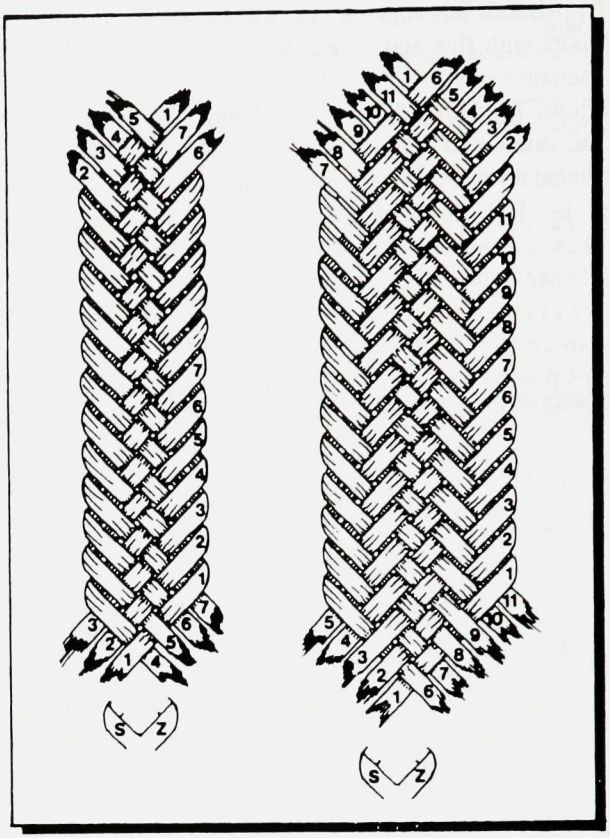

Figure 11-4 Left: a seven-strands plait with pattern \2/1\1/2\\1 Right: an eleven-strands plait with pattern \2/2\1/1\2/2\\1. The combination of a \2/2\ plait pattern at the sides and a \1/1\ pattern in the middle, makes the plait suitable for sewing into an ongoing fabric (SZ oriented edges).

From the 'Qasr Ibrim Plaiting Rule' it follows that plaited strips made in a \2/2\\1 pattern are made with 5, 9, 13, 17, 21 or 25 (etc.) strands.[7] Making a fabric of twill plaited strips with 7, 11, 15, 19 or 23 strands, is not possible. Three exceptions were found: one twill seven-strands plait and one twill 11-strands plait

[7]Two twill five-strand plaits were found at Qasr Ibrim (10.099-538; 10.335-545), but these are just plaited strips, and are not used in matting. Eleven matting fragments were found composed of 13-strand plaits: 10.032-405; 10.098-422; 10.103-081; 10.121-108; 10.195-438; 10.202-214; 10.219-441; 10.380-512, 518; 10.384-522; 10.410-463; Only two fragments of matting from 21-strand plaits were found: 10.071-006 and 10.098-425. The latter is not complete and might also be a fragment from a plait made with 25 strands.

with adapted patterns, resulting in an SZ edge (Figure 11-4).[8] Also a twill 19-strands plait was found, which had not been used in antiquity to make a fabric, but as a stopper blocking the hole of a mud grain silo.[9]

In general, baskets were made of five- or nine-strands plaits, mats were made of the wider strips, plaited with 13 strands or more.

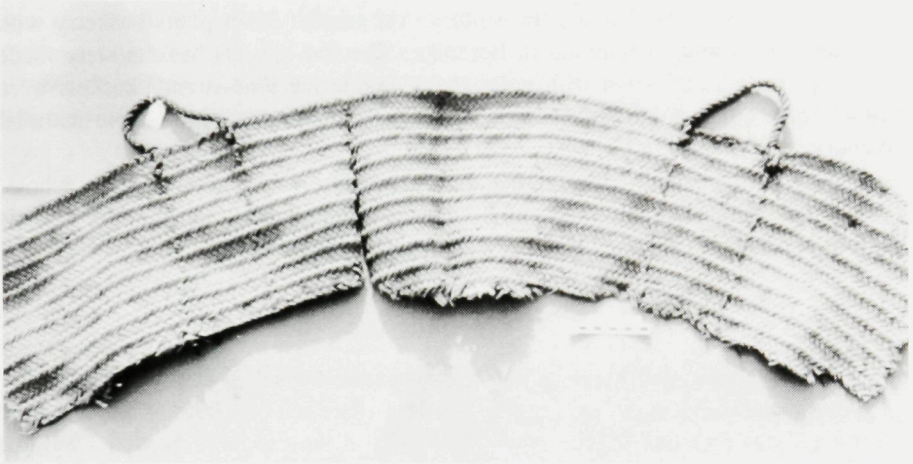

Plate 11-5 Sewn plaits basket from nine-strands plaits made of date palm leaf, sewn with 3 mm wide strips of date palm leaf. The base and side have been cut, since the basket was reused as pit lining. Ballana Period (third to sixth century AD). (Courtesy of the Egypt Exploration Society).

Periodic variations

In all periods nine-strand plaits were used for making baskets, but for the different periods found at Qasr Ibrim, differences can be reconstructed for the use of plait patterns and the material of which the strips were made. The sewing strip varied in composition and material also.

Five-strands plaits did not occur until the Islamic period (twelfth to nineteenth century AD). Most of the plaits made of doam palm leaf are also found in Islamic contexts. In the earlier periods date palm was the raw material used for plaited basketry.

The variation in the sewing strand is that between string and unworked strands. In the Meroitic, Ballana and Christian periods the sewing is done with unspun palm leaf strips, new lengths of the strand added on during the sewing process with overhand knots. It is not until the Islamic period that zS_2 string, made of palm leaf, palm fibre or grass, is used to sew the plaits into a basket.

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[8]Plait with seven strands: 14.157-387; plait with eleven strands: 10.191-437.
[9]Plaited strip made with 19 strands: 10.414-328.

Although this variation seems to be one of preferences over time, the matter is more complicated. The five-strands baskets did occur in other parts of Egypt before the twelfth century AD. Indications for this are found in textual and archaeological material. In a Greek papyrus, arranging the lease of an olive and date tree orchard, two types of basketry are mentioned: ἐννεάπλοκον and πενταπ[λ]όκον, which I believe stand for sewn plaits basketry made with nine and five-strands plaits.[10] In a fifth century AD context sewn plaits basketry with five and nine strands was found in Berenike. The five-strands baskets were made of date palm leaf and sewn with grass string, while the nine-strands baskets were plaited from doam palm leaf and sewn with unspun strands of the same material (Wendrich 1995, 74-77).

Most of the sewn plaits fragments are part of carrier baskets. On the whole, the five-strands baskets are made with wider plaiting strands than the nine-strands baskets and have, in general, a coarser appearance (Plate 11-6).

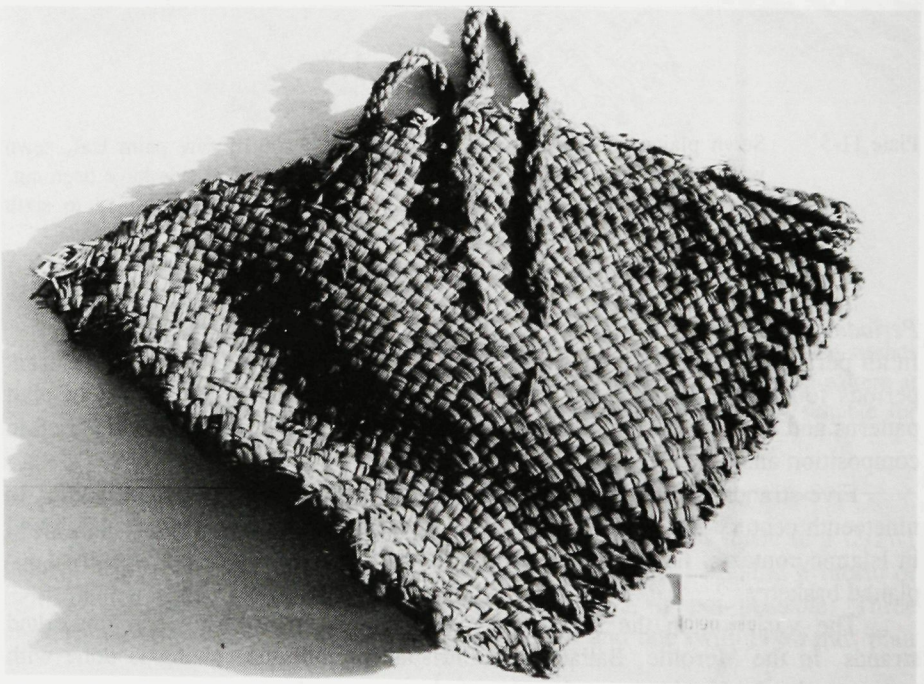


Plate 11-6 Complete carrier basket made of five-strands plaits (doam palm leaf), sewn with string. Islamic period (after 12th century AD). (Courtesy of the EES).

[10]P. Vindob.Boswinkel 8, line 13, cf. Worp 1977, 97 and P. Soterichus 4, line 18, cf. Worp 1988, 280).

They probably were used for the hard work of carrying stones, sand and dung, while the nine-strands baskets were perhaps more employed for carrying grain, and other foodstuffs. One of the nine-strands baskets has long rope handles and an oval shape, which is very similar to the pollination baskets made and used at present in Middle Egypt (cf. p.181).

The wider plaited strips, which were used for matting show a variation over time too. Plaits made with 13 strands are found in Meroitic, Ballana and Christian contexts (third century BC to twelfth century AD). Strips plaited with 17 or 21 strands do not occur before the sixth century AD. *All* matting fragments from the Islamic period (twelfth to nineteenth century AD) were made with 17 strands, most often with doam palm leaf.

Although the part of Qasr Ibrim excavated in 1990 and 1992 had not been occupied during the ninth to twelfth century AD, and only a few storage pits from that period were found, most variation in plaiting techniques is found in the Christian deposits.

New Nubia

Sewn plaits baskets in New Nubia are lavishly decorated with patterns of three or four colours worked into the plait. All baskets are made from nine-strands plaits in a \2/2\\1 pattern. The sewing is done with a flat needle and thin strips of doam palm leaf. When a sewing strand runs out, a new length is knotted to the old strand. Apart from the small baskets, made of a plait with a length of three *ba'at,* larger decorated baskets are made, of six and 10 *ba'at (*Plate 11-7*)*. These baskets are indicated with the Arabic word *guffa*, but they are also called *sellan bursh* in Kensi and *sellan nibid* ('mat-basket') in the Fadidja area. *Shibr* is a Kensi word for the smaller sewn plaits baskets of 3 *ba'at*. The baskets have almost straight sides and two small rope handles. They are used as shopping baskets and as storage baskets inside the house, for instance for dates and peanuts.

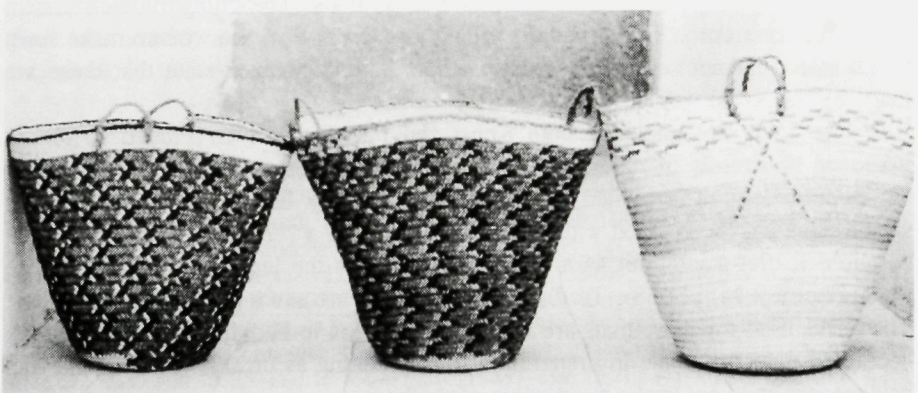


Plate 11-7 Sewn plaits baskets, made of 9-strands plaits, sewn with strands of doam palm leaf. The sizes are 5, 6 and 7 *ba'at*. Aswan 1990.



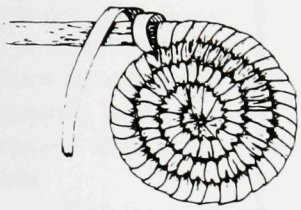
Plate 11-8 Sewn plaits 'bridal' mat, with decorative zigzag patterns. This mat is 14 strips wide (rather than the 'ideal' 16), sewn with strands of doam palm leaf. New Ibrim 1992.

The basket making tradition differs per village. In the Kensi village of Dabud, for instance, nobody makes sewn plaits baskets, but in the Kensi village of Dihimit, many women make baskets, as well as mats. The village is well known for its basket makers. In the Fadidja village of New Ibrim, the women make sewn plaits mats, but not sewn plaits baskets. The Fadidja women state that these are made by the Kensi women.

The mats are made by both Kensi and Fadidja women. Plaited strips are made of 17-strands of date palm leaf and sewn with knot-connected strands of doam palm leaf. The plaited strips are decorated by incorporating one plaiting strand that has been dyed either red or green. In a 17-strands plait, this one coloured leaflet stands out as a zigzag pattern over the length of the strip (Plate 11-8, Figure 9-4a, p. 158). Traditionally, 16 strips are sewn parallel to each other. The terms used for these mats are in Kensi *bursh* and in Fadidja Nubian *nibid*. The decorated mats are made in preparation for a wedding as present for the bride and bridegroom and kept in the guest room of the house.

Apart from the coloured Nubian baskets, the Nubian households also use large undecorated sewn plaits baskets, which are also called *guffa*. It is the Upper Egyptian equivalent of the Middle Egyptian *maqtaf*, and is made by Egyptian men.

Coiling (5)



Fabric.
One passive system.
One active system (consisting of one member moving in two planes).
Orientated in one direction.
(Figure 9-5)

Qasr Ibrim

With a few exceptions, all coiled baskets in Qasr Ibrim are decorated. These decorations were made during the production of tne basic structure, either with colours or by using decorative wrapping patterns. Some variation occurs in the Qasr Ibrim coiled basketry in the interaction of the active and passive system.

Of a total of 134 coiled objects and fragments, 99 were made in the 'stitch through bundle' technique.[11] The palm leaf strand is wrapped around a bundle of grass and stitched through the previous coil (the *anchoring fabric*). This is the way that all coiled basketry in Amarna was made.

In 17 objects, the stitch does not pass through the bundle, but only through the previous row of wrapping strands.[12] The effect is a surface which is much more smooth than that of the first group, in which the stitch is passed through both previous winder and bundle (Plate 4-4 on p. 64). The stitch-through-winder technique is used in combination with coloured winders, forming a decorative

[11]Stitch-through-bundle coiling: 10.001-152; 10.012-183, 184; 10.043-186; 10.045-140; 10.061-046, 047, 048, 158; 10.064-044, 045; 10.066-199, 201, 202; 10.072-061, 160; 10.078-203; 10.082-056, 057, 058, 059, 060; 10.083-146, 147, 148; 10.088-166,167; 10.090-163, 164; 10.095-150; 10.098-043, 154; 10.110-159; 10.121-064, 065, 066, 143, 144, 145, 157, 161, 162, 165, 181; 10.122-197; 10.123-049; 10.128-155, 156; 10.129-190; 10.133-069, 185; 10.139-142; 10.144-168; 10.154-151, 211; 10.166-440; 10.169-177, 180; 10.180-182; 10.195-174; 10.203-213; 10.216-173, 280, 281, 475; 10.247-062, 063, 217; 10.303-287, 444; 10.317-293; 10.323-472; 10.325-294; 10.335-296, 483; 10.340-496; 10.341-492; 10.344-485; 10.345-298, 299; 10.347-300; 10.358-304; 10.380-311, 312, 313, 314; 10.401-321; 10.404-451; 10.405-457, 459; 10.412-474; 10.413-469; 10.414-478; 10.419-480; 10.420-482; 10.429-489; 10.485-502; 10.486-354; 14.493-369.

[12]Stitch-through-winder coiling: 10.053-051, 052; 10.061-050; 10.067-054; 10.172-278, 279; 10.075-032; 10.083-042; 10.216-282; 10.325-295; 10.352-303; 10.360-305; 10.413-470; 10.419-330; 10.480-344; 10.485-346; 14.493-368.

pattern. Another feature of these fragments is that the bundle is not round in diameter, but slightly flattened. An exceptional basket is a widely spaced stitch-through-winder basket from a late Ballana context (Figure 11-9).[13]

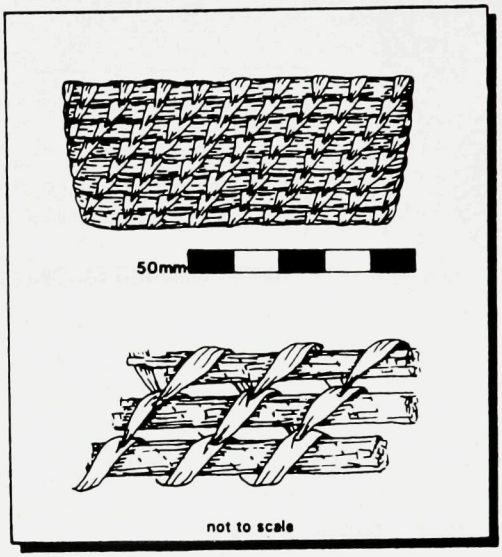


Figure 11-9 'Stitch-through-winder': coiling technique in which the stitch just picks up the wrapping strand of the previous coil, rather than running through both the wrapping strand and the bundle. This small basket is a rare example of widely spaced winders, which leave the bundle visible.

In five fragments stitch-through-bundle coiling is combined with wrapping around two bundles.[14] The coils near the centre and the rim are fastened with the stitch-through-bundle, but the fabric of the sides of the baskets is made by wrapping the palm leaf strand successively round one and two bundles, without the use of stitches. This results in a closely wrapped, decorative fabric (cf. Figure 5-13 on p. 98). In the five baskets the amount of stitch-through-bundle coiling varies between only one coil just around the centre, to three coils near the centre and nine coils near the rim. Three of these baskets were found in well sealed early deposits, which were dated as early Ballana or Late Meroitic (first to third century AD). Two baskets were found in disturbed building areas of the Islamic period, in which remains of demolishing of Ballana buildings were found.

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[13] 10.075-032.

[14] Combined stitch-through-bundle and successive wrapping around 1 and 2 coils: 10.061-053; 10.082-055; 10.162-153; 10.172-187; 10.377-310.

In eight fragments the stitch-through-bundle technique is combined with decorations with wrapped patterns.[15] The stitch-through-bundle technique is used near the centre (cf. Plate 4-4 on p. 65), near the rim and sometimes in between two bands of the wrapping pattern.

The pattern is made in a second phase, over a fabric which is a fast version of the stitch-through-bundle technique: the palm leaf strip is wound a number of times around the bundle, and then fastened to the previous coil, or over two coils, with one stitch (Figure 11-10). The fabric made in this *'lazy basket makers' stitch'* is not very strong, but is only used to form the basis for the decorative wrapping, which at the same time strengthens the fabric. The number of coils over which the wrapping is done varies. The schematic drawing in Figure 11-10 shows a pattern wrapped over nine coils, the basket of Plate 4-4 (p. 65) has a pattern over five coils.

With the exception of two small fragments, which were found in a context of the Christian period, these baskets were all found in Ballana and Meroitic contexts.

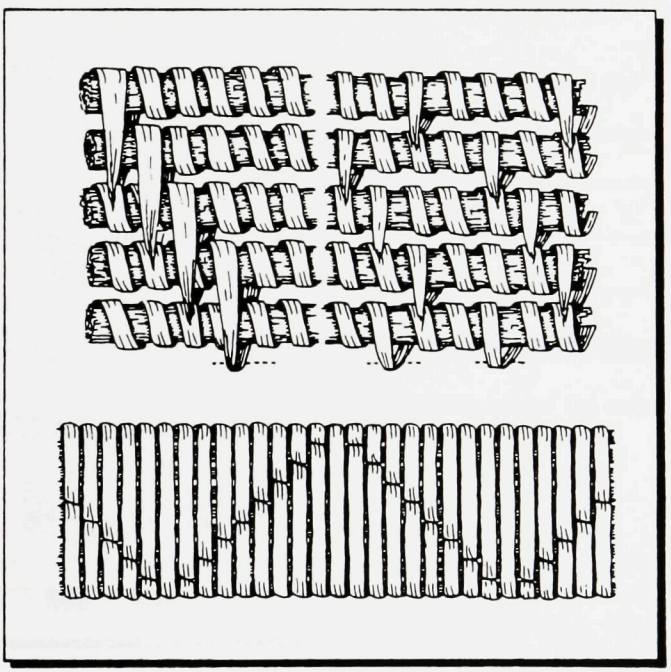


Figure 11-10 The 'lazy basket makers' stitch' covered by decorative wrapping.

[15]Combination of stitch-through-bundle and decorative wrapping: 10.098-216; 10.162-141; 10.350-302; 10.372-306; 10.405-322, 324; 10.416-509; 10.485-353.

In four baskets a combination of three of the techniques mentioned above was used: the stitch-through-bundle technique near the centre and rim, the successive wrapping around one and two bundles for the sides, with one or two bands of lazy basket makers' stitch, covered with wrapping as decoration.[16] All four were found in early Ballana contexts.

The only coiled object in which there is a variation in the space between the coils, is a the basket shown in Figure 11-11.[17] Comparing this basket with the one in Figure 11-9 illustrates the different effects of using space in the active or the passive system.

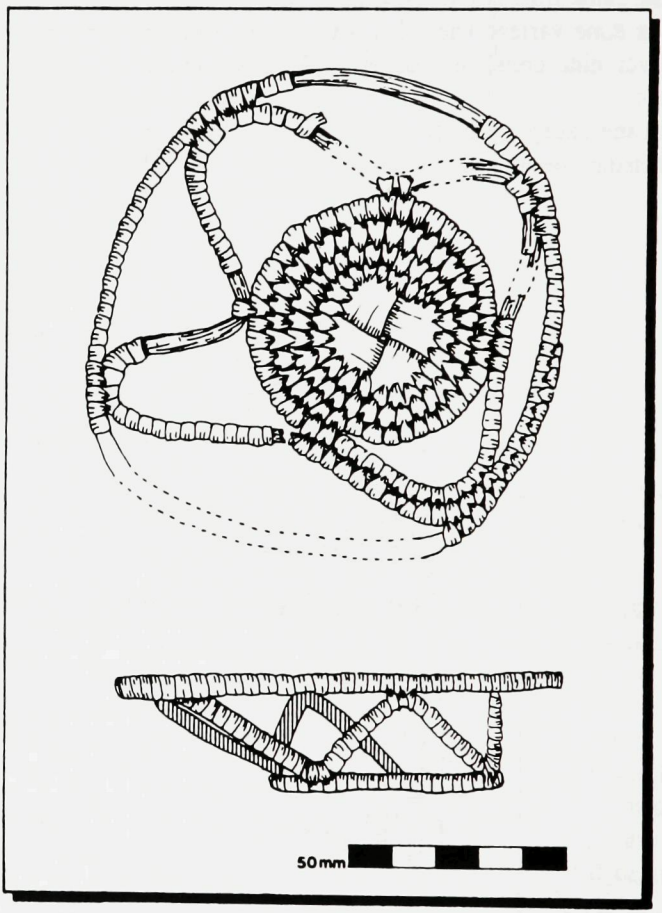


Figure 11-11 Open spaced coiling (the passive system is widely spaced, while the active system is closely spaced).

[16]Combination of three coiling methods: 10.075-041; 10.121-067, 068; 10.485-347.
[17]Open-spaced coiling: 10.473-343.

In figure 11-9 the passive system is closely spaced, the active system is widely spaced. This has no consequences for the coherency, shape or strength of the basket, but only for the appearance. If the passive system is widely spaced, however, the entire structure is influenced. In the basket of Figure 11-11 both the bundle and the winders are made with doam palm leaf. The basket was found in a Ballana period context.

Size of bundle and winders

The diameter of the bundle is in all fragments smaller than the width of the wrapping strand (Table 11-12). There were 42 fragments (31 %) of very fine basketry, with both systems smaller than 5 mm. Most of the baskets were made of bundles with a diameter between 5 and 10 mm and a winder smaller than 5 mm (57 %), which is still fine, compared to the coiled objects from other regions (cf. Table 10-5 on p. 184). This painstaking work of stitching narrow strips of doam palm leaf around tiny bundles, adds to the delicacy of the lavishly decorated Qasr Ibrim coiled basketry.

Active system: width of winders \ Passive system: diameter of bundle	0-5 mm	5-10 mm	10-15 mm	15-20 mm
0-5 mm	42	77	5	4
5-10 mm	-	5	1	-
10-15 mm	-	-	-	-
15-20 mm	-	-	-	-

Table 11-5 Ratio between the size of the active and passive systems of the 134 coiled baskets found at Qasr Ibrim.

Material, shape and function

The bundle material of the baskets from Qasr Ibrim are mainly made of grass and the hard fibres of the fruit stem of the date palm In some cases straw is used. For the winders doam palm leaf is used mostly, although in some cases wheat straw was used.

Many of the coiled baskets from Qasr Ibrim are complete or nearly complete. There are not many coiled containers. Most of the coiled basketry is flat, or slightly curved, which seems to indicate that it was their function to cover, rather than contain things.

New Nubia

The supposition that the coiled baskets from Qasr Ibrim are largely used as covers, is partly based on the function of baskets in New Nubia. Flat or slightly conically shaped baskets with a diameter of 75 cm or more, are used to cover aluminium trays on which the food is brought in. Some of the baskets have a ring handle to make it easier to lift the basket. In the old days the food was not brought in on an aluminium tray, but on a large flat basket When not in use, the baskets are hanging on the wall as an attractive, colourful decoration.

Smaller, completely flat, baskets with a diameter of 30-40 cm are used to cover water jars, pots and pans. The smallest size are 10 cm in diameter and used to cover tea glasses. The latter are not used often, they are rarely taken of the wall. Apart from the covers, there are also deep round baskets with a foot, which is at the same time used as head ring to carry the basket. These are covered with a flat basket. The terms with which these baskets are indicated differ greatly between villages. An overview is given in Appendix D.

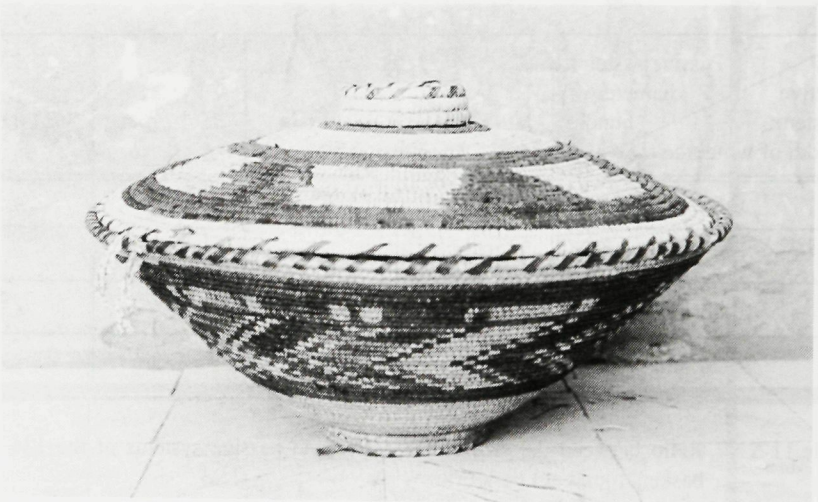


Plate 11-12 Recently produced coiled basket and lid, made of doam palm leaf. New Ibrim 1992.

The materials of which the coiled baskets were made before the settlement, are mostly the same as what is known from Qasr Ibrim. The bundle material is the fibre of the fruit stem of the date palm. The wrapping strand is mostly doam palm, although in Kensi villages sometimes wheat straw was used. After the resettlement, doam palm leaf is difficult to get and alternative materials are sought

In present day New Nubia, the production of coiled basketry is a highly regarded craft. The most important aspect of the baskets is their decoration, which should be colourful and nicely patterned. Monochrome wrapped patterns, such as found in Qasr Ibrim, do not occur. A specific form of colourful decoration is the

technique of *imbrication* (see below). In New Ibrim I found only one completely undecorated basket, which was used to take hot bread out of the oven.

The coiled basketry production in Nubia differs from place to place. Four villages will be considered here: the Fadidja villages of New Ibrim and Ballana; and the Kensi villages of Dabud and Dakka.

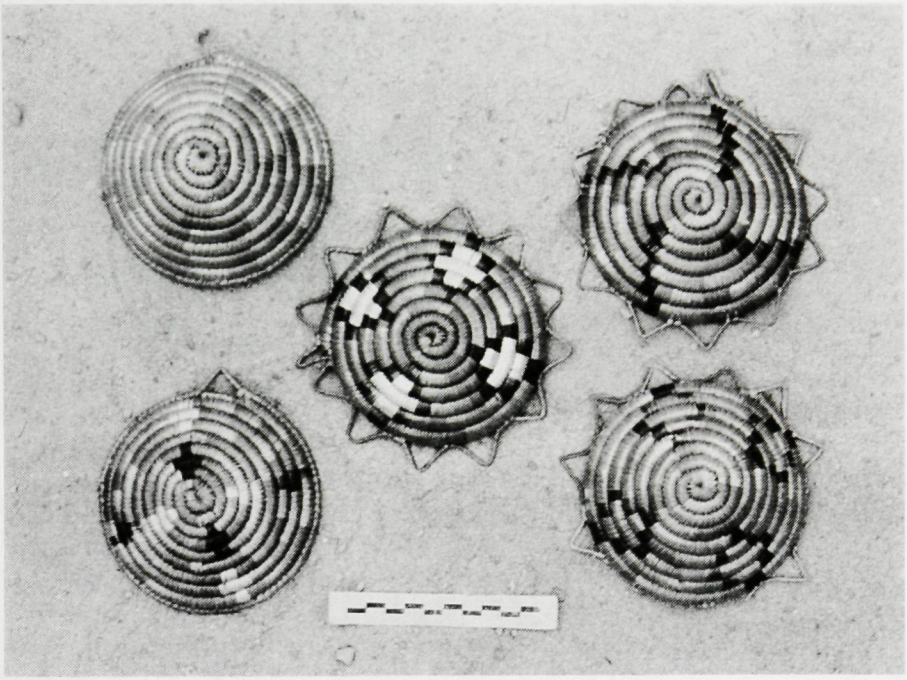


Plate 11-13 Small coiled lids, made of coloured wheat straw. They were made in old Dabud, before the resettlement. New Dabud 1992.

In order to make the decorated baskets, the women of New Ibrim dye the doam palm leaf strips and use the coloured strips in combination with white leaves. The women have a preference for doam palm leaf, but if they cannot get the material, they will use date palm leaf, which is thought to be less strong and less colourful. The women of Ballana, also a Fadidja village, make baskets mostly from date palm leaf, although they also would prefer to use doam palm leaf.

The lack of doam palm leaf is equally felt in the Kensi villages, but the solution found there is quite different. The Kensi women do not cling to tradition, but have found alternative materials. In Dabud the women make baskets of brightly coloured cotton yarn. In the village of Dihimit most women are involved in the production of sewn plaits baskets, the neighbouring Kensi village of Dakka has a tradition of coiled basket makers. Since their arrival in New Nubia the women have experimented with different colourful materials.

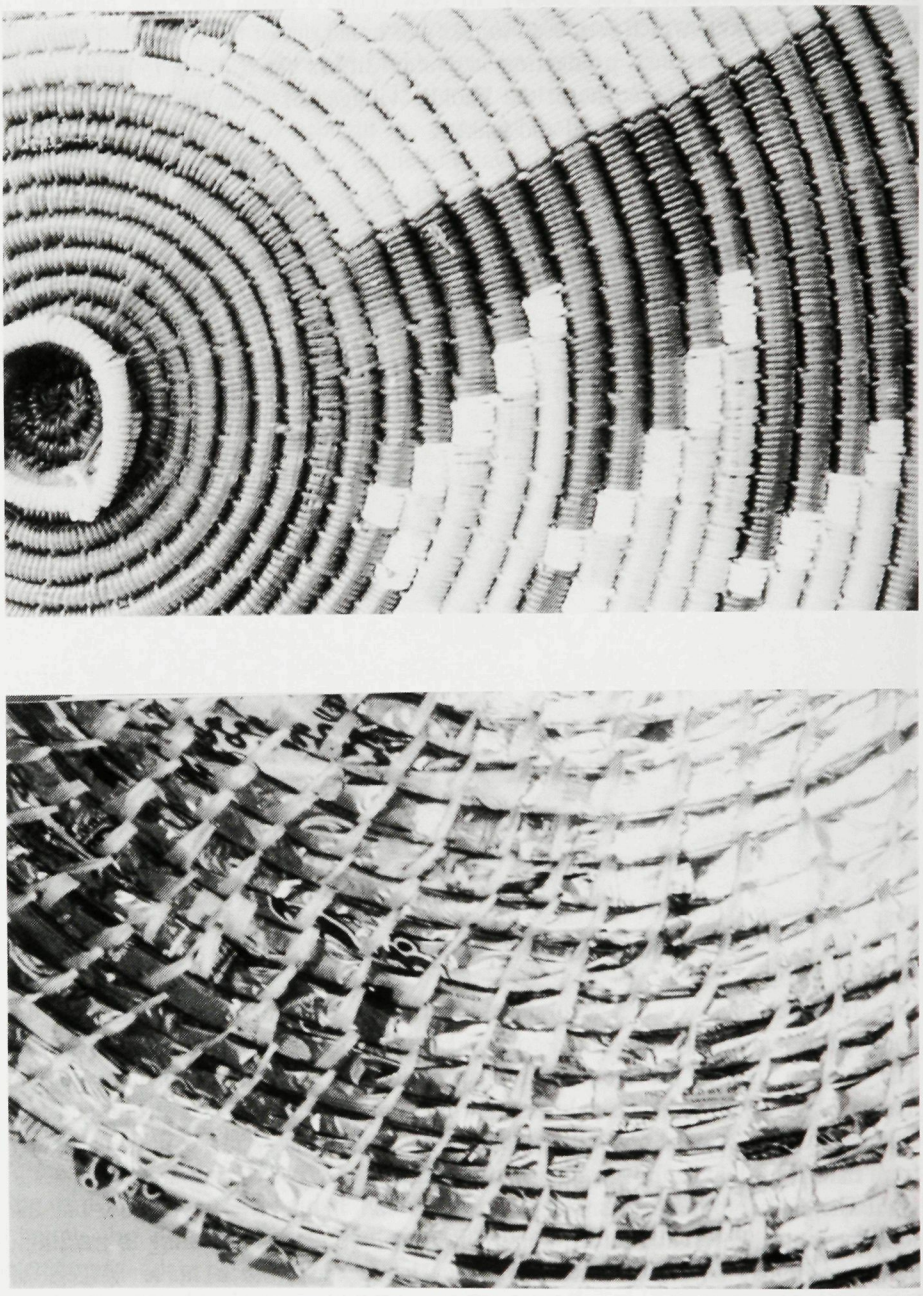
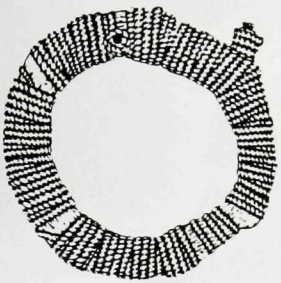


Plate 11-14 Innovations in the choice of colourful materials to replace doam palm leaf, which is in scarce supply. Top: washing line (twenty years old). Bottom: chocolate wafer wrappers and synthetic ribbon. Dakka 1992.

The results are baskets made of plastic washing line (twenty years old) and baskets of which the bundle is wrapped with chocolate wafer wrappers, stitched in place with widely spaced winders of synthetic ribbon (three years old). Details are shown in Plate 11-14.

Wrapping (6)



Linear.
One passive system.
One active system (consisting of one member moving in two planes).
Orientated in one direction.
(Figure 9-6)

Qasr Ibrim

Seventeen brushes were found at Qasr Ibrim which were made in the same manner as the brushes from Amarna: a bundle of material folded double and wrapped with string to form a handle (Plate 11-15).[18] Of fifteen brushes the brush part was divided into a number of fingers, ranging from three to seven .[19]

Other wrapped objects were the handles of baskets, which in three cases were wrapped with string,[20] a stick, wrapped with palm leaf,[21] and two jar-stoppers.[22] The jar stoppers were made of a bundle of date palm fibre, wrapped with date palm fibre string.

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[18]Brushes with wrapped handles: 10.001-277; 10.083-149; 10.110-129; 10.121-134; 10.122-195; 10.128-215; 10.133-135; 10.195-222; 10.207-133; 10.377-309; 10.469-342; 14.065-124 (twined brush with wrapped handle); 14.184-216; 14.207-223; 14.218-125; 14.298-138; 14.356-136.

[19]Brush with three fingers: 10.083-149, 10.377-309, 14.065-124, 14.218-125; four fingers: 10.001-277, 10.469-342, 14.356-136; five fingers: 10.122-195, 10.128-215, 10.195-222, 10.207-133, 14.148-126, 14.207-223, 14.298-138; six fingers: 10.133-135; seven fingers: 10.110-129; brush without fingers: 10.121-134.

[20]Wrapped handles: 10.099-218; 10.405-458; 10.414-477.

[21]S-wrapped stick from Ballana period context: 10.075-130;

[22]Jar-stoppers: 10.121-137; 10.128-270.

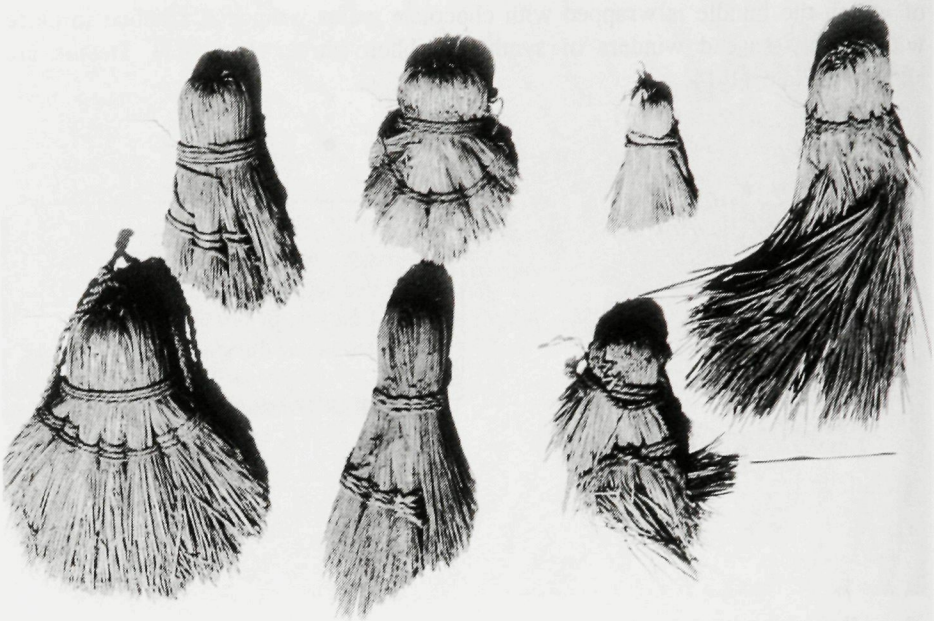


Plate 11-15 Seven brushes found at Qasr Ibrim (top row: no's. 125, 126 and 129; bottom row: no's. 133, 134, 135 and 136). (Courtesy of the Egypt Exploration Society).

A wreath, made of a band of doam palm leaf, had once been covered with foliage, similar to vine leaves, and wrapped with small strips of doam palm leaf to keep the leaves in place.[23] Wrapped rings and pads, such as were found quite regularly at Amarna did not occur.

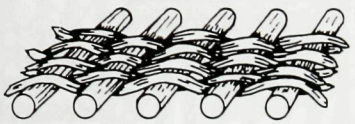
New Nubia

In present day New Nubia brushes have been replaced largely by plastic brooms. Brushes that are made in the traditional way are not produced by Nubian men or women, but bought from the Upper Egyptian *fellahin,* who produce them, just like their colleagues in Middle Egypt.

[23]Wreath: 10.384-317.

11.2.2 With one passive and one active system, orientation in two directions

Weaving with one strand (8)



Fabric.
One passive system.
One active system (consisting of one member moving in one plane).
Orientated in two directions.
(Figure 9-8)

Qasr Ibrim

Thirty woven matting fragments have been found. In all mats the passive and the active system are of the same material: all mats are closely woven with S-twisted doam palm leaf. It is, therefore, impossible to decide which of the systems is active, which passive, unless the edges of the mat are present. This does not present a problem in describing the technique, as long as the weaving patterns are symmetrical in both directions.

The interaction of the systems, the weaving pattern, is expressed with a formula similar to that used for plait patterns. Two weaving patterns were found: one fragment, from a post Ballana (Islamic?) context, is woven in a \2/2\\1 pattern.[24] The other 29 fragments, most of them quite large, represent a kind of matting which has had a long tradition at Qasr Ibrim, and occurred during all periods from Meroitic to Islamic.[25]

The weaving pattern is basically \4/4\\1 (Figure 11-16). In most of these 29 matting pieces the orientation of the weaving pattern changes regularly, to decorate and strengthen the mat. The variation in pattern changes is almost the same as the number of fragments found. Two examples are shown in Figures 11-16 and 11-18.

The matting was re-used as pit lining, but the loops which are still attached to some of the fragments, indicate that its original function was that of furniture matting (Plate 11-17). Apart from these rounded forms, several square palm leaf loops were found with the matting, indicating that those particular pieces have been woven around a frame of square beams of 45 x 46 mm.

---

[24]Woven matting in \2/2\\1 pattern: 10.032-010.

[25]Weaving pattern \4/4\\1: 10.032-407, 408; 10.048-028; 10.103-084; 10.105-426, 428; 10.124-430; 10.133-433; 10.247-104; 10.413-468; 10.427-333; 10.428-334; 10.434-490; 10.450-336, 337, 339; 10.480-500; 10.484-501; 14.298-271 (six large pieces); 14.327-359, 360, 361, 362; 14.469-365;

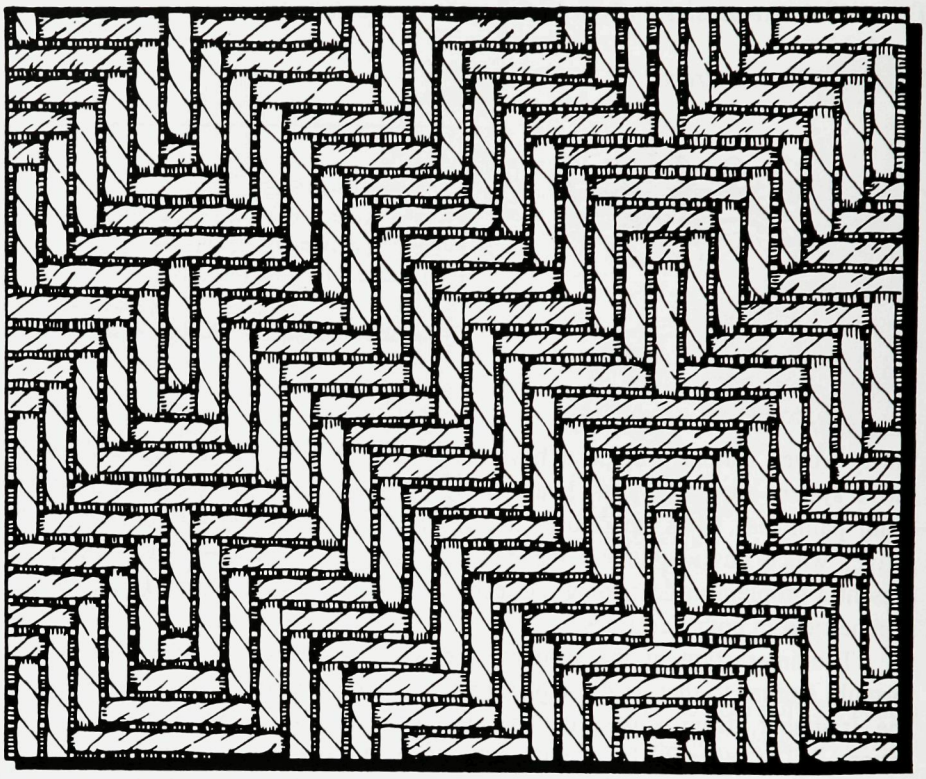


Figure 11-16 Furniture matting made of S-twisted doam palm leaf in a \4/4\\1 pattern. Note the changes in direction of the weaving (zig-zag pattern).

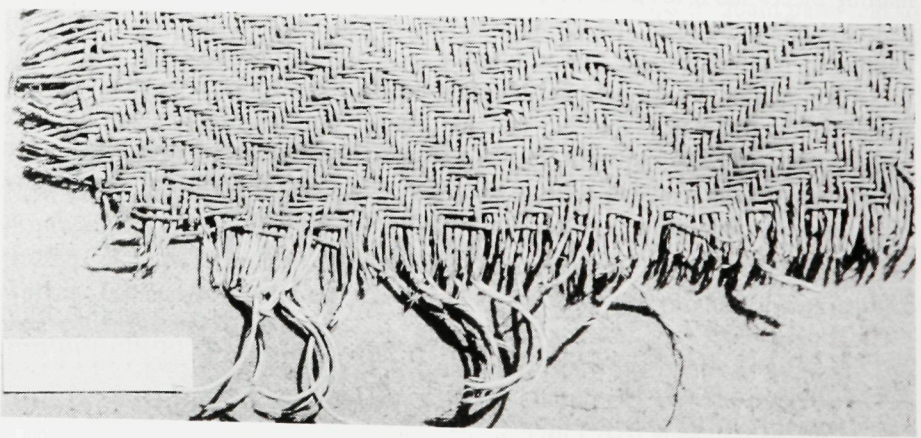


Plate 11-17 Furniture matting made of S-twisted doam palm leaf. The curled ends indicate that the matting has been cut loose from a furniture frame. (Courtesy of the Egypt Exploration Society).

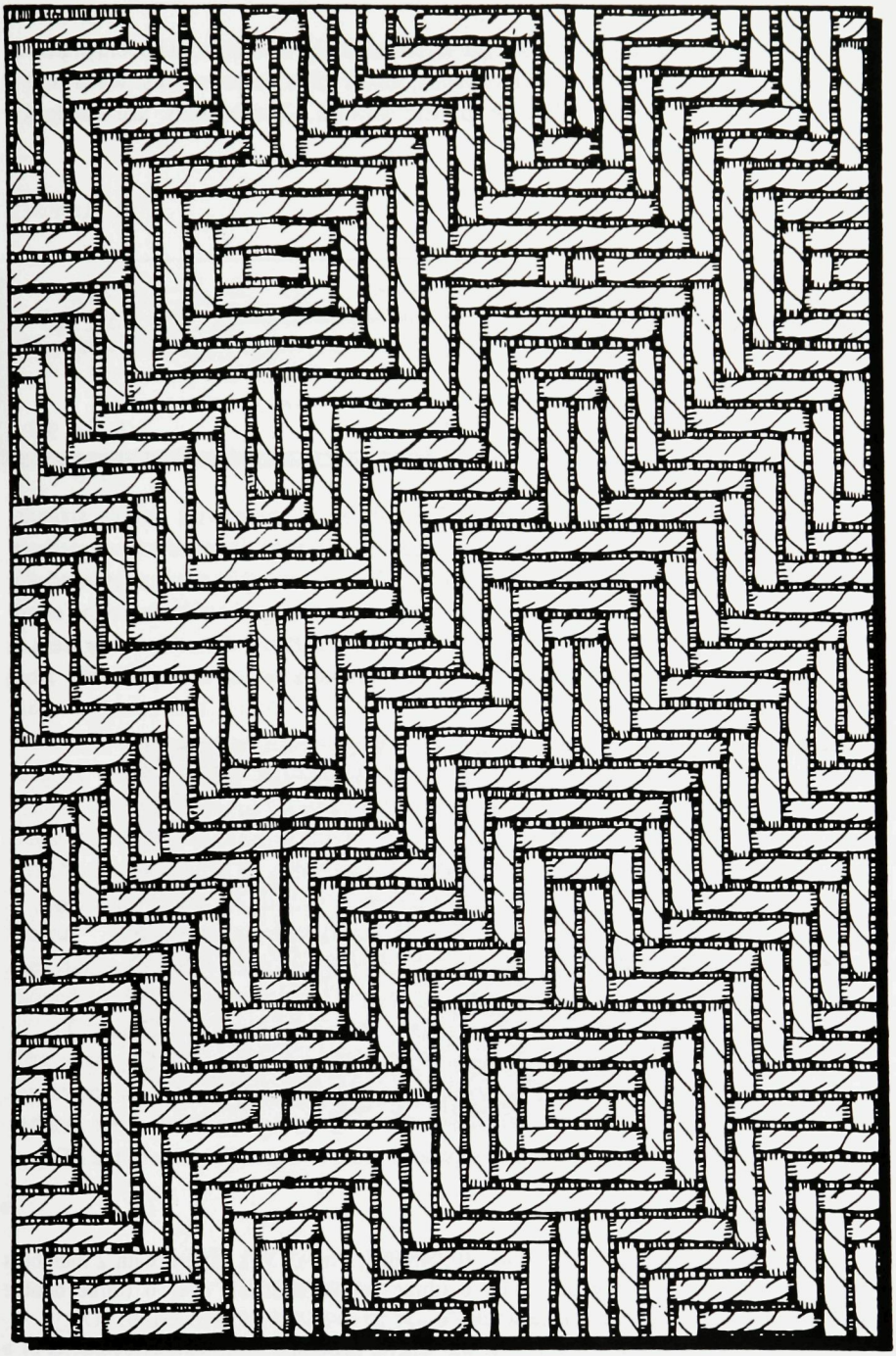
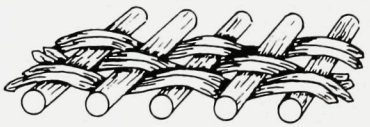


Figure 11-18 Furniture matting, with a diamond shaped weaving pattern

New Nubia

At present no bed matting of this kind is found in New Nubia. The only woven matting used in New Nubia are floor mats, made of a cotton string warp and a weft consisting of either rushes or plastic strands. These mats are made by Egyptians.

Weaving with two strands (9)



Fabric.
One passive system.
One active system (consisting of two members moving in one plane).
Orientated in two directions.
(Figure 9-9)

Qasr Ibrim

The second weaving technique found at Qasr Ibrim is made with double strands. Except for a formal difference there is also a difference in production method, which will be elaborated on in Section 15.9. This weaving technique is used for bed matting and is made with grass zS_2 string. Three fragments have been found: two of these are woven in a \3/3\\1 pattern (Plate 11-19).[26] The third fragment is made in a \2/2\\1 pattern.[27] All three are *post* Ballana period and probably from the Islamic period.

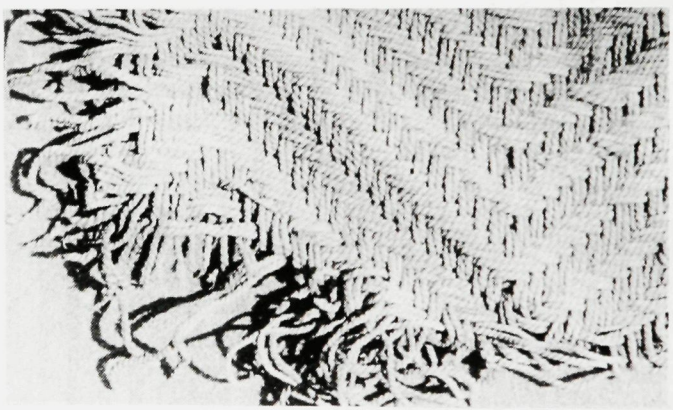


Plate 11-19 Bed matting woven with two parallel grass strings. (Courtesy of the EES).

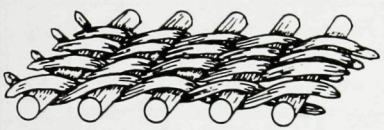
[26]Grass string matting: 10.032-001; 10.045-098; The \3/3\\1 pattern with 2 members consists of a double strand going under 6 (three double strands), over 6 (three double strands), with a shift of 2 (one double strand).

[27]Grass string matting: 10.032-406; the \2/2\\1 pattern with 2 members consists of a double strand going under 4 (two double strands), over 4 (two double strands), with a shift of 2 (one double strand).

New Nubia

Stringing beds with grass rope in a \3/3\\1 pattern is still done today. Even the zig-zag pattern is the same. The work is not done by Nubians, however, but by Egyptians.

Twining (10)



Fabric.
One passive system.
One active system (consisting of two members moving in two planes).
Orientated in two directions.
(Figure 9-10)

Qasr Ibrim

At Qasr Ibrim 20 fragments of twined basketry were found. Table 11-20 shows that there are nine twining variations. The groups H, I and L, are known from Amarna (see Table 10-13 on p. 196). There are six new groups, defined by the criteria listed in Table 10-12 on p. 194. The order in which the groups O, P, Q, R, S and T are presented in the table is determined by their properties.

The fine twined basketry (groups O, P and Q) are all made of unworked strips of palm leaf, or plant culms. Group O consists of three objects, with a fine closely spaced passive system and a closely twined active system in S-direction (Figure 11-21).[28] Two of them can be dated to the Ballana period, the third is from a later context (after the third century AD). For all three the twining strands are made of rushes (*Juncus acutus*). One of the twined pieces is the base of a basket which is combined with continuously plaited sides.

Group P are objects in which the active strands are twined around double stakes.[29] The two fragments found are made of doam palm leaf and can be dated to the Ballana period. Two other pieces, also dated to the Ballana period, were twined irregularly, sometimes around single, other times around double stakes.[30]

Group Q is formed by two fragments from the same Ballana period context.[31] The passive stakes consist of strips of doam palm leaf, the twining is done in Z-direction with date palm leaf around double stakes. The fragment is closely twined, very similar to group O, with exception of the orientation of twining.

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[28] O: 10.085-078; 10.122-194; 10.144-071.
[29] P: 10.128-079; 10.463-341.
[30] O or P (irregular): 10.205-325; 10.427-332.
[31] Q: 10.154-212.

	size		space		preparation		rows		Or.
	pas.	act.	pas.	act.	pas.	act.	pas.	act.	
O	fine	fine	close	close	unw.	unw.	single	single	S
P	fine	fine	close	close	unw.	unw.	double	single	S
Q	fine	fine	close	close	unw.	unw.	double	double	Z
H	coarse	coarse	close	close	worked	worked	single	single	S
R	coarse	coarse	close	close	worked	worked	single	single	SZ
I	coarse	coarse	close	close	worked	worked	double	single	S
S	coarse	coarse	close	close	unw.	unw.	single	single	S
L	coarse	coarse	close	open	unw.	worked	single	single	S
T	coarse	coarse	close	open	unw.	worked	double	single	S

Table 11-20 Nine variations of twined fabrics found at Qasr Ibrim, six of which do not occur at Amarna (cf Table 10-13 on p. 196). The nine groups are ordered by the criteria in Table 10-12 (p. 194) and are drawn in Figure 11-21.

The coarse twined basketry and matting at Qasr Ibrim can be divided into six groups, of which five are represented by only one object.[32] The groups H, R and I consist of closely twined string matting, either orientated in S-direction (Group H and group I, the latter around double stakes), or in alternately S and Z direction (Group R). The effect of the latter is that the fabric seems to be built from V-shaped stitches (Plate 11-22). The object is a donkey saddle, made of date palm fibre string. The four rows of V-shapes which stand out clearly in the fabric are made by two rows of *waling,* one in S and one in Z direction (see below).

Group S is formed by two fragments of regular closely spaced twining with unworked strands of doam-palm. Both fragments come from Ballana period context. Group T consists of a brush, made of bundles of finely shredded doam palm leaf. A mat is formed of loose fibres, fastened at the bottom with one row of twining. The small mat is then rolled up and wrapped with string to form a brush. This is the same method as known from Amarna (cf. Figure 10-16, p. 200). The Amarna brush was not made of doam palm leaf, however, but of grass.

[32]H: 10.247-109; R: 10.340-297; I: 10.316-292; S: 10.427-332; T: 10.065-124.

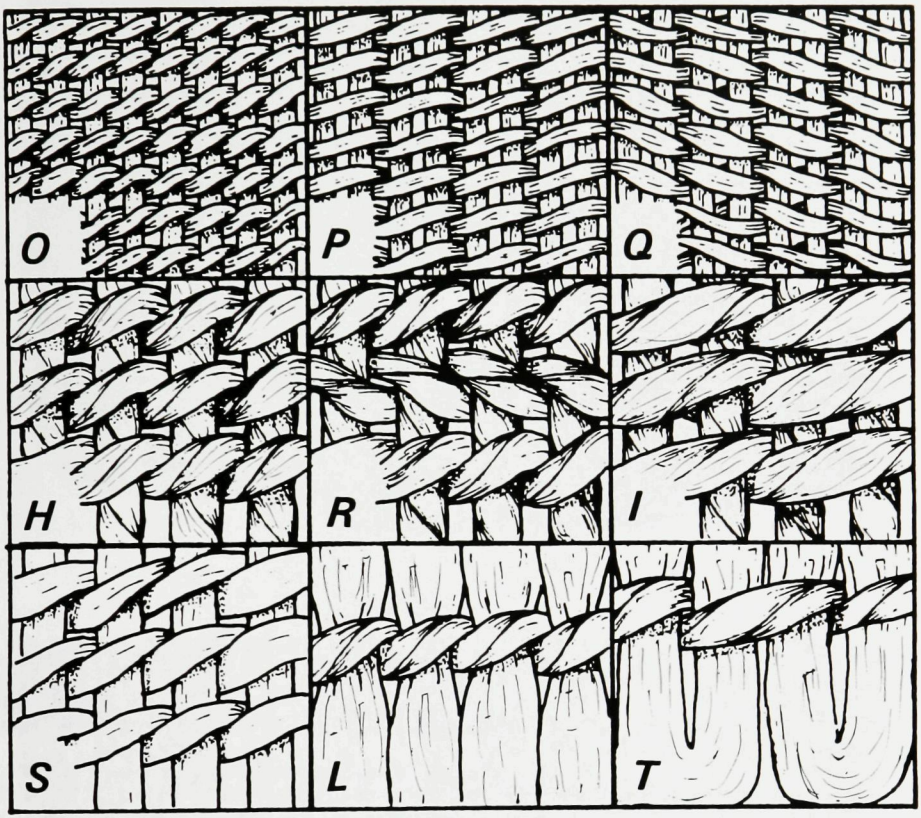


Figure 11-21 The nine twining variations as listed in Table 11-20 (cf. Figure 10-14 on p.197) .

The twining technique which occurs most frequently at Qasr Ibrim is the coarse grass matting, (group L) already known from Amarna and there also by far the most frequently encountered variation.[33] Bundles of grass are held in place by widely spaced twined strings. This type of matting has been found in all periods of occupation.

[33]L: 10.032-009, 189; 10.060-209; 10.064-035; 10.401-320; 14.327-388, 389.

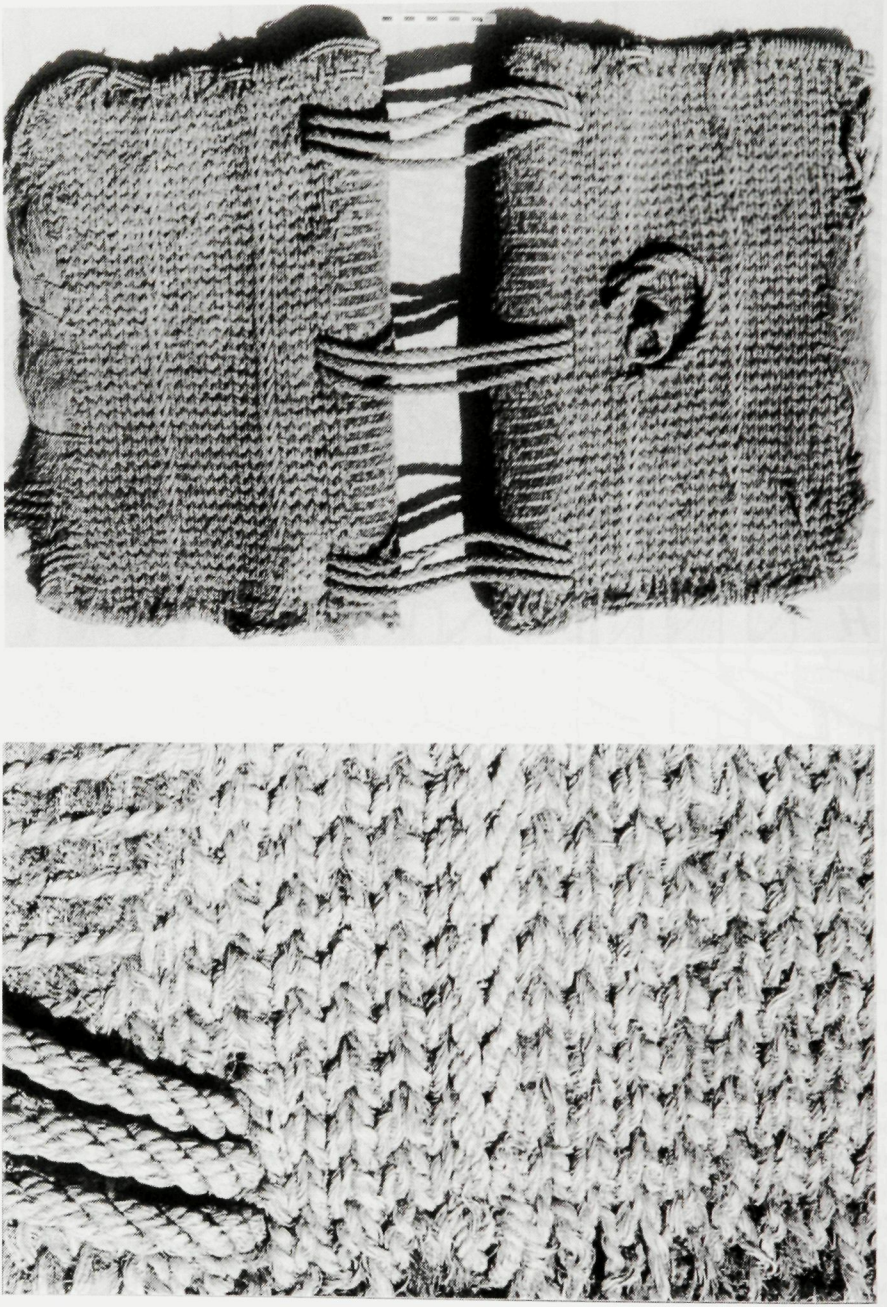


Plate 11-22 Donkey saddle, made of twined date palm leaf string. The V-shapes are the result of alternate S and Z twining. The striking lines are made by S and Z waling. (Courtesy of the Egypt Exploration Society).

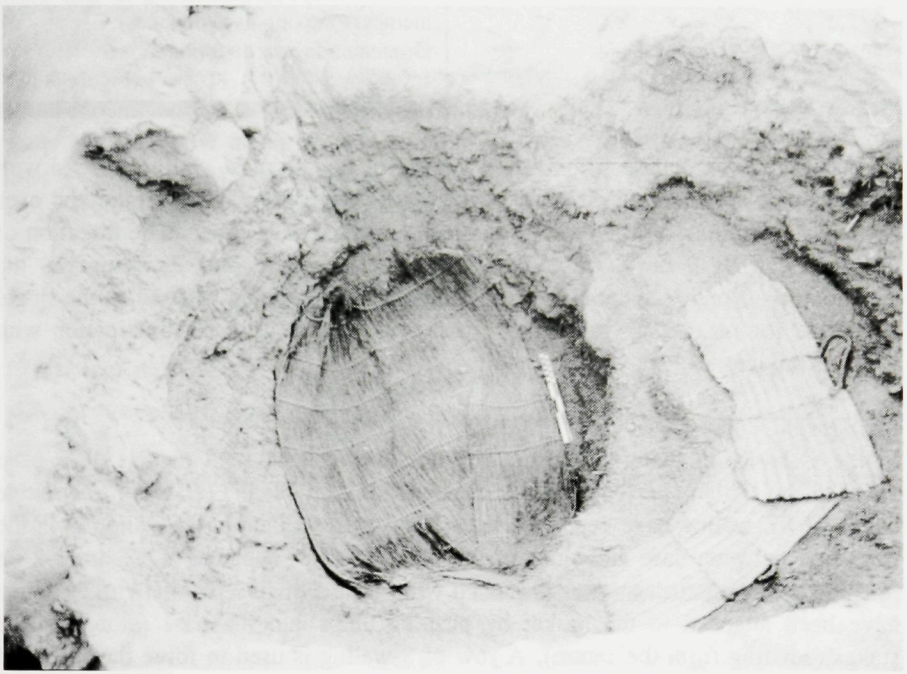


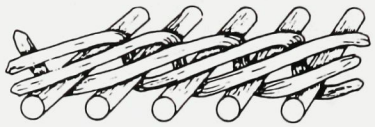
Plate 11-23 One of the large grain storage pits, lined with basketry. At the bottom coarse grass matting, with widely spaced rows of twining, to the right are the contours of an earlier (and much shallower) pit, lined with cut up fragments of sewn plaits basketry (Courtesy of the Egypt Exploration Society).

As almost all matting in Qasr Ibrim, the coarse grass matting was found re-used as pit lining (Plate 11-23). The area of excavation has been used extensively for grain storage from approximately the seventh to the nineteenth century AD. For this purpose large pits were excavated and lined with matting. The extremely arid circumstances in Qasr Ibrim apparently made this possible.

New Nubia

In New Nubia there does not seem to be any production of twined baskets or mats. Large closely twined bags (groups H and R) are used in agriculture, but these are purchased from Egyptian mat makers.

Waling (11)



Fabric.
One passive system.
One active system (consisting of three members moving in two planes).
Orientated in two directions.
(Figure 9-11)

Waling is very similar to twining, but instead of two strands, waling is done with three strands at a time. Each of these is passed under one passive strand and over two passive strands, at the same time turning around each other. The direction of this turn can be S or Z. A combination of a row of S and Z-waling has the appearance of long V-shaped stitches. Although waling could be used as the single technique for making up baskets or mats, it is always used in combination with other techniques such as weaving and twining.

Qasr Ibrim
In the Qasr Ibrim material waling was found twice and both objects have been dated to the Ballana period.[34] In the donkey saddle of Plate 11-22 four decorative bands of SZ-waling have been inserted. The other application of waling is in the transition between base and sides of the plaited basket depicted in Figure 4-2 on p. 61. In this basket the sides are plaited with groups of five parallel rushes. They have been attached to the basket by pushing them into the base (alongside the stakes radiating from the centre). A row of S-waling is used to force the rushes in the proper position to start plaiting the sides.

New Nubia
In present day New Nubia no waling is used in the production of mats or baskets.

11.2.3 Two-systems techniques with two active systems in one direction

Rope making (13)



Linear.
Two active systems (moving in two planes).
Orientated in one directions.
(Figure 9-13)

[34]SZ-waling: 10.340-297; S-waling: 10.144-071.

Qasr Ibrim

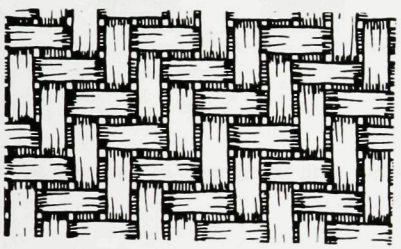
In Qasr Ibrim, as in Amarna, 2-ply rope is made in one process: two active strands are spun and plied in one action. The materials used are grass, date palm leaf, doam palm leaf, but the most frequently used material is the leaf sheath fibre of the date palm.

New Nubia

As in Middle Egypt, in New Nubia rope production is done casually as part of other activities. Whenever a length of string is needed, someone makes it on the spot. Most rope is made of date palm fibre. Some date palm leaf is used also, especially the veins of the leaflets. Doam palm leaf rope does not occur very often. Grass rope is used specifically for bed webbing.

11.2.4 Two-systems techniques with two active systems in two directions

Continuous plaiting (14)



Fabric.
Two active systems (moving in one plane)
Orientated in two directions.

(Figure 9-14)

Qasr Ibrim

Continuous plaiting is found 26 times. Two fragments of a fine continuous plaited mat made from strands of date palm leaf, were found in a Christian context.[35] The plait pattern is \3/3\\1 in the middle and \2/2\\1 near the edge (Plate 11-24). Although one of the fragments is made with slightly narrower strands than the other and plaited in a very regular fashion, the two fragments seem to be part of the same mat. The basket depicted in Figure 4-2 on p. 61 has continuously plaited sides, made with five parallel culms of rushes. The plait pattern is \1/1\\1.[36]

The second group is formed by cylindrical bags, made of continuously plaited date palm leaflets. There are minor variations in the width of the strands. The space between the strands varies also, but this is due to distortion of the object. The plait pattern is always \1/1\\1 (Figure 11-25). The complete length of the leaflets is used in the bags and clever use is made of the point of attachment of the leaflets to the midrib.

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[35] Continuous plaited matting: 10.373-307, 308.
[36] 10.144-071

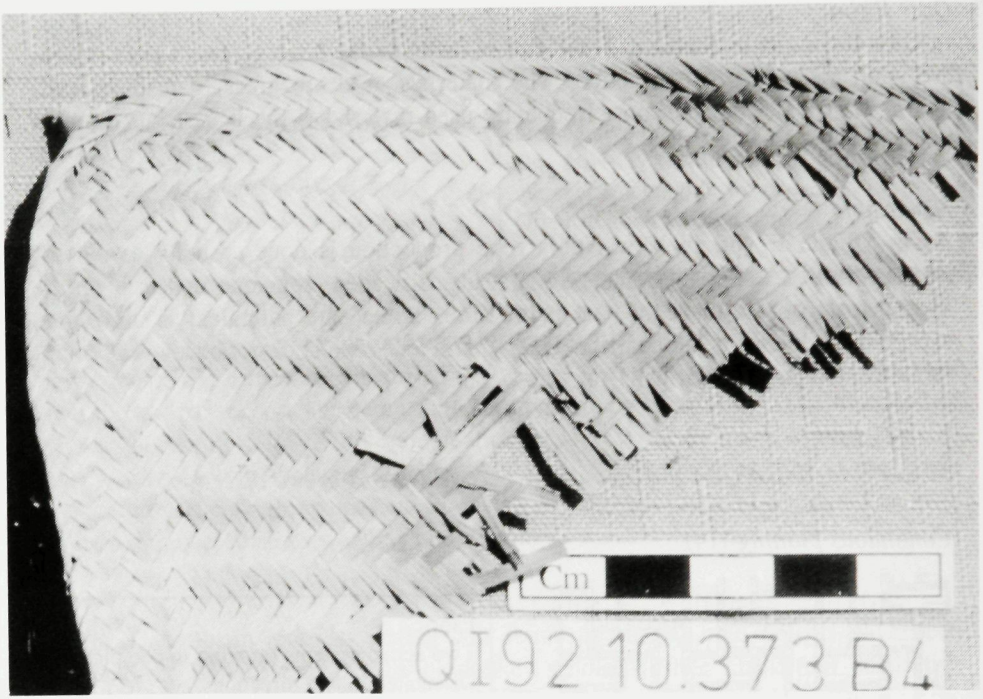


Plate 11-24 Fragment of continuously plaited matting with fine strands of date palm leaf. (Courtesy of the Egypt Exploration Society).

Date palm leaflets are the small side-leaves of the feather shaped date palm leaf. For the bags the long leaflets, which are approximately 500 mm long, are split along the middle vein into two strands of 20 mm. wide, still connected at the end. The start of the bag is formed by these connected ends. At the bottom edge the tips of the leaflets are worked back into the plait. The bag is closed by running eight new leaflets through the holes in the fabric and knotting these at the bottom of the bag.

In total 24 continuously plaited bags have been found, 23 made of date palm leaflets and one made from strands of doam palm leaf. When the large fan shaped leaves of the doam palm are cut into strips, the strands are not connected at one end, the way date palm leaflets are. Instead, two strands of doam palm leaf were joined with half knots, in imitation of the date palm strands. In total the bag was made with 13 double strands (26-plait).[37]

The length of the date palm bags is determined by the length of the palm leaf strips, the diameter by the number of strands. Table 11-26 shows the variation in plaiting strands. At the start the leaves are inserted from two sides.

[37]Doam palm: 10.026-113.

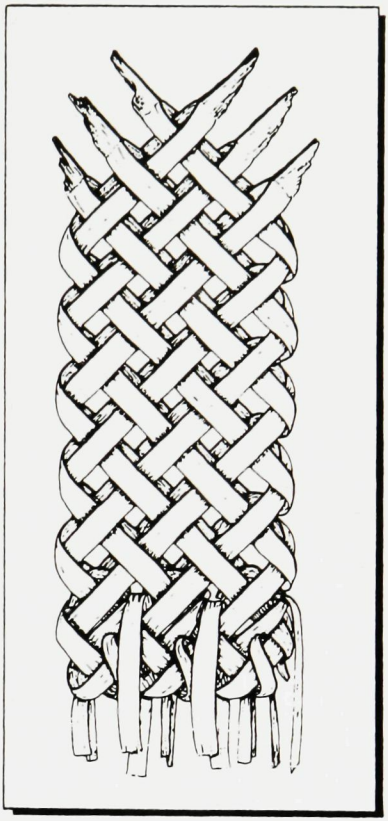


Figure 11-25 Schematized drawing of a continuously plaited 'disposable' bag, made with six double date palm leaflets. The hollow plait is fastened off at the bottom. Eight new strands are inserted with which the bag is closed. This bag is 170 mm long and 60 mm in diameter.

The start of the strands is mostly divided symmetrically, but in seven bags the number of strands inserted on each side is not the same (e.g. 6+5).[38] Seventeen of the plaited bags were from Ballana period contexts, seven bags, including the one made of doam palm, were from Christian or Islamic contexts.

As for the function of these baskets: they were all found empty, with the bags opened at the top, where the plaiting started. The pointed attachment of the date palm leaf is in all cases ripped open, while the knot which closes the bag

[38] 3+3: 10.486-355; 4+4: 10.152-115; 10.162-116 5+5: 10.048-021; 10.090-123; 10.144-171 6+5: 10.384-316 6+6: 10.162-118; 14.469-364; 6+7: 10.389-319; 10.485-350, 352; 6+8: 10.162-117; 10.485-349; 7+7: 10.048-022; 7+8: 10.485-351; 8+8: 10.485-348; 9+9: 10.048-023, 24, 25; fragments (number of strands unknown): 10.098-114; 10.380-511, 517.

after it has been filled, is left intact. This provokes the presumption that these bags were disposables, for one time use only. Perhaps they were transport bags, designed to contain a specific quantity of a specific good. One of the bags was found in a cellar with a large quantity of sesame seeds around it. Although the space between the plaiting strands is not as large as is suggested in the schematized drawing of Figure 11-*25*, sesame seeds do not seem to be the most likely candidate, because they are so small they could perhaps fall from the bag.

double strands inserted from the left							
9 double strands							36 str. plait ✓✓✓
8 double strands				28 str. plait ✓✓	30 str. plait ✓	32 str. plait ✓	
7 double strands				26 str. plait ✓✓✓	28 str. plait ✓		
6 double strands			22 str. plait ✓	24 str. plait ✓✓			
5 double strands			20 str. plait ✓✓✓				
4 double strands		16 str. plait ✓✓					
3 double strands	12 str. plait ✓						
n = 20	3 double str.	4 double str.	5 double str.	6 double str.	7 double str.	8 double str.	9 double str.

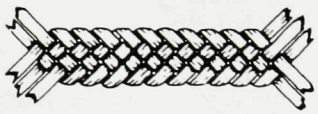
double strands inserted from the right

Table 11-26 'Disposable' bags: variation in plaiting strands inserted from the left and the right. The check marks indicate the number of times the combination of strands inserted from the left and the right occur. The total number of disposable bags found is 20.

New Nubia

Continuous plaiting is used in Nubia to make fans, which are often lined with textiles. The workmen of the excavation said that in present day New Nubia the disposable bags are still made, but this could not be verified. In Middle Egypt a basket maker produced one of these bags, a small one made with only 4 palm leaf strips, as a kind of practical joke: if you put the bag on someone's finger it cannot be removed again. Attempts to pull it off, make the plaited fabric only tighter. This kind of plaiting is used in medicine as finger bandages (a 'Chinese finger').

Plaited strips (15)



Linear.
Two active systems (moving in one plane)
Orientated in two directions.

(Figure 9-15)

Qasr Ibrim

Plaited strips are used mainly as passive element in sewn basketry. The 'Qasr Ibrim plaiting rule' which explains the absence of plaits with a specific number of strands in relation to the plait pattern, have been explained on pp. 209-213.

There were some plaited strips that were not made for basketry or mat production: two strips made with three and four strands in a \1/1\\1 pattern, two five-strands plaits and a 19-strands plait made in a \2/2\\1 pattern.[39]

Sandals are made as plaited strips. In total eight sandals have been found, ranging from a simple sole, fastened with straps, to a shoe construction with an inner sole, outer sole and plaited sides (Plate 11-27). All sandals are flip-flops, with a strand passing between the first and second toe. From the four sandals with single soles one was made with six strands of doam palm leaf, two were made of eight strands (see Figure 11-28) and of one fragment the number of strands could not be determined, because it was too fragmentary.[40] The plait pattern is \1/1\\1. Two of the more complex sandals are complete, the inner sole is made in both cases of 13 strands of doam palm leaf, plaited in a \2/2\\1 pattern.

---

[39]Three-strands plait: 10.162-436; four-strands plait: 10.078-416; five-strands plaits: 10.099-538; 10.335-545; 19-strands plait: 10.414-328.

[40]Six-strands plait: 10.095-132; 8-strands plait: 10.128-080, 10.048-192; number of strands unknown: 10.065-193.

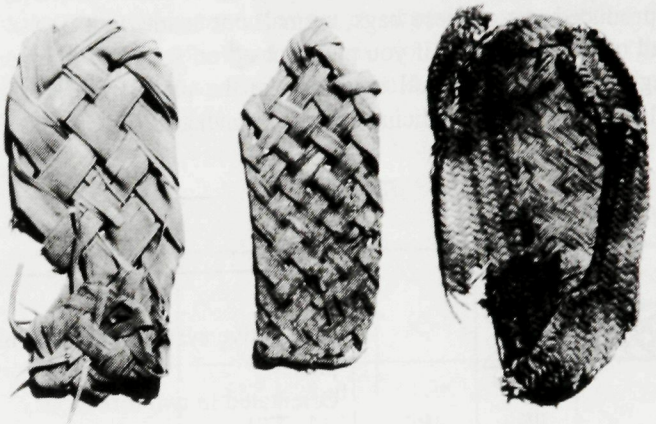


Plate 11-27 Three of the plaited sandals found at Qasr Ibrim (123, 080, 120). The two to the left are made of doam palm leaf, the one on the right has an inner sole, outer sole and sides which can be fitted around the foot. (Courtesy of the Egypt Exploration Society).

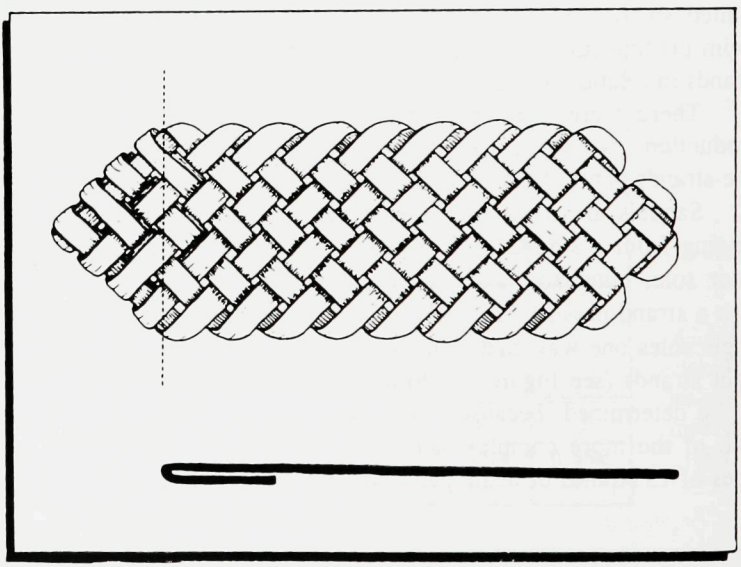


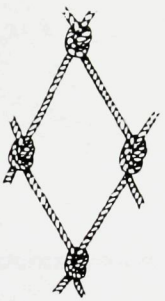
Figure 11-28 Schematized drawing of a plaited sandal made as an 8-strands plaited strip. This sole was attached to the foot with a strand between the first and second toes, leading to the side of the shoe, very much like our present day plastic flip flops.

In one sandal the outer sole was plaited with five bundles of date palm fibre in a \1/1\\1 pattern.[41] The outer sole of the other sandal was twined.[42] The sides, which passed over the toe and could be pulled tight around the foot with a piece of string, were made respectively of plaited strips of nine and 17 date palm leafs in a \2/2\\1 pattern. Remains of two more of such sandals were found. Only the outer sole was left, with just traces of the inner sole and the sides. In both cases the outer sole was made with seven bundles of date palm fibre.[43] No specific temporal differences were spotted in this small fraction of sandals.

New Nubia

In present day New Nubia palm leaf sandals have been completely replaced by plastic flip-flops, which are cheap, and shoes, which give status.

Knotting (16)



Fabric.
Two active systems (moving in three planes)
Orientated in two directions.

(Figure 9-16)

Qasr Ibrim

At Qasr Ibrim reef knots and granny knots were used to close the plaited palm leaf bags. Reef knots were also used to make a palm leaf wreath (Figure 11-29).[44] This curious object was found in a late Christian or early Islamic context. As with the plaited palm leaf bags, in this wreath the natural properties of the date palm leaf were used. The thick midrib of the feather-shaped leaf was split in the middle. The two halves were formed into two circles, which was made into a wreath by connecting the leaflets with reef knots.

New Nubia

In present day New Nubia no knotted fabrics are made.

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[41] Complete sandal with plaited outer sole and 9-strand plaited sides: 10.490-356.

[42] Complete sandal with twined outer sole, 13-strands plait inner sole (\2/2\\1) and 17-strands plaited sides (\2/2\\1): 10.316-292.

[43] Outer soles: 10.120-131, 10.457-340.

[44] Wreath: 10.080-014.

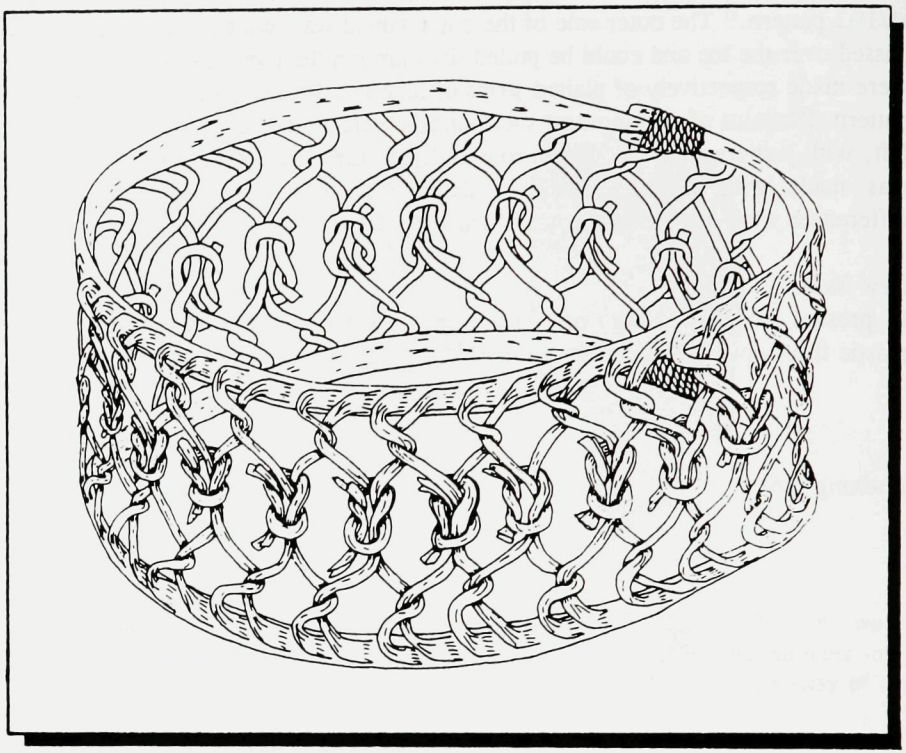


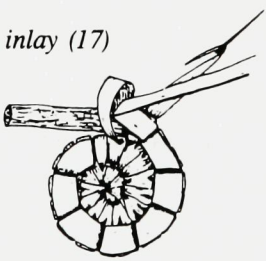
Figure 11-29 Schematized drawing of a palm leaf wreath, knotted from a date palm mid rib which has been split in half and connected by knotting the palm leaflets of the two halves.

New Nubia
No knotted fabrics were encountered.

11.3 THREE-SYSTEMS TECHNIQUES

11.3.1 With two passive and one active systems in one direction

Coiled inlay (17)



Fabric.
Two passive systems.
One active system (moving in two planes).
Orientated in one direction.

(Figure 9-17)

Qasr Ibrim

The rims of small coiled plates, which have an average diameter of 10 cm, are lined with two coloured strips which run parallel to the bundle and are fastened with the active wrapping strand (Figure 11-30). In a basket found in the tomb of Tut ankh Amon this technique was found as decorative ridge in the side of a finely coiled basket, but then with three strands on the outside of basket no. 589a (Figure 11-31).

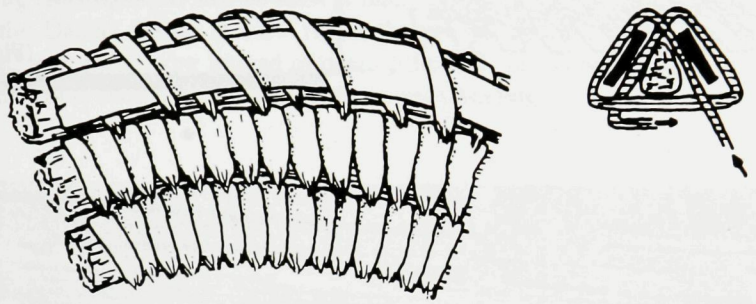


Figure 11-30 Construction of the coiled inlay rims in several of the small plates found at Qasr Ibrim (Ballana period).

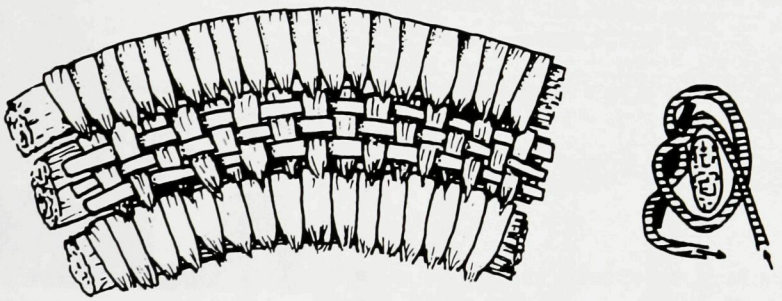


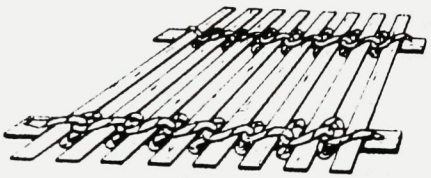
Figure 11-31 Schematic drawing of coiled inlay in a basket dated to the New Kingdom period, from a basket in the tomb of Tut ankh Amon.

New Nubia

A decorative technique, known as *imbrication* is used in Toshka el-Ghalalaab and other villages in the vicinity of Aswan: this is basically a coiling technique of the 'stitch-through-bundle' variety, with a decorative strand fastened on top of the coiled fabric (cf. Figure 9-17, p. 166 and Plate 4-6, p. 65). The active system wraps around the bundle and keeps it in place with stitches through the previous bundle. With the same stitches, the third system is fastened on top of the fabric, parallel to the bundle. This has mainly decorative value and does not contribute to the coherency of the fabric. Coiled inlay does not occur in New Nubia, but this technique is used as decoration in some of the baskets made in the Fayoum.

11.3.2 With two passive and one active systems in two directions

Binding (19)



Fabric.
Two passive systems.
One active system (moving in three planes).
Orientated in two directions.

(Figure 9-19)



Plate 11-32 Roof construction over a cellar. The cross ribs are not visible, they are tied underneath the date palm branches with strands of S-twisted doam palm leaf. The detail foto is oriented at an angle of 90° of the overview (Courtesy of the Egypt Exploration Society).

Qasr Ibrim

A roof, covering a cellar, was made of closely spaced date palm branches, on which a number of midribs were placed at perpendicularly.[45] These were tied with S-twisted doam palm, following the same direction as the widely spaced passive system (the cross ribs). The cellar and roof are from the Ballana period.

New Nubia

This roofing technique can still be seen at many places in roofed streets of the old towns of the Dakhla Oasis. In New Nubia the roofs are now made of date palm midribs tied with metal wire instead of doam palm leaf, but there is a clear opinion that 'proper' roofs should be made with doam palm binding.

11.3.3 With one passive and two active systems in two directions

Plaiting around a core (20)



Linear.
One passive system.
Two active systems (moving in one plane).
Orientated in two directions.

(Figure 9-20)

Qasr Ibrim

Only three small fragments were found of this 3-system technique. One is made with eight cotton yarns, plaited in a \2/2\\1 pattern around a core of flax yarns.[46] One consists of a core of date palm fibre around which a plait is made with four doam palm leaf strands in a \1/1\\1 pattern.[47] The core in the second fragment is formed by zS_2 string around which a plait is made with six strands.[48] Both the string and strands were made of doam palm leaf. The plait pattern is \1/3\1//1. All plaits are from an Ballana period context.

Plaiting around a core makes a very strong kind of rope, which can be used to pull heavy loads.

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[45] Roofing: 10.450-523; remains of roofing: 10.068-072, 073, 074.
[46] Plait with 8 strands around a core: 10.335-545.
[47] Plait with 4 strands around a core 10.405-551.
[48] Plait with 6 strands around a core 10.458-557.

New Nubia

This technique is not produced in New Nubia. It is interesting to note, however, that in the same area there are villages of settled Ababda bedouin, who of old maintain relations with the Nubian population. Plaiting leather thongs around a goat hair core is a technique which is known and used extensively by the Ababda bedouin who are living in the southern part of the Egyptian Eastern Desert.

CHAPTER TWELVE

STATUS OF THE STATIC

12.1 STATIC STATISTICS

It is time to consider what these hundreds of basket and matting fragments, abstracted into basic structures, recorded, identified and classified, have to tell us about basket production in Egypt. An interpretation of tradition and development focuses on the properties of the basketry, which are determined by the relation between technology and raw materials. This is done by comparing quantitatively and qualitatively basketry from places that are removed in either time, space or both.

In Table 9-21 on p. 169 the 20 techniques of our basketry corpus are listed with an indication of which technique is found where. In Amarna 11 of the 20 techniques were found, in Qasr Ibrim 16 out of 20, in Middle Egypt 11 and in New Nubia eight. Apart from the presence or absence of certain techniques, there is also a clear quantitative difference: Table 12-1 and Figure 12-2 show how often these 20 techniques occur at Amarna and Qasr Ibrim. In Figure 12-2 the 20 techniques have been plotted on the horizontal axis. The vertical axis indicates the percentage in which they occur at Qasr Ibrim and Amarna.

In the table and the bar chart rope making (no. 13) is mentioned *pro memori*. It is one of the 20 techniques, often used as active or passive system in basket making, but rope and string is found in such quantities, that incorporating it would obscure the other techniques in the table and the chart. Two techniques have not been found in the archaeological material, but are produced nowadays in Middle Egypt (pierced basketry, no. 12 and looping, no. 18). All sewn plaits baskets and mats (technique no. 4) are made of plaited strips (no. 14). Rather than counting those fragments twice, no. 14 only lists those strips which are not used in sewn plaits basketry.

Comparing Amarna and Qasr Ibrim shows remarkable differences in the range and ratio of techniques. Sewn plaits (no. 4), by far the most frequently occurring technique at Qasr Ibrim (40%) does not occur at all at Amarna. As indicated on pp.203-204 plaiting techniques were probably not found in Egypt before the Third Intermediate Period. Since there are few publications about basketry of the region, it is difficult to determine when and how plaiting was introduced into Egypt.

In Amarna twining (no. 10) is the most frequently occurring technique (38%), wrapping (no. 6) the second (22%) and coiling (no. 5) the third (16%). At

Qasr Ibrim the percentage of coiling is higher than at Amarna (30%), while twining and wrapping do not occur that frequent (respectively 4% and 5%).

This chapter concentrates on mats and containers. The wrapping technique, which is used to produce a diverse functional array of objects (brushes, pot stands, head rings, jar stoppers, wreaths and parts of furniture) is considered briefly in the concluding section, where an interpretation of tradition and development, is focusing on the continuity and change of Egyptian basketry.

	Amarna		Qasr Ibrim	
1 knotless netting	6	3%	0	0
2 grommet	11	6%	3	<1%
3 knotted netting	2	1%	1	<1%
4 sewn plaits	0	0	179	40%
5 coiling	29	16%	134	30%
6 wrapping	39	22%	24	5%
7 knotting	1	<1%	0	0
8 weaving, one strand	21	12%	30	7%
9 weaving, two strands	1	<1%	3	<1%
10 twining	69	38%	20	4%
11 waling	0	0	2	<1%
12 pierced	0	0	0	0
13 rope	*pro memori*	0	*pro memori*	0
14 continuous plaiting	0	0	26	6%
15 sewn plaits	0	0	9	2%
16 knotting	1	<1%	1	<1%
17 coiled inlay	0	0	12	2%
18 looping	0	0	0	0
19 binding	0	0	1	<1%
20 plait around a core	0	0	3	<1%
TOTAL	181	100%	448	100%

Table 12-1 Occurrence of the 20 techniques in Amarna and Qasr Ibrim (see also Figure 12-2). The horizontal lines are the borders of the eight classes (cf. Table 9-0, p. 154). Rope making is included *pro memori*. Pierced basketry (12) and looping (18) are produced in the area at present, but not found among the archaeological material.

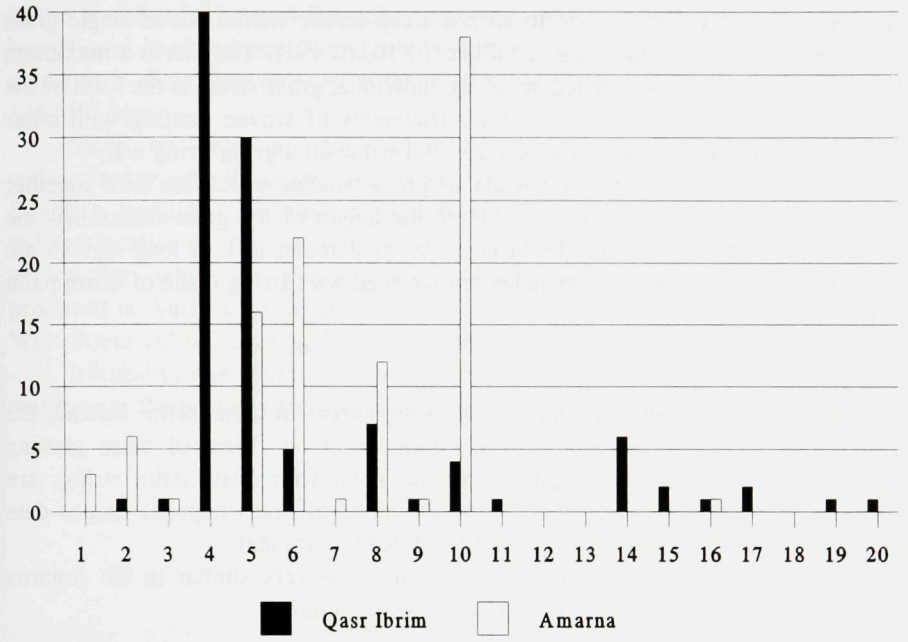
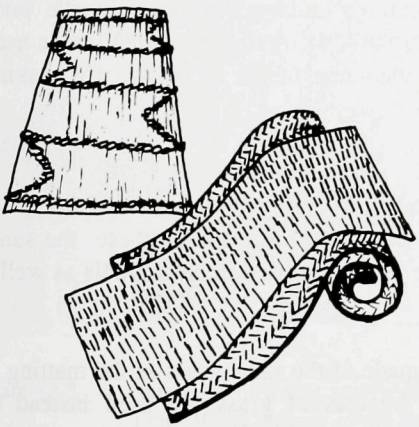


Figure 12-2 Bar chart of the proportional occurrence of 20 basketry techniques in Qasr Ibrim and Amarna (for the legend of the 20 techniques and the absolute quantity of baskets see Table 12-1).

12.2 THE MAT, THE BASKET AND THE BAG

12.2.1 Sleeping and Sitting



Amarna	Middle Egypt
weaving (8) twining (10)	weaving (8) twining (10)
Qasr Ibrim	New Nubia
sewn plaits (4) twining (10)	sewn plaits (4)

Amarna

Mats which were probably used to sit and sleep on are woven out of single grass stems on a warp of grass string (cf. Plate 10-10, p. 191). They have a maximum width of 1.20 m, because the length of the individual grass stems is the limit of the width of the mat. There are two small fragments of woven matting with other materials: bundles of respectively papyrus and straw on a grass string warp.

Floor mats are thinner and made of grass bundles which are held together with widely spaced rows of twining. Here the length of the grass determines the maximum length of the mat The largest fragment found is 1 m long and 86 cm wide. In some cases the grass bundles are fastened with string made of doam palm leaf.

Qasr Ibrim

No woven matting is found in the two excavation areas in Qasr Ibrim. Instead, the sewn plaits technique is used to make mats to sit on. Most of these matting fragments, plaited with doam palm leaf and sewn with doam palm string, are found in the late (Islamic) layers. From earlier (Christian) deposits comes date palm leaf matting, sewn with unspun strips of doam palm leaf.

Twined matting does occur, however, and it is very similar to the Amarna mats: bundles of grass with widely spaced rows of twining.

Middle Egypt

At present, no grass matting is being woven in the immediate vicinity of Amarna, but in the Upper Egyptian village of Nagada I found a mat maker who produced grass matting. The difference with the Amarna matting is that the weaving is done with small bundles of grass, which is a faster method than weaving individual grass stems. Individual culms of rushes are also used for mat-weaving, but they are not produced locally either (I studied a mat maker in the Dakhla Oasis). Another import, which is rapidly replacing both grass and rush mats, is colourful matting woven with thin hollow plastic tubes on a cotton warp.

There is no production of twined matting similar to the grass-bundle floor mats of Amarna and Qasr Ibrim (L in Figure 10-14). A tightly twined mat is used as doormat (H in Figure 10-14). This is the same fabric as is used for making dung-bags (see below).

New Nubia

In New Ibrim only sewn plaits mats are produced. They are plaited from date palm leaf and sewn with unspun strips of doam palm leaf. Apart from these, the same colourful mats which are popular in Middle Egypt are used in New Nubia as well.

Similarities and Differences

Although the woven matting of Amarna is made of the same grass as the matting at present, the difference is that nowadays bundles of grass are used instead of individual grass stems. This is not a recent innovation, however, since weaving

with grass bundles has a long traditions in Egypt. In the fifth century AD deposits in the Red Sea harbour of Berenike, such mats woven with bundles of grass have been found in abundance (Wendrich 1998, 253-258). Four small fragments found at Amarna show that weaving with bundles (of papyrus and straw) did occur in 1350 BC also.

Since no grass woven matting was found in Qasr Ibrim (which is contemporary with Berenike), the question is if weaving with bundles is an Upper Egyptian tradition. The two matting fragments found at Amarna and made of twisted bundles of straw or sedges (Plate 12-3) would than have to be interpreted as imports, while the weaving with individual grass stems might have been produced at Amarna. A large quantity of woven matting was found in the area of West Street 1/2 (cf. Section 7.2.3) and could have been produced there.

Ironically, one could argue that the most direct heritage of the Amarna grass matting are the brightly patterned plastic mats, woven with one straw at a time.

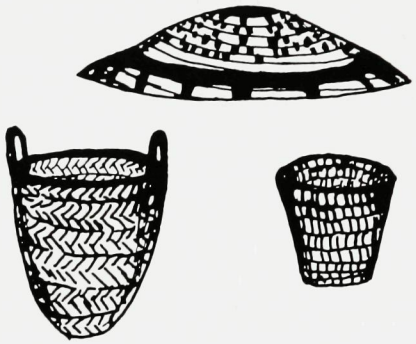


Plate 12-3 Side edge of a mat woven from bundles of *Cyperus papyrus* culm. Amarna 1350 BC. (Courtesy of the Egypt Exploration Society).

The coarse twined matting, made of bundles of grass held together with widely spaced rows of twining, occurs both at Amarna and Qasr Ibrim. At present this type of basketry is not produced. More will be said on the closely twined matting in the section on bags.

Sewn plaits matting has been found mainly in the late (Islamic) layers of Qasr Ibrim. This matting type does not occur in Middle or Upper Egypt. There is a development in sewn plaits basketry, however, which will be elaborated on in the section on the bags.

12.2.2 Storing and Covering



Amarna	Middle Egypt
coiling (5)	coiling (5)
Qasr Ibrim	New Nubia
sewn plaits (4) coiling (5)	sewn plaits (4) coiling (5)

Amarna

Storage at Amarna was probably done mainly in coiled baskets, which had the function of linen chest, cupboard, food container and safekeeping of trinkets. Each function demands its particular sizes and shapes. If tomb inventories are at all representative for a household (in this case: palace-) situation, a good impression can be gained by looking at the basketry from the tomb of Tutankhamon (Reeves 1990, 205-206).

The fragmentary finds from Amarna comprise only the bases of coiled baskets. The preserved diameters range from 100 to 300 mm. The publication of Gourlay gives a good impression of the variety of basketry shapes from a workmen's village (and related tombs) during the New Kingdom Period (Gourlay 1981).

With one exception, all the coiled basketry from Amarna was made from doam palm leaf, wound around a grass bundle. The one exception is a basket with a winder of papyrus.

Qasr Ibrim

Most of the coiled basketry at Qasr Ibrim is flat and its main function is to cover, rather than to contain. Small covers, with a diameter of 100 mm are made of finely coiled doam palm leaf winders around a bundle of grass or fibres from the fruit stem of the date palm. Larger coiled baskets with a diameter of 300 - 400 mm were probably also meant as food covers.

Only a few coiled containers were found, one of which is depicted on p. 218 (Figure 11-9). These small baskets were also very regularly made and were probably meant for safekeeping of small and perhaps valuable objects.

Storage in Qasr Ibrim was clearly not done in coiled baskets. Probably, sewn plaits baskets were sometimes used for this, but more importantly, there were alternative storage methods: containers of unbaked clay (*soma*) and simple pits in the ground, lined with matting (cf. p. 235 Plate 11-23).

Middle Egypt

At present large flat coiled baskets are used for storing bread (Plate 10-6, p. 185), while high, straight walled coiled baskets are used for storing other things, such as flour. For storing dates and maize the farmers from Middle Egypt also use *soma*'s, which are usually built on the roof. In Upper Egypt large *soma*'s are built in front of the house (Ikram, forthcoming).

New Nubia

Coiled basketry in New Nubia is mostly designed to cover things. There are small plates (100 mm in diameter, cf. Plate 11-13, p. 223), used to cover cups, medium size covers (300-400 mm) and large covers, which are convex in shape and have a diameter from 750 mm up to 1 metre.

There are some shapes, which are clearly meant to contain goods (mostly food, such as bread), for instance the large basket (diameter of 700 mm) shown in Plate 11-12 (p. 222). The Nubian-made sewn plaits basketry is used on a short term basis to hold goods, but long term storage was until recently done in *soma*'s. Since the households do no longer need to store large yields, food is put in the refrigerator and cupboards instead.

Similarities and Differences

In Amarna only doam palm leaf is used for the winders. Date palm leaf does not occur at all, although the date palm was widespread in Egypt in the New Kingdom period. How to explain this complete lack of date palm leaf, fibre or midribs in the Amarna basketry? There are two possible explanations of the use of doam palm for basketry: doam palm was preferred, or date palm trees were not available. There are arguments for both interpretations.

The argument that doam palm leaf was considered better than date palm leaf is supported by comparing Amarna with Qasr Ibrim. The coiled basketry in Qasr Ibrim was also made of doam palm leaves, even though date palm trees were available, judging from the large quantities of plaited basketry made with date palm leaf and the presence of other date palm products on site. In New Nubia, modern basket makers clearly favour doam palm leaf for making coiled basketry. They maintain that it is stronger.

The argument that date palm was not available at Amarna is based on the archaeological evidence: apart from many date stones, no other parts of the date palm tree were found in the workmen's village at Amarna. Not only is doam palm

used, rather than date palm leaf, but reeds were used rather than date palm ribs and grass was used rather than date palm fibre. This is remarkable, because the stem and the mid ribs of the date palm are useful as roofing material and the fibre can be used for making rope.

It seems that dates were either transported from a considerable distance, or that the inhabitants of the workmen's village did not have access to date palm trees. Probably both arguments are valid: date palm was not available, doam palm leaf was both available and considered a better material.

At present the basket makers from Middle Egypt have no choice, because doam palm trees do not occur north of the Luxor region, while there is an abundance of date palm trees in the valley.

The bundle material used in Amarna is consistently grass. In Qasr Ibrim the bundle is often made of the fibres from the fruit stem of the date palm tree, which is also the bundle material used at present both in Middle Egypt and New Nubia.

Active system: width of winders / Passive system: diameter of bundle		0-5 mm	5-10 mm	10-15 mm	15-20 mm
0-5 mm	Amarna	4%	-	12%	-
	Qasr Ibrim	31%	57%	4%	3%
5-10 mm	Amarna	-	32%	40%	4%
	Qasr Ibrim	-	4%	1%	-
10-15 mm	Amarna	-	-	8%	-
	Qasr Ibrim	-	-	-	-

Table 12-4 Relation between size of active and passive element, in percentages (Amarna n=25; Qasr Ibrim n=134)

In the previous chapters the relation between the size of the bundles and winders of coiled basketry from Amarna and Qasr Ibrim were listed (Tables 10-5, p. 184 11-5, p. 221). Table 12-4 shows the percentages of the different sizes of coiled basketry at both sites. The most frequent combination at Amarna is a bundle size between 10 and 15 mm and a winder of between 5 and 10 mm (40%). In 88% of the fragments from Qasr Ibrim the diameter of the bundle is smaller than 10 mm and the winder narrower than 5 mm. In Amarna only 4% of the baskets is this fine. Since the number of coiled fragments represented by this percentage is only one, a fragment of the centre where the coil and winders start out small, this comparison is perhaps misleading. Therefore, in addition to the percentages, the distribution of the relation between the size of the active and passive systems have been plotted in Figure 12-5.

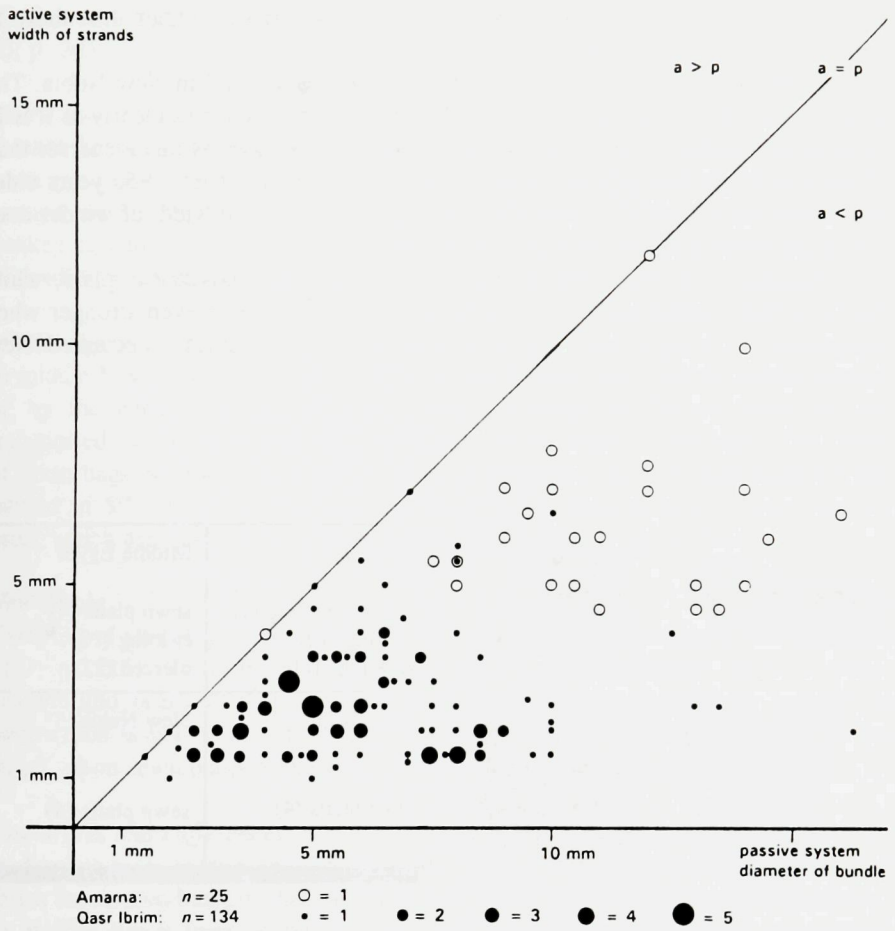


Figure 12-5 Distribution of the relation between the size of the active system (the wrapping strand) and the passive system (the bundle).

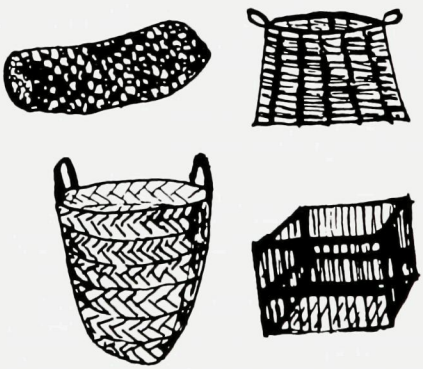
In Figure 12-5 the horizontal axis represents the diameter of the bundle, ranging from 0 - 17 mm, the vertical axis indicates the width of the wrapping strand. The 25 coiled fragments from Amarna are indicated by circles, the 134 coiled fragments from Qasr Ibrim by black dots.

From Figure 12-5 a several things can be read. No basket has been made with a wrapping strand larger in width than the diameter of the bundle. In only seven objects the active and passive element have the same size. Furthermore, the Qasr Ibrim basketry is clustered at the left, while the size of the basketry from Amarna shows more variation, but is all situated at the right side. The bundles and winders of the Qasr Ibrim coiled basketry are considerably smaller than those at Amarna and more consistently so.

Coiled basketry is produced widely in Middle Egypt and in New Nubia. The difference in size of bundle and winder is detectable nowadays as clearly as it is in the archaeological material. The basketry from Middle Egypt is much coarser than the Nubian basketry. Although the finds from Amarna are at least 950 years older than those from Qasr Ibrim, the difference in bundle size and width of winder does not appear to be periodic but regional.

Another clear difference is that the Amarna coiled basketry is plain, while the Qasr Ibrim coiled basketry is decorated. The difference is even stronger when comparing the plain Middle Egyptian basketry and the lavishly decorated New Nubian coiled baskets (see below Section 12.4)

12.2.3 Carrying and Transporting



Amarna	Middle Egypt
knotless netting (1) twining (10) knotting (16)	sewn plaits (4) twining (10) pierced (12)
Qasr Ibrim	**New Nubia**
sewn plaits (4)	sewn plaits (4)

Amarna

In Amarna the carrying and transportation is done with flexible, twined bags. There are several kinds of twined fabrics, making bags with different properties. The best known twined bag is the open twined 'seed'-bag, which has been found at Amarna. The bag is made of grass rope, with widely spaced rows of twining (fine version: A or B in Figure 10-14, p. 197, coarse version: K). A coarse dense

fabric is made with closely twined string (H and I in Figure 10-14). This makes a very strong bag, suitable for heavy loads.

Apart from the twined bags, there are indications that the knotless netting (technique number 1 in Table 9.0, cf. Figure 9-1, p. 155) is also a transportation net. In the tomb of Kha such a net has been found filled with doam nuts (now on exhibition in the Turin Museum). It seems a valid suggestion that these nets were made at the time and place of harvest to transport the fruits to their destiny. In Amarna the net was re-used to strengthen the roof.

The carrier net, knotted from papyrus string is the third technique employed in Amarna for making containers or aids for transportation (Figures 10-19 and 10-20, p. 205).

Qasr Ibrim

Twined basketry is not used for transportation or carrying in Qasr Ibrim. Instead, sewn plaits baskets are used. They make strong, flexible baskets which can be carried on the head, but have handles too. The larger baskets can be hung on donkey or camel back by balancing two of them on the ends of a stick across the back of the pack animal.

Middle Egypt

In middle Egypt the sewn plaits baskets are used for carrying on the head (women) or by the handles (men). They are used for shopping. Heavy loads are not transported in sewn plaits baskets, however, but in large twined bags. The fabric of these bags is very similar to that found at Amarna (like H in Figure 10-14, but twined in SZ direction). For light but bulky loads, such as straw, large nets are used, which are made in the pierced technique (Figure 10-18, p. 202).

New Nubia

Carrying of shopping in New Nubia is done in colourful sewn plaits baskets (Plate 11-7, p. 215). They are also used to display dry commodities, such as dates, peanuts and beans in shops or on the market. For agricultural tasks basketry is used which is not produced by the Nubians, but by Egyptian farmers. These are larger, plain sewn plaits baskets and twined bags and carrier nets.

Similarities and Differences

In Amarna most carrier and transportation baskets and bags were twined. In Qasr Ibrim the twined basketry has been taken over completely by sewn plaits basketry. In Middle Egypt there is one twined fabric, which is still produced and used as heavy duty bag for the transportation of earth and dung. Most of the carrying and transportation is done in sewn plaits baskets, however. The same is true for New Nubia: the only carrier basket which is produced today is the sewn plaits basket. This is made mainly for the lighter loads as a shopping basket, while the heavy duty sewn plaits baskets are bought of the *fellahin*, the upper Egyptian farmers.

The development of the sewn plaits basket gives an interesting angle to approach local traditions. Although it is unknown how or when sewn plaits basketry was introduced in Egypt, there seem to be two different traditions, which can be discerned mainly by the sewing strand. The Egyptian tradition uses a string, made of date palm fibre or date palm leaf, to sew the baskets. The Nubian tradition uses unspun strips of palm leaf, which are connected to the next one with an overhand knot.

In Qasr Ibrim of the Ballana and Christian period sewn plaits basketry is made mainly of nine-strands plaits made of date palm leaf, sewn with unspun palm leaf (Table 12-6, cf. Plate 11-5, p. 213). In the Islamic period baskets are made of nine-, seven- or five-strands plaits made of doam palm leaf, sewn with string (cf. Plate 11-6, p. 214).

In present day New Nubia, baskets and mats are made of date palm leaf plaits and sewn with unspun doam palm leaf, which seems to connect with the pre-Islamic period finds of Qasr Ibrim.

Amarna (no sewn plaits basketry)	Middle Egypt, at present nine-strands plait, made of date palm leaf sewn with string
Qasr Ibrim, Ballana and Christian Period: nine-strands plait, made of date palm leaf sewn with unspun palm leaf	New Nubia, at present nine-strands plait, made of date palm leaf sewn with unspun palm leaf
Qasr Ibrim, Islamic period: five-strands plait, made of date or doam palm leaf sewn with string	Upper Egypt, at present nine-, five- or seven-strands plaits, made of date palm leaf sewn with string

Table 12-6 Schematic representation of the variation in the passive system (plaits) and active system (sewing strand) of sewn plaits basketry.

Looking at the plait patterns does not really help. In present day Upper Egypt the variety of plaited strips present parallels for the Qasr Ibrim baskets found in the later (Islamic) layers of the site (Table 12-6). The seven strands plait with a \2/1\1/2\\1 pattern (cf. Figure 11-4, p. 212), found in Qasr Ibrim, is called *sabᶜāwī* in Upper Egypt (Henein 1988, 182-183), the Arabic term for the nine- and the five-strands plaits are respectively *tesᶜāwī* ("niner") and *ḵamsāwī*..

On the other hand, the nine- and the five-strands plait were known in the Graeco-Roman period. The Greek terms are ἐννεάπλοκον, and πενταπ[λ]όκον

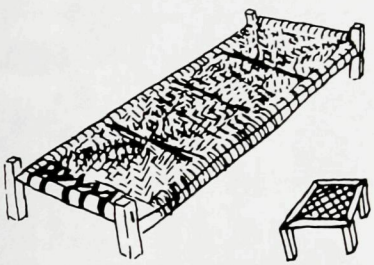
(cf. p. 213). In fifth century AD deposits excavated at the Red Sea harbour town of Berenike two combinations were found: baskets made of five-strands plaits (date palm), sewn with *string* and nine-strands plaits (doam palm), sewn with *unspun* knotted (doam palm) strands.

When comparing the range of techniques and materials it should be taken into account, that the depositional and post-depositional processes at Qasr Ibrim have been quite complicated. The areas 10.000 and 14.000 have been occupied during the Meroitic and Ballana periods. The houses collapsed in the Christian period, when the area was only partly occupied and mainly used for digging storage pits. In the early Islamic period there was a continued use of the area for storage and in the latest phase houses were built on top of the Ballana period remains.

The good preservational circumstances at Qasr Ibrim make it likely that whenever a pit was dug, a lot of earlier material was unearthed in such a good condition that it could be re-used. Therefore, the finds from the later periods are probably mingled with earlier material, the earliest layers being the only ones which can give a more or less 'unpolluted' image of the basketry production at that time. Furthermore, the use of basketry from previous periods might have influenced the production of new basketry.

If we want to define an 'Egyptian' and a 'Nubian' sewn plaits tradition, then we should not in the first place look at the plait pattern, nor the species of palm tree, but mainly to the sewing strip (cf. Wendrich 1995, 82-84).

12.2.4 Sleeping and Sitting 2



Amarna	Middle Egypt
wrapping (6) weaving 2 str. (9)	pierced (12)
Qasr Ibrim	**New Nubia**
weaving 1 str. (8) weaving 2 str. (9)	weaving 2 str. (9)

Amarna

Furniture is hardly found at Amarna, but still there are two basketry techniques which are of importance in the Amarna furniture production. The first are light tables and stools made of reeds wrapped with palm leaf or papyrus (cf. p. 188), the second is the weaving of the furniture webbing. In Amarna only impressions of furniture webbing with two parallel strands were found. From the impressions it seems likely that the original matting has been made of S-twisted doam palm leaf.

Qasr Ibrim
Furniture webbing in Qasr Ibrim is made by weaving with single strands of S-twisted doam palm leaf, or with double strands of grass string (pp. 227-229). None of the bed or chair matting has been found in connection to actual furniture. All matting was re-used as pit-lining.

Middle Egypt
No bed-matting is made nowadays in the vicinity of el-Hagg Qandil, el-Till or el-Amariyya, but in the latter village furniture is made of the midribs of the date palm leaves.

New Nubia
A technique identical to the grass string matting with double strands found at Qasr Ibrim, is produced in the region of New Nubia. The bed matting is not made by the Nubians, though, but by an Upper Egyptian craftsman.
Similarities and Differences
The 'niche' of the light reed furniture at Amarna has been taken over by the *jeriid* (Arabic for date palm branch) furniture in Middle Egypt.



Plate 12-6 Beds with rope webbing *(angereeb)* for sale on the market for small cattle in Daraw (New Nubia 1992).

Although the webbing in both Amarna (probably) and Qasr Ibrim (certainly) is made of S-twisted doam palm leaf, the weaving technique is different. From the impression of the Amarna matting it is impossible to say how the webbing was made exactly, since no trace of the edges is available.

For the Qasr Ibrim grass string matting with double strands, we have a modern parallel (Plate 12-7). Although the Qasr Ibrim fragments do not have edges either, it is impossible to tell if the production process was the same as what is done today, but the appearance of the basic structure is strikingly similar.

12.3 DECORATION

It has been mentioned above a number of times: the basketry from Amarna and Middle Egypt is plain, while the basketry from Qasr Ibrim and New Nubia is decorated.

Qasr Ibrim

Almost every fragment of coiled basketry of Qasr Ibrim has some form of decoration, either with coloured winders or with wrapped patterns. The Meroitic and Ballana periods, are distinguished by coiling variations, that are unique for this period. Wrapping around alternately one and two bundles, the combination of lazy-basket-makers'-stitch with decorative wrapping and rims with a separate inlayed coloured strip (cf. pp. 217-221) do not occur anywhere else in Egypt and disappear in the later periods of occupation at Qasr Ibrim. Some of these techniques, such as the coiled inlay, are known today from East Africa (Eritrea, Ethiopia).

Small coiled plates, decorated with coloured patterns, on the other hand, have a long tradition from the Meroitic and Ballana period to the present (cf. Plate 4-4, p. 64 and 11-13 p. 223).

The plaited basketry of Qasr Ibrim does not have this lush colouring, however. Some fragments are decorated with dark brown goat hair string, but only one mat was made of alternate plaits in two different colours. There was no decorative pattern within the plaits.

New Nubia

The coiled basketry from New Nubia is made of brightly coloured strips of doam palm leaf. The production of undecorated basketry is inconceivable. If coloured doam palm leaf is not available, alternatives are searched for and found, even if this means a complete change of the decorative concept: Plate 11-14, p. 224 shows a coiled basket with coloured winders made of washing line and one made of candy wrappers. In the first basket the decorative pattern is determined by the closely spaced winders. In the second, it is the bundle which is coloured, while the winders are widely spaced in order not to hide the coloured pattern of the bundle.

The plaited baskets in New Nubia are also decorated. The plaited strips are made with dyed date palm leaflets, plaited into brightly coloured patterns (Plate 11-7, p. 215).

Interpretation of decoration

How should these differences in decoration be interpreted? Does decorated basketry point at a richer society, in which more time can be spent to make the objects of daily use? Or is it typical for a poorer, or more isolated, society in which prestige goods had to be made with locally available materials. A third explanation is a difference in tradition, between Egypt and Nubia.

When asked what the patterns on the coiled baskets mean, the Nubian women shrug and without exception say "It is just decoration". Does this mean that the decoration on the Nubian baskets has no meaning? Perhaps the pattern does not have a specific meaning, but the fact that the baskets *are* decorated has. Although the habit is disappearing at present, 40 years ago in Old Nubia the decorated basketry plates were made to give as wedding presents and used to decorate the main room of the house.

But can we transfer the habits of the present to the Meroitic and Ballana periods? Does the similarity between the small coiled plates also gives us the grounds to suggest, for instance, that the Meroitic and Ballana coiled plates were given as wedding presents? No, not like that, but what we can say is that in those periods basketry was made with care and attention, the decoration pointing at an other-than-purely-functional use. We can also conclude that the role of basketry in ancient and modern Nubia is very different from that in either Amarna or Middle Egypt. The Egyptian baskets seem to be mostly functional, while the Nubian basketry has a meaning in the determination of social and regional identity, as well as social exchange.

12.4 REGIONALITY, TRADITION AND CHANGE OVER TIME

In the previous section it became clear that there is a regional difference in basketry. There is not only a strong difference between Egypt and Nubia, but also between the *fellahin* (farmers') tradition of Middle Egypt and that of Upper Egypt (cf. Henein 1988).

The subject of tradition does not really belong in a chapter on the static aspects of basketry, because tradition itself is not static. There is a constant development and a reinvention of tradition. Tradition signifies identity, from the tepid "that's the way we are doing things here", to the pride of the producer for his or her product.

Amarna and Middle Egypt

At Amarna, where there were no sewn plaits baskets, basketry for transportation and agricultural use, such as seed bags, were made by twining grass or palm leaf into flexible bag like containers. The twining technique is now used in

Middle Egypt to make large flexible bags in which earth or dung is transported, but transportation is done in sewn plaits baskets.

Baskets used inside the house were made in the coiled technique and today still are. The use has changed, however, to a very limited number of functions, and mainly two shapes: a large flat bread basket and a round basket with high sides for flour and other goods. This suggests that plaiting might have taken over functions of twined basketry, while coiled basketry seems to have maintained its position in the centuries between 1350 and the present.

The only objects that did not occur in the archaeological material are open worked rigid containers, or crates. They are at present made of date palm midribs, a material which does not occur at Amarna at all.

The variety of basketry has diminished. Table 9-21 on p. 169 shows that there are eleven techniques both in Amarna and Middle Egypt, but the variation within those techniques (for instance the twining technique) has diminished. At the same time in present Egypt many basketry objects are being replaced with alternatives: plastic takes over the role of brushes, cages, baskets and mats.

Qasr Ibrim and New Nubia

The Meroitic and Ballana Period were distinguished by Reisner on the basis of a variation in pottery. From the basketry point of view there is no difference between the Meroitic and the Ballana period at Qasr Ibrim. The range of techniques and the use of materials are the same. Perhaps Reisner's distinction was based on a local situation, while in reality Meroitic and Ballana was a continuous occupation of most of the area south of Aswan. Changes occur in the Christian period, when the variation in coiling gets less and variation in plaited fabrics is the largest.

The ethno-archaeological survey learns that from the basketry perspective, there is not one New Nubia, but at least three. This does not come as a surprise, considering the three languages spoken in the area, but it makes us aware that Qasr Ibrim, the only site in the Old Nubian region that survived and the only site from which a large corpus of basketry is available, can not be considered representative for the entire region south of Aswan.

Comparing Qasr Ibrim with New Nubia shows a diminishing diversity of basketry techniques: 16 techniques found at Qasr Ibrim against eight techniques that are produced in Nubia (Table 9-21, p. 169). This is the situation after the resettlement. It is clear that in New Nubia the coloured and decorated coiled basketry, as well as the decorated sewn plaits basketry is still made in abundance. The undecorated basketry for use on the land or as transportation baskets, are bought from the Upper Egyptian *fellahin*. This highlights what is apparently considered important in Nubia: the baskets which are used inside the house (coiled) or to bring goods to the house (decorated sewn plaits carrier baskets).

Comparing the techniques and materials used at Amarna, Qasr Ibrim and at present has given some outlines of the possibilities and limitations of an interpretation of aspects of society, based on the static aspects of basketry.

It may be clear that there has not been a linear development. Strong regional traditions go hand in hand with innovations and (agri)cultural developments. Amarna and Qasr Ibrim have to be considered as two societies with separate basketry traditions, as is true for Middle Egypt and New Nubia.

At the end of this chapter it is clear that an interpretation of the static aspects of basketry gives information on a number of general technical and social aspects, but not as much on the 'people behind the baskets'. Being acquainted with the techniques and the materials, we can now proceed to the dynamic aspects: how were the baskets made (part 4), and who made them (part 5).

PART THREE

Dynamic Aspects of Basketry

CHAPTER THIRTEEN

THE INTRODUCTION OF TIME

When time gets involved in the study of basketry production, we move from the static to dynamic aspects of basketry. Rather than looking at basketry production from the structure, we approach it from the process, as a result of human actions.

The use of the terms active and passive in the classification of Table 9.0 (p.154) is a static criterion: the passive system forms the body of the basic structure, the active system is causing the coherency. Nevertheless, from this concept we can make suppositions about the production process: studying the present day basket makers tells us that the active system is handled more frequently or longer by the basket maker than the passive system. In mat weaving the warp is in a fixed position in the loom, and the weft is handled by the mat weaver. In the production of coiled basketry the bundle is held in a fixed position with one hand, while the basket maker is concentrating on the wrapping strand.

Describing a technique as an interaction of a passive and an active system is not a description of the production process. It is at best a description of one phase of the work. As is implicitly shown in the drawing of the grommet in the previous chapter (Figure 9-2 on p. 156), basketry is made in a number of phases, which are apparent if we start looking at production time.

The video shows several of these production phases, but not all of the sequences are shown fully. The first sequence, production of a sewn plaits basket by Mohammed in el-Hagg Qandil, is the most comprehensive, following the production from beginning to end (02:53-24:04). The second sequence shows Rayhayyet in the Middle Egyptian village of el-Amariyya, while she makes the start of a coiled basket. The sequence shows her also while working on a *sabat* basket in a later phase of the work (24:41-32:58). The third sequence features Khadidja in the Nubian village of New Ibrim, making the start of a decorated food cover (*shauwer*, 33:34-41:33).

The fourth sequence is again focussing on Middle Egypt, where the twined mat-maker Amrīt has his work shop in the village of el-Amariyya. The sequence is picked up half way and focusses on the end of the process (42:10-47:34). The town of Daraw is located in the middle of the Nubian resettlement region. Shahed, who makes grass rope bed webbing, is not Nubian, but of Egyptian parentage. This sequence also focusses on the middle and end of the process (48:05-58:09).

In the video each sequence is frozen for a brief moment to show which strands are active which passive (cf. Appendix C, 3). However, watching the

basket makers at work makes instantly clear that *passive* and *active* systems are not fixed entities.
During the different phases of making a basket, the strands of a system are sometimes active, sometimes passive. This is clearly visible in the video.

Active and Passive in Coiling
In coiled basketry the bundle is the passive system, the wrapping strand the active system. Rayhayyet starts making the coiled basket by making a knot in a bundle of twisted palm leaf that is to form the centre and the start of the bundle (25:08-25:45). Thus the start of the passive bundle is active, but becomes the passive system when the wrapping strands are introduced (26:10). When she inserts new strands in the bundle, these are active, until they are part of the bundle and wrapped with the date palm leaf (28:15-28:25).

The same is true for the coiled basketry from New Nubia. Khadidja makes a small square plait that is to form the centre of the basket (cf. Plate 4-5, p. 65) For the entire phase in which the plait is made, the four strands are active (34:11-35:46). A small bundle is placed at one side of the plaited centre (36:06). In this phase the centre is passive, while the bundle is actively put in position. One of the plaiting strands is split and half of it becomes the active system (35:58-36:00): it wraps around the bundle and is stitched through the plaited centre. Both the centre and the bundle are from that moment on passive, while the wrapping strand is active. The other three palm leaf strands with which the centre was plaited, are gradually integrated in the passive bundle.

With the introduction of coloured winders Khadidja is changing wrapping strands regularly to form a coloured pattern. Only one strand is active at the time, the other colour is lead along the bundle and made temporarily part of the passive system (39:34-39:43). If the colour of the passive strand is needed in the pattern, it becomes active. This strand is now used to wrap around the bundle, while the previous colour is made temporarily part of the passive bundle.

Active and Passive in Weaving and Twining
In the static description of weaving and twining the warp is passive, while the weft is active. In a dynamic description of these techniques it has to be made clear that first the warp is made, during which phase the warp strands are active. It is not until the weft is being woven, that the warp threads become the passive system.

This is particularly clear in the section in which Shahed makes the bed matting. With the end of the same strand with which the warp is made, he starts weaving in the weft (50:55-51:31). The actions to make the edges of the warp and the weft are identical (warp see 50:34-50:42, weft see 54:11-54:19).

The twined matting, made by Amrīt, is also made with a warp and a weft. First the warp is made, by arranging loops of string around two metal bars (not shown). After the loops have been equally divided over the width of the bar, the weft is twined with two active strands (42:24).

After the twining has been completed, the two metal bars are removed and the passive system is becoming active once more: the row of loops is fastened by pulling each loop through the previous one (46:28).

Active and Passive in Rope Making

Making a three-ply rope involves two stages: first a two-ply rope is made, in which both strands are active (07:39 and 15:05). Secondly, a third strand is wrapped around. In this stage the two-ply rope is passive, fixed between the toes of the basket maker, while the third strand is active (16:14).

When using the terms active and passive we, therefore, have to keep in mind that they are referring to only one phase of the production process, the phase in which the basic structure is made into a coherent fabric. The strands of the passive system might be active in another phase of the production and *vice versa*.

As a rule the passive elements are less flexible during the production than the active elements. In coiled basketry the bundle is less flexible than the winding strands. In stake-and-strand basketry, the passive elements, the stakes, are thick twigs, while the active elements, the strands wich are woven in, are thinner and more flexible twigs of the same material.

The flexibility is not only determined by the kind and size of the raw material, but also by the production method. Often a *frame* is used to temporarily render the passive system less flexible by putting the strands under tension in a frame. The frame can be permanent, as the wooden frame of the bed, or temporary. The twined matting is made, for instance, on a very simple loom, made of four pegs in the ground and two metal bars. Often the tight fixing of the passive system requires that a tool is used to create a space in the passive system for the active strand to pass through. In the video this is visible in the sequence of weaving the bed matting: at the last stage of the production a wooden peg is used as an awl, to force apart the strands of the passive system (57:17).

Coiled basketry is not made on a frame, but is added onto the *anchoring fabric*, the previous rows of coiling. In the coiled basketry from Middle Egypt a small needle is used at the end of the palm leaf, and often a hole is punched in the previous coil, to pass the needle through the bundle material (29:37). In New Nubia the coiled basketry is made without the help of a needle, but an awl is used to create the space for the strip of dom palm leaf to pass (37:33). For sewn-plaits basketry, a large needle is used to help the sewing string to pass through the edges of the plait (11:51).

The following sections concentrate on *how*: how are raw materials gathered and prepared (Chapter 14) and how are the baskets made? The basketry production is approached from two different angles: the first angle starts at the baskets found in the excavations and reconstructs the order of actions and time necessary for the end product (Chapter 15). The second part of the description starts from the

producer: what actions are involved in making the object, in what context does his work take place (Chapter 16).

The difference between these two angles can be illustrated with an example: the first approach results in an estimate of the *production time*, which is the total time spent on making the object (e.g. eight hours), the second approach is characterized by an interest in the *production period*, that is the total period spent on making the object (e.g. a total of eight hours on four Fridays between the noon prayer and going back out into the fields).

The importance of the second angle in relation to archaeology is that it prevents a naive approach of social and economic aspects. A basket maker is not only a basket maker, but his position in society is also determined by being a member of a family, neighbour, farmer, parent and village watch.

CHAPTER FOURTEEN

CLIMBING THE TREE

14.1 Obtaining and Preparing Raw Materials

Gathering or harvesting the raw materials is mostly part of the basket maker's job. We know the range of raw materials used in antiquity, but it is not until looking at the present day basket makers that we begin to get an understanding on the time and costs involved in the process that precedes the actual basket making.

The preparation of the raw materials is divided into two stages. The plants have to be dried before being used or stored. Cutting, cleaning and sorting is often also part of the preparatory task. The second stage of the preparation falls usually just before the materials are to be used. In this stage the strands are cut to size and soaked. The first preparatory phase is looked into in this chapter, the second phase is considered an integral part of the production process and will be dwelt upon in Chapter 15.

The organization of gathering the raw materials is partly linked to the seasons. Some plants can only be harvested during specific periods, while others can be gathered year round. Harvesting or gathering at a specific time of year needs organization and storage space.

With the archaeological remains from Amarna and Qasr Ibrim examples of several of these stages of preparation have been found. Based on these and interviews with modern basket makers the preparation needed for the different materials is surveyed.

For each plant species it is surveyed which parts are gathered. Also the question how they are harvested and how much time is involved is deemed important. The ownership of land, plants or trees is touched upon also.

Because this chapter depends heavily on the ethno-archaeological research, the Arabic terms for the different materials are included. If the Nubian or ancient Egyptian terms are known, these are mentioned too.[1] Since there are many local differences in the Arabic terms, mainly those used in the vicinity of el-Hagg Qandil are given. A complicating matter is that most of the basketry terms are

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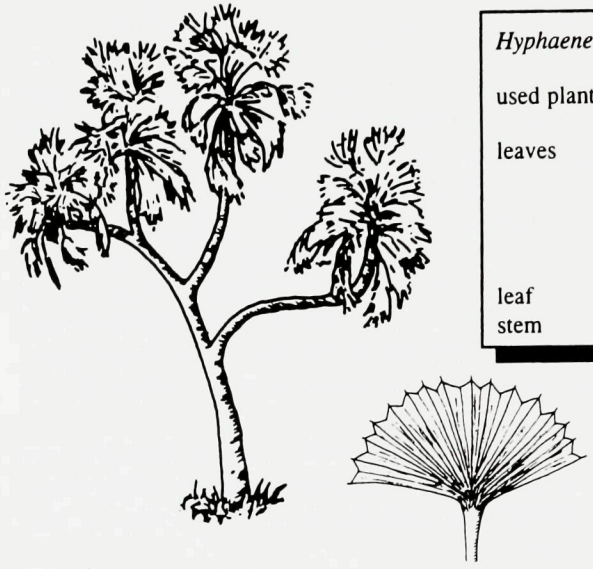
[1]The Fadidja terminology is based on interviews, the Kensi terminology is based on interviews and literature (Alkwist & Zetterstéen 1911, Hofmann 1986), the Arabic terminology is based on interviews and literature (Badawi and Hinds 1986; Behnstedt and Woidich 1994; Wehr 1980, Henein 1988), the Egyptian terminology is based on literature (Helck 1961, Janssen 1975 and Wallert 1962).

unknown in modern standard Arabic.[2] The Arabic, Nubian and Egyptian terms have been included in the vernacular glossary of Appendix D.

14.2 PALM SPECIES (*PALMAE*)

Doam palm



Hyphaene thebaica		p. 146
used plant parts:		
leaves	Arabic:	*waraq el-doam*[3]
	Fadidja:	*imbi nig*
	Kensi:	*ambu nig*
	L. Egyptian	*ṯ3w* (IV, 109)[4]
leaf stem	Arabic:	*jerīt*
	L. Egyptian	*b'j.w*

Winning

The large fan-shaped leaves of the doam palm are cut from the top of the forked stem, which can grow to a height of 20 metres. To harvest the leaves the tree has to be climbed and the leaves are cut at the base. The leaf-stems are two metres long and have sharp spikes at the base. The organization of the harvest is not known. In principle, doam palm leaves can be harvested anytime of the year. For

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[2]The basket makers which were able to write were asked to spell the names of the different objects and materials. In many cases their reaction to this request was: "that is a word that is not written", meaning: it is colloquial Arabic.

[3]Arabic uses: *shagar* (tree) and *waraq* (leaf). The doam palm tree is considered a proper tree, while the date palm is a class of its own. Both species can be considered trees, in that they are high rising with a stem and leaves, but palm trees are characterised by the lack of secondary growth in the width (neither species has growth rings). The Arabic designation of the doam palm as a tree is probably because it has a hard stem, compared to that of the date palm, which is fibrous.

[4]L. Egyptian = Late Egyptian. The numbers refer to the volume and page number of Lesko 1982-1990. Cf. also *ps* (I 182) for a pack of fan leaves.

basket making only young leaves are suitable, the old leaves are less flexible and brittle.

The time involved in gathering enough doam palm leaf for one basket depends on the size of the basket, but the coiled baskets found at Amarna and Qasr Ibrim are quite small and do not take more than part of one of the large fan-shaped doam palm leaves. It does not take more than 10 minutes to climb the tree and cut off one leaf. Although there is no specific harvest period for palm leaf, often several leaves are cut at the same time.

Preparation

Just after cutting, the leaves are dried for at least two weeks before the next stage of preparation takes place. A half product is prepared consisting of dried and sometimes dyed strips. The dried fan shaped leaves of the doam palm tree are split with a knife in strips of equal width. The hard veins of the leaf are about 40 mm apart, which is, therefore, the maximum width of the strips. In a later stage the strips are cut into much smaller strands down to 1 mm wide (Chapter 15). What is stored are not the leaves, but neatly bundled strips. At Qasr Ibrim such bundles have been found in an Islamic and a Ballana period context (Plate 14-1).[5] The length of the strips in the bundles is 650 and 620 mm, the width is in one bundle 14.2 mm, in the other the width of the strips varies between 2.5 and 14 mm.

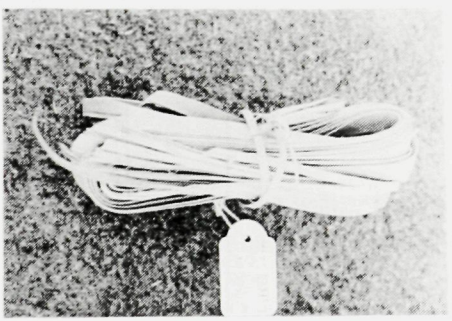


Plate 14-1 A bundle of prepared doam palm leaf, tied with a small strip of doam palm leaf (Qasr Ibrim 10.070-070). The bundle is approximately 13 cm long (Courtesy of the Egypt Exploration Society).

At present in New Nubia the dry cut strips are boiled for 30 minutes in water, to which sometimes alum is added. After drying for a day the strips are ready to be either used or stored. Part of the doam palm leaf is boiled again in a dye solution. Now synthetic dyes are used, which are bought on the Aswan

[5] 10.075-031; 10.070-070.

market. If a very deep colour is needed, the dyes are added also the first time the strands are boiled.

In Old Nubia, which is Nubia before the resettlement following the building of the Aswan High Dam, natural dies were used, but the memory of the plants or minerals used has faded during the more than 35 years that the people have been living in New Nubia.[6] The use of natural dies must have been seldom during the years before the move as well, because even baskets which were brought in the move from Old to New Nubia were made with synthetic dyes. The informants mentioned Aswan or Wadi Halfa as their source of dyes. The dry strips, whether plain or dyed, can be stored for a long period.

At Qasr Ibrim another half product was found: bundles of S-twisted doam palm leaf string, one of which was wound around a stick (Figure 14-2).[7] This suggests that the string for the furniture matting found at the site has been prepared before the actual weaving started. Before twisting the leaf strips, the material is soaked. The string has to be wetted again before the weaving can be started.

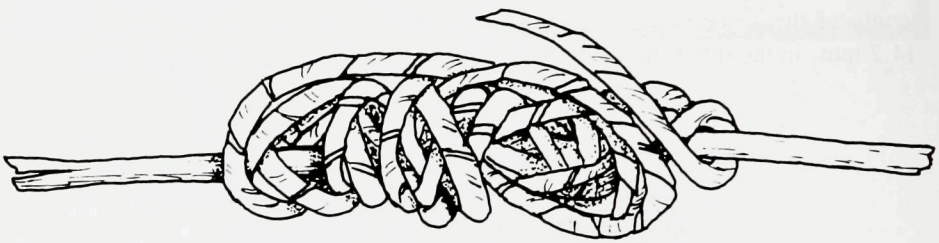


Figure 14-2 Prepared doam palm leaf, stored for later use, for instance in weaving furniture matting (Qasr Ibrim 10.416-552). Scale 1:1.

Availability of doam palm leaf

Though doam palm trees were probably more common in Egypt in the New Kingdom Period than at present, they may not have been widely available. An indication for this is a text stating that packs of doam palm leaves were imported into Egypt (Gardiner 1937, 11,4,3). In the text there is no indication why they were imported, but it seems likely that the purpose was basket making, since almost all coiled baskets and most of the twined mats from that period are made of

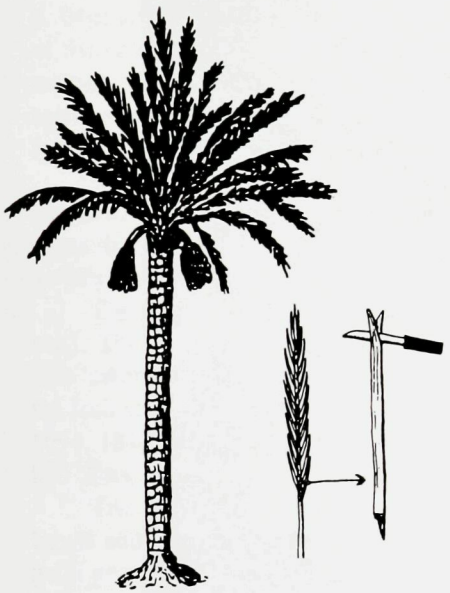
[6] One informant mentioned three colouring agents: ink, kurkuma (which could be either the Asian yellow root or a light blue liquid which is put on wounds) and an unknown substance called *sennag addoka* (Fadidja Nubian).

[7] 10.001-242; 10.416-552.

doam palm leaf. This would imply that the ancient basket makers had to buy at least part of their raw materials. Not only the leaves of the doam palm are useful, but the fruits (doam nuts) are edible and the stones are hard and white, a vegetable ivory (Germer 1985, 234). The stems of the leaves can be used for making roofs and fences.[8] Owning a doam palm, therefore, is an asset.

In Old Nubia, basket makers could obtain doam palm leaf freely from common trees. In New Nubia not many doam palm trees are available. Some of these are for common use, others are private property, depending on if they are growing on common grounds or privately owned land. In present day Middle Egypt no doam palm leaf is used.

Date palm



Phoenix dactylifera		p. 146
used plant parts:		
leaf	Arabic:	*qalb el-nakhla*
leaflets	Arabic:	*saʿaf en-nakhla,*
	Fadidja:	*nintīn nig*
	Kensi:	*benti nig*
leaf mid rib	Arabic:	*jerīt*
	L. Egypt.	*bʿj.w*
leaf sheath fibre	Arabic:	*līf*
fruit stem	Arabic:	*zaghauwah*
	Fadidja:	*arru*
	Kensi:	*jurbah*
flower sheath	Arabic:	*sabata, zabata* or *zaʿabata*

Winning

All parts of the date palm tree are used, but not all of them for making basketry. The harvesting of parts of the date palm is for some parts done once a year, when the tree gets its 'maintenance service', other parts are taken of the tree whenever necessary.

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[8]For the stems of the leaves the same Arabic term is used as for the midribs of the date palm leaves, *jerīt*. The same is true for the ancient Egyptian term: *bʿj.w,* used to indicate the midrib of both palm species (Wallert 1962, 53).

Date palm leaves are an example of the latter. The basket makers prefer to use the young leaves sprouting in the middle of the crown. They are the 'heart' of the palm tree (*qalb el-nakhla*, plur. *qulub*). Not too much of these young leaves can be taken of a tree, otherwise it will die. The white leaves are usually harvested from young, not very tall trees, which can be climbed without special tools, because the old leaves have been cut in such a way that the trunk of the tree is provided with 'steps' (cf. Plate 14-3).



Plate 14-3 Man collecting young palm leaves and a fruit stem for his wife, who makes coiled baskets (el-Hagg Qandil 1989) .

The feather-shaped date palm leaves consist of a midrib (*jerīt*) and side leaflets (*saᶜaf*). The expression used in Arabic for the young leaves of the date palm is *khuz abyad* (white leaves). The slightly older leaves are indicated as *khuz akhdar* (green leaves), which are much tougher than the young leaves and at the same time quite brittle. Archaeology and textual evidence show that this differentiation between green and white leaves is very old. In a papyrus from 87 AD part of a tenancy agreement for land mentions a basket specified as λευκοφύλλων, made of white leaves.[9] The archaeological evidence from Qasr Ibrim shows that the more mature palm leaves were used for coarse baskets, while the average and fine basketry was made from the young palm leaves.

Once a year, a few weeks after the harvest of the dates, the older leaves at the base of the crown are cut off as part of the maintenance of the palm tree. The mid ribs *(jerīt)* of these old leaves are used for different purposes, among which the production of pierced basketry (Plate 10-17, p. 202), roofs (Plate 11-32, p. 246) and as fuel. At the same time the remains of the leaf sheaths at the bottom of the crown are also removed. These brown matted fibres (*līf*) are used for rope making. The leaves have large spines at the base (*šoka*)[10] which are sometimes used as awls in making coiled basketry (cf. Plate 14-4). In Qasr Ibrim they were found stuck in a piece of cloth as a kind of make shift pincushion with pins.

The dates grow on long slightly curved stems, which are cut off at the base and lowered with the bunch of dates still attached (cf Plate 14-4). These stems when dry, can be split into rigid fibres, which are used for the bundles of coiled basketry in Qasr Ibrim (rarely) and modern baskets (commonly).

The term for the fruit stem differs locally. In el-Hagg Qandil two names are used. The most common term is *zaghauwa*, but it is also indicted as *seyf el-zabata* (the 'sword of the fruit sprout'). The bunch of curly twigs that sprout at the end of the fruit stem and on which the dates grow is called *zabata* (Behnstedt and Woidich 1994, 181), which is also the term for the female flower bunch before it has grown into dates.

Two other terms occur: *jurbaḥ* and *'arjun*. The first is attested in Middle Egypt and Upper Egypt as a term for the sheaths in which the flowers of the date palm grow (Henein 1988, 180).[11] The flower sheaths have a dark brown epiderm, strips of which are used in el-Hagg Qandil and el-Till to decorate and strengthen the rims of coiled baskets. In Kensi Nubian the term *jurbaḥ el-balah* was quoted as the fruit stem (Hofmann 1986, 87).

The term *'arjun* is used in north Middle Egyptian for the fruit stem (Behnstedt and Woidich 1992, 305) but in Upper Egypt for the female flower bunch. Henein quotes the use of the term *'arjun* for the fruit stem fibre (Henein

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[9] Papyrus Soterichos 4, line 17-18, cf. Worp 1988, p. 280.

[10] This term is found in Nubia. Henein uses the word *sellāʿa* (Henein 1988, 403).

[11] The term for this sheath is in Middle Egypt *sabatah, zabatah* or *zaʿabatah*, while the flowers inside are called *zaʿab*. The sheaths of the male flowers are not used for basket making.

1988, 189), which makes it the Upper Egyptian synonym for the Middle Egyptian word *zaghauwa*. In Fadidja Nubian the fruit stem of the date palm is called *arru*.

The yearly harvest of parts of the date palm (dates, fruit stems, leaves, fibre) from old, high standing palm trees is done by specialised men, who climb the old, tall trees, which are 20 metres or higher, with the help of a climbing girdle slung around the tree and the waist. The tools used are very sharp curved knives and a small hoe.

In Plate 14-4 a man is shown climbing a younger palm tree, to cut a white leaf from the heart of the crown and collect some *zaghauwah* stems. The fact that there is still an old fruit stem in the tree shows that it is not maintained regularly. In el-Hagg Qandil several people own date palm trees for their own use, rather than for growing dates on a large scale. There are no specialised professionals who take care of these trees. Rather than harvesting all the dates and trimming back the tree yearly by removing the old leaves and fibre from the base of the crown, people walk up to their tree and cut whatever they need at the spur of the moment.



Plate 14-4 With his right hand, the man pulls at an old fruit stem, of which the dates have fallen. Note the sharp spines with which the base of the date palm leaves are covered (el-Hagg Qandil 1989).

Preparation

Some preparation is needed before the harvested palm leaves and fibre can be used for making baskets. The young leaves from the centre of the date palm are dried thoroughly (minimally two weeks) before they can be processed further. Using fresh palm leaf is not possible because the shrinkage is irregular.

The side leaflets, which when young are still folded lengthwise, are pulled from the midrib by hand. These leaflets (*called sa'af,* or with a collective name *khuz*) are 40 cm long. At some stage (either at the preparatory phase, or just before the work on the basket starts), the vein is pulled of, leaving two strips of date palm leaf of approximately 10 mm wide. These strips form a half product that can be stored until needed. At Qasr Ibrim date palm leaf strips were found, which were cut into even smaller strands of 4.3 mm wide, with a length of 430 mm long, tied into a bundle with a piece of grass string Plate 14-5).

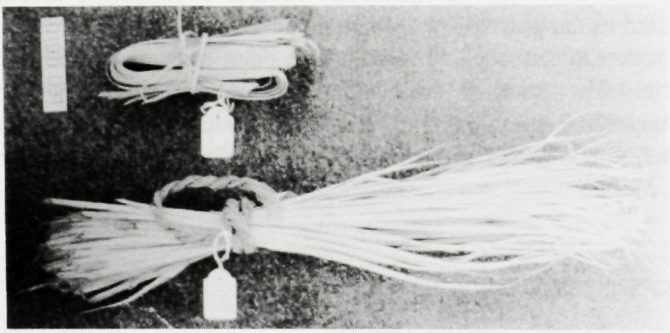


Plate 14-5 Bundles of prepared strips of doam and date palm leaf, found at Qasr Ibrim (10.048-027 and 10.070-070). (Courtesy of the Egypt Exploration Society).

The mid ribs of the leaves (*jerīt*), used for instance for making roofs, but also for the production of pierced basketry, do not need any preparation, but have to be used within about five days after they have been cut from the tree, before they have dried out. They are cut to the required length and split if necessary.

The fruit stems are dried during several weeks and are pounded, to release the tough fibres. In modern Egypt they are layed out in the streets, to let the passing cars run over them and do the hard work. After that the fibres can be split easily with a knife or by hand, using anything pointed. This is usually done while the basket is made (Chapter 15).

The leaf sheath fibre can be used straight away after a brief period of soaking in water. For fine string the fibre has to be selected more carefully, using only the upper parts and soaking for a longer period. Small bundles of fine, clean fibre were found at Qasr Ibrim.[12]

[12]Date palm fibre: e.g. 10.068-243, 10.128-119, 10.236-221.

Availability

Owning a date palm is important, because it gives access to food (the dates), fuel (the old leaves and the stem), building material (the stem and the mid ribs of the leaves) and raw materials for basketry and cordage.

In the workmen's village of Amarna only date stones were found, but no other parts of the date palm were used. All basketry was made of doam palm leaf or grass. It seems that date palm trees were not found in the neighbourhood of the village, or that inhabitants did not have access to the tree. In Qasr Ibrim most of the plaited basketry was made of date palm leaf, while the coiled basketry was made of doam palm leaf.

In present day Middle Egypt both coiled and plaited basketry is made of date palm: the bundle is made of *zaghauwah* (fruit stem) fibres. In New Nubia plaited basketry is made from date palm leaf, while coiled basketry is mostly made from doam palm leaf or alternative materials. Bundles of *jurbah* or *arru* (fruit stem) fibres are used as the passive system in coiled basketry.

If a basket maker does not own a date palm tree, he or she has to buy the raw material. The price of one young leaf of the date palm varies, but is approximately 30 piastres, one fruit stem costs about 60 piastres, a large mid rib one Egyptian Pound (price levels of 1992). No price indications are known from the ancient sources.

14.3 GRASS SPECIES *(GRAMINEAE)*

Halfa grass



Desmostachya bipinnata			p. 147
Imperata cylindrica			p. 148
used plant parts:			
leaves and culms	Arabic:	*halfa*	
	Fadidja:	*?*	
	Kensi:	*gīd*	
	L. Egyptian	*'nb*	(I, 79)

Winning

Since the grasses are perennial, they are always available. The condition of the grass is best when the young leaves have grown and the plant is not yet flowering, but in principle grass can be collected as needed all year round.

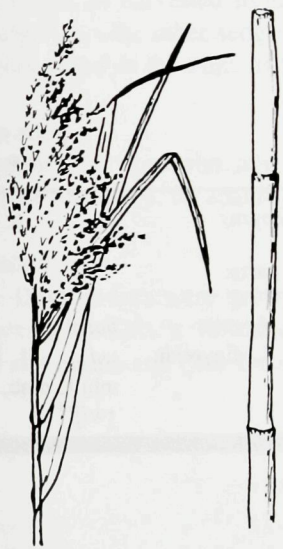
Preparation

Grass does not need much preparation, just a waiting period of three to five days to allow the grass to dry. Bundles of grass can be stored dry and have to be wetted just before they are used. Several of such grass bundles are found at Amarna. At Qasr Ibrim some complete grass plants are found, which are knotted in circles. The total length of those grass plants is 900 mm, the diameter of the bundles 20-40 mm.[13]

Availability

Halfa grass grows abundantly at the edges of rivers and canals, where it can be cut for free. Although it is feasible that grass was cut whenever necessary, it seems more likely, considering the many uses it was put to in Amarna, that a supply was made for the months in which the quality of the grass had diminished too much. In competition with basket making, grass was probably also harvested by farmers keeping pigs, sheep, goats and donkeys.

Reeds



Phragmites australis			p. 149
Arundo donax			p. 149
used plant parts:			
culm	Arabic:	*ghaab, boos*	
	Fadidja:	*?*	
	Kensi:	*ghaab*	
	L. Egyptian	*wnr*	(I, 118)
		g3s[14]	

[13] knotted grass bundles: e.g. 10.068-243, 10.070-070, 10.128-119, 10.384-318;
[14] Germer 1985, 206

Winning
Reeds are cut and used fresh or dried. Probably reeds were never stored, but just gathered whenever necessary.

Preparation
The only preparation necessary is the removal of leaves and plumes.

Availability
Reeds are available freely, growing along the banks of rivers and canals. They are best gathered before they are flowering.

Wheat straw
The dried culms of a cultivated grass (*Triticum dicoccum*) is used in Nubia for decorating coiled basketry. The Fadidja term for straw is *farʿa*, the Kensi Nubians use the word *brubi*, or the Arabic *qašš el-qamḥ*. Immediately after the wheat harvest the culms are collected and stored until needed.

At present, the glossy material is often dyed in bright colours. The same dyes are used as for doam palm leaf, but the procedure for dyeing straw is simpler: the culms are split and soaked in the dye for ten minutes without boiling.

Since straw is a by-product of farming, the basket makers who do not grow wheat have to buy the material. Competitively wheat straw is used as inclusion in clay and mud brick, as animal fodder and as fuel.

14.4 SEDGES (*CYPERACEAE*)



Cyperus papyrus			p. 150
used plant parts:			
culm	Arabic:	*bardi*	
	L. Egyptian	*wḏ*	(I, 139)
		mḥj.t, mnḥ, ṯwfj[15]	

[15]Germer 1985, 249



Cyperus rotundus			p. 151
Cyperus alopecuroides			p. 151
Cyperus schimperianus			p. 151
used plant parts:			
culm	Arabic:	*samaar, dees, sa'ad*	
	L. Egyptian	*wḏ ?*	(I, 139)

Winning

Papyrus can be harvested from May to August, but the quality is the best in June and July.[16] For the other sedges, which were gathered in the wild, the best time of year was probably the same as for Cyperus papyrus.

Preparation

The culms take approximately ten days to dry. They can be stored dry and used whenever necessary, by soaking them in water for some hours.

Availability

In the Delta sedges were growing abundantly, but at Amarna they were probably not available. This is reflected in the small number of objects made of sedges found at Amarna and Qasr Ibrim.

[16]Information kindly provided by Dr. Ragab's Papyrus Museum, a commercial organization which has experience with growing *C. papyrus* for their production of papyrus sheets.

14.5 RUSHES *(JUNCACEAE)*



Juncus rigidus		p. 152
Juncus acutus		p. 152
used plant parts:		
culm	Arabic:	*samaar morr*
	L. Egyptian	*jsr*[17]

Winning

Rushes have to be cut in May, when they are fully grown, but not hard and dry. This is also the time that goats and other roaming animals become dependent on this plant for their diet. The rushes are cut nowadays with a sickle-shaped knife just above the roots. The rest of the year the mat maker has to work with the supply of rushes gathered in spring.

Preparation

At present the rushes are sorted by length and then left to dry for several weeks in a shaded place. There are three different lengths of approximately 1.50, 1.10 and 0.90 metre long. The culms from these bundles are used in weaving three corresponding widths of mat (1.40, 1.00 and 0.80 metre wide). The rushes are stored dry and when needed bundles of the required length are taken out and soaked for a few hours in preparation of the work.

Availability

The rushes are available for free. They grow in marshy areas which usually do not belong to anybody. It seems likely that rushes did not occur in the vicinity of Amarna or Qasr Ibrim. No indications have been found that they were used for production on site. The few baskets made of rushes were probably imports, the Fayoum being a likely place of origin.

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[17]Germer 1985, 201

14.6 PLANT FIBRES

Winning

Flax fibres are the fibres of the culm of the *Linum usitatissimum* (see p. 152), which means that the complete culm is harvested. The flax plants were not cut, but pulled out of the ground when ripe. The plants can be harvested when the flax stems are either green (just before the seeds have ripened), yellow (when ripe) or brown (old flax stems). The quality of the flax varies with the age in which it is harvested. The green stems yield a fine fibre (for fine linen textiles), the yellow stems a mediate, strong kind of flax and the brown stems a coarse fibre, only used for making string.

In Qasr Ibrim cotton, which was introduced in Egypt in the Graeco-Roman period (Watson 1977), was widely used. The cotton fibres are the protective cover of the seeds and are picked of a shrub-like tree (*Gossypium arboreum*, see p. 152).

Preparation

The cotton fibres have to be separated from the remains of the cotton seeds, but a much longer process is involved to make fibres from the culms of flax plants. The plants have to be soaked in water for 10-20 days to *ret*, a procedure in which the soft parts of the plant are destroyed by bacterial action, leaving the fibres proper. The fibres then are combed, to remove the unwanted soft cell structures (*hackling*). After drying, the fibres are ready to be spun into a yarn.

Availability

Flax nor cotton was available for free, or could be gathered at low costs. Both the annual flax plants and the perennial cotton shrub were grown by farmers, flax since at least the pre-dynastic period, cotton from the Graeco-Roman Period onwards (Watson 1977).

There is no evidence that flax fibres were produced at the Amarna workmen's village or that either flax or cotton was processed at Qasr Ibrim. Considering the complex and time consuming preparation of these two fibres, and the amount of water the preparation of especially flax required, it is likely that not the plants, but the cleaned fibres, or perhaps even the ready made yarn was sold to weavers and producers of furniture matting and fish nets.

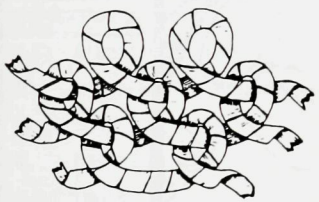
CHAPTER FIFTEEN

MAKING MATS, BAGS AND BASKETS

Although we have made an inventory of *what* was produced in Egypt (Chapters 9, 10 and 11), it has not really become clear exactly *how* these objects were made and only glimpses have been caught in Chapter 12 of *why* they were made. In this chapter the production processes will be discussed for each of the twenty techniques listed in Table 9.0 (p. 154).

The 20 techniques are classified according to their *basic structure*, which means that they represent only one phase of the production process. In the next 20 paragraphs those frozen instants in the production process are allowed to unfold. To express that the descriptions do not represent the production process, 'as it once was', but an interpretation of how it could have been, the present tense is used for the descriptions. Not only the interpretations of processes that do exist in Egypt today are based on the observation of modern producers, but also the ones that only occurred in ancient Egypt.

15.1 KNOTLESS NETTING



Amarna (p. 176) ✔	Middle Egypt
Qasr Ibrim	New Nubia

production phases doam nuts net			time estimate
a.	preparation materials	soaking doam palm leaf	30 minutes
b.	preparation systems	-	-
c.	start	fixing starting border	10 minutes
d.	basic structure	twisting and looping	4 hours
e.	finish	closing the bag with a pull string	5 minutes
f.	additions	-	-
g.	finishing touch	-	-

Knotless netting, of which a few small fragments have been found at Amarna has no modern equivalent. An ancient parallel has been found in the tomb of Kha (also from the 18th dynasty). This was a complete net, filled with doam nuts.[1]

The doam palm leaf strips have to be soaked for 30 minutes just before the production is started (34:09-34:10). A starting strand is fixed between two points, made of doam palm leaf, with a length of approximately 650 mm. Onto this starting border the first row of loops is linked. The strand is then knotted to close the circle and the next row of loops can be made, spiralling down until the net has the required size.

The bag maker twists the palm leaf strands into a loop, which he links with the previous row of loops.[2] New lengths of doam palm leaf are twisted together with the strand that runs out. Probably this is done without the help of any instruments. Since doam palm leaf strands are about 650 mm long, a new strip has to be added after every three or four loops. The twisting of the palm leaf strand and making the loops is done in one action.

The palm leaf strips are twisted in S-orientation and crossed over in S-orientation. This is not the natural orientation of crossing over when a loop is made, as is simply tested by strongly twisting a piece of string in S-direction: the overtwisted strand folds in Z-direction (Figure 15-1). By forcing the S-twisted strands in an S-oriented crossing, the loops are forced to open up which helps the bag to retain its shape.

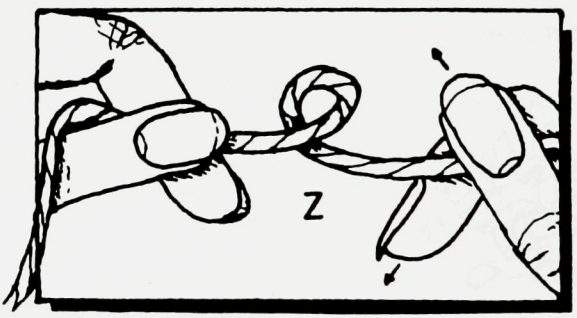


Figure 15-1 Twisting a palm leaf in S-direction results in a Z-crossing

The bag is started with a small number of loops, fitting the starting strip, which is increased gradually to enlarge the diameter of the bag. Since only small fragments have been found at Amarna, deciding the shape of the original bag is not possible.

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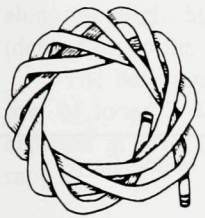
[1] At present this net is on display in the Egyptian Museum in Turin.

[2] This is a one-system technique, in which the previous row of loops is the steady part (or *anchoring fabric*) to which each new row of loops is connected.

The last phase is finishing off the bag. The small fragments found at Amarna did not have edges. The edge of the bag in the tomb of Kha has been made by running a string through the last row of loops. By pulling the string the bag can be closed. The time involved in making a large bag of knotless netting would be 30 minutes waiting for the leaf strips to soak and approximately four hours for making the fabric.

Making a knotless netting bag does not require a specific work space, nor any instruments. Judging from the bag filled with doam nuts in the tomb of Kha, it seems possible that these bags were produced near the place where the doam nuts were harvested. It could well represent an on-the-spot production of transportation bags, specifically for doam nuts.

15.2 GROMMET



Amarna (p. 177)	Middle Egypt
✓✓	✓
Qasr Ibrim (p. 207)	New Nubia
✓	

production phases pot stand			time estimate
a.	preparation materials	wetting grass or date palm fibre	1 minute
b.	preparation systems	-	-
c.	start	making the first round	1 minute
d.	basic structure	continuing three rounds	2 minutes
e.	finish	tucking in the end of the string	1 minute
f.	additions	-	-
g.	finishing touch	-	-

Several grommets were found in Amarna and Qasr Ibrim, made of grass or date palm fibre, which has to be wetted. The moist material is then divided into small tufts, which are subsequently spun between the hands to form a strand. Details on this basic rope making technique will be discussed in Section 15-4.

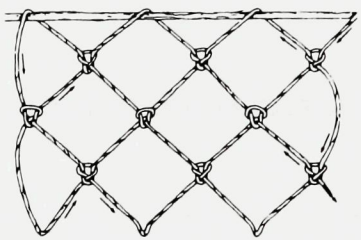
With this strand the first circle is formed around which the next round is plied. This is done by spinning and plying the fibrous material in the same movement, in opposite orientation (s-spun and Z-plied or the other way around) to

prevent the twisted fibres from unrolling.[3] A third and a fourth round are made after which the end of the strand is tucked into the grommet. Thus the person making the grommet alternatively picks up a new tuft of material, twists the fibres into a strand and the strand around the previously formed ring.

There is no passive system: a grommet maker uses both hands in twisting the fibres and the grommet. The drawing of Figure 9-2 on p. 156 shows the four rounds as four stages. Looking at the actions, however, it is one ongoing movement, only interrupted to insert a new tuft of material, during which the grommet is turned until the four rounds are completed.

Apart from a knife to cut of the ends no instruments are needed. Neither gathering and preparing the materials, nor making a grommet takes much time. There are no special requirements for a work space. The production probably was local and *ad hoc*, made on the spot whenever a pot stand or head ring was needed. At present grommets are still made in Middle Egypt as head rings made of rags. There is no professional grommet production.

15.3 KNOTTED NETTING



Amarna (p. 179) ✔✔	Middle Egypt
Qasr Ibrim (p. 208) ✔	New Nubia

production phases fish net			time estimate
a.	preparation materials	-	-
b.	preparation systems	production of flax string	several days
c.	start	fixing starting border	5 minutes
d.	basic structure	knotting the net	several days
e.	finish	making a bottom line	30 minutes
f.	additions	adding floats and weights	60 minutes
g.	finishing touch	folding the net for use	10 minutes

[3]The first circle forms the *anchoring fabric* for the second round. These two together form the *anchoring fabric* for the third round, and the three of them form the *anchoring fabric* onto which the fourth round is plied.

The material used for netting in Amarna is flax. Cotton was not known before the Ptolemaic Period and was introduced from the South, Nubia being the first and for a considerable period the only part of Egypt where cotton was grown (Watson 1977). Although cotton is a suitable material for making nets, at Qasr Ibrim the one netting fragment found proved to have been made of flax yarn.

Flax needs an extensive preparation (see p. 285). It seems likely that the preparation of the plants into flax fibres was not done by the same people who were spinning the flax. It is not known if the processing was done by the farmers who were growing the flax, or by separate producers. It is equally unclear, if spinning the fibres into yarn was performed by separate spinners or by those who used the yarn (weavers, net makers, furniture makers).

Flax is spun moist, but does not have to be soaked. The most important instrument in spinning is a spindle whorl. The entire body is involved in spinning. The flax is regularly wetted with water or saliva, by running the fibres through the mouth. The spinning whorl is made to turn by rolling the weight with one hand along the thigh. Spinning a quantity sufficient for a large fish net takes a few days (depending on the size of the net).

The net maker starts his work by using a string as border, to which the first row of loops is knotted. This border is fixed, for instance to the wall, or, as depicted in several tombs in Beni Hassan (Figure 15-2) to a, probably wooden, support.



Figure 15-2 Depiction of net makers in the Middle Kingdom tombs in Beni Hassan. Left: tomb 15, right: tomb 17 (after: Newberry 1893).

The process of knotting a net is a continuous repetition of two major actions: filling a netting needle with yarn and knotting loops until the yarn runs out. The knots used in making the net are known as *mesh knots*. They can be knotted in two orientations, but in the netting fragments found, and indeed in all present day nets, only the Z-oriented mesh knot is used. The subsequent rows of knots face the

opposite side of the net: the first row of mesh knots faces the front of the work, the next row the back. There are two ways in which this can be achieved. Either the whole net is turned around at the end of each row of knotting, or the net maker works from left to right with a different stitch than from right to left. The latter seems the most obvious.

It is not exactly known which movements the net maker made with his netting needle, but a possible method has been depicted in Figure 15-3. Working from left to right the netting needle is pulled through a loop of the previous row from the back of the work to the front (1). Then the yarn is slung in a loop over the work and the netting needle is passed behind the work through this loop (2). The netting needle is then pulled down to the right (3) and the knot is fixed (4). After a row of loops have been knotted, the net maker continues from right to left by passing the netting needle from the front to the back of the work (5), then looping the yarn over the loop from the previous row and passing the netting needle behind the work (6). The netting needle is pulled down to the left (7) to fix the knot (8).

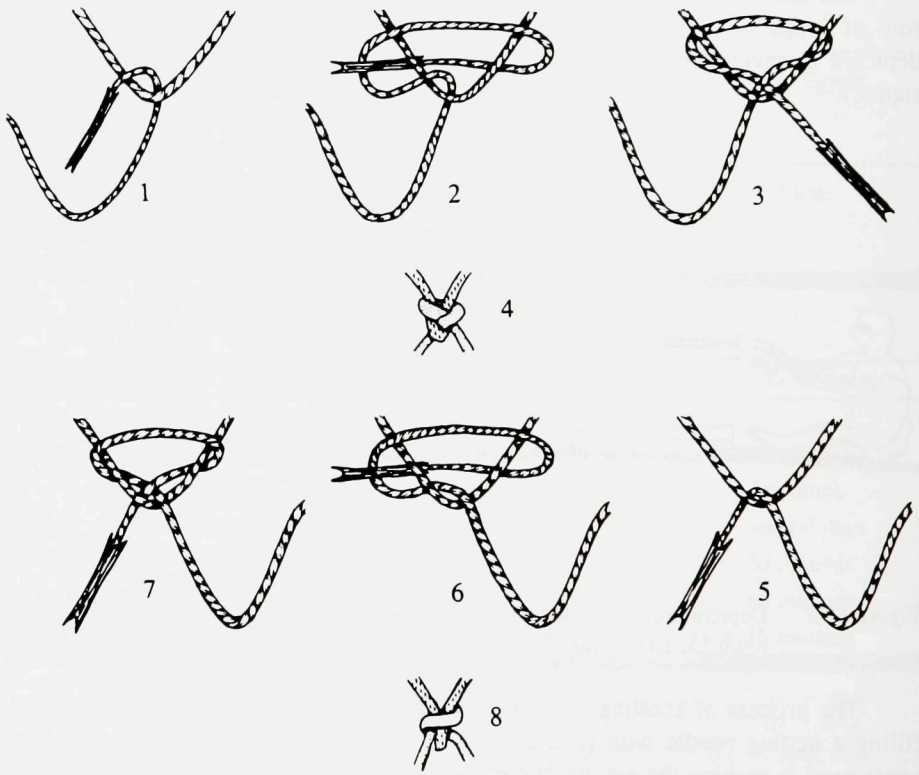


Figure 15-3 Supposed order of action of making a netting fabric with mesh knots.

The net is finished by knotting a thicker string at the base. Further additions such as floaters and weights, which are tied to the net, depend on the use to which the netting is put. The floaters were not made of cork (*Quercus suber*), but of the thick parts of the *jerīt* (midrib of the date palm leaf), some of which were found at Qasr Ibrim. Net weights are not known from Amarna or Qasr Ibrim. Those found at the Roman fortress of Abu Sha'ar, were made of anything that could way the net down: stones, pieces of coral, amphora handles and pieces of lead.[4]

The time involved in making a net, depends on the size of the mesh and the size of the net. An experienced net maker will need at least a day to knot a square metre of finely meshed netting (10 x 10 mm). This would involve 10.000 knots and repetitive filling of the netting needle. A square metre of netting with a mesh of 40 x 40 mm takes approximately half a day.

The most important tool used in making a net is the netting needle. A clear depiction of one of these is found on the wall painting in the tomb of Kheti in Beni Hassan. At Qasr Ibrim part of a netting needle, made of *jerīt* was found. Possibly a gauge stick was used to ensure a constant mesh size.

15.4 SEWN PLAITS



Amarna	Middle Egypt (p.180)
	✓✓✓
Qasr Ibrim (p. 208)	New Nubia (p. 215)
✓✓✓	✓✓✓

production phases sewn plaits basket			time estimate
a.	preparation materials	removing veins, soaking palm leaf	1 hour
b.	preparation systems	making string and a long plaited strip	6 hours
c.	start	sewing the centre	10 minutes
d.	basic structure	sewing plaits into a basket	4 hours
e.	finish	fastening the end of the plait	1 minute
f.	additions	adding edges, rim and handles	1 hour
g.	finishing touch	removing irregularities	10 minutes

[4]The University of Delaware excavations at Abu Sha'ar (Red Sea Coast), directed by S.E. Sidebotham, lasted from 1990 to 1994. The publication is in preparation.

a) Preparation of the materials

The dry date palm leaflets are taken up one by one and the hard vein in the middle is torn of with the help of a knife. The date palm leaf strips are now approximately 10 mm wide. The basket maker puts the veins on a separate stack to be used later for the production of string. In the production sequence of the video a stack of sorted leaves lies to the right of the basket maker (03:35). These have been soaked for 30 minutes and are strong and supple. Soaking palm leaves has been well attested from early Christian sources, since making the sewn plait basketry was a major occupation of Coptic hermits (Waddell, cf. pp. 78, 86, 121).

The veins, which are also put in water to soak (06:19 and 12:47), are much harder than the two sides of the leaflet. After a long period of soaking they are still tough. Just before the basket makers start to use them for making string, he softens the veins by twisting them vigorously (06:46).

The preparation of the date palm leaf sheath fibre takes much less time: the fibre is only wetted briefly and then used straight away. A small bunch of the tough fibre is pulled off and given a little twist (16:01). These little tufts of palm fibre are used for making the string for the rim and handles.

b) Preparing the systems: plaiting a strip and plying a string

Because the sewn plaits basketry involves the use of both long plaited strips (Section 15.15) and string (Section 15-13), the production of these are incorporated in this section.

Plaited strips

As was shown in section 11.2.1 (pp. 208-217) there are different plait patterns and there is a relation between the pattern, the number of strands and the use to which the plait is put.

A twill nine-strands plait is started by laying two double strands across each other (Figure 15-4 a). Strand AB folds around strand CD (Figure 15-4b). Then strand C is folded under B and over A (Figure 15-4 c). The upper half of strand C (C1) is folded under the lower half (C2) and over D. At this moment there are five strands (Figure 15-4 d). The upper half of strand B (B1) is folded under both its lower half (B2) and the lower half of strand A (A2). Then it is guided over both the upper half of strand A (A1) and C1 (figure 15-4e). This is the start of the actual plait pattern, which goes under 2 over 2. After dividing strand D in D1 and D2 there are eight strands. A ninth strand is inserted (C3) and strand C2 is plaited under C3 and D1 / over D2 and B1 (Figure 15-4 f).[5] Then alternately the strand on the right and the strand on the left are plaited towards the middle (B2 runs under A2 and A1 / over C1 and C2; C3 runs under D1 and D2 / over B1 and B2 etcetera). New strand are layed in at the right side (cf. B2 in Figure 15-4f).

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[5]Video sequence 03:47-04:20. The extra (ninth) strand, indicated as C3 in Figure 15-4f, is inserted at 04:16:28.

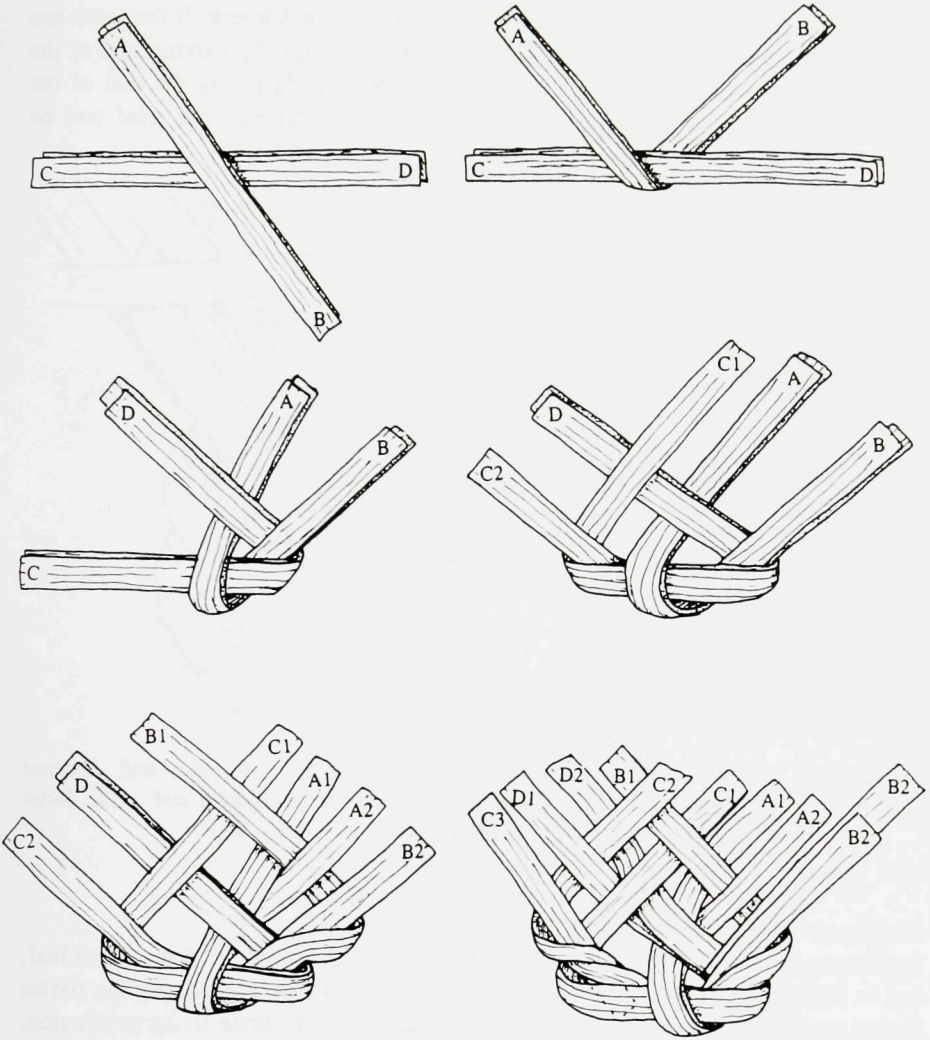
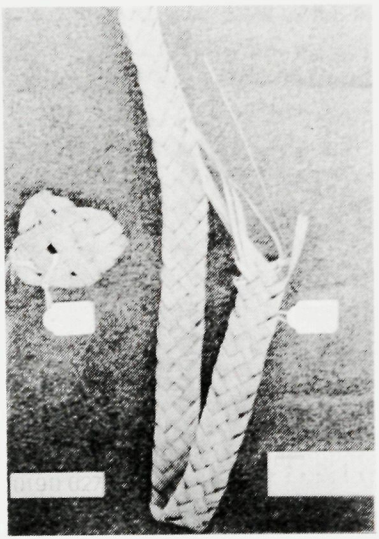


Figure 15-4 The start of a nine-strands twill plait (pattern \2/2\\1).

Because date palm leaf strips are only about 400 mm long, new leaf strips are inserted behind the outer strands (cf. the new B2 in Figure 5-4 f).This is repeated until the plait has the required length.

The time needed to plait a length suitable to make a basket depends on the size of the basket but for a *maqtaf* the plaiting takes about 5 hours. If the work has to be stopped for a while, the plait is fastened temporarily, by locking one of the outer strands in the plait. A similar way of temporarily fastening the end of the plaiting was found in Qasr Ibrim (Plate 5-5). No instruments are used and no equipped work space is needed.



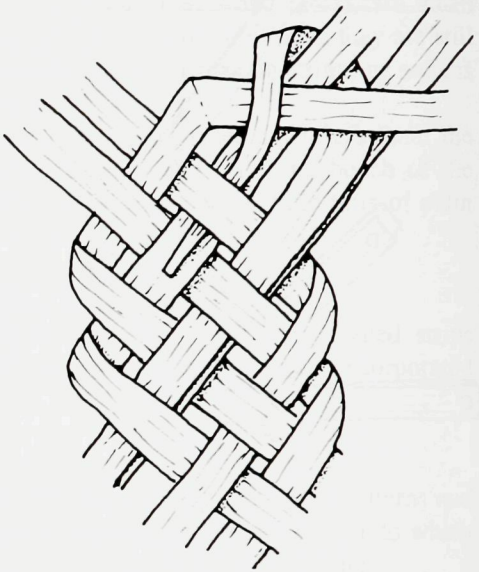


Plate 15-5 Unfinished five-strands plait (\1/1\\1) made of date palm leaf, fastened temporarily. To the left: small plaited pad of doam palm leaf. (Qasr Ibrim 10.048-027). (Courtesy of the Egypt Exploration Society).

Making string

In present day Nubia baskets are sewn with unspun strips of the doam palm leaf, but in Middle Egypt string is used for sewing. This string is made by the basket maker out of the veins of the date palm leaflets. All small scale string production, be it from date palm leaf, veins, grass, date palm fibre, or papyrus epidermis is done by hand without the help of instruments.

Two bundles of material are rolled between the hands. The upper hand (right) moves over the lower hand (left) in a rolling movement away from the body: the fingertips of the right hand start moving over two bundles of fibre at the wrist of the left hand and roll the bundles between the hand palms towards the fingertips of the left hand (Figure 15-6). The two strands are z-spun by this movement.

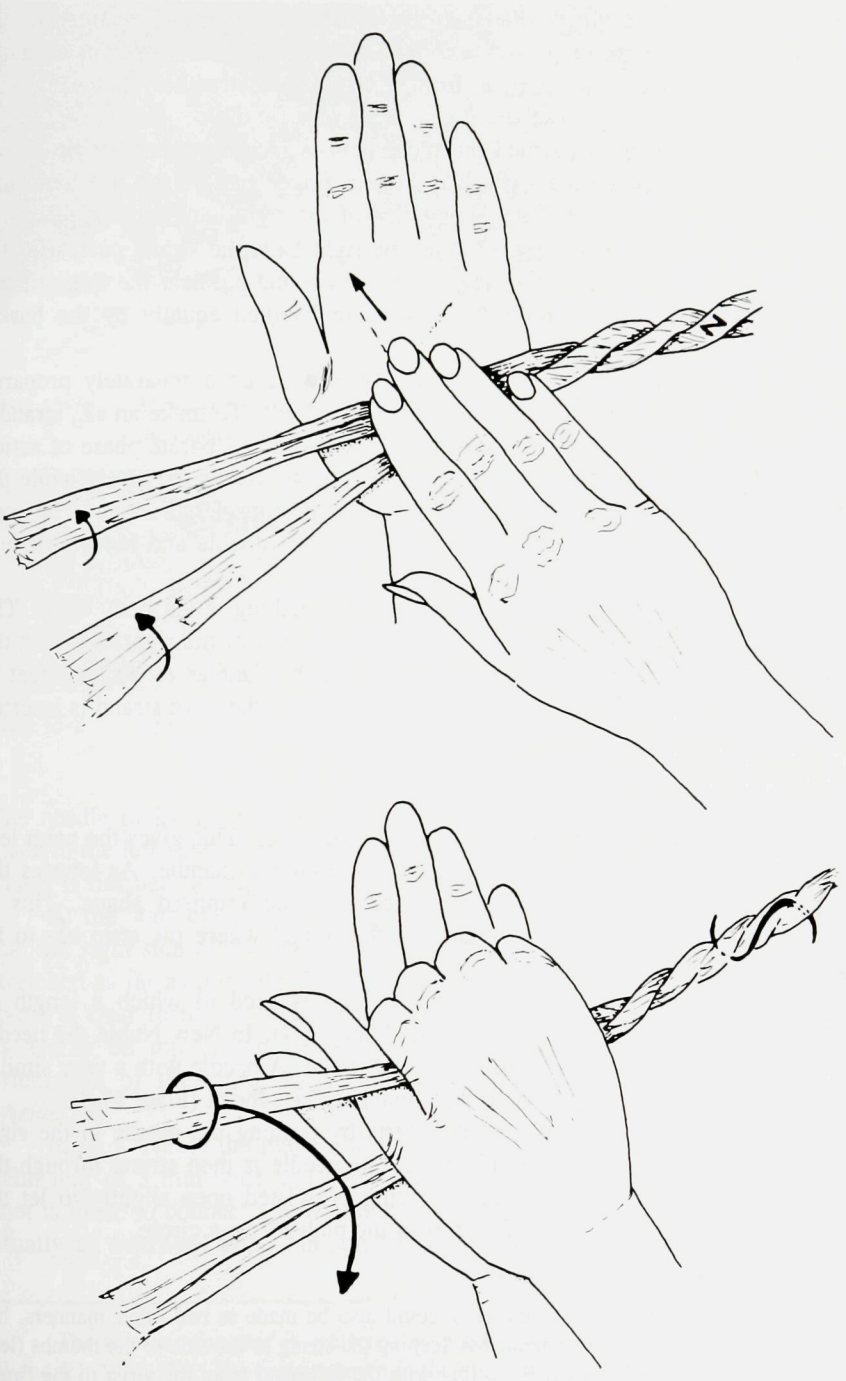


Figure 15-6 Making string with the hand rolling method

After each time the rolling movement is finished, the strand nearest to the fingertips of the left hand is picked up between thumb and forefinger of the right hand and put down near the wrist, in front of the second strand (07:06-07:58). This movement creates an S-ply. The result is a zS_2 string.

In order to get an sZ_2 strand the movement is made in the other direction: starting with the wrist of the right hand at the finger tips of the left hand and rolling towards the body, until the finger tips of the right hand have reached the wrist of the left hand (15:06- 15:46).[6] With the right hand the strand nearest to the wrist of the left hand is lifted over the second strand and put near the fingertips of the left hand. Both strands are active: both are handled equally by the basket maker.

The rim of the basket is strengthened by sewing on a separately prepared three-strands rope in opposite direction (s-spun, Z-plied). To make an sZ_3 strand a third strand is spun and twisted around the sZ_2 strand in a separate phase of action (15:49-16:27). In this case the sZ_2 strand is fixed at two points (passive), while the third strand is handled by the basket maker and thus considered active. The rope for the handles is made separately by folding the rope double and twisting it in a cable twice (19:55-20:13 and 20:13-20:22).

Thus the most important instrument for rope making is the body itself. The roughness of the hands makes the fibres to twist; the toes of the right foot hold the end of the string while the basket maker is rolling the bundles (6:49); two feet in between which the two-strands string is stretched, while the third strand is inserted (15:49-16:27).

c) Sewing the centre

Before the start is made, the plait has to be soaked (6:20). This gives the palm leaf its strength back and makes the plait supple and easier to handle. As long as the plait is moist, it can be pushed and pulled into the required shape. This is especially of importance near the centre of the basket where the strip has to be kneaded into a small circle.

A large needle (*mesalla*), of 220 mm long is used to which a length of approximately 1.5 m zS_2 string is fastened (Plate 15-7). In New Nubia the needle used to sew the plaits is smaller (105 mm) and is flat. A needle with a very similar shape, only slightly longer (113 mm) was found at Qasr Ibrim (Plate 15-8).

In Middle Egypt the basket maker starts by pushing the needle in the right edge of the plait over a length of 120 mm. The needle is then strung through the end of the string, where the ply of the string is twisted open slightly to let the string pass. By pulling the string, the start of the plait forms a circle.

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[6] An oppositely orientated strand (sZ_2) could also be made in two other manners, by: A: making the same rolling movement, but keeping the string to the side of the thumbs (left) and the fibre bundles to the right. B: rolling with the left hand from the wrist to the finger tips of the right hand, while the latter is kept still. However, none of the persons making rope have been noted to do either of these.

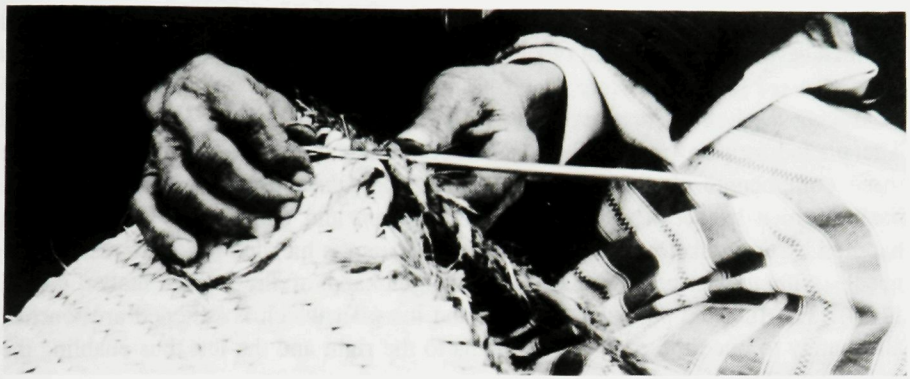

Plate 15-7 *Mesalla* needle used in Middle Egypt to sew plaits. In this particular photo the basket maker is sewing on the rim of the basket.

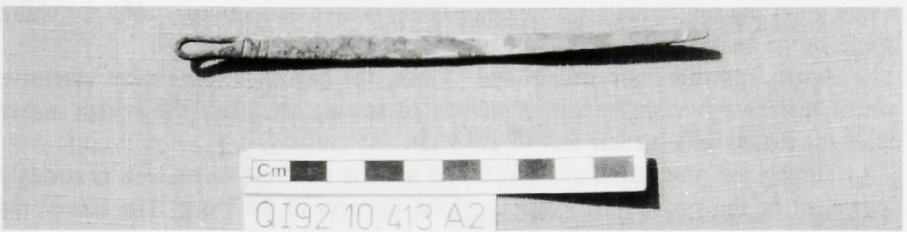

Plate 15-8 Sewn plaits needle found at Qasr Ibrim (10.413).

The needle picks up the right side of the plait, after which the second stitch is made in the left side of the centre coil (9:13-10:07). This action is repeated until the basket is finished. At regular intervals a new length of string has to be added.

At the start of the spiral the plait has to make a small circle with the effect that the right side of the plait is pushed together, while the left side of the plait is stretched as far as possible. Both this and alternative starts of plaited baskets were found at Qasr Ibrim: in some baskets the start of the plait is folded over and sewn as a flap on top of the left side of the plait (cf. Figure 9-4b, p. 159). The orientation of the spiral is without exception anti-clockwise (the inside *is e-orientated).*[7]

In New Nubia the plaits are not sewn with string, but with strands of doam palm leaf of 3 mm wide and about 650 mm long. Whenever a strand runs out a knot is made to connect a new length of doam palm leaf. The knot used for this is usually an overhand knot, but some basket makers use reef or granny knots. For

[7]The term *e-orientated* is preferred over anti-clockwise, because it is less ambiguous (Wendrich 1991: 73). The basket shown in the video is also *e-orientated*. Indications of the orientation of the spiral refer in general to the inside of a basket, or the underside of a lid. This should be specified, because the spiral is reverse on the other side of the object.

mats a long plait is made, which is cut into strips of the required length. The strips are then sewn parallel to each other (Figure 9-4a, p. 158).[8]

d) Making the basic structure

The plaited strip is passive: it is less mobile than the active sewing strand. The three components of the basket, the *anchoring fabric* (which is the part of the basket which has been sewn), the active system and the passive system are all handled by the basket maker, but the active system is handled more frequently: the needle with the string never leaves the right hand of the basket maker (09:20; 17:54). The finished part of the basket and the plait which is fastened are touched alternately to open the edges of the plaits to the right and the left thus enabling the needle to enter.

The string pulls the two sides of the plait inside each other. Because of this, the edges of the plaited strip are invisible and the plait pattern seems to continue, which gives the fabric the appearance of being plaited continuously over the entire height of the basket

Apart from his body weight and hands, the basket maker makes extensive use of his feet. During the entire process of sewing the plait, the basket maker holds the basket with his left foot (e.g. 16:33).

Timing the production of baskets and mats is difficult, because it is strongly dependent on the size of the product and the fineness of the work. The size of the basket is determined by the length of the plait, which is measured in *baʿa* (p. 180-181). Sewing a basket of seven *baʿat* takes about 5 hours.

e) Fastening the end of the plait

At a certain point the plait runs out. This is automatically the end of the spiral and the rim of the basket. The end of the string is used to start the next phase: fastening the rim decoration.

Mats, consisting of parallel strips, have simple plaited side-edges (the edges of the two outer strips). The top and bottom edge are formed by the cut off ends of the plaits.

f) Adding edges, rim and handles

The edges of mats, made of parallel plaited strips which are simply cut off to size, have to be prevented from fraying. A narrow plaited strip (usually a nine-strands plait), is sewn at the short side of the mat at a right angle with the sewn strips (cf. Figure 9-4a, p. 158). Alternatively, ropes are sewn along the edges, as was found several times in Qasr Ibrim.

The rim of the basket is formed by the edge of the last spiralling round of the plait, but usually the rim is strengthened by stitches with a leather thong, or palm

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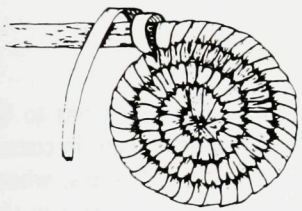
[8]Round or oval mats, sewn spirally from the centre, do occur in the Oases in the Western Desert and in Sudan, but have not been found in either Qasr Ibrim or New Nubia.

fibre string. In Middle Egypt an sZ_3 string, made of date palm fibre is sewn onto the rim with the end of the sewing string (Plate 15-7). The palm fibre string (passive), fastened with the active sewing string, is there to protect the rim. Two handles, made of rope, and prepared separately, are fastened at the edge of the carrier baskets, the needle piercing the walls (21:04), and are anchored in the fabric (20:41-23:50). The sewing string is cut off with a knife (22:41).

g) Finishing touch

At the end of the process, the basket maker spends some time removing pieces of palm leaf which stick out of the fabric.

15.5 COILING



Amarna (p. 182)	Middle Egypt (p.185)
✓✓✓	✓✓✓
Qasr Ibrim (p. 217)	New Nubia (p. 222)
✓✓✓	✓✓✓

production phases coiled basket			time estimate
a.	preparation materials	soaking palm leaf	30 minutes
b.	preparation systems	-	-
c.	start	making the centre	10 minutes
d.	basic structure	stitching wrapping strand around the bundle	several days
e.	finish	fastening the end of the coil	1 minute
f.	additions	adding rim decoration	1 hour
g.	finishing touch	-	-

a) preparation of the materials

Soaking restores the tension strength and flexibility of palm leaf. The video gives a good impression of how firm the strands can be pulled without breaking (see 27:27 for date palm leaf strands of 6 mm wide; 36:49 for doam palm leaf strands of 2 mm wide).

For coiling, different sizes of palm leaf strands are used. Coarse baskets are made with strands of 20 mm wide, while for finely coiled baskets strands of only

2 mm wide are employed. These fine strands, when made of date palm leaf, are cut from the dry leaves in the preparatory phase of the work. The doam palm leaf strands, however, can be cut into smaller strands after they have been soaked, just before they are used. They are often torn by hand after starting the tear with anything sharp and pointed such as a needle, awl or simply one's fingernail (35:58-36:00). This has two reasons: the boiled and soaked leaves are easier to manipulate than the tough dry leaves, especially when very fine strips have to be cut. Secondly, because the doam palm leaves take a lengthy preparation, they are boiled in bulk. The precise application and thus the precise width of the strip is decided afterwards.

b) Preparing the systems

Only in one basket a separately prepared bundle was used: from grass a string was made which was then used as bundle material for a coiled basket, made with a wrapping system of doam palm leaf.

c) Start of the systems

The start of coiled basketry has to make amends for a bundle which has to be forced in a small circle at the start of the coil. This is not only a problem in coarse baskets with thick bundles, but possibly even more so in very fine baskets, where each irregularity disturbs the smooth appearance. There is quite a variety in the start of the passive system in coiled basketry. In Figure 15-9 seven different kinds of a start of coiled basketry are shown.

The first two are distinguished by tapering bundles, the other five have a separate 'starting system'.

The 'snail' centre starts with a thinned out, pointed bundle, which has been wrapped in the sewing strand, folded in a small circle and fastened by the first stitch (Figure 15-9 a, see also Plate 4-4, p. 64). The 'rosette' centre is similar in design, but the wrapping strand covers a larger part of the centre so that irregularities are not visible (Figure 15-9 b). Most baskets in Amarna and Qasr Ibrim are made with either of these starts. The 'snail' centre is also used by the Kensi women in New Nubia. Twenty years ago they were making snail centred baskets with wheat straw wrapped around a fruit stem bundle, at present the fruit stem is wrapped with brightly coloured woollen yarn.

Sometimes the first few coils of a snail centre are covered with a leather patch, which is fastened by the stitches of the next coil (Figure 15-9 c). This is a feature that occurs regularly in Qasr Ibrim and still is present in New Nubia (especially the Fadidja area).

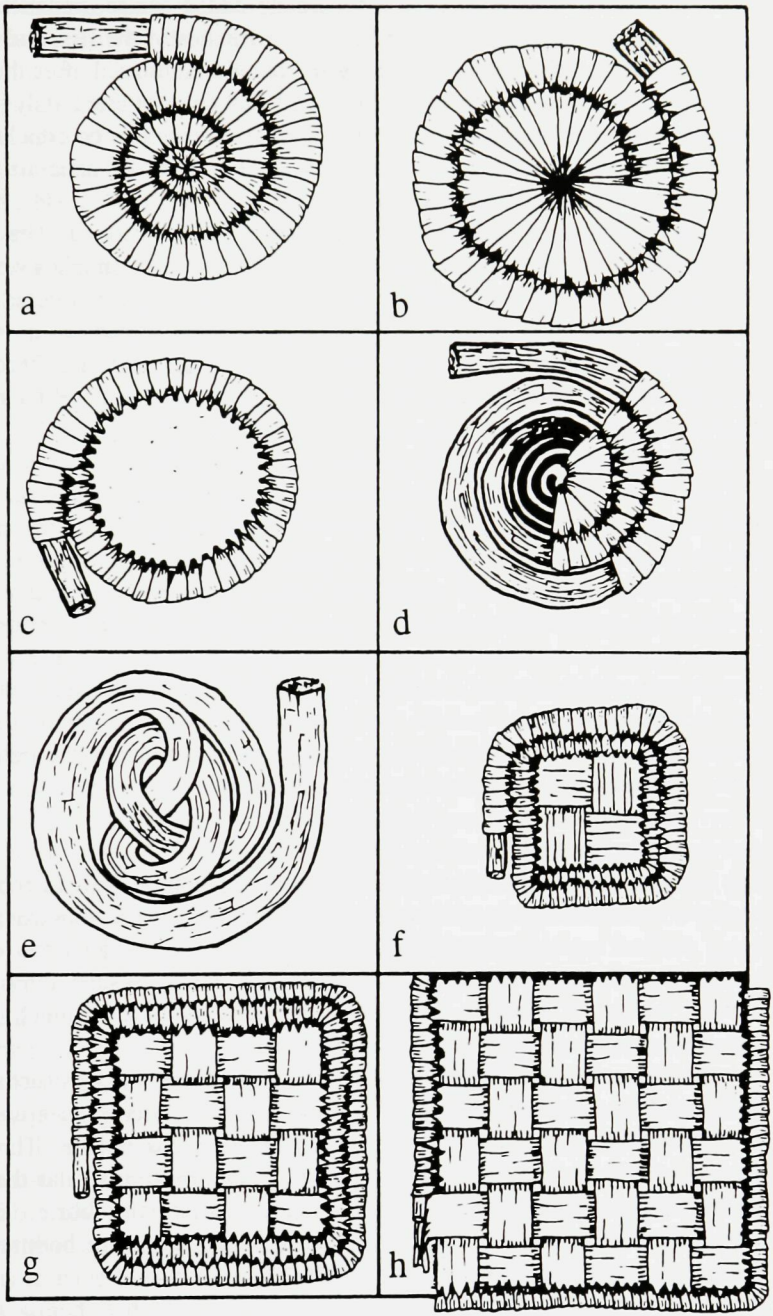


Figure 15-9 Variations of coiled centres: a. snail; b. rosette; c. leather-covered; d. extra coil; e. knotted bundle; f. plaited 2 x 2; g. plaited 4 x 4; h. plaited 6 x 6.

One basket in Amarna has a separately added centre, consisting of a small coil of doam palm leaf (Figure 15-9 d).[9] The stitches of the first and second round are put through this centre coil. The grass bundle is inserted after the second coil. Although the use of a separate centre coil has been attested only once, several baskets at Amarna probably had a similar centre. This can be concluded from the baskets with a smooth round hole in the middle, where the separate coil seems to have become detached and fallen out.

In present day middle Egypt a different solution is found. The basket maker shreds palm leaf strands into smaller strips and makes a simple overhand knot in the bundle. The knot is used as the base for the first round of stitches. The ends of the bundle protruding at two sides from the knot, are folded to one side and form the start of the bundle (25:08-25:45). After a while the shredded fibres of the fruit stem of the date palm are inserted in the middle of this bundle of palm leaf (Figure 15-9 e).

The Fadidja women of New Nubia are making a centre that occurs frequently in Qasr Ibrim also: a separate start is made in the form of a small plait (Figure 15-9 f; see also Plate 4-5, p. 65; 34:11-35:46). In Qasr Ibrim this centre is used mainly for baskets decorated with wrapping patterns (see below), the coloured baskets usually have a snail centre. In New Nubia, however, the 2 x 2 centres are used for the large coloured food covers. Rarely, baskets in Qasr Ibrim are made with more complicated plaited centres (4 x 4 or 6 x 6, cf. Figure 7-15 g and h). The strands sticking out of the plait are folded parallel to the sides of the plait and are incorporated in the bundle. In some instances the centre of the basket has disappeared, but the quare shape of the hole indicates that the centre has been plaited. Making the centre does not require any tools.

d) Interaction of the systems

The smooth appearance of many Qasr Ibrim baskets, as well as modern Fadidja baskets, is made by only picking up the winder of the previous round (Plate 15-11). An awl is used, with which a small hole in the previous row of winders is made (37:33). A narrow strip of doam palm leaf is pushed through the hole, without the use of a needle. The stitch thus does not pick up much of the bundle material.

In Amarna and present day Middle Egypt the basic structure of coiled basketry does not show any variety. The bundle is fastened in a coil by making stitches with the wrapping strand through the previous bundle. This is a strong method of making a coiled basket. The deeper and more irregular the stitch is put in the previous bundle, the coarser the appearance of the fabric. The winder is passed through the bundle with the help of a needle (26:58) or both an awl making a hole through which a needle can pass (29:37).

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[9]TA 0657, this is the same basket which has the deviating bundle, made of grass string.

The variety of making the basic structure is much larger at Qasr Ibrim than at any of the other sites involved. In one basket from Qasr Ibrim, the stitches are very widely spaced, so that the bundle material is clearly visible (Figure 11-9, p. 218). The modern parallel is a very recent innovation: basketry made by Kensi women, who have started to use alternative materials for doam palm leaf. By lining the bundle with the coloured wrappers of chocolate wafers and fastening these with widely spaced ribbon, the coloured pattern of the basket is determined by colour of the passive system, rather than the colour of the active system (winders). This is a complete break with the manufacturing tradition in order to adhere to the tradition of lavishly decorating the basketry (Plate 11-14, p. 224).

The use of coloured stitches is very common in Qasr Ibrim and New Nubia alike. A depiction of baskets with coloured patterns from the tomb of Rekh-mi-Re at Thebes shows that in the New Kingdom Period even figurative decorations were made (Davies 1937, Plate 13). De Garis Davies suggests that these baskets are part of the tribute from the Oases or Nubia. Judging from the present basketry traditions the latter seems the more likely.

There are links between the type of centre and the type of wrapping pattern. The coloured baskets from Qasr Ibrim have either a small rosette or a snail centre, while the baskets decorated with uncoloured patterns of stitches have a 4x4 or a 6x6 plaited centre. In present day New Nubia the small coaster-like plates made by the Kensi have a snail centre (cf. Plate 11-13, p. 223), while the Fadidja's make large decorated food covers which are started with a 2x2 plaited centre (34:11-35:46).

The insertion of new bundle material is done gradually. The diameter of the bundle is usually slightly smaller near the centre, reaching its standard width after two or three coils. After every few stitches a small quantity of bundle material is pushed as deep as possible in the middle of the bundle. In Europe rings of cow horn are used to gauge the thickness of the bundle, but the use of such a tool has not been observed in Egypt, neither is there any archaeological evidence for it. The thickness of the bundles differs greatly. In Middle Egypt the bundles range from 10-20 mm, while in New Nubia very fine basketry is made with bundles of only 2 mm in diameter.

The wrapping strand is approximately 650 mm long and, therefore, a new strand has to be fastened after every few stitches. In Middle Egypt and New Nubia this is done by pushing the end of the old leaflet aside in the bundle, while a new strand is layed in underneath the bundle (30:51-31:11, cf. 38:48-38:50). In Amarna no clear examples of insertions have been registered. In Qasr Ibrim the insertions found were more elaborate: the old and the new strands were twisted around each other, before the old strand was worked into the bundle. The method of changing colours seems to have been the same in Qasr Ibrim, as it is today in New Ibrim: the wrapping strand with the colour which should not appear in the pattern is hidden with the bundle inside the wrapping stitches of the current colour (39:34-39:43).

Giving a time estimate for the production of the base and sides of a coiled basket is exceedingly difficult, because it all depends on the size, decoration and finesse of the stitch.

e) finishing off the systems

The end of the systems in coiled basketry is formed by the last winding stitch which holds the end of the bundle. Often the bundle is thinned out in the last coil. In badly made baskets the end of the coil is simply cut off, after the last winding stitch, so that the stumps are visible.

Many Qasr Ibrim baskets, have rims which are a continuation of the last coil of the basket. With this coil often one or two small eyes are formed, which are meant to hang the basket on the wall (Plate 15-10).

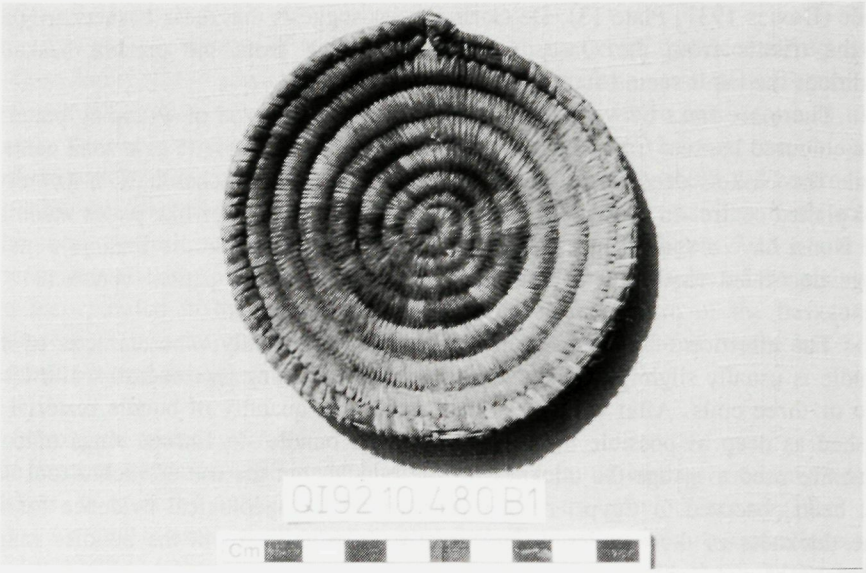


Plate 15-10 Small coiled plate from Qasr Ibrim (10.480), with coloured winders, a coiled inlay rim and an eye for hanging the basket on the wall.

f) adding other features

In one basketry fragment from Qasr Ibrim the coiled centre is covered with an intrinsic stitched pattern (Figure 15-11). The cover was probably added after the basic structure was finished and is similar to embroidery. This is in contrast to leather centre covers, which are fastened with the stitches of the next row of coiling.

Usually leather-covered centres go hand in hand with rims covered with a lashing of leather thongs. Rims of coiled basketry are often decorated and strengthened. We have no information for the Amarna rim decoration. In present day Middle Egypt separate stitches are sewn on top of the rim. These rim

decorations are added after the coiling is finished. Other additions to coiled basketry are an extra coil on the inside of the basket, which form a support for the rim, handles and feet of the basket. These features are known from New Kingdom basketry from Deir el-Medina, but could not be attested in the fragmentary remains at Amarna.

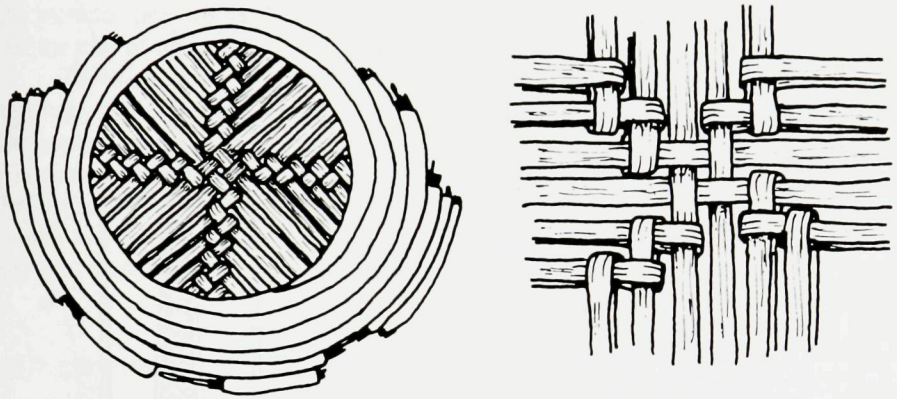
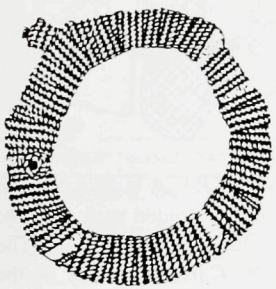


Figure 15-11 Plaited cover of the centre of a coiled basket, which has been applied after the basket was finished.

15.6 WRAPPING



Amarna (p. 186) ✓✓✓	Middle Egypt (p.189) ✓✓
Qasr Ibrim (p. 225) ✓✓	New Nubia

production phases brush with wrapped handle			time estimate
a.	preparation materials	soaking palm leaf	30 minutes
b.	preparation systems	making string	10 minutes
c.	start	fastening wrapping strand	1 minute
d.	basic structure	wrapping strand around the bundle	15 minutes
e.	finish	fastening the end of the strand	1 minute
f.	additions		-
g.	finishing touch	-	-

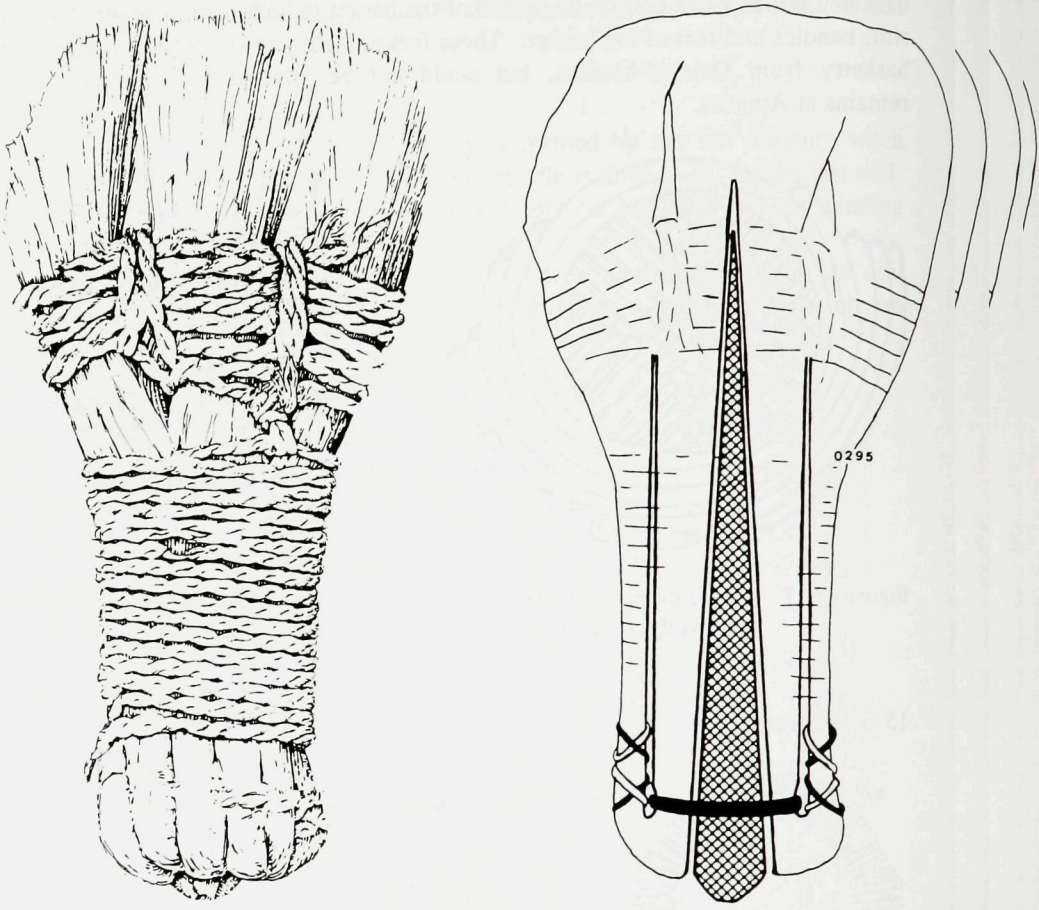


Figure 15-12 Construction of the brush from Plate 10-7 (TAWV 0295). A bundle of palm leaf is tied around a wooden peg, then the lower part is folded back over the upper half and fastened by wrapping the string around the handle part. The brush is 237 mm long. Left hand drawing by B. Garfi (Courtesy of the Egypt Exploration Society).

The passive system, that is the sticks or reeds and the bundles that form the cores of brushes and rings, do not require any preparation, but the active system is usually either twisted doam palm leaf, grass or string, all of which are made in a separate production phase. Making enough string for wrapping one ring or brush takes very little time, probably not more than a couple of minutes.

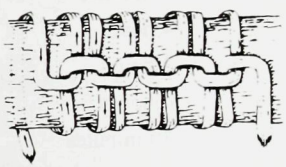
Brushes are wrapped only partially. Usually the core is formed by a bundle of fibrous material such as grass or shredded palm leaf. This bundle is tied just under the middle. In the brush depicted in Figure 15-12 a wooden stick is tied in

the middle of the bundle of shredded doam palm leaf. The bundle is folded back and held in place by wrapping the end of the tying string several times around the core. The brush is divided in three 'fingers'. In this way the round bundle is shaped into a flat brush. This is only done with large brushes. Usually the wrapping is ended with a simple knot.

The time involved in making rings and brushes was probably not more than 30 minutes per object. No instruments were used, except perhaps a knife to cut off the end of the string.

Three-ply rope is another form of wrapping: a two-ply string is kept under tension, while a third strand is spun and plied around it. This is the way that three-ply rope is made today (16:14), but in the archaeological material there are indications that this was the way three-ply rope was made in Amarna and Qasr Ibrim as well. Several three-ply ropes have a little sprig of palm leaf or grass which has been stuck into the loop of a two-ply string, suggesting that the third ply was added in a separate work phase.

15.7 KNOTTING



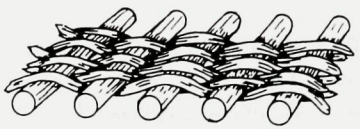
Amarna (p. 189) ✔	Middle Egypt
Qasr Ibrim	New Nubia

production phases brush with knotted handle			time estimate
a.	preparation materials	soaking palm leaf	30 minutes
b.	preparation systems	making string	10 minutes
c.	start	fastening knotting strand	1 minute
d.	basic structure	knotting strand around the bundle	10 minutes
e.	finish	fastening the end of the strand	1 minute
f.	additions	-	-
g.	finishing touch	-	-

The knotted brush found at Amarna is made with S-twisted doam palm leaf, which has to be prepared in advance. The brush is started in exactly the same way as the wrapped brushes, but after folding the bundle of doam palm leaf back the S-twisted strand is knotted around the core of the brush fibres, keeping the fibres

together, shaping the brush and forming the handle (Figure 10-9, p. 190). The brush is not divided in fingers. The end of the string is tucked in the last knot and cut off. Thus, the only tool used in the entire process is probably a knife.

15.8 WEAVING WITH ONE STRAND



Amarna (p. 191)	Middle Egypt (p.192)
✓✓✓	✓
Qasr Ibrim	New Nubia
✓✓	

production phases grass woven mat			time estimate
a.	preparation materials	wetting grass	5 minutes
b.	preparation systems	making string	4 hours
c.	start	preparing loom, setting up the warp	2 hours
d.	basic structure	weaving in the weft	4 hours
e.	finish	taking the mat from the loom and making the edges	30 minutes
f.	additions	-	-
g.	finishing touch	pulling the warp tight after drying	30 minutes

The grass for woven matting such as found at Amarna needs little preparation, five minutes soaking is sufficient. Rushes need a longer period of soaking, approximately a day. For this kind of matting a simple loom is used. Such a loom is known from a tomb painting of the Middle Kingdom period (Figure 15-13). It consists of four pegs in the ground and three cross bars. Two at the end, which hold the warp threads and one in the middle which the weaver is holding with two hands.

The Beni Hassan mat weaver weaves a blocked pattern with coloured strands, probably rushes which are either natural shades (yellow and green) or dyed. The weaving pattern is \2/2\\2 (a plain weave over two warp threads) which gives the block pattern. The weaver sits on the finished part of the mat, which is remarkable, because his weight would push the mat to the ground and disturb the tension of the warp strands. This would make it difficult to weave in the weft.

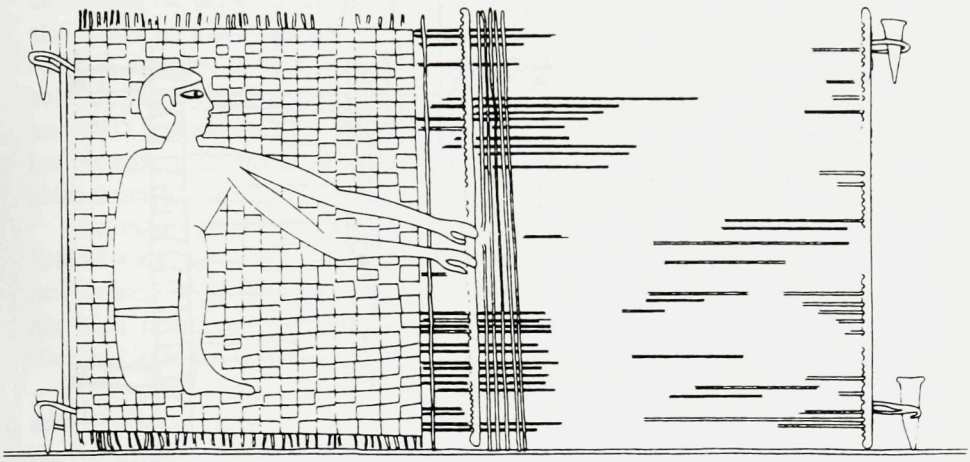


Figure 15-13 Mat weaver from a tomb painting in the Middle Kingdom tomb of Khety at Beni Hassan (Drawing by A.M. Hense).

Observing present day mat weavers helps us to understand how this could have worked. At present the mat weavers are also sitting on the finished part of the mat, but they prevent that their weight pushes down the mat to the ground by putting a wooden board underneath the finished part of the mat, which is raised on two stoned. This divides the weight of the weaver and keeps the weft under equal tension.

Figure 15-14 gives a schematic drawing of a present day mat loom as seen in the Upper Egyptian village of Nagada. It consists of four pegs in the ground (A/B and L/M) to which two cross beams are fastened (E and I). They are tied to the pegs with four lengths of rope (C/D and J/K), which allows the mat maker to keep tension on the warp threads. The mat-maker sits on the finished part of the mat, which is lifted from the ground by a board on top of two stones (F). In front of him there is a heavy cross beam, through which the warp is running (G). A bundle of material is put in front of the cross beam, across the warp threads, within easy reach and ready to be used (H).

The cross beam (G) has a different function than the ones in horizontal looms for textiles, which are used to make certain that the width of the cloth is kept the same. Since mats are not woven with an ongoing weft, which, if made with too much tension will gradually pull the edges inward, there is less danger of uneven sides.

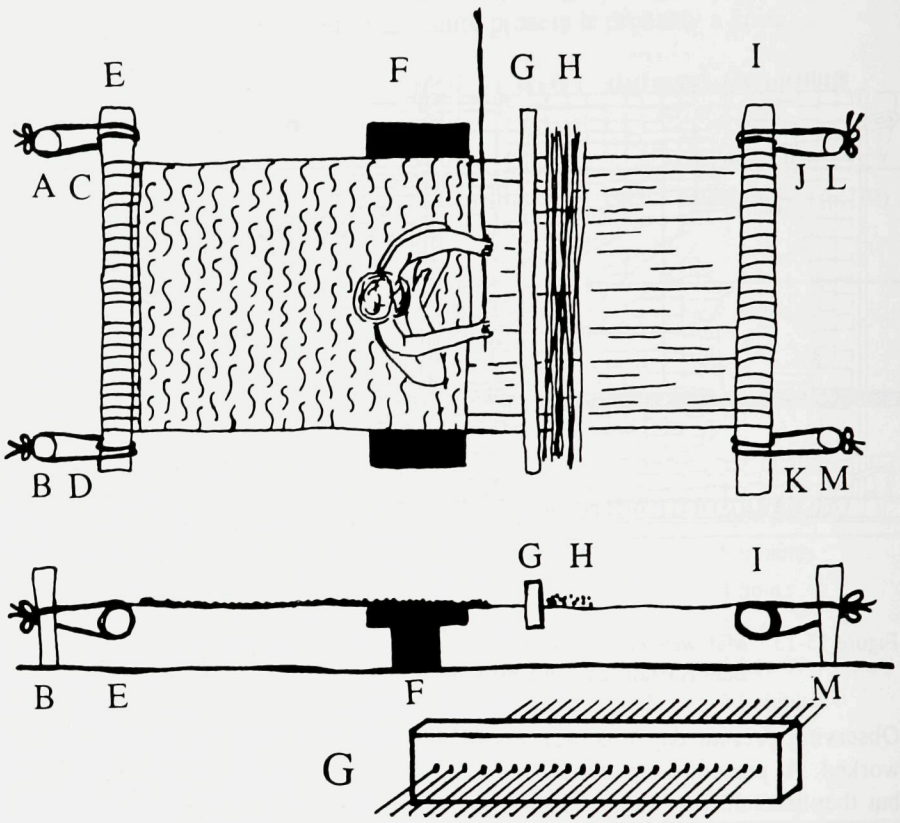


Figure 15-14 Schematic drawing of the mat loom as used in present day Upper Egypt (Nagada).

The heavy cross beam (G) has a double function: spacing the warp and beating in the weft. After weaving in two or three strands the mat maker pulls the beam with force towards him, so that the weight of the beam pushes the grass or rushes into a compact mat.

The mat maker leans forward to take a strand from bundle H and weaves it in through the weft just in front of him. He moves each rush stem or small bundle of grass up and down through the warp. In one movement, with a flick of the hand the strand is pushed under a warp strand and pulled up and over it. In this type of weaving the distinction between passive and active systems is clear: the mat maker touches mainly the weft strands with which he or she weaves. Plant stems are not completely regular in shape: the foot is thicker than the top. It is this thickest most rigid part, which is held by the mat weaver and pushed up and down through the

warp, while the top end follows. The Amarna mats are woven alternately from left to right and from right to left

After having observed the modern mat loom, it becomes much easier to understand the details of the mat loom Beni Hassan tomb painting. There, the loom also exists of four pegs and two cross beams holding the warp. The third cross beam is depicted as if it is slightly toothed, which might be an indication of the holes through which the warp threads run. By extensive use, these holes are worn into slits. It seems that the last cross beam (equivalent of beam I in Figure 15-14) has the same tooth marks, which might suggest that the end beam also has a row of holes through which the warp runs.

In the painting one strand has been woven in and the mat weaver has taken hold of the heavy cross beam to push it into place. On the other side of the beam new strands are ready to be woven in (cf. H in Figure 15-14). The side edges have not been made yet: the ends of the woven strands (probably rushes) are still sticking out of the weave.

The warp is nowadays made of industrially prepared cotton yarn and has an odd number of threads. The two outer strands are usually double or thicker than the rest of the warp, to give more strength to the side edge. The length of the plant stems determines the maximum width of the mats. The grass of the side edges of the Amarna mats is folded around the outer warp strand and held in place with stitches (Figure 15-15a and Plate 10-10, p. 191). The fragments of two mats made of papyrus and wheat straw have edges which are twisted around the outer warp string and back into the weave (Figure 15-15b and Plate 12-3, p. 253).

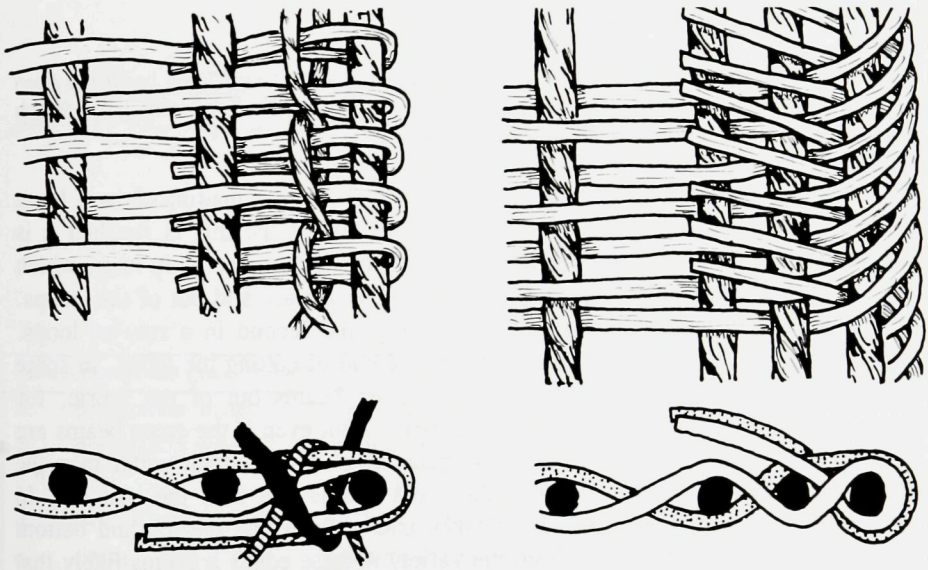


Figure 15-15 Side edges of Amarna woven matting (not to scale). Left: side edge of grass mats (folded and S-twined, cf. Wendrich 1989, 188). Right: side edges of mats made of bundles of papyrus or straw (woven back into the mat).

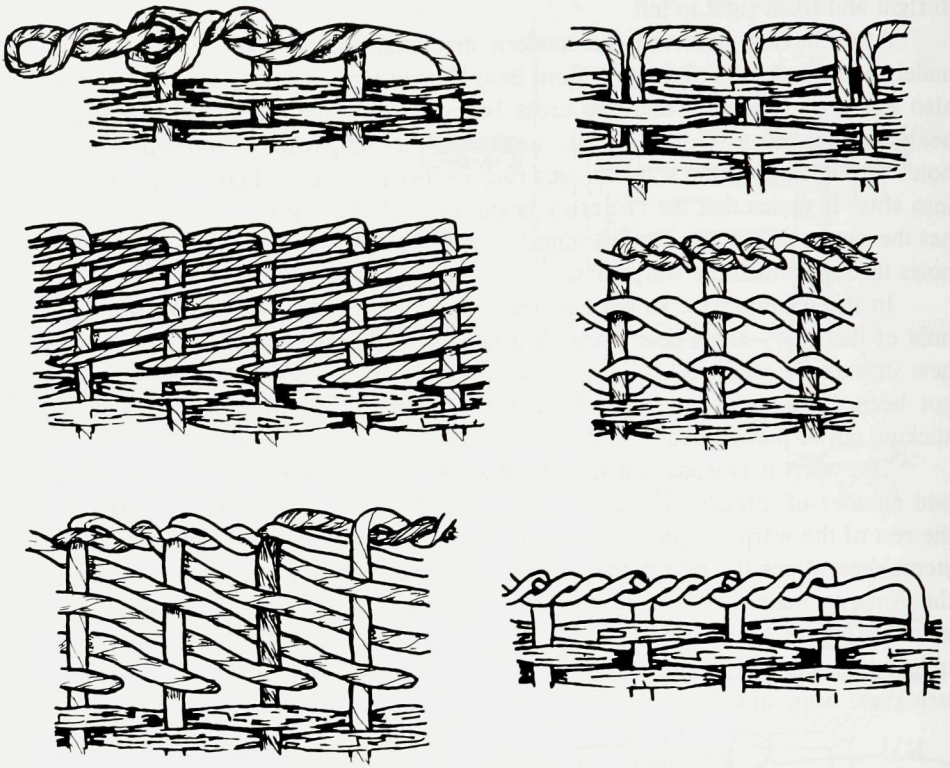


Figure 15-16 Top edges of Amarna woven matting. For edge a. the loom beam has been taken out and the loops are intact. Edges b-f are made of warp loops which have been cut. Drawings not to scale.

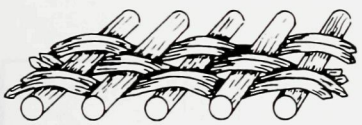
The top and bottom edges of the Amarna grass woven matting show a large variety of which two are shown in Figure 15-16. When the mat is finished it is taken off the loom. There are two ways of doing this: either the warp loops which run around the cross beams are cut, or the cross beams are slid out of the loops. The first method results in loose ends of string, the second in a row of loops. There are practical reasons to choose for the method of cutting the loops. In some cases it is simply not possible to slide the cross beams out of the fabric, for instance if the beams are very heavy, or irregular. But even if the cross beams are smooth and can be lifted easily, a work space which is not much wider than the mat itself lacks the space to move the cross beams and take the mat off. In Amarna both methods occurred. Even taken into account that the top and bottom edge in a mat can be different, from the variety if these edges it seems likely that there were mats from several producers at the Amarna workmen's village, supposing a mat maker will use one particular system of finishing off his mats.

Rush mats, which are woven with quite wet strands, have to dry for a number of days after the mat is take of the loom. Then the weft, which shrinks during the drying process, is tightened by pulling the strands with a metal hook.

Furniture webbing is woven directly on the bed or chair frame. In Qasr Ibrim remains of bed matting were found made of S-twisted strands of doam palm leaf. The warp was made over the full length of the bed, but because the bed matting that was found had been re-used as pit lining, it is not exactly clear how the weft was inserted. The edges appear to have been cut, which would indicate that the matting has been woven alternately from left to right and from right to left, looping around the side of the bed frame. Because the string had to be pulled through the warp with each passing, either a weaving shuttle was used, or, more likely, only short strands were used, adding a piece after each passing of the warp.

The time involved is one full time day for weaving a mat of medium size (1.20 m wide and 2 m long). Instruments involved are a loom, a knife and a metal hook, with which the weft is tightened after the mat is finished. A specific work space is required. This can be any flat surface, either inside or outside, but preferably in the shade. This work space is often, but not necessarily, permanent. The only fixed points are four pegs which are put in the ground and as long as the cross beams and the warp are not in place the space can be used for other activities.

15.9 WEAVING WITH TWO STRANDS



Amarna (p. 192) ✔	Middle Egypt
Qasr Ibrim ✔✔	New Nubia (p. 231) ✔

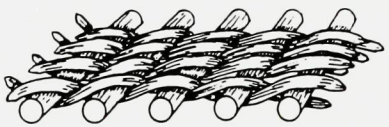
production phase grass bed matting			time estimate
a.	preparation materials	wetting grass	5 minutes
b.	preparation systems	making string	6 hours
c.	start	setting up the warp in the bed frame	2 hours
d.	basic structure	weaving in the weft	4 hours
e.	finish	fastening the end of the weft	5 minutes
f.	additions	-	-
g.	finishing touch	-	-

Grass for the rope only has to be wetted (48:47-48:53). The preparation of the string takes up the largest part of the production process. Weaving with two strands differs from weaving with one strand, because the work is done from one side of the frame. Loops of string are woven in, which results in two parallel weft strands. The side edges are made by pulling the loop through the previous one, which is similar to crocheting (54:11-54:19).

The tools used are three tapered wooden pegs and a beating stick. The video sequence on bed making shows the use of these. The pegs are pushed through the ends of the loops, to prevent them from slipping back. The peg is removed temporarily when the end of the next loop is pushed through. The peg is replaced in the new loop. For this work the mat maker apparently prefers a smooth peg over a rough one. In the beginning of the video sequence Shahed stops to change the pegs (51:39). The weft is regularly tightened by beating with a stick (53:11-53:16). Towards the end, when the bed is almost filled with string, there is no space to wield the beating stick and a peg is used to tighten the weft (56:30-57:00). At the very end of the process the pegs are used as awls to make space in the fabric to put in the last ends of the weft (57:17-57:23).

The mat is finished off by pulling the end of the weft string through the two remaining loops of warp and weft (58:00). The time needed to make the string and to fill one bed frame with matting is approximately 12 hours. The work space needed is the size of the bed plus a metre on all sides. This space is not permanently taken up by the work, only when a bed is made.

15.10 TWINING



Amarna (p. 194) ✓✓✓	Middle Egypt (p.201) ✓✓
Qasr Ibrim ✓✓✓	New Nubia

production phases closely twined mat			time estimate
a.	preparation materials	soaking palm leaf, wetting grass	30 / 5 minutes
b.	preparation systems	making string	6 hours
c.	start	setting up the warp	30 minutes
d.	basic structure	twining in the weft	4 hours
e.	finish	taking mat off loom, finish the edges	10 minutes
f.	additions	-	-
g.	finishing touch	shaking out the dust	5 minutes

The time estimate given above is for a mat, two of which are sewn together to form a bag. Fragments of similar matting have been found at Amarna. In el-Amariyya these twined matting bags are made of date palm fibre, which is a strong, quite course material (42:29). The fabric is made on a horizontal loom, which is even more simple than the woven matting loom: just four pegs in the ground with two cross bars (Figure 15-17). The tension of the warp cannot be adjusted, because the loom bars are simply hooked behind the pegs.

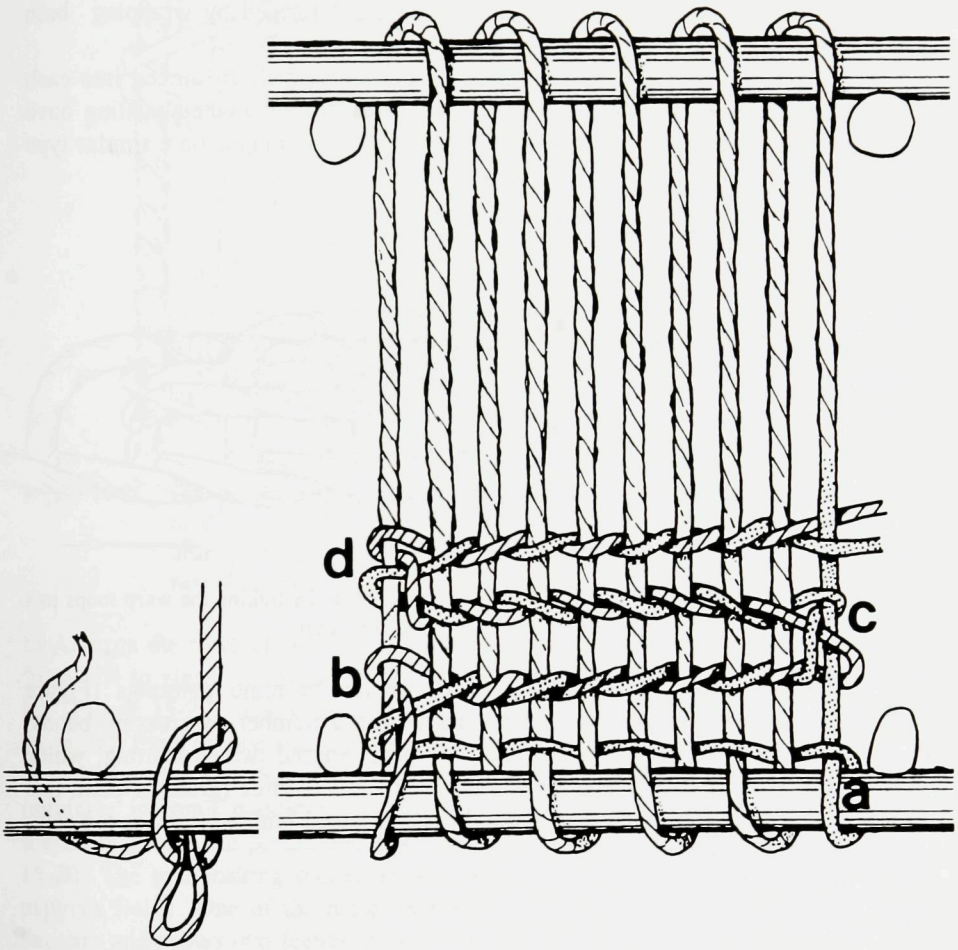


Figure 15-17 Schematic drawing of a loom for twined matting. At *a* the end of the warp string continues as woven starting border. The same strand becomes twining strand 1 (the stippled strand at *b*). The start of the warp string (which was temporarily knotted around the bar) is untied and becomes twining strand 2 (the hatched strand at *b*). The letters c and d indicate respectively the right and the left side edge. Not to scale.

After the string has been made by the hand rolling method, the warp is set up. The start of the warp strand is temporarily tied to the metal cross bar (detail drawing in Figure 15-17). The end of the warp string (the stippled strand at *a* in Figure 15-17) is woven back to the beginning of the warp and used as one of the twining strands. The second twining strand is formed by the start of the warp string (the hatched strand at *b* in Figure 15-17). The two strands are then alternately pulled around the warp strands. When a string is exhausted, a new length is added by pulling the small tip of the old string through the loop at the end of a new length of string (42:22). The side edges are formed by wrapping both strings around the outer warp string (*c* and *d* in Figure 15-17).

In Middle Egypt the top edge consists of loops which are linked into each other (Figure 15-18, 46:33-47:20). No top edges of closely twined matting have been found at Amarna, to decide if the ancient matting was made on a similar type of loom.

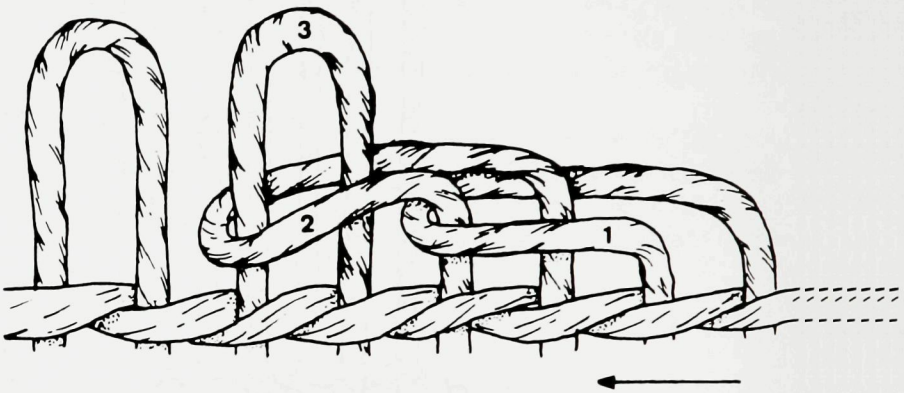


Figure 15-18 Top and bottom edge of twined matting, made by linking the warp loops in a chain. The arrow indicates the working direction.

Twined matting is depicted very commonly in tomb paintings (Figure 15-19). The standard mat, a striped rectangle with a number of crossing bands, seems to be a schematized representation of openly spaced twined matting, which is a flexible type of twined matting made of bundles of fibres (grass or palm leaf have been attested in Amarna and Qasr Ibrim), fastened with widely spaced rows of twining with string.



Figure 15-19 Depiction of matting in tomb paintings. Horizontal stripes represent bundles of grass, palm leaf or papyrus, vertical stripes the rows of twining.

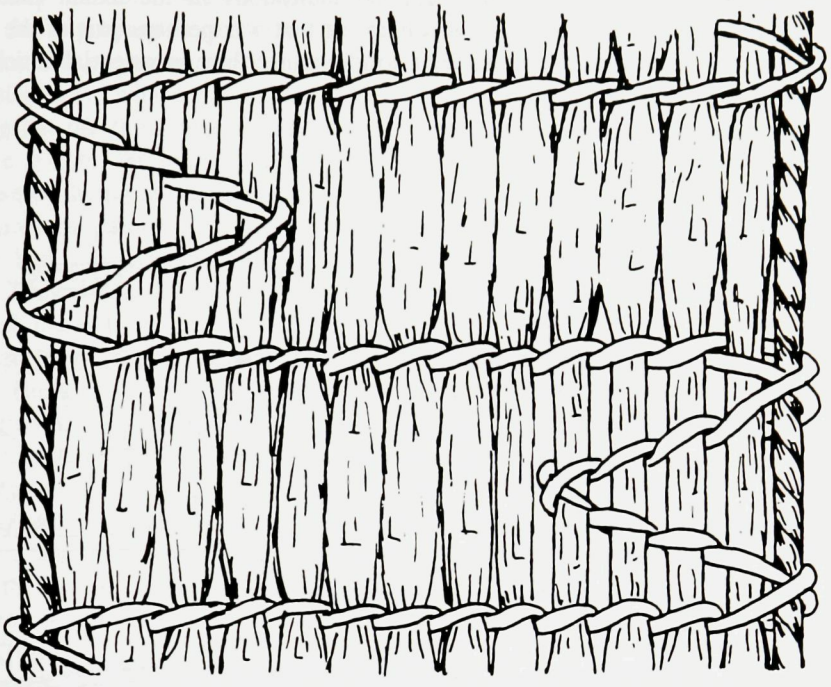


Figure 15-20 Openly spaced twined matting from Amarna. The bundles are usually grass or doam palm leaf. The twining is done with zS_2 string made of grass or doam palm leaf. The side edges are characterized by a zigzag line to the next row of twining.

In Amarna the rows of twining are from 35 to 100 mm apart. The weft is twined from left to right, zigzag down at the side edge and then is twined from right to left (Figure 15-20). The widely spaced twined matting probably was not made on a loom, but fixed on one side only on a set up string.

From the Old Kingdom onwards, the production of matting is depicted regularly in tomb paintings. Judging from the representation of the mats these scenes represent the production of openly twined matting such as shown in Figure 15-20. The mat making scenes are mostly related to shepherds who work in the papyrus fields. One of the more detailed examples is found in the tomb of Ti in Saqqara and shows two scenes in two registers (Figure 15-21).

The upper register depicts a man laying out strands of papyrus. The lower register shows to men facing each other. They are working away on what seems to be a finished mat (the rows of twining are in place), holding dumbbell shaped tools in both hands. The appearance of this tool suggests it to be a pounder or, more likely, a small brush. This would indicate a possible end stage of the matting process: pounding the fibres or cleaning the finished mat from loose fibres. It is an

enigmatic scene, because there are no indications in the extant matting that pounding of fibres took place. Brushing the mat was perhaps part of the process, but it would have been the finishing touch, rather than an essential action from a technological point of view.

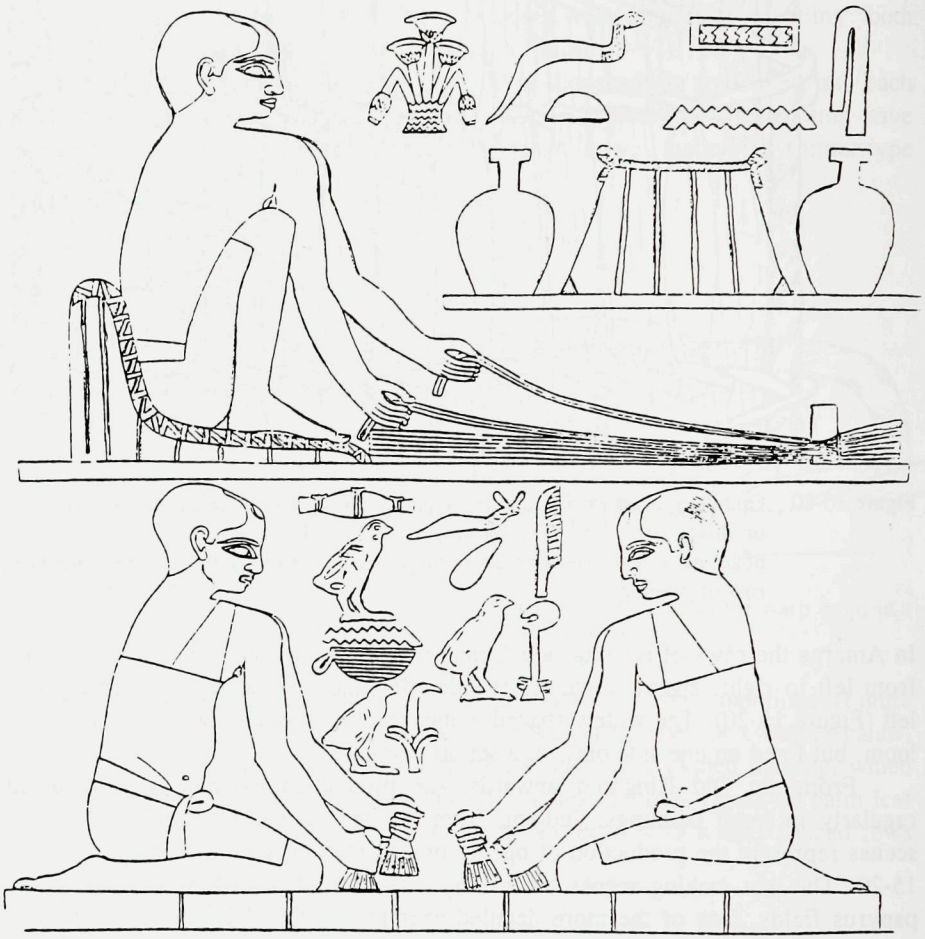


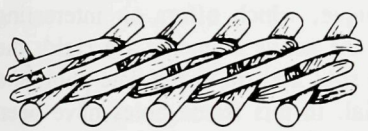
Figure 15-21 Mat making scene from the tomb of Ti in Saqqara (after Wild 1953, plate CXXIV).

Usually the tomb scenes represent the production phase that is the most 'typical' for a production process. This would be the action that busied the mat makers for the longest period and the kind of action that comes to an outsider's mind, when asked what a mat maker does. While twining a mat most time is spent on laying out the fibre bundles for the passive system and connecting these with the active system (the twining proper). The scene from the tomb of Ti shows the first phase of laying out the bundles of papyrus in the upper register. If the lower scene represents part of the actual twining phase, then the dumbbell shaped objects probably had a function in twining, such as spacing or tightening the rows of twining. They would then have to be interpreted as wooden combs or stiff brushes with which the weft was pushed in place.

Apart from twined matting, there are twined sieves and, in Qasr Ibrim, also baskets. These have in common that the passive elements are rigid and can be made without a loom. Twining is often combined with other techniques. The sieves, for instance, have a twined grid fastened in a coiled rim.

Only few tools are used in twining: a knife; perhaps a tool to space the rows of twining and, for closely twined mats, a loom. The work area needed is the size of the mat and some space around it. As with the looms for weaving, the fixed parts of the twining looms are not more than four pegs in the ground. The space around and in between these pegs, is available for other activities when no mats are being made.

15.11 WALING (11)

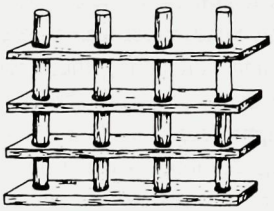


Amarna	Middle Egypt
Qasr Ibrim ✔	New Nubia

Giving a time estimate is not relevant since waling does not occur in Qasr Ibrim as a technique in which a complete basket is produced, but only as part of the production of a basket with a twined base and plaited sides.[10] No tools are needed for waling.

[10] In Berenike in the early Roman garbage dump a basket is found in which waling plays an important part. It has four rows of decorative waling. The basket is made of very fine willow osiers, which is indicative for the probability that this basket was imported from the north part of the Mediterranean. The publication of this basket is forthcoming in the report on the Berenike 1998 excavation season.

15.12 PIERCED BASKETRY



Amarna	Middle Egypt (p.201) ✓✓✓
Qasr Ibrim	New Nubia

production phases *qafas* (orange crate)			time estimate
a.	preparation materials	-	-
b.	preparation systems	cutting sticks, making holes	10 minutes
c.	start	setting up vertical corners and horizontal cross bars	5 minutes
d.	basic structure	hammering in the stakes of the sides and the base	10 minutes
e.	finish	hammering in the last stake	-
f.	additions	-	-
g.	finishing touch	-	-

Today the pierced technique is used for all tomatoes and oranges are transported in *qafas* crates made in a form of pierced technique, which offers an interesting contrast at several levels. Both the passive and the active elements are rigid: the qafas maker takes pointed sticks, made from the split mid rib of the date palm and hammers them into a frame of the same material. In this frame holes have been punched beforehand (Plate 15-22).

The same producers make also a large flat bat-like implement with one handle, a *matraha*, used for spreading out dough to form a thin round sheet of bread which is flung from the tray onto the oven floor to be baked. The *matraha* is also made of pre-punched palm midrib, but active and passive are reversed: the stakes are set upright and the punched parts are hammered onto them. (cf. Plate 10-17, p. 202)

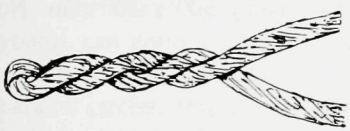
The time involved in making a *qafas* is about 25 minutes, of which almost half is spent in the preparatory phase of cutting and punching the sticks. The workshops have an industrial organization. One person cuts and splices the mid ribs, the next person punches the holes, the third person makes the frames, the fourth person hammers in the sticks of the walls. The instruments used are large knifes to cut and splice the date palm midrib, metal punch-awls in several sizes,

hammering sticks and measuring sticks to determine the position of the holes for each different type of *qafas*.



Plate 15-22 *Qafas* maker, hammering pointed sticks into pre-punched holes.

15.13 ROPE

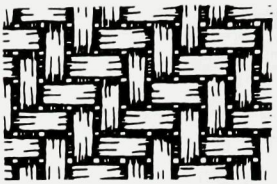


Amarna	Middle Egypt (p.201)
✓✓✓	✓✓✓
Qasr Ibrim	New Nubia
✓✓✓	✓✓✓

The hand rolling method of rope making has been explained in section 15-4 (cf. Figure 15-6 on p. 299). Spinning and plying are done in the same movement and usually in opposite directions: spinning in a z-direction (clockwise), plying in S-direction. Thus the opposite orientation of spin and ply are locking each other and provide the coherency of the string. No instruments, other than the human body are needed although there are indications that large scale rope making, for

shipping, for instance, was done with the help of a twisting device with weights at the end (Teeter 1987).

15.14 CONTINUOUS PLAITING



Amarna	Middle Egypt
Qasr Ibrim ✔	New Nubia (p. 241) ✔

production phases 'disposable' bag			time estimate
a.	preparation materials	splitting and soaking palm leaf	35 minutes
b.	preparation systems	-	-
c.	start	setting up the edge	1 minute
d.	basic structure	plaiting the fabric	5 minutes
e.	finish	finishing off the edge	2 minutes
f.	additions	putting in the closing string	2 minutes
g.	finishing touch	-	-

The time estimate for the coarse disposable bags found in Qasr Ibrim is 10 minutes per bag, not counting the preparatory work, which takes 30 minutes of soaking and an estimated five minutes to split the date palm leaflets. The end with which the leaflets once were connected to the mid rib is left intact (Figure 11-25 p. 239). To plait fans of narrow strips of date palm leaf, in a twill pattern (\2/2\\1), would take around three hours. The fans are approximately 300 x 200 mm. No instruments are needed for making plaited basketry.

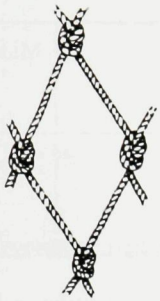
15.15 PLAITED STRIPS



Amarna	Middle Egypt
	✔
Qasr Ibrim ✔	New Nubia (p. 241) ✔

The production of plaited strips has been highlighted in section 15.4 (pp. 296-298).

15.16 KNOTTING



Amarna (p. 204) ✔	Middle Egypt
Qasr Ibrim ✔	New Nubia

production phases amphora carrier net			time estimate
a.	preparation materials	soaking papyrus stems	30 minutes
b.	preparation systems	making string and bottom ring	3 hours
c.	start	making the handles	10 minutes
d.	basic structure	knotting the net	3 hours
e.	finish	fastening net to bottom ring	20 minutes
f.	additions	putting in the closing string	2 minutes
g.	finishing touch	-	-

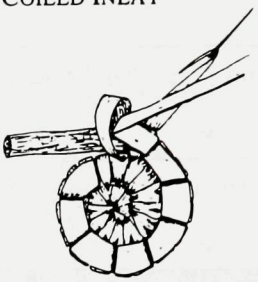
Papyrus string is made in separate production phase. The amphora net is started by six strings, three strings cabled together to form a handle (cf. Figures 10-19, 10-20 and the bottom ring Figure 9-6). Two strings run down from the two handles which are knotted to form a fabric. Finally the wrapped rope ring is added with large overhand knots. The time indications above were made on the basis of a copy of this net.[11]

The shrinkage of the wreath, seems to indicate that it was made of one young, not entirely dry date palm leaf, which was split along the mid-rib. The wreath was started by tying the two halves of the split palm leaf mid rib into two parallel circles, forming the frame. Then the fabric was made by knotting the side leaflets of the two halves (cf. Figure 11-29, p. 244).

For knotting no instruments were needed. The time depends on the size of the knotted fabric, but the estimate for the amphora sling proved to be accurate, compared to the experimental knotting of the net (for which the papyrus string was imported from Egypt), taking into account that the person who knotted the net, although an knotting expert, had never made an amphora net before.

[11]The copy was made by P. van der Griend for an exhibition on ancient packing materials in the Allard Pierson Museum in Amsterdam ("De Oudheid Verpakt" 10 October 1997 to 1 February 1998) (cf. Wendrich 1997).

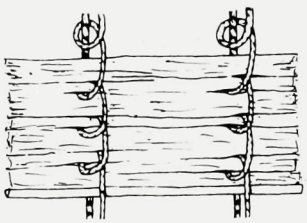
15.17 COILED INLAY



Amarna	Middle Egypt
Qasr Ibrim ✔	New Nubia (p. 245) ✔✔

A time estimate for coiled inlay, which is mainly a decoration technique for coiled basketry, has been incorporated in the section on coiling (pp. 303-309).

15.18 LOOPING



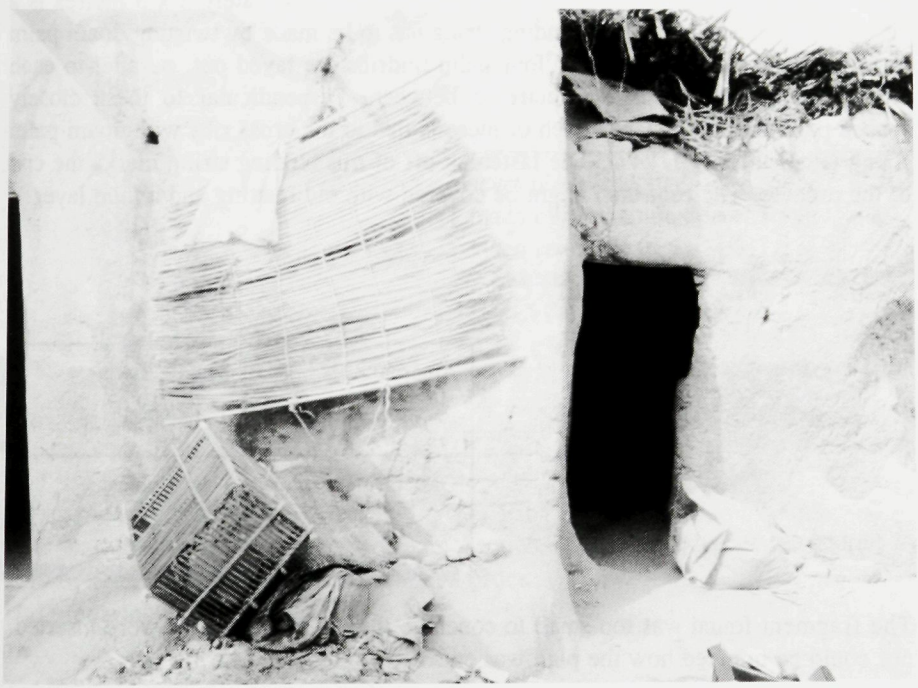
Amarna	Middle Egypt ✔✔
Qasr Ibrim	New Nubia

production phases *sīnda* cheese mat			time estimate
a.	preparation materials	wetting palm fibre, shredding fruit stem fibre	30 minutes
b.	preparation systems	making string	1 hour
c.	start	fastening the top rim piece	10 minutes
d.	basic structure	making five tying rows the fibres	3 hours
e.	finish	fastening the bottom rim piece	5 minutes
f.	additions	making handles	15 minutes
g.	finishing touch	smoothing the mat, by taking off fibres that stick out	10 minutes

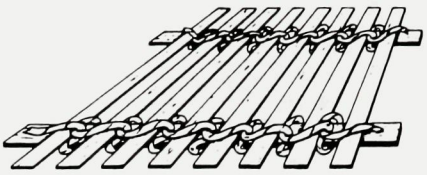
The cheese mat is made in farming households, which make their own cheese. The process takes at least half a day. The top and bottom of the mat are made of a split piece of palm mid rib. In between the fibres are fastened with a number of widely spaced rows of looping which create enough space between the fibres to let the moist of the fresh cheese drip out, but not enough to loose the actual cheese matter.



Plates 15-23 and 15-24 Woman making cheese and cheese drip mat (el-Amariyya 1992).



15.19 BINDING



Amarna	Middle Egypt (p.206) ✓✓
Qasr Ibrim ✓✓	New Nubia (p. 247) ✓✓

production phases roof			time estimate
a.	preparation materials	soaking doam palm leaf	30 minutes
b.	preparation systems	making s-twisted binding string	1 hour
c.	start	laying out palm ribs	30 minutes
d.	basic structure	binding ribs to the cross ribs	1 hour
e.	finish	fastening off the binding string	5 minutes
f.	additions	-	-
g.	finishing touch	putting on old matting and a layer of mud	1 hour

The time estimate for making a roof or screen of approximately 2 x 3 metres is a bit over three hours. First the binding string has to be made by twisting doam palm leaf. Then a number of three or four palm midribs are layed out, parallel to each other with a space of half a metre in between. Perpendicular to these closely spaced palm ribs are placed. Each of these is tied to the cross ribs with doam palm string (Plate 11-32, p. 247). The fastening off of this binding string marks the end of the process. The roof then might be covered with old matting and a mud layer.

15.20 PLAITING AROUND A CORE



Amarna	Middle Egypt
Qasr Ibrim ✓	New Nubia

The fragment found was too small to conclude if new plaiting strips were inserted, nor could be inferred how the plait was ended.

CHAPTER SIXTEEN

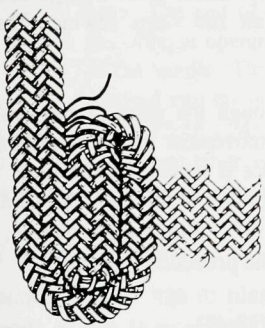
THE CHOREOGRAPHY OF WORK

Work has its own rhythm, its own movements, its own pace, its own use of space. These are the aspects that this chapter focuses on. The purpose is to organize the production process in yet another way, putting emphasis on different aspects, to give room for new perspectives. The use of video enables this.

An archaeologist in trying to understand ancient production, will tend to focus on the most obvious parts of the process: the repetitive actions of making the basic structure. Weaving is thus reduced to putting the warp in the weft, coiling to stitching the bundle with the wrapping strand. Watching and working with basket makers teaches that a process is much more than making the basic structure (cf. the seven phases a-g in Chapter 15).

By analysing several aspects in the video one is forced to go beyond such an artificial, linear organization of the production process. This chapter will focus on the working order, the production time, the working rhythm, the use of the body as instrument, and the movements around the work space.

16.1 THE MAQTAF



sewn plaits basketry
made by Mohammed in el-Hagg Qandil
video sequence 02:53-24:04

16.1.1 Working Order

Compared with the order presented in Section 15.4, the sequence registered by video, follows a different, more complex order:
(a) preparing the material (03:32-03:46).

The basket maker sorts strands of palm leaf. Only the very end of this action is shown, in which the basket maker has a stack of date palm leaf strands lying to his right.

(b) preparing the passive system: plaiting a strip (03:47- 06:35).

starting the plait (03:47-04:10).

This is shown completely in the video sequence and takes only 24 seconds.

making the plait (04:11-06:35).

A period of approximately four hours is spent on making the plait. In the video representation this has been shortened to only one minute and 49 seconds. The finishing off of the plait does not occur until much later (16:57). In preparation of the start of the work, the plait is rolled up and put in an aluminium pan with water to soak. Meanwhile, the basket maker starts the preparation of the string.

(a) preparing the material (06:36-06:56).

The veins have been put in water to soak, while the basket maker was making the plait. He takes the material out of the water and loosens the fibres by moving them forcefully around for 10 seconds.

(b) preparing the active system: string (06:57-07:58)

starting the string (06:57-07:24).

Starting the string takes 27 seconds: the basket maker sorts and arranges a small bundle of veins, folds the bundle double and starts twisting the two sides of the bundle into two different strands of the string, while plying them in the same movement. He then takes off his shoe and holds the start of the string between his toes.

making the string (07:15-07:58).[1]

Only one minute and two seconds of this phase are shown, while the actual time spent is much longer, approximately 30 minutes.

(c) starting the basic structure of the basket (08:05-10:50).

In preparation of the sewing of the basket, the basket maker takes a large needle and runs the string through the hole, takes up the plait and starts sewing. The entire sequence is shown in real time.

(d) making the basic structure (09:49-18:20).

The basket maker runs his needle alternately through the edge of the basket and through the edge of the plait. This is an ongoing movement that lasts several hours until the basket is finished. In the video this sequence is represented by eight minutes and 31 seconds. During this part of the process the basket is shaped and regularly new lengths of string are added to the active system (11:07). Within the sequence, several things happen, which belong to different phases of the production process:

preparing raw materials

Some date palm leaf veins are left to soak (12:47).

preparing the active system (13:02).

The soaked veins are used on the spot, to lengthen the sewing string after it has run out. The amount of string prepared earlier by the basket maker during the time it took the plait to soak was not enough to finish the entire

[1]The frozen image of string making is shown in video sequence 07:39.

basket, so at a certain point he starts making string, rather than inserting ready-made lengths of string.

preparing raw materials for the rim and handles (14:25-15:04).

Date palm leaf sheath fibre is soaked and small tufts are made in preparation for the string production for rim and handles.

production of string for rim and handles (15:05-16:28)

The basket maker proceeds making string from the date palm fibre. This string is rolled in an opposite direction to the string with which the basket is sewn. He makes a two-ply string, which he stretches between his toes. The fixed, passive, string is then made into a three-ply string by adding a third strand (the active element) (16:14).

making the basic structure (16:33-16:55)

The basket maker continues sewing the plait.

finishing the passive system (16:49-17:23 and 17:07-17:24)

In the meantime a friend finishes the plait.

(e) finishing the systems of the basic structure (17:59-18:20).

The basic structure of the basket is finished with sewing the last part of the plait. Although the passive system (the plait) is now finished, the active system continues. The basket maker adds a new length of string.

(f) adding other features (18:20-24:04)

With this new length of string the basket maker sews on the palm fibre rim.

preparing the systems (19:47-20:31).

The basket maker prepares the rope for the handles out of palm fibre string.[2]

The handles are sewn onto the basket.

The video picks up the sequence after the first handle has been finished. The basket maker folds the basket to measure the position of the second handle, throws the handle, which is attached to a length of palm fibre string, into the basket and starts sewing from the inside outwards. The handle is fixed to the basket by a combination of sewing and wrapping the string around the handle base. The end of the string is sewn into the fabric of the basket, following the oblique openings in the plaits of the sides, to provide a strong anchoring of the handle. The string is cut off and a second, decorative, line of string is stitched into the plait structure.

(g) finishing touch (23:48 - 24:00)

The end of the sequence is formed by the basket maker cutting off bits of palm leaf which stick out of the plaited sides (24:04).

16.1.2 Production Time

The *maqtaf* maker has to plan his work in advance, because the time that a palm leaf needs to dry is two weeks. If he has dry palm leaf, the preparation takes only 30 minutes, for the strands to soak.

The total production time for the sewn plaits basket is approximately nine hours. Making the plait takes four hours, while making the string takes one and a

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[2]The video only shows one of the handles being prepared, while in reality the basket maker makes two.

half hour. Sewing the basket lasts approximately three hours, while the basket maker then needs another half hour to make the rim, handles and finish off the basket. As the process does not follow a fixed order, the timing is approximate.

Timing the actions shows that the repetitive actions take up most of the time, while the occurring actions such as adding a new length of sewing string, starting the plait, or making the start of the basket, take relatively little time.[3]

The occurring actions often result in the features which are characteristic for a basketry tradition. It is in the method of insertion of new lengths of material, in the start and finishing off of the work, as well as the decoration that idiosyncrasies or local traditions become apparent. In the entire process these characteristic features take up a small portion of the time.

While editing the video, a deliberate choice was made to show these idiosyncrasies. Thus, the edited footage can be misleading: what is shown in real time are the short procedures, while the long sequences are shortened dramatically. In the video the process of making a *maqtaf* takes 21 minutes and 11 seconds, while in reality making the basket takes approximately nine hours, often divided over two days. Making the plait takes four hours of which 2 minutes and 24 seconds are shown (04:11-06:35), sewing the basket takes three hours, which has been compacted to just under four minutes (09:49-13:02, 16:33-16:55 and 17:59-18:20).

Working period

The *maqtaf* maker works part time, because he also tends his fields and he has to sell his produce. There is no clear seasonality to the work. The raw materials can be stored dry and harvested year round. He makes baskets during all seasons, but the time he can spend depends on how busy he is working the field. Since agriculture is no longer ruled by the flooding of the Nile, he has no clear busy period or season when the work is slow.

In general he works in the fields in the mornings and makes baskets at home in the afternoon and early evening. Some days he works steadily from early in the morning to late in the afternoon. He makes approximately five baskets a week and on Thursday morning he goes to the market in Mallawi to sell his baskets.

16.1.3 Working Rhythm

The descriptions of lives of the early Christian saints regularly mention that the hermits were making plaited basketry in their cells. The rhythm of plaiting, string making and sewing helped them to concentrate and contemplate, while the products gave them an income (Wipszycka 1986, Waddell 1936, 78, 86, 102, 122).

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[3]Starting the plait takes only 24 seconds, starting the basket takes two minutes and 45 seconds.

Most of the time in making a *maqtaf* is spent on the repetition of the same movements (*recurring actions)*. It is especially in these periods of recurring actions that a specific rhythm occurs, wich enables the producer to keep going for a prolonged period. In sewn plaits basketry the recurring actions are: making the plait, rolling up the plait, making string, sewing the plait and sewing the rim.

However, when considered closely, although apparently occurring actions are performed whenever necessary, and are much more diverse than the recurring actions, they often have a specific rhythm too.

Plaiting is a recurring action, which is interspersed with the occurring action of picking up new plaiting strands and inserting them in the work (04:12, 04:26, 05:33). In Chapter 9 the plait pattern was noted down with the help of a formula, \2/2\\1. Furthermore, plaiting is described as consisting of active elements only, which expresses that the basket maker handles all nine strands equally.

These two aspects, all strands are active and the pattern is \2/2\\1, translates in a rhythm of the work: the basket maker plaits a strand "under 2 / over 2" with the right hand and "under 2 / over 2" with the left hand. This action is done in a particular cadence (04:47). Without losing the rhythm, new leaflets are added in the plait, always on the right-hand side. After every plaiting movement with right and left, the basket maker consistently pulls the strands to tighten the plait. Since the plaited strips are several metres long, the basket maker continues the same movements and the same rhythm for at least four hours.

The next recurring action is rolling up the plait. In the video this sequence has been used as an example of the analysis of actions, by indicating the actions with a combination of a letter and a number in the left bottom corner. In the description of the production sequences given above, this sequence has been described as: "In preparation of the start of the work, the plait is rolled up". In the 28 seconds incorporated in the video (05:47-06:15) the recurring action of rolling up the plait (r1) is interrupted seven times by an occurring action (o2) of picking off little ends of palm leaflets which are sticking out of the plait.

The basket maker turns the plait with his right hand, while he is stroking the plait with his left hand, checking the surface for irregularities and guiding the plait to the roll (r1: recurring action of rolling until the plait is rolled up). Whenever bits of palm leaf are sticking out, he takes the plait in his left hand and picks off the ends with his right hand (o2: occurring action). He makes seven rolling movements, then plucks five times, he continues rolling once and plucks twice, he then rolls one time again and plucks four times. He repeats rolling once and plucking four times, he then rolls twice and plucks four times. After this he rolls once and plucks five times, rolls twice and plucks once. The end of the sequence shown is that he makes three rolling movements. In this sequence the rhythm is not found in the number of times that he does the rolling action, but in the regularity of the movements.

Occurring actions are more diverse and are performed for a shorter period. Although this would suggest that rhythm is not important, many occurring actions

nevertheless have a specific rhythm. Thus, the occurring actions do not disturb the rhythm of the process as a whole.

A good example is the removal of excess material while rolling up the plait. Although this action (o2) is provoked by bits of palm leaf sticking out, it is not ruled by irregularity. This is particularly clear if all footage (and not only the edited version) is taken into account (Table 16-1). During the 13 rolling movements, many palm leaf ends are passing unhindered under the hands of the basket maker, who seems to have a slight preference for pulling off four bits between each sequence of rolling movements.

r1	7	1	1	1	2	1	2	3	1	1	4	1	1	1	1	13	2
o2	5	2	4	4	4	5	1	7	2	6	5	4	5	1	2	3	0

Table 16-1 Rolling up the plait: number of rolling movements (r1) and plucking movements (02) in the complete footage of the film. A double line indicates where the sequence in the edited video (05:47-06:15) ends.

The occurring action of twisting the veins of the date palm leaflets, as a preparation for string making (06:46-06:56), shows a rhythm too. The basket maker works on them until he feels the fibres are loose enough to be made into string. Nevertheless, he does the twisting in a specific rhythm. He twists the bunch four times at the thick end, four times in the middle, twice towards the end and another two times a the tip of the leaflets. The but ends require a longer period of working than the thin leaf tips, but there is a rhythm of two times four and two times two.

The next sequence with recurring actions is making the string (06:36-07:58). His right hand moves over the left hand from the wrist to the finger tips (z-spinning). With each movement the spun bundle is picked up at the finger tips and put back at the wrist (S-plying, cf. Figure 15-6, p. 299). The rolling movements of the hands (recurring action) are interrupted by the insertion of new material (occurring action).

There is some variation in the number of times that the hand rolling movement is made after each newly inserted bunch of leaf veins. In the video section the start of the string is made by folding the strands double and making six rolling movements. The next rolling sequences show five, seven and seven rolling movements. In a second string making sequence (13:02-13:24) he lengthens the sewing string on the spot in two series of four rolling movements. He finishes the length of sewing string with twenty rolling movements, which are also meant to tighten the ply. The rhythm of string making is not clear from the number of rolling movements (respectively 6, 5, 7, 7 and 4, 4, 20), but from the movement itself, which is at the same time rhythmic and fluent.

After making the string, the start of the basket is made. This sequence, the analysis of which is shown in the left-hand bottom corner of the video, has been

described above, as: "In preparation of the sewing of the basket, the basket maker takes a large needle and runs the string through the hole, takes up the plait and starts sewing". This seems to consist of four actions. However, in the two minutes and 45 seconds shown in the video (08:05-10:50) we can distinguish nine actions, in which especially actions o10 and r11 alternate a number of times.

This sequence leads to the recurring action of sewing the basket. The preparatory actions are threading the needle (o3), picking up the plait and letting it drip for a while (o4), arranging the plait on the ground (o5) and picking up the plait (o6). During the entire sequence the basket maker holds his needle in his right hand, while the string and the plait are handled with his left hand.

Actions o3 to o7 are preparatory. It is the getting ready for the action. The first part of this sequence which has a direct function in the production process is the kneading of the plait, to make it supple (o7). This is done between both hands in vertical and horizontal direction. In total he bends the plait end 14 times. A large needle (*mesalla*) is pushed into the side of the plait, picks up four loops and is pulled through (o8). Moving the needle up and down to force it through the plait, the string is pulled through in five jerky movements.

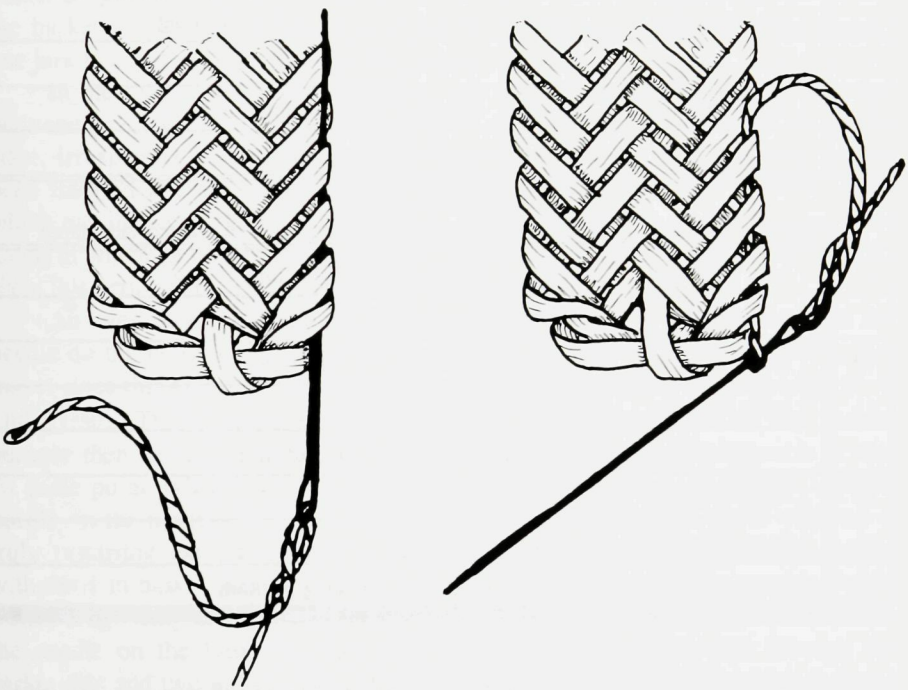

Figure 16-2 Making the start of a sewn plaits basket: Left: pushing the needle through four loops (o8). Right: pulling the needle through the end of the string (o9). Drawing not to scale.

The loop at the start of the string sticks out of the end of the plait and by pulling the string through this loop in three jerks, the end of the plait forms a small circle (o9, Figure 7-49). This circle has to 'set' and the basket maker therefore knees the start of the basket, while pulling the string with force (o10).

The rest of the sequence is a combination of the recurring action of stitching through the edge of the plait or basket (r11), and kneading to settle the centre (o10). To make up for the small diameter of the centre and to get a good circle the basket maker picks up two loops of the plait and one loop of the basket.

Start of sewing the *maqtaf*			
no.	r11 stitching		o10 kneading
1	2 loops of plait	3 jerks	kneading, 1 x tightening
2	1 loop of basket	4 jerks	kneading, 3 x tightening; kneading 1x tightening
3	2 loops of plait	3 jerks	kneading, 1x tightening
4	1 loop of basket	3 jerks	not much kneading, 3x tightening
5	2 loops of plait	3 jerks	kneading
6	1 loop of basket	2 jerks	kneading, 2x tightening
7	2 loops of plait	2 jerks	kneading, 1x tightening
end of sequence (following is based on complete footage; not incorporated in the edited videotape)			
8	1 loop of basket	2 jerks	kneading , 1x tightening
9	2 loops of plait	3 jerks	kneading
10	1 loop of basket	2 jerks	kneading, 3x tightening
11	2 loops of plait	3 jerks	kneading
12	1 loop of basket	3 jerks	kneading, 2x tightening
13	2 loops of plait	2 jerks	no kneading
14	1 loop of basket	3 jerks	kneading
15	2 loops of plait	2 jerks	change of working position

Table 16-3 Number of stitches to make the centre of the sewn plaits basket. Per stitch is indicated how many plaiting strands are picked up, with how many jerks the string is pulled through (action r11) and the number of times centre is tighten and shaped (action o10).

Although the start of the basket seems at first viewing irregular, this scheme shows quite some regularities. The string is mostly pulled through the edge of the plait in three jerks. Towards the end, when the string shortens, it is sometimes pulled through in two jerks. Tightening of the centre is mostly done after a stitch through the edge of the basket. The stitch through the two loops of the plait edge is usually just followed by kneading and bending the plait as preparation for the needle to enter the tightly pulled basket edge at a convenient angle.

The 15th stitch marks the end of making the centre. After that the stitches are picking up one loop of the plait against one loop of the basket. No more kneading is done, the working position changes and the rhythm moves into that of the recurring action of sewing the basket (r11), which is sustained for approximately three hours.

The large *mesalla* needle is pushed through the edge of alternately the basket and the plait. If the sewing string is very short, the string can be pulled through the plait with one jerk, but mostly the number of times the string is pulled shows a clear rhythm, irrespective of the length of the sewing string.

In the beginning of the sequence the rhythm *basket 1 / plait 1* (10:58) and *basket 2 / plait 2* (11:03) occur. A new string is inserted at 11:07, but the rhythm *basket 2 / plait 2* continues for three more stitches. Most commonly, in the base of the basket the rhythm is two jerks to pull the string after stitching in the basket, one jerk to pull the string through the plait.

In the side of the basket, however, this rhythm changes: the string is pulled with one jerk through the plait edge and with a two-stepped jerk through the basket edge, irrespective of the length of the string. Only when the sewing string has just been inserted and is still very long, the basket maker uses two separate jerks, which has the same rhythmic effect (e.g. 12:44). The basket maker uses his right hand, in which he also holds the needle, to open up the plaited edge of the basket. Even this action does not disturb the overall rhythm.

An even clearer indication of the working rhythm is a small knock with the needle on the body of the basket. When making the base of the basket, the basket maker does this before pushing the needle through the edge of the plait (e.g. 11:42 and 11:50). This changes when he is making the side and rim of the basket, because then he knocks before stitching into the basket edge (first time at 12:02). At some point, when he restarts the action after a brief break, he knocks with his needle on the basket (13:33), refrains from starting, then knocks again when he is truly restarting the sewing motions (13:43). This rhythmic knock occurs mostly with the 1 in basket side / 2 in plait jerk rhythm. Much later in the process, while a new long string has just been added, the rhythm is still the same: a knock with the needle on the basket, pulling through the string with one jerk through the basket side and two jerks through the plait edge (16:35). This same rhythm is found in sewing string to the rim.

Sewing the basket: rhythm of pulling the string through basket and plait edge			
basket	plait	remarks	video
1 jerk	1 jerk	short string	10:58
2 jerks	2 jerks	with short string,	11:03
2 jerks	2 jerks	with long string, two knocks before stitch in plait	11:46
2 jerks	2 jerks	two knocks before stitch in plait	11:53
2 jerks	2 jerks		11:58
1 jerk	1 jerk	knock before stitching in basket	12:03
1 jerk	?	-	12:07
2 jerks	1 jerk	-	12:11
2 jerks	1 jerk		12:15
2 jerks	1 jerk		12:22
2 jerks	1 jerk		12:26
2 jerks	1 jerk		12:29
2 jerks	1 jerk		12:32
2 jerks	1 jerk		12:35
2 jerks	1 jerk		12:38
2 jerks	1 jerk		12:42
2 jerks	1 jerk		12:47
1 jerk	2 jerks	knock before stitching in basket	13:36
1 jerk	2 jerks	knock before stitching in basket	13:41
1 jerk	2 jerks	knock before stitching in basket	13:45
1 jerk	2 jerks	knock before stitching in basket	13:50
1 jerk	2 jerks	knock before stitching in basket	13:54
1 jerk	2 jerks		14:00
2 jerks	2 jerks		16:32
2 jerks	2 jerks	knock before stitching in basket	16:35
1 jerk	2 jerks	knock before stitching in basket	16:40
1 jerk	2 jerks	knock before stitching in basket	16:45
1 jerk	2 jerks	knock before stitching in basket	16:50
basket	rim string		
4 jerks	4 jerks	-	19:02
2 jerks	2 jerks	-	19:15
1 jerk	2 jerks	-	19:22
1 jerk	2 jerks		19:27
2 jerks	2 jerks	knock before stitching in rim	19:32

Table 16-4 Number of small jerks with which the string is pulled through respectively the edge of the basket and the plait or the basket and the rim string.

While the basket maker is sewing the basket, he pauses a while to make the string for the handle (15:05-15:34). This is done in a movement opposite to making the sewing string: the right hand moves from the tip of the fingers to the wrist of the left hand, picks up the s-spun strand at the wrist and takes it back to the finger tips (Z-ply). The third strand is inserted with the same movement from fingertip to wrist.

The material he uses to make the string, date palm fibre, is longer than the date palm leaf veins which he used in the first rope making sequence. This is reflected in the larger number of rolling movements (r1) made until a new length of date palm fibre has to be inserted (o2). As with the string made of date palm leaf veins, the rhythm is not found in the number of rolling movements (respectively 8, 5, 11, 3, 12), but in the regularity and smoothness of the movement itself.

16.1.4 The Body as Instrument

Looking at the movements in detail, clarifies that the most important instrument of the basket maker is his body. Studying the physical balance, working position and the use of hands, feet, eyes, mouth and body weight results in understanding the instrumental use of the body and the physical demands of the work.

At the beginning of the video the basketmaker squats, his heels on the ground, his weight in the middle, his elbows resting on his knees. He is sorting leaflets using both hands, while keeping his eyes on the sorting (03:38).

He keeps this position while he makes the start of the plait.[4] His eyes are focused on the work. His body weight shifts slightly to the left leg whenever he picks up new leaflets from the ground with his right hand (e.g. at 04:11).

Further in the plaiting process we find him in the same squatted position, but his weight is gradually more on the left leg, especially when he reaches out to pick up new leaflets (05:10). His eyes wander from the work, while he talks to his wife, but only briefly.[5] He can afford to look up while putting in a new leaflet, or while tightening the plait, but when he is plaiting the strands, he looks at his work. He bends the outer plaiting strand down and pushes it up and over two. The nine plaiting strands are not single leaflets, but small bunches. He needs to look which leaflet belongs to which plaiting bunch, something he apparently cannot do by touch, despite his experience.

The close up of his hands (05:25) shows that he holds the plait in his left hand, four fingers underneath the plait and his thumb on top. With his right hand he puts a new leaflet on top of the plaiting strand that is most to the right. In the same movement he bends the plaiting strand down, passing it underneath the second and third strands. Holding the top of the plait with his right thumb, he flips the plaiting strand up with his fingers between the third and fourth strands and leaves it lying over the fourth and fifth strands. He pulls the leaflets and tightens the plait with his right hand (05:29) and then repeats the process with his left hand.

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[4] A symbol indicating the working position has been inserted at 03:54.

[5] A symbol indicating work-eye contact has been inserted at 05:13.

He only picks up new leaflets with his right hand, sometimes one, sometimes a bunch, which he puts between the little finger and ring finger of his left hand (e.g. 05:34). The new leaflets are always put in with his right hand on the right side of the plait.

At the end of the plaiting sequence he is still squatting, a position which he has maintained for four hours and still maintains throughout the rolling up of the plait. The only variation is that he shifts his weight for a moment: on his left leg while picking up new leaflets; on his right leg while rolling the plait (06:07). His eyes are focused on his hands while rolling the plait (r1). With his left hand he picks irregular leaflets from the surface, his elbows still resting on his knees (o2).

He maintains the squatting position while soaking the plait. He pushes the plait under water with his right hand, while holding the dry end of the plait with his left hand (06:19).

He lifts a bundle of palm leaf veins, which are soaking in the same pot, and takes it over with his right hand. With his left hand he pulls out a small quantity of veins, while he pushes the bundle back with right. Holding the small bunch with his left hand, he loosens the fibres by making anticlockwise circling movements with his right hand. Eyes focused on the work, he makes four turns, then releases the left end, picking up the bunch more to the middle. He makes another four turns and releases his right hand, grabbing the bunch in the middle. He continues with two turns, releases his right hand again and makes another two turns just over the middle towards the tops of the veins (06:53).

With his right hand he pushes the bunch of veins in the pot under water. He takes over the bunch in his right hand and puts it on the rim of the aluminium soaking pan. With his left hand he picks up a few veins to start making string (07:00).

He then takes half the bunch in his right hand and turns it over, arranging it in a way that the two bunches overlap in the middle, with the thick ends towards the outside. He reaches out to pick up more veins with his right hand, but drops them again. Holding the middle of the bunch in his left hand, he picks up the bottom half with his right hand, folds it double and rolls his right hand over his left hand (07:07). The rolling movement is made by moving his right hand away from his body, over the two bundles of veins on his left hand, starting with the fingertips of the right hand at the wrist of the left hand. When he reaches the point where the fingers of the right hand have passed the left hand, he picks up the first bundle with the palm of his right hand and deposits it back at the wrist of the left hand, behind the second bundle (cf. Figure 15-6, p. 299). He is still squatting with his elbows resting on his knees, eyes directed towards his hands.

He picks up a new bunch of veins with his right hand and brings it up to the string which he holds in his left hand. He reconsiders and moves his body weight to his left foot while his eyes turn to his right foot (07:18). With his left hand, which is still holding the string, he puts off his shoe and he sticks the start of the string between his first and second toes.[6]

His body weight remains on his left foot, while his right foot rests on its heel, because the string is still very short. He continues making the string, picking up new bunches of veins with his right hand. With the lengthening of the string he slowly lowers his right foot, but his weight is still mainly on the left side.

In the next sequence, in which the basket maker starts the sewing of the basket, he squats with the needle in his right hand and a piece of string in his left hand. His weight is in the middle and his elbows are resting on his knees. With his left hand, as well as with his right hand that comes up to assist, he folds the end of the string double (o3).

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[6]A symbol indicating instrumental use of the body has been inserted at 07:22.

With the needle in the right hand, he pushes the string with his left hand through the eye of the needle. He then uses his left hand to pull the string through the eye and to open up the string by twisting it slightly. He twists the short end with his right hand, in which he also still holds the needle, three times around and through the two strands of the string, which he has opened with his left hand. He pulls and stretches the string by holding up the needle in his right hand, gliding with his left hand along the string to the end. He changes the weight of his body from the middle first to his left, then to his right foot en stretches out his right hand, still holding the needle, to the aluminium pot in front of him. He reconsiders, retreats his right hand and takes over the needle with his left hand (t3-4).

He stretches out his right hand and takes hold of the rolled up plait, which is still soaking in the aluminium pot. He lifts the plait and takes hold of the end of the plait, which is outside the pot, with his left hand. He sits for 13 seconds holding the plait above the pot to drip. He then slowly moves his weight to his left foot (o4).

He looks to the left, the place where he plans to put down the plait. While he drops the dry end of the plait from his left hand, he twists his body to the left and puts the plait down with his right hand (t4-5).

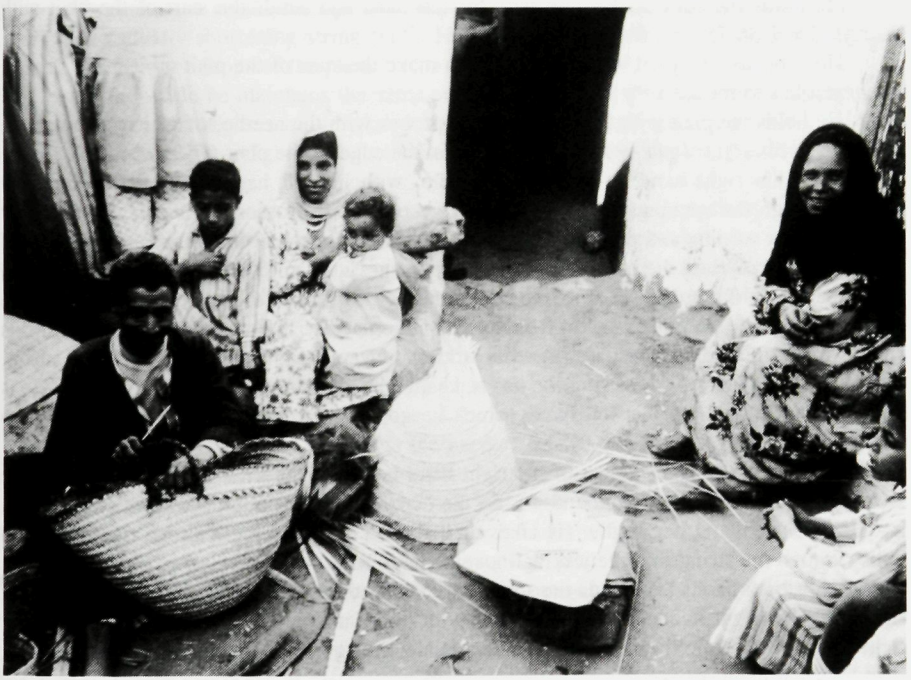

Plate 16-5 Mohammed working in the street in front of his house, surrounded by his family and neighbours (el-Hagg Qandil, 1989).

With his body slightly twisted to the left, leaning with his upper body on his left knee, he lets go of the plait for a moment and then picks it up with his left hand, in which he still holds the needle. With his right hand he replaces the dry end of the plait. He then lifts the rolled up plait with two hands, takes over the plait with his right hand, while his left hand rearranges the dry end. His body weight is on his left foot. He puts the plait down with his right hand and also drops the dry end. He hits the plait with two hands as if ending the movement, or establishing its position (o5).

He focuses on the aluminium pot, turns his body back to the right, picks up the pot with his right hand and puts it a bit further, out of the way. His right hand moves up, as if he is chasing a fly or a thought. He stretches the string and his body, holding the needle in his right hand and the start loop of the string in his left hand. He turns left to where the plait lies, changing his body weight from right to left. He drops the string from his left hand, his eyes all the while on what his hands are doing. He moves with his left hand towards the rolled up plait. He rests his left hand on top of the plait, while the right hand moves in towards the centre of the roll...(t5-6)

... and takes the middle of the plait, pulling it upwards. He then takes over with his left hand pulling the plait up a little more, while he lets go with his right hand, so that the centre of the plait unrolls. He takes over five times (right behind left behind right behind left behind right) and then takes the plait with his left hand drawing it twice through the right hand. All the while his working position is squatted, with his elbows resting on his knees, his weight in the middle and his eyes focused on what his hands are doing (o6).

He holds the start of the plait with his left hand and bends the start of the plait with his right hand (t6-7).

He 'kneads' the plait with two hands, to make the start of the plait a bit more supple, because it has to form a very small circle (o7).

He holds the plait with his left hand and probes with the needle, of which he holds the back end in his right hand, to find the opening in the edge of the plait (t7-8).

With his right hand he moves the needle, with his left hand the plait to guide the needle through the openings in the right side of the plait. He forces the needle through four loops, slightly turning and pushing the needle, holding it between thumb and four fingers of the right hand.[7] When the needle is in place, he pushes it during which action he takes hold of the needle in three different places, each time a bit further to the back. He lets go of the end of the needle and takes hold of the point of the needle. He moves the needle with his right hand four times up and down in a jerking movement and pulls through the string. Because of the length of the string, he has to change his grip on the string three times. He is still holding the plait in his left hand, which he now uses to stop the end of the string to being pulled through the plait (o8).

With a twist of the fingers of his right hand he opens the little loop of the string. He keeps it open with his left hand and pushes the needle through the loop with his right hand, holding the needle in the middle. He takes up the point of the needle with his right hand and pulls through the string in three jerking movements (o9).

With both hands he kneads the start of the plait before pulling the last bit of the string tight with his right hand. He kneads again with both hands and then pulls the string very tight in four small pulling movements, each time letting go and taking hold of the string with his right hand (o10).

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[7] A symbol indicating the use of instruments has been inserted at 09:20.

With his right hand he brings the needle towards the edge of the plait (t10-11). He guides the needle into the plait and picks up two loops. With the ball of his thumb the needle is pushed through and in the same movement the right hand moves forward and takes hold of the part of the needle that has passed through. In three jerks the string is pulled through (r11).

Both hands are used to knead the plait, then the string is pulled even tighter with the right hand and some more bending and kneading is done (o10).

The needle picks up one loop from the edge of the basket centre. The right hand picks up the middle of the needle and with four jerks the string is pulled (r11). Three times he kneads the basket centre using two hands. Each time the pushing and bending is followed by a tightening of the string with his right hand (o10).

With his right hand he pushes the needle through two loops of the plait. The right hand is shifted to the middle of the needle and with three jerks the string is pulled (r 11). He kneads with both hands, his working position still squatting with the weight in the middle (o10).

With the needle in his right hand the basket maker picks up one loop of the basket base. He moves the needle up and down and then pulls the string through the loop in four jerks (r11). He moves his body weight to the left and uses his left knee as support for kneading the basket base (o10).

Bringing his weight back to the middle, he picks up two loops of the plait and pulls the string in four jerks (r11). He kneads the basket with both hands (o10).

He guides the needle through one loop of the basket edge. Two jerks are sufficient to pull the gradually shortening string (r11). He kneads on his left knee (o10) and pushes the needle through two loops of the plait.

All the while he maintains the same position: squatted, with his elbows resting on his knees. Only when he uses his left knee as support for tightening the fabric, he twists his body and moves his weight slightly to the left. His eyes are all the time focused on his work.

In the next sequence (10:58) his working position has changed: he is sitting with his legs stretched in front of him and the base of the basket clamped between his knees. The moment where he changed his position has not been incorporated in the edited version of the video. It occurs when he finishes the start of the basket, the moment when he no longer stitches into two loops of the plait against one loop of the basket. From that moment on he picks up the easy rhythm of sewing, without the labourious kneading of the plait.

After having finished the base, he changes working position again, sitting cross-legged with his left foot holding the base of the basket (12:00). With his left hand he holds the plait, with his right hand he wields the needle. He looks up, talking to his mother, but only when he pulls through the string. Whenever he guides the needle into the edge of the basket or the plait, he looks back to his work.[8] At first, when the wall of the basket is still beginning to form, he presses the basket to the ground with the side of his foot (12:08), while later his foot rests inside the basket, holding it in place (16:32).[9]

When his sewing string runs out, he makes a new length, by hand rolling bunches of palm leaf veins (12:52). He holds the basket with the weight of his left foot, the string stuck between the first and second toes. He is leaning over to the left side, to keep tension on the

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[8] A symbol indicating the work-eye contact has been inserted at 12:02.

[9] A symbol indicating the instrumental use of the body has been inserted at 12:20, and a symbol indicating the working position has been inserted at 12:30.

string. He reaches over with his right hand to pick up a bunch of veins (13:00), which he first pushes on his right knee to even out the strands and then he puts the down to his right, picking up part of the bunch to work into the string. While he makes string, he regularly looks away from his work. String making is apparently done mostly by feel. He finishes tightening the ply of the string by making the rolling movement above his head, with a fully stretched length of string.

He bends over the end of the string, picks up the needle from his right side and threads the needle (13:27). He puts his left foot in the basket and starts sewing again.

When the basket is well underway, he takes a break from sewing by making the string for the rim and handles. With his right leg bent and his left leg stretched out, he soaks date palm fibre and rolls small tufts between his hands (14:25-15:04). This working position he has taken from the moment he started making the string.

He continues making string by picking up the end he is working on with his right hand (15:05). He holds the string with the toes of his right foot, which he places backwards a little and he leans over to the left to keep the tension. The hand rolling movement is opposite to the one used for the sewing string: with his left hand he rolls over his right hand from fingertips to wrist. When adding another tuft, which he picks up with his right hand, he again moves his right foot slightly backwards. Because he cannot lean over more to the left and the working end of the string is getting out of reach, he pulls the string backwards with his right hand and holds it with the toes of his right foot again (15:18) and continues to make string. He is talking to the neighbours who have come on to the roof and he occasionally glances at them, but his eyes are mostly on the string. He moves back the string a second time and adds two more tufts.

Then he takes up the string with two hands and moves it forward, until the part of the three-ply string he had been working on before adding a length of two-ply is within reach. He anchors the finished string with his right foot, his right leg still being bent. The two-ply string, to which another strand has to be added, is anchored between the toes of his flexed left foot, his left leg stretched out (15:47). He continues adding the third strand. He again moves his right foot slightly backwards to arrange the tension.

Maintaining this position, he makes a few new tufts of palm fibre, which he adds straight away to the third strand of the sZ_3 string.[10]

He continues sewing with his foot in the basket. Meanwhile a friend finishes the plait (16:56-17:06). This is a rich man, who has just returned from Saudi Arabia, where he made his fortune, but he did not forget how to make baskets. He has the same working position as Mohammed: squatting with the elbows resting on the knees. The last bit of the plait is finished off by dividing the plaiting strands in two bundles, which he makes into string. This he does standing bent over, with his left foot on the plait.

Mohammed finishes the basic structure of the basket, by sewing the string at the end of the plait to the basket. With his left hand he gives a clockwise twist to open the ply of the string and with right he pushes the needle through the opening (17:54-18:18).

Just before he starts making the rim he inserts a new ready-made sewing string (18:20). He drops the needle, bends over slightly to the right to take up the new length of string. With the needle in his left hand he opens the loop of the string and pushes it over the needle, which he then takes over in his right hand. He then takes off the needle, which he puts in his lap, tightening the end of the short string to tighten it. With his teeth he seems to pull off a loose strand (18:28).

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[10] A symbol indicating the properties of the material has been inserted at 16:02.

Action	Working position	Video
A) PREPARATION OF RAW MATERIALS		
sorting palm leaf	squatted	03:34-03:47
turning palm veins	squatted	06:45-06:53
making tufts of palm fibre	sitting, right leg bent, left leg stretched out	14:37-15:04 16:02-16:08
B) PREPARATION OF SYSTEMS		
plaiting	squatted	03:47-04:55 16:49-17:05
rolling the plait	squatted	05:47-06:15
finishing the plait	standing bent over	17:06-17:22
making string	squatted	06:57-07:58
	sitting, left leg stretched	15:05-16:28
C) START OF INTERACTION OF SYSTEMS		
sewing	squatted	09:48-10:51
D) MAKING THE BASIC STRUCTURE		
sewing	both legs stretched	10:59-11:50
	sitting, foot in basket	16:32-16:54 17:27-17:54
E) FINISHING THE BASIC STRUCTURE		
sewing end of plait	sitting, foot in basket	17:54-18:18
F) ADDING RIM AND HANDLES		
sewing rim	sitting cross legged	20:41-22:12
twisting handle	sitting right leg stretched	19:48-20:32
sewing handle	sitting cross legged	20:41-22:12
stitching decoration	sitting cross legged	22:15-22:40
G) FINISHING TOUCH		
removing irregularities	sitting cross legged	23:48-24:00

Table 16-6 Working position per production phase

He plies the string back into itself, to fasten the newly attached length. He then leans over to pick up the palm fibre string and sits straight, still with his foot in the basket, while cleaning off adhering fibres. He takes the sewing string in his right hand, discovers that there is no needle attached and drops the palm fibre rim string from his left hand, because he has to

take up the sewing string. He picks up the needle with his right hand and wets the string with his mouth (18:45). Previously he wetted the end of the sewing string in the water of the aluminium soaking pan (11:26-11:28). He runs the string through the needle and fastens the string by opening the ply of the string with his left hand and pushing the end through in a circling movement of his right hand (18:50).

He picks up the palm fibre rope again with left and opens the loop at the start of the rope. The needle is pushed through this loop and then he goes on sewing, guiding the needle alternately through the rim of the basket and the string, picking up one of the three strands (19:25).

After finishing the rim, he makes the handles from the same type of palm fibre string. His right leg is stretched out in front of him, while he has pulled up his left leg.[11] The sZ_3 string is fixated on one end between the toes of his right foot.[12] He tightens the ply by hand rolling the palm fibre string, while he looks up from his work. He picks up the rope at approximately one third of the distance between his hands and toe, and starts turning it clockwise back onto itself, in this way doubling the string. He then flips the handle over and repeats the procedure, adding a third layer (20:12-20:23). The result is a handle which consists of an $sZ_3[S]_3$ cable. He fixates the twist by pushing a loop of the string through the bend of the cable. He twists the fibres into place, by pulling the handle in front of his chest.

Sitting cross legged, he throws the handle, with a length of string attached, in the basket. With his right hand, which also holds the needle, he pulls the opposite rim towards himself, to determine where the second handle should be placed. He holds the basket rim with his left hand and pierces the wall of the basket from the inside out.[13] With his left hand he places and fixates the handle loop, picking up the loop of the first leg of the handle. With three stitches (out-in, in-out, out-in) he bridges the width of the handle. With his right hand he bends the top of the handle down to the rim, while he guides the bend of the rope with his left hand. He puts the looped end of the handle against the outside of the basket, just under the rim (21:18).

He holds the handle in place with his left hand and stitches with the needle in the right hand from inside out. He puts the loop of the rope handle with his left hand around the needle. He positions the handle with two hands, then makes two stitches (out-in, in-out), sets the handle and stitches again from the outside to the inside. He turns the sewing string twice around the second leg of the handle and stitches from the inside to the outside. Although he keeps his eyes on the work, he stitches twice in the wrong place and has to pull back the needle. He gives a last tug and positions the handle once more.

With his left hand he rolls the basket on its side. He then pushes the needle through the fabric with his right hand, to anchor the handle string. He first holds the needle in the middle, then pushes it through with the ball of his thumb.[14]
He cuts off the end of the string with a knife, while holding the string with his left hand. He drops the knife, takes hold of the rim with his left hand and runs the needle along the other diagonal for decorative purposes (22:49). For the last 10 cm the string is just too short. By loosening it slightly from the needle, he can just finish the diagonal with this piece of string. Holding the knife in his right hand, he cuts off the string.

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[11] A symbol indicating the working position has been inserted at 19:48.
[12] A symbol indicating the instrumental use of the body has been inserted at 20:12.
[13] A symbol indicating the use of instruments has been inserted at 21:04.
[14] A symbol indicating the use of instruments has been inserted at 22:41.

Finally, he removes irregularities from the outside of the basket, wielding the knife. He is still sitting cross-legged and still concentrated and looking at the work under his hands

16.1.5 Work Space

The basket maker needs approximately four square metres of work space. There are no special demands, no fixed constructions, so he can sit anywhere and in fact does so. Sometimes he works, inside the house, sometimes in the street in front of his house (Plate 16-5). This time he works on the roof, sitting on top of the dome of the room below (Figure 16-7).

He prepares the space by arranging the things he needs around him, within easy reach. He forgot to take the aluminium pan to soak the plait and calls out to his wife to bring it (06:02). The video is made in winter, when the temperature outside in the sun is pleasant. In summer he prefers to work in the shadow. This is not only because of the heat, but also because the palm leaf should not dry out.

The working circumstances are flexible. Although the work is monotonous and the working position is usually squatted, the basket maker can choose his surroundings. He often sits with other people, talking while he works.

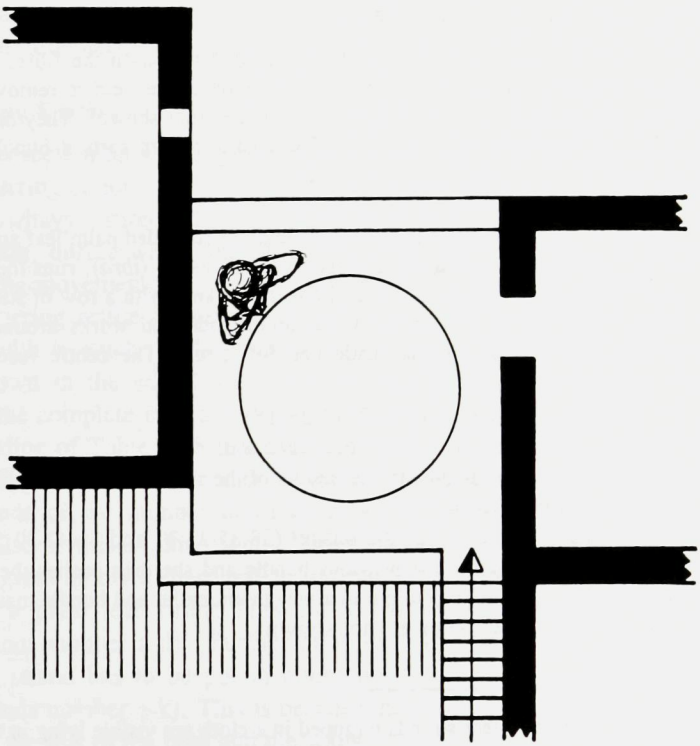
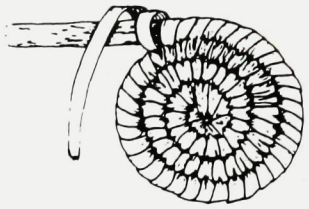


Figure 16-7 Sketch plan of the work space that Mohammed uses. He works on the roof of his house. The circle indicates the domed roof he sits on (Drawing by H. Barnard).

16.2 THE SABAT



coiled basketry
made by Rauwhayya in el-Amariyya
video sequence 24:41-32:58

16.2.1 Working Order

The working order recorded in el-Amariyya, mostly follows the sequence as shown in the table of section 15.5 (p. 303):

a) preparing the material (24:41-25:07).

The fruit stems (*zaghauwa*) have been pounded to loosen the fibres. The date palm leaflets have been plucked from the palm branch, the vein is removed and the leaf strips have been soaked in water for 30 minutes (not shown). They are kept moist by rolling them in a piece of cloth.[15] The basket maker sorts a bundle of date palm leaflets and shreds them, using her teeth.

c) starting the basic structure (25:07-28:28).[16]

The basket maker makes a knot in the bundle of shredded palm leaf and folds the ends of the knot to one side. She then takes a small needle (*ibra*), runs the point of a date palm leaf strand through the eye and covers the knot with a row of stitches. She starts where the ends of the knot stick out to the side and works around in e-direction (anticlockwise) until she has made one full circle. The centre resembles a snail's shell.

preparation of raw material 27:59-28:18)

She then shreds some of the *zaghauwa*.

She pushes the small bundle in the middle of the shredded ends which are sticking out of the start of the basket.

d) making the basic structure of the basket (28:35-31:37 and 31:42-32:53)

With an awl she pierces the previous bundle and she then pushes the needle through the hole. She regularly has to put in a new palm leaflet and bundle material.[17]

preparation of raw material (not shown)

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[15] A bunch of palm leaf strands wrapped in a cloth are visible lying in the basket to the left of the basket maker in video sequence 27:54-27:58

[16] In the sequence the phases *b* and *g* do not occur: there is no separate preparation of the systems and no finishing touch.

[17] The frozen image of coiling is shown in video sequence 29:30.

Every time she inserts some of the *zaghauwa*, she first makes the fibre into finer shreds.

e) finishing the basic structure (not shown)

She finishes the basket by letting gradually letting run the bundle thinner and stitching the last length of the bundle with the wrapping strand.

f) adding features (not shown)

This basket does not have handles. She makes a rim decoration by stitching the top of the rim with the peel of the seed pod of the date palm.

16.2.2 Production Time

Making a coiled basket takes three full time days, but the women use at least a week to finish a basket because the work is not done full time. Basket making is an activity the women do whenever their work in the house and the fields allows them some time. The tasks of the women in Middle Egypt differ. The poorer women go out and help in the mornings in the field. When the farmers are a bit better off, they prefer their wives to stay at home. Apart from cleaning, laundry and cooking, the women bake their own bread and make cheese.

Basket making is not limited to a particular period of the year. As long as there is dried palm leaf in store, a woman can start working after a preparatory period of 30 minutes (the time needed for the leaflets to soak).

16.2.3 Working Rhythm

In the previous section on working rhythm it became clear that the rhythm not only occurs in recurring actions, but also in occurring actions. At the beginning of the sequence Rauwhayya shreds the palm leaf strands with her teeth. This is an occurring action, during which she twice takes leaf shreds away from her mouth with two pulling movements of her left hand (24:45-24:52 and 24:59-25:05).

The recurring action of wrapping a palm leaf strand around the bundle and fastening it with a stitch is the main action for making coiled basketry. The sequences shown in the edited video do not have a clear working rhythm and neither does the complete footage.

The heading of Table 16-8 lists the number of wrapping strands (a to k) and the number of stitches done with each of these (1 to 8). In the table for each stitch a count is made of the number of times in which the strand is pulled through. Indicated is also if this is done with a brief break in between and whether the basket maker gives an extra sharp pull at the end, to tighten the fabric.

At first a palm leaf strand lasts for seven or eight stitches (Table 16-8, wrapping strands number a-d). Further on in the base, and also in the wall of the basket a new strand has to be put in after only four or five stitches(Table 16-8 wrapping strands number e-k). This is because the bundle is much thinner near the centre than in the rest of the base and the walls.

The first stitch (column 1) is done with the strand after it has just been inserted and has its full length. It gradually shortens with each stitch. The

shortening goes relatively slow in the topmost rows (a-d), because the diameter of the bundle is smaller.

The length of the wrapping strand is not clearly reflected in the number of times the strand is pulled. The semicolons indicate instances of irregular, disrupted pulling of the strand. The strand is not tightened after each stitch, and several times the tightening is done twice or even three times.

The insertion of strand c-f shows regular breaks (in Table 16-8 indicated by a semicolon) to rearrange the bundle and knead the centre. This is explicable, because with these strands the stiff bundle material has to be forced into a small circle. The previous strands were holding the more flexible palm leaf bundle (the ends of the knot, folded double). These could be considered factors that explain why the working pace is irregular. Looking at the long sequences in fast forward, however, does not show any development of a steady rhythm, neither does a pattern emerge in the count of the number of times the strand is pulled tight.[18]

	Wrapping strands (a-k) and number of stitches done with each (1-8)							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
a	3 (1)	2 (1)	2	3 (1)	3	1 (2)	1 (1)	1 (1)
b	3 (1)	4	3 (1)	2 (2)	2	2 (1)	2 (1)	1 (1)
c	2	3; 1 (1)	1; 2	1; 2	2 (1)	1; 1	1	
d	1; 2	3	1; 2 (2)	2 (1)	2	1; 1 (1)	2 (2)	
e	3 (1)	2; 1 (1)	1; 2 (3)	1 (2)	2 (2)			
f	2 (2)	1; 1; 1	2; 1	3 (1)	4			
g	3	3	3 (1)	3	3			
h	3 (1)	4 (1)	2	3	2			
i	4 (1)	4	4 (1)	3	2			
j	2; 1 (1)	1; 2 (1)	4	3				
k	2	3	2	3				

Table 16-8 Number of times in which the sewing strand is pulled through the bundle. Each row (a-k) represents one strand, with which between four and eight stitches are made. A semi-colon (;) indicates an intermezzo of kneading the centre or positioning the bundle; Numbers in brackets indicate a tightening of the strand by pulling it strongly. Above the bold line: base of basket; under the bold line: wall of basket.

[18]The pulling of the strand is counted from the first time she releases the needle and actually takes hold of the strand itself.

It is not until working on the sides of the basket, that the basket maker finally develops some kind of rhythm. The interruptions to knead or pull, have been reduced, occurring only twice (j1 and j2). Only strand *g* shows a truly consistent pattern of three times pulling the strand, only tightening the strand once in the third stitch (g3). There is no explanation for the consistent occurrence of three pulls in the fourth stitch (g4 to k4), other than that it seems to be the length that is easiest pulled through in three hauls.

The lack of working rhythm seems to be related to a lack of concentration. Rauwhayya looks up regularly and the work stops. In the course of this chapter I will also argue that working rhythm is related to skill and professionality.

16.2.4 The Body as Instrument

The basket maker uses her hands and mouth for shredding palm leaf and fruit stem fibre. She does not really use her feet or her body weight:

Rauwhayya sits cross-legged and is shredding date palm leaf.[19] With two hands she brings a bunch to her mouth, pulling one half of the bunch down with her left hand and taking the rest out of her mouth with her right hand.[20] This she does twice. She puts the first shredded bundle down in her lap with her right hand (24:54) and picks up the second bunch, levelling out the ends of the bundle by tapping them against her left hand (24:57). Then she brings them to her mouth and shreds them in two movements. She picks up the shreds in her lap with right, takes all the strands in her left hand and arranges them with her right hand: foot by foot, top by top (25:07-25:11).

While looking up, she starts twisting the bundle clockwise (25:11-25:32).[21] She makes an overhand knot by putting the foot end of the strands over the top part.[22] She takes over the loop in her right hand and takes the top end of the looped palm leaf strands in her left hand. Then she pushes the top half with the thumb of her right hand through the loop and pulls the twisted strand from the underside with her left hand (25:22-25:32).

She then tightens the knot by pulling the two ends once. Then she takes hold of the knot and the right side of the bundle and pulls twice. She changes her grip on the knot and pulls the knot and the left side of the bundle once (25:32-25:45). Then she changes back and pulls twice while holding the right side of the bundle and the knot. She looks up while pulling and looks down while placing her hands.[23]

She then takes hold of the top half of the knotted strands with her left hand, folding the bottom ends towards the top and taking the entire knot, which now has been folded double, in her left hand. She kneads it twice to make the two bundles stay on once side (25:46-25:49).

She puts the knotted piece in her lap and looks for the needle, her eyes focused on her hands scanning the basket to her left and the other unfinished centre piece of a coiled basket

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[19] A symbol indicating the working position has been inserted at 28:40.

[20] A symbol indicating the instrumental use of the body has been inserted at 25:00

[21] The result is Z-oriented twisting

[22] The loop thus created is a Z-crossing, which is visible at 25:26.

[23] A symbol indicating the eye contact with the work has been inserted at 25:43.

which is lying in her lap. The needle is still attached to this and she pulls it off with her right hand.[24]

She puts the pointed tip of a palm leaf strand through the eye of a small needle (*ibra*), holding the needle in her left hand and the strand in her right hand. She takes over the strand in her right hand and picks up the folded knot with left. She is ready to start the first round of the spiral (25:58-26:02).

She does this by laying the foot end of the palm leaf strand under the folded bundles that protrude from both sides of the knot. Holding the knot with her left hand, she fixates the strand with her left thumb. She slides her right hand along the strand until she catches the needle. Then she pushes the needle through the knot, from the side she is facing to the back of the work.[25] At the same time she chases a fly by shaking her head and making an involuntary movement with her right hand. She picks up the needle at the back and pulls the strand through the knot in three jerks (26:09-26:21). After the strand has been pulled through completely, she gives it one extra tug, to tighten it.[26]

She then takes hold of the strand at the base and spreads it out by pushing her thumb in the creased area which protrudes from the hole in the knot (26:24). She again slides her right hand along the length of the strand, to straighten it out. She puts quite some force behind this pulling movement. The wet palm leaf can stand a great deal of tension, while it would break off when this was done to it while dry.[27] Then she makes the next stitch. She kneads the basket to form the centre, pulling the bundle into place (26:46). She looks to her work while she pushes in the needle and looks up while she is pulling the wrapping strand.

Most of the time she places the wrapping strand with her right hand and holds it in place with the index finger of her left hand (e.g. 27:00). Sometimes she uses her left thumb (30:55). At the same time she holds the bundle in place with her left hand (27:36), wielding the needle with her right hand. She twists the bundle slightly in Z-direction (visible at 27:39).

She leans over to the left, to pick up *zaghauwa* fibres with her left hand. She holds them with right and then breaks them at approximately one third of the length. She drops the short end from her left hand. She looks away while she holds the long ends with her right hand. With both hands she brings the fibres to her mouth, the right hand being close to her lips, and while pulling with her right hand, she bites in the fibre, making a small split with her teeth. She then splits the fibre over the full length with her hands. She again looks away (28:03-28:06). The basket maker seems distracted by what is happening around her: the dog barks, the family discusses lunch with her, children are shouting, or come to ask for attention or to be breastfed, the cow loudly chews sugar cane.

She breaks and splits another part, lying in her lap. She holds the split fruit stem fibres in her left hand while she manoeuvres the basket centre with her right hand. With left she pushes the bundle material deep into the middle of the palm leaf bundle (28:23-28:28) .

Then she takes hold of the basket centre with her left hand, freeing her right hand to take up the wrapping strand. She pushes a new leaflet around the bundle with her left

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[24]The extra centre piece is the result of my interference. Before starting the video shooting, I asked her if she could start the next day with a new basket. Early in the morning, when I arrived, it appeared she had already started, so I asked her if she could do it again, explaining that the start of the basket was perhaps the most important.

[25]A symbol indicating the use of instruments has been inserted at 26:58.

[26]First wrapping of strand "a" (a1) in Table 16-8.

[27]A symbol indicating the properties of raw material has been inserted at 27:27.

thumb, pulling the bundle around the basket centre with her left hand, while fixating the wrapping strand in place with her right index finger (29:20). She takes over with her left index finger (29:22), freeing her right hand to pick up a large metal needle with which she uses as an awl to pierce the previous bundle.[28] The difference with the previous stitches is that the bundle consists now of much harder material. In the sequences following, she sometimes uses the awl, sometimes not.

She pushes the awl through the bundle with her right hand (29:25). Dropping the awl in her lap, she picks up the needle, pushes it through the hole with her right hand, lets go of the needle and takes hold of it again at the back, pulling it through with her right hand.

The next sequence is marked in the left lower corner with the indications r12, o10 and o13. The recurring action of holding the basket and strand in place with her left hand, while piercing the previous bundle with the awl and putting through the needle with right, taking up the strand at the back with right, pulling up the strand forcefully and arranging it with her right hand, fixating it with her left hand, while piercing the previous bundle with the awl..., is indicated as r12.



Plate 16-9 Rauwhayya making a large flat bread basket with a diameter of three *shibr* (el-Amariyya, 1992).

[28] A symbol indicating the use of instruments has been inserted at 29:37

The r12 action is shown twice (29:40-30:04, 30:06-30:24), but before the strand is pulled through completely for the second time, she takes the centre in her right hand and kneads it with both hands, pulling the bundle strongly back with her left hand (30:04-30:05). This is indicated as o10.[29] The same code was used in the analysis of the previous basket production sequence to indicate the kneading which was done at the start of the sewn plaits basket. The movements are similar and the purpose of the action is the same. At the centre of round baskets, the passive element, which is usually more rigid than the active element, is pulled in a small circle and has to settle.

She continues by making the next stitch (r12, 30:20-30:24), without further interruption, but she kneads the centre as soon as she has pulled through the strand completely (o10, 30:24-30:27).

She has come to the end of the leaf strand and o13 indicates the occurring action of inserting a new strand. She takes of the needle (30:27-30:29). Then she interrupts this action and proceeds with some more folding and kneading (o10, 30:29-30:32). She reaches out with her left arm to pick up a new leaflet from the cloth in the basket. All the time she is still sitting cross-legged. She then looks for the needle in her lap, pulling apart the folds of her dress with both hands. She finds the needle, picks it up with her left hand and puts the point of the leaflet through the eye with her right hand. She picks up the basket centre with her left hand, the leaflet in her right hand, putting the broad end underneath the bundle, fixating it with her left thumb (o13, 30:33-30:55).

She then continues the recurring action of piercing with the awl, stitching with the needle and pulling with her right hand (r12, 30:57-31:05). She kneads before pulling through the string completely (o10, 31:05-31:08), and continues pulling and stitching (r12, 31:08-31:37).

The recurring action r12 shows many irregularities. Sometimes she holds the basket base flat on her lap, while piercing it with the awl, sometimes she pierces the bundle on her left knee, other times she rests the basket base on her right knee, or holds it in the air without any support. There is unity nor regularity in the movements of the recurring actions. The occurring actions are by nature not as regular as recurring actions, and consistent with the lack of working rhythm, show considerable irregularity in the work of this basket maker.

To compare the physical differences between working on the centre of the basket, and the basket wall, the basket maker was asked to continue working on the large, almost finished, basket.

When she starts working on the basket, her working position has changed. Her right leg is bent, her left leg stretched out in front of her, the body weight slightly to the right.[30] This change did occur earlier, however, when she was still working on the centre of the basket (not shown in the edited version of the video).

She lifts the basket briefly with her right hand, to pick up the awl, which is still lying in her lap. She throws the awl inside the basket, on top of the cloth with the new lengths of moist palm leaf (31:42).

With her right hand she lays a new strand in, holding the basket with her left hand. Briefly she uses two hands to lay the end of the previous wrapping strand parallel to the bundle (31:52). She places the leaflet with her right hand, takes over with the index finger

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[29]The transistion between o10 and r12 marks the end of the kneading and a movement from her hand to the palm leaf strand to continue the stitch (30:05-30:06).

[30]A symbol indicating the working position has been inserted at 31:47

of her left hand and looks away while picking up the awl with her right hand. She looks back when she makes the hole. She pushes in the needle, takes hold of the strand at the back of the work and pulls it through.[31]

Three stitches are shown in close up. During the third stitch it is clearly visible that she pushes the needle through the bundle missing the hole she made with the awl (32:39). The image freezes in the fourth movement (32:54).

16.2.5 Work Space

Rauwhayya works in the street in front of her house. It is a quiet back street, which leads to one of the main public streets of Amariyya on two sides. The street effectively functions as a court yard (Figure 16-9). In the same area their water buffalo and cow are kept. Behind the doors, in front of which they are standing, is a roofless enclosure in which goats, sheep and a donkey are housed. To the right is a small roofed area used as kitchen. During my visits Rauwhayya sits usually somewhere in this court yard, often with her back against the wall. Only on wintery days like today, she likes to sit in the sun. Her materials are arranged around her. Making a coiled basket does not require any installations. A bit of space to lay out materials and tools is enough.

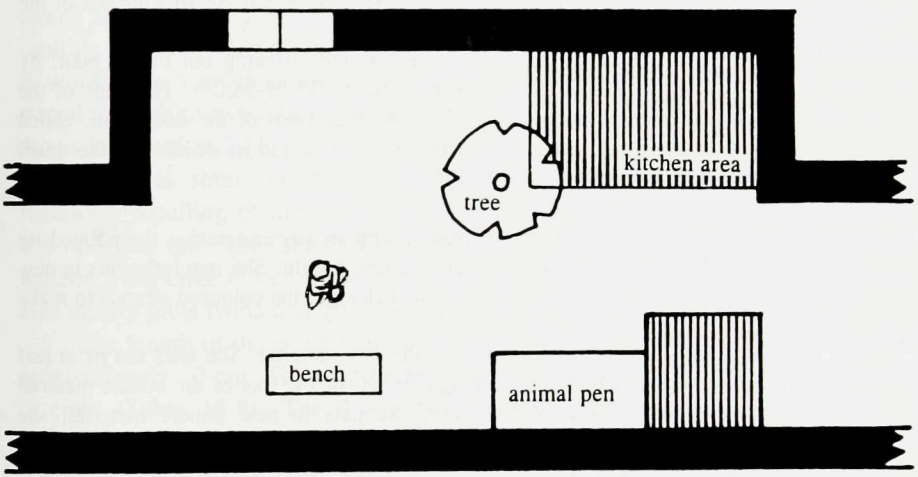
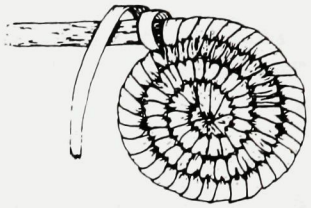


Figure 16-10 Sketch plan of the working area where Rauwhayya makes coiled baskets. The striped areas are roofed. Drawing by H. Barnard.

[31]This is indicated in Table 16-8 as sequence *g1*.

16.3 THE SHAUWER



coiled basketry
made by Khadidja in New Ibrim
video sequence 33:34-41:33

16.3.1 Working Order

The work of the Nubian coiled basket makers follows mostly the order as indicated in Section 15-5.

a) preparing the material (33:39-34:10).

The preparation of the palm leaf (cutting and dying) has not been shown. At the beginning of the film Khadidja is sorting the palm leaf (33:39-34:05), which is soaking in a plastic tub (34:09-34:10).

c) starting the centre (34:10-36:12).[32]

The centre of a basket is a double square plait. Half of one of the plaiting strands is then used as the active wrapping strand, the other ends which are sticking out of the plait are incorporated in the bundle material.

She splits one of the doam palm leaf strands sticking out of the plait, by cutting the leaf with the nail of her thumb (35:59-36:01). The ends of the bundle material (shredded fibres of the fruit stem of the date palm, called *imbi* in Fadidja Nubian) are wetted in a plastic tub in which also the doam palm leaf is soaking (35:47-36:12).

d) making the basket (36:13-41:12)

The basket maker pierces the previous bundle with an awl and pushes the pointed tip of the palm leaf strand through the opening, pulling it tight. She regularly puts in new palm leaf strands and bundle material. She also changes the coloured strands to make a pattern.

At several instances she works on the raw material. She wets the palm leaf strand with which she is working (37:21), or the foot of the bundle material (38:37-38:41). Most of the times she puts in new bundle material, she divides the fibres into smaller strands (e.g. 40:36-40:54).

e) ending the basket (not shown)

The basket is ended by diminishing the bundle in size and fastening the tip of the bundle with the last stitch.

f) adding rim decoration (33:34-33:39) and foot / handle (not shown)

A decorative, strengthening rim is added, by sewing a leather, or mock-leather strip spirally around the last coil. The end of this is seen at the beginning of the sequence.

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[32] What not occurs in this production sequence is the preparation of the systems (phase b), or the finishing touch (phase g).

On the convex side of the basket, around the centre, a coiled circle is sewn. It has a diameter of 20 cm and is two rows high. It functions either as foot of the basket , as support (when the basket is carried on the head) or as handle (when the basket is used as food cover).

16.3.2 Production Time

Making a coiled food cover takes approximately 80 hours. The women of Nubia produce the basketry in their spare time only, after having taken care of cleaning the house and preparing the food. Still, a considerable part of the day is dedicated to basket making, so that the hours necessary to make the basket are divided over approximately two weeks.

The women usually work in the afternoons only, gathering in the court yard of one of the houses. There is no specific time of year for basket making. Only in the month of Ramadan no baskets are made, because the women are too busy with preparing extra food and cleaning the house meticulously, especially just before the *'Eid al-fitr*, the grand feast at the end of Ramadan. The eighty hours have been summarized in the video into a sequence of not more than eight minutes.

16.3.3 Working Rhythm

In Table 16-11 a micro analysis is made of the way that Khadidja performs the recurring action of making a stitch, by counting the number of times she pulls the strand after making a stitch.[33] This is the same approach as used in section 16.2.3 (coiling in Middle Egypt). Comparing Tables 16-8 and 16-11 shows that Khadidja is working in a much more steady rhythm than Rauwhayya. Mostly she pulls the strand through in two times, giving it an extra tug to fasten the stitch. In the table, this is indicated as 2 (1).

There is some variation in the moment this small tug occurs. Mostly it follows the pulling of the strand immediately. Sometimes it is done after the awl has been put into the fabric. The number of times she pulls the strand gradually lessens from three to one. A second basket maker, working in the same courtyard, also mostly pulls twice and gives one tug (not shown in the edited video).

The length of the doam palm leaf strand exceeds that of the date palm leaf by approximately 10 cm. The maximum number of stitches with one date palm strand is eight (Table 16-8). The doam palm leaf strand makes easily more than 13 stitches, not only because the wrapping strand is longer, but the diameter of the bundle is also less than in Middle Egypt.

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[33]The following section is based on the complete footage, since the edited version shows only brief sequences of the recurring action of putting in the awl, pushing through the palm leaf strand and pulling the strand through the hole in the previous bundle.

Table 16-11 Wrapping strands (a-k) and number of stitches done with each (1-13)

strand	1	2	3	4	5	6	7	8	9	10	11	12	13	
a (purple)	2 (1)	3 (1)	2 (1)	2 (1)	2 (1)	2 (1)	2	2 (1)	2 (1)	→ b1				
b (purple)	3 (1)	2 (1)	2 (1)	2 (1)	3 (1)	3 (1)	1 (1)	1 (1)	→ c1					
c (purple)	3 (1)	3 (1)	3 (1)	3 (1)	2 (1)	3 (1)	3 (1)	2 (1)	2 (1)	//	→d1			
d (purple)	2 (1)	2 (1)	2 (1)	2	2	3 (1)	2 (1)	2 (1)	2 (1)	1 (1)	1 (1)	1 (1)	2 (1)	// → e1
e (red)	2 (1)	2 (1)	2 (1)	→ f1										
f (white)	3 (1)	2 (1)	2 (1)	2	→ e4									
e (red)				2 (1)	2 (1)	2 (1)	→ f5							
f (white)					wind	2 (1)	2	2 (1)	1 (1)	2	1	end	→ e7	
e (red)							2 (1)	2 (1)	2 (1)	→ g1				
g (white)	3 (1)	2 (1)	2 (1)	//	2 (1)	2 (1)	1 (1)	1 (1)	→ e10					
e (red)										1 (1)	2 (1)	end	→ g9	
g (white)									2 (1)	1 (1)	1 (1)	1 (1)	2 (1)	→h1
h (red)	3 (1)	2 (1)	2 (1)	2 (1)	→g 13									
g (white)													3 (1)	→ h5
h (red)					2 (1)	2 (1)	2	wind	end	→ i 1				

Table 16-11 continued:

	1	2	3	4	5	6	7	8	9	10	11	12	13	
i (white)	3 (1)	2 (2)	2 (1)	3 (1)	1 (1)	→k 1								
k (red)	3 (1)	2 (1)	2 (1)	2 (1)	2 (1)	→ i 6								
i (white)						wind	1 (1)	1 (1)	1 (1)	1 (1)	1 (1)	→ k 6		
k (red)						wind	2 (1)	1 (1)	1 (1)	//				

Table 16-11

Each row (a-k) represents one coloured wrapping strand (a,b, c and d are purple; e, h and k are red; f, g and i are white).

Each column (1-13) represents the number of stitches done with a particular wrapping strand. The strands are not used continuously because the basket maker makes a coloured pattern. This requires frequent changes of coloured strands. Active strands are temporarily made part of the bundle, while the basket maker works with another colour.

The arrows indicate which strand is used next and also what the next stitch number of that particular strand is (e.g. → k6 means that after the 11th stitch with (white) strand *i* the colour is changed and that (red) strand *k* is used next. Already five stitches have been made with strand *k*, so the next stitch will be the sixth stitch of this strand *(k6)*.

In the boxes a count is given how many times the strand is pulled through after each stitch. Between brackets is indicated if a strand is given an extra pull to tighten the stitch. Thus field k2 reads "2 (1)", meaning that strand k is pulled through in two times and is tightened with an extra pull. The principle is the same as Table 16-8, but the colour changes make it slightly more complicated.

Two parallel strokes indicate a break in the video registration.

"wind" means that a strand is just wound around the bundle, without a stitch. The sixth 'stitch' of strand *k*, for instance, has just been wound.

"end" means that a strand has ended.

Strand a (Table 6-11), is replaced by strand b, not because the end is reached, but because the tip of the leaf is split. Since the basket maker does not use a needle, she needs to have a pointed, unsplit leaf tip. Khadidja uses a second strand protruding from the plaited centre (strand b). For the same reason, strand b is abandoned before the complete length has been used (stitches b 1-8). The nine stitches of strand c and the 13 stitches of strand d do not represent the full length of the leaf either, since both sequences are not completely present in the full footage.

Even while regularly changing the coloured strands (e-k), she keeps the same rhythm, in which the two pulls and one tug are represented most often. Mostly three pulls occur only when she does not take a good hold on the strand. Towards the end she often pulls only once, for instance the fifth to eleventh stitch of strand i and the eight and ninth stitch of strand k.

Several times when changing colour, she winds the wrapping strand one time around the bundle without fastening it with a stitch. The end of strand *h* is similarly wound around the bundle three times. The ends of the strands are incorporated in the bundle and fastened with the next stitch of the new wrapping strand.

Another indication of working rhythm is the little knock of the awl against the finished part of the basket. This does not occur while the centre is very small, but after three rounds it suddenly starts. It is caused by the movement with which she swings the awl back in her hand, after holding it between pink and ring finger (cf. Section 16.3.4) when she prepares to pierce the previous bundle (e.g. 40:25, 40:32, 41:10). This little knock can be compared with the one in the first video sequence, where the basket maker slapped his needle on the body of the basket before making the next stitch.

16.3.4 The Body as Instrument

The first action shown in the video is the sorting of doam palm leaf strips, which have been died purple. Khadidja picks up leaf strips with her right hand, arranging them in her left hand with which she holds the bunch. She is sitting on her knees, with her legs folded underneath her (cf. 35:53).

She then proceeds to make the centre of the basket, holding two purple doam leaf strands of 15 mm wide (a and b) cross wise on top of each other. She makes two loops with strand a around strand b. She holds the strands with her left hand and with her right hand she moves about to arrange them in the proper position (34:11-34:28).

She makes a plait out of the two loops by crossing the two ends of the perpendicular strand b over and under the loops of strand a (34:28-34:50). With two hands she tightens the square plait (34:50-35:04).

She turns the plait over and she repeats the entire sequence, but this time she makes the loops with strand b and fixates them with strand a. Again, she holds the plait with her left hand, while arranging the loops with her right hand (34:05-35:37).

Then she bends forward, stretches out her right hand, picks up a bunch of fibres of the date palm fruit stem and dunks them briefly into the water tub (35:50). She takes over the bundle with her left hand and taps the ends of the bundle against her right hand to level

them (35:52). She moves the bundle from her left to her right hand and back. Then she picks up the square plait with her right hand. Holding the bundle between the little finger and ring finger of her left hand, she takes hold of one of the strands protruding from the plait, splicing it with both thumb nails. She slides her right hand upwards to split the leaf, thus creating a strand with the proper width for a wrapping strand (35:56-36:00).

With her right hand she holds the plait and sewing strip, with her left hand she puts half the purple strand parallel to the bundle, and positions the bundle along the edge of the square plaited centre (36:07).

Holding the bundle and the centre plait with her left hand, she picks up the awl with her right hand and sticks it into the plait. She then runs her right hand along the length of the wrapping strand. Holding the tip of the strand, she makes an anticlockwise stirring movement with the awl, to enlarge the hole. She pulls out the awl with her right hand and holds it with her little finger and ring finger, while she pushes the leaf tip through the hole with her thumb and index finger. She lifts the centre while doing this, probably to see better. She now holds the centre between her left thumb and index finger, while the bundle is fixated between the little finger and ring finger of the same hand. She takes hold of the wrapping strand at the other side of the hole and pulls it through in two tugs. She tightens it with one little pull. Although the strand is narrow (approximately 2 mm wide) it can stand the tension of pulling, because it is wet.[34] She then moves the strand over the bundle back to the front, also with her right hand, and puts it in place. She holds its position with the index finger of her left hand (36:12-36:28). This action is repeated many times.[35]

The awl she uses is a metal-pointed tip with a wooden handle. As an alternative for a proper awl, any pointed object can be used. The woman who is finishing the rim decoration uses, for instance, a metal part of a sewing machine (33:52). The long, sharp thorns with which the lower parts of the date palm leaf are flanked (cf. Plate 14-4, p. 280), are sometimes also used as a basketry tool. In interviews, older women mentioned that in Old Nubia no other tools were employed apart from these thorns.[36]

Khadidja takes the plait in her right hand and pushes the bundle forcefully in an angle of 90° around the square centre, all the while holding the awl between her ring finger and little finger (37:04-37:06).

She takes over the centre in her left hand, picks up the wrapping strand with right, positions it around the bundle, holding it with her left index finger. Swinging the awl in her right hand from between her little finger and ring finger, she takes it between her right thumb and index finger and makes stitch a5 (37:09-37:21).

She pushes the awl into the plait to start stitch *a 6*, then she bends forward to wet the fingers of her right hand and she runs them along the wrapping leaflet, to keep it moist and flexible (37:21-37:23). She makes stitch *a 6* (37:26-37:31) and stitch *a 7* (37:34-37:45). She then takes over the plaited centre in her right hand, while she bends the bundle with her left hand in a 90° angle, forming the third side of the square (37:45-37:56). She makes stitch *a 8* and puts in the awl to start stitch *a 9* (37:56-38:07).

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[34] A symbol indicating the properties of the raw material has been inserted at 36:49

[35] In Table 16-11 this sequence corresponds with wrapping strand stitch *a 1*. Stitches *a 2*, *a 3* and *a 4* are included immediately after at 36:28-37:04.

[36] A symbol indicating the use of instruments has been inserted at 37:33.

She is now sitting cross-legged, a working position which she took after finishing the centre plait.[37] In this position she makes three more stitches (38:10-38:34).[38] She puts in the awl, to start the next stitch, but then proceeds bending the bundle along the fourth side of the plait (38:34-38:42). She stops for a moment and bends her upper body forward to wet the bundle in the tub (38:38). The concentration is visible on her face. Her eyes are constantly focused on her work and she talks very little (38:42-38:46).

The edited version of the video picks up the process after a few stitches have been made with a red strand (*e 1-3*) and a white strand is about to be inserted (*f 1*).

Khadidja puts the foot of a white strand under the bundle with her right hand, fixates it with her left thumb. With her left index finger she pushes the red strand aside, parallel to the bundle, and fixates the white leaf in place. She moves the awl, pushes the white leaf tip through the hole and pulls it tight (38:46-39:03). Her working position has changed. She has pulled up her right knee as a support for the basket.

She makes three more white stitches (*f 2-4*; 39:03-39:34), then she pulls the white strip towards her and holds it with her left index finger. With her right hand she takes up the red strand (*e*) which was part of the bundle. With her left hand she pushes the white strip parallel to the bundle and with right she places the red strand on top of the bundle, holding the strands between her thumb and index finger (39:35-39:44). She takes over with left and pushes the awl into the previous bundle with her right hand (39:45-40:14).

The next sequence displays the recurring and occurring actions in the left bottom corner. She makes a stitch (action r 12) with a white strand. Leaving the awl in the fabric, she takes the basket in her right hand (40:19-40:35). Then she leans to the left, reaching out for fibre filaments with her left arm (40:35-40:36). She has lowered her right knee, and has stretched her right leg in front of her (cf. 40:55). This is the transition between the recurring action of wrapping / stitching and the occurring action of splitting the fibre (action o 14).

She puts the basket in her lap and takes the fibre bundle in her right hand. She breaks off the bent part with her left hand. Then she splits the foot of a fibre filament with the nail of her left thumb (40:42) and pulls the fibre apart with two hands (40:43). The second filament is also split with the thumb nail, but now she uses the foot end of a yet unsplit filament to divide the fibre over the entire length (40:49). The third time she uses the awl to split the entire length of the filament (40:52).

The next occurring action (o15) is wetting the fibre. She gathers the fibres in her right hand, then takes the bundle in her left hand and bends forward to wet the foot of the bundle (40:54-40:57).

Then the action of inserting bundle material (o16) occurs. She taps the fibres on her right hand, to even out the foot of the bundle. She then picks up the basket from her lap with her right hand and pushes the bundle material in the middle of the basket's bundle with her left hand (40:57-41:04). The transition to the recurring action of wrapping and stitching (t 16-12) is that she raises her right knee and positions the basket on top (41:04-41:07). The last sequence shown is the start of another stitch (41:08-41:12).

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[37] A symbol indicating the working position has been inserted at 38:11

[38] The next stitches have not been related to the sequence in Table 16-11, because they were taken from different parts in the process, to show different angles and aspects of the process.

16.3.5 Work Space

The women gather in the afternoon in one of the houses, sitting in a shaded part of the court yard. The court yards in Nubian houses are spacious and partly covered (cf. Figure 7-58). In the past, in old Nubia, the women went out much more, herding the animals outside the village. They would sit together under a tree and make baskets there. No special provisions are needed, just some space to lay out the materials and a tub with water to soak them in.

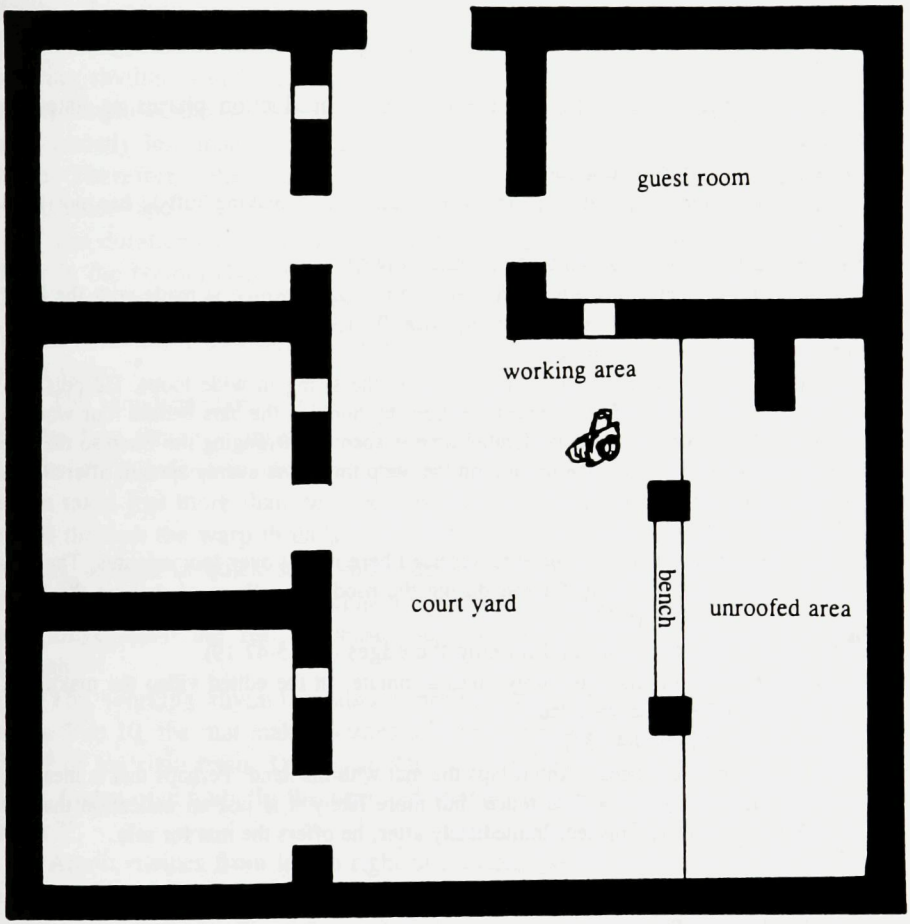
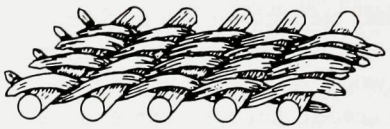


Figure 16-12 Sketch plan of the court yard, most of which is roofed over. Drawing by H. Barnard.

16.4 THE MASBALLA



twined matting
made by Amrīt in el-Amariyya
video sequence 42:10-47:34

16.4.1 Working Order

The working order follows exactly the outline of production phases as listed in Section 15-10, p. 319.

a) preparing the material (not shown)

The preparation of the date palm fibre (wetting and making tufts), has not been shown.

b) making the string for warp and weft (not shown)

The warp and weft are made of the same string (zS_2), which is made with the hand rolling method as shown in the first sequence (07:15-07:58).

c) setting up the warp (not shown)

With the help of an assistant, Amrīt rolls up the string in wide loops. He puts two metal bars in the loop and stretches the loops by hooking the bars behind four wooden pegs in the ground. Then considerable time is spent on arranging the warp so that the loops do not overlap and the tension on the warp threads is evenly spread, after which the twining can be started.

d) making the mat (42:10-46:14)

A process of four hours has been represented here in just over four minutes. The side edge of the mat is slowly formed during the production phase of making the basic structure (cf. Table 16-13).

e) taking the mat of the loom and making the edges (46:15-47:19)

Taking the mat off the loom only takes a minute. In the edited video the making of one edge has been incorporated.

g) tapping the mat (47:19-47:34)

At the end of the process, Amrīt taps the mat with his hand. Perhaps this is meant to shake out the dust, as a final touch, but more likely it is just an indication that the work has been truly finished. Immediately after, he offers the mat for sale.

16.4.2 Production Time

Amrīt can make a *masballa* in a little over two days. He spends approximately ten hours to make one mat. Making a *masballa* takes twice that time, plus the time to sew the two mats together. Making the string takes six hours, setting up the warp takes thirty minutes and twining the mat takes at least four hours, after which the

edges are made in less than 10 minutes. He occasionally takes a break to smoke a cigarette, or drink tea, while sitting on top of the half-finished mat.

Amrīt works full-time on making this type of matting. He works all year round. Palm fibre is usually harvested in the autumn, just after the date harvest, but can be harvested at other times of the year as well. He has a storage with palm fibre, because well kept date palm trees are cleaned once a year, when the old leaves are cut in steps and the fibre is torn off the base of the leaf crown.

16.4.3 Working Rhythm

Amrīt is a professional mat maker. He has to make production to sustain his family. He works concentrated, although the entire village youth has gathered in front of his house in the hope to get their faces on 'television'. He keeps a steady working rhythm, which varies slightly during the work, depending, for instance, on the length of the twining strands. Since the recurring action of twining is very brief (mostly less than two seconds), many repetitions can be seen in the edited video. Therefore, the timing in Table 16-13 is based upon the sequences in the edited video tape.

The duration of the actions is calculated in the smallest unit that occurs in the timer in the bottom right-hand corner of the screen. This unit is not divided in 60 parts, but in 25, indicating the individual video frames. The column *timer mm:ss:ff* (minutes, seconds, frames), refers to the precise location of the 51 twining actions in the video.[39]

The sequence starts with a newly inserted strand 1, and a much shorter strand 2. The first strand is inserted at a slower pace than average, but the next five actions are all done in less than two seconds (50 frames). The seventh twining action takes just more than two seconds, because the entire length of the string is pulled through the warp threads. In general, the mat maker performs a number of twining actions in quick succession, during which he does not pull through the entire strand, after which he pulls free the twining strands. Actions 7,11 and 17 take longer than the rest, because these are when the entire strand is pulled through.

The working rhythm is also expressed in a unity of movements. During action 2 to 10, the mat maker pushes the twining strand into place with the middle finger of his right hand. During action 15 to 19 he uses either his middle finger, index finger or thumb. In the unedited footage he clearly mostly uses his middle finger.[40]

Amrīt twines from left to right in S-orientation, and from right to left in Z-orientation. Most of the work is done with the first hand: when he twines from left

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[39]The option of showing frame by frame is not available on all video players.

[40]This use of the middle finger was not noticed until the analysis of the video. The possibility should be kept in mind that he had a sore index finger, and was using his middle finger only temporarily. At the moment of my visit it did not occur to me to ask.

to right, he uses his right hand to guide the strand through the warp, working from right to left his left hand. With the other hand he just pushes the strand in its place in the mat. Even though different hands are used, there is no difference in working rhythm between S- and Z-twining. The times of actions 1 to 21 are almost all between one and two seconds.

Table 16-13: timing of twining actions 1-51

no	frames	as	remarks	timer (mm:ss:ff)
working from right to left (Z-twining)				
1	64	1	twining with new strand 1	42:23:21-42:26:10
2	48	2	push with right middle finger	42:26:10-42:28:08
3	44	1	push with right middle finger	42:28:08-42:30:02
4	36	2	push with right middle finger	42:30:02-42:31:13
5	37	1	pulling strand 1 through the warp	42:31:13-42:33:00
6	39	2	push with right middle finger	42:33:00-42:34:14
7	52	1	pulling strand 1 through the warp	42:34:14-42:36:16
8	31	2	push with right middle finger	42:36:16-42:37:22
9	36	1	push with right middle finger	42:37:22-42:39:08
10	42	2	push with right middle finger	42:39:08-42:41:00
11	49	1	pulling strand 1 through the warp	42:41:00-42:42:24
12	31	2	twining around the last warp thread	42:42:24-42:44:05
13	148	1	making the left side edge	42:44:05-42:50:03
working from left to right (S-twining)				
14	44	2	push with left thumb	42:50:03-42:51:22
15	36	1	push with left index finger	42:51:22-42:53:08
16	31	2	push with left middle finger	42:53:08-42:54:14
17	29	1	no push (pulling strand with 2 hands)	42:54:14-42:55:18
18	37	2	push with left middle finger	42:55:18-42:57:05
19	34	1	push with left middle finger	42:57:05-42:58:14
20	30	2	push with left middle finger	42:58:14-42:59:19
21	56	1	pulling strand with 2 hands //	42:59:19-43:02:00
working from right to left (Z-twining)				
22	60	1	pulling through new strand 1	44:04:07-44:06:17
23	46	2	push with right middle finger	44:06:17-44:08:13
24	124	1	pulling through long strand 1	44:08:13-44:13:12
25	63	2	short strand , hindered by long strand 1	44:13:12-44:16:00
26	167	1	long strand	44:16:00-44:22:17
27	143	2	making the left side edge	44:22:17-44:28:10

Table 16-13 continued:

no	frames	as	remarks	timer (mm:ss:ff)
			working from left to right (S-twining)	
28	90	1	// (frozen image)	44:28:10-44:32:00
29	43	2	short strand	44:39:19-44:41:12
30	89	1	long strand	44:41:12-44:45:01
31	78	2	short strand, but tight warp	44:45:01-44:48:04
32	165	1	long strand, hesitant movements	44:48:04-44:54:19
33	46	2	push with left middle finger	44:54:19-44:56:15
34	120	1	long strand	44:56:15-45:01:10
35	92	2	new strand 2 (inserted 45:01:10-45:12:10)	45:12:10-45:16:02
36	97	1	push with left middle finger	45:16:02-45:19:24
37	93	2	long strand	45:19:24-45:23:17
38	107	1	push with left middle finger	45:23:17-45:27:24
39	86	2	push with left middle finger	45:27:24-45:31:10
40	61	1	push with left index finger	45:36:17-45:39:03
41	62	2	push with left middle finger	45:39:03-45:41:15
42	79	1	push with left middle plus index finger	45:41:15-45:44:19
43	85	2	push with left thumb, arranging warp	45:44:19-45:48:04
44	56	1	no push	45:48:04-45:50:10
45	70	2	pulling strand through warp	45:50:10-45:53:05
46	76	1	push with left index finger	45:53:05-45:56:06
47	61	2	push with left middle finger	45:56:06-45:58:17
48	202	1	right edge with strand 1	45:58:17-46:06:19
			working from right to left (Z-twining)	
49	80	2	push with right thumb	46:06:19-46:09:24
50	75	1	no push	46:09:24-46:12:24
51	43	2	push with right middle finger	46:12:24-46:14:17

Table 16-13 Timing of twining actions (numbers 1-51).
as = active strand (indicates which one of the two twining strands is active).
frames expresses the duration of the action (25 frames = 1 second).
timer refers to the video timer in the right bottom corner of the screen and lists the sequence in minutes, seconds and frames (mm:ss:ff).
// indicates a break in the video registration.

This changes drastically in actions 22 to 51, where the actions take much longer. These actions take place, approximately three hours after numbers 1 to 21. Although fatigue may play a role, there are reasons inherent to the work stage, which can account for the slightly slower, but still regular pace. First of all a new strand 1 has just been inserted. The length of the strand has to be pulled out of the warp threads and this takes time. Secondly, the mat maker is near to the end of the mat. The empty part of the warp threads is short, there is not much space to work in and the tension of the warp is much higher than in the beginning of the work. Thirdly, the level of the warp strands differs: the odd strands, which run over the iron bar, are 20 mm higher than the even strands, which run under the iron bar.

At this stage twining strand 1 takes a relatively long time: action no. 24 takes 124 frames, which equals five seconds, action no. 26 lasts 167 frames (almost seven seconds), no. 30 takes 89 frames (three seconds), action no. 32 needs 165 frames (more than six seconds), and action no. 34 lasts 120 frames (almost five seconds). Twining with the short strand 2, still takes less than two seconds, although at one point there is a brief tangle with strand 1 (action no. 25, 63 frames) and the tightness of the warp causes a little struggle in action no. 31 (78 frames, more than three seconds).

When a new strand is inserted to replace the short end of strand 2 (no. 35), the timing evens out and settles between two and three seconds per twining action. This is almost a second longer than in the beginning of the work, due to the high tension of the warp threads and lack of space to manoeuver the strands.

Making the side edge always takes longer than a normal twining action. Three examples occur (no's 13, 27 and 48). The duration of the actions is respectively 148 frames (six seconds), 143 frames (six seconds) and 202 frames (eight seconds).

16.4.4 The Body as Instrument

A brief description of setting up the warp is included here, though it does not occur in the edited video.

The mat maker squats down while he faces his assistant, who is squatting opposite him. The distance between the two men is approximately one metre, the length of the loom. The mat maker holds the rope in his right hand and reaches out with his left hand to give a loop of string to his assistant, who accepts it with right and takes it in his left hand. This is done 18 times, but the mat maker does not count the loops, he continues until the string runs out. He has measured the length of warp string while making it.

Both men pick up an iron bar, lying on the floor, near the wall, to Amrīt's left side. Amrīt, holding his side of the string loops in his right hand, picks up the bar with left. He and his assistant stretch the warp strands by putting the bars into the loops and hooking the bars behind the two sets of wooden pegs, which are pushed in the ground at a distance of approximately 0.95 metre. With a looped half knot (cf. Figure 15-17, p. 320), the mat maker ties the end of the string around the metal bar, to his left. He and his assistant work from left to right, carefully positioning the warp strands, spacing them out evenly and pulling the string to get the proper tension. This results in excess material, which is wound

around the bars a 19th time. In total there are 38 warp strands. With this, the work of the assistant is finished.[41]

With the end of the warp string the mat weaver weaves a starting border from right to left (Figure 15-17 a, p. 320). Because the warp lies around the bars, there is a difference in level: the top strands are running 20 mm above the lower strands. By weaving over the top strand and under the lower strand, he pulls the top strands down and the lower strands up, to get all strands on the same level. The end of the weaving strand is his first twining strand, which he lays out over two warp strands. He needs a second twining strand and for this he uses the start of the warp, which is still tied around the left peg. He loosens the knot and moves twining strand 2 under and over the leftmost warp strand, pushing it under the second warp strand (Figure 15-17 b). He brings the strand in position by pulling it. Then he runs the twining strand 1 under the third warp strand.

The mat maker is squatting, his knees folded in front of his chest, his toes almost touching the front bar of the simple ground loom. This working position evokes the Middle Egyptian text Satire of Trades, where it is said of a mat weaver: "with knees against his chest, he cannot breathe air" (Lichtheim 1973, 188). The depiction of a mat weaver in the tomb of Khety in Beni Hassan (cf. Figure 15-13, p. 313) also represents a squatting figure.



Plate 16-14 Squatted work position of the mat maker Amrīt (el-Amariyya 1992).

[41]The distance between the two bars is 910 mm and the width of the mat 760 mm.

Although the technique of woven matting differs from twined matting, the position of the mat maker in front of the loom and, when the mat gets larger, on top of the finished part of the mat (from 44:04 onwards), is the same.[42]

With his left hand, Amrīt picks up a length of string. He takes the looped start of the string in his right hand and twists it open with a small anticlockwise turn of his left hand (42:14-42:20). With his left hand he takes hold of the short strand and with his right hand he pushes the loop around the short strand. With a small, strong pulling movement, he puts the loop in place (42:20-42:22).[43]

With a long strand he resumes twining, working from right to left (twining in Z-direction). With his left hand he pushes the twining strand under the warp, lets briefly go, and in the same movement pulls the strand up. With the middle finger of his right hand he pushes the strand into place (42:23-42:26). This train of actions is repeated hundreds of times before the mat is finished, only 51 of which have been incorporated in the edited version of the video. Of these the numbers 1-13, 22-27 and 49-51 are twining actions from right to left (cf. Table 16-13).

Variation occurs in the direction and orientation of twining. Working from left to right (no. 14-21 and 28-48 in Table 16-13), the action is repeated in mirror image: the mat maker pushes the strand through the warp threads with his right hand, pushing them in place with his left middle finger. The result is a row of S-oriented twining. Apart from using his middle finger, he sometimes also pushes the strand into place with his thumb or index finger. These occurrences have been indicated in Table 16-13.

The mat maker constantly manipulates the twining strands, while he touches the warp strands only briefly with his finger knuckles. The twining strands are, therefore, considered the active elements, while the tension of the warp stretched between the loom bars, make it the rigid, passive, system.[44]

The twining movement around the warp strands is the recurring action of making twined matting (r17). This action is interrupted when a new length of twining string is inserted (occurring action o18) and when the edge is reached (occurring action o19).

Amrīt, working from left to right, pulls the twining strand with his right hand. He pulls strand 1 through the warp, using two hands. Strand 2 is only 30 cm long. The insertion of a new twining strand (45:01-45:12) starts with Amrīt stretching out his right hand and leaning over to take up a new length of string. He holds the string in his right hand and twists open the loop with his left hand. He looks up to talk to someone while he puts the loop around the short end of twining strand 2. He pulls the loop in place with a small jerk. It is not until he continues twining, that he looks back to the work.[45]

The side edges are made at the end of each row of twining. At the right edge (Figure 15-17 at c, p. 320; 45:58-46:06) he pulls strand 2 with his right hand around the last warp strand. He pushes the strand with his left middle finger in place. He then takes over the strand in his left hand and pulls it across the warp. With his right thumb and index finger, he squeezes strand 2 around the warp. He takes strand 2 in his left hand and picks up strand 1 with right. He pushes strand 1 also underneath and around the last warp strand and pulls the loop tight, guiding strand 2 with his left hand. Strand 2 is now fixated by strand 1 and he

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[42] A symbol indicating the working position has been inserted at 43:25.

[43] A symbol indicating the properties of the material has been inserted at 42:29.

[44] The frozen image of making twined basketry is included at 45:31. The warp is the passive system, the two twining strands form the two members of the active system.

[45] A symbol indicating the work-eye contact has been inserted at 45:09.

lets go of it to take over strand 1 in his left hand and pulls it across the warp. He now squeezes strand one around the warp with his right hand. He then pulls strand 1 underneath and around the second warp strand and continues the twining action. The left edge is made exactly the same, but in mirror image.

The mat is finished when the warp loops have become too tight to twine in more lengths of string. The mat maker twines the last row from left to right, until the shortest strand has almost run out. The last 10 cm he twines from right to left. The longer twining strand protrudes from the mat, without being fastened (not shown).

After finishing the mat, Amrīt stands up and bents over, unhooking the cross bar from the pegs and lifting it with his right hand while pulling the bar out of the warp loops with his left hand. Without moving his feet, he stretches out towards the other side of the mat, and pulls the second bar out in the same fashion. He then sits down to make the top edge, which he starts in the middle (46:15-46:26).



Plate 16-15 Amrīt and his family in the narrow hall way of his house, which is at the same time his work shop (el-Amariyya 1992).

The next sequence shows the finishing of the bottom edge (46:27-47:21). Amrīt is sitting cross-legged with the mat on his lap and the row of loops in a line perpendicular to his body. There are eighteen loops and he starts with the loop just left of the middle, without counting the loops. Working away from his body he holds loop 1 in his right hand and pushes loop 2 through loop 1 with his left hand. He then takes over loop 2 with right and pulls loop 1 flat against the fabric with his left hand. Then loop 3 is pulled through loop 2 (Figure 15-18, p. 231). His eyes wander away from the work regularly. The chain of

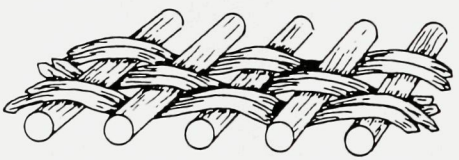
loops ends when he pulls the last loop through the fabric and fastens it with a half knot. The other half of the row of loops he works towards his body, ending the chain with a second half knot.

16.4.5 Work Space

Amrīt always works in the small hallway of his house (Plate 16-15). It is the only place in the house where there are pegs in the floor to hold the loom bars. The light comes in from the doorway, but he himself is mostly in the shade, especially in summer when the sun is high. Working in his doorway, which looks out on the village square, gives Amrīt regular contact with passers by. He sits facing the door opening, with the wall close to his left side and a passage way into the house to his right. Behind him there are a large, dark room and a court yard.

Like his squatted working positing, the work space also reminds a little of what is said of the mat-weaver in the Middle Kingdom *Satire of Trades*, where it is said that he gives food to the doorkeeper to let him see daylight (Lichtheim 1973, 188). Many mat makers (both those making twined and woven matting) work inside a roofed area, although sometimes the large mat makers' looms are placed in the court yard. Luckily, unlike the mat maker from the Middle Kingdom text, which is set as an example of the wrong career choice, Amrīt is not being beaten if he stops working. He is his own boss.

16.5 THE SERĪR BIL HABL



woven bed matting
made by Shahed in Daraw
video sequence 48:05-58:09

16.5.1 Working Order

The working order of making woven matting, with two parallel strands follows precisely the process phases as indicated in Section 15.9, p. 317.

a) preparing the material (not shown)

The preparation of the grass (wetting), has not been shown.

b) making the string for warp and weft (not shown)

The warp and weft are made of the same string (zS_2), which is made with the hand rolling method as shown in the first sequence (07:15-07:58).

c) setting up the warp (49:58-50:58)

The warp is set up between the foot of the bed frame and a yellow nylon rope which is tied at 20 cm distance from the head of the bed frame. The warp is inserted with double strands. Shahed pulls a loop of string over the length of the bed. He pulls the looped end around the bed frame and pushes it through the previous loop. By pushing a wooden peg in the loop he prevents it from undoing, until it is fixated by the next loop. Setting up the warp takes a large length of string. Although the bundles with which Shahed is working contain approximately 25 m string, he regularly has to connect the end of the old string with the start of a new bundle.

When joining two ropes, Shahed thins out the frayed end of the exhausted string (48:20-48:53).[46] He wets both the thinned-out frayed end of the old string and the frayed end of the new string (48:47-48:53). Then he hand-rolls the old string to a thin tapering end and proceeds to join the two by incorporating the thin tapering end into the new string (49:28-49:13).

d) making the bed (50:58-57:30)

A process of four hours has been represented here in just over seven minutes.

e) ending the weaving (57:31-57:59)

By pulling the weft strand through the last loop of the weft and the starting loop of the warp, the fabric is ended. The last 50 cm of string are anchored in the weft.

16.5.2 Production Time

Shahed works only some days per month and only in the afternoons after 14.00 hours when his job with the government ends. He spent one afternoon of six hours making the string and one afternoon of six hours for making the bed. If need be, the grass can be harvested all year round, although the best quality is found before the summer. He has a supply of string bundles to be ready when there is a demand for a bed. Although string beds are for sale on the weekly market in Daraw, he does not produce these. He only produce beds when they are ordered.

16.5.3 Working Rhythm

There is a clear working rhythm in the different stages of weaving the matting of a bed. At first the warp is inserted, for which string is taken from a bundle that contains 25 *ba'at* of string (approximately 37.5 metres).[47] The string is pulled from the bundle over the length of the bed and fastened by linking a loop of the string through the previous loop. This takes between 10 and 20 seconds (Table 16-16). In general the direction head to foot takes two to five seconds more than the other way around, because the bed maker has to pull free the string from the bundle.

The second to fourth strings take relatively long, because the bed maker has to arrange the first loop of the chain. Around the 22nd and 23rd warp strands the average of 12 seconds is slowing down to 18 and 19 seconds. There is no obvious reason for this. All movements are just executed slower than usual, which might

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[46] A symbol indicating the properties of the material has been inserted at 44:20

[47] One *ba'a* is the length of two outstretched arms, so approximately 1.50 m.

be a sign that he is tired. The 25th and 26th strands are a bit slower than average (15 and 17 seconds) because the string is curling up and has to be unwound. The bed maker stops working and untangles the bundle of string, laying it out across the street to prevent it from getting knotted.

Making the Warp (64 warp threads)				
foot to head		head to foot		
no.	seconds	no.	seconds	remarks
1st	13	2nd	18	starting phase of the warp
3rd	19	4th	20	talking, starting phase of the warp
5th	12	6th	12	
7th	11	8th	//	
9th	10	10th	15	
11th	10	12th	12	
13th	12	14th	12	after the 14th a new string is attached
15th	12	16th	10	
17th	13			//
		22nd	18	slowing down for unknown reason
23rd	19	24th	13	slowing down for unknown reason
25th	15	26th	17	the string is twisted and has to be unwound
35th	11	36th	11	
37th	11	38th	13	//
53rd	13	54th	17	in video (49:58-50:11 and 50:11-50:28)
55th	14			in video (50:28-50:42) //
		60th	14	
61st	12	62nd	13	
63rd	13	64th	14	last warp thread, in video (50:51-50:54)

Table 16-16 The number of seconds used to insert the warp thread, from the foot of the bed to the head part (odd numbers) and the other way round (even numbers). In total 64 warp threads are inserted, of which only the ones mentioned here are visible in the complete footage. // indicates a break in the video sequence.

The edited video shows only the 53rd, 54th (49:58-50:42) and the end of the 64th warp strands (50:51-50:54). The bed maker does not count the number of warp strings. Although he will be weaving in and "under 6 / over 6" pattern, it is enough that he has an even number of warp strings while it is apparently not

important to have a number that is a multiplication of six. In ancient Egypt the term for making a bed is *mh*, filling the frame. That is exactly what Shahed does: he continues setting up the warp until the bed frame has been filled.[48]

The weft takes up almost the double amount of string: six bundles (approximately 230 metres). There are 160 weft strings woven in, which means that recurring action r22 (listed under A in Table 16-17) is repeated 80 times, of which 34 have been recorded on videotape from beginning to end. In the edited video only a few of these are incorporated, listed where possible in Table 16-17.

With 80 repetitions it is not possible to relate the 34 weaving actions with specific weft strings (as was done in Table 16-16 for the warp strings). For the working rhythm this is not really important, as long as they are presented in chronological order and breaks in the weaving, such as beating the weft, are indicated.

Weaving the first weft string takes considerably more time than the second to 28th. To make the first weft strand requires counting the warp strands (50:56-51:32). Shahed starts with running the loop under six strands, and over six strands. At one point he loses count. The first weaving movement (1A), therefore, takes 38 seconds.

The next one (2A) takes only 15 seconds, because the bed maker does not have to count the warp strings. He just shifts the start of the weft string in relation to the previous row. The strands in the middle (2A-29A) take an average weaving time of 15.1 seconds.

Weaving strand 25 takes more time than the average, because the string is entangled and has to be pulled free. Likewise, the time needed to weave in strands 6, 17 and 29 is above average, because the orientation of the weave has changed: the string has been pulled through the warp and the pattern shifts. This change in pattern causes a V-shaped appearance with a large zigzag motive. Shahed pays more attention and works a bit slower when weaving in the strand after a change of orientation. The weft strand shown in video sequence 53:50-54:20 consists of the first part of number 19 and the last part of number 28 (Table 7-65). Here a jump is made from working on the first part of the bed, to working on the last part of the bed.

The last six weft strings take much more time, because the warp is getting gradually more tight and there is not much space to move (30A to 35A). It is even necessary to employ one of the wooden pegs as awl, to make space for the weft string to pass.

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[48] In total he uses three complete bundles and part of a fourth bundle of string for the warp (approximately 120 metres). The inside size of the bed frame is 1.85 x 0.65 m, the outside size is 2 x 0.8 m. The warp does not span the entire length, but only the 1.65 m from the tension string to the foot of the bed. With the string length necessary to round the wooden frame, each warp strand takes approximately 1.80 m of string.

	sec	A	B	C	D	remarks	
1	75	38	19	8	10	in video (50:56-52:09)	
2	47	15	19	3	10	beating 1 (see Table 7-66)	R
3	41	15	12	4	10	new length of string //	i
4	34	13	9	4	8	beating 2 //	g
5	38	15	10	4	9	change of direction	h
6	46	18	10	3	15	beating 3	t
7	28	13	6	4	5		
8		13	9	3	//	//	
9	32	16	8	3	5	beating 4	
10		15	9	3	//	//	
11	33	9	10	6	8	beating 5	L
12	37	15	10	5	7		e
13	39	16	9	7	7	beating 6	f
14	38	15	11	3	9		t
15	36	14	13	2	7	beating 7 // beating 8; new string	
16		15	11			change of direction	
17	37	17	9	2	9		
18	33	14	8	2	9	beating 9 // beating 10	
19	40	15	8	3	14	in video (53:50-54:04)	
20	38	14	11	3	10	beating 12	
21	37	15	9	2	11	unwinding the string	R
22	40	14	12	4	10	beating 13; laying out string	i
23	30	12	7	3	8		g
24	41	17	11	3	10	beating 14	h
25		20	11	4	//	string entangled	t
26		17	9	2	//		
27	41	18	10	5	8	beating 15	
28		14	8			(54:04-54:20), change of direction	
29	42	19	12	3	8	beating 16 // beating 17	
30	73	41	12	13	7	tight warp, beating 18 // beating 19	
31	104	67	18	9	10	tight warp, beating 20	L
32	123	79	21	9	14	using peg as awl, beating 21	e
33	117	76	18	9	14	beating 22	f
34	123	69	27	13	14	beating 23	t
35		124				partly in video (57:06-57:36)	

Table 16-17 On page 378: Weaving in the Weft.
The column to the far right indicates from which side of the bed the mat maker is working. The sequences of which footage is available have been numbered 1 to 35. For these the time in seconds is given of the four parts which make up the weaving action. This weaving action is interrupted by periods of beating in the weft. These are listed separately in Table 16-18. The four columns list the time it takes to perform the following actions:
A = weaving (recurring action r22);
B= making the first edge (occurring action o20);
C= tightening the weft (occurring action o25);
D= making the second edge (also occurring action o20).
// = break in the footage

In column B of the time involved in making the first edge is listed. For numbers 1-5, when the basket maker is working from the right side of the bed, this is the left edge. After the pattern orientation change, when the basket maker stands on the left side of the bed (numbers 6-16), the first edge is the right edge. The terms left and right are related to the orientation of the bed, viewed from the foot end. This is opposite from the orientation of the viewer, because the camera is positioned most of the time at the head of the bed.

Similarly, under D the time involved in making the second edge is listed.[49] With the exception of one time (no. 6), the first edge takes (often considerably) more time than the second edge. This is surprising, because the movements involved in making the edges are identical. Within the working rhythm it fits, however. The action of making the edges is part of the larger sequence (A-D) of weaving, which is repeated 80 times. The first edge (B) is in the middle, the second edge (D) marks the end of this sequence and is characterized by a slowdown of the action.

The weaving sequence A-D is interrupted regularly by a beating sequence, which has the function of tightening the weft. Shahed starts the beating sequence by running the stick, which is approximately 60 cm long, between the wooden frame and the warp threads. Then he knocks the weft strand, which are tied around the bed frame, three times with the back of the stick. Then he runs the stick again between warp and frame before he starts the beating of the weft proper.

When he stands on the right side of the bed, he starts beating from right to left. Arriving at the left edge, he repeats the same sequence of running the stick between warp threads and the bed frame and knocking the string loops with the back of the stick. He finishes the sequence by beating from the left side back to the right edge.

[49] Second edge: 1-5 right edge, 6-16 left edge, 17-28 right edge, 29-35 left edge.

Beating the Weft							
no	no. of beats	sec	b/s	no. of beats	sec	b/s	
	from right to left			from left to right			
1	20	12	1.7	6	3	2	R
2	15 + 2 = 17	12	1.4	10	5	2	
	from left to right			from right to left			
3	6 + 6 + 2 = 14	13	1.1	8 + 2 = 10	5	2	
4	15	9	1.7	7 + 3 = 10	5	2	L
5	2 + 13 + 2 = 17	12	1.4	14	9	1.6	e
6	18	11	1.6	//			f
7	11 + 4 = 15	11	1.4	10	6	1.7	t
8	10 + 11 = 21	9	2.3	5	3	1.7	
	from right to left			from left to right			
9	24	11	2.2	8	5	1.6	
10	3+5+10+6 = 24	13	1.8	7	4	1.7	
11	6 + 2 = 8	5	1.6				R
12	7 + 2 = 9	7	1.3	13 + 2 + 5 = 20	15	1.3	i
13	9 + 7 = 16	10	1.6	8	7	1.1	g
14	18 + 3 = 21	11	1.9	20 + 8 + 2 = 30	17	1.8	h
15	11 + 2 + 9 = 22	13	1.7	//			t
	from left to right			from right to left			
16	26+10+9 = 45	24	1.9				
17	8 + 2 = 10	7	1.4	12	7	1.7	L
18	29	17	1.7	//			e
19	17	10	1.7				f
20	20	12	1.7				t
21	20	15	1.3				
22	15	15	1				
23	15	13	1.1				

Table 16-18 Beating the weft with a wooden stick (occurring action o21).
A number of 23 beating sequences have been counted. The second column lists the number of strokes (+ is an interruption in the rhythm of the beats). The third column has the total time in seconds, and the fourth column the number of beats per second. Two parallel stripes (//) indicate a break in the footage.

The second part of the beating sequence is usually shorter and faster. When he works from the left side of the bed, he beats first from left to right.

Table 16-18 lists the number of beats per sequence, which shows a considerable variation. Within the beating sequences there are sometimes small pauses. These pauses have been indicated in with a + sign. The regularity of the beating becomes clear when considering the average speed of the beats, which lies around 1.7 beats per second. The second part of the beating sequence is usually slightly faster than the first part. In the first two sequences, Shahed works from the right side of the bed and beats first from right to left with respectively 1.7 and 1.4 beats per second, while he uses 2 beats per seconds working back from left to right.

Beating sequences 8 and 9 are both fast in the first sequence, when the beats are gradually further away from the stand point of the bed maker. He slows down when he beats in the opposite direction, towards himself. There is no explanation for this reversal of the normal beating pattern.

The numbers 16 and 18-21 are only beaten in one direction (from left to right), because a different system is used: towards the end of the work there is no space to wield the stick. Shahed, therefore, uses a wooden peg to direct the blows more precisely. He beats the peg in a different rhythm, similar to hammering, with series of double knocks.

16.5.4 The Body as Instrument

Shahed works mostly standing with his back bent. When he makes the warp, he stands in the bed frame, until this becomes impossible because the frame gets gradually filled with string. He then stands outside the bed frame working from the right side of the bed.

He stretches his back while he prepares the insertion of a new bundle of string. Standing on the right side of the bed, he holds the end of a new bundle of string in his left hand and with his right hand he thins out the frayed end, pulling out the dry grass leaves.[50] Het takes the string in his right hand and strokes the frayed end three times with his left hand (48:20-48:34).

While moving to the foot of the bed, he picks up the short exhausted end, which he already has thinned out. With his left hand he brings it to the new strand which he holds with right and lays the two parallel to each other. He bends over and reaches under the bed to pick up a pot with water, which he holds in his left hand. He wets both frayed ends by dipping them in the pot and lets them drip for a while, putting the pot back on the ground (48:34-48:56).

With his left hand he puts down the long end and he runs his hands four times (right after left after right after left) along the wet tip of the short end. The function of this seems to be more to mark a phase in the action, than to remove excess water or straightening out the fibres. He then takes half of the grass bundle in his left hand, the other with right, and he makes the grass into a thin tapering string by rolling it with his right hand from the wrist to the fingertips of his left hand. He repeats the rolling movement nine times, rolls the finished string once between his two hands and then runs his hands along the finished string

[50] A symbol indicating the properties of the material has been inserted at 48:20

(left after right after left). Again, this seems to mark the end of a sequence, rather than having a clear function (48:56-49:13).

Shahed takes the short string in his right hand and picks up the long string with lift. He moves back to the right side of the bed, while taking over the short string in his left hand too. With his right hand he arranges the long strand and puts his right foot on top of it, locking the string between his foot and the bed frame .[51] He takes the frayed end of the long strand in his right hand and runs his left hand, with which he also holds the point-tipped short end of the old warp string, along the wet fibres. He separates them into two bundles and, while holding the pointed short end as part of the right bundle, starts the rolling movement of making string. He rolls with his right hand from wrist to finger tip over the left hand, connecting the old and the new length of warp string. After two rolling movements he rearranges the string under his foot, pulling it back to shorten it slightly.

Then he rolls five times, pushes together the frayed end and makes three more rolling movements. He then takes the frayed bundle tip between thumb and fore fingers, opens up the string with a twist of his left hand and pushes the grass tips through the ply of the string with his right thumb. He rolls the splice twice between his hands in opposite direction (his right hand moving from fingertips to wrist of the left hand). Finally, he runs his right hand twice along the string, marking the end of splicing the string (49:13-49:57).

All the while he has been standing straight with his right foot resting on the bed frame. Now he bends over and, while walking to the head of the bed, he pulls the string over the entire length of the frame, using his right hand. He pulls the warp string around the yellow stretching string at the head of the bed frame. He holds the string in place with his left hand and pulls the string down with his right hand through the space between the warp and the bed frame. He pulls the string up and with his left hand he tips the peg, pushing the previous loop flat along the edge. While holding the peg in his left hand, he bends the warp string into a little loop, which he pushes with his right hand through the previous loop, pulling it through with his left hand. He pushes the peg through the new loop with his left hand, while he pulls the long end of the string with right. Now the loop and the peg are positioned properly and locked in place (49:58-50:11).

He then walks back to the foot of the bed, guiding the string with his left hand, pulling it free from the bundle with his right hand. He repeats fastening the warp strand at the foot of the bed (50:11-50:28) and again at the head (50:28-50:42).[52]

Then the camera moves to one of the carpenters. The sawdust in his hair is an indication of his work and the fact that he just has taken a break. When Shahed asks him, he helps out, for instance with pulling the weft string at the moment the weaving direction is changed (54:27-55:02). For quite a while he sits on the finished part of the bed (50:45-50:50), talking to Shahed and others. Shahed, however, is concentrated on the work and does not really answer. When the bed is almost finished, a small group of people is discussing different types of medicines, which are layed out on the bed (visible at the top of the screen 57:06-57:15). Again, Shahed works on without paying attention.

When the last warp strand is fixed (50:51-50:54). Shahed immediately proceeds making the weft. He holds the warp string locked in place with his left hand and pushes the string underneath the first four warp strands with his right hand, pulling them up with his left hand. He indicates that he has now started making the weft, by moving his left hand five times across the warp. This is for the benefit of the onlooker (51:00-51:04).

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[51] A symbol indicating the instrumental use of the body has been inserted at 49:14

[52] These three sequences correspond with numbers 53-55 in Table 16-16.



Plate 16-19 Shahed 'filling' a bed frame with string grass string matting in a carpenter's work shop (Daraw 1992).

While he keeps the tension on the weft string with his left hand, he pulls a length of string through the warp, to create the space to work (51:06). He then pushes the weft string under with his right hand, pulling it up six strands further, with left. With his left hand he also tightens the weft by giving it a little tug (51:11). Because it is the first weft strand, he really has to count the number of warp strands which he crosses over or under (51:11-51:22). In order to cross the 64 warp strands, he repeats the weaving action six times: the first time he passes the weft string under four warp strands. Then he passes five times 12 strands running the weft strand over six/under six (50:56-51:32, 1A in Table 16-17).

Shahed then walks to the right top corner of the bed to retrieve a wooden peg, which is holding the warp loop at the head. He replaces it with a coarser, unpolished one (51:40). With the smooth peg, which he prefers to use while working, he returns to the loop at the end of the first two weft strings at the left foot of the bed.

Standing with his legs apart, his right leg behind the right side of the bed frame, his left leg next to the foot end of the bed, he bends over to make the left edge. With his right hand he pulls the weft strand tight. Holding it in place with left, he pulls up the loop between the bed frame and the warp. He briefly looks up (51:48), but continues working. He pushes the peg through the loop, thus creating the first loop of the left side edge. Before he lets go, he pulls the weft string with his right hand to keep the loop and the peg in place (51:43-51:54, 1B in Table 16-17).

He holds the weft string in place with his left hand at the left side of the bed, while reaching back to the right side of the bed, where the weft string protrudes. He does not let go until he has pulled the second weft string parallel to the first. With his right hand he gives an extra tug, while holding leg of the bed with his left hand (51:54-52:00, 1C in Table 16-17).

Then he bends the string around the right side of the bed frame and holds it in place with his left hand. He picks up the weft string between the bed frame and the warp with his right hand. With left he pulls the peg out of the last loop with which the warp string is fastened. He makes a small loop of the weft string and he pushes this with his right hand through the last warp loop, pulling it through with his left hand. He pushes the peg through the loop, which now forms the first loop of the right side edge. He turns the peg with his left hand in the anti-clockwise direction and at the same time pulls the weft string with his right hand, so the peg is locked in place securely (52:00-52:09, 1D in Table 16-17).

The second weft loop is inserted with a shift of two warp strands: starting with pulling the weft loop under six, instead of under four warp strands, Shahed again crosses the 64 warp strands with six repetitions of the weaving action, which ends with passing under four strands (52:09-53:24, 2A in Table 16-17). The third weft loop passes over two and under six, and ends over six and under two. The fourth sequence has only five repetitions: it starts over four, ending over six (not in the video).

While making the warp and weft, Shahed constantly has to pull free the string from the bundle. Whenever bundle threatens to get entangled, he stops the work to lay out the string. Because the work shop is too small, he lays out the string outside in the street (52:46-53:08 and 56:21-56:28).

Further on in the process, he is still working from the right side of the bed, standing bent over, making the right edge (o20 53:09-53:11).The working position of Shahed is very tough. Standing on one side, he has to span the complete width of the bed (80 cm). When making the opposite edge he leans over and keeps this position with sheer muscle power. He cannot support the weight of his upper body with his arms, because he needs both hands for the work.[53]

The process is briefly interrupted by a short break, while Shahed is talking to the carpenter and scratches his head (53:16-53:21). He then starts beating the weft, standing upright with his left foot on the finished part of the bed matting.[54] He maintains the tension of the last weft string by putting his foot on top of the weaving strand. He beats the weft, holding the stick in his right hand (o21, beating 10 in Table 16-18, 53:11-53:16 and 53:21-53:50). When leaning over to beat the far (left) edge of the bed, Shahed supports himself

[53]A symbol indicating the working position has been inserted at 55:32

[54]A symbol indicating the working position has been inserted at 53:22

with his left hand on the finished matting. On the way back (from left to right) he puts his foot on the ground and leans over on his left arm while beating.

Between the beating and inserting a new weft loop, Shahed slowly pulls the string towards him, making a large loop of string (transition between o21 and r22, 53:50-53:56).

Then he leans over again, pushing the weaving loop under with his right hand, pulling it up with his left hand (r22, 53:57-54:19, composed of no. 19A and 28A in Table 16-17). He also uses his right hand to pull up the loop and free enough string to enable him to weave to the opposite end of the bed frame. He makes the left edge and stops working (o21, cf. 28B in Table 16-17). He talks to the carpenter, before changing the orientation of the weaving (break 54:19-54:37).

The carpenter helps with pulling the entire length of rope through the warp. This only has to be done when the orientation of the weave is being changed and is avoided otherwise by weaving with a double strand. Single strand matting occurs in Egypt only with strands of limited length, such as individual grass stems, but not with long lengths of string.[55] Changing the orientation of the pattern also involves a change in working position: Shahed now works from the left side of the bed.

Shahed makes the same movements, sometimes identical to the movements performed from the right side, sometimes he uses the opposite hand (Table 16-20). When making the edge, he starts the same (Table 16-20 a, b, c). The wooden peg is now at his right side, so in order to tilt it with his right hand (e), he has to take over the loop in his left hand (d). He pushes and pulls the loop of warp strand through the previous loop with the opposite hand (f, g). After having put the peg in the new loop, the fastening of the loop is also done with the opposite hand (h-l): pulling the string while turning the peg in a clockwise direction. Working from the right, he turns the peg in an anti-clockwise direction. Weaving is done always the same (m, n), as is beating (r, s, t). Working from the left side, Shahed puts his left foot on the edge of the bed frame and not on the finished part of the bed. He also supports himself with his left hand, leaning on the warp threads, rather than the finished fabric. Tightening the first weft strand and pulling the second weft strand parallel to the first, however, is done with the hand closest to the finished part of the bed (Table 16-20 o, p, q). Beating the weft with the assistance of a peg is done in opposite orientation (u, v).

From the left side of the bed, Shahed measures the zigzag pattern with the same stick as with which he beats the weft (o24, 55:05-55:14). He checks if the change in orientation is in the right place. During the process he does this three times, *after* each of the three changes in orientation. At some point there is a discussion between him and the carpenter that he has made the change too early (not in the edited video). Nevertheless, Shahed continues, because he already has pulled through the weft strand.

He proceeds making the left edge (o20, 55:14-55:15) and weaving in the next loop (r22, 55:15-55:39).[56] Then he makes the right edge (o20, 55:39-55:51), pulls the second weft string parallel to the first (o25, 55:52-55:56), and makes the left edge (o20, 55:56-56:02). The sequence is ended with Shahed beating the weft (o21, 56:02-56:21).

In this sequence the only recurring action is weaving. Although the action of making the edges is repetitive, this is considered an occurring action: whenever the weaving reaches the end of crossing the warp the loop is pushed through the previous loop.

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[55]It is not possible to use a weaving shuttle, because the materials for mat making and bed weaving are too coarse.

[56]In this sequence the frozen moment indicating active and passive elements is incorporated from 54:22-55:26.

	Action	standing on right side of the bed	standing on left side of the bed
	making the edge (o20)	52:24-52:43	55:56-56:02
a	pulling string around bed frame	right hand	right hand
b	holding string in place	left hand	left hand
c	pulling loop between frame and warp	right hand	right hand
d	holding loop	right hand	left hand
e	tilting and removing peg	left hand	right hand
f	pushing weft strand through loop	right hand	left hand
g	pulling weft strand through loop	left hand	right hand
h	pushing peg through new loop	left hand	right hand
i	turning peg	left hand	right hand
k	orientation of turn	anti-clockwise	clockwise
l	pulling weft string	right hand	left hand
	weaving the weft (r22)	52:10-52:24	55:18-55:39
m	pushing loop under	right hand	right hand
n	pulling loop up	left hand	left hand
o	tightening weft	left hand	right hand
	tightening second weft strand (o25)	52:43-52:46	55:52-55:56
p	holding the strand	right hand	left hand
q	pulling the second strand	left hand	right hand
	beating the weft (o21)	53:21-53:50	56:03-56:16
r	beating with stick	right hand	right hand
s	foot on bed	left foot	left foot
t	support with hand	left hand	left hand
	beating with stick against peg	*not in video*	56:43-57:00
u	holding peg	left hand	right hand
v	beating with stick	right hand	left hand

Table 16-20 Performing movements with left or right hand, working from the left or the right side of the bed.

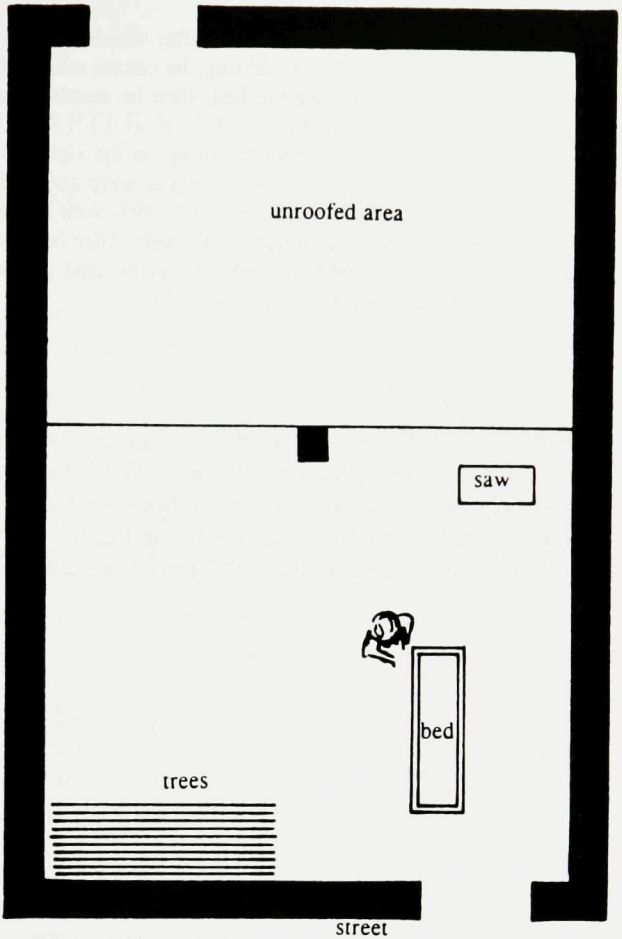

Figure 16-21 Sketch plan of the carpenter's work shop and the area used for making the bed matting. Drawing by H. Barnard.

In the next sequence the bed frame is almost filled. Shahed employs a peg to beat the weft (56:44-56:59), because the space has become too narrow to wield the big stick. He holds the peg in his right hand, the point pushed against the weft, and beats it with the stick in his left hand. When he is performing the same action from the right side of the bed he holds peg and stick in the opposite hand. For beating, he uses the coarse, unpolished peg.

During the last phase of making the bed, he does not stand bent over, but he is kneeling while facing the side of the bed. Inserting the weft is increasingly difficult. Therefore, he uses a wooden peg as awl: with his left hand he pushes the peg into the warp to make some space.[57] He pushes the strand from underneath with his right hand, taking

[57]Three symbols indicating the use of instruments, have been inserted. The tool is the same, a wooden peg, but the use differs: 56:36 wooden peg, used to secure the edge, 56:47 used to beat the weft, 57:17 used as an awl, to make space in the weft.

over above the fabric with his left hand, after which he tightens the weft strand by pulling with his right hand (57:08-57:26). Sitting, he cannot reach the entire width of the bed. He, therefore, weaves until halfway the bed, then he stands up and walks around to continue from the other side (not in video).

Working towards himself while sitting on the right side of the bed, he removes the two pegs which are holding the loops of the last warp and weft strand with his left hand. He pushes the end of the weft string through the fabric with his right hand, pulls it up with left, takes over with his right hand to tighten the weft. Then he guides the strand through the two loops and down through the fabric with his right hand (57:26-57:56). He anchors the last length of string by weaving it in (starting 58:03).

16.5.5 Work Space

Shahed works in the workshop of the carpenters who made the bed frame (Plate 16-19, Figure 16-21). Around him the work of the carpenters continues as usual. Shahed only needs a floor space of approximately 6 m^2 and some space to lay out the entire length of string contained in one bundle. For this he uses the street (cf. 52:46-53:05). No specific architectural provisions are needed for this work.

CHAPTER SEVENTEEN

THE DANCE OF THE DYNAMICS

The previous chapter concentrated on body movements and rhythm. The movements were described as a kind of choreography: preplanned and repeated. A choreography is the outline of singular, and in itself meaningless, movements. It is not until watching the dance as a whole that the meaning can be sensed.

17.1 Production Process

What is the knowledge gained from the micro-analysis in the previous chapter? Why is it important to describe the production process to such detail as to the hand with which the basketmaker does a certain action? In archaeological basketry this information cannot be retrieved, so what is the point? Perhaps the most important reason is that it is a method to force oneself genuinely to look at what is happening in front of our eyes. While describing the actions in detail it becomes suddenly apparent that some parts of the process have not been understood completely, although we have a superficial grasp of the entire process. Although every producer acts differently, the forced attention to detail brings to light important information that would be missed when adhering to a schematized view of the production process.

The image of a production process is greatly determined by the repetitive actions. The phase in which the repetitive actions are most obvious is that of making the basic structure. When making a coiled basket the action of wrapping and stitching the bundle with palm leaf is repeated over and over again to create the base and sides of a basket. Likewise, plaiting and weaving involve repetitions of the same movements until the product has the required size.

Repetitive actions characterize the phase of preparing the systems (for instance plaiting and rope making). In the processes of making the *maqtaf* basket, the *masballa* bag and the string bed, the recurring actions take up an important part of the time. The other production phases (preparing the raw materials, starting the basic structure, finishing off the basic structure, adding features and giving the finishing touch), are mainly characterised by occurring actions.

Looking at the process in detail shows that although the repetitive actions do take up the largest portion of the total production time, the occurring actions take up much more time than expected. The repetitive actions are interrupted constantly with occurring actions: inlay of new leaflets, beating the weft, making the edges.

The working order is not always performed linear from preparation of the materials to the finishing touch. If, during the work, the raw materials are

finished, new have to be prepared. During the production process periods of waiting may be filled with actions that belong to another phase. A detailed description as given in the *Body as Instrument* (e.g. Section 16.1.4) is incorporated in the text because it guides the attention of the viewer to the working position and the use of feet, teeth, body weight and the left or the right hand.

Basket makers show a great endurance in making the same movement for a long period and maintaining a steady working rhythm helps this. The transition to a new phase is often marked by a change in working position and a brief break.

17.2 SKILL

The movements of the repetitive actions show a consistency and regularity which are prerequisites for developing a working rhythm. These movements are not necessarily the most practical or leading most directly to the end purpose. While sewing, Mohammed regularly gives a little knock on the side of the basket (Table 16-4, p. 340). This has no direct function in the production of the basket, but is important for maintaining the working rhythm.

Scanning the working rhythm (for instance by watching long sequences in fast forward) shows clear breaks, with a sharp decline in the working speed. These occur mainly at points where a technical difficulty occurs, for instance the centre of the basket and the inlay of new material. In the previous chapter it has been shown, however, that there is not only a rhythm in the repetitive actions, but that occurring actions are sometimes rhythmic too. Because of the variation in the movements, defining the latter rhythm is much more difficult. The working rhythm not only differs with each technique, but also with each basket maker.

The working rhythm goes hand in hand with concentration. Four of the five basket makers featuring in the video, are extremely concentrated. This can be inferred from the work-eye contact and the interaction of the basketmaker with his or her surroundings. Mohammed talks to his wife and to friends who come and visit, but he does not avert his eyes from the work. Khadidja sits in the court yard with three other women, but does not take part at all in the general chatting. One of the other women, who is very talkative, works in an unsteady pace. Her attention wanders and this is reflected in her basket: the coils and stitches are uneven. Amrīt has reason to be distracted, the entire school youth of el-Amariyya has gathered in front of his little work shop, but he still works on steadily. Only now and then is he distracted by the racket going on just in front of his eyes.

Shahed pays but little attention to the men of the carpentry workshop, who sit on the half-finished bed, discussing all kinds of interesting topics. He only talks during the few brief breaks he takes between the different phases of the work.

The only person who is clearly distracted is Rauwhayya. Her working rhythm is irregular and she looks up from her work repeatedly. This shows in her work, which is not very regular. In her case, the circumstances are partly to blame. The filming and a group of children shouting at a distance distract her.

During earlier visits, she worked much more relaxed and steadily (cf. Plate 16-9, p. 355).

Skill is strongly related to working rhythm and concentration: all skilled basket makers distinguished themselves by a very steady working rhythm, intense concentration and a very regular appearance of the product. Inexperienced basket makers, on the other hand, are not able to maintain a rhythm, they are usually easily distracted and the result of their work is a basket which is irregular in appearance.

Skill is more than working rhythm and concentration, however. The experience of assessing and selecting the raw materials and planning the production (size, shape, time) are other important aspects of skill.

There is a relation between a steady working rhythm and skill, but there is no inevitable link between skill and professionality. Khadidja is a prime example of an extremely skilled nonprofessional basket maker. There is, however a relation between professionality and speed. The (semi) professional basket makers Mohammed, Amrīt and Shahed all work in a steady, fast rhythm, while Khadidja works in a steady, but slow rhythm (cf. section 17.4).

17.3 TRADITION, LEARNING AND INNOVATIONS

Old basket makers pass tradition by teaching the younger generation. The transmission of skills, practical knowledge, is done by slowly integrating the pupil in the work (cf. Bentz Høgseth 1998). It is a visual and tactile process. The skills and experience to be mastered are the movements, agility, rhythm, but also the knowledge of materials and the ability to plan the production and reproduce consistently the same shapes and sizes.

In each basketry technique there are difficult stages. The centres of coiled basketry, for instance, have the technical problem that a coil has to be started with a bundle that is too thick and too rigid to form a closed middle circle. The solutions to such technical problems are manifold. It is especially in these (usually occurring) actions that we can discern traditions.

Likewise, shape and decoration convey tradition. Perhaps the most important and least tangible of teaching basketry production, is to convey what the product, the basket as a whole, should be like. The appearance of a basket includes material aspects such as the shape, fabric and decoration, but most importantly it has strong immaterial aspects of function, meaning and social signalling. These are not taught as consciously defined properties, but are inherent in the basket. They are the essence of a basket, the dance rather than the choreography. This essence differs strongly for Egyptian and Nubian baskets.

In the previous chapters, part of the difference has been defined. At present, Middle Egyptian baskets are plain and their shapes and functions are limited. There are two kinds of coiled baskets, for instance, undecorated with very specific functions: large round flat bread baskets and straight sided round baskets, used for mainly for storing flour. In New Nubia the essentials of basketry seem to be linked

to the function and decoration. There are many differences within Nubia, but the central issue is that the baskets are mainly used as covers rather than containers, and have to be decorated.

In the Qasr Ibrim material, two types of decoration occur: monochrome wrapping patterns, and bicoloured (orange-brown) patterns. In New Nubia more colours are used. The example in the video, a Fadidja basket, has purple, red and white strands. The Kensi villages employ much more colours. One of my questions to the Nubian women was: "Are you a better basket maker than your mother?" The answer was often "Yes, because I use more colours".

The conscious answers are not about the patterns, but about the colours. Asking why the coloured patterns are made, invariably gets the answer "It is just decoration". It is not, however. There are clear differences between Fadidja and Kensi villages in the use of materials, colours and patterns. There are differences among Kensi villages too, not as much as the decoration is concerned, but in the techniques applied (sewn plaits baskets versus coiled baskets).

Innovations occur both in Nubia and Middle Egypt, but they are of a different character. The Kensi Nubian innovations concern materials, colours, decorative patterns and even the techniques. To obey the unexpressed, but obviously present rule 'the more colours the better', basket makers in Old Nubia already bought chemical dies for the palm leaf in Wadi Halfa or Aswan. In New Nubia Kensi basket makers are using brightly coloured cotton yarn, washing line and ribbon. They even adapt the coiling technique, while using shiny candy wrappers (cf. p. 263). Innovations in Fadidja Nubian villages are limited to the use of chemical dies, of which only a few colours are employed. Also in the use of new patterns, the Fadidja villages are less innovative, more traditional, than the Kensi villages.

In Middle Egypt innovations only involve the size and shape of the baskets. The women of el-Till started to make a larger variety of shapes when there was a demand from a new market: the tourists visiting the antiquities sites.

17.4 FEEDBACK TO THE ARCHAEOLOGY

Tools and Work Space

So how are we to translate the essentials of basketry to the archaeological finds? Starting with the isolated steps of the choreography again and trying to construct a dance out of these, slowly builds the interpretation. From the study of the present it is clear that there are no special requirements for the work space of the basket makers who produce coiled and sewn plaits basketry. The tools needed are very limited too: a knife, needle and an awl, which can be nothing more than a spine from the branch of the date palm tree.

Mat makers need a horizontal loom. The archaeological remains of such a loom will typically be nothing more than four post holes. Probably the loom is inside or in a shaded area. The substantial wooden parts of the loom are rarely

found *in situ,* because they are too expensive to discard or leave. Apart from the loom, no other tools are needed.

The bed maker needs a space which fits the bed frame and gives him some walk way around it. No installations are necessary and the tools used are not very distinct: three wooden pegs.

Working Rhythm

An important correction on the current archaeological practice, based on the micro analysis of actions of modern basket makers, is that more attention should be given to the material results of the occurring actions. For the study of archaeological basketry this means that specific attention should be paid to the start of a basket, the insertion of new lengths of material and the rims and edges of baskets and mats. Watching the time of the production process reveals that features characteristic for a basket have taken relatively little time in the entire process. The start of the plait for the sewn plaits basketry takes, for instance, only 24 seconds. Nevertheless, these features give away much of the skill and training of the basket makers.

The working rhythm of both occurring and recurring actions is reflected in the appearance of the basket. A regular appearance of the archaeological find is an indication for the skill of the ancient basket maker. It is not necessarily a marker of professionality, however. A comparison of the work of nonprofessional and professional skilled basket makers shows that the professional product displays signs of haste. The skill of the professional basket maker can be read from the degree of regularity of such inaccuracies.

Work-Eye Contact

Apart from a sign of concentration, the work-eye contact is also an important indicator of what is supposed to be the 'good' side of the work. The modern basket makers always face the side of the basket that will be visible. While plaiting the long strip, Mohammed watches the side where the ends of the inserted leaflets are not visible (they are at the back). When he rolls up the plait he takes off the irregularities from the outside of the coil (the insertions are on the inside). Later in the sequence the smooth outside of the rolled up plait becomes the outside of the basket (cf. 13:54-14:01). The inside not only has the insertions, but the sewing ridges are also much more pronounced on that side. So in sewn plaits basketry the outside is more important than the inside, despite the fact that the roughness of the basket might damage the contents. The sewn plaits baskets clearly have not been produced to contain vulnerable items, such as soft fruits.

For the flat coiled baskets, made by Rauwhayya, the 'good' side is the inside (cf. Plate 16-9, p. 355). This is the side on which the bread lies. The *sabat* baskets are also smooth on the inside. For the food covers in Nubia, however, the 'good' side is the convex (upper) side (33:35-33:55).

The work-eye contact of the ancient basket maker can be recognised in the archaeological material too. Since the side that the basket maker faces is in general

more regular in appearance than the side that is turned away, the orientation of the basket towards the producer can be inferred. The two sides of the work can usually be recognized even in quite small fragments of archaeological basketry. In addition, identifying the 'good' and the 'wrong' side of a basket helps functional interpretations.

If we want to understand the production of archaeological basketry as more than a collection of dispersed descriptions, measurements, impressions and thoughts, then one important aspect still has to be looked into. Who made the baskets and for whom did they make them? This will be discussed in part four.

PART FOUR

Basket Makers

CHAPTER EIGHTEEN

PRODUCERS AT PRESENT

18.1 MOHAMMED AND NABAWIYYA, SEWN PLAITS BASKET MAKERS

Mohammed, living in Middle Egypt, is a semi-professional basket maker. He also has some fields, which he works in the mornings, while he uses the afternoons to make baskets. He learned the trade from his father, but he does not want his sons to become basket makers. He wants his sons to go to school to be educated and become civil servants to prevent them from being as poor as he is.

Mohammed taught his wife how to make the plaits, and his mother also knows how to do it. They sometimes help him with making the plaits. He earns a very small income of his baskets. Because he does not own enough palm trees, he has to buy palm leaf and fibre. To buy enough of the *qalb el-nakhla,* the young white leaves in the centre of the palm tree, to make one *alāga* basket costs him approximately 30 piastres, while the price he gets for the basket is LE 1.50 if he travels to Deir Mawas, the nearest small town, to sell the baskets himself. If he uses a middle man, then he gets only LE 1.40 for the *alāga* basket. For two afternoons work, he thus receives maximally LE 1.20= (approximately $ 0.35). In comparison, the day rate for workers in Middle Egypt is LE 8,= (price level of 1992).

basket name	size of plait	price of material	price of basket
maqtaf	10 *ba'a*	LE 0.50	LE 2.00
alāga	7 *ba'at*	LE 0.30	LE 1.50
gauta, baguta	3 or 4 *ba'at*	LE 0.20	LE 1.00

Table 18-1 The prices of raw materials and end products of sewn plaits baskets in Middle Egypt (price level of 1992). cf. Plate 10-3 p. 180.

Mohammed states that he is a poor man, and other people in the village characterize him as poor also. Nevertheless, he owns two mud buildings, a house to live in, and a stable for his animals. He has a cow and some goats. The sustenance of the family is based on what he grows on his land. The women of the family make bread and cheese. Meat is rarely on the table. The income from the baskets is mainly to buy the things that the family cannot produce.

The clothes he and his family are wearing are in good condition, but the house is furnished very sparingly: the living room has one table with three legs, leaning against the wall, a small black and white television on top of it. The family sits on the floor and if there are guests a plastic mat is rolled out. The bed room boasts a double bed. There are no cupboards for clothes, which are all hanging over a piece of string. The kitchen area in the court yard contains a mud oven on which all the cooking is done. The family does not own a refrigerator, that first sign of wealth.

Mohammed makes his baskets for farmers (the *maqtaf*), workers (the small *baguta* basket), and households (the *alāga*, which is mainly used as a carrier basket for shopping). In spring, Mohammed makes 'the pollinator' a special basket which is used to carry the pollen from the male date palm tree, up to the flowers of the female date palm tree (Plate 18-2).



Plate 18-2 The *talla'a* basket, used to pollinate the date palm trees.

Nabawiyya

In the New Nubian village of Dihimīt sewn plaits baskets are made by women on a semi-professional basis (Plate 4-3, p. 62). They are lavishly decorated with patterns of three or four colours (Plate 11-7, p. 215).

basket type	size of plait	palm leaf	dye	price of basket
large *guffa*	10 *ba'at*	LE 1.00	LE 1.50	LE 5.00
middle size *guffa*	6 *ba'at*	LE 0.50	LE 1.00	LE 3.00
small *guffa* *(shibr/ sellan nibid)*	3 *ba'at*	LE 0.25	LE 0.50	LE 1.50

Table 18-3 The prices of raw materials and end products of sewn plaits baskets in New Nubia (price level of 1992).

The quantity of palm leaf needed for a medium basket are two young date palm leaves, at 25 piastres per leaf. Apart from the 50 piastres for the palm leaf, the basket maker has to invest LE 1 to buy the dyes. The basket costs LE 3 so the profit for a full day of work is LE 1.50 ($ 0.45). Nabawiyya does not work full time, however. She makes sewn plaits baskets and mats whenever she has time. Depending on the season, this is usually not more than two hours a day.

As long as there is palm leaf in the house, she can start the work after waiting 30 minutes for the palm leaf to soak. The plaits can be made anywhere and this activity does not require a large space. Doing this work whenever there is some spare time is easy and she can stop the work at any moment when other tasks (cleaning, baking, cooking, shopping) ask her attention.

She makes the baskets mainly for her own use, although she does sell on the market sometimes. It gives her a little extra income, on top of the salary that her husband brings in. Like most of the men from Dihimīt, her husband is working in Cairo and only comes home once a year. Basket making as a nonprofessional occupation for women has a long tradition and the craft is considered an important asset. Nabawiyya considers selling the baskets a useful contribution to supporting the household.

Like most Nubian houses, Nabawiyya's house is spacious and clean. She owns a colour television, a refrigerator and a fan. The guestroom and bedrooms are nicely furnished with colourful flowery patterns and frilled bedcovers. Nabawiyya wears colourful dresses with a black overdress when she leaves the house. In general the standard of living seems to be much better than that of the Middle Egyptian basket maker.

Nabawiyya learned how to make the sewn plaits basketry from her mother. She started when she was still very small, approximately seven years old. In Old Nubia the women would cook breakfast early in the morning and then go out with

the animals. While watching the animals, they would sit under a tree and make baskets. Now, in New Nubia, they preferably make baskets together still. They get together in the court yard of one of the houses.

The colourful plaited baskets are mostly used as shopping baskets, or for displaying goods (dates, peanuts, spices) in the shops of the *souk*. For agriculture, undecorated sewn plaits baskets, made by Egyptian men, are used. Nabawiyya commented on this saying that the Nubian men work the earth, the Nubian women the palm leaf (*khus*), while the Egyptian men work with both earth and *khus*. She implied that the Egyptian men somehow had their materials mixed up (making baskets is women's work).

18.2 RAUWHAYYA, UMM ALI AND KHADIDJA, COILED BASKET MAKERS

Rauwhayya makes two kinds of baskets: the *tabaq*, the large flat bread basket and the *sabat*, a deep basket with rigid, straight, slightly flaring sides. She makes these baskets for her own use and perhaps for friends or neighbours. She never sells them.

Her husband owns ten date palm trees and in general the family is quite well off. They have a water buffalo and a cow, who just has given birth to a calve; four goats, one goose and ducks. They also own a donkey, but this does not belong in the category of 'household animals' and thus is not mentioned when asked how many animals they own. The house is not large, but boasts a colour television and a fridge. Rauwhayya's husband is a *khaffīr* (antiquities guard), and farmer.

Umm Ali

Umm Ali lives in the village of el-Till, 5 km to the North and has baskets for sale. Since this village is on a tourist route, she sends her neighbours' daughter out to sell baskets to the tourists. She works precisely and makes regular stitches which cover the bundle material completely.

basket type	days work	price of material	price of basket
sabat	3 full days	LE 1,50 - LE 2,=	LE 6,=
large *tabaq*	3 full days	LE 1,50 - LE 2,=	LE 6,=
small *tabaq*	1.5 days	LE 1,=	LE 3,=
large *seniyya*	3 full days	LE 1,50	LE 6,=
small *seniyya*	1.5 days	LE 1,=	LE 3,=

Table 18-4 The prices of raw materials and end products of coiled baskets in Middle Egypt.

Her husband owns three palm trees, but this is not enough for the amount of baskets she makes. She has to buy part of the raw materials. She complains that nobody wants to give her *zaghauwa* (fruit stem) and that she is forced to use *halfa* (grass) instead. But only, she assures me, for the tourist baskets. Egyptians would never accept this inferior material.[1] For the large *tabaq* she needs five or six of the young date palm leaves, which cost 20 piastres each and five or six fruit stems at 10 piastres each (cf. Table 18-4).

She is a semi-professional basket maker, with a production of two large, or four small *tabaq* baskets per week. With her work she makes approximately LE 60,= a month, which is half her husbands' income. This money is used for extra things, "such as cigarettes and tea". The family has a new, government-built, house. In the court yard Umm Ali keeps chickens, ducks, rabbits and a turkey. Her husband is a retired government employee.

She was taught how to make baskets by a woman of the village. She has taught her nine-year-old daughter and a neighbour girl of fourteen years old. Several women in el-Till know how to make baskets, but according to her husband, Umm Ali makes the best baskets in town. He recognizes her baskets anywhere. Umm Ali says that all women in el-Till know how to make baskets, while the women from the nearby villages of el-Hagg Qandil and el-Amariyya do not. The people from these villages come to buy baskets in el-Till while the people of el-Till buy their sewn plaits baskets in el-Hagg Qandil, where the men are involved in basket making. The suggestion that men could also make coiled baskets is met with horror: "That would be shameful. Why? It just would be shameful".

The claim of Umm Ali that coiled basketry is only made in el-Till and sewn plaits basketry only in el-Hagg Qandil is decidedly not true. In all villages women are involved in making baskets. The number of men in el-Till making sewn plaits basketry is low, however. The division between the sexes, coiled basketry being made by women, sewn plaits baskets by men, is very strong, although it is acceptable that women assist in making plaited baskets (cf. Mohammed's mother and wife, section 18-1).

Several people mentioned the village of el-Bersheh, which is located approximately 10 km to the north, as a centre of basketry production. Many persons, both male and female, produce for the markets in Mallawi and el-Minya. The division between men-made sewn plaits, and women-made coiled basketry is strongly present here as well.

Although town people might look down on it, in the village it is an asset for a woman to have the skill of making baskets. Nobody is ashamed of being a basket maker and many young girls are learning how to make them.

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[1] Once upon a time grass was the favourite material for the bundles of coiled basketry in this region, cf. p. 182.

Khadidja

The basket makers in New Ibrim are making a large variety of coiled baskets (see Appendix D), mainly used for covering food. When the villagers partake in a funeral or celebration food is brought in on trays, and uncovered the moment the meal starts. In the old days the food was not brought in on an aluminium tray, but on a large flat basket, which was also called *shauwer*. When not in use, this basket is hanging on the wall as an attractive, colourful decoration. The *kontee* is a deep basket with a head ring underneath. The 'good' side of the basket is the outside, in this case not because the *kontee* is used as cover, but because it is carried on the head, covered with a flat basket, the *walīl* (Plate 18-5).



Plate 18-5 A deep basket (*kontee*) covered with a flat lid (*walīl*). The basket is made of cotton yarn. This family lives in an Arab-Nubian village. (New el-Malki, 1996).

basket type	days work	price of material	price of basket
shauwer	4	LE 13.=	LE 20,=
karadj	2	LE 6,=	LE 10,=
kontee	4	LE 13,=	LE 20,=
walīl	2	LE 6,=	LE 10,=

Table 18-6 The prices of raw materials and end products of some of the Fadidja coiled baskets in New Nubia (price level of 1992).

The large decorated Nubian food covers take approximately 14 days of part time work, which translates into four full-time days. A smaller food cover, with a diameter of 300 mm takes two full time days, provided "one has good eyes and is not lazy".

Khadidja makes the baskets mostly for her own use, or to give to friends and daughters of friends. At a marriage of a village girl, her friends and relatives make baskets for her, to decorate the house. A bride receives about 30 to 50 baskets. The mother of the bride makes a sewn plaits marriage mat, which after the marriage is rolled up and hung from the wall, together with two coiled food covers. The tradition of giving baskets at weddings has not survived in the Kensi villages, as it does in the Fadidja villages.

In Old Nubia the markets were far away. Some women told that they used to make baskets to sell in the North (Aswan) or the south (Wadi Halfa). At present, with many husbands working in Cairo or abroad, and the local markets being easily accessible, selling basketry is becoming increasingly common. The prices quoted (Table 18-6) show that the money made in a full day's work is LE 2,=.

Khadidja's house and court yard, like most houses in New Nubia, is spacious and meticulously clean. The level of wealth seems to be higher than in Middle Egypt. Her family owns a fan, fridge and colour television. The guest room and bed rooms are well furnished. No animals are kept in the court yard or around the house. Goats, sheep and chickens have their own space, often a separate, old, house or barn.

Khadidja learned to make the coiled baskets from her mother and passed her knowledge on to her daughter. Coiled baskets can be made whenever there is a short span of time available, and it can be easily put down to return to other tasks. The only preparation necessary is soaking the palm leaf. Once moist, it can be kept for a while in a tub of water, or in a wet cloth.

In Kensi villages, women are organizing workshops where girls are taught how to crochet, sew clothes, make bead work and baskets. The baskets made, are

those sewn with coloured cotton yarn (cf. Plate 18-5). These are sold on the weekly markets. It is an outlet created by the workshops, to sell their produce.[2]

Khadidja complains that the young Fadidja women do not want to learn the craft. They do not have the patience required, because they want to watch television. In Kensi Nubia the workshops teach the young women to make baskets, but these are not made with the traditional materials.

18.3 AMRĪT, TWINED MAT MAKER

Amrīt is not a rich man. His *galabiyya* is frayed at the sleeves and his head cloth is threadbare. Of course, this is his working outfit. When he finishes work, he changes into a better *galabiyya* (men's dress) to go to the coffee shop. His sons go to school and, like Mohammed the *maqtaf* maker, he hopes that they will have a better job.

Although he is a professional mat maker, he does not have a separate workshop, but he always works at the same spot in his house. The pegs of his loom are fastened in the ground of the narrow hallway, facing the door. Only when he is preparing the string, he sometimes sits outside. He lives in a large almost windowless mud brick house: two rooms with high ceilings, which give the impression almost of a cave dwelling. There is hardly any furniture in the house, just some mats to sit on. The family life concentrates itself in the small, half roofed, courtyard, where the bread oven and cooking utensils are.

Amrīt does not make a large amount of money. On each *masbala* he makes a profit of LE 2,=. He can make only two *masbala* bags a week, which includes making string, twining four mats, and sewing them on three sides into a bag, with one long side open. Put on the back of a donkey, the points of the bag hang down along the donkey's belly and the bag opens automatically. Empty, the *masbala* is flat as a mat and can be used as saddle. Apart from *masbala* bags Amrīt also makes door mats (*rigleen*) and donkey saddles (*barda'a*).

18.4 SHAHED AND KARIMA, MAT WEAVERS

The workshop of carpenter Attia, produces timber, wooden donkey saddles (called *barda'a*, just like the ones made from twined matting), and beds. Most beds are finished with a *jerīd* bottom, the frame is filled with the date palm midribs. Sometimes, a client wishes to have a *serīr bil ḥabl*, a bed with a woven webbing. Then Shahed is asked to come.

Shahed used to be a professional bed maker, but since demand for this traditional type of bed is dwindling, he had to take on another job. He works for

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[2]Apart from newly made baskets some women sell at least 35 years old baskets on these local markets. These date from before the migration to New Nubia. One woman on the market explained that the colours were still well preserved, because she had been keeping them all that time in a dark chest. She decided to sell them, because she needed some cash money.

the government, which means he has an office job that lasts until two in the afternoon. As almost everybody, he does different work in the afternoons, for instance bed making. He makes approximately one or two beds a month, for which he orders the frame from the woodworkers for LE 15,=. The rope he makes himself from *halfa* grass, which costs him only the time to cut and dry the grass. The total production time for the bed is twelve hours, six to make the rope and six to make the bed. For a complete bed Shahed asks LE 35,=. If he would be a full-time bed maker, he could make five beds a week, the rest of the time he needs for collecting the raw materials. With full demand he could be making LE 100 a week, which is a reasonable income, compared with government jobs that pay LE 120 to LE 200 a month. Cheap metal beds are slowly replacing the wooden beds with jerīd or string.

The *serīr bil habl* is also called *angereeb*, a term used in upper Egypt, Nubia and the Sudan. Shahed is an Egyptian who sells his beds to both Nubians and Egyptians. His father taught him how to make the beds. His elder brother also knows how to do this work, but his younger brother works as a farmer and has never learned the trade. Apart from beds, Shahed also knows how to make twined matting: *masbala* and a *barda'a*.

The video shows weaving with a double strand: Shahed pulls loops of a long string through the warp and hooks them into the previous loop. It is a much faster method than weaving with one strand a the time, because the string is double and does not have to be pulled entirely through at each passing of the warp.

Karima

Floor mats and sleeping mats are woven with single strands, on a loom. In middle and upper Egypt, mats woven of bunches of *halfa* (grass) are common. In the oases of the Western Desert, such mats are made of single stems of rushes (*samaar*). The mat weavers are in general full-time professionals, who often have part of their house or a separate workshop set aside for the trade.

The mat weavers are usually men, but in the upper Egyptian village of Nagada there is a female mat maker. She is a widow who took over the trade of her late husband out of sheer necessity. She works full time. She is not a wealthy person and has the responsibility to feed her family.

The raw materials for these mats are "belonging to everybody", growing on uncultivated land, often at canal banks and near small lakes or pools. The floor mats are rapidly replaced by woven mats made of brightly coloured plastic straws. The costs of the plastic mats are higher than those of the grass mats, but they are less heavy, come in larger sizes and are thought modern.

18.5 PROFESSIONALITY

In the sections above the terms *full-time professional*, *part-time professional* and *nonprofessional* were used. This distinction is made not as much on the time involved in working as a basket maker, but on the dependence of the income from

this craft. A full-time professional is completely or largely dependant on an income out of basket making. The part-time professionals have other occupations, farming for instance, or are responsible for only part of a family's income. Nonprofessional basket makers only work for themselves, or for friends and family. They do not sell their produce on the market.

According to this definition Rauwhayya and Khadidja, who make coiled basketry in el-Amariyya (Middle Egypt) and Ibrim (New Nubia) respectively, are nonprofessional basket makers. Umm Ali, who sells coiled baskets to tourists who visit the antiquities at Amarna, could be considered a part-time professional, although she does not really produce for the market regularly. The money she brings in is nevertheless a considerable contribution to the household income.

Mohammed who makes the sewn plaits baskets in the afternoons, but works on his land in the mornings, is clearly a part-time professional. He spends one day a week to sell his produce on the market across the river.

Amrīt is a full-time professional mat maker, as is Karima, who weaves mats. The bed maker Shahed used to be a full-time professional, but had to give up because there was not enough demand, although mats and beds are commodities, that are still bought and sold on the market.

The basket makers that are full-time professionals work in trades that require planning and a special work space. Making flexible twined matting requires a loom and thus a fixed work space. The same is true for woven matting, where the loom is much bigger and takes up even more space.

Both twining and weaving are time-consuming processes, which in principle can be interrupted at any moment (except perhaps when the warp is set up). They have specific requirements for space: a large shaded even floor space is needed. These requirements seem to have a relation to the professionality of the producers. All the other basketry techniques can be picked up and taken to any place to work on, the looms are in a fixed place and prevent the space to be used for something else. This is true as long as the mat is on the loom, but when the mat is finished and the loom is empty the only things that remain are four pegs in the ground. At that moment the space can be used for other activities.[3]

18.6 GENDER

Several basket makers had very firm opinions on who should be making the baskets. Umm Ali thought it would be shameful if a man would make coiled baskets. Nabawiyya thought it was a bit ridiculous that Egyptian men were making sewn plaits baskets.

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[3] A similar use of an industrial installation has been noted by Nicholson in his work on the potters of Deir-Mawas. Hand made pots are produced by female potters. With an anvil, the clay is pounded into shape in a clay-lined hollow in the ground. There are three differently sized hollows for the different types of pot. The part of the day the hollows are not in use, they fill up with rubbish, which is lying around in abundance, and are walked over (Nicholson 1987).

Used by \ Production		Middle Egypt	
		Made by men	Made by women
men	in the house / court yard		
	to the house *(shopping)*	sewn plaits baskets	
	outside the house (fields, *souk*, transportation)	sewn plaits baskets twined matting woven matting transportation net pierced *qafas* crates	
women	in the house / court yard	pierced *matraha* pierced *qafas* cage woven matting	coiled *sabat* basket coiled bread basket *šinda* cheese mat
	to the house *(shopping)*	sewn plaits baskets	coiled *sabat* basket
	outside the house (fields, *souk*, transportation)		

Used by \ Production by		New Nubia	
		(Egyptian) men	(Nubian) women
men	in the house / court yard		sewn plaits mats coiled food covers
	to the house *(shopping)*	sewn plaits baskets	sewn plaits baskets
	outside the house (fields, *souk*, transportation)	sewn plaits baskets twined matting transportation net pierced *qafas* crates	sewn plaits baskets
women	in the house / court yard		coiled food covers sewn plaits mats sewn plaits baskets
	to the house *(shopping)*		
	outside the house (fields, *souk*, transportation)		sewn plaits baskets

Table 18-7 The production and use of basketry by men and women, for Middle Egypt and New Nubia.

On the other hand, it was completely accepted that Karima had taken over her husbands' profession as mat weaver. Her circumstances are exceptional and perhaps pitiful, but not frowned upon. Thus there are situations where women take over the work of men, while I have found no cases in which the men take over what are considered women's basketry techniques.[4]

What is considered a men's or a women's technique is different in Middle Egypt and New Nubia. Sewn plaits baskets, for instance, are made exclusively by women in New Nubia. At the same time the women are aware that the coarse baskets their husbands use in the fields, are made by (Egyptian) men.

Table 18-7 shows the relation between the production and use of basketry techniques in Middle Egypt and New Nubia. In Middle Egypt there is a much clearer difference between baskets produced and used by women than in Nubia. Mostly, the Middle Egyptian women produce the basketry they need themselves. They make the large bread baskets (*tabaq*) and the storage baskets (*sabat*), as well as the cheese mat (*shinda*). The men do not use these baskets. Sometimes the women use the *sabat* to get shopping.

Egyptian men use men-made baskets in the field, but they do not necessarily make these themselves. Professional basket makers produce most of these baskets. Some women are involved in working the land (although this is not general and certainly not considered a good situation). In that case they use the same 'outside' baskets as the men.

The Egyptian women use professionally made basketry too: inside they use the *matraha*, the bat like board, used in bread baking. Cages made of palm mid ribs (*qafas*) are bought to keep chicks. Woven matting used to be part of the house inventory, but they have been replaced mainly by plastic woven mats. The grass mats are now mainly used outside by men while doing their jobs (especially guarding things involves prolonged sitting on grass mats). Outside the women use the sewn plaits carrier baskets for doing shopping.

In Nubia the women make all the basketry. These items are used mainly in the house and for shopping. The coarse baskets used in agriculture are bought from outside. It is made by professional Egyptian men. There is a much less clear division between men's baskets and women's baskets as the use is concerned. Nubian men use the same baskets as Nubian women. There are some subtle differences in the use of the coiled food covers, however. The women use them to cover the food, the men to uncover the food.

The colourful sewn plaits baskets are used in shops to display goods such as peanuts, dates, beans and spices. These baskets are mostly produced in the village of Dihimīt where women work as part-time professionals.

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[4]There is one exception. A man in the Kensi village of el-Dakka wanted to show that he too knew how to make baskets. When he stitched the basket together, he just pierced the needle through the fabric, rather than stitching and pulling the edges together. Upon a closer look, it appeared he had made a plait with six rather than five strands, which makes it impossible to sew the edges of the plait (cf. pp. 209-213).

CHAPTER NINETEEN

PRODUCERS IN THE PAST

19.1 Amarna Basket Makers

The basket makers from Amarna, who were they, what was their position in the village. Were they professional basket makers or nonprofessionals?

If we would plant the present situation onto the New Kingdom workmen's village then the picture would be as follows: coiled baskets were made by women, from grass, which they could collect at 5 km distance near the Nile and from doam palm leaf, which perhaps would have to be bought. They were nonprofessional basket makers, producing for their own needs only.

Twined and woven matting would be made by part-time or full-time professional men in small workshops which would have enough space to place a horizontal loom. The grass would be gathered for free, the doam palm leaf perhaps had to be bought.

Other items, such as brushes and pot stands would be made by the households themselves (men or women) for their own use. The amphora net was probably imported, because papyrus probably did not grow in abundance in the vicinity. The knotless net, made of doam palm leaf was probably imported too. It came perhaps with the doam nuts from wherever these were imported.

Is this a feasible construction? The workmen's village is thought to have housed the families of the men who worked in the tombs. Most of the work consisted of low-skilled labour, excavating the rock to make the rough outlines of the tombs. Some of the half finished tombs at Amarna show that rough stone hacking was going on at the same time as fine relief carving. The baskets with rubble were probably carried past the people finishing the reliefs in the narrow entrance way. Even if the relief carvers were also living in the village, the community seems to consist more of workmen, rather than highly skilled and valued artists, with as special position, as was the case in the 19th and 20th Dynasty community in Deir el-Medina.

Did such a community have its own basket makers? The answer is probably 'yes'. In the twenty years of its existence, the village developed a lot of economic activities, from pig breeding to growing garden plants. In the front rooms of several houses limestone beam sockets were found, which have been interpreted as emplacement blocks for (vertical) textile looms. They usually come in pairs and two were found also in the south annexe of West street 2/3, excavated in 1986 (Kemp *et alii* 1987, 4-6). Spindle whorls have been found in large quantities which are a further indication of textile production in the village.

No bundles of prepared basketry materials were found, but it seems very likely that coiled basketry was made in the village and probably by women. The tomb paintings, which show scenes of daily life, do not show basket makers. This can be taken as an argument that coiled basketry was not made at a professional level, but as a household activity by nonprofessional women.

Was there a mat maker in the village? The most likely area for a mat weaving work shop would be West street 2/3. This is a house with an annexe, excavated in 1986 in the vicinity of which most of the woven matting fragments were found (Kemp *et alii* 1986, 30; 1987, 4-11). West street 2/3 did not have any features, however, which point at the one time presence of a horizontal loom (e.g. in the form of four post holes).

The woven grass matting was found in the open area to the south of West street 2/3 (indicated as West street 1 cf. Kemp *et alii* 1986, 28-33), directly on the surface of the organic fill, as if blown there. They are taken as an indication that the annexe of West street 2/3, just to the north of this area, was covered with a light roof of mats and reeds (Kemp *et alii* 1987, 4). Within the annexe of West street 2/3 more grass woven matting was, lying directly on a mud floor. Similar roofs have been found by Peet and Woolley (Peet and Woolley 1923, 67-68). In their publication probably only a small part of the basketry found was mentioned and the descriptions give not nearly enough detail to be of any use for a study of basketry production and work shops in the workmen's village.

One of the arguments against this matting being made in a workmen's village atelier, is that the woven mats found have so many different top and bottom edges. Unless we propose that a mat maker makes different edges all the time, this would indicate at least two or three producers. If we accept that, then it seems more likely that the mats come in from (several) work shops in the main city.

The twined mats lead to a different conclusion. Although not many edges have been preserved, which might tell us more about the producers, the large quantity of this kind of matting and the lesser demands to the size of the work space, make it probable that at least some forms of twined matting were produced in the workmen's village. There are no indications whether or not furniture matting was made in the village.

19.2 QASR IBRIM BASKET MAKERS

The situation at Qasr Ibrim is slightly more complicated than at Amarna, because the periodicity is much more widespread. Fluctuations over time should be incorporated. A second problem is that the deposits of the different periods are very different in character. From the late-Meroitic and the Ballana periods we have house hold deposits. Especially the excavation of a number of cellars yielded a large number of coiled baskets. Evidence from the Christian and Islamic periods comes mainly from pits dug into the earlier layers. The pit lining, consisting of re-used baskets and mats, presents a very specific selection of materials (only flat objects which can cover a large surface, such as mats and cut up carrier baskets).

Then there is the question of the relation between the habitation of the hill top and the villages down at the river side. Was there a difference in habitation or social grouping between the inhabitants of Qasr Ibrim and those of the villages? Was Qasr Ibrim an independent town, with its own craftsmen, or was there a regular interaction with the lower villages. Were the villagers retreating to Qasr Ibrim in difficult, unsafe periods? We will probably never know the exact relation, because the settlements on the valley floor have not been excavated, and are now under 70 metres of water.

An attempt of picturing the basket makers from Qasr Ibrim, based on the present would be as follows: In the late-Meroitic and the Ballana periods (first to sixth century AD) coiled baskets are made by nonprofessional women. The Qasr Ibrim coiled baskets are decorated with wrapping patterns or colours. The decorative techniques have no parallels in the Egyptian basketry, but seem to be linked to East African traditions.

Sewn plaits basketry from the same period is probably also made by women. This suggestion is based on three arguments. Small bundles of prepared raw materials were found in house refuse dated to the Ballana period. A flat needle, probably used for sewing the plaited strips, was found in late-Meroitic domestic refuse. In the third place, the sewn plaits matting fragments found were made of twill date palm leaf plaits, sewn with unspun strips of palm leaf (either date or doam). These thin strips were connected with an overhand knot.

In present day Dihimīt, women use a very similar flat needle to sew the twill plaits with unspun strips of doam palm leaf, which are connected with the same knot.

Was it considered a valuable thing that women could make baskets? In present day New Nubia it is. The basketry covers are part of a social exchange system. Judging from the large number of small coiled plates, decorated with coloured winders, which were found in a very small area at Qasr Ibrim, it seems very likely that the basketry then was considered of importance too. Whether they had a similar role in society as at present is impossible to say with certainty, but it is not unlikely.

The excavated area in Qasr Ibrim, saw an expansion of the built up area on top of the collapsed Ballana period houses. The expansion took place in the Islamic period, after the advent of a military contingent of the Turkish army. The, mostly Bosnian, mercenaries never left and gradually mixed with the local population. The basketry of this period, found in grain storage pits, features among other things, coarse sewn plaits baskets, which are made in a five-strands tabby plait of doam palm leaf. They are sewn with string, rather than unspun strips of knotted palm leaf.

Could we interpret this basketry as an influence from Egypt, where at present sewn plaits baskets are sewn with string? Were the soldiers involved in basket making? It seems quite likely that the army had their own craftsmen, for maintenance or armour, and perhaps also for the production of coarse utilitarian basketry. It seems not improbable that (part time) professional men were involved

in the production of sewn plaits basketry sewn with string and in making twined and woven matting. Whether the matting and furniture workshops were in Qasr Ibrim itself, or in the villages down at the river, remains a matter of speculation.

19.3 SOME NEW KINGDOM BASKETRY TERMS

Although I have stated the difficulties in identifying present day terminology, let alone ancient terminology (p. 16-17), it is, nevertheless, tempting to try and see if the information on ancient basketry production can tell us anything new in relation to the ancient Egyptian terms. It should be stressed however, that this is nothing but a first survey based on the standard work of Janssen on the Deir el-Medina ostraca (Janssen 1975).[1]

The basket makers from Deir el-Medina lived between 60 and 250 years after those from Amarna and it is often difficult to decide to which period the texts in which the basketry terms are mentioned exactly belong (Janssen 1975, 15-17). Although the origins of the Amarna workmen are not at all clear, they might have come from Memphis, rather than Upper Egypt, which means that there may be regional differences as well. If the present situation can be taken as comparison, then this would not have influenced the appearance of the baskets, but it would have made a difference in the terminology. Janssen's remark that the words used for common objects in the Deir el-Medina workmen's village differ "from that used for it by the rest of the Egyptians" (Janssen 1975, 133), is stressing the uniqueness of Deir el-Medina on the basis of the wrong aspect: the basketry terminology probably differed greatly between all regions of Egypt.

It should be kept in mind, while using the terms and qualifications of the Deir el-Medina ostraca as a lead to identify specific basketry techniques, that the writers of the ostraca not necessarily used the basketry terminology consistently or rightly. The many misnomers in English with terms such as 'reed' baskets (while none of the English baskets are made of reed, but of willow rods which is not even vaguely similar) may be a vivid warning.

In thirteen sections, Janssen lists different terms and the prices quoted for these. He also tries to identify the type of basketry technique, the shape, size and material of the baskets.

The kbs-basket and the Techniques of nbd and ḫnd
(Janssen 1975, 133-139)

Janssen proposes that the *kbs* is the grain basket shown in many agricultural scenes. The *kbs*-basket is in many instances specified as being *nbd*, which seems to

[1] For this survey I do not base myself on the original texts, which is something that should be done in future research. Rather, Janssen's conclusions are held to the light of the new information built on a synthesis of well dated archaeological material and ethno-archaeological work.

indicate the technique.[2] Janssen proposes that *nbd* means coiling on the basis of several arguments. To explain the different contexts and meanings of the word *nbd*, he takes as basic meaning 'to twist'. In coiled basketry the twisting of the strands indicates the wrapping of the winder.

term	specifications	suggestion	Table 10-13
kbs	*nbd* (twined)	twined grain basket	fine: A or B coarse: J or K
dnit	*nbd* (twined) *šm'* (fine) *ḫt.ti* (coarse)	container for fruit, incense, etc. coiled or twined?	
krḥt	*nbd* (twined) *ḫt.ti* (coarse)	container for fruit coiled or twined?	
mtrḫt	*nbd* (twined)	twined sieve	E, F or G
mnḏm + nḳr	*nbd* (twined)	(coiled?) basket with twined sieve as lid (?)	E, F or G
irgs, irḳs	*nbd* (twined)	sack made out of a twined mat	H or I
kskst	*nbd* (twined)	large twined bag	
'rḳ,		sack (also of leather)?	
ḥ'w		cheap basket, no specifications	
ḥtp		twined matting, container?	L
tmɜ	*šm 'n šwy* *šm 'n nwḥ* *rdmt*	fine twined matting with grass fine twined matting with string matting of sedges	C A, B
sḏr + tmɜ	*ḫnd* (woven?)	woven grass sleeping mat with twined under mat?	
šḳr, šḳr'	*nbd* (twined) *ḫnd* (woven?)	?	

Table 19-1 Baskets mentioned in Deir el-Medina texts, as given by Janssen (1975). The third column lists suggestions for a re-interpretation, based on the Amarna basketry and the ethno-archaeological survey. The letters in the fourth column refer to the twining techniques listed in Table 10-13 and depicted in Figure 10-14 (pp. 196-197).

[2]Usually *nbd* is translated as 'to plait', but Janssen remarks justly that (pharaonic) Egyptian baskets are never plaited (Janssen 1975, 136).

This basic meaning of 'to twist' would be equally suitable to indicate twining, but Janssen prefers the identification of *nbd* with coiling, because Egyptian baskets are usually coiled. He states that "*ḫnd* cannot mean anything other than 'twined'. Its rare occurrence corresponds too well with the scarcity of twined basketry" (Janssen 1975, 139).

In the bar chart of Figure 12-2 (p. 251), it appears that twined basketry is the technique that occurs by far the most in Amarna (38% of all finds is made in a form of twining). This reverses Janssen's argument completely. There is another good reason to take *nbd* as meaning 'twined'.

If, as we tentatively concluded above, coiled baskets were made mainly by nonprofessional women, then they would presumably not appear that often as exchange goods. The coiled technique can be expected to feature less in the texts than the twined technique.

These arguments lead up to the most convincing one: the grain bags which are depicted frequently in tomb paintings and of which fragments were found at Amarna, were made in a twined technique, usually of grass or doam palm leaf string (twining techniques A, B, J and K, cf. Table 10-13 and Figure 10-14, pp. 196-197).

Janssen argues convincingly that the term *nbd* probably developed into the general meaning of 'making baskets'. In the Graeco-Roman period this term was probably transferred to the sewn plaits technique, which mostly took over the role of the twined basketry. Although remarkable, I do not have the expertise to judge if the present Kensi and Fadidja term *nibid* for sewn plaits baskets and mats can be taken to stem from the same root.

The dnit-basket
(Janssen 1975, 140-143)

This basket is known from a large number of price quotations too. The *dnit* is several times characterised as being *nbd*. This would refer to a twined basket, but the function, it is known as container for fruit and incense, points much more to a coiled basket. There are several arguments for and against this.

If we take *nbd* to mean in all instances 'twined' than we should interpret the term *dnit* at least in those cases where the word has been specified with *nbd*, as a twined, rather than a coiled basket. If we interpret *nbd* as a more general term of 'basket making' than *dnit* could be a coiled basket.

Following the argument that the coiled baskets were produced as a house hold activity then coiled baskets, even though they are very common, would not be sold as often as twined basketry. In two ostraca the *dnit* is said to belong to a woman. This could be used to argue for or against the idea that the *dnit* is a coiled basket made and used by women. Mentioning the normal situation can be considered superfluous, which would be an arguement that the *dnit* basket is usually not, or not specifically, in the possession of women.

Janssen connects *dnit* with other meanings of this root, such as 'dam', 'dyke', and the areas marked out by such boundaries (e.g. 'share' and 'registry of real properties'). Since coiled basketry is the only technique in ancient Egypt which results in baskets with rigid walls, the term *dnit* might be related to the aspect of a 'dam', as a surrounding rigid wall.

The *dnit* basket is sometimes specified as *šm*ʿ fine), or *ḫt.ti* (coarse). Both fine and coarse coiled baskets occur, but this is not a decisive argument because fine and coarse twined basketry exists too. In short, it is not clear what kind of basket the *dnit* is.

The krḫt-basket
(Janssen 1975, 143-145)

This basket, which is not mentioned often, is once said to contain fruit. In two texts it has been specified with the qualification *nbd*, which strictly speaking, would make it a twined basket. Janssen expresses the hope that with the study of the basketry of Deir el-Medina the shape of this basket, which he considers to be coiled, can be defined, because the term does not occur before the Twentieth Dynasty. The publication of the Deir el-Medina basketry, however, does not give any firm dating of the material and we have to give up this hope.

The mtrḫt-sieve and the mnḏm with nḳr
(Janssen 1975, 145-149)

With some reservations the term *mtrḫt* is translated as 'strainer'. Sieves and strainers in ancient Egypt consist of twined grids, held in a coiled rim. The small sieves have a rim of only one coil, larger sieves and strainers have coiled walls and a twined base.

The *nḳr* is also thought te be a sieve, but cheaper and therefore perhaps smaller and less deep than the *mtrḫt*. The combination of *mnḏm* with *nḳr* occurs regularly, leading to speculations that the *nḳr* is a small flat sieve which functions as a lid for the *mnḏm* basket. They seem to form a pair, much as a dustpan-and-brush do. In an Eighteenth Dynasty context the *mnḏm* occurs as a basket for fruit. Both the *mnḏm* and the *nḳr* are combined with the specification *nbd*.

The irgs or irḳs basket
(Janssen 1975, pp. 149-150)

This basket is also characterised as being *nbd* (twined). In one ostracon it is said that one fine mat makes one *irs* (abbreviation of *irḳs*). This is reminiscent of the *masballa* bag in Middle Egypt, which is sewn of two small twined mats. Two fabrics similar to that of the *masballa* bag of today were found at Amarna (twining variations H and I in Table 10-13).



Figure 19-2 Decorated coloured baskets, tribute from Nubia, as depicted in the tomb of Rekh-mi-Re (drawing after Davies 1937, Plate XIII).

The 'nbr basket.
(Janssen 1975, pp. 150-151)

Not much is known about this term. It is quite an expensive basket, which features twice in a text with a list of funerary equipment. No further specifications are given in the Egyptian texts. Purely speculating, we could propose that, since well made, decorative coiled basketry was part of the funerary equipment, this basket might represent such special coiled basketry, perhaps imported from Nubia, like the baskets depicted in the tomb of Rekh-mi-Re probably were (Figure 19-2). This would explain their relatively high price.

The kskst-basket, the 'rk-sack (?) and the ḫ'w basket
(Janssen 1975, 151-154)

These three items do not occur often and very little can be said about them. The *kskst* is specified to be *nbd*. It appears to be a large object and could, for instance be a large twined bag. The *'rḳ* is in one case said to be of leather, and Janssen, therefore defines it as a kind of sack. The *ḫ'w* baskets are known to be cheap, but not much more can be said about them.

Matting: ḥtp, tmɜ and sḏr
(Janssen 1975, 154-161)

The matting found at Amarna is either woven out of *halfa* grass, straw or sedges, or twined out of halfa grass or doam palm leaf. In tomb paintings the *ḥtp* mat is always depicted as a twined mat, probably with widely spaced rows of twining (cf. Figure 15-19 p. 320, variation L in Table 10-13). Janssen thinks, however, that in

the price ostraca the word *ḥtp* refers to a container. No specification of the technique is given, so there is no basis for further speculation.

The *tm3* mat also seems to be a twined mat. Specifications in the ostraca include the combinations *šm 'n šwy* (fine, made of hay), *šm 'n nwḥ* (fine, made of string) and *rdmt* (a sedge type). The first two specifications seem to point to twined matting, which can be made of bundles of dried grass (perhaps indicated as 'hay') or of string (variations C, A and B in Table 10-13).

Sedges are made into twined matting too, if we may belief the tomb paintings where the herdsmen are making twined matting from papyrus culms. In Amarna the side edge of a mat of bundles of sedges (papyrus) was found (Plate 12-3, p. 253), but this was the edge of a woven, rather than a twined mat. For the moment, considering the large quantities of twined matting found at Amarna, we presume that the *tm3* was twined (floor) matting.

Janssen translates the combination of *sḏr* and *tm3* (also occurring as 'the *sḏr* and *its tm3*') as a sleeping mat (or pallet) and under-mat. *sḏr* is derived from the verb 'to sleep, to lie down' and the mat is specified as being *ḫnd*, which Janssen translates as 'twined' or 'twisted'. In two texts the mat is said to be made of rwy ('straw').

The finds at Amarna which are the most likely candidates to be interpreted as sleeping mats, are the woven grass mats (Plate 10-10, p. 191). They have the right length (1.65 m) and width (0.90 m) to have this function and they are well made and thick enough to make a comfortable sleeping mat. At Amarna two small fragments of such a woven mat were found to have been made of bundles of straw (p. 191). Most of the woven matting, however, was made of single grass stems.

The last basketry term listed by Janssen is the *šḳr* or *šḳr'*. This basket is sometimes said to be *nbd* (twined?) at other times *ḫnd* (woven?). If this refers to a container, than the translation 'woven' seems to be out of the question, however, since no woven containers are known to exist.

The inevitable conclusion from this brief attempt is that a more systematic survey of basketry terminology is needed, based on a thorough investigation of the original texts. Even then the expectation that it will be possible to make one to one identifications of terms with archaeological finds or depictions in wall paintings is too optimistic. The present Arabic terminology lacks consistency and differs sometimes between one village and the next. The situation will not have been much different in ancient Egypt, where there was not even the unifying force of Television Channels 1 and 2. Furthermore, it is not unthinkable that the ancient writers were not familiar with the local or specialised terminology and made up a terminology of their own.

CHAPTER TWENTY

SUMMARY AND CONCLUSION

20.1 THE TEXTUAL, THE AUDIO-VISUAL AND THE TACTILE

The report on the work on ancient Egyptian baskets and present day basket makers is given in words. Language requires a mental ordering of perceptions and observations. In the previous chapters the angle of view has shifted from detailed (basic structure) to the broader spectre (the world of the basket makers). However, "There is no simple correspondence between word and world" (Shanks 1992, 38). The world according to basketry is made up of textual, audio-visual and tactile aspects. The first two have been represented in the book and the video respectively. They have been cross-linked in different manners.

The tactile aspects are also part of the research, but the medium to transfer this kind of knowledge is through shared and gained experience (apprenticeship). Sitting and working with the basket makers is what I did, but what is impossible to duplicate. "I will show you" in this context is often not visual at all, but means in effect "I will make you feel". Getting a 'feel' for something is at the same time very concrete (handling materials) and abstract (when trying to put that experience into words).

Numerical aspects have not been mentioned in the title of this section, because they can be considered a tool to translate the visual or tactile into language. One of the functions of measuring (counting, weighing) is to create a type of knowledge that can be reproduced in a book. The working rhythm (audio-visual) is expressed in units of time or movement (Chapter 16). Some aspects of the tactile could be expressed in measured units too (for instance the tension strength of rope). Used as such, it is in effect a deficient translation of adequate, but nonliteral information transfers.

Inadequate as the translation may be, among academics it is valued higher than practical knowledge (cf. Benz Høgseth 1998). If there was ever a monolithic nature of academics, apart from the discussions arguing against it, it is rapidly dissolving, however (e.g. Shanks 1992, 35; Hodder 1999, 29). This gives the opportunity to discuss different kinds of knowledge.

The ancient baskets have been expressed in language with the help of classification. The work of the present day basket makers has been linked to this organised scheme (the twenty techniques in Chapter 15), in the form of a construct description of the production process. The video does not present an unordered world, either. The sounds and images have been selected during filming and edited into an ordered narrative.

20.2 CLASSIFICATION AND TERMINOLOGY

To write a text in which archaeological basketry is caught in words, a description has to be made. Each basket has a myriad of properties, and some of those are selected to describe the techniques. These are ordered in a classification, which concentrates on the *basic structure* of the baskets: those aspects that can be recorded, even if only a small fragment of a basket is found.

Following these criteria 20 techniques are listed, which were either found in the excavations (at Amarna or Qasr Ibrim) or are presently produced in Middle Egypt or New Nubia. This classification is just one possible way of ordering the basketry. It can be augmented with more aspects or a completely different angle can be chosen.

The classification is set up in combinations of binary oppositions (passive / active), tripartite divisions (elements moving in one, two or three planes) and in counts of numbers (number of systems, number of orientations, number of elements). Present users of Egyptian basketry have a very different classification, which centres around the function and size of the baskets. The criteria behind such an emic classification can be found partly by looking at the terminology used.

Terminology is a set of words to discern different objects. Any terminology is based on a set of criteria, and on an -often implicit- classification. The classification as presented in Chapter 9 is a West-European scholarly endeavour, which has no connection with the way these baskets were regarded in the past.

Is it possible to retrace the ancient classificatory organization of material culture? Attempts have been made, for instance by Arnold who states that "(...) cognitive systems should warrant some attention as a significant factor in the production of artefacts" (Arnold 1971, 22). Shanks and Tilley see the reproduction of an ancient taxonomic system merely as a *description* of cognitive systems, while what is needed in their opinion is an *explanation* related to social practices and patterning. "Material culture should be regarded as not merely a *reflection* of cognitive systems and social practices, but actually involved in the formation and structuring of those practices" (Shanks and Tilley 1987, 85).

In my opinion even this is too limited an approach. If at all possible, the identification of an ancient cognitive system not only relates to social practices, but in a much broader sense to the ordering of the world, which is what classification and terminology ultimately are about. It should be noted, however, that within a society there is not just one ordering principle, but a complexity of many (and often contradictory) senses of order.

20.3 SYSTEMS, ACTIVITY AND ACTIONS

To put in words those aspects that are visible in basketry fragments as well as in the actions of basket makers we resort to the terms "systems" and "activity" to describe basketry techniques. In Chapter 5 many pages have been filled with an explanation of what the term *system* refers to. By discerning group of basketry

strands that have the same role in the technique and describing the interaction of different systems the basketry fragments are recorded according to uniform criteria.

More important, by looking at the activity of the systems, (active or passive), a link is made with the actions of the basket makers. Two definitions have been given in the cause of this book, which express the change in emphasis from structure to action. First it was said that the (rigid) passive system makes up the body of the technique, while the (flexible) active system causes the coherency (p. 85). Later the definition changed and stated that the strands of the active system are handled more frequently or longer by the basket maker than those of the passive system (p. 269). Both definitions are useful, because they highlight different aspects: one looks at the structure as a result of a process, the other at the actions of the basket maker. It is a step towards understanding the production process of the ancient basketry, to get from the static to the dynamic.

The sequences shown in the video are also described in the text (Chapter 16). Such a detailed description helps in watching the process and the movements of the basket maker. Although every producer acts differently, the forced attention to detail brings to light important information that would be missed when adhering to a schematized or overall view of the production process.

The actions of basket makers have been divided into repetitive and occurring actions. The repetitive actions determine the image of a production process. They are the thousands of wrapped stitches that make up the fabric of a coiled basket, or the hundreds of weft yarns, woven into the warp.

The occurring actions are much less obvious. They are 'supportive' to the ongoing repetitive actions. Adding new lengths of material, turning at the edge of a row of weaving, smoothing the fabric from irregularities, are examples of occurring actions. The results of the occurring actions are often not obvious either. The insertions are hidden in the fabric. The edges are looking smooth, but unless studied in detail, their structure is not clear. In the production process the occurring actions are difficult to register. When making the edge, it is often not exactly clear what the basket maker does, because the moment passes quickly. Because of the fleeting character of the occurring actions, they cannot easily be copied or imitated. Unless a basket maker slows down on purpose to show and explain what he does exactly, it is difficult to understand the movements. It is, therefore, specifically in the occurring actions that the passing on of knowledge and tradition can be spotted. The basic technique may be wide spread and show little variation, but there are different solutions to technical details of insertions and making the centre, rim or edges.

There is a link between the production phase and the dominating actions. The start of the work is usually characterized by occurring actions. The basic structure is dominantly repetitive. The end of the basic structure is characterized again by occurring actions. Those actions that result in characteristic features usually take a relatively short period in the total production process. The start of a plait, for instance, takes 24 seconds.

The movements of the repetitive actions show a consistency and regularity that are a prerequisite for developing a working rhythm. Nevertheless, the occurring actions are often done in a certain rhythm also, although this rhythm is more difficult to distinguish. The working rhythm differs with each technique, but also with each basket maker.

Skilled basket makers work in a steady regular rhythm. They usually work with intense concentration. Their movements are not necessarily the most economical. Several basket makers, for instance, were found to slam their needle against the wall of the basket before making a stitch. This does not have a function in sewing the basket, but helps maintaining the working rhythm. Changes in the working rhythm indicate changes in production (transitions). Studying the work-eye contact indicates which moments in the process are difficult. During transitions from one phase to the next, the eyes often wander. During occurring actions and mostly also in the repetitive phases of the work, the eyes are focussed on the work.

Ancient Egyptian tomb paintings represent production processes by showing a selection of the most 'typical' scenes. For many activities, such as harvesting, weaving, beer brewing and leather working, the scenes considered representative by the ancient artists reflect the production phases that are characterized by repetitive actions. For mat making scenes the situation seems to be different. There is one scene with a mat weaver, which shows the occurring action of reaching out for the cross beam of the loom, to tighten the weft (cf. p. 313). The twined mat making scenes are as yet unexplained. They seem to represent the beginning of the work (laying out the materials, sometimes making the string) and the finishing touch (brushing the mat?). Basket making does not occur in the tomb paintings.

The working order is not always performed linear from preparation of the materials to the finishing touch. If, during the work, the raw materials are finished, new have to be prepared. During the production process periods of waiting are filled with actions which 'logically' belong to another phase. The production phase of the finishing touch is almost a ritual moment, which marks the end of the process. The actions in this phase could be characterized as 'symbolically functional'.

In Egypt it appears that regional traditions can be discerned by the basic structure, the use of materials, the size of the systems and the decoration, while local traditions are characterized by small differences in start, finish, insertion of lengths of materials and also the decoration.

20.4 CONTEXT AND MEANING

Context and meaning can be considered tactile aspects in the sense that they are dealing with things that either can be touched (the material context), or have to be grasped (meaning). The meaning of basketry can be considered an immaterial context, which reflects more than the social status of the basket maker. Production and use of basketry are linked to both group identity and personal expression.

How are we to grasp the meaning of basketry? Hodder states that answers to questions such as 'what does that mean' are "often constructed, forced and unhappy"(Hodder 1992, 204). Meaning is usually not a conscious construction, and it cannot be separated from the objects, nor can it be separated from other dimensions of the production (economical, social, ritual, magical, political, cf. Tilley 1998, 59).

Trying to formulate meaning into words is truncating it. Basketry items such as the *bilum* (knotless netting bag) in New Guinea and the Yekuana basketry for the Amazon region of lowland South America are a complex of associations, which are not at all vague, but have a very concrete and powerful meaning (Tilley 1998, 62-72).

The Nubian basket makers maintain that their colourful stitches are purely decorative and nothing more. In the interviews that both Boyce Driskell and I did, the basket makers state that they consider themselves better basket makers than the persons who taught them, because they use more colours and make new patterns. On a conscious level, basketry is purely functional, one of these functions being their use as wall decoration. Despite innovations, however, the villages show a definite character in the use of the same materials, colours and patterns, which is distinguishable from other villages. There is a clear difference between the Kensi and Fadidja decorated coiled basketry.

There is a gender division between the persons who use and make the baskets. This is strongly present in Middle Egypt, where the women make the baskets that they use (mostly inside the house), while the men make baskets used in the streets and in the fields. In New Nubia only the women make baskets, while coarse basketry for work in the fields is purchased from an outside group (pp. 406-408).

In Middle Egypt there are professional, nonprofessional and part-time professional basket makers. Studying the present day basket makers gives the opportunity to look at the way they work, the place they work in, the tools they need and the results of their work. It appears that professional basket makers are skilled, they need more equipment than nonprofessional basket makers and have a specific work space. They work concentrated with a very steady rhythm. The result of their work is uniform: one basket is the same size and has the same appearance as the next.

If professional basket makers are skilled, we cannot switch around the argument, stating that skilled basket makers are by definition professionals. Many nonprofessional basket makers are very skilled and work concentrated for hours in a steady working rhythm. Baskets from an archaeological context, which are made with extremely regular stitches, tell us that their producers were skilled basket makers, but it does not indicate the level of professionality (cf. pp. 390-391).

Professionality is linked to the physical demands of the work: material resources and bodily strength. If tools and a specific work space are needed, the producer is more likely to be a professional. On the other hand, endurance and hardship are not necessarily linked to professionality. All basketry techniques

require long periods of repetitive actions. All skilled basket makers work in a steady rhythm, the only difference noticed being that nonprofessionals work slower and more precise, than professionals. Consistent irregularities in the ancient basketry, suggesting a hasty, rapid working rhythm, are a more telling indication of professionality than a regular meticulous appearance (working from the presupposition that in the past professional basket makers had to work fast to make production).

At present the only full-time professional basket makers are the mat weavers, the twined mat maker and the *qafas* maker. All have work shops, or a specific designated area to work in. The mat makers (both weaving and twining) use simple looms. The *qafas* maker has a hole range of tools, from large knives and cleavers to measuring sticks and hollow awls.

Basketry production depicted in ancient Egyptian tomb paintings is rare. There is one depiction of a mat weaver (Middle Kingdom period). In many tombs scenes of twined basket making occur. This is part of the standard repertoire of the tomb decoration and occurs from the Old Kingdom onwards. It does not seem a coincidence that the basketry techniques depicted are those, which, based on physical requirements, are thought to have been a full-time profession in antiquity.

Net knotters, rope makers and textile weavers are depicted regularly too. In the Middle Kingdom tomb of Khety at Beni Hassan two groups of flax spinners have been depicted. Spinning for cloth is a female activity, spinning for nets is a male activity.

It is remarkable that neither the production of twined, nor of coiled baskets are represented in tomb paintings, while there are thousands of depictions of the baskets themselves in agricultural scenes and in offering processions (Wendrich 1999). This can be used as argument that twined and coiled basketry were not made by full-time professionals, but by nonprofessionals and most likely women. The present day Middle Egyptian labour division of agricultural baskets being made by men, while coiled baskets for uses inside are made by women is, perhaps, an argument against the suggestion that in antiquity twined grain baskets were produced by women.

At present, the social position of basket makers is different in Middle Egypt and New Nubia. In Middle Egypt town people look down on basket making as a village activity. The women of the village, on the other hand, are proud of their work. Even the women of the richest family in the village of el-Hagg Qandil are engaged in basket making (just as they are still baking their own bread and making their own cheese). The professional men, on the other hand, seek to improve their position. They want their children to be educated and find better work, preferably with the government.

The Nubian women, on the other hand, are unambiguously proud of what they do. The elder women think it a shame that the young girls are not interested any more in making baskets. They blame the television.

There is one ancient Egyptian text that gives an indication that in ancient Egypt mat weavers were in a poor condition, both socially and economically.

Since this is probably a satirical text, it cannot be taken at face value (p. 371, Lichtheim 1973, 188).

20.5 CONTINUITY AND CHANGE

What would you like to emphasize? There are many indications of continuity and many changes over time, which have been surveyed in Chapters 10 and 11. Here it may suffice to indicate the broad outlines.

The continuity is strongly regional. The basketry excavated at Qasr Ibrim has many similarities with the modern Nubian basketry, while the basketry from the workmen's village at Amarna corresponds with the modern Middle Egyptian basketry. There are more differences between the present day Middle Egyptian and Nubian basketry than between the ancient and modern basketry from the same region.

Coiled basketry in both Amarna and present day Middle Egypt is undecorated and quite coarse. The Qasr Ibrim coiled basketry is decorated with patterns made with coloured strands or wrapped winders, while the present day Nubian basketry is decorated with lavishly coloured patterns. The coiled basketry in both Qasr Ibrim and New Nubia is, contrary to the coiled basketry from Amarna and Middle Egypt, not used as containers, but as lids or covers.

Twined basketry is by far the most frequently occurring technique in Amarna. Since the introduction of the sewn plaits basketry, probably in the Graeco-Roman period (third century BC), this technique has gradually taken over most of the applications of twined basketry. It is used for carrier bags (in Qasr Ibrim, New Nubia and Middle Egypt) and matting (in Qasr Ibrim and New Nubia). In present day Middle Egypt only closely twined sacking is still produced.

Some of the sewn plaits basketry is sewn with string, which seems to be an Egyptian tradition, introduced into Qasr Ibrim in the Islamic period with the influx of troops from the North. Most of the sewn plaits basketry found at Qasr Ibrim is sewn with unspun strips of palm leaf, knotted together. In present day New Nubia the plaits are still sewn that way, with a distinctive flat metal needle. One such a needle has been found at Qasr Ibrim in a late Meroitic context (third century AD).

In Qasr Ibrim there are some indications for imported baskets. A small number of fragments were found made of rushes. Parallels for these baskets were found in excavations at Karanis in the Fayoum, 900 km to the North. The rushes were made in a stake-and-strand technique (mostly twining). At present stake and strand basketry is not produced in New Nubia or Middle Egypt, but these baskets, which differ from the locally produced basketry in that they have rigid walls, are imported from the Fayoum and the Nile Delta. They are made of the split culms of the giant reed or the branches of the henna shrubs.

During the research there appeared to be continuity on some levels, differences in the use of techniques or materials on other levels. This continuity is not essential for the application of ethno-archaeological research. The purpose of ethno-archaeology is not to state that 'since we have concluded that feature A is

similar, we may conclude that feature B, on which we have no information, is probably similar too'. It may be clear that, in the same vein, the video is not used to give an impression of past lives. Instead, ethno-archaeology is used to understand the production process and the demands of the work. It helps to interpret the material remains and to be aware of the immaterial features.

Baskets can be described as a combination of properties, a combination of materials, techniques and function. Limiting the research to this would be missing the most important feature, however. Apart from technical and functional aspects, there are specific preferences and traditions of (sub)cultures. The meaning of undecorated coiled basketry in Kensi Nubia and Middle Egypt, for instance, differs widely. In Middle Egypt the undecorated coiled baskets are present in every household in a purely functional role. Their 'value' is neutral. They are neither special nor shameful. In Kensi Nubia, however, undecorated palm leaf baskets are considered as old and backward. They are used inconspicuously, for instance to cover the water jar in the kitchen. When I wanted to record these baskets, the women thought it was quite shameful, while they proudly showed me their decorated baskets, which have a prominent place in the guest rooms of the Nubian houses. The present coloured decorations make the decorated basketry from Qasr Ibrim look bleak. Traditions are not static, but they are subject to constant re-inventions, changes and shifts in meaning.

The narratives that are based on the study of ancient and modern basketry may choose to emphasize the continuity or the changes. The arrival of sewn plaits basketry, probably in the early Ptolemaic period, can be taken as the cultural influence of a foreign people, causing a break with the old traditions. The continuity of the plain coiled basketry in Middle Egypt can be used as argument that the Egyptian *fellahin* are the true heirs of the pharaohs. Both interpretations lack balance, because society is not monolithic. The introduction of new ideas is mixed with inventions and adapated to the local situation.

In the world according to basketry we catch glimpses of a segment of ancient society which is otherwise not accessible. Rural women and illiterate peasants rarely have a voice in officially documented history. Basketry gives thus an entrance, but at the same time a limited view. Nevertheless, it presents us with a narrative that we can expand through cooperation with other archaeological, egyptological and historical disciplines.

APPENDICES

APPENDIX A

FIBRE IDENTIFICATION CRITERIA

O. Brinkkemper and E. van der Heijden

A.1 INTRODUCTION

This appendix aims to provide the identification criteria of the botanical macro remains used for the artefacts described in this thesis. For basketry, both parts of leaves and of stems may potentially have been used in the past. The cell pattern of the epidermis, the outermost cell layer of these parts, offers the criteria used in identification. These criteria include the form of the cell walls, the presence of appendages (hairs, prickles) and the presence (in leaves) or absence (in most stems) of stomata. These stomata are pores in the epidermis to allow for exchange of oxygen and carbondioxyde. Besides, epidermes of grasses (Gramineae) often have silica cells, with distinct shapes and taxonomic significance. Figure A-1 shows typical epidermes of a Gramineae leaf and stem.

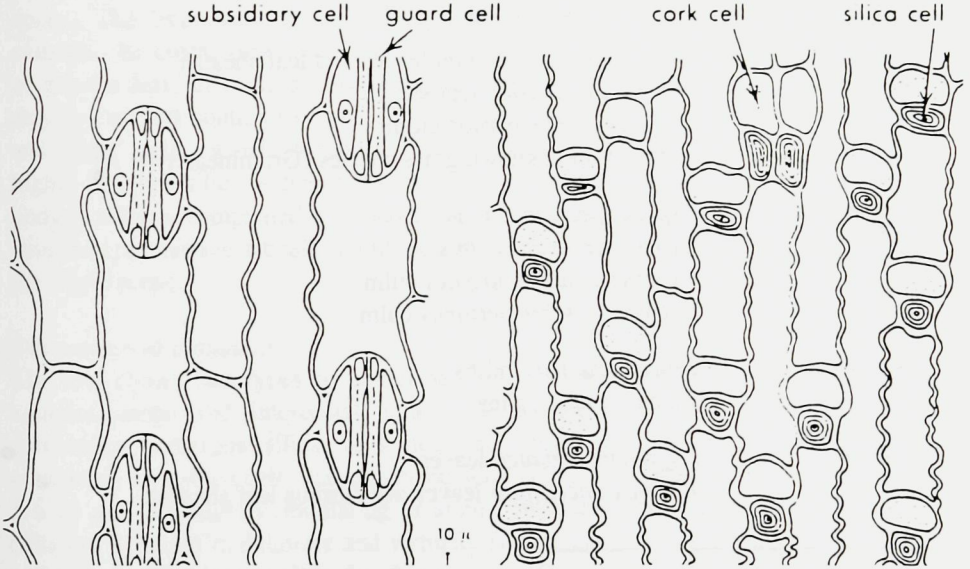

Figure A-1 Epidermis of a grass (sugar cane) in surface views. A. lower epidermis of leaf with stomata. B. epidermis of stem with cork cells and silica cells (after Esau 1960, 66, fig.7.3).

A.2 METHODS

Part of the remains was identified by Van der Heijden (1988). His study yielded 58 identifications belonging to the following families and species:

Gramineae	*Desmostachya bipinnata* leaves and leaf sheaths *Imperata cylindrica* leaf sheaths and possibly flower remains *Arundo donax* culms.
Cyperaceae:	*Cyperus papyrus* culms and *Cyperus rotundus* culms.
Palmae:	*Hyphaene thebaica* leaves.
Linaceae:	*Linum usitatissimum* fibres.

His study made use of transmitted light microscopy (LM) as well as scanning electron microscopy (SEM). Small parts of the ancient material were soaked for a couple of hours in a 10% KOH-solution, with 25% ammonium or bleach (Eau de Javelle). The separated epidermes were stained with Astra blue, dehydrated in an alcohol series and embedded in Dammar resin. For SEM. studies, the material was cleaned by ultrasonic treatment, dried and sputter coated with gold/palladium for ca. two minutes.

The remaining material was studied by Brinkkemper. This study yielded 110 identifications of material from Qasr Ibrim, 92 identifications from Amarna.[1] The following families and species were found:

Gramineae:	*Desmostachya bipinnata* leaves and leaf sheaths *Imperata cylindrica* leaf sheaths cf *Phragmites australis* culms culms of an unknown grass species (Gramineae type A)
Cyperaceae:	*Cyperus papyrus* culms *Cyperus rotundus* culms *Cyperus* cf *alopecuroides* culm cf *Cyperus schimperianus* culm
Juncaceae:	*Juncus arabicus* culms *Juncus acutus* culms
Palmae:	*Hyphaene thebaica* leaves *Phoenix dactylifera* leaves and fibrous leaf sheaths.

[1]We would like to thank the Egypt Exploration Society for their kind permission to study basketry from Qasr Ibrim and Amarna in store in the Oriental Institute in Cambridge. This material was brought to Great Britain after official divisions of material between the Egypt Exploration Society and the Egyptian Antiquities Organization.

Because of the abundance of material to be identified, a less elaborate preparation method was sought. The epidermes could be studied by simply cutting thin slices of the other part of the stems or leaves by means of a razor blade. The epidermes could then be observed in water with a light emitted microscope and, where appropriate, mounted in gummy syrup (apathy). The advantage of this method is its speed, but the resulting slides of course cannot compete with those obtained by Van der Heijden. Especially the amount of air bubbles present in the slides often prevents clear photographs. However, this method can be recommended for a fast identification, after which interesting species might be treated in SEM.

The identifications were made by means of several earlier studies on ancient Egyptian material and on recent plant anatomy. The main publications used were those by Greiss (1957), who described the anatomy of 17 species commonly used in ancient Egyptian material, and by Metcalfe (1960, 1971), who described the anatomy of recent monocotyledon plants. Greiss' study was also used as a basis to make a reference collection from material present in the States *Herbarium* of the Netherlands in Leiden.

A.3 DESCRIPTION OF THE EPIDERMES

A.3.1 Grasses (Gramineae)

Epidermes of grass leaves show a longitudinal division into costal and intercostal zones. The intercostal zones overlay the assimilating tissue and thus contain stomata, the costal zones overlay the fibres and are devoid of stomata. Epidermes of grass culms, in contrast, are more homogeneous without separate zones. They may or may not contain stomata. Cells of grass epidermes can be divided in 'short' and 'long' cells, which is typical for this family. The short cells often contain highly resistant silica bodies, with a variable shape. A short cell containing a silica body is often accompanied by a short cell without a silica body. Guard cells of the stomata are characteristically dumb-bell shaped, which among others also occur in the Cyperaceae.

Desmostachya bipinnata

The leaf shows two types of epidermes. The abaxial side (Plates A-2 and A-3) contains costal and intercostal zones. The costal zone is composed of rows containing numerous silica cells and few short cells, alternating with rows containing few silica cells and numerous long cells. The long cells (ca. 15-105 μm x 6-10 μm) are slightly undulating or almost straight-walled, short cells and silica cells are 7-10 μm in diameter and virtually isodiametric. These typical round silica cells are highly characteristic for this species. The intercostal zone of the abaxial side also shows the round silica cells, but the rows containing stomata lack these short cells. The stomata occur in one or two rows in each intercostal zone.

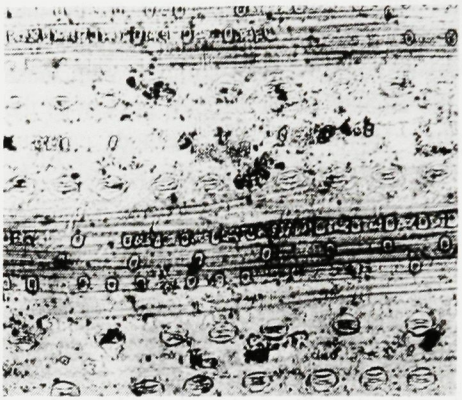

Plate A-2 Abaxial side of the leaf epidermis of *Desmostachya bipinnata* (LM, 200x)

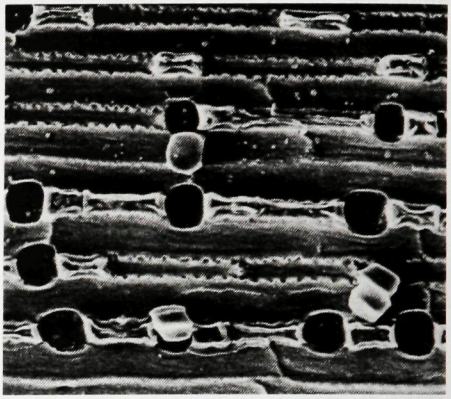

Plate A-3 Abaxial side of the leaf epidermis of *Desmostachya bipinnata* (SEM, 500x)

The adaxial side of the leaf (Plate A-4) has costal and intercostal bands, resembling those of the abaxial side. Besides, a third band is composed of isodiametric or rectangular, much thinner walled cells. The costal zone is often much wider than on the abaxial side.

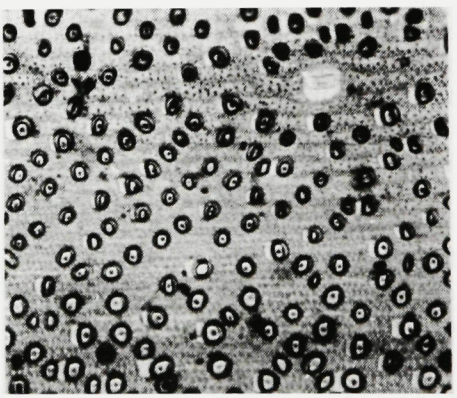

Plate A-4 Adaxial side of the leaf epidermis of *Desmostachya bipinnata* (LM, 260x)

The leaf sheath of *Desmostachya bipinnata* shows on the abaxial side a great abundance of the typical round short cells, a differentiation between costal and intercostal zones can hardly be observed, only the stomata indicate the intercostal zones (Plate A-5). The adaxial side shows no silica cells or short cells. The cells are relatively thin-walled, those in the costal zone are longer and less wide than those in the intercostal zone. The cells enclosing the stomata are conspicuously pitted (Plate A-6).



Plate A-5 Abaxial side of the leaf sheath epidermis of *Desmostachya bipinnata* (SEM, 225x)

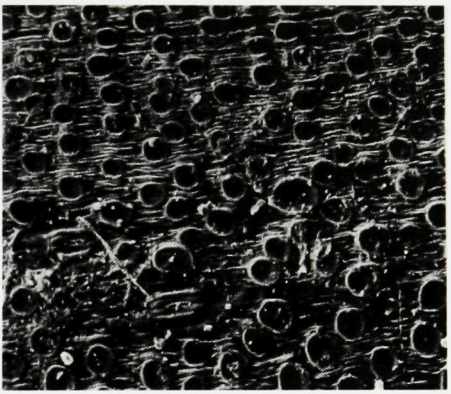

Plate A-6 Adaxial side of the leaf sheath epidermis of *Desmostachya bipinnata* (SEM, 375x)

Imperata cylindrica (cogon grass, halfa grass)

Of this species, only leaf sheaths were found. The abaxial side shows wide costal zones shows long cells with slightly undulating walls and characteristically dumpbell shaped silica cells (Plates A-7 and A-8). The adaxial side lacks these typical silica cells. The costal and intercostal zones are more or less similarly composed of broad and elongated cells (100-150μm x 25-35 μm), with straight or slightly undulating cells. The less characteristic adaxial side was not found by Brinkkemper. The preparation method used will mainly produce abaxial material, as these convex sides are easier to cut than the concave adaxial part.

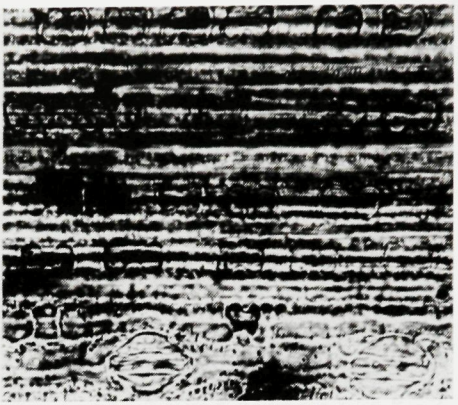

Plate A-7 Abaxial side of the leaf sheath epidermis of *Imperata cylindrica* (LM, 350x)

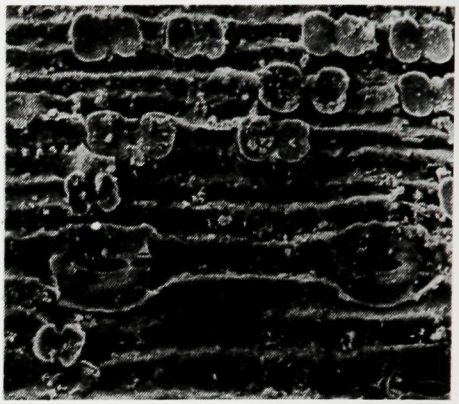

Plate A-8 Abaxial side of the leaf sheath epidermis of *Imperata cylindrica* (SEM, 400x)

Arundo donax (giant reed)

A culm of this species was found by Van der Heijden. The epidermis is not differentiated in costal and intercostal zones (Plate A-9). The long cells are comparatively short (22-40 μm x 17-23 μm), with conspicuous zig-zag cell walls, which are strongly thickened and densely pitted. Short cells are more or less crescent shaped and thin walled, silica cells are roundish (5 μm in diameter) and accompanied by a short cell. The relatively long stomata (ca. 40 μm) show typically triangular subsidiary cells (Plate A-10).

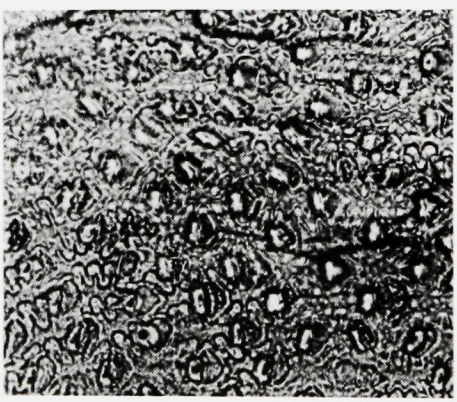

Plate A-9 Culm epidermis of *Arundo donax* (LM, 480x)

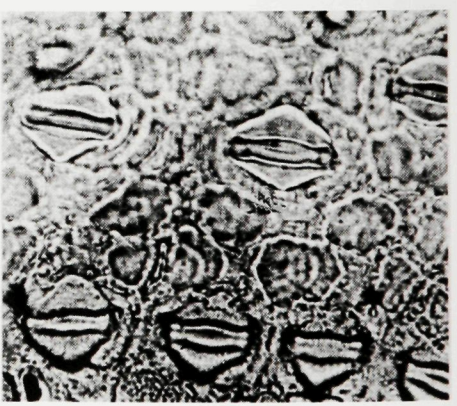

Plate A-10 Stomata in culm epidermis *Arundo donax* (LM, 720x)

cf *Phragmites australis* (reed)
The culm epidermis concerned shows an alternation of one long cell with one short cell and/or one silica cell. The cell walls are undulating, but somewhat thinner walled than the material from the reference collection. Greiss (1957: 65) observed that the epidermal cells of side branches have thinner walls, which may explain the thinner walls in the ancient material. However, it cannot be excluded that the material belongs to a grass species not present in our reference material, hence the tentative identification (Plate A-11).



Plate A-11 Culm epidermis of *Phragmites australis* (LM, 500x)

Gramineae-type A
The culm has straight-walled epidermal cells, long cells are extremely elongated, up to 400 μm in length and 15-20 μm wide. Short cells are more or less square, not wider than long cells (Plate A-12).

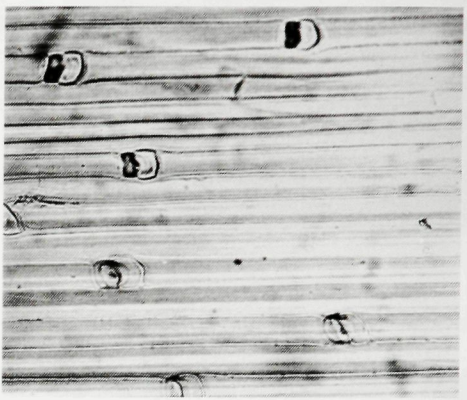

Plate A-12 Culm epidermis of Gramineae-type A (LM, 350x)

A.3.2 Sedges (Cyperaceae)

Culms of Cyperaceae, at least of *Cyperus*, the only genus found, are divided into narrow costal and intercostal zones. This subdivision occurs in leaves of Gramineae, but not in culms. The epidermis cells do not show the presence of short cells as the Gramineae do. The stomata have dumb-bell shaped guard cells as in the Gramineae.

Cyperus papyrus (papyrus/paper reed)
The cell walls, both in the costal as well as in the intercostal zone, are strongly thickened and densely pitted. Their length (25-45 μm x 7-10 μm) is relatively small in comparison with *Cyperus rotundus* and *C. schimperianus*. The stomata of *C. papyrus* are arranged in single rows, the subsidiary cells show strongly thickened outer walls, in contrast to *C. rotundus*. The stomata of *C. papyrus* measure ca. 40μm x 12-15 μm and are ca. three times as long as wide, which gives a slender appearance (Plates A-13 and A-14).

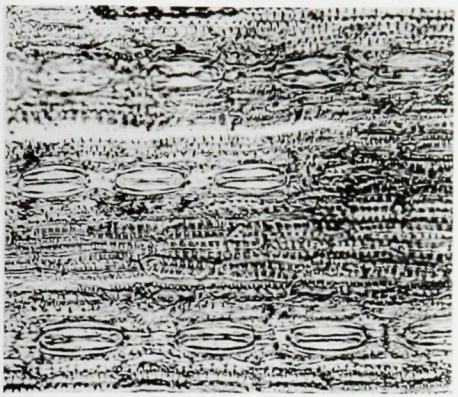

Plate A-13 Culm epidermis of *Cyperus papyrus* (LM, 250x)

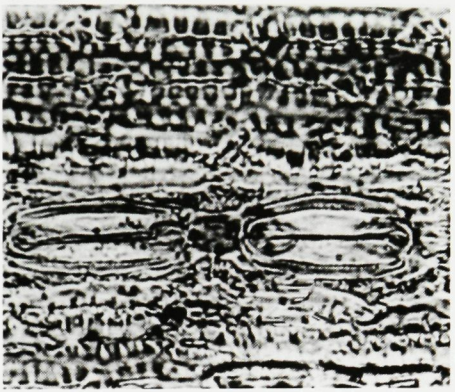

Plate A-14 Stomata in culm epidermis of *Cyperus papyrus* (LM 550x)

Cyperus rotundus (nut grass)
The cell walls in the costal zone are elongated (90-175 μm x 10-12 μm). Their walls are thinner than in *C. papyrus* (Plates A-15 and A-16). *Cyperus schimperianus* has still longer and smaller cells. The stomata of *Cyperus rotundus* culms measure ca. 40 x 20 μm, they are plumper than in *C. papyrus* and shorter than in *C. alopecuroides* (Plate A-17) and *C. schimperianus*.

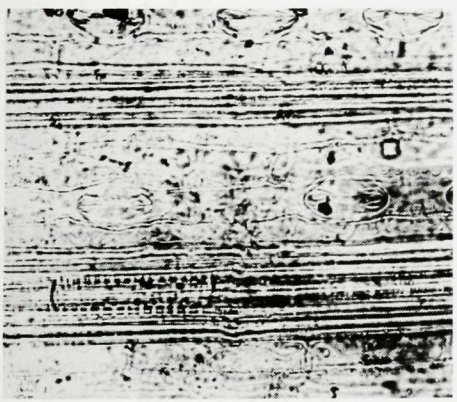

Plate A-15 Culm epidermis of *Cyperus rotundus* (LM, 250x)

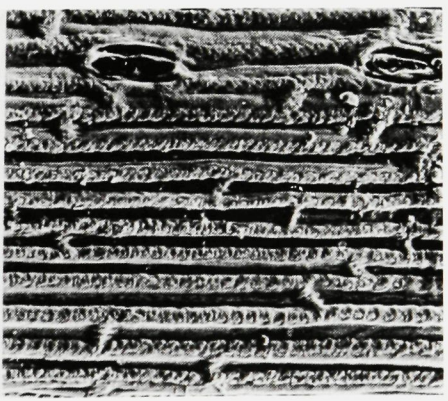

Plate A-16 Culm epidermis of *Cyperus rotundus* (SEM 400x)

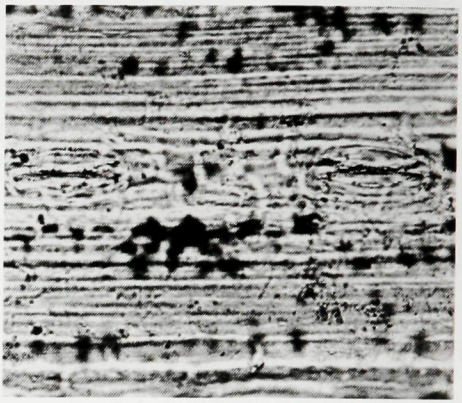

Plate A-17 Culm epidermis of *Cyperus alopecuroides* (LM, 500x)

Cyperus schimperianus.
The cell walls in the costal zone are thinner-walled than in *C. papyrus* and more elongated than in *C. rotundus*. They measure ca. 45-100 μm x 10-15 μm. The stomata are different from those in C. rotundus by the narrower subsidiary cells. Differences with *C. alopecuroides* are discussed below.

Cyperus alopecuroides.
The epidermal cells measure ca. 60-90 μm x 15-20 μm. Their large width gives the cells a brick-like appearance. The intercostal bands can only be recognized by the presence of stomata, their epidermal cells are similar to those in the costal bands (Plate A-17). The difference with *C. schimperianus* is slight, only the width of the epidermal cells is somewhat larger.

A.3.3 Rushes (Juncaceae)

Culms of Juncaceae have cells which are more or less isodiametric and square to hexangular. This type of epidermis cells does not occur in Gramineae or Cyperaceae. The stomata have dump-bell shaped guard cells in contrast to the Palmae discussed below.

Juncus acutus
The culm of this species cannot be divided clearly into costal and intercostal zones, the epidermis cells in these zones show a comparable thickness. The cross section of the culm is undulating owing to sunken intercostal zones (Plate A-18).

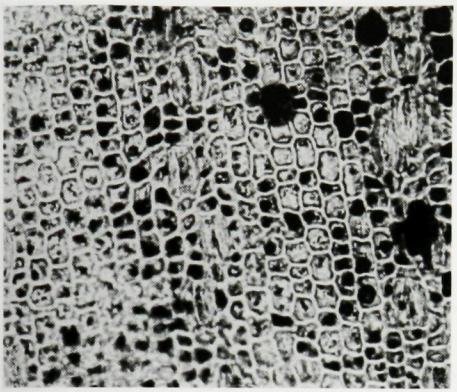

Plate A-18 Culm epidermis of *Juncus acutus* (LM, 250x)

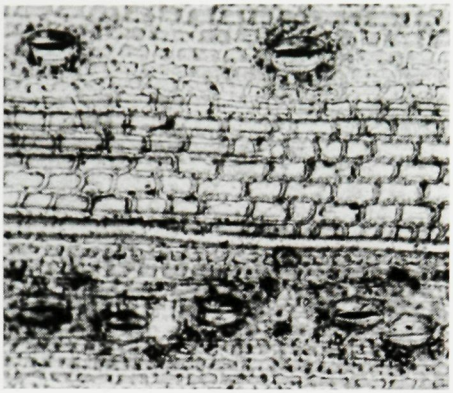

Plate A-19 Culm epidermis of *Juncus arabicus* (LM, 250x)

Juncus arabicus.
The intercostal zone of the culm shows strongly sclerotized, thick-walled cells, which is a conspicuous difference with the previous species (Plate A-19). The costal zones has thinner walled cells, which resemble those of J. acutus.

A.3.4 Palm Trees (Palmae)

Leaves of the palm species found have stomata with bean-shaped guard cells, which differ clearly from the dump-bell shaped guard cells in Gramineae, Cyperaceae and Juncaceae. The abaxial and adaxial leaf epidermes are similar in the species found.

Apart from leaves, leaf fibres of *Phoenix dactylifera* have been found. The epidermis is no longer present, but the combination of spiral thickenings in the cell walls and the presence of star-shaped crystals is very characteristic. The macroscopic appearance of these fibres resembles the fibres on coconuts.

Hyphaene thebaica (Egyptian doam palm)
The best characteristic for the leaves of dom palm are the large peltate hairs present in the costal zones. Unfortunately, these hairs, appearing as yellow dots in ancient material, are easily lost. Their absence is therefore not conclusive. The stomata of Hyphaene thebaica are also larger (ca. 40 μm) than those of Phoenix dactylifera, so this feature can be used to distinguish these species if peltate hairs are absent (Plates A-20 and A-21). Furthermore, the epidermis cells are often wider than long, especially in the intercostal zones. The cells in the costal zones in Phoenix are considerably longer than wide.

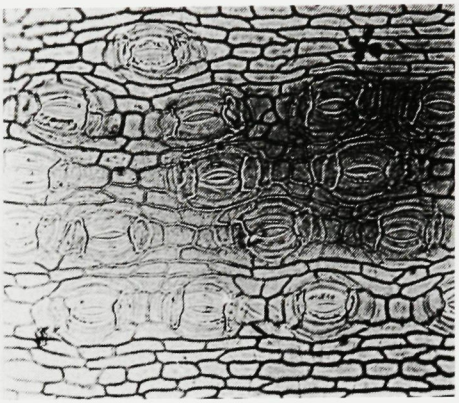

Plate A-20 Leaf epidermis of *Hyphaene thebaica* (LM, 300x)

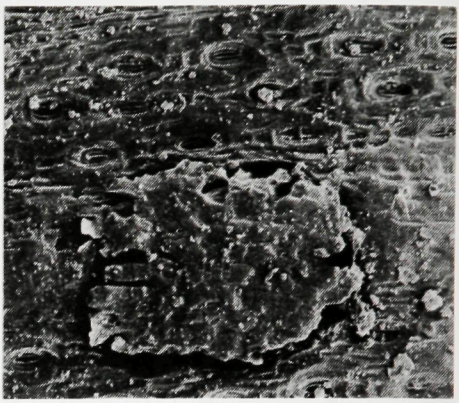

Plate A-21 Leaf epidermis of *Hyphaene thebaica* (SEM, 130x)

Phoenix dactylifera (date palm)

The absence of peltate hairs and the relatively small stomata (ca. 25 μm) characterize the leaves of the date palm. The cells in the costal zone are longer than wide. The intercostal zone in general shows two parallel rows of stomata, which is often three or four in Hyphaene thebaica. The fibrous leaf sheaths are characterized by rows of spiny crystals (Plate A-22)

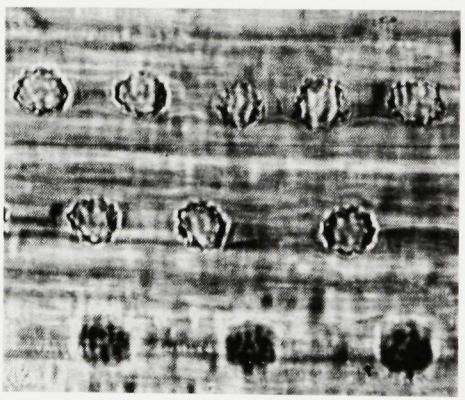

Plate A-20 Fibrous leaf sheath with crystals of *Phoenix dactylifera* (LM, 600x)

APPENDIX B

QUESTIONNAIRE ETHNO-ARCHAEOLOGICAL SURVEY

The focusing points listed in the tables below reflect the subjects that were covered during the ethno-archaeological survey. These points of interest were partly covered by observation, partly by interviews. The questionnaire used for these interviews is given below, divided per subject (A to M).[1]

A. Personal information	
Focusing points	name, age and personal circumstances
Questions	What is your name? How old are you? Are you married? How old is your wife / husband? Do you have children, how old are they? What is the profession of your husband/wife? What is the profession of your father? What is the profession of your wife's / husband's father?

B. Raw material	
Focusing points	1. Vernacular name 2. Latin name 3. Origin and growth circumstances 4. Ownership 5. Management 6. Method of winning or harvesting 7. Period of winning or harvesting 8. Quantity of winning or harvesting 9. Method of processing and storage 10. Costs per year and per basket

[1]The interview schedule has benefited greatly from the work done by dr. B. Driskell, who made the notes of his ethno-archaeological survey available to me.

Questions	What raw material do you use? Can you write the name down in Arabic? Do you buy or collect your raw materials? Where do you buy your materials? In what quantities do you buy your material? How much does it cost you per basket? When do you collect your raw materials? How much time does that take? Do you have to pay for collecting the material? Do you have your own land? What do you grow there? At what time of year do you harvest the raw material? What do you do with the material after collecting? After how much time can you use the material? How long can you keep the material before using it? Where and how do you store the material? Do you sell the material to others? Do they use it for basket making too? At what price do you sell? What is the best material for your baskets? Why is it the best? Could you use other material if you would not have enough? Could you use ...? (alternative or anciently used material) Why is it better than ...? (alternatively or anciently used material) Is this best material available around here? Is there other material which you sometimes use? Specifically about palm trees: What kind of material do you prefer, date or doam? Could you use ...? (the opposite of the previous answer). Do you own date palm trees? Do you own doam palm trees? Are there special trees for harvesting the raw material? Are all trees suitable for harvesting raw material (male/female trees)? Are all leaves suitable for basket making? What do you make rope out off? What colours do you use? What are the names of the dyes? Where do you buy them? How much do you need for one basket? What are the costs?

C. Tools	
Focusing points	1. Name 2. Description 3. Number of each in use 4. Sizes 5. Material 6. Function (it has been designed to do what?) 7. Use (how is it used?) 8. Source or producer 9. Mobility (where does it come from) 10. Costs
Questions	What are the names of the tools? Who made them? What are they made of? How much did they cost What are they used for? How many do you need? Do you need different sizes? How are they to be used? Is this all you need to make baskets? Did your father / mother use these (same) tools? Did your father / mother use similar tools?

D. Work space	
Focusing points	1. Permanency of arrangement 2. Lay out and surroundings 3. Organization 4. Costs
Questions	Do you always work here? / Where do you usually work? Are other people working there too? What are they doing? What other activities do you do here? Do you always work in the same spot? Would it be possible to work somewhere else? Do you work in the sun or the shade? Why? Do you have to pay rent for this space / Do you own this place?

E. organization of time	
Focusing points	1. During the day 2. During a larger time span (week, month) 3. During a year
Questions	Do you make baskets every day? Do you work continuously, the whole day long? How long does it take you to make a basket? How long does it take you to collect the raw material? How long does it take you to prepare the raw material? How long does it take before you can use the raw material? How many baskets do you make each week? Do you make a basket only when people ask you for one? What time of year do you collect the raw material? What time of year do you make baskets?

F. Production process	
Focusing points	1. Preparation of work space 2. Preparation of raw materials 3. Preparation of elements (string / plait) 4. Start of the work 5. Base 6. Transition base - side 7. Side 8. Rim, edge 9. Additional features (handles, lids, added decoration) 10. Insertion of new materials 11. Decoration 12. Determination of the size 13. Irregularities and mistakes 14. Timing of the entire process and the different parts 15. Analysis of actions and movements 16. Position during work 17. Working rhythm 18. Concentration on the work 19. Interaction with the surroundings 20. Final result 21. Repairs 22. Terminology

Questions	Can you teach me how to make a basket? Can you teach me how to dye the raw material? Do you need to prepare your material just before you start working? How do you dye your material (exact procedure and times) Did your father/mother do it exactly the same? Are all the baskets (of this type) the same size? Do you have a name to indicate the size? How do you determine the size? Why are you doing it (= specific technical detail) in this way? Did your father / mother do it exactly the same? Did you chose to make this decoration? Why? Does this pattern have a name? Does it have a specific meaning? Did your father/mother use the same method of decoration? Did your father/mother use the same pattern? Do you decorate every basket in a different way? How do you decide what you are going to make? Do other basket makers use the same design? Do you sometimes copy designs of other basket makers? Do you use designs from other objects, such as pots? Are there designs that are only used by old women? Why (not)? Do young people make these designs? Why (not)? Will you make this design when you are older? or: Did you make this design when you were younger? Do you repair baskets as part of your work? What do you call: the centre, base, side, rim, handles, action of making, etc.

G. Gender aspects	
Focusing points	1. Gender of basket maker 2. Gender of those who use the products 3. Gender of producers and users of other commodities
Questions	Do men make (these) baskets? Do women make (these) baskets? Does your wife/husband help you sometimes? Do other people help you making your baskets? For whom are these baskets made?

H. Economic aspects	
Focusing point	1. Rate of professionality Full-time professional: dependent on income Part-time professional: partly dependent on income Semi-professional: occasional additional income Non-professional: no income, for own use 2. Possession of raw materials 3. Costs and yield 4. Distribution (house, village, region, country, export) 5. Use of non-local baskets 6. Replacement of basketry containers by other materials 7. Replacement of mats by other materials
Questions	What does it cost you to buy raw materials? What does it cost you to buy tools? Do you sell the baskets? How much do you get for a basket? Is that enough? Are you doing other work besides basket making? Would it be possible financially if you would stop making baskets? For whom are you making your baskets? Do you give baskets away? For free, in exchange or as present? Are you working alone? Are other people helping you? How many rooms has your house? Do you own any animals? Do you own land? Do you have a refrigerator, television, fan?.

I. Function	
Focusing points	1. Name of basket 2. Description 3. Function, use and re-use 4. Comparison with other containers, floor covers or screens 6. Function within groups of society
Questions	What is the name of this basket? What is this basket used for? Do you ever use it for something else? Do other people use it for something else? Do you use the baskets (also) to measure quantities? If not: what do you use for measuring If yes: specify measures

J. Meaning of baskets in social contacts	
Focusing point	1. Baskets for special occasions 2. Baskets for special groups 3. Limits or taboos of certain shapes, colours or materials 4. Meaning
Questions	Do you give baskets as presents? When? Do other people do so? Did the people in the old days give baskets as a present? Is the present formed by the basket itself or by its contents. Are they new baskets or old baskets? Do the basket have to be returned? At what occasion do you give baskets (specify, e.g. childbirth, marriage, death). Are those baskets decorated? Is it a special decoration for the occasion? Does the decoration have a certain meaning? Do you have baskets which belonged to your mother/grand-mother? Are old baskets thrown away or used for something else? For whom do you make baskets?

K. Traditions and enculturation	
Focusing points	1. Passing on knowledge 2. Assessment of baskets 3. Assessment of basket makers' profession
Questions	When did you make this basket? Do you repair a basket which is broken? Do you replace a broken basket by a new one? Do you keep old baskets? Do you still use baskets that have belonged to your (grand)parents? Which baskets are best, old baskets or new baskets? Why? How long can you use this basket? Who taught you to make baskets? Are you teaching your skill to somebody at the moment? At what age have you learned to become a basket maker? What age was your pupil when he/she learned how to make baskets? Do you like making baskets? Who makes the best baskets around here? Why are these good baskets? Where are the best baskets being made?

L. Social position of basket makers	
Focusing points	1. Assessment by basket makers 2. Assessment by others
Questions	What was your fathers job? Did your father/mother make baskets too? Would you like your son/daughter to become a basket maker? or: are you proud that your son/daughter is a basket maker too? What kind of job would your son like to do? Do you want to continue making baskets all your life? Would you like to do another job?

M. General background information	
Focusing points	1. Geographical position of the place of residence 2. Character of the place of residence (village, town) 3. Number of inhabitants 4. Local specializations
Questions	How many inhabitants has the village? How many houses are there in the village? How many people are making baskets here?

APPENDIX C

VIDEO CONCORDANCE

This appendix helps to connect the video and the book. While reading the book, the connection is made by the video times quoted. Throughout the book references are made to the timer in the right hand corner of the video image. This timer indicates minutes, seconds and frames (mm:ss:ff). There are 25 video frames in one second.

While watching the video, corresponding pages in the book, quoting a particular scene, can be found through the index of video times (Table C-7). The other images inserted in the video (symbols in the right upper corner, examples of the analysis of action in the left lower corner and frozen images with an indication of the passive and active systems) have been listed here, as well as the use of tools and sequences in which the instrumental use of the body is clearly visible. For an introduction to these aspects, see Chapter 6 (pp. 101-108).

Table C-1 main sequences
Table C-2 occurrence of symbols (in the top left corner)
Table C-3 frozen moments: indication of active and passive systems
Table C-4 examples of an analysis of actions (in the bottom left corner)
Table C-5 use of tools
Table C-6 instrumental use of the body
Table C-7 index of video times (reference to pages in the book)

Table C-1 main sequences

al-maqtaf	plaited carrier basket	02:53-24:04
al-sabat	coiled basket	24:41-32:58
al-shauwer	coiled basket	33:34-41:33
al-masballa	twined sacking	42:10-47:34
al-serīr bil habl	woven bed matting	48:05-58:09

Table C-2 Occurrence of symbols in the top left corner

	'palm tree' symbol properties of the raw material
06:46	hardness of the veins of date palm leaflets
08:59	suppleness and strength of a plait made out of date palm leaf strands
16:01	toughness of the leaf sheath fibre of the date palm
27:27	tension strength of soaked date palm leaf strands of 6 mm wide
36:49	tension strength of soaked doam palm leaf strands of 2 mm wide
42:29	strength and roughness of date palm fibre string
48:20	dry grass, in contrast to wetted grass
	'sitting man' symbol working position
03:54	sitting cross legged
12:30	sitting cross legged with left foot inside the basket
19:48	sitting with right leg stretched, left leg bent
28:40	sitting cross legged
31:47	sitting with right leg bent, left leg stretched in front
38:11	sitting cross legged
43:25	sitting, knees pulled up against the chest
53:22	standing upright with one foot on the bed, while beating the weft
55:32	standing bent over the entire width of the bed while inserting the weft
	'eye' symbol eye contact with the work
05:13	paying attention to plaiting, looking up while putting in a new leaflet
12:02	paying attention to needle in edge, looking up while pulling string
25:43	paying attention making knot, looking away while tightening knot
45:09	looking up while inserting a new twining string
	'foot' symbol instrumental use of the body
07:22	holding start of palm leaf string with toes
12:20	holding the basket with one foot inside
20:12	holding palm fibre rope with toes
25:00	shredding palm leaf with teeth
49:15	holding string by putting the foot on top

	'hammer' symbol use of tools
09:20	needle: stitching into sides of the plait (holding needle in the middle)
17:54	needle: stitching into sides of the plait (holding needle in the middle)
21:04	needle: stitching through basket wall (holding needle in the middle)
22:41	knife: cutting off string
23:02	needle: making running stitches (pushing needle from the back)
26:58	needle: stitching through previous bundle
29:37	needle/awl: piercing the previous bundle, to prepare hole for needle
37:33	awl: piercing the previous bundle, to prepare hole for palm leaf tip
56:36	wooden peg, used to secure the edge
56:47	wooden peg, used to beat the weft
57:17	wooden peg, used as an awl, to make space in the weft

Table C-3 frozen moments: indication of active and passive systems

al-maqtaf		
04:39	plaiting	active / active
07:39	making string	active / active
12:16	sewing the plait	active / passive
16:14	making string	active / passive
as-sabat		
29:30	wrapping , stitching into previous bundle	active / passive
as-shauwer		
39:37	wrapping, stitching into previous bundle, while changing colours	active/(active)/passive
al-masballa		
44:28	twining, the warp is passive, the active system consists of two active strands.	active / passive
al-serīr bil habl		
55:23	weaving, the warp is passive, the double weft strand is active	active / passive

Table C-4 Examples of an analysis of actions within the production process

o = occurring action
r = recurring or repetitive action

05:47-06:15	rolling up the finished plait	
	r1	rolling up the plait
	o2	picking off bits of palm leaf
08:05-10:50	start of sewing the plait with string	
	o3	threading the needle
	o4	letting drip the plait
	o5	arranging the plait
	o6	picking up the plait
	o7	making the plait more supple
	o8	pushing the needle along and into the side of the plait and pulling through the string
	o9	opening up the loop at the end of the string and pulling the string through the loop
	o10	moulding the centre of the basket
	r11	picking up the plait edge with the needle and pulling the string
29:40-31:37	wrapping and sewing the coils	
	r12	piercing with the awl, positioning the strand, pushing the needle through the hole and tightening the strand
	o13	inlay of new date palm leaflet
40:19-41:12	wrapping and sewing the coils	
	o14	shredding the fibre of the fruit stem of the date palm
	o15	wetting the foot of the fibre bundle
	o16	insertion of new bundle material
43:52-46:14	twining	
	r17	twining
	o18	insertion of a new length of string
	o19	making the side edge

53:09-56:21	weaving with two parallel strands	
	o20	making the edge, securing it with a peg
	o21	beating the weft
	r22	inserting the weft
	o23	change of orientation in the pattern
	o24	measuring the pattern
	o25	pulling tight the weft

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Table C-5 Use of tools

tool	action	video sequence	remarks
large needle (*mesalla*)	threading	08:04-08:17	ready made string
		11:07-11:41	ready made string
		13:26-13:31	string made on the spot
		18:20-18:54	ready made string
	running	09:08-09:20	through edge of plait
		09:33-09:35	through loop of string
		18:56-18:58	through loop of string
		20:57-21:01	through loop of handle
		22:15-22:39	through plaited fabric
		22:49-23:44	through plaited fabric

	sewing	09:48-10:51 10:58-11:07 11:41-12:47 13:37-13:53 16:32-16:54 17:27-18:19 19:04-19:40	sewing with kneading basket basket basket basket basket rim
	piercing	20:46-20:50 21:01-22:12	through basket wall through basket wall
small needle (*ibra)*	threading	25:59-26:01 29:08-29:13 30:42-13:48	
	piercing	26:12-27:46 28:35-29:03 29:13-30:24 30:56-31:37 31:55-32:55	without awl, through bundle without awl, through bundle with awl, through bundle with awl, through bundle with awl, through bundle
awl	piercing	29:13-30:24 30:56-31:37 31:55-32:55 33:52-33:53 36:13-41:12	needle used as awl needle used as awl needle used as awl part of sewing machine awl with wooden handle
	splitting	40:52	awl with wooden handle
knife	cutting	22:30-22:44 23:47-23:48	cutting string cutting string
	trimming	23:48-24:00	removing irregularities
peg	securing	50:06-52:42 54:13-54:19 55:47-56:02 56:35-56:41	peg to prevent the loops at the edge from becoming undone
	spacing	57:09-57:11 57:17-57:23	using the peg as awl using the peg as awl
	tightening	56:30-57:00	peg beaten with stick
stick	beating	53:11-53:16 53:21-53:50 56:02-56:21 56:30-57:00	 beating against peg

Table C-6 Instrumental use of the body

tool	action	video	remarks
foot	holding with toes	07:22-07:58 12:52-13:32	string held between 1st and 2nd toe of right foot, sitting cross legged.
		14:37-15:48	string held between 1st and 2nd toe of bent right foot, left foot stretched in front.
		15:49-16:27	string held between two feet, right bent, left stretched in front, between 1st and 2nd toe.
		19:47-20:22	string held between 1st and 2nd toe of right foot, stretched in front (making handle).
	holding with foot	12:00-12:47 13:33-14:00 16:32-16:54 17:27-19:40	holding basket, no shoes
		17:07-17:23	holding plait under left foot, wearing shoes
		49:15	holding string under left foot, barefooted
mouth	wetting	18:45	wetting end of string (threading needle)
	biting off	18:28	biting fibre from string (?)
	shredding	24:46-25:05	shredding date palm leaf strands
	splitting	27:59-28:03 28:14-28:18	splitting fruit stem fibres of the date palm
nails	cutting	35:59-36:01	cutting doam palm leaf strand in two
	splitting	40:36	splitting fruit stem fibres of the date palm

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APPENDIX D

GLOSSARY

The glossary consists of three different parts:
D.1 English Glossary
D.2 Arabic and Nubian terminology
D.3 Some Ancient Egyptian Basketry Terms

D.1 ENGLISH GLOSSARY

In the descriptions the words highlighted in italics are also incorporated in the glossary. References to the text can be found in the Index.

active system The strands in a basketry technique which cause the coherency in a technique. A basket maker handles the active strands more frequently than those that make up the passive system. Usually the active system is flexible, while the passive system is rigid, or fixed in a *frame*.

anchoring fabric The previous rows of stitches onto which each subsequent row of a basketry fabric is added.

aspect An aspect is a variable property of an object, such as its length, diameter, colour, raw material, or decoration. The *basic structure* of a basketry technique is also expressed as a combination of aspects, such as number of systems, number of elements, orientation and activity. The variations which occur in a certain aspect, are indicated as *attributes*.

attributes The variaties of an *aspect:* 10, 20, 30 ares attributes of the aspect 'length'; the aspect material has, for instance, the attributes grass, palm leaf, sedges and rushes. Brown, green, yellow, are attributes of the aspect 'colour'.

basic structure The composition of a basketry technique as found in the fabric of the base or sides of a basket, as well as in the middle of objects with a linear form (brushes and rings). The basic structure is described by the interaction of the *systems* (an abstracted grouping of the basketry strands).

basketry Artefacts in which vegetable materials with a limited length or a plant-specific shape have been incorporated. The strands or systems of strands interact in order to form a fabric or linear form. Basketry comprises baskets, bags, mats, brushes, hurdles, screens, furniture, pot stands, head rings, hats, sandals and belts.

border An *edge* of a mat or basket, at which the strands are fastened off.

bundle The passive element in coiled basketry, also indicated as 'foundation' (see: winder, wrapping strand, coiling).

cataract Rapids in the river Nile caused by blokkades where granite basement rock, rather than Nubian sandstone lies at the surface.

coiling A technique which involves two systems: a passive bundle which is fastened in a coil to form a fabric. The *winder* wraps around the bundle and stitches through the previous row of coiling *(anchoring fabric)*.

date palm fibre
Leaf sheath fibre of the date palm tree

date palm mid rib
Petiole of the date palm, or date palm branche

direction Specific term for the orientation of one system

edge The edge of a basket or mat can either be a *border* (the line at which strands are fastened off) or a *selvedge* (a line at which the strands continue, but turn back into the fabric). The edge of a basket is usually called *rim*.

element Basketry *systems* are made up of one ongoing element or of several parallel elements. Elements may consist of one, two or three *members*.

english randing
A *stake-and-strand* technique of which the basic structure is a form of weaving with one strand at a time (cf. *french randing*).

essence The indivisible combination of measurable and immeasurable aspects (of basketry)

fabric Surface or three-dimensional object produced by the interaction of strands producing. A fabric can be made in a continuous spiralling movement, which follows one direction, or a fabric can be worked alternately from left to right and from right turning at the edges.

fingers Divisions of a brush.

form Term to describe the result of a basketry technique, which can be linear or fabric A head ring, or brush is a linear form, a basket or mat is a fabric (classification criterion in Chapter 9).

frame 1. an external structure which is used to fix the passive strands of a basketry technique. By holding the strands under tension the passive system can be made rigid even though it consists of flexible materials. Examples of frames are a loom for weaving and twining and a bed frame for furniture webbing.
2. the smallest unit in the video timer. There are 25 frames in one second.

framing *(cadrage)* The cut-out of the image while filming (general view, total, half-total, close-up).

french randing A stake-and-strand technique which is a from of weaving, in which the active strands are all layed in and worked up at the same time (cf. english randing).

granny knot A knot similar to the *reef knot*, but made of two *half knots* in the same orientation (SS or ZZ). The granny knot is much less secure than the reef knot and is in fact a wrong application of the latter.

grommet A rope ring, made by twisting a strand a number of times around itself. Small grommets are often used for strengthening an opening. Large grommets are used for padding, as head rings or supports for pots.

half knot A simple knot in two strings (or in the two ends of one string). String A runs over and under strand B. This can be done in S or Z direction.

knotless netting
A one-system basketry technique in which a row of loops is fastened to a previous row (anchoring fabric).

knotting — A connection of strands which involves more than one crossing. In knotting a strand moves in *three planes*.

lazy basket makers' stitch — A fast variation of coiling: a combination of winding a strand around a bundle a number of times and then making a stitch.

leaflets — Small side leaves of the large feather-shaped date palm leaf (which consists of a stalk or midrib with small leaves branching off at the sides).

netting — General term for all widely spaced techniques, usually made of yarn or string. Netting techniques can be one-system techniques (knotted netting with a netting needle, knotless netting made of palm leaf) or two-systems techniques (netting made of *overhand knots,* twined netting).

member — Part making up the active element of a basketry technique: a basket is made of interacting systems. The systems consist of elements (either one long strand or a number of parallel strands). The active elements consist of one, two or three members. The members of an active element move in certain way, thereby creating the fabric. The mobility of the members differs and of the members is said that they are moving in one, two or three *planes*.

multi-system technique — A technique made up out of more than two systems

New Nubia — (Egyptian Nubia) The area in Egypt around the city of Kom Ombo where the Nubians have been resettled.

Old Nubia — Nubia, before 1960 (the year of the resettlement following the building of the Aswan High Dam).

one plane — Indication of the mobility of the active system. Mobility in one plane is a simple up-and- down movement as occurs, for instance, in sewing, weaving and plaiting.

one-system technique — A technique made with one ongoing strand. A one-system technique can be made of many short strands (e.g. strips of palm leaf of 500 mm long each) which are inserted after the previous one is exhausted. Knotless netting, knotted netting and grommets are examples of one-system techniques. Textile techniques such as knitting and crocheting are also one-system techniques, but with a long continuous yarn, rather than strands of limited length.

orientation — The predominant direction that the strands of a basketry system follow.

overhand knot — Overhand knots are simple knots made by twisting a strand over and under itself. This can be done in two orientations: S and Z. When an overhand knot is made in two parallel strands, it is called overhand bend. This knot was used in Amarna to make a carrier net.

palm fibre — Leaf sheath fibre of the date palm tree.

passive system — The strands in a basketry technique which form the body of that technique, but do not cause the coherency. A basket maker usually handles the passive system(s) less frequently than the active system. Often the strands of the passive system are less flexible than those of the active system, or made rigid artificially by fixing them in a frame (such as a loom).

plait — Three or more strands interlaced. The variety of plaits includes round plaits (plaiting around a core), plaited strips and continuous plaiting. A feature typical for plaits is that all strands are active.

plane — Indication of the mobility of the active system. An active basketry strand moves up and down, weaving through the strands of the passive system; or a strand can move spirally around passive strands; or the active strands makes knots around the passive strands (see: *one plane, two planes, three planes).*

plying — twisting two or more yarns around each other to form a string. Plying can be done in S or Z direction.

Qasr Ibrim plaiting rule — Plaited strips of which the edges are orientated perpendicular to each other (SZ) can be used for making fabrics, while strips with parallel edges (SS) cannot. From this rule it follows that:
Plaits made in a \1/1\\1 pattern can be sewn into a fabric when made with an odd number of strands, but plaited strips made of an even number of strands cannot.
Plaits made in a \2/2\\1 pattern can be sewn into a fabric when made with 9, 13, 17, 21, 25 etc. strands.

reef knot — A knot made of two *half knots* in opposite orientation. The reef knot is the symmetrical variety (SZ or ZS oriented) of the *granny knot* (SS or ZZ oriented).

rim — The *edge* or *border* of a basket

S — Clockwise twist: indication of the orientation of spinning, plying, twining or waling.

strand — 1. Non-technical term for basketry materials. A strand can be a strip of palm leaf, a string or a willow rod.
2. The active element in a stake-and-strand basket

selvedge — *Edge* of a mat or basket, where the strands are not fastened off, but turn back into the fabric.

set of elements — A number of strands of the same material, with the same orientation, performing the same task in the technique.

stake — The passive element in a stake-and-strand basket.

stake-and-strand basketry — A collective term for techniques in which the rigid passive elements (stakes) are fastened at a straigth angle by more flexible active elements (strands). The techniques used are weaving (e.g. french or english randing), twining or waling.

system — Basketry strands forming a basic structure. All strands that are made of the same material, follow the same orientation and have the same function in a technique are considered to belong to the same system. The *basic structure* of a basketry technique is described as systems that interact (Chapter 5)

tabby — A simple plaiting or weaving pattern of which the shift is the same as the number of strands that are crossed (e.g \1/1\\1 or \2/2\\2). Also known as plain weave. See also: twill

textiles — Fabrics which consist of raw material or half products of unlimited length and uniform in shape.

three planes — Indication of the mobility of the active system. Mobility in three planes is a movement that goes up-and-down, left-right and front-back. The result is a movement which crosses its own path, such as eight-shapes or knots.

three-systems techniques
: Basketry techniques made with three systems. These systems can all have different orientations (this is well known, for instance from fine chair matting, which in origin is an Asian technique). In Egypt, however, only three-systems techniques in two directions occur. Two systems are oriented in the same direction, while the third one is inserted at a straight angle.

twill
: A plaiting or weaving pattern which is staggered and looks like a herring bone: the shift is smaller than the number of plaiting strands crossed (e.g. \2/2\\1, \3/3\\1, \6/6\\2). See also: tabby or plain weave.

twining
: A stake-and-strand technique which consists of a set of passive strands which are held in place by two strands which are held in place by rows of active strands. The active system consists of two strands which are twisted alternately behind and in front of the passive strands. Twining can be done in S or Z orientation.

two planes
: Indication of the mobility of the active system. Mobility in two planes is a movement that goes up-and-down as well as left-right. The result is a circular or spiral movement as occurs, for instance, in wrapping, coiling, twining, waling and looped matting.

two-systems techniques
: Basketry techniques made with two system. These two systems can follow the same direction (as in coiling) or are inserted at a straight angle (as in weaving).

unit
: An archaeological feature such as a layer or deposit (used in Amarna and Qasr Ibrim)

waling
: A stake-and-strand technique, similar to twining but made with more than two active members which twist around passive strands. The pattern of waling depends on the number of strands involved. Three strands move in front of two passive strands, behind one passive strand. Four waling strands move in front of three, behind one. Waling can be done in S or Z orientation.

wickerwork
: A *stake-and-strand* baket made out of willow rods. The term is often used loosely as an alternative for all stake-and-strand basketry.

winder
: The active element in coiled basketry (cf. *bundle*, *wrapping strand*).

wrapping strand
: *(wrapping system)* The active system in coiled basketry or in wrapping brushes or rings (synonym of *winder*, or *winding system)*

wrapping
: Production method for brushes or pot stand rings: a (passive) bundle of material is wrapped with an (active) wrapping strand (synonym:linear wrapping).

Z
: Anticlockwise twist: indication of the orientation of spinning, plying, twining or waling.

D.2 ARABIC AND NUBIAN TERMINOLOGY

The transcription of the Arabic words does not follow the Arabic spelling consistently, but tries to convey the middle Egyptian pronunciation. Sometimes the *qof* is transcribed as "g", the "z" as "s" and the gim as "j".

There are separate word lists for basketry types and basket makers' terminology in both southern middle Egyptian and Nubian. In the Egyptian list, the words are in order of the English alphabet, in which the ʿayin and the hamza are ignored. Where possible, links have been made with Badawi's dictionary of Egyptian Arabic, and the work of Woidich on Egyptian dialects. The Nubian lists have separate columns for Kensi/Matoki and Fadidja Nubian. Therefore, there is no consistent alphabetic order. References are made to two dictionaries. BH stands for Badawi and Hinds 1986; BW refers to Behnstedt and Woidich 1994. References are also made to Henein 1988.

The list given here is related to the terms encountered during field work. It has no pretention to give an overview of the basketry of present day Egypt which shows a much greater variety than what is presented here. The Nubian basketry terms are not consistent. Variations and discrepancies occur between Fadidja and Kensi villages, but also between one Kensi village and the next or even within the same village. In future I hope to map these variations in more detail.

(Southern middle) Egyptian terms for basketry types:

ʿalāga	1	sewn plaits carrier basket made of a plait with a length of 7 baʿat. (cf. Henein 183 *"8-9 ba'at"*, BW 321)
	2	also used as general word for "carrier basket", referring for instance to the glossy, light yellow stake and strand basket, made of split *Arundo donax* culms (see *sella*).
ʿangareeb		wooden bed with string webbing, mostly used as couch (BW 327)
baguta		plur. *bagutāt*, small sewn plaits basket, made from a plait with a length of 3 or 4 *ba'at* (cf. BH 91, BW 30: *baquti*, in Cairo dialect this is a small basket to put hand picked vegetables in while shopping. The baguta or gauta is shown in BH, plate B5, as a *ghalag* "small palm basket with handles" (BH 628). BW 18-19 mention "ba'uuti" (Delta) for a large basket.)
bardaʿa	1	twined donkey saddle (BW 17)
	2	wooden donkey saddle
bursh		plur. *burush* rectangular mat made of plaits sewn parallel to each other, or a round mat which is sewn in a spiral (cf. WB 18-19; BH 65).
afrād		plural of *fard*. In Egyptian Nubia this arabic term is used for two baskets on the back of a donkey (cf. BH 647, "large *guffa*"; BW 348, in upper Egypt: carrier bag for a camel).
gauta		see *baguta*.

gotwiyya sewn plaits transport basket to be carried on both sides of a donkey or camel. The two baskets are either sewn to a mat (Henein 185) or connected with a wooden cross beam (BW 387).

guffa 1 plur. *guffāf*, large sewn plaits basket made of a plait with a length of 15 *ba'at*, upper Egyptian term. (BH 711: "large flexible two-handled basket of palm stalks, similar to maqtaf but larger"; BW 389: largest carrier bag).

2 round basket with straight sides and two handles, made of old car tyres, in general smaller than the *guffa* made of palm leaf (cf. *zanbiil*).

hasīr woven matting from grass or juncus/sedges (BW 86; BH 208)

maqtaf plur. *maqātif*, large sewn plaits basket, with two rope handles, made of a plait with a length of 10 *ba'a* (cf. Henein 183: 5 *ba'āt*). BH 709, plate B, 7; BW 386, in north middle Egypt: middle size carrier bag; in south middle Egypt: basket, smaller than *'alāga*, in upper Egypt: large basket on donkey back, like the *mazbala*).

masbala large twined sack made of two mats sewn together, for the transport of earth and dung on donkey back, cf. *mazbala*

matraha plur. *matārih*, a bat-shaped implement to shake a ball of dough into a large flat bread and throw it in the oven. The matraha comes in two sizes: length 75 cm, diameter 55 cm for the large unlevened bread types (e.g. *rugaag* and *'esh durra*) and a small one used for levened bread (*esh shamsi*), with a length of 50 cm and a diameter of 30 cm. BH 535, plate B4, BW 282).

mazbala BW 181: one large bag, or two baskets on both sides of a donkey, for transport of earth and dung, cf. *masbala*

meshanna plur. *meshannāt*, shallow stake-and-strand basket, without handles and with a rounded base, originally made of *Ceruana pratensis*, which is now rare. Instead, split stems of several plants are used: cotton bush, pomegranate, Henna branches and Egyptian willow (*Salix subserrata* (Täckholm; BW 250-251bread basket; BH 825, plate B, 9). The baskets are used throughout Egypt on the markets and in the houses, but they are mainly produced in the Delta.

qafas plur. *aqfās*, crate or cage made of *jerīd*, the split mid ribs of the date palm leaf (BH 711, BW 389).

rigleen also: *rigleen līf*, twined doormat, made of the leaf sheath fibres of the date palm..

sabat plur. *sebita, isbata,* coiled basket with high rim and straight sides. (BH 394, carrier bag; BW 197-198, in upper Egypt: general term for basket, but also bread basket from halfa grass).

sella plur. *silal,* general term for basket (BH 426, cf *sallāl*. BW 214-215, referring to several baskets in stake-and-strand technique, mainly in Delta dialects.

sallāl plur. *sallalāt* BH 426: "basket woven from split cane" (twined and woven stake-and-strand basket made of *Arundo donax*). This basket is also referred to as *'alāga* in middle Egypt. Produced mainly in the Delta.

sebata screen or hut made of rigid stalks tied with string into a mat (BW 197-198).

seniyya tray; also term used for a round shallow coiled basket with two small handles.

serīr bil habl wooden bed frame with rope webbing

shinda cheese mat, made of the fibres of the date palm fruit stem, held together by widely spaced rows of twining with string (BW 249, in north middle Egyptian *sidda* is used for this type of mat).

tabaq plur. *atbaq*, shallow coiled basket in different sizes. The most common are 55, 36 and 18 cm in diameter (BH 531; BW 280).

tala'a small longitudonal flat sewn plaits basket with a long rope handle, used during the pollination of the female date palm tree, to carry the male pollen (cf. BW 4-288, 289).

zanbīl 1 or *zambīl*, plur. *zanabīl,* large sewn plaits basket made of a plaited strip of at least 15 *ba'at* (BH 381, large basket made of palm leaves; BW 191, south middle Egyptian: carrier basket for earth and dung or two-part transport bag (cf. *masbala*), upper Egypt: large storage basket.

2 a round basket with straight sides and two handles, made of old car tyres, in general much smaller than the *zanbīl* made of palm leaf (cf. *guffa*).

(South middle) Egyptian terms related to basketry production

'arjun The flower bunch of the female date palm. In upper Egypt this term is also used to indicate the fibres from the fruit stem, on which the *arjun* proper is growing, cf. *zabata* (cf. Henein, 181, 189; BW 305).

ba'a plur. *ba'at*, the length measured accross the breast between two arms which are fully extended sideways, approximately 1.50 m (cf. Henein 183 1.60-1.80).

boos culms of large grasslike plants, such as reeds and sugar cane (BW 40).

dees sedges, Cyperus species (cf. *samaar, sa'ad*)

dhafīra plur. *dhafāyir*, plait (BH 523; BW 275).

gesh el-gamh wheat straw (BH 701; BW 403)

girāb plur. *girbān*, sheath in which the date flowers grow, strips of which are used to decorate the rim of the large *tabaq* baskets (cf. BW 370, in the oases this term is used to indicate the dry fibres of the *zabata*).

gourbah		fruit stem of the date palm. Term used in upper Egypt, while in south middle Egypt *zaghauwa* is used (cf. BW 370 in Kharga: dried shoot of the *zabata*).
halfa		"halfa grass", tall grass species, 1 - 1.50 m long.
jerīd		midrib of the date palm leaf (BH 154; BW59-60; Henein 181).
khus		date palm leaf (BH 269; BW 126). khus abyad is the young, white palm leaf from the centre of the crown, khus akhdar are the more mature, green leaves (cf. BW 126: khusa beyda for young date palm leaf).
līf	1	the fibre from decayed leaf sheaths at the base of the crown of a date palm tree (BH 807; BW 443).
	2	plastic fibre scouring pads or wire wool .
mesalla		large needle used for making sewn plaits basketry (BH 426; BW 215 *masalla*, plur. *masallaat*).
makhraaz		awl (BH 246, mukhraaz; BW 111 *makharraz*: term used in the Dakhla oasis for a large needle.
qalb el-nakhla		lit. "heart of the date palm", the young white leaves from the middle of the palm crown (cf. *galb el-nakhla* BH 713; BW 390).
sa'ad		sedges, *Cyperus* species (cf. *samaar, dees*)
sa'af		date palm leaf (BH 414;). In the Kharga oasis za'af indicates the leaves on the tree, before being dried (BW 187: za'af, BW 207 *sa'af*), cf. *khus*.
samaar		sedges, *Cyperus* species (Dakhla oasis, cf. BW 216), cf. Dees, Sa'ad
samaar morr		rushes, *Juncus acutus* and *Juncus rigidus*
sasha		curved knife
shibr		plur. *ashbār*, width from thumb to small finger of a hand with stretched fingers, approximately 18 cm.
sharmukh		plur. *sharamikh*, pollen of the male date palm, also sometimes used for its stem, or 'sword'. It is not used as synonym for *zaghauwa,* which is a comparable feature, but in a female tree (BW 236).
shoka		thorn at the base of the date palm mid rib, used as awl for basket making.
sīkh		metal bars of the mat loom (BH 144, BW 224)
wated		wooden peg which hold the metal bars of the mat loom (cf. BH 922; BW 497,
zabata		the flower bunch of the female date tree, which grows at the end of the *zaghauwa*. Also used as a synonym for *zaghauwa* or *gurbah* (BW 298), cf. *arjun*.
zaghauwa		fruit stem of the date palm, the 'sword' of the *zabata* (south middle Egypt). cf. *arjun, gurbah* (BW 188).

Nubian terms for basketry types

Kensi / Matoki	Fadidja		
	falan nagandi		coiled lid for a flat basket
karadj?	*karadj*	*1*	coiled small flat basket, also used as lid.
		2	coiled large, dome shaped basket with a foot
adda	*karadj duwal*		large dome shaped basket, used for winnowing
	karadj kinna		small karadj
	karen konta		coiled large flat basket used at weddings
'omrah	*konta*		coiled large flat basket, often used in combination with a *waliil*
	konteega		coiled flat basket
	konteen bode		coiled basket containing harvest products, similar to kubush
	kubush or kubushema		coiled basket, bowl shaped, used as measure for flour
tagdiah	*shauwer*		coiled large flat basket, used as a tray
	shibr		coiled or plaited large basket, which holds the hot bread when taken out of the oven.
	walīl		coiled small flat basket, used as lid or cover
bani kaldiyya			coiled small basket to present dates
kutayya			coiled large, deep, dome shaped basket, used as a lid.
sidra			small *tagadii*, coiled lid to cover a plate
tagadii/tagdiah			coiled flat basket in several sizes, similar to the Egyptian *tabaq* .
shaloob	*sernun lauwer*		plaited or knotted hanger for coiled baskets or plates
bursh	*nibid*		mats made of sewn plaits
sellan bursh	*sellan nibid*		baskets made of sewn plaits
gamali			large sewn plaits carrying basket (used on camel back?, cf. Badawi 173).
mughraaf			sewn plaits carrying basket, with straight sides, for shopping and storing goods (cf. Badawi 620, ladle, scoop)
shanta			Arabic "bag", in Kensi used for a specific small sewn plaits basket, made of two circular sides, sewn together.
shibr			sewn plaits carrying basket, which holds hot bread which is taken out of the oven, is used on the market and as container for goods

Nubian terms related to basketry production

Kensi	Fadidja	
mufraz	*īyen*	awl
shoka	*shoka*	thorn of date palm tree used as awl (Badawi 487).
gourbah	*arru*	fruit stem of the date palm, used as bundle material for coiled basketry.
ambu nīg	*imbe nīg*	doam palm leaf (coll.)
sa'af el-Nakhla	*ninten nīg*	date palm leaf (coll.)
brubi	*far'a*	wheat straw (cf. Egyptian gesh el-gamh)
	shen	alum used with boiling the doam palm leaf
	senag addoka	natural colorant
	takata	"crossing", plaited start of Nubian coiled basketry

D.3 SOME ANCIENT EGYPTIAN BASKETRY TERMS

This brief list includes the basketry terms that featured in the previous chapters and are mainly found in the Deir el-Medina texts. The terminology on ancient Egyptian basketry is much more extensive than the few words listed here.

irgs, irḳs	sack made out of a twined mat	p. 413, 415
jsr	rushes	p. 286
'nb	halfa grass	p. 282
'rḳ	sack (also of leather)?	p. 416
wnr	reed or giant reed	p. 283
wḏ	papyrus, other sedges?	p. 284, 285
bʿj.w	doam palm leaf stem or date palm mid rib	p. 274
mnḥ	papyrus	p. 284
mnḏm + nḳr	(coiled?) basket with twined sieve as lid	p. 413, 415
mḥj.t	papyrus	p. 284
mtrḫt	twined sieve with coiled rim	p. 413, 415
nwḫ	string (in combination: *tmȝ šm 'n nwḫ)*	p, 413, 417
nbd	twined?	p. 412, 413, 416, 417
rdmt	sedges (in combination: *tmȝ rdmt)*	p. 413, 417

ḫ'w	cheap basket, no specifications	p. 413, 416
ḫtp	twined matting, container?	p. 413, 416, 417
ḫnd	woven?	p.412-414, 417
ḫt.ti	specification of basketry: coarse	p. 413, 415
sḏr	woven grass sleeping mat?	p. 413, 416, 417
šwy	hay (in combination: *tmꜣ šm 'n šwy)*	p. 413, 417
šm'	specification of basketry: fine	p. 413, 415, 417
šḳr, šḳr'	twined or woven item?	p. 413, 417
krḫt	coiled or twined basket for fruit	p. 413, 415
kbs	twined grain basket	p. 412, 413
kskst	large twined bag	p. 413, 416
gꜣš	reed or giant reed	p. 283
ṯꜣw	doam palm leaves	p. 274
ṯwfj	papyrus	p. 284
dnit	coiled or twined basket for fruit or incense	p. 413-415

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NEDERLANDSE SAMENVATTING

Hoewel manden tot de meest vergankelijke materialen behoren, worden ze, dankzij de unieke omstandigheden in Egypte (een extreem droog klimaat) in opgravingen toch aangetroffen, voornamelijk gemaakt van palmblad en gras.

Aan de hand van het materiaal van twee verschillende archeologische vindplaatsen, Tell el-Amarna in Midden Egypte (rond 1350 voor Christus) en Qasr Ibrim in Nubië (voornamelijk derde eeuw voor tot zesde eeuw na Christus) behandelt dit proefschrift de productie van manden in het oude Egypte, daarbij gebruik makend van de studie van hedendaagse mandenmakers in Midden Egypte en Nieuw Nubië (het gebied dat de Nubiërs werd toegewezen omdat hun land werd overstroomd door de bouw van de Aswan High Dam).

Het textuele, het Audio-visuele en het Tactiele

Het verslag over oud-Egyptische en hedendaagse mandenmakers wordt gedaan door middel van woorden. Om onze waarnemingen in taal uit te drukken is er een mentale ordening nodig. In dit proefschrift verandert de invalshoek van gedetailleerd (beschrijving van de technieken) naar het brede spectrum van de wereld van de mandenmakers zelf. De "world according to basketry" is samengesteld uit textuele, audio-visuele en tactiele aspecten. De eerste twee komen aan bod in, respectievelijk, het boek en de video-band. Ze verwijzen op een aantal manieren naar elkaar. In de rechter benedenhoek van het video-beeld loopt een tijdsaanduiding mee, waarheen regelmatig wordt verwezen in de tekst van dit proefschrift. Er komen ook symbooltjes en aanwijzingen in beeld die via de Appendix C gevonden kunnen worden.

De tactiele aspecten zijn ook een belangrijk deel van het onderzoek, maar het medium van boek of video-band is niet geschikt om deze kennis door te geven. Tactiele kennis wordt overgebracht door het delen en verwerven van ervaring (leerlingwezen). In mijn onderzoek heb ik niet alleen gekeken naar hedendaagse mandenmakers, maar ook les genomen. Deze ervaring kan niet via papier of beeld gedupliceerd worden. "Ik zal het je laten zien" betekent in deze context namelijk "Ik zal het je laten voelen". Ergens een 'gevoel' voor krijgen is tegelijkertijd concreet (hoe ga je met de materialen om) en abstract (wanneer je tracht deze ervaring in tekst te vertalen).

Een hulpmiddel om het visuele of tactiele te vertalen naar tekst, is het gebruik van numerieke gegevens. Een van de functies van meten (tellen, wegen) is om een concrete situatie op papier te kunnen vastleggen. Het werkritme (visueel) wordt daarom uitgedrukt in eenheden van tijd of beweging (hoofdstuk 16). Ook tactiele aspecten, zoals de treksterkte van materialen, kan in meetbare eenheden

worden weergegeven. Door middel van ingewikkelde standaardiseringen via een laboratorium opstelling kan worden uitgedrukt, wat een 'ervaringsdeskundige' zonder nadenken in zijn of haar vingers heeft.

In het algemeen wordt een dergelijke vertaling van het tactiele naar het textuele (cijfermatige) door academici hoger gewaardeerd dan praktische kennis. Toch ontstaat er in de academische wereld langzamerhand het besef dat er andere soorten kennis zijn, die wel degelijk waarde hebben.

CLASSIFICATIE EN TERMINOLOGIE

De eigenschappen van archeologische manden (ook grotendeels visueel en tactiel) worden in woorden gepresenteerd met behulp van classificatie. In dit proefschrift wordt beargumenteerd dat classificatie iets anders is dan het indelen van voorwerpen volgens hun eigenschappen (hoofdstukken 2 en 3). Dat is namelijk niets meer dan het opbergen van een voorwerpen in hokjes, een soort gedachteloze archeologische opruimwoede. Voor een 'echte' classificatie wordt eerst bepaald welke aspecten er van belang worden geacht voor een specifieke vraagstelling. Deze aspecten worden vervolgens in een schema met elkaar verbonden waardoor er een aantal op duidelijke criteria gebaseerde klassen ontstaan. De voorwerpen worden vervolgens in deze klassen geplaatst. In deze opzet blijven er klassen leeg wanneer er zijn geen voorwerpen zijn die aan een bepaalde combinatie van criteria voldoen. Door te verklaren waarom bepaalde klassen wel, anderen niet gevuld zijn, wordt classificatie een krachtig middel om tot nieuwe inzichten te komen.

In dit proefschrift wordt, door middel van classificatie, twintig verschillende technieken onderscheiden (hoofdstuk 15). Het werk van de hedendaagse mandenmakers wordt aan deze indeling gekoppeld, zodat er uitspraken kunnen worden gedaan over het productieproces dat ten grondslag ligt aan de diverse technieken.

Ook de video is het resultaat van een strenge ordening. De beelden en geluiden zijn door verschillende selectieprocessen gegaan. Ten eerste werd er tijdens het filmen al bepaald wat werd opgenomen en hoe dat gebeurde. Vervolgens werd deze keuze nog veel meer toegespitst tijdens de montage. Beelden lijken objectiever dan tekst, maar vertellen evenzeer een zorgvuldig geregisseerd verhaal.

Er zijn veel termen voor manden, die niet alleen functionele, maar ook regionale en beroepsmatige verschillen uitdrukken. Terminologie is vaak inconsequent, en bij nadere beschouwing blijkt dat de namen van manden gelieerd zijn aan verschillende verzwegen classificaties. Het ontwerpen van een consequente manden terminologie kan alleen op basis van een classificatie, die eenduidige criteria geeft op basis waarvan we verschillende soorten kunnen onderscheiden.

Toch is daar in dit proefschrift van afgezien. Het ontwerpen van een consistente terminologie is misschien wetenschappelijk gezien wel bevredigend (als men tenminste van archeologische bureaucratie houdt), maar dient geen duidelijk doel. Het mist de aansluiting met bestaande terminologieën en is bovendien

afhankelijk van één bepaalde vraagstelling. In dit proefschrift zijn alleen de criteria die ten grondslag liggen aan de twintig onderscheiden technieken expliciet gemaakt, zonder dat daar een term op wordt geplakt. Het centrale begrip in de classificatie is de *basic structure*, de techniek die gebruikt wordt voor het bouwen van de bodem of wand van een mand, omdat dat deze structuur van de techniek bij zelfs hele kleine fragmenten nog opgetekend kan worden.

De classificatie is gebaseerd op een combinatie van binaire opposities (passief / actief), driedelingen (elementen die bewegen in één, twee or drie vlakken) en nummertellingen (aantal systemen, aantal orientaties, aantal elementen). Dit is maar één bepaalde manier om het materiaal te ordenen, namelijk een westerse academische. Hedendaagse Egyptische mandenmakers hanteren een hele andere classificatie, die minder consequent is, maar gebaseerd op criteria die voor hen relevant of functioneel zijn. Om erachter te komen wat die criteria zijn (ze zijn namelijk vaak onuitgesproken of onbewust) kunnen we naar de hedendaagse terminologie kijken.

Is het mogelijk om de oud-Egyptische classificering van het materiaal te achterhalen? Dat zou ons namelijk een blik gunnen in de denkwereld van de oude Egyptenaren. Materiële cultuur is namelijk niet alleen een weerspiegeling van het cognitieve systeem en de sociale gewoonten, maar spelen een actieve rol in het formeren en structureren van deze gewoonten. Sterker nog, het oud-Egyptische cognitieve systeem, dat gedeeltelijk gevonden kan worden in de mandenmakers wereld, houdt direkt verband met het wereldbeeld. Hierbij moet direkt opgemerkt worden dat er in een maatschappij een complex van meerdere (en vaak tegenstrijdige) noties van ordening van de wereld bestaan.

SYSTEMEN, ACTIVITEIT AND HANDELINGEN

Om de zichtbare en tastbare aspecten van manden en mandenmakers handelingen te beschrijven, worden de termen "systeem" en "activiteit" gebruikt. In hoofdstuk 5 wordt uitgelegd dat een *systeem* een groepje bladrepen of grassprieten is dat dezelfde rol speelt in het tot standkomen van de techniek. Door de interactie van verschillende systemen te beschrijven, begrijpen we alle technieken volgens dezelfde criteria.

Belangrijker is nog, dat we door naar de activiteit van de systemen te kijken (ze kunnen actief of passief zijn), een verband kunnen leggen met de handelingen van de mandenmakers. In dit proefschrift wordt op twee plaatsen een definitie gegeven van de activiteit, waarin een geleidelijke accentverschuiving van structuur naar handeling duidelijk wordt. Op pagina 85 wordt gezegd dat de (rigide) passieve elementen het geraamte van de techniek vormen, terwijl de (flexibele) actieve elementen de structuur verbinden en bij elkaar houden. Op pagina 269 luidt de definitie van actief en passief dat elementen van het actieve systeem vaker en langer door de mandenmaker worden gehanteerd dan de elementen van het passieve systeem. Beide definities zijn nuttig, omdat ze verschillende aspecten

benadrukken. De eerste kijkt naar de structuur van de mand als resultaat van een proces, terwijl de tweede zich richt op de handelingen van de mandenmaker.

De video sequenties worden uitgebreid in de tekst beschreven (hoofdstuk 16). Een dergelijke gedetailleerde beschrijving helpt bij het observeren van het proces en het bestuderen van de bewegingen van de mandenmaker. Hoewel elke producent andere handelingen verricht, die samengevat kunnen worden in een meer algemene beschrijving van het proces, brengt de gedetailleerde beschouwing aspecten aan het licht die bij een veralgemenisering niet opvallen.

De handelingen van de mandenmakers worden verdeeld in handelingen die achter elkaar worden herhaald (*repetitive actions*) en handelingen die af en toe nodig zijn (*occurring actions*).[1] Een breiwerk, bijvoorbeeld, bestaat uit een heleboel steken (*repetitive actions*) en af en toe moet de pen worden omgedraaid, of een nieuw bolletje wol aangehecht (*ocurring actions*).

De *repetitive actions* bepalen het gezicht van een productie proces, terwijl de *occurring actions* ondersteunend zijn en veel minder opvallen. Ook de resultaten van de *occurring actions* zijn vaak onzichtbaar: aan- and afhechtingen worden bijvoorbeeld zoveel mogelijk verborgen in de structuur van een mand.

De *occurring actions* nemen vaak weinig tijd in beslag, het zijn snelle handelingen die moeilijker te volgen zijn dan de *repetitive actions*, die zo vaak herhaald worden dat het voor de toeschouwer op den duur duidelijk is wat er gebeurt. Alleen als een mandenmaker duidelijk toont of uitlegt wat hij precies doet, kan de toeschouwer (leerling) de handeling begrijpen en imiteren. Vandaar dat tradities of scholen geïdentificeerd kunnen worden door bestudering van details als de aan- en afhechtingen, het begin en de rand van de mand en de afwerking.

De productie fases van het begin en de afwerking van de mand worden gedomineerd door *occurring actions*. Het opbouwen van de bodem en wand (de *basic structure*), daarentegen, wordt gekenmerkt door *repetitive actions*. De kenmerken die een mandenmakers traditie tonen nemen in het geheel van het productieproces maar een geringe tijdsperiode in beslag. Het begin van een vlecht neemt bijvoorbeeld maar 24 seconden in beslag.

De bewegingen van de *repetitive actions* zijn zeer regelmatig, omdat het van groot belang is een werkritme te ontwikkelen om dezelfde beweging eindeloos te kunnen herhalen. Toch wordt er ook in de *occurring actions* een werkritme aangetroffen, als is dit moelijker te ontdekken. Het werkritme verschilt niet alleen per techniek, maar zelfs per mandenmaker.

Kundige mandenmakers werken in een zeer regelmatig ritme en intense concentratie. Dat wil niet zeggen dat hun bewegingen het meest economisch zijn. Veel mandenmakers hebben bijvoorbeeld de gewoonte om voor elke herhaalde handeling even een klopje tegen de mand te geven. Dit heeft geen enkele functie

[1] Aangezien de Nederlandse vertaling van deze termen ('herhaalde handelingen' en 'voorkomende handelingen') niet goed uitdrukt wat er bedoeld wordt, handhaaf ik in het vervolg van deze pagina de engelse terminologie.

voor de productie, maar helpt in het volhouden van het werkritme. Veranderingen in het werkritme treden op wanneer het productieproces een andere fase ingaat. Tijdens de overgang naar een volgende fase laat de mandenmaker ook vaak zijn ogen even wegdwalen van het werk. Het oogcontact is over het algemeen sterk, niet alleen tijdens de *occurring actions*, maar ook tijdens de bijna automatische bewegingen van de *repetitive actions*.

In oud-Egyptische grafreliëfs en -schilderingen komen veel afbeeldingen voor uit het dagelijks leven. Vaak wordt van een productieproces een soort 'samenvatting' gegeven, bestaande uit één of meerdere scènes die kennelijk als kenmerkend werden beschouwd. Voor veel activiteiten, bijvoorbeeld de graanoogst, vlasoogst, weven, bier brouwen, leerbewerking, worden productiefasen afgebeeld die gekenmerkt worden door *repetitive actions*. Voor mattenmakers scènes ligt de situatie een beetje anders. Een unieke scène uit het Middenrijk toont een mattenwever die zich vooroverbuigt om met een brede houten balk de inslag aan te slaan (zie p. 313). Dit is een *occurring action*. De enige andere mattenmakers scènes zijn die van het maken van gepaarde matten. Deze komen vanaf het Ouderijk regelmatig voor te midden van andere scènes uit het dagelijks leven en zijn nogal raadselachtig. Ze lijken het begin en einde van het gehele proces te tonen. Het begin wordt gekenmerkt door afbeeldingen van het uitleggen van papyrus stengels en soms het maken van touw. Afbeeldingen van het eind van het proces tonen twee tegenover elkaar zittende mattenmakers, die de voltooide mat bewerken met een onduidelijk werktuig. Mogelijk hebben de mannen in beide handen een borsteltje, waarmee overtollige vezels worden weggeveegd. In ieder geval representeert de afbeelding de laatste fase van de productie.

CONTEXT EN BETEKENIS

Context en betekenis kunnen beschouwd worden als tactile aspecten, in de zin dat ze betrekking hebben op dingen die aangeraakt kunnen worden (materiële context) of be-grepen moeten worden (betekenis). De betekenis van manden en matten in de Egyptische maatschappij is in feite de immateriële context. Dit is meer dan de sociale status van de mandenmaker. Productie en gebruik van mandwerk is gerelateerd aan groepsidentiteit en persoonlijke uitingsvormen.

Hoe kunnen we grip krijgen op de betekenis van mandwerk? Betekenis is gewoonlijk geen bewuste constructie. Het kan niet gescheiden worden van het object of andere dimensies van de productie (economisch, sociaal, ritueel, magisch, politiek, etcetera).

De Nubische mandenmakers zeggen dat hun kleurrijke versieringen alleen een decoratieve functie hebben en verder niets betekenen. In zowel de interviews die Boyce Driskell gehouden heeft, als mijn eigen onderzoek, bleek dat met name de Kensi Nubische mandenmakers zichzelf beter vinden dan de vorige generatie, omdat ze meer kleuren en nieuwe patronen gebruiken. Ondanks deze wil tot innovatie, kan mandwerk van de verschillende Kensi dorpen onderscheiden

worden. Er is helemaal een groot onderscheid tussen de Kensi en Fadidja dorpen in Nieuw Nubië. Het antwoord dat de decoraties niets betekenen is wellicht waar op een bewust niveau, maar daaronder ligt een laag waarin via het mandwerk wel degelijk betekenis wordt gegeven aan identiteit.

Er is een duidelijke *gender* verdeling tussen de personen die manden maken en gebruiken. Dit is het sterkst aanwezig in Midden Egypte, waar de vrouwen de manden produceren die ze zelf in huis en voor het doen van boodschappen gebruiken. De mannen maken de manden die op straat en in de velden gebruikt worden. In Nieuw Nubië maken alleen vrouwen manden voor gebruik in huis en voor boodschappen (vervoer naar huis). Het grove mandwerk voor het werk op de velden, wordt gekocht van (mannelijke) Egyptische mandenmakers.

In Midden Egypt zijn er professionele, niet-professionele en part-time professionele mandenmakers. Het blijkt dat hedendaagse professionale mandenmakers een grote vaardigheid bezitten, maar zich daarenboven vooral onderscheiden doordat ze een specifieke werkplek nodig hebben. De mandenmakers werken geconcentreerd, in een zeer vast ritme. Het resultaat van hun werk vertoond een grote uniformiteit in uiterlijk en maten.

We kunnen stellen dat de professionele mandenmakers vaardig zijn, maar dat argument kan niet worden omgedraaid: een vaardige mandenmaker is niet per definitie professioneel. Veel niet-professionele mandenmakers vertonen een grote vaardigheid en kunnen evenzeer lange periode met grote concentratie aan het werk zijn. Als we in een opgraving een zeer regelmatig gevormd mandje vinden, kunnen we dus veronderstellen dat de producent had een grote vaardigheid, maar niet dat het zijn of haar beroep was.

Professionaliteit is veeleer verbonden met de fysieke (materiële en lichamelijke) vereisten van het werk. Als er een werkplek en instrumentarium nodig zijn, is de producent waarschijnlijk professioneel. Er kan echter niet gesteld worden dat zware, vermoeiende taken een relatie hebben tot professionaliteit: alle mandtechnieken veronderstellen lange periodes van herhaalde handelingen.

Alle vaardige mandenmakers werken in een regelmatig ritme, waarbij opvalt dat de niet-professionele mandenmakers langzamer en preciezer werken dan de professionele mandenmakers. Voor de interpretatie van het archeologische materiaal betekent dit dat consequente onregelmatigheden een duidelijkere aanwijzing zijn voor professionaliteit dan een zeer regelmatig gemaakte mand.

Op dit moment zijn de enige full-time producenten de mattenwevers, de mattenmaker die gepaard werk maakt en de producent van *qafas* (kratjes van palmribben). Dezen hebben allen werkplaatsen en maken gemiddeld meer gebruik van gereedschappen dan de niet-professionele mandenmakers. De oud-Egyptische afbeeldingen in grafreliëfs en -schilderingen laten precies die technieken zien, die tegenwoordig door professionele mattenmakers worden uitgevoerd. Ook nettenmakers, touwslagers en textielwevers worden getoond. Afbeeldingen van de productie van de gespiraalde huishoudmand komen in het geheel niet voor. Dit is opmerkelijk, omdat er per graf tientallen gespiraalde manden worden afgebeeld in offerscènes. Dit kan wellicht gezien worden als een argument dat gespiraald

mandwerk niet door full-time professionals werd gemaakt, maar waarschijnlijk door niet-professionele vrouwen.

De sociale positie van de hedendaagse mandenmakers in Midden Egypte en Nieuw Nubië verschilt. In Midden Egypte kijken de stadsmensen neer op de boeren bevolking die ook manden maakt. Het is echt een dorpse activiteit. De vrouwen die manden maken zijn echter trots op hun vaardigheden. Zelfs de vrouwen uit de rijkste familie van het dorp maakt manden (net zoals ze nog zelf brood bakken en kaas maken). De professionele mannen zijn minder gelukkig met hun beroep. Ze proberen hun positie te verbeteren en als dat niet lukt, streven ze er in ieder geval naar dat hun kinderen beter werk krijgen.

De Nubische vrouwen, daarentegen, zijn zonder meer trots op hun werk. De oudere vrouwen klagen erover dat de jonge meiden het handwerk niet meer leren en geven de televisie daarvan de schuld.

Over de sociale positie van mandenmakers in het oude Egypte is niet veel bekend. Er is één tekst die aanwijzingen biedt dat de oud-Egyptische mattenwevers er zowel sociaal als economisch slecht aan toe waren. Aangezien algemeen wordt aangenomen dat dit een satyrische tekst is, kan deze tekst niet zonder meer als getuigenis worden aangenomen.

CONTINUÏTEIT EN VERANDERING

In de hoofdstukken 10 en 11 wordt aangetoond dat er zowel sterke indicaties zijn voor een grote continuïteit, als grote veranderingen. De continuïteit is voornamelijk regionaal: mandwerk opgegraven in Qasr Ibrim heeft veel overeenkomsten met het moderne Nubische mandwerk, terwijl het materiaal uit het arbeidersdorp van Tell el-Amarna duidelijke overeenkomsten vertoont met dat uit het hedendaagse Midden Egypte.

Gespiraald mandwerk uit Amarna en Midden Egypte is ongedecoreerd en vrij grof. Het Nubische mandwerk is daarentegen veel fijner en gedecoreerd met patronen en gekleurde vlakken. Het gebruik verschilt ook. In Midden Egypte zijn de manden vooral bedoeld om brood, meel en andere goederen in te bewaren. In Nubië worden de manden gebruikt als deksel, waaronder de maaltijden geserveerd worden. Na afloop van de maaltijd worden de manden aan de muur gehangen en hebben ze een decoratieve functie.

In het oud-Egyptische Amarna komt gepaard mandwerk het meeste voor. In de Ptolemaïsche periode (derde eeuw voor Christus) werd een nieuwe techniek geïntroduceerd (manden gemaakt van spiraalsgewijze genaaide vlechten). Deze techniek heeft het gepaarde mandwerk in Midden Egypte grotendeels vervangen. In Qasr Ibrim en Nieuw Nubïe wordt dit genaaide vlechten mandwerk gebruikt voor draagtassen en vloermatten.

Waar op het ene niveau sprake is van continuïteit, is er volgens andere criteria juist sprake van een verschil in traditie. Dit brengt de waarde van het etno-archeologische werk geen moment in gevaar. Etno-archeologie is bij uitstek niet bedoeld om oud met modern te vergelijken op basis van een veronderstelde

continuïteit. Ook de video is uitdrukkelijk niet bedoeld om een 'beeld te geven van het leven in het oude Egypte'. Een dergelijk nadruk op een geconstrueerde continuïteit ontkent de historische en maatschappelijke ontwikkelingen die plaats hebben gevonden. Het etno-archeologische onderzoek concentreert zich daarentegen op het begrip van het productieproces en is vooral van belang voor de realisatie dat er vele immateriële aspecten kleven aan materiële cultuur.

Mandwerk kan beschreven worden als een combinatie van eigenschappen. Als we ons daar toe beperken doen we het belangrijkste aspect schromelijk te kort. Naast technische en functionele aspecten zijn namelijk de specifieke voorkeuren en tradities van (sub)culturen van groot belang voor de interpratatie van materiële cultuur. De betekenis van ongedecoreerd mandwerk in het tegenwoordige Midden Egypte is bijvoorbeeld neutraal. Deze functionele ongedecoreerde gespiraalde manden komen in elk huishouden voor en hebben een neutrale waardering. In Kensi Nubië, daarentegen, worden ongedecoreerde manden als minderwaardig beschouwd. Ze worden allen op onopvallende plaatsen gebruikt en nooit aan bezoekers getoond. Dit staat in sterk contrast met de gedecoreerde manden, die een ereplaats hebben aan de muur van de gastenkamer. De tegenwoordige felgekleurde decoraties doen het versierde mandwerk uit Qasr Ibrim verbleken. Tradities zijn niet statisch, maar worden voortdurend opnieuw uitgevonden en veranderen van betekenis.

De interpretatie van het oude en moderne mandwerk kan uitgaan van een keuze voor het benadrukken van de continuïteit of de verandering. Zo kan de komst van het genaaide vlechten mandwerk in de Ptolemeïsche periode geinterpreteerd worden als de culturele invloed van een buitenlandse bevolking, die een breuk met de traditie heeft veroorzaakt. De continuïteit van het ongedecoreerde gespiraalde mandwerk in Midden Egypte kan als (politiek) argument gebruikt worden dat de Egyptische boerenbevolking de waarlijke erfgenamen van de farao's zijn. Beide interpretaties munten uit door eenzijdigheid. Een maatschappij is niet monolithisch en de introductie van nieuwe ideeën wordt vermengd met plaatselijke uitvindingen en aanpassingen aan de locale situatie.

Via 'the world according to basketry' kunnen we een beeld krijgen van een segment van de oud-Egyptische maatschappij die normaal gesproken buiten ons bereik blijft. Dorpsvrouwen en ongeletterde boeren worden zelden gehoord in officiële documenten. Het mandwerk geeft ons een ingang, al moet daar bij aangetekend worden dat het een beperkt zicht biedt op de maatschappij als geheel. Desalniettemin levert het een bijdrage aan de gezamenlijke inspanning van archeologen, egyptologen, papyrologen en historici om verhalen en beelden uit de oudheid te constueren.

CNWS

On the basis of two different archaeological sites, namely Tell el-'Amarna in Middle Egypt (about 1350 BC), and Qasr Ibrim in Nubia (mainly third century BC to sixth century AD), this book deals with the production of basketry in ancient Egypt. Use is also made of a study of contemporary basket makers in Middle Egypt and New Nubia.

The book first deals with the technical aspects of basketry production, and subsequently with the wider world of basket makers. The book is accompanied by a video tape which illustrates the findings presented in the written presentation.

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