ANCIENT EGYPTIAN HEALTH RELATED TO WOMEN: OBSTETRICS AND GYNAECOLOGY

by

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DECLARATION

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I, DEBRA SUSAN BOUWER, declare that

ANCIENT EGYPTIAN HEALTH RELATED TO WOMEN: OBSTETRICS AND GYNAECOLOGY

is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

ABSTRACT

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The success of any civilisation rests on a number of factors, to include their ability to procreate and produce heirs. This given, the health of women in any society is of most importance given their primary role in both birth and raising children. The study of medicine dedicated to the care of women in ancient Egypt is of vital importance and to this end, various archaeological finds have been consulted and analysed. Information in the field gynaecology shows a relatively advanced discipline with many overlaps with modern medicine and modern pharmacopoeia. Information on obstetrics is more limited with reliance on mythological texts, inscriptions, artifacts, conjecture and deductive reasoning required. A lot of areas still require exploration in the field and the study raises issues for future research.

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Debra Bouwer

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GLOSSARY OF MEDICAL TERMS

abortion	-	an operation, procedure or situation which causes the foetus to leave the uterus before it is fully developed, especially during the first 28 weeks of pregnancy
abortifacient	-	a drug or instrument which induces an abortion
adenoma	-	benign tumour of a gland
amenorrhea	-	cessation of menstrual bleeding
antiandrogenic	-	drug that induces infertility activity on male sperm by suppressing sperm density, motility and fertility
conception	-	the point at which the sperm fuses with the ovum resulting in pregnancy
contraception	-	use of drugs, devices and remedies to prevent pregnancy
cystadenoma	-	an adenoma in which fluid filled cysts occur
dolicopellic pelvis	-	a pelvis having an anteroposterior diameter longer than its transverse diameter
eclampsia	-	a pre birth condition in which the mother suffers from high blood pressure as a result of toxaemia, causing her to become hypertensive with the risk of slipping into a coma
embryo	-	an unborn foetus during the first 8 weeks after conception
emmenagogue	-	a drug or prescription that will increase menstrual flow
eurymorphic	-	of short and stocky build with wider transverse pelvic diameters
fertile	-	being able to produce children
fertility	-	the ability to procreate which, for females, begins with the onset of menstruation and continues until a woman reaches menopause

fistula	-	a passage or opening which has been made unusually between two organs of the body, often near the rectum, anus or bladder
gynaecology	-	the study of the diseases related to, and treatment of women
histology	-	the study of the anatomy of tissue cells and minute cellular structure
implantation	-	the act of grafting or inserting tissue, drug or material into a person
infertility	-	inability of either the male to produce viable sperm, of the female to produce viable ovum
menarche	-	the onset of menstrual bleeding
menopause	-	a period usually between the ages of 45 and 55 (in contemporary women) when a woman stops menstruation and can no longer bear children (the age of menopause in ancient Egypt was lower than in the western world)
menorrhea	-	normal menstrual bleeding and amenorrhea, being the absence of one or more menstrual periods, usually during pregnancy and after the onset of menopause, or the age at which a women stops menstruation and can no longer bear children
menstruation	-	process whereby the endometrial lining of a uterus breaks down very 28 days when no fertilization of the ovum takes place
mesatipellic pelvis	-	a pelvis in which the transverse diameter is equal to the anteroposterior diameter or exceeds it by no more than 1 cm
miscarriage	-	a situation where the foetus is expelled from the uterus before the end of the pregnancy, specifically during the first 7 months of pregnancy
obstetrics	-	all compilations and pathologies arising from the moment of conception, through from pregnancy, birthing and post birth complications and the treatment thereof
osteology	-	the study of the bones and their structure

osteopathology	-	the study of diseases of the bones
osteopenic	-	low bone mass
osteoporosis	-	a condition in which the bones become porous, thin and brittle as a result of low levels of oestrogen, calcium and exercise, often associated with menopause
ovarian Dropsy	-	a condition in which the cells in the ovary swell, often from an ovarian cyst or the presence of cancer
oxytocin	-	is a naturally occurring hormone known best for its roles in female reproduction
paleopathology	-	the study of diseases affecting ancient civilisations
pathology	-	the study of diseases and the changes in structure and function which diseases cause in the body
pelvic girdle	-	the circular ring of bones that connect the spinal column to the femurs, or thigh bones
perineal tears	-	tears which occur on the skin and tissue between the opening of the urethra and the anus
pessary	-	drug made into a soluble material and then inserted into the vagina so that it can be absorbed into the blood
pharmacognosy	-	the study of the pharmacological properties of botanicals and other living organisms to include animal and mineral products
pharmacology	-	the study drug composition and properties
pharmacopoeia	-	the drugs/herbs used, their preparation and administration
physiology	-	the study of regular body functions
placenta	-	the tissue which grows inside the uterus during pregnancy and links the baby to the mother
platypellic pelvis	-	a pelvis shortened in the anteroposterior aspect, with a flattened transverse oval shape
progesterone	-	a hormone which is produced in the second part of the menstrual cycle by the corpus luteum and which stimulated the formation of

		the placenta if an ovum is fertilised
pyknic	-	of short and stocky build with wider transverse pelvic diameters
sacral promontory	-	the base of the sacrum where it juts into the pelvis
sacrovertebral angle	-	angle from the promontory to the symphysis pubis
sewage pharmacology	-	the use of excrement or faeces in drug therapy
spermicidal	-	a product which neutralises the pH of the vagina to prevent conception
superior aperture	-	a measure from the middle of the brim on one side to the same point on the other
symphysis pubis	-	a piece of cartilage which joins the two sections of the pubic bone
tetrogenic	-	products known to harm or kill an embryo
uterine prolapse	-	a condition in which part of the uterus has passed through the vagina, usually after childbirth
vesicovaginal fistula	-	an unusual opening between bladder and the vagina

Adapted from Bateman *et al* 2005. *Dictionary of medical terms,* 4th ed. London: A & C Black.

CHAPTER 1

INTRODUCTION

Our knowledge of ancient Egypt has been made possible by the abundance of literature, carvings, sculptures, massive building complexes, not to mention the archaeological remains of mummies and tombs. The term 'ancient' is used to refer to the period from the beginning of writing via glyphs in Egypt up until the end of the Late Period around 332 BC. Of the archaeological remains, the Rosetta stone[1] which was discovered in 1799 and deciphered by Jean-François Champollion in 1822 has greatly aided in furthering our understanding of ancient Egypt.

The vast corpus of knowledge in Egyptology has come from the ongoing examination, exploration and investigation of artifacts, mummies, linguistic analysis of historical texts, analysis of religion and research into the social, political and economic life of ancient Egyptians. In the 8th International Congress of Egyptologists held in Cairo in 2000, a number of pertinent issues called the 'Millennium Debates' were discussed, focusing on "art, history, language, literature, museology, religion, site management and conservation" (Hawass & Brock 2004:xi). A focus on medicine in ancient Egypt is surprisingly missing. At the 10th international congress of Egyptologists, only one medical papyrus was discussed and that was a veterinary papyrus. There was no discussion of the medicine of ancient Egypt. The writing of history is reliant upon a vast body of primary sources and ongoing excavations of new discoveries to add to our

[1] The Rosetta stone dates to about 196 BC, and contains a carved decree honouring King Ptolemy Epiphanes in three different scripts, namely hieroglyphic, demotic and Greek. The stone weighs 762kg, is located in London in the British Museum. It is 72.3cm wide, 114.4cm high and 27.9 cm thick (Lüderitz 2009:285).

understanding. The primary sources available on ancient medicine are limited, but as argued by Redford (in Weeks 1979:5) in speaking generally about Egyptology, "theoretically the sum of all historical facts is infinite; we can never hope to acquire them all. But any historian…can commence his historical work whenever any facts begin to emerge about the period or country he has interested himself in: he does not have to await complete returns".

The implication is not that a complete lack of analysis of ancient Egyptian medicine exists, but that within the discipline of Egyptology; very little emphasis has been placed on it. Authors such as Nunn (1996), Reeves (1992) and Ghalioungui (1973) deserve credit here. In medical congresses, ancient medical texts are analysed and Computed Tomography (CT) of mummies discussed by medical doctors[2]. In a world where the health of a nation impacts on its economic and political growth and stability, analysis of this in Egyptology is surprisingly absent. Even more so, numerous texts have been written on the social structure of ancient Egypt, the age of marriage, divine birth and conception, fertility, the birth of Pharaohs, the role of magic and the gods in life and death, yet even less information can be gleaned on the specific role of women's health despite the vast role played by women, given their childbearing ability, in the continuous birth of one generation to the next. Where we do find discussions of birth in Egyptology, the role of magic is heavily emphasised with little focus given to the application of medicine in 'scientific' form. The argument here is that ancient Egyptian medicine and specifically as it pertains to women, should become as fundamentally important, as the

[2] Computed Tomography is a non-invasive method of obtaining accurate images of both the bone and tissue of a mummy, without having to unwrap it from its bandages or in some cases, to remove it from its cartonage. The benefit of CT over X-ray is that with CT, soft tissue can also be analysed for disease. Cf. Lynnerup (2010:441–448).

study of ancient art, architecture, economy, politics and excavations, within the field of Egyptology.

Many of the widely held interpretations of authors in discussing ancient Egyptian medicine, is that disease was caused by some powerful spirit, benign or malign which entered the body from the outside[3]. Crudely stated, this principle albeit hard to define is known as the *wekhedu* (translated as morbid principle or rot). Papyrus Ebers states "The breath of life enters into the right ear and the breath of death enters into the left ear," and likewise Edwin Smith Papyrus states, "As for something entering from the outside, it means the breath of an outside god or death. It is not an entering of that which is created by his own flesh" (Nunn 1996:61).

Todd (1921:463) states that in interpreting the prescription of the ancient medical texts, "it must be recalled that this was still the age when men believed disease to be sent by the gods…or brought by demons…The materialistic viewpoint has scarcely as yet attained any foothold. Hence it was the prayer or the incantation which was the important feature of the cure; the prescription was only an accessory."

Given these concerns, it is the intention of the author to not only give credence to women in ancient Egypt by focusing specifically on their health and well being in terms of the field of gynaecology and obstetrics, but also the role of 'implied science' in the application of many prescriptions. The intention is not to show the direct social or economic role of women, but rather to gain insight into their physical stature and

[3] Cf. Zucconi (2007:26–37) and Wilson (1952:76-80) though the list is by no means exhaustive.

childbearing role and the use of medicines and prescriptions, based on both magic and 'implied science' to ensure their continual health and wellbeing in society.

The term, 'implied science' is used in this study. Science as we define it in the modern world often pertains to the application of the scientific method, using systematic observation and or experiment through methods of research to formulate measure and test hypothesis. Again, it is not intended to enter a debate on what constitutes science, but to highlight the possibility that based on the knowledge system of the ancient Egyptians; many medical prescriptions were based on research and observation. Thomas Kuhn argued that the science should be defined according to what sorts of ideas were thinkable at a particular time and what sorts of intellectual options and strategies were available to people during a given period[4]. For this reason, implied science in this study is seen to pertain to the application of methods according to the knowledge basis of the ancient medical practitioners.

For the purposes of this study, 'ancient Egyptian' will be limited to include the period from the Old Kingdom in 2705 BC through to and including the New Kingdom to 1070 BC[5]. In some cases, mummies or texts from later periods will be discussed purely as an observation of possible ailments of the ancient Egyptian.

[4] He uses the concept of a paradigm which begins with the knowledge and views held by a specific community at a specific point in time. It is this that forms the solid basis for the continuation of a particular research tradition. Cf. Kuhn (1970).

[5] There are numerous debates in the field of Egyptology as to the correct chronology for ancient Egypt, given the periods of co-regency. For the purposes of this research, the chronology laid out by Sullivan (1997:636) will be used.

1.1 RESEARCH QUESTIONS

In tackling these issues, the following questions will be examined:

1. Given the resource material that we have available, is there sufficient information contained therein to develop a history of gynaecology and obstetrics in Egypt?
    a. Was there a field of medicine specifically devoted to women?
    b. Was the stature of women any different to the western civilisation?
    c. What was the average age of childbearing?
    d. Did they have contraception and planned abortion?
    e. What were there specific birthing techniques and complications?
2. Did they make use of scientific and empirical reasoning in applying medications?
3. Was their pharmacology vastly different to modern medicine?

1.2 HYPOTHESIS

As a starting point in answering the research questions it will be important to look at the basic living conditions of the ancient Egyptians, particularly in terms of nutrition given its impact on health. As the Egyptian history was a strong and developing one for approximately 1800 years, it seems plausible to argue that despite intermittent period(s) of drought etc which would affect food sources, given the central role played by the Nile in irrigation and food production, that the diet and health of the Egyptians remained relatively stable. If this is indeed the case, it is likewise plausible to argue that women's health did not encounter significant anomalies.

Further, if a strong medical system existed headed up by medical practitioners, the question arises as to whether there was a specific branch of medicine that dealt with womens' health issues and if so, was there specific practitioners assigned to the work? Given the abundance of writing on the birth of gods, fertility and fecundity, it seems

logical to assume that the ancient Egyptians did indeed, have a medical knowledge of women's issues and that they had practitioners assigned to women's health specifically.

Assuming that a branch of women's medicine existed, we need to determine if the anatomy in terms of pelvic measures etc were any different to modern western civilisation as this would have an impact on birth. Issues such as the age of childbearing become significant here. It is assumed that the average child bearing age was a lot lower than in western civilisation as it was in many ancient cultures, and given this, that the anatomical dimensions of women at child bearing age would be different to western civilisation.

Other factors to consider are the ancient Egyptians' approach to such issues as contraception and abortion. Texts tell us that women were granted the legal rights to engage in contracts to buy land and engage in the economic sphere and that women had the right to divorce their husbands (Johnson 2002:1). Given this, it seems plausible that women likewise had a right over their body and assuming they did not have forms of contraception available to them, that they used methods of abortion.

A further question asked, is to what extent ancient Egyptian medicine was based on magic versus logical scientific and empirical reasoning. In analysing this question, similarities between texts and repetitive use of medications for similar ailments would lead us to assume that an experimental practice had been initiated, results observed, repeated and that tried and tested methods were used. Modern medicine is based on the principles of scientific reasoning and experimentation. One may argue the Egyptians fall short of 'pure medical practice' given their use of magic; however it will be shown that

the Egyptians did, in fact make use of scientific reasoning in what is termed in this study, *implied science.*

This leads us to an analysis of the final question: was their pharmacology vastly different to modern medicine? It is argued, that yes it is, but only in so far as modern medicine makes use of laboratory created man made prescriptions. The nature of the principles of pharmacology in ancient Egyptian medicine versus that of today is based on the same principles. The area in which modern and ancient medicine may differ is in the application of modern surgical techniques. This is not to say that ancient Egyptian pharmacology IS *sui generis*, the same as modern day medial pharmacology, but that the underlying principles of application are the same. Coupled with this analysis, will be an investigation of the use of magic and belief systems used in medicine.

Given the above, this study seeks to argue that the ancient Egyptians had a well established medical system with a clear focus on women's health with assigned practitioners, that their age of childbearing was lower than modern western civilisation and that given this; underdevelopment in anatomical structure would have given rise to birthing complications. It further argues that given women's legal rights in ancient Egypt that the use of contraception and or abortion was practiced and that the ancient pharmacology was based on similar practices to modern medicine.

1.3 SOURCES

In working through these questions, varying sources are available to the researcher on medicine of ancient Egypt. Albeit that information pertaining specifically to the field of Obstetrics and Gynaecology is more limited, there is a wide body of information available. One just has to look for it.

For the purpose of this research, the medical papyri of ancient Egypt are used as the primary sources of information, with the various ostraca, inscriptions, archaeological remains of mummies and buildings, being used to support and expand on that which we find in the papyri, as well as shed light on information not contained therein. In analysing issues of pharmacology and the possible role of 'science' in ancient medicine, the vast discipline of pharmacognosy will be consulted.

1.3.1 Primary Documentary Sources

The achievements of the ancient Egyptians were many, which included controlled irrigation, extensive trade relations, building methods and architecture, works of art, literature, quarrying and most of all mathematics, mummification, medicine and an independent writing system known as hieroglyphics. Medical spells and cures were documented on papyri which survive to this day. Appendix I lists some hieroglyphics[6] related to medicine.

An important source of information with regards to ancient Egyptian medicine is the surviving medical papyri which were bought in the 1800 and 1900's by various collectors, researchers and historians. Given that these scripts were made available for resale by merchants and traders, it is often not possible to link them to any specific tomb. In addition, it is not always possible to determine if they were written by a practitioner or scribe, or if they were copied from older records. As such, it is difficult to draw a fine distinction between what we can classify as primary versus secondary resource data in

[6] Hieroglyphics is a writing system and by its very nature, changed and developed over the history of ancient Egypt. By the time of the Middle Kingdom, their vocabulary had increased to include 24 consonants. Aside from development of the system over the history of ancient Egypt, the dialect of an area also affected the way in which words were depicted. As such, there is variation in the form of hieroglyphics over the years (Davies 1990:75-136).

the study of Egyptology, and in most cases, we are not examining the papyri or ostraca etc themselves, but scholars' and historians' accounts of that data. One may speculate that they may have come from the tombs of medical practitioners but this would be mere conjecture.

Of the medical papyri available, only those that pertain to the subject of Gynaecology and Obstetrics will be discussed.

The papyri consulted in the research were:

- The Kahun Medical Papyrus dates from around 1850 BC and is said to be one of the oldest medical scrolls[7]
- The Ramesseum Papyrus IV dates from 1784 to1662 BC[8]
- The Edwin Smith papyrus which dates to about 1700 BC and is primarily a surgical treatise[9]
- The Ebers Papyrus dated to around 1550 BC, contains 700 magical formulas and folk remedies[10]
- The Carlsberg VIII Papyrus, dating to around 1500 BC but speculation has it as being written much earlier[11]
- The Berlin Papyrus which dates to about 1300 BC[12]

The various papyri discussed were named after their site of discovery such as the Kahun and Ramesseum, their place of keeping (Berlin) or their editor (Ebers). They are classified as pertaining to medicine in general, or to a specific sub branch of medicine –

Note: Further specific references to parts of each papyrus will be given in later sections.

[7] Leake (1952:7-9); Ghalioungui (1973:36); Griffith (1898:5-11); Reeves (1992:53); Stevens (1975:949-52); Nunn (1996:34-35).

[8] Ghalioungui (1973:37); Nunn (1996:39-40).

[9] Leake (1952:9-17); Ghalioungui (1973:38-45); Nunn (1996:25-30); Wilson (1952:76-80).

[10] Ghalioungui (1973:33-35); Nunn (1996:30-34); Reeves (1992:49-51); Von Klein 1905.

[11] Bülow-Jacobsen (1984); Ghalioungui (1973:33); Nunn (1996:39).

[12] Ghalioungui (1973:32); Nunn (1996:37-38); Reeves (1992:53-54).

in our case, Obstetrics and Gynaecology. Of those discussed below, the Kahun is the only one that pertains predominantly to our study, with the others being broader based and having sections that deal with our interest matter. Each papyrus is not unique in its content, with several areas of overlap or similarity of prescriptions.

All of the important medical papyri except for the Ramesseum V papyrus were written in hieratic script, a cursive style of writing that developed alongside hieroglyphics. Likewise all except Ramesseum III, IV and V were written horizontally from right to left, enabling us to date them with some accuracy to before the Middle Kingdom. During the Middle Kingdom the practice changed and writing was done in vertical columns. The hieratic script was developed almost in parallel with the development of hieroglyphics and was mainly used for everyday purposes such as record keeping and writing letters. It is structurally similar to hieroglyphics and was written almost exclusively, in ink on papyrus (Nunn 1996:24).

Two colours of ink were used, namely black and red. Black ink was made from a mixture of wood, coal and oil which was ground together to make a paste and then combined with water. Acacia gum was added not only to bind the particles together, but to also ensure that the ink stuck to the papyrus. Ink is durable and does not fade as many metallic variants do today. Black ink was used for the majority of papyrus scrolls and was the dominant colour used.

The red colour often seen on papyrus scrolls was made from red iron. Red ink was mainly used to denote the start of a spell or prescription in headings or titles (Danzing 2010:1).

The second important archaeological artifacts pertaining to this study are the mummified remains of certain Egyptians, which through modern technology can be analysed for a range of medical complications.

Journals, abstracts and scholarly articles will be consulted.

Lastly, data obtained from excavations in which buildings and living arrangements will examined as they pertain to birth arbors or *mammisi*, as well as ostraca, pottery vases and carving analysed[13].

1.3.2 Secondary Documentary Sources

Several secondary sources will also be examined, to include articles, internet resources and books that seek to explain the use of certain medications and how they pertain to conditions similar to or the same as those encountered by the ancient Egyptian women. In some cases the actions of certain plants and herbs will be examined, drawing on research studies.

In all cases, areas of commonality will be established to draw links of relative probability.

1.4 METHODOLOGY

The methodology used in this dissertation is a literary review based on the historical method, defined by Garraghan and Delanglez (1946:33) as "a systematic body of principles and rules designed to aid effectively in gathering the source materials of history, appraising them critically and presenting a synthesis of the results achieved," the

[13] The majority of information for this section will come from excavations done at the vast complex of Deir el Bahari and the work of Meskell (1998: 209-243; 2000: 423-441).

sources in this study being primary and secondary sources. The most important of these primary sources are the mummified remains of several Egyptians. The second important primary sources are historical documents, papyrus scrolls, letters and inscriptions. Here, reliance falls on the varying translations of ancient hieroglyphic and hieratic text into English and other languages by several in the field, rather than direct analysis by the author. Likewise the analysis and recording of mummified remains serves as primary resources. The use of secondary sources is based on texts seeking to interpret ancient texts, excavations etc and in providing a historical picture of ancient Egypt. Both sources are inextricably entwined as the secondary sources serve to add perspective, explanation and insight into the ancient primary texts and to contextualise the sources leading to inductive reasoning as opposed to deductive.

The deciphering of ancient script into a modern form is the field of Paleography, a vital step in enabling researchers to understand ancient texts and provide a fairly accurate date and origin of the original scripts. The numerous texts found within ancient Egypt has resulted in a special branch of paleography being formed, that of papyrology which focuses on studying, deciphering and dating ancient papyrus scrolls.

Archaeology plays a significant role in locating artifacts, remains from statues, amulets, graves etc, along with the field of epigraphy which analyses inscriptions on walls, clay tablets, pottery shards etc.

In addition to the above sources, several modern research studies will be consulted as they pertain to the treatments of medical ailments with certain medicines, applications, and herbal products as well as the adverse and beneficial effects of these products. Studies conducted on modern versus ancient skeletal remains will be compared.

The nature of this analysis is not without problems, particularly with reference to the primary sources. First, we have the influence of interpretation in the translation of the primary documents, such as papyrus scrolls and inscriptions, and categorising and labeling pieces according to our modern linguistics. Further, that the primary sources are vulnerable to time. Time can destroy parchments; erode papyrus scrolls and weather inscriptions, in some cases leaving the data incomplete. Many of the parchments and papyri are incomplete or fragmentary, leading to a degree of intrusion and conjecture on behalf of the interpreter as to the missing text. In most cases the author of the script is not known.

Making the analysis of the ancient texts and mummies more complex, is that without a comprehensive level of expertise in the reading of hieroglyphic and hieratic script, nor the ability to personally make direct observations on the remains of mummies with the accompanying medical knowledge, the researcher becomes reliant on only being able to make use of secondary data sources, with a degree of 'trust' being imbued into the reading of the various works and research papers, thus rendering these sources as primary.

In analysing the data, the researcher has taken care to evaluate, where possible, the information along the guidelines of sound historical criticism, paying attention to both higher and lower levels of criticism as outlined by Garraghan and Delanglez (1946:64).

In fulfilling the requirements for higher order criticism, each papyrus on first presentation, will be dated and localised in terms of when in history it was written and where, who wrote it or ordered that it be written. These will ascribe to fulfilling the criteria for higher criticism, i.e.

1. *When* was the source, written or produced (date)?
2. *Where* was it produced (localisation)?
3. *By whom* was it produced (authorship)?
4. *From what pre-existing material* was it produced (analysis)? (Garraghan & Delanglez 1946:168).

Secondly in fulfilling the requirement for lower criticism, the originality and extent with which the papyrus remains intact will be discussed along with the effect of any missing sections and finally internal criticism will be upheld through establishing the evidential value of the contents (credibility), i.e.

1. *In what original form* was it produced (integrity)?
2. *What is the evidential value* of its contents (credibility)? (Garraghan & Delanglez 1946:34).

External criticism will not be specifically tested to establish authenticity as in all instances, these sources have already been deemed authentic by well known Egyptologists and historians such as Griffith, Ebers and Petrie.

In attempting to fulfill the criteria of historical criticism, several problems arise which cannot, within the gambit of our current knowledge and information available to us, be immediately resolved. These include the difficulty of establishing accurate dates of written texts, original authorship, and the intent of the author or level of expertise, whether the information recorded was recorded by the first person, or via a scribe, all of which can affect the interpretation and contextualisation.

Where mummified remains are used as primary sources, we are reliant on the condition in which the mummy was found, how it was excavated, how it was stored and treated as well as the methods of analysis. The date of analysis and method used is of further historical importance given the ongoing changes in medical analysis and thus on diagnosis of diseases.

In terms of Chronology, the following periods and dates as adapted from Sullivan (1997:636) will be used:

Old Kingdom	: 2705 – 2250 BC
First Intermediate Period	: 2250 - 2055 BC
Middle Kingdom	: 2055 – 1688 BC
Second Intermediate	: 1720 – 1550 BC
New Kingdom	: 1550 – 1070 BC

1.5 THESIS LAYOUT

This study will proceed through two main sections, Section A and Section B.

1.5.1 Section A – Introductory Chapters

This section will provide a general analysis of background information, pertinent to gaining a better understanding of the topic.

Chapter 2 will look at ancient Egypt and their medical knowledge by analysing the earliest recorded evidence of, and profession of medicine in ancient Egypt, their training and hierarchical order within the profession. The focus will include the general health and well being of the people and their access to food and modes of production.

The discussion will include a section that focuses specifically on the field of obstetrics and gynaecology in ancient Egypt to determine the role played by medical practitioners in womens' health, evidence of discussions of women's health and the emergence of general concepts. The concept of fertility and its pivotal role in life and mythology will be investigated.

Chapter 3 will analyse the various sources available looking at the medical papyri, ostraca, pottery and mummified remains. Only those sources relevant to gynaecology and obstetrics that fall within the delimitation of the study will be analysed.

Chapter 4 will focus on the pharmacopoeia in terms of specific products used to create medical prescriptions. A look at the pharmacological actions of certain of these products used in drug therapy will be examined, along with modes of application and dose.

Specific remedies used will not be the focus so much as the pharmacological action of some of the ingredients used.

1.5.2 Section B – Core Chapters

This section will contain the main focus of the study, examining the various aspects as they pertain to the health of women.

The first chapter, chapter 5, will investigate the stature of Egyptian women in antiquity, by looking at mummified remains to determine height and pelvic measures.

Chapter 6 will follow with an in-depth look at the field of gynaecology in ancient Egypt, exploring everything from onset of puberty through to fertility, conception and contraception. Throughout these sections, reference to the medical and mythological papyri as well as other archaeological findings in the field will be discussed. Various gynaecological complaints to include cancers, infections and bone diseases will be examined.

Chapter 7 will focus on the practice of obstetrics where discussions will revolve around pregnancy, complications of pregnancy, child birth and birthing complications and procedures.

Chapter 8 will look at an overview of the research and medicine for women in antiquity versus contemporary medicine and draw conclusions from the research. Proposals for future research questions will be given.

SECTION A - INTRODUCTORY CHAPTERS

In providing a background to the main topic of investigation, several areas will be discussed. The chapters covered in this section will provide details on the general state of medicine in Ancient Egypt and a look into what could be medicine pertaining to the health of women, the artifacts, particularly the medical papyri that allow us to create a picture of medicine in ancient Egypt, and finally a look at the drugs and herbs used in treating ailments, their preparation and method of administration.

CHAPTER 2

ANCIENT EGYPT AND THEIR MEDICAL KNOWLEDGE

Abstract

Research tells us that the priests of Early Dynastic Egypt carried sacred books, some of which were medical and which regulated the conduct of practitioners. They had a hierarchically arranged medical system and clear understanding of the functions and anatomy of the body. Food production was important to the general health and well being of the nation. The concept of fertility was as firmly entrenched in mythology as it was in the need for procreation. The causes of disease were considered in some cases on rational and in other cases on magical or spiritual terms.

Introduction

Titus Flavius Clemens, a Christian theologian who lived in Alexandria around AD200, claimed that the priests of Early Dynastic Egypt carried a series of 42 sacred books with them, handed to them by the great god, Thoth Djehouty. These covered the disciplines of Theology, Astrology and Medicine. He claimed that six of these books contained information on medicine and fell under the following titles:

- On the constitution of the human body
- On diseases
- On the organs
- On medicines
- On diseases of the eyes
- On diseases of women (Gadalla 1999:305).

Sadly the original books are no longer in evidence, however Millar, quoting Diodorus Siculus (in Finlayson 1893a:749), states that "in Ancient Egypt the practitioner was obliged to regulate his conduct, not by his own views, but solely by what was written in the sacred books of Tot (Thoth Hermes). Provided he followed these implicitly, no blame was incurred though the patient died; if he departed from them in the least, and at the same time the case ended fatally, his own life became the forfeit." It would seem that these books governed medical practice in Ancient Egypt. While the originals no longer exist, several medical papyri do, the content of which will be examined in chapter 3. This chapter focuses on medicine in general in ancient Egypt and the practice thereof with a brief look into concepts of fertility and birth and how the related to health of women.

2.1 MEDICAL PRACTICE IN ANCIENT EGYPT

Homers' *Odyssey* talks about the skill of the Egyptian physicians and Herodotus, in speaking of medicine in Egypt claimed that, "the practice of medicine they split into separate parts, each doctor being responsible for the treatment of only one disease. There are, in consequence, innumerable doctors, some specialising in diseases of the eye, others of the head, others of the stomach, and so on; while others, again, deal with the sort of troubles which cannot be exactly localised" (Nelson 2001:2).

Modern medicine is said to be based on the principles of the Hippocratic Oath[1], an oath penned after the so-called father of medicine, Hippocrates, from the 5th century BC. The

[1] The Hippocratic Oath is an oath made by medical students at the completion of their medical training. Its use in the future of medicine is under debate, but in essence, regardless of its form, asks that the students swear by or promise to adhere to some or other code of conduct in their practice. For a fascinating insight into the history of the Hippocratic oath and its possible future, cf. Miles (2005).

oath has changed substantially from the classical version, but within it, the basis principle is that the practitioner will:

1) Adhere to the oath

2) Respect scientific research and share knowledge

3) Take care of patients who are ill displaying sympathy and empathy

4) Admit when a lack of knowledge exists and further consultation is needed

5) Respect the privacy of the patient

6) Prevent disease if possible

7) Remain true to the profession (Tyson 2001:1).

There are variations which include a rejection on the practice of abortion and euthanasia, but on the whole, these are now excluded (Tyson 2001:1). Several texts argue that the true father of medicine dates back to ancient Egypt, to Imhotep, master pyramid builder and supposed physician. We do not have any texts that support this as the argument is based on the elevation of his power to that of a demi-god after his death. In the original form of the Hippocratic Oath, practitioners would swear by a number of Greek gods and goddesses of medicine, such as Apollo, Asclepius, Panacea etc to hold true to the oath.

Ostrin (2002:4) states that "the Greeks called … (Imhotep)… Imouthes[2], and claimed that their god of medicine, Asclepius, was none other than Imhotep reincarnate…Imhotep was; the good physician of gods and men, a kind and merciful god, assuaging the suffering of those in pain, healing the diseases of men, and giving

[2] Imouth or Imouthes is the Greek form of the Egyptian name Imhotep, meaning "he who comes in peace". Cf. Forbes (1940:769-773).

peaceful sleep to the restless and suffering." In essence therefore, our current oath of medicine *may* originate in Egypt itself.

The ancient Egyptians had a clear understanding of the functions of the human body and the role played by the different organs. This is evident in such works as Papyrus Ebers and Berlin, both of which contained detailed notes on the vessels or *metu*, sometimes referred to as *met* of the body, where they arise and lead to the functions of many internal organs. The Egyptians used hieroglyphs to depict parts of the human anatomy. It is known that they performed surgery and conducted brain trepanning, as is evident from a trepanned skull from one of the "deep pits at Lisht' which are believed to have belonged to a member of the noble family of the Twelfth Dynasty" (Nunn 1996:169).

Despite their vast knowledge, there is no evidence to show that dissection was undertaken in Egypt, at least not until Herophilus, the Greek physician from Calcedon in the early Ptolemaic Period (Nunn 1996:207). The fact that no evidence exists however, is not proof that it did not occur. Many of the hieroglyphs are amazingly close in similarity to the actual organ depicted, such as the hieroglyph for heart.

Doctors were split into three categories; the *wab* priest who attended to those at court was the highest level and attached to the cult of Sekhmet; the *swnw* who attended to the general populace and derived their knowledge from both medical books and experience in practice; and the *sau* considered to be magicians, sorcerers and bone setters, who dealt with diseases of an inexplicable nature and who aided the application of prescriptions with magical incantation (Vinel & Pialoux 2005:7). Within each category, a further hierarchy of practitioners probably existed.

The *wab* priests seemed to be responsible for teaching and training doctors, with the bulk of the learning being carried out in the ''Houses of Life,' centres of learning attached to temples. Volten (1942 in Ghalioungui 1973:65) argued that these centres were originally created to protect the gods and pharaoh alike and encompassed all disciplines needed to protect the pharaoh. It is believed that over time these centres extended their focus to include care for 'non-deities', and eventually transformed into the equivalent of a university type of institution. How the process of learning was carried out is uncertain but it appears that sons were taught to carry on the tradition of their fathers or male relatives. In the Ebers Papyrus we read of 'a secret remedy' to the one who is under the physician, except his daughter. Diodorus (1, 81, 7 in Ghalioungui 1973:65), stated "since their birth they are instructed by their father or by their parents in the practices proper to each mode of living."

The general practice of medicine in ancient Egypt was carried out by the *swnw,* pronounced 'sounow,' (Haimov *et al* 2005:4) meaning the equivalent in modern terms as medical doctor (figure 1). The *swnw* was responsible for the health of an individual and given the importance of the general health of its people, it is likely that the state paid the practitioners according to their rank (Ghalioungui 1973:68)[3].

Figure 1: The hieroglyphic symbol for a male doctor (adapted from Nunn 1996:115).

[3] Ghalioungui (1973:63-78) provides an in-depth discussion on the role of the physicians or healers as he refers to them, their rank, training and role as their part in both a state run and private profession. He provides a detailed table of the numbers of physicians currently known through inscriptions and stelae by analysing them according to rank, specialty, assignments, offices and activities and the different stages of Egypts' history.

The hieroglyphic symbol for a male doctor or *swnw* was of a seated man with a lancet and a pot.

The feminine derivative of the word shows the male determinative of the seated man being replaced with the female termination of the loaf, equivalent to the consonant of "t". The resultant words are *swnw* for a male physician and *swnw t* for a female physician (figure 2).

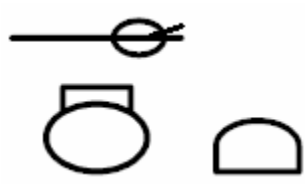


Figure 2: The hieroglyphic symbol for a female doctor (adapted from Nunn 1996:115).

The simplest determination of a doctor is an arrow, sometimes represented as a quiver with two arrows.

Nunn (1996:116), claims that substantial evidence points to the belief that *swnw* represents a doctor. He cites the following:

> "…You should then prepare a secret herb remedy which the *swnw,* makes…(Ebers, 188).
>
> And when you have fallen ill...I will search for the chief *swnw* and he will prepare a remedy (Papyrus Leyden I, 371).
>
> Manual of a collection of remedies of the *swnw* (Chester Beatty VI, 8).

> [Thoth]…imparts useful knowledge to the learned and to the *swnw* his follows(?), in order to free those whom his god wishes him to keep alive (Ebers 1)."

By the Old Kingdom, the *swnw* had become highly organised and specialised by rank, with the overseer of doctors being referred to as the *imy-r swnw,* the chief of doctors as the *wr swnw*, and the inspector of doctors as the *shd swnw* (Reeves 1992:21).

Evidence from tomb inscriptions from Iry at Gizeh which refer to "appointments as 'Palace Eye Physician', 'Palace Physician of the Stomach and Bowels' and 'Guardian of the Anus'" show that branches of medicine existed (Rowling 1989:312). However, to date, there has been no record that pertains to the physician solely responsible for the medical health of women. Medical writings which have survived from Pharaonic times are sparse and of the medical writings which have, very few pertain specifically to the medical health of women (Nunn 1966:124-5).

On an outer temple wall of Kom Ombo, a temple of the Ptolemaic era, a panel of inscriptions believed by many to be the earliest depictions of the medical and surgical tools by the ancient Egyptians exists (figure 3). Although we cannot claim this to be applicable to our delimited period of study, it does show the type of medical equipment that may have been used.

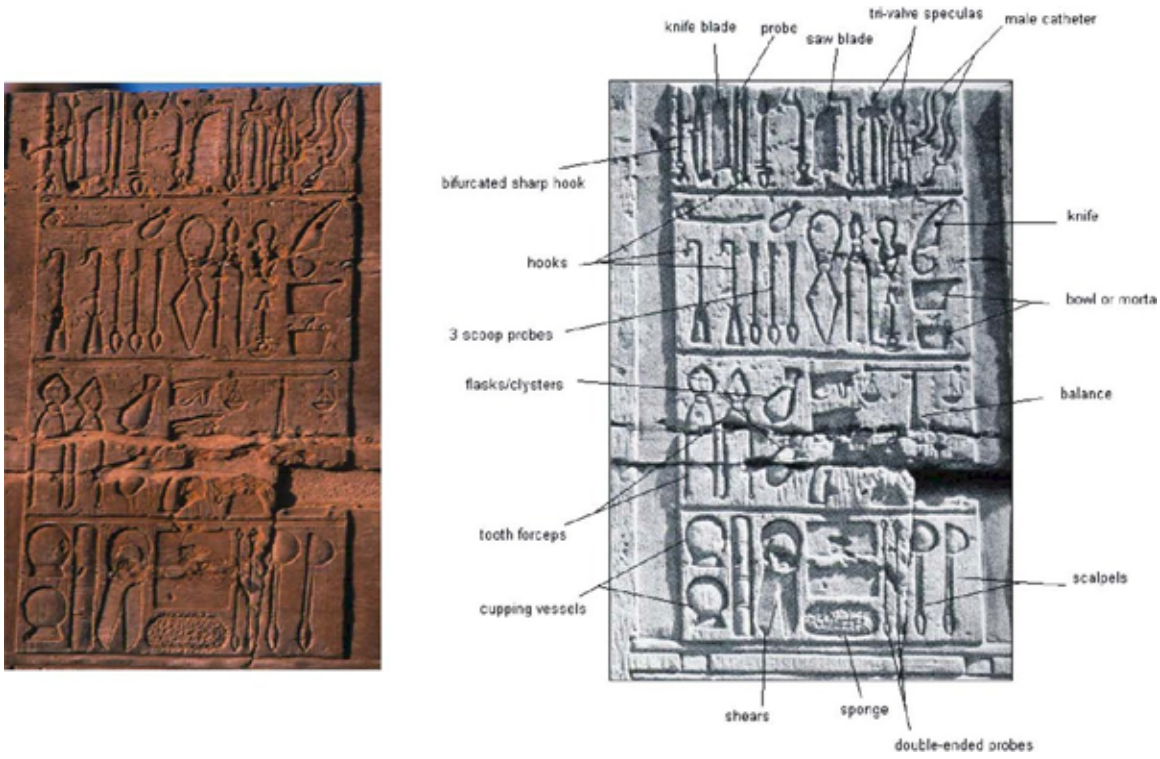


Figure 3: Depiction from the outer wall of the temple of Kom Ombo showing the medical tools used by the ancient Egyptians. Some have still not been identified, and others have questionable functions (Loukas *et al* 2011:411).

2.2 GENERAL WELL BEING AND HEALTH IN ANCIENT EGYPT

Essential to the general health and well-being of the people of ancient Egypt, was food production and nutrition. The annual flooding of the Nile around late August each year ensured that high silt deposits remained, leaving a fertile rich soil in which to plant their crops. Life in ancient Egypt revolved around the annual flooding of the Nile with the year being divided into three seasons of four months each. The first season was known as *Akhet*, from July to October; the period during which the Nile flooded. Once the flood water had receded during September to October the fields were surveyed and plowing and planting began during November to February, known as *Peret.* The final season was the time of the harvest, from March to June called *Shemu* (Nunn 1966:13).

Being reliant on nature meant that the Egyptians were at the mercy of the degree to which the Nile flooded or did not flood sufficiently, all of which was connected to the percentage of rainfall in the highland regions in the south. There were times when the Nile rose too high and houses and fields were flooded and other times when the Nile did not flood at all. The most significant of these fell during the seven year period of drought during the reign of King Dzoser of the third Dynasty resulting in a high percentage of nutritional problems, not to mention starvation and death (Reeves 1992:11).

A vast array of food was produced in ancient Egypt from cereal crops such as barley and emmer and a profusion of fruit and vegetables. They farmed cattle, sheep, goats and pigs as well as poultry and a wide range of herbs and spices. Apart from the nutritional value of these products and derivatives, a lot of medical remedies made use of edible items such as milk, oils, herbs, onions, beans etc. Nunn (1996:19) claims that the primary source of energy needs of the people were met with the consumption of grain. In his calculations of the amount of arable land, taking off approximately 50% that would have been lost to pestilence or government taxes and saved for seed corn, each labourer would have been able to cultivate 20 *aroura* (2735sq.m), which would be sufficient to "provide the basic calorie requirement for twenty adults".

Despite the abundance of food, there is evidence of malnutrition and times of famine. Darby, Ghalioungui and Grivetti (1977 1:78) mention that scurvy from a lack of Vitamin C, night blindness from a lack of vitamin A and ironically rickets, from a lack of exposure to sunlight producing Vitamin D, were well attested to in tomb art and medical papyri. Not surprisingly, however, periods of abundance also led to cases of obesity.

2.3 MEDICINE AND MAGIC

Understanding the aetiology of disease i.e. the cause or origin of a disease or diseases (Bateman *et al* 2005:9) in ancient Egypt, varied from the rational to magical and spiritual as did the treatment thereof. For external diseases such as rashes and eczema, diagnosis was relatively straightforward and the corresponding treatment was based on available resources at the time. However, internal medical disorders such as tumours, cysts, heart disease, infections etc seemed to pose more difficult problems for diagnosis and treatment[4]. In such cases, the use of magic was a significant factor in treatment, along with the application of medical prescriptions (Nunn 1996:96).

The Ebers Papyrus commences with the statement,

> "I went forth from Heliopolis with the priests of *Het a?t*, the lords of defense, the kings of eternity and of deliverance. I went forth from *Sais* with the maternal goddesses, who promise me protection. Words were given me by the Lord of the Universe, wherewith to drive away the sufferings of all the gods, and deadly diseases of every sort. So many chapters are on this my head, this my neck, these my arms, this my flesh, and these my limbs, to punish the mockeries of the high ones, who cause by magic this disease in my flesh and in these my limbs...Ra has compassion, saying: I will protect him from his enemies. It is his leader Hermes, who has given him the words, who procures the books, and who

[4] Determining the cause of disease would have been pivotal in the decision whether to choose medical prescriptions or magic in healing. Nunn (1996:96) argues that where the cause of the disease was obvious, such as in the case of trauma or an external wound), medical prescriptions would be utlised. However where the cause could not be seen such as with internal diseases, magic and incarnation were used to expel the malign or demonic influence from the body.

> bestows upon the learned ones (literally, those who know every thing), and on the physicians who follow him, the honour of unravelling that which is dark… Words to be said in the preparing of medicine for all parts of the body of the patient. So let it be, a thousand times. This is the book for the healing of all diseases... Deliver me then from all possible evils. From bad, wicked, typhonic things, from demoniacal (epidemic ?) and deadly fevers of every sort"(Finlayson 1893a:751).

It appears that the above was to be recited by the doctor or physician, so as to provide himor her strength and knowledge given by the gods "who bestows upon the learned ones…and on physicians….the honour of unraveling that which is dark." It speaks of punishing the "mockeries of the high ones, who cause by magic this disease in my flesh and in these my limbs". The "high ones" may refer to malign spirits, the unsettled soul of an ancestor, spells cast by one man onto another to cause him harm. That they refer to disease being caused by "this magic" shows that they did not appear to see disease as a natural progression of life.

Maspero (2003:118-119) states that:

> "the Egyptians are not resigned to think that illness and death are natural and inevitable ; they think that life once commenced should be indefinitely prolonged ; if no accident intervened, what reason could there be for its ceasing? In Egypt, therefore, a man does not die, but someone or something assassinates him. The murderer often belongs to our world and can be easily pointed out; another man, an animal, an inanimate object… Often, though, it belongs to the invisible world, and only reveals itself by the malignity of its attacks; it is a god, a spirit, the soul of a dead man, that has cunningly entered a living person, or that throws itself

> upon him with irresistible violence…Whoever treats a sick person has, therefore, two equally important duties to perform. He must first discover the nature of the spirit in possession…He can only succeed by powerful magic, so he must be an expert in reciting incantations…He must … use medicine to contend with the disorders…"

The treatment of disease in Ancient Egypt was thus two fold, magic and the application of medicine.

2.4 OBSTETRICS AND GYNAECOLOGY IN ANCIENT EGYPT

There is evidence that some *swnw* were female. During the Old Kingdom, mention was made of the 'Overseer of Lady Physicians', called *Peseshet* (Nunn 1996:124). One could argue on the basis of semantics that the word overseer does not imply that she was in fact a doctor, but mention of lady physicians is indicative that female doctors did exist[5].

While the concept of gynaecology and obstetrics is not found as a discipline in itself, concepts of fertility, birth, potency, rebirth, afterlife, renewal and creation are abundant. The concept of fertility in ancient Egypt was strongly associated with the Nile River and the rich alluvial fertile soil that the annual flood brought to the surrounding land. In the hymn to the Nile we read:

> "Praise to thee, O Nile, that cometh forth from the earth to nourish the dwellers in Egypt…When the Nile floodeth, great offering is made to

[5] The word overseer is *imy-r* which by its determinative refers to a male and as such, it should have been written *imt-r* or *imyt-r* with the *t* being the female determinative. There are several debates as to the correct interpretation of *imy-r swnwt.* Jonckheere (1958 in Nunn 1996:124) claims that it was a scribal error while Majno (1975:480) in criticising the interpretation of Jonckheere, claims it to refer to 'chief woman physician'. Ghalioungui (1973:72) argues it to refer to 'lady director of lady physicians'.

> thee, cattle are slaughtered for thee, a great oblation is made for thee…
> (Craig *et al* 1997:3)."

Fertility was inextricably entwined into the culture of ancient Egyptian life, be it in the fertility of animals, crops or humans. While animal and agricultural fertility were associated with male gods, human fertility was said to be the domain of the goddesses, such as Isis, the senior goddess, Heqat, Hathor and others to be discussed later. Likewise, coupled with fertility, procreation was considered an important part of the inability to conceive reflecting poorly on ones' contribution to life. Barrenness was dreaded. Procreation was essential to life. If a woman could not conceive, pleas were made to the deities connected with fertility and childbirth.

Not only did procreation result in sons continuing with the traditions of the father and children to care for and protect their parent in later life, it also provided a much needed workforce.

In the Instructions of *Ani* from the New Kingdom, we read:

> "Take a wife while you are young
> That she may make a son for you;
> She should bear for you while you are youthful.
> It is proper to make people.
> Happy the man whose people are many;
> He is saluted on account of his progeny (Robins 1993:75)."

Likewise in the earlier middle kingdom text, The Instructions of the (Vizier) Ptahhotep we read:

> "When you prosper and found your house,
>
> And love your wife with ardor,
>
> Fill her belly, clothe her back, Ointment soothes her body.
>
> Gladden her heart as long as you live,
>
> She is a fertile field for her lord" (Hollis 1987:501).

Childbirth symbolised a state of balance as shown in the Admonitions of Ipuer, written during the New Kingdom about the state of the nation, of order versus chaos. It states; "indeed, the women are barren and none conceive. Khnum fashions (men) no more because of the condition of the land" (Faulkner 1956:53).

Chamberlain (2004:285) argues that birth was not considered an event that required medical help and in most instances, took place in the birthing room of the home in the presence of many other women folk who assisted with the birth. During birth it was not the *swnw* that were called upon for help and protection, but the gods. Our first record in fact of formal instruction in the discipline of midwifery comes from a temple on the Delta at Sais, built around 700 BC. Prior to that, we find mention in the biblical chapter Exodus 1:25 of "at least two Hebrew midwives practicing in Egypt with the consent of the authorities" (Ghalioungui 1973:104).

Nunn (1996:132) argues that there are several Egyptian words that indicate a nurse, but they are mostly related to child care and wet-nursing.

In Gardiners' list on the occupation of women, symbols B5 and B6 relate to wet nursing as follows:-

B5 = kneeling, breastfeeding woman signifies to nurse, to nurture, to care for (*rnn*), wet nurse n. def. 1 (*mnat*)

B6 = sitting breastfeeding woman signifies to rear v. def. 4, 5

Figure 4: Gardiner's list B5 and B6.

Aubert (1989:6) argued that in an age where life itself was precarious, given the risk of infant mortality, short life span, the threat of famine, birth itself, "the reproductive functions of women were highly valued; all sexual and physiological dysfunctions were considered threats to society." In this context, the womb was viewed as a potential target of undesirable influences from illness and or occult powers .To this end, the womb and its' protection was central in ancient Egyptian obstetrics and gynaecology.

The hieroglyphic symbol of the womb, or uterus, also known as human matrix was two curved "horns" representing the ovaries, and the pillar representing the uterus or womb.

There is some debate as to the exact meaning of the hieroglyph, sometimes referred to as *idt* and other times as *mwt rmt* (meaning the mother of man, the human matrix or the placenta). Regardless of which theory is followed, all show that the Egyptians clearly understood the role of the organ in the reception of sperm and the formation of the child and thus, survival of humanity. While a discussion of the pathologies of the uterus will be discussed in later chapters, what is important here is how the ancient Egyptians saw

saw actual conception occurring and the processes involved. For the Egyptians, the processes involved the terms, opening and closing (Ritner 1984:212-214). 'Opening' could refer to any activity in which the womb is open, such as for normal menstrual flow, the reception of the sperm and also for the delivery of the newborn, and 'closing' to include the end of normal menstrual flow, conception or protection of the fetus[6].

A duality of concepts is reflected throughout ancient Egypt with the rising and falling of the Nile River, the cycles of life and the afterlife, the rising and setting of the sun, the duality of Shu and Tefnut, order (Isis and Osiris) and chaos (Seth) etc. Much of Egyptian life revolved around the importance of maintaining a stable balance in the duality of opposites and the perpetual repetition of creation. This is reflected in the stories of Re and Osiris. "In the morning, Re is born from the womb of his mother … and he starts his life in the eastern horizon as a young child; in the evening he has become an old man who dies when he enters the western horizon and enters the underworld, only to be reborn the next morning" (Van Dijk 1995:1698). In the same way, the continual opening and closing of the womb and its protection, was an integral part of this perpetual repetition of creation and formed the basis of the application of medical practice for women.

Conclusion

The Egyptians harnessed the power of the Nile, not only in the production of vital food resources but also in the production of herbs, plants and farming of livestock and bees for use in medical prescriptions. With a hierarchical system of medical practitioners in

[6] A detailed discussion on the concepts of 'opening' and 'closing' will follow in chapter 7.

place and places of learning in the *per-ankh,* or house of life[7], medical knowledge and its application was passed on from one generation to the next and documented in the sacred books. The concepts of fertility, birth and creation permeated mythologies and life in ancient Egypt, the importance of which rested in the process of birth and life itself. While female physicians existed, it is unclear if a discipline dedicated solely to the health of women did.

In the discussion to follow one needs to be cognizant of the fact that what relates to one period of Egyptian history may not relate to another, nor the different groups of people living in ancient Egypt at a specific time given the changes in food production, levels of nutrition, incidence of diseases etc found in varying places along the course of the Nile, and that what was found in the working classes of women may not necessarily hold true for the most privileged classes.

[7] The *per-ankh* or house of life was considered by Gardiner (1938:176) and Lefebvre (1956 in Ghalioungui 1973:65) to be temple repositories of documents and scripts where papyri were collected and copied. By contrast, Volten (1942 in Ghalioungui 1973:65) sees them more as actual colleges of learning.

CHAPTER 3

SOURCES

Abstract

Our knowledge of the practice of gynaecological and obstetric medicine in ancient Egypt is reliant on documentary evidence in the form of medical papyri which have survived since the middle kingdom around 1850 BC*. Papyri were recorded in either hieroglyphic[1] or hieratic[2] script with some later documents written in demotic[3]. Analysis of these texts shed light on the nature of medicine in both its magico-religious and medical contexts. The papyri consulted are Kahun Medical, Ramesseum Papyrus IV, Edwin Smith Papyrus, Ebers Papyrus, Berlin Papyrus and Carlsberg VIII Papyrus. Various other sources can be consulted to include mythological texts, ostraca, amulets and letters as well as the significant remains of mummies. Analysis of mummies through modern methods provides confirmation on types of diseases or trauma suffered.*

Research papers in the fields of Egyptology, pharmacology, medicine, herbalism, obstetrics, gynaecology to name a few, round off our research by piecing together missing parts of the 'profession' and gain a more comprehensive history of gynaecological and obstetric medicine in ancient Egypt.

Introduction

The sacred books of Thoth, established very clear guidelines on the practice of medicine, the guidelines of which are most likely copied into further extant texts, such as

[1] Hieroglyphic script was the earliest form of writing in ancient Egypt taking the form of pictorial and phonetic images (Clendening 1960:4).
[2] Hieratic script developed from hieroglyphic and is a cursive form of Egyptian writing and was mainly used sacred and medical papyri and coffins. The writing has been known to be in evidence from the 1st Dynasty. Usually written from left to write and the script is said to have been developed by the god Thoth. It was used up until around 100 BC (von Klein 1905:5).
[3] Demotic script was a type of short hand writing and known to be the writing of the people (Pinch 1994:67). It developed around 400AD.

the medical papyri in evidence today. For our purposes, the study of gynaecological and obstetrical practices in ancient Egypt is primarily dependant on these extant literary sources that contain spells, cures or descriptions of matters pertaining to the health of women, as well as mythological texts. Some are considered to be originals, others copies of older texts. Aside from the medical papyri, information can be gleaned from radiological analysis of mummies and bone material. Other sources of information are hieroglyphs inscribed on plaques, ostraca and temple walls, such as those from the temple of Kom Ombo and Deir el Medina.

This chapter will focus on the six important medical papyri of ancient Egypt, namely the Kahun Medical Papyrus, the Ramesseum Papyrus IV, Edwin Smith, Ebers Papyrus, Carlsberg VIII Papyrus and the Berlin Papyrus (also known as the Brugsch papyrus) [4]. Each papyrus will be introduced according to the oldest first, its history and general content, as well as any particular discerning information. The actual prescriptions contained therein will be discussed under various sections in chapters 6 and 7.

The balance of this chapter will focus on mummified remains and other sources of information to include mythological texts, excavations sites, ostraca, amulets and subsequent studies in the field.

[4] A lithographic facsimile of the Berlin Papyrus was published in 1863 by Brugsch, who also gave his name to that treatise (in Mudry 2006:137) For further reference cf. Brugsch (1863).

3.1 PRIMARY SOURCES

3.1.1 The Kahun Medical Papyrus or Petrie Papyrus

Dating to about 1850 BC of the middle kingdom 12th dynasty, this papyrus was discovered in Illahoun (alhun) in the Fayoum, one of the oldest cities in Egypt dating to about 4000 BC. It was discovered by Petrie in the April of 1889 in a highly fragmented and fragile state. The medical papyrus forms part of a large group of documents which include legal documents, letters, veterinary accounts and mathematical information. Only the medical or gynaecological section of the Kahun Papyrus, so named due to its content will be discussed. It consists of a total of three pages or sheets the first sheet being 31.5cm from edge to edge, the second 38.5cm and the third sheet, 33cm. The entire length of the papyrus is 1.0 metre.

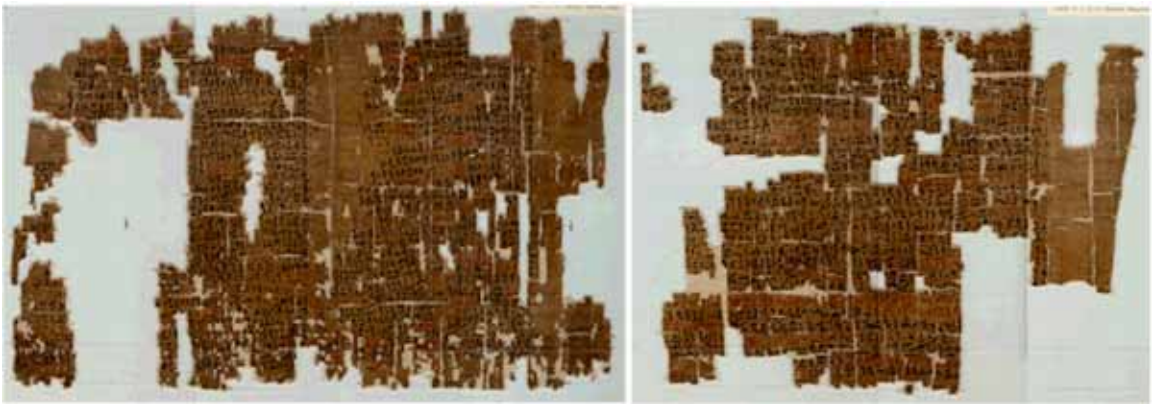
The Kahun Gynaecological papyrus forms part of a large collection of papyri found in the area, broadly called the Kahun Papyri (Griffith 1898:1) [5]. Neither the author of the medical papyrus nor the copyist is known for certain. However, it is possible to contextualise the papyrus in history by virtue of a note on the lower left hand corner of the verso which dates to "year 29 of Amenemhat III (c.1825 BC)" (Nunn 1996:34).

The first page has a broad blank margin with what appears to be about 7.5cm torn off. A total of 29 lines are written on this page. The second page (or leaf) has 30 lines, of which only the first 7 are completely preserved. The remainder has a large section missing from the middle. Page 3 has 28 lines and is believed to have possibly been longer. The third page was completely fragmented and mixed with many other fragments that made up the find number VI. The first page had already been repaired with papyrus strips

[5] The Kahun Papyri comprise a total of seven different papyri from the reign of Amenemhat III, to include the literary, medical, veterinary, mathematic, accounting papyri and a series of letters. The collection is now housed at the University College London.

from another text, by one of its former owners. However, there are still numerous fragments missing from the collection (Griffith 1898:5). The task of piecing the 42 fragments together was undertaken by Griffith (Ghalioungui 1973:36).

The Kahun Gynaecological papyrus is written in hieratic text in 34 paragraphs of which the first 17, written across the first and second columns, start with a title and brief outline of symptoms. These paragraphs pertain to diseases of women and concern pastes, vaginal application or via a pessary and fumigations. The third column contains 17 obstetric prescriptions. The final section is veterinary in nature which is written in hieroglyphics.



Pages 1-2 Page 3

Figure 5: The Kahun Medical Papyrus' or 'Gynaecological' Papyrus (Quirke 2002:1).

The next eight paragraphs appear to be concerned with diagnosis of pregnancy and contraception although they are not all legible or understandable due to the nature of the language used. Much of the content is similar in nature to parts of both Ebers and Ramesseum.

Paragraphs 26-32 of the third section are concerned with pregnancy tests while the final section seems to have been reserved for ailments which do not fall into the earlier

sections, to include both gynaecological and non-gynaecological symptoms (Ghalioungui 1973:35). Content here is similar to the verso of the Berlin papyrus.

Medical prescriptions contained within the papyrus are predominantly herbal and allow the practitioner to use his or her judgment on the quantities to be used. In some cases, whole amounts are specified by measure rather than by weight, as is the case in other medical texts.

Despite being a largely gynaecological and obstetric treatise, one of the problems with this text is that none of the paragraphs are complete making interpretation problematic.

A pattern is followed in announcing the title, followed by the symptoms and then a diagnosis section starting with, "you should say about it…" or "you should declare about it…" or" you should do about it..."

3.1.2 The Ramesseum Papyrus IV

This papyrus, along with its counterparts Ramesseum Papyrus III and V, was discovered in 1895-1896 by Quibell, assistant to Flinders Petrie in 1895-6 in a plundered tomb, probably that of a priest dating to the Middle Kingdom Thirteenth Dynasty (c. 1700 BC). The Ramesseum Papyri are, along with Kahun Papyrus, the oldest known surviving medical texts from ancient Egypt and provided us with the missing opening sections of the Tale of Sinuhe and the Eloquent Peasant (Faulkner 1956:124). The majority of the papyri (136 items) are now held in the British Museum, while several others are housed in the Egyptian Museum in Berlin. Papyrus IV which is the focus of our study given its focus on the health of women is similar to the Kahun Papyrus in that it contains various similar prescriptions and like Ebers Papyrus, contains magical formula and illustrations,

and is thus classified as a magico-medical text. Similar in content to Kahun, it discusses various issues of labour, contraceptive methods and protection of the newborn over 45 paragraphs (Ghalioungui 1973:37). It was found along with the other Ramesseum papyri in a wooden box in a tomb shaft, behind the Ramesseum temple at Thebes. The heat and humidity build up in the tomb shaft sadly contributed to the fragmentary state of preservation. The owner of the tomb is unknown, but reference to Amenemhat III in Papyrus IV, suggests that the date of the tomb must have been later than 1854 BC (Nunn 1996:39).

The papyri are fragmentary, fragile and difficult to study as a group. In 2005 the British Museum undertook a project, headed by Parkinson (2005:1) to "re-establish these texts within their associated material culture, social practices, archaeological contexts and landscapes, while aiming to highlight the museological issues concerning the analysis and display of texts, exploring both ancient and modern receptions of Ancient Egyptian writings" (British Museum)[6].

3.1.3 The Edwin Smith Papyrus[7]

Purchased by Edwin Smith in 1862 from Mustafa Agha, an Egyptian merchant and consular agent in Luxor, the treatise is assumed to have been taken from the tomb of a physician in the Theban necropolis near Luxor.

Comprising a scroll of 15 feet long, it is a total of 17 pages on the recto and 5 on the verso and written in hieratic script from right to left in what appears to be, the same

[6] For a comprehensive discussion on the restoration work carried out in the Ramesseum Papyri, refer to Leach (2006:225-240).
[7] Apart from the importance of the Edwin Smith Papyrus in the study of gynaecology, its' significance lies in the field of neurosurgery, given its specific references to ancient neurosurgical cases.

hand. Recto and verso effectively mean, front and back. It is argued by Breasted and Westendorf (in Nunn 1996:27), that the script may have been copied from an older form dating to the Old Kingdom, given some of the grammatical notations and vocabulary used.

Feldman and Goodrich (1999:281) claim that the scribe was not very meticulous in his approach to replicate the older text, and frequently made errors with notations or corrections in the margins. For some reason, he never completed the text, nor signed his name. The beginning of the script is missing and the last sentence ends abruptly mid-sentence. It would appear that the scribe intended to finish the manuscript, given that the pen was full of ink as seen in the broadness of the strokes.

The papyrus is not very informative in the field of obstetrics and gynaecology, but does provide reference on the verso to retained menstrual products. In addition, given its discussion of fractures and bone breaks, it has implied relevance in the field of osteoporosis. For this reason, it is included here.

Discussion of the symptoms and prescription in Edwin Smith Papyrus follows a very formalised and systematic pattern, beginning in each case with a discussion of the symptoms, followed by a diagnosis, treatment, and then an explanation of certain terms, e.g.

" If you examine a woman suffering in her abdomen…

Then you should say: This is a blockage of blood in her womb.

Then you should make for her [a mixture of]: …

Then you should make her a laxative for the blood…

Additionally you should administer hyena-ear …

Then you should put some myrrh resin …”

Breasted (in Habiger 1998:1).

One gets the feeling in reading the texts that it forms a sort of repetitive methodical chant, imposing a sense of rationality and ritual. Lipson (1990:400) sees the text as being entirely secular and clinical in its approach, as only in one prescription are the gods called upon;

"Expelled will be the enemy that is in the wound

The evil one in the blood will be brought to trembling,

The enemy of Hours,

The magic spell it protection from the Beneficial One.

[The patients’] sleep should not meet danger,

This vessel should not come to harm.

I am under the protection of the Beneficial One,

Saved anew was the son of Osiris."

Lipson (1990:400) argues that the text appears to have been written for the purposes of teaching. What sets this papyrus apart from the other medical texts is that it pronounces whether an ailment can be treated or not, something not seen in earlier treatises. The writing style dates this text to about 1550 BC but both Breasted and Westendorf (in

Nunn 1996:27) argue that this text is probably a copy of an Old Kingdom text given the style of grammar[8]. The addition of extra glosses to explain some of the concepts to the New Kingdom practitioners may further support their claim.

3.1.4 The Ebers Papyrus

The papyrus was written in about 1550 BC and dates to the reign of Amenophis. It is said to have been found between the legs of a mummy in the Assassif district of the Theban necropolis on the west bank of the Nile.

During the winter of 1872-73, George Ebers and his friend, Ludwig Stern from the University of Leibzig spent several months in Luxor in search of rare papyrus texts. They had been told of a papyrus called "shai-en-sensen," which was said to have been found between the legs of a mummy in a tomb of Assiut II in the Theban Necropolis. Given that the person who originally found the papyrus was deceased, it was not possible to confirm its original locality.

Through the financial assistance of Max Griinther, Ebers later managed to purchase the papyrus from its owner, who turned out to be Edwin Smith, an American farmer living in Luxor.

Ebers dates the writing of about 1550 BC is evident in

a) The unusual shape in which the letters are written;

[8] Texts of ancient Egypt can be placed chronologically on the basis if the style of writing and the grammar used. For further reference, several works can be consulted, one of the most fascinating being Bains (1983) who offers a discussion on literacy, its role in society, change and development over time. Others include Fischer (1977: 5-19) and Spalinger (1994:275-319).

b) By the names of kings occurring in the papyrus; and

c) By the calendar at the back of the first column of the roll. The papyrus is written partly in black ink, partly in red ink and constitutes a book of medicine (Von Klein 1905:6).

Subsequent to its purchase by Ebers the document has undergone various translations starting in 1875 when Ebers published a facsimile edition which included a hieroglyphic-Latin dictionary by his colleague Ludwig Stern. In 1890, Dr Joachim translated the work into German. A hieroglyphic transcription was rendered in 1913 by Wreszinski and in 1930 Dr Cyril Bryan translated the work into English. This translation was, however, rendered from the German and other translations and not from the original hieratic script itself, making it a translation of a translation, and not of the original (Nunn 1996:30).

The papyrus is a scroll of 20 meters in length and 30cm in height, making it the longest surviving medical text from ancient Egypt. It has 108 columns of text containing 876 formulae or prescriptions for a range of ailments, along with about 500 pharmacological substances to be used in treatment of the diseases and conditions. Of these substances about 6% were for ailments of the female genitalia and thus relevant to our discussion (O'Dowd 2001:56).

The Ebers papyrus is comprehensive in that it forms a medical text covering most ailments (Ghalioungui 1973:34). Starting with magical spells for protection, it asserts that all magic derives from Thoth, who is sent by Re to relieve the suffering of mankind. "They have given me their protection. I have formulae composed by the lord of the universe in order to expel afflictions (caused) by a god or goddess" (Lipson 1990:403).

Lipson argues that the presence of these incantations at the outset, places this papyrus in a "magical-religious framework".

What then follows is a series of incantations and then paragraphs dealing with various other ailments[9]. The final paragraphs, 783 to 839 deal with conditions pertaining to obstetrics and gynaecology.

The ailments and medications discussed in this papyrus are not presented in numbered lists. Instead, we find the remedy to…. (eliminate the aliment), presented via the repetitive use of a phrase or a word e.g. *Another*, followed by the prescription e.g.

Remedy to expel burning in the lower part of the belly….

> "Another: figs, cumin, powder of manna…
>
> Another: fruit of junipers, frankincense..."
>
> (Lipson 1990:403).

The text does not offer advice to the physician on which remedy is the best, or the severity of the ailment to which the remedy applies. It is simply a list of possible options that the physician treating the patient must choose from.

Despite the fact that the bulk of the text is empirical and logical in its approach, there is the odd prescription which is given as though prescribed by a god or gods, e.g.

[9] Following the incantations, internal ailments are discussed ending off with external diseases. Paragraphs 4 to 118 discuss diseases of the stomach, to include intestinal parasites and skin diseases. An additional section dealing with the stomach is found in paragraphs 188-207 and here we find a change in writing style, closer to that of the Edwin Smith Papyrus.

> "Another, a third remedy made by Tefnut for Re himself….and all sick places and all afflictions (caused) by a god or goddess…"
> (Lipson 1990:405).

These magical recitations appear in only 0.7% of the cases, and in all occasions appear where the disease or ailment appears to be untreatable, as no medical prescription is given e.g. severe burns or blindness (Lipson 1990:4054).

Ghalioungui (1973:34) claims that it is written more as a collection of "therapeutic recipes, diagnostic notes and for the first time in history, theoretical considerations of the problems of life, health and disease devoid of religious or magical considerations." Sigerist and Wreszinski (in Lipson 1990:402) maintain that it was written for the purposes of teaching, given that it is highly systematic in its arrangement.

3.1.5 The Berlin Papyrus

This document dates to about 1300 BC and was purchased in Saqqara by Guiseppe Passalancqua. It was found at the ancient burial ground of Saqqara in the early 19th century CE. Passalancqua later sold it to museum curator Friedrich Wilhelm IV for the Berlin Museum, where it remains to this day. The papyrus covers 24 pages, twenty-one on the recto and three on the verso. Leake (1952:15) argues that the three on the verso are written by different scribes. The authorship of this papyrus remains unknown and there is very little work that has been done on it to date, save for a definitive German translation in the *Grundiss.* It appears that there has not yet been any translation of the work into English (Nunn 1996:37-38). As with many other surviving papyri, sections are missing. In the Berlin papyrus, the beginning is missing (Ghalioungui 1973:34).

For Clendening (1960:1) the Berlin Papyrus is most likely a copy of an earlier script. Reference to this deduction comes from the content of the papyrus itself, which claims that "it was found in an ancient script in a coffer with writing materials under the feet of the god Anubain Leontopolis, in the reign of his majesty, the Egyptian King Usaphis. The text also contains a section on blood vessels, the same of which occurs in the Ebers Papyrus. This section ends off with one of the few references we have to the name of a specific physician, "the scribe of sacred writing, the chief of wise physicians, Neterhotep, who made the book" (Leake 1952:16).

The recto contains some repetitions of previous works, namely the Ebers and Hearst papyrus. Whilst the bulk of the work covers mathematics and general medicine, the recto contains some minor references to obstetrics and gynaecology, and thus has been included in this study (Ghalioungui 1973:32).

3.1.6 The Carlsberg VIII Papyrus

Translated by E. Iverson in 1939 and now housed in the Copenhagen University, this papyrus dates to about the nineteenth or twentieth dynasty. The origin of the papyrus is unknown but it is thought to have been bought by Lange during his travels to Egypt in 1899 or 1929 (Bülow-Jacobsen 1984:91). It has been written by two different hands on the recto and verso with the recto being concerned with diseases of the eyes. The verso, which although in a fragmentary state, was in a better condition than the recto. It contains two pages of text which contain 7 paragraphs, demarcated using roman numerals. All the surviving texts deal directly with the diagnosis of pregnancy, foetal gender and conception, though many parts are similar to papyri Berlin and Kahun. There is some speculation that this text dates to the twelfth Dynasty and the recto is virtually a replica of the content of papyrus Ebers (Nunn 1996:39).

3.1.7 Mythological Texts

The concepts of creation, fertility and procreation are evident throughout Egyptian mythology. Evidence on their thoughts about cosmogony or the origin of the universe seems to have originated predominantly from the religious centres of Heliopolis, Memphis, Hermopolis and Thebes. Given this, mythological texts will be introduced as they pertain to the various aspects of gynaecology and obstetrics.

One such story of creation is that of the earliest Heliopolitan creation myth which centres on the ennead of nine gods, namely Atum (the creator god), Shu, Tefnut, Geb, Nut, Osiris, Isis, Seth and Nepthys. Atum is seen to create the world and the gods by virtue of self generation and self "impregnation". "In mythological terms this expressed as the result of Atum's' self impregnation". Atum produced orgasm and a drop (of semen) fell into his mouth"; then he sneezed out Shu and spat out Tefnut (Van Dijk 1995:1700). Just as the splitting of the ovum occurs after conception in the human world, so we see a similar trend in the creation of the pair, Nut and Geb, who later give rise to the 4 children, Osiris, Isis, Seth and Nepthys. Osiris and Isis represent fertility on earth and humankind.

Aside from the creation of gods, mythology also revolves around human creation. The bulk of these revolve around the "eye of Re', from which mankind is said to have been created. The stories are varied. In the temple of Mut inside the Rammeside complex at Karnak, an instruction reads that the creator "wept all humankind from his eyes" (Van Dijk 1995:1707).

The ram headed god Khnum was seen to be the creator of children. Inscriptions at the temple of Esna show how he created humans from clay on a potters' wheel and orders the bloodstream to cover the bones and the skin to enclose the body.

Mythology around fertility is deeply rooted in agricultural themes, such as the constant changes of the seasons, the rising and setting of the sun and the rising of the Nile followed by periods of drought. Of all the fertility gods, Osiris features prominently with various narratives coming from the Book of the Dead[10], the Book of Gates and the Pyramid texts.

In the story the *Contending of Horus and Seth* we see a homosexual encounter occurring whereby Seth attempts to dominate Horus. Horus seeks revenge after Isis makes him masturbate into a pot and then spreads his semen over Seths' garden lettuce, which Seth subsequently eats and becomes pregnant with the semen of Horus.

Many of these mythologies will be explored as they pertain to birth.

3.1.8 Archaeological remains of Ancient Mummies

The hot dry climate of the Egyptian desert greatly aided in the preservation of mortal remains when buried beneath the sand. Bodies dried out quickly before putrification could take effect.

[10] The *Book of the Dead* refers to a corpus of religious compositions which describe the process of going into the afterlife. This book was modified an added to over the history of Egypt and thus comprises what Budge (1895:ix-x) categorises into 4 different versions. The first was the Heliopolitan version, written in hieroglyphics and dates to around the 5th dynasty. Inscriptions were done on tomb and pyramid walls (pyramid texts) and sarcophagi. The second is the Theban version, often written on papyri in hieroglyphics and divided into chapters. It was used around the 18th to the 20th dynasty. This version is often referred to as the Papyrus of *Ani*. The third version is similar to the Theban version written on papyri in hieratic and hieroglyphics and used in the 20th dynasty. The final version was the so-called Saite Recession of the 26th dynasty, written in hieratic. Its' use extended into the Ptolemaic period.

The presence of jackals seen around dug up corpses soon led the Egyptians to associate the Jackal with death and henceforth, the god Anubis was born. With time, the Egyptians mastered the art of mummification, wrapping the deceased in about 240m of linen and natron resulting in the brilliant preservation of the body that we see today. The technique was perfected over the centuries.

The presence of mummies has allowed physicians, Egyptologists and historians to study them with the aid of radiological techniques, histological examination of tissue samples and dissection of the bodies, the skeletal composition and various pathologies of the ancient Egyptians (Nunn 1996:64-5).

3.2 SECONDARY SOURCES

3.2.1 Ostraca[11], Amulets, Inscriptions and Letters

In addition to papyrus scrolls, other sources are ostraca; bits of pottery shards or stone containing written and pictorial records of day to day lives. These texts give an insight into the lives of everyday people. They were often written rapidly in hieratic form and difficult to decipher. Some contain images and drawings to depict scenes of daily life. The importance for our study lies not only in the fact that they provide records of events, but they were often written by the people who lived in the village themselves, ordinary citizens as opposed to those of the medical profession. The workman's village of Deir el Medina which was occupied for about 450 years provides one of the richest sources of ostraca relevant to our study. The village was home to about 600 people, many of whom

[11] The various ostraca mentioned in this study and discussed in chapter 6 are listed in Appendix III, indicating the meaning of the abbreviations, the condition of the pieces and their approximate date of origin.

were employed in tomb building. Likewise, the village of Tell el-Amarna, not far from Deir el Medina also provides a source of information.

Also found in many burial sites and excavations, are letters written to the deceased requesting assistance in bearing children, attempting to ward of spells etc. Amulets were worn as protection against certain gods and goddesses during childbirth or to assist in falling pregnant.

3.2.2 Research Papers, Presentations, Books and Articles

Libraries, the internet and book shops are abundant with literature pertaining to ancient Egypt. Reviews on books and articles, research and reports on excavations sites, interpretations of texts and reviews of others interpretations are evident. Numerous research articles, books and published reports will be considered as they pertain to the health of women in ancient Egypt, as well as research studies and papers completed in other fields that may help to shed light on and gain further insight to our study.

Conclusion

The medical papyri provide the best available evidence of medicine in ancient Egypt. Albeit that many are fragmentary and in some cases incomplete, the use of other texts, ostraca, inscriptions and amulets will provide evidence in support of, or to further develop the concepts contained within these texts. In analysing the papyri we are reliant upon the invaluable work of those that have transcribed the texts into English and other languages. The analysis of Egyptian mummies from antiquity enable researches to further determine illness and ailments and to draw conclusions about other factors affecting the Egyptians such as health, diet and trauma. Further research in various

fields, not only in the field of medicine can be used to supplement this study and provide additional pertinent information.

CHAPTER 4

PHARMACOPOEIA

Abstract

Pharmacopoeia refers to a text, manual or book which incorporates a list of drugs used in medicine, their preparation and administration, In ancient Egypt, no such text has ever been located though this does not assume, that it did not exist. The only reference to the drugs and remedies used are derived from a study of the medical texts themselves in the form of medical prescriptions and in some cases, dose therapy. Throughout the medical texts we find constant reference to various plants and herbs which are sometimes combined with animal parts and products and on the odd occasion, human fluids such as breast milk, menstrual blood and urine. These were used in the diagnosis and treatment of ailments. Translation of the plants and herbs used from ancient hieroglyphics into modern day plant names is not always easy and in some cases, there is debate as to their meaning. An understanding of the pharmacopoeia of ancient Egypt is not sufficient to provide statements about its efficacy, given the number of products and ailments which remain unidentified, and that to date, no papyri or other textual evidence has been found on the need for repeated therapy or cure. In studying the regime of therapies it is important to remember that medical practice entailed diagnosis and treatment, rather than a focus on the aetiology of the disease.

Introduction

A discussion of the various ailments and their prescriptions contained within the medical texts requires a brief discussion on pharmacopoeia. The purpose of this chapter is to discuss the administration and method of drug therapy as it pertains to obstetrics and gynaecology, with more specific detail being offered on the various drugs and prescriptions used in a later chapter.

"Egyptian drug therapy can be regarded as having evolved from a system rooted in magic to one of empiric observation applied within a central ideology of health and disease" Parkins (2001:5). Parkins argues that many of the drug therapies used were first used based on their perceived magical properties and that over time, observation based on empirical evidence led to the adoption of some of the therapies. Leech (1899:927) claims there is no conclusive evidence to show that there were separate specialists in pharmacy as compared to doctors, though logic tells us that there must have been traders dealing in drugs.

Of the medical papyri known to researchers, the Ebers Papyrus contains the most number of prescriptions. The products used were mainly herbal and plant matter with animal derivates like honey also being used. In some cases minerals such as copper salts were included. In Ebers the prescriptions contained anything from one to 18 different components (Leech 1899:927).

Given the vast array of substances used, only the pharmacology (i.e. drug composition and properties) of the most prominent drugs shall be discussed here, as they pertain to our field of study. It is not the authors' intention in this chapter to explore the prescriptions themselves as these will be examined in later chapters. The intention is to cite the drugs and their uses, with the pharmacological actions being reserved for discussion in later chapters. A discussion of the full ambit of pharmacology to include the production of, harvesting, preservation, transporting etc of the drugs, will not be examined. In all cases given in the balance of this study, the widely accepted application of the name will be used.

4.1 ADMINISTRATION OF DRUGS

There are five main vehicles used to administer drug therapies, namely orally (ingestion), vaginally (internal application) as a pessary or paste, topical or external application and via fumigation (where the woman was required to sit or squat over the recipe).

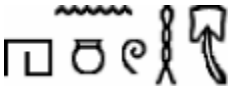
For about 70% of general health problems, treatments involved the topical external application of a gel or cream based product (Parkins 2001:6). However in the field of gynaeology or obstetrics, the bulk of recipes entailed internal application.

4.2 MEASUREMENT AND DOSAGE

Waddell (2010:2) states that "many of the so-called medications (of ancient Egypt) were of no apparent value in treating the disease; hence whether the patient recovered from the illness or not was simply a matter of chance and had nothing to do with the administered dose." He argues that the Egyptians did not seem to appreciate that "dose alone was important" and that a lot of illness had to do with superstition.

Albeit that some papyri do not discuss dose therapy, others do. Some papyri make use of incantation and calling upon the protection of the gods, while others like Edwin Smith are secular and methodical in their approach. To state that the Egyptians did not pay any attention to dosage, is like saying that they had little understanding of medicine. This is not the case.

 = *heqat*

 = *henu* (could also refer to an unidentified surgical instrument)

 = *ro*

Figure 6. Hieroglyphic depiction of measures (adapted from Nunn 1996:220).

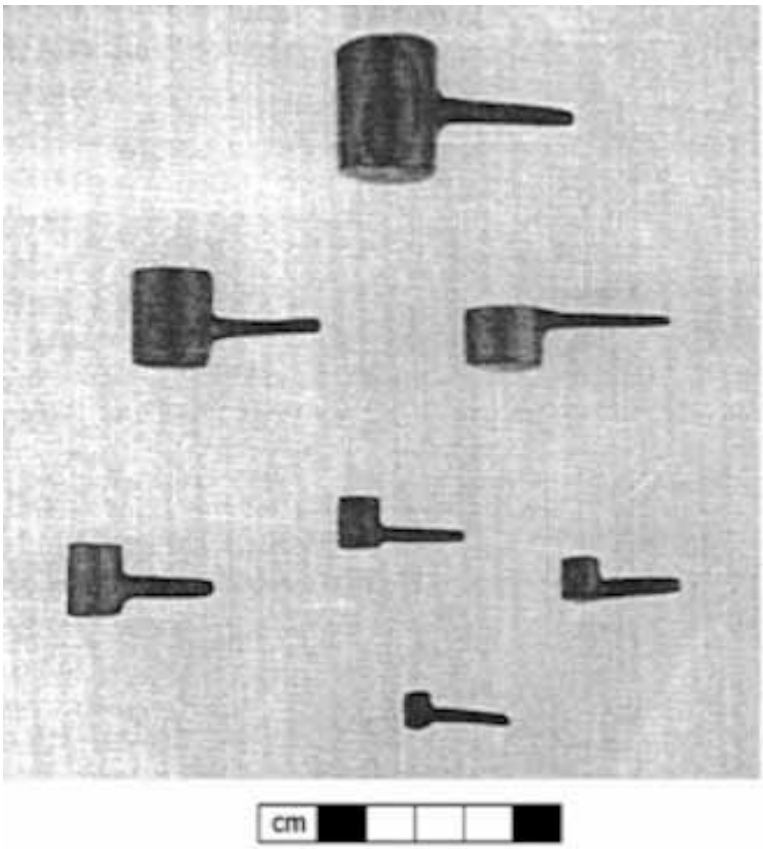
The Egyptian prescriptions were measured out by volume rather than by weight, often referred to as *heqat* and *henu*. The exact measure is not known but volume measures dating to the 18th Dynasty, as found by Petrie in the southern town of Nubt, give us a rough measure of one *heqat* equating to about 4.5litres. Given the quantity of the measure of the *heqat*, it is too large to be of significance in medicine and it is not surprising therefore, that it does not appear in the medical papyri as a measure. The *henu* is referred to as 1/10 of a *heqat*, thus measuring about 450ml. One of the problems of the measures is that they were supplemented with a double and quadruple *heqat* around the second intermediate period. As such, measures of the *heqat* from the New Kingdom may refer to single, double or quadruple *heqat* (figure 6).

The smallest measure was about 14ml, known as the *ro* which measured 1/320 of a *hegat.* The symbol for the *ro* was the mouth symbol, yet there is no reference found for this measure in the medical papyri, (see figure 6 and 7) (Nunn 1996:140-1).

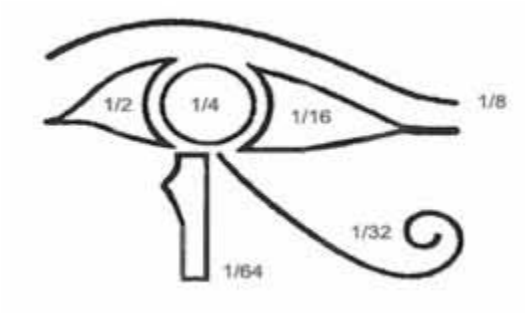
In varying prescriptions, we find references to fractions derived from the Old Kingdom Eye of Horus. The fractional notation was developed during the Middle Kingdom of

Egypt, by altering the eye of Horus as per figure 8.

Figure 7. Small volume measures, each one roughly half of the next higher vessel in size (ranging from 0.1 - 6.0ml). They were located in the South town of Nubt by Petrie and date to the 18th Dynasty (Nunn 1996:141)



Of interest, is that in the medical papyri within our field of study, the majority of recipes call for parts rather than fractional measures, with only one actual measure being found, that of 1/64 referring to about 70ml as above. Prescriptions for other medical ailments are full of measures, but only in relative proportions. Nowhere do we find total dosage to be given (Nunn 1996:141).



	Horus eye fractional Notation	**Volume in ml as *Ro* measure, (where 320 *ro* = 1 *heqat*)**
½		2240ml
¼		1120ml
1/8		560ml
1/16		280ml
1/32		140ml
1/64		70ml

Figure 8. Eye of Horus with its fractional components (Adapted from Nunn 1996:142).

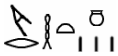
4.3 DRUG THERAPY

The ancient Egyptians, as with all ancient cultures, made use of what was available to them. This was predominantly plant and vegetable matter, along with some animal and mineral products. In total, about 160 plant products were used. Only about 20% of them have been identified as a result of cross referencing various sources to include inscriptions, drawings, and non medical papyri and in some cases, actual herbs found in tombs (Nunn 1996:151). A full list of products used in the treatment of gynaecological and obstetric disorders is found in Appendix 1.

4.3.1 Animal and Insect Products

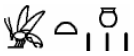
About 42% of prescriptions contained in Papyrus Ebers are animal products, such as fat (*adj*), urine (*mwyt*), milk (*irtet*), liver (*miset)*, excrement (*hes*), meat (*iuf),* carcasses, skin, hooves, ground bone and teeth to name a few. Animals used included but were not limited to include pelican, swallow, raven, tortoise, lion, hippopotamus, dog, ox, crocodile, fish, antelope, mouse, cat, ostrich, pig, snake, lizard, frog, flies and bees. In Ebers, we find reference to the use of a swallows' liver which is dried, pounded, fermented and then applied to the belly and breasts of a women who had an abortion.

Animal Fat 

Animal fat was used to bind the products and create a greasy ointment that could be easily applied. A second hieroglyphic is evident for oil or fat, *merhet,* denoted by  (Nunn 1996:222).

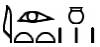
Excrement 

So called "sewage pharmacology" (Parkins 2001:10) i.e. the use of excrement or faeces, is often attested to in the Egyptian medical papyri. Ebers Papyrus has more than 50 prescriptions in which excrement from various animals and insects were used in the prevention and treatment of a range of medical conditions, to include obstetrical and gynaecological ones. For the most part, researchers argue that "the use of faecal matter in prescriptions was rationalised to repel the demons responsible for the disease and cause their exit, as these substances were seen as unfavourable" (Parkins 2001:10). However one cannot ignore the possible pharmacological actions, given that specific faecal matter was prescribed for different ailments. Both magical and medical aspects will be discussed in greater detail in later chapters.

Honey 

Of the animal by products, the most widely used was honey (*bit*), used both internally and externally. In ancient Egypt, the popularity of honey is evident in that it was mentioned 500 times out of 900 prescriptions (Al-Jabri 2005:1581). In recent studies, Zumla and Lulat, (1989:384), Molan (1992:59) and Hegazi (2011:1-8) to name a few have shown that honey is a powerful antibacterial with equally strong anti-fungal properties. In the study conducted by Hegazi (2011:4) comparing modern Egyptian with Saudi Arabian honey, results shows that Egyptian honey had greater antibiotic activity than Saudi Arabian honey's, except for acacia honey.

Honey contains propolis, created when the enzyme, glucose oxidase, secreted by bees' salivary glands, interacts with the glucose of the plant forming gluconic acid and hydrogen peroxide, both of which have been found to be antibacterial (Viuda-Martos *et al* 2008:117). Honey is classified as an invert sugar in that it is composed of both fructose and glucose dissolved in about 14-20% of water, along with other trace elements, organic acids and vitamins (Al-Jabri 2005:1580).

Milk 

The use of milk is mentioned in conjunction with other products to be used for the diagnosis of pregnancy, increase a woman's libido and in a prescription to prevent conception and also, to expel a child from the uterus.

In some remedies, the amount of product to be used is not specified and as such, appears to be used more as a vehicle for other products, than as a core ingredient.

However in some places, remedies are measured e.g. in Kahun, page I recipe 2, calls for a measure of *uah* grains, sasha fruit and 1 *henu* of cow's milk, to be boiled and then drunk by a woman who has pain in her belly and vulva, possibly indicating some relevance to the amount of milk being used (Griffith 1893:478).

Given that most remedies are specific about the type of milk to be used e.g. Ebers 109 calls for the "milk of one who has born a male (child)" and in other places, reference to cow's milk, provides possible evidence that the Egyptians were aware of the difference between cow and human breast milk, the latter of which has a lower pH and thus a lower level of acidity.

Human breast milk contains a high percentage of proteins, four of which are lactoferrin, lactoperoxidase, lysozyme and N acetyle βeta-D-glucosaminidase; NAGase) Al-Jabri (2005:1583).

Of these, one of the important proteins is Lactoferrin, an iron-binding glycoprotein which has strong antibacterial and anti-inflammatory action. In comparing cow versus breast milk, we find that the levels of lactoferrin in cow's milk is 50 to 100g/L, whereas it is much lower in human milk, measuring about 2 to 4 g/L , indicating that cow's milk has stronger antibacterial and anti-inflammatory properties than human milk.

The other question one may ask, is why some recipes whilst being specific about the use of cow's milk, call for the remedy to be boiled in cow's milk, rather than mixed with fresh cow's milk. The answer may lie in the nature of the proteins listed above. Lysozyme activity is very high in human milk (0.12g/l) yet almost undetectable in cow's milk. In addition, as soon as cow's milk is heated for about 15 minutes at 75°C, 25% of

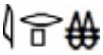
this protein is destroyed, whereas in human milk, boiling it has little effect on lysozyme (Al-Jabri 2005:1584). Given that this protein generally works in conjunction with lactoferrin, it may be that

a) the Egyptian prescriptions sought to destroy these two proteins or that
b) in boiling the cow's milk they were able to soften the other ingredient, *sasha* fruit in this case, so as to create a drinkable mixture?

It is not clear as to why some recipes called for the milk of one who had given birth to a male.

Meat

Meat was used in some prescriptions and is believed to aid in blood clotting (Nunn 1996:150).

Beer  **and wine** 

These two products were frequently used as a mixing agent for various other products and appear to have been used as a vehicle, rather than the product itself.

Placenta  **and Testicles** 

Some recipes call for animal testicles or powdered placenta. Use of the placenta may be related more to its association with birth and fertility, than the pharmacological actions of its use, given that it was used in the treatment of infertility.

4.3.2 Herbs and Plant matter[1]

The term "herbs" as used in herbal medicine, loosely refers to a range of plant matter to include inter-alia bark, seeds, flowers, fruit and plant extracts. The World Health Organisation claims that 80% of people around the world rely on plants and plant extracts and there active components for use in traditional medicine and health care (Craig 1999:491S).

Plants have played a significant role in maintaining human health and improving the quality of human life for thousands of years, and have served humans well as valuable components of seasonings, beverages, cosmetics, dyes, and medicines. In terms of modern medicine, plant extracts are found in numerous prescriptions to include advanced therapies such as chemotherapy which includes an agent derived from the Pacific Yew (*Taxus brevifolia*) and the needles of other species of yew (Craig 1999:491S). Likewise, flaxseed (*Linum usitatissimum*) and Turmeric (*Curcuma longa*) has been found to reduce the development of breast cancer (Craig 1999:495S).

Looking specifically at the fields of obstetrics and gynaecology, Unny *et al* (2003:245-260) identified a total of 161 plants species world wide that can be used as contraceptives, emmenagogues and abortifacients.

According to Nunn (1996:151), "when the plant or tree determinative (Gardiner sign list M 2 and M 1, figure 14) appear at the end of the word, we can be reasonably certain that we are dealing with a botanical species." The complication comes in that some plant

[1] In herbal medicine the term *herbs* is used loosely to refer not only to herbaceous plants but also to bark; roots; leaves; seeds; flowers and fruit of trees, shrubs, and woody vines; and extracts of the same that are valued for their savory, aromatic, or medicinal qualities. The botanical term *herb* refers to seed-producing plants with non woody stems that die down at the end of the growing season (Craig 1999:491S).

species carry the pellet determinative (N33) which may be indicative of a mineral. Fortunately, parallel readings through inscriptions on tombs, labeled jars with contained residue and non medical papyri enable a relative degree of accuracy in identification.

Figure 9. Gardiner's List M1, M2 and N33 (Wikipidea, Gardiner's Sign List).

Simply identifying plant species within the medical papyrus is not a simple task. Firstly, the actual diseases to which the texts refer are given in Egyptian names which cannot be translated into a modern term, thus making it difficult to compare the prescriptions of ancient Egypt versus modern medicine. A second problem lies in the identification of specific plant species used, also when in its growth phase it was harvested. Thirdly, we do not always know what specific part of the plant was used, as "many active principles are confined to one part of a plant and the concentration may show a diurnal or annual variation" (Nunn 1996:151). The possibility exists that some of the plant species mentioned may have become extinct in Egypt. The third problem lies in that as some plant species cannot be identified, we are unable to determine the pharmacological effects of the remedy used.

Of the roughly 160 plant products used in the ancient medical texts, to include fields outside of obstetrics and gynaecology, only about 32 have been identified. This has been achieved through the combined efforts of palaeoethnobotanists and Egyptologists working with various translations and plant remains. One of the museums that contain a range of plants of known origin is the Manchester Museum. Within its repository are

some of the oldest findings, being cereals from the Fayum area dating to the fifth millennium BC. Table I identifies the plant matter relevant to our study and date of origin contained within the museum (Germer 1987:245-6).

Table I. Plant species housed in the Manchester Museum

PERIOD	APPROXIMATE DYNASTY	PLANT SPECIES	PLACE FOUND
Predynastic		*Hordeum vulgare* (Barley) mixed with *Triticum dicoccum* (Emmer).	The Desert Fayum
Middle Kingdom		*Triticum dicoccum*. (Emmer) Chaff of emmer	Found in MK graves dug under the foundation of the mortuary temple of Ne-User-Re, Abusir.
	12th Dynasty	*Hordeum vulgare* L. (Barley). Grains	Kahun
	12th Dynasty	*Juniperus oxycedrus* (Prickly Juniper). Berries.	Kahun, found in a toilet-box
Second Intermediate	16th Dynasty	*Hordeum vulgare* (Barley). Grains	Sedment, Mayana Cemeteries, tomb

Adapted from Germer (1987:245-6).

Three different kinds of resin are contained within the collections which have yet to be analysed, to include predynastic broken resin-beads from El Mahasna and some eighteenth or nineteenth century small lumps of resin from Gurob.

Fortunately, based on research by several authors in the field of Egyptology, many of the herb and plant species have been translated based on agreement[2]. The list of herbs relevant to our study are listed in Table II.

In ancient Egyptian medicine, prescriptions containing plants and their byproducts included seeds, roots, leaves, flower petals and crushed components suspended in wine. It appears that the *swnw* recognised that the active components are often found in specific parts of a plant. A wide range of plant products and byproducts, such as resins, were used in varying applications to include contraception and abortion.

Celery (*Apium graveolens*)

Celery in Egyptian medicine was used for the induction of labour, to bring about an abortion and to be used as an oral contraceptive. In each case, the herb as well as specific parts of the herb, is mixed with a range of different products, each bringing about the different effects. Celery contains a high percentage of essential oils and flavonoids, the oils of which have both antifungal and antibacterial properties (Kolarovic *et al* 2010:6194).

Fenugreek (*Trigonella Foenum-graecum*)

Like Celery, fenugreek (also known as Methi), was used in ancient Egypt to aid in childbirth or to "loosen the child in the womb" and to stimulate the production of breast milk. In modern Egypt, women still use fenugreek to relieve the pain of menstrual cramps. Fenugreek leaves are very alkaline and contain a high percentage of calcium,

[2] One of the earliest extensive lists of botanical species was made by Loret (1892) called La Flore *pharaonique*. Later, Dawson translated 12 plant names in several papers between 1932 and 1935 in the Journal of Egyptian Archaeology. Further interpretations were made by several others authors (Ebbell (1937), Lefebvre (1956) and Germer (1987 in Nunn 1996:153).

Table II. Herbal and Plant species and their common name as agreed by several authors

COMMON MAME	EGYPTIAN NAME	LINIENA NAME	MEANING AGREED BY
Acacia	*shendet*	*Acacia nilotica*	C,D,F,G,Gh,L,M
barley	*it*	*Hordeum vulgare*	D,F,G,Gh,M
bean	*iwryt*	*Vigna sinensis*	C.D.F.G.Gh,L,M
cyperus grass	*giw*	*Cyperus esculentus*	C.D.Gh,L,M
emmer	*bedet*	*Triticum dicoccum*	C,D,F,G,Gh,M
hemp	*shemshem(et)*	*Cannabis sativa*	C.D.F.Gh,M
juniper	*wan*	*Juniperus phoenecia/drupacea*	C,D,F,G,Gh,M
linseed/flax	*mehy*	*Linum usitatissimum*	C,D,F,G,Gh,L,M
onion	*hedju*	*Alium sepa*	C,D,F,G,Gh,L,M
seed corn of	*mymy*	*Triticum dicoccum*	C,D,F
?emmer(q.v)	*bededu-ka*	*Citrullus lalanatus*	C,D,F,L,M
watermelon	*nedjem*	*Ceratonia siliqua*	C,F,G,L,M
carob			

A – Aufrere (1983-9)
C – Charpentier (1981)
D – *Drogennamen* of the G*rundisse*
F – Faulkner (1962)
G – Germer (1979)
Gh – Ghalioughui
L – Loret (1892)
M – Manniche (1989)

Adapted from Nunn (1996:152).

iron, vitamins A and C, sulphur, chlorine and protein. When ingested, they have been found to reduce inflammation and to increase the flow of breast milk. It has also been found to aid in childbirth given that it also functions as a uterine stimulant (Passano 1995:32).

Acacia is mentioned throughout the texts, primarily for use in contraception. It is unclear from the texts what type of acacia is used, however the specific part of the tree, that being unripe fruit, is mentioned. In the study conducted by Unny *et al* (2003:245-60), five different species of acacia were found to work in contraception, either preventing the implantation of the ovum or working as a spermicidal.

Resins 

Resin, a gum like substance which is exuded from the stem of the plant species known as *Pistacia,* is frequently mentioned. The genus *Pistacia* is comprised of numerous varietals, many of which are found in the Mediterranean areas. In the medical text within our field, pine, fir and terebinth resin is common. Given that we do not know which genus of pine and fir is used, we will focus on terebinth (*Pistacia terebinthus).* Studies conducted by Giner-Larza *et al* (2001:137–143) have found resin to have anti-inflammatory as well as antimicrobial actions in studies on mice. The hieroglyphic for resin was originally thought to have referred to myrrh, from which resins and gums are also derived. However, it is now generally believed to pertain to resins in general (Nunn 1996:158).

Myrrh

Given the above, myrrh is discussed in its own category. It is the common name given to around 200 different woody shrubs which belong to the genus *Commiphora*. It grows to

about 1.5m in height and has knotted sharply angled branches and thorny edges. Its medical value was discovered not only by the Egyptians but by practitioners in Greece, China and the middle east, where it was used as an expectorant, anti-inflammatory, antiseptic and emmenagogue (Nomicos 2007:314).

Cannabis (*Cannabis Sativa*)  **= *shemshem(et)***

An interesting use of herbs in Egyptian medicine is their role as analgesics, i.e. to relieve pain. Cannabis was one such medication which was administered by mouth, rectum, vagina, topically and via fumigation. Through research and collaboration in the field, researchers agreed that the Egyptian hieroglyphs pronounced "*Shm-Shm-Tu*" or "*sm-sm-t*" literally translates into "The Medical Marihuana Plant," and was mentioned in some of the early medical papyri[3]. This association of *shemshem* with cannabis or hemp, is derived from its association with rope making and basketry, as well as medicine, leaving researchers like Dawson (1934:44) to identify hemp with cannabis. This association was derived from passage 514 from the Pyramids Texts dating to around 2350 BC (514). Its' use speaks of a plant from which ropes are made, which according to Dawson (1934:44-45) makes the equivalence with hemp, *Cannabis sativa*, much more likely.

Analysis of the pharmacological actions of cannabis is complicated by the complex array of organic chemicals found within the plant. The primary interest in the plant lies in the resin secreted by the female plant as a protective agent against the ripening of its seeds. This pure resin, known as *hashish* or *charas*, is the most potent part of the plant (Shulgin 1968:397). As with many of the other plant matter used in ancient prescriptions we are

[3] In Ebers Papyrus we read a section which states "(to cool the uterus and eliminate its heat): *sˆmsˆm-t*; ground in honey; introduced into her vagina (*iwf*). This is a contraction." Ghalioungui argues that this is an obstetric aid and has parallels to therapeutic applications of cannabis used in the 19th century to treat gynaecological disorders and migraine, as a vaginal suppository (Russo 2007:1622).

not told which part of the plant is used, leading one to conclude that either they were not aware of the effects of different parts of the plant, or that their knowledge was so well ingrained that they did not feel the need to specifically record it.

An interesting study was conducted by Balabanova, Parsche and Pirsig (1992:358) on seven mummified adults' heads (two females, five males) from Egypt and one incomplete adult male mummy dating from around the Third Intermediate Period (BC) to the Ptolemaic or Roman Period (395 AD)[4]. Samples of hair, bone and soft tissue were taken and analysed to reveal that cocaine, hashish (cannabis sativa) and nicotine were present. Results showed the presence of cocaine and hashish in all nine mummies and nicotine in one (see table III).

The authors argued that the presence of the drugs was proof that the substances were capable of surviving in the body for over 3000 years and that given that the drugs were not only found in the hair and soft tissue, but also in bone, that this sheds new light on the drug habits of the ancient Egyptians (see table III) (Balabanova, Parsche & Pirsig 1992:358). The fact that cannabis pollen has been found on the mummy of Rameses II (1304-1237 BC) may also support their claim (Hertting *et al* 1993:244-5). However, their research has come under attack on the basis that one cannot rule out post mummification contamination from storage, preservation and the environment. Further, that "*Nicotiana* does not belong to the natural flora of Egypt and the ancient Egyptians cannot have had access to a source of nicotine which would have yielded the amounts

[4] The study conducted by Balabanova has been criticised by several authors, cf. Hertting *et al* (1993:243-246).

reported" (Hertting *et al* 1993:243). The use of cannabis as a medication in various parts of the world dating as far back as 4000 BC is not denied (Hertting *et al* 1993:243). However it still does not provide evidence that the ancient Egyptians understood its psychotropic effects, (Parkins 2001:8) nor its effects on the central nervous system (Nunn 1996:156).

Table III. Drug concentration (ng/g) in Egyptian mummies

Hair	
Cocaine (n = 4)	24.0- 200.0
Hashish (n = 4)	800.0-4100.0
Nicotine (n = 3)	300.0- 900.0
Soft tissue	
Cocaine (n = 7)	69.6- 441.5
Hashish (n = 7)	59.0-2686.0
Nicotine (n = 7)	125.4- 1045.0
Bone tissue	
Cocaine (n = 1)	30.1
Hashish (n = 1)	67.9
Nicotine (n = 1)	45.4

Balabanova, Parsche and Pirsig (1992:358).

The same applies to the root of the mandrake plant which contains alkaloids and traces of *mandragora* which have powerful sedative effects (Nunn 1996:157)[5].

[5] Dawson (1933 in Nunn 1996:156) claims that the original word for mandrake in Egypt was *matet* now believed to mean celery. *Rermet* or celery is now accepted as mandrake (Charpentier (1981) and Manniche (1989 in Nunn, 1996:156).

4.3.3 Minerals

There is much debate on the inclusion of minerals in the Egyptian pharmacopoeia as many of them have no physiological effects in healing, such as granite and iron which are essentially insoluble. The ones which are relevant are sea salt (*hemat)* and natron (*hesmem*), which would be effective when used as a topical antibacterial, given their ability to dry out a wound (Parkins 2001:7).

Common salt 

The use of the salt of lower Egypt is found in numerous remedies pertaining to child birth and birthing complications, such as in Papyrus Ebers (799) where it is used "To cause all that is in a woman's belly to come down," as well as to aid in childbirth in Ebers 800 and 801 (Nunn 1996:195). In these remedies, we find the salt being applied topically, via ingestion and as an internal application to be placed within the vagina.

Salt is composed of two compounds, sodium and chloride, which when ingested in high quantities can work as an emetic to induce vomiting, which in turn may have brought on uterine contractions resulting in spontaneous abortion. In addition, sodium chloride or saline solutions are used to induce abortion between the 16th and 24th weeks of pregnancy (late second trimester),

The exact pharmacological action of sodium chloride is not known, but it appears to raise the naturally produced hormone, oxytocin, which is what induces labour around 11 hours later. Results from clinical studies using 40 grams of sodium chloride varied, with a failure rate of 0 to 28 in 100 abortions and the failure to expel the placenta in about

30% of cases. However, in cases where a live birth has resulted (which is rare), death of the foetus normally occurs within hours of birth (Anderson *et al* 1997:1).

4.3.4. Human by products

Few by products of humans were used in the treatment of gynaecological and obstetrical conditions, except for human breast milk and menstrual blood.

A comprehensive list of the various products discussed above and others, their method of application and purpose is presented in Appendix 1.

Conclusion

A study of the pharmacological action of each product would require extensive analysis. This chapter provided an overview of the main ingredients used. Our understanding of the pharmacopoeia of ancient Egypt is not sufficient to provide statements about its efficacy without further discussion on the pharmacological actions contained within specific prescriptions. Further discussions will be made with reference to these specific prescriptions and the actions of the combined products in chapters six and seven.

It appears that the Egyptians had a clear idea of the actions of specific plants, mineral and human products. Whether they held their basis more in belief and association with qualities of certain gods, or in the medical benefit for curing the patient is a matter of debate and will be examined further in later chapters.

SECTION B – CORE CHAPTERS

The following section focuses on the fields of gynaecology and obstetrics with reference to the sources and pharmacopoeia discussed. The first chapter will explore the anatomy of ancient Egyptian women, looking at any anomalies or differences as compared to modern western women and any specific defining features.

The next two chapters deal with gynaecology and obstetrics respectively. The discussion leads with the field of gynaecology given that the onset of puberty, which falls into the field of gynaecology, comes before the ability to conceive.

Throughout these chapters, references to mummies will be made and specific prescriptions evident in the medical papyri will be discussed. Several aspects will be explored and debates in the field highlighted.

CHAPTER 5

ANATOMY OF ANCIENT EGYPTIAN WOMEN

Abstract

Ancient Egyptians were considered to be of small stature by modern standard, with the average height of an adult to fall within 1.57m and 1.6m. Body size and stature are seen to be a product of biological adaptation to the environment. Within Egypt we find a transition from a nomadic to an agrarian and highly organised life style occurring over a relatively short period of history. Modes of production changed as did nutritional intake, all of which have an impact of body size. The relative isolation of the people of Egypt along the Nile River could have contributed to a limited gene pool and also explain anomalies, if any, in stature.

Any study engaging in aspects of health, needs to take account of stature and body proportion. Such proportions are important in the field of obstetrics given that hip measures determine the ease with which a woman will give birth and warn the physician of any possible complications that may arise from complicated labour. Studies of mummies showed that both males and females had wide shoulders and narrow pelvic measures in Dynastic times; where pelvic measures in women were wider in pre-dynastic. This suggests morphological convergence between the sexes over time. An analysis of female mummies revealed that women of ancient Egypt had narrow pelvic measures, giving rise to complications during childbirth.

Introduction

Ancient Egyptians were small by modern standards with radiographic studies of 193 mummies by Gray (1973:52), showing that they were slightly built with the average height for adults ranging between 1.57m and 1.6m. Haines (1933 in Gray 1973:52) showed that illnesses during the formative years must have been frequent given that

numerous cases exhibiting lines of arrested growth[1]. Life expectancy was low. Masali (1972:193) found the average skeletal length of dynastic males to be 1.57m and females, 1.48. Rameses was considered tall at 1.73 after mummification. Breadth of the shoulders and pelves of the men bore roughly the same proportion to height as that of modern Europeans. However, pelves of women were narrower in proportion to shoulder girdle compared to contemporary women and in fact were more comparable to contemporary males[2]. Nunn (1996:20) argues that the stylised elegant depictions that we see of women on walls, statues and relief's was less a case of artistic license and more a case of realistic depiction.

5.1 STATURE OF ANCIENT EGYPTIANS

5.1.1 Pelvic measurements of ancient Egyptian women

Of the archaeological evidence of ancient Egyptian women, the most significant are the mummified remains of five women of the Middle Kingdom 11th Dynasty, which belonged to the harem of King Mentuhotep II of circa. 2055 BC, whose graves were excavated by Winlock. The five women are named Queen Henhenit, Aäshait, (derived from their coffins) and mummies 23, 26 and 29, following the numbers assigned to their graves (Derry 1935:490).

Queen Henhenit is believed to have been of Nubian descent and about 22 – 25 years old. The ages of the mummies is deduced by analysis of the end of the clavicle and

[1] Lines of arrested growth in bone are known as Harris lines. They show up in X-rays of long bones as traverse lines (i.e. perpendicular to the long axis of the bone). Normally long bones grow continually through childhood until the ends fuse. During periods of malnourishment, starvation or infection, bones stop growing or slow down and only start to grow again once good health and nutrition return. A line forms as the bone starts to lay down mineral material again (Nova 2007).

[2] The term 'contemporary' is used to refer to the present time since the 19th century. It is understood that different contemporary cultural groups will have a range of different body measurements and proportions but that for the sake of setting a bench mark, the average of contemporary measures are taken.

ends of the ribs to determine how well they are fused. As different bones fuse at different ages, it is possible to correctly "age" a skeleton to within 2 to 3 years of accuracy.

Her mummy was originally discovered by Naville and Hall in a tomb alongside that of Aäshait. Queen Henhenits' mummy was sent to the Metropolitan Museum of Art in 1909 and later returned to Cairo in 1923. On its return, an extensive study of the mummy was undertaken, where a tear between the bladder and the vagina was noted. The investigation revealed about 10cm of the lower bowel protruding through the anus which indicates in all likelihood, a prolapse of the large bowel as a result of foetal obstruction during birth, resulting in the death of the woman. Such a tear, is known as a fistula, which according to records, gives Queen Henhenit … the dubious honor of having suffered the most antique vesico-vaginal fistula" (Cron 2003:1). She also had a 'high standing' sacral promontory (i.e. the base of the sacrum where it juts into the pelvis) and instead of the usual 24 presacral vertebra, Henhenit only had 23[3].

Investigation of the mummy of Henhenit revealed that she had an abnormal pelvis shape. The transverse diameter was measured as 104mm, the anteroposterior diameter at 130mm and the index of the brim at 125m (Figure 10) (Derry 1935:492). In explanation of the terms, several measures are taken to determine the size and shape of the pelvis for the purposes of classification. For this study, only those relevant to the discussion will be explained.

[3] Derry (1935:492), classified the pelvis of Henhenit as falling into the 'rule of the pelves of the apes', given the high standing sacral promontory. Further, that both the pelvis of Henhenit and Aäshait display further ape-like characteristics in the measure of the width and shallowness of the ilio-sciatic notch and it distance from the sacrum (Derry 1935:495).

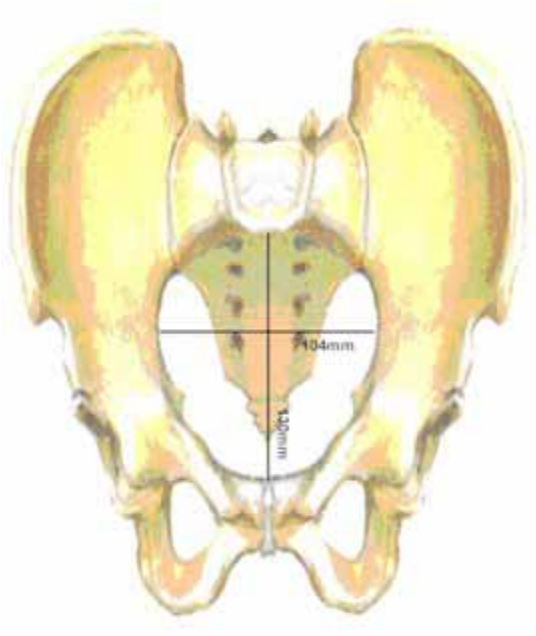


Figure 10. Measurements showing Henhenits' Pelvic Cavity (Adapted from Netter 1989: Plate 336).

The anteroposterior measure is taken from the base of the start of the sacrovertebral angle (i.e. promontory to the symphysis pubis) where the average measure of a female is about 110 mm. The second is the transverse diameter which measures the distance of greatest width of the superior aperture, from the middle of the brim on one side to the same point on the other. In the average female this measures 125 mm (see Figure 11).

When compared to average pelvic measurements, it would have been extremely difficult for the head of the baby to pass through the cavity during childbirth, resulting in the tears and ruptures that we see in her mummy and the resultant death. When placing the average measure alongside that of Henhenit, the situation becomes clear (Figure 12).

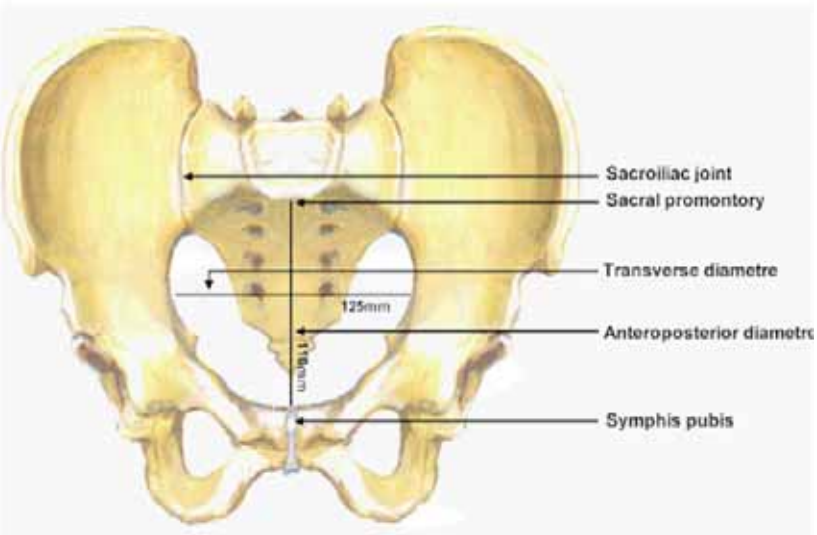


Figure 11. Diameters of superior aperture of lesser pelvis (female) Cavity (Adapted from Netter 1989: Plate 336).

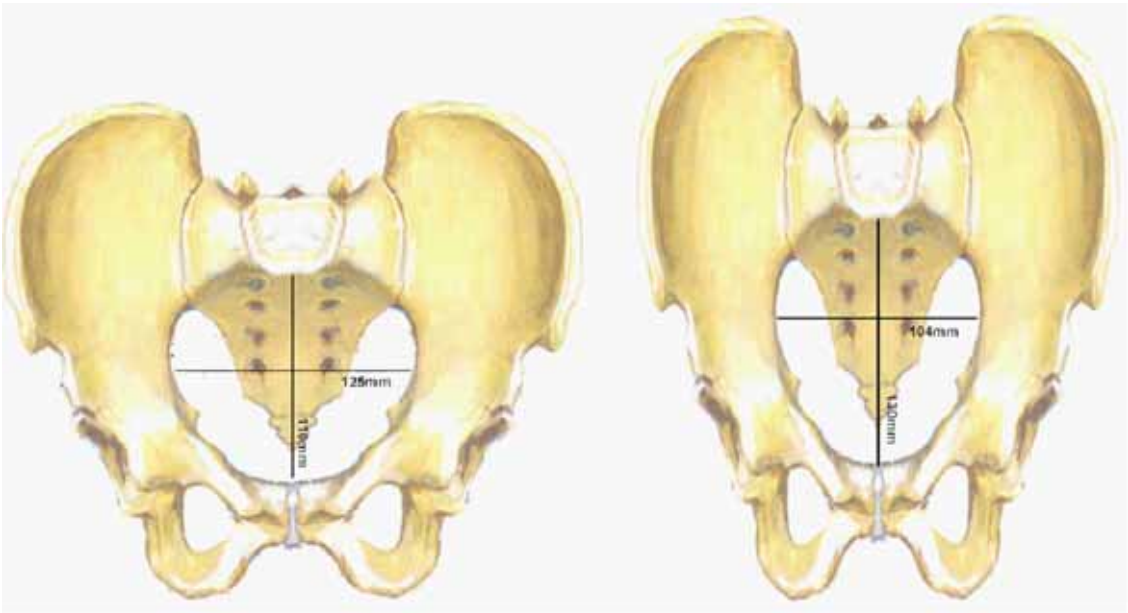


Figure 12: Pelvic dimensions of an average female as compared with those of Henhenit

Based on the painting inside her sarcophagus, Aäshait is believed to have been of the same descent as Henhenit and roughly the same age. Her mummy was perfectly

preserved, albeit that it had been disturbed, placed on top of her sarcophagus and unwrapped by grave robbers. Upon investigation and dissection it was found that Aäshait had a transverse pelvic diameter of 114.5mm and an antero-posterior diameter of 114.5mm

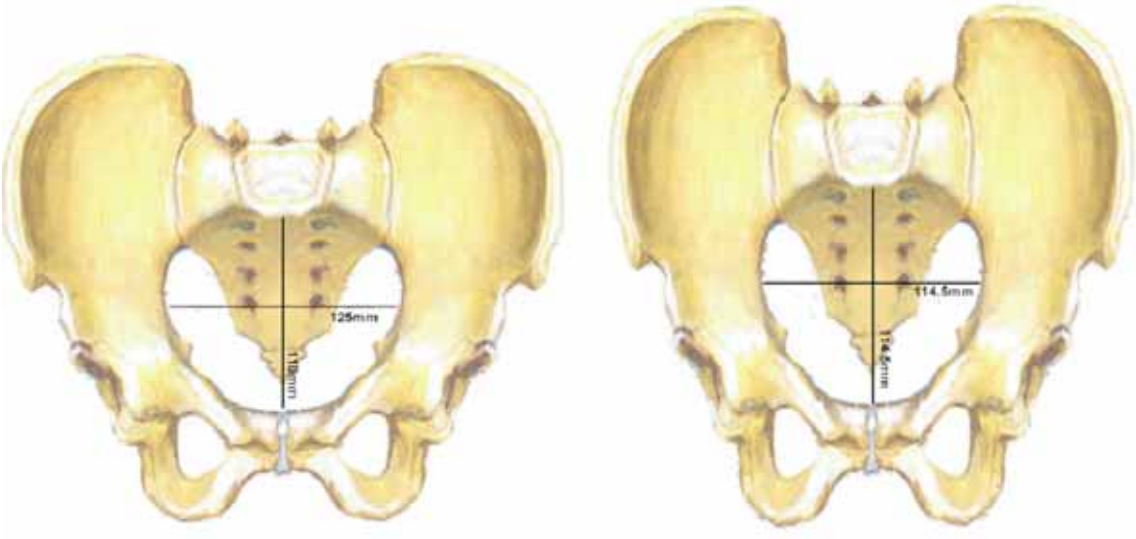


Figure 13: Pelvic dimensions of an average female as compared with those of Aäshait

The pelvic measures in figure 13 indicate that her pelvis fell into a class known as dolichopellic in that the anteroposterior measure is almost average; the transverse measure is substantially smaller.

The implication of these measures for childbirth is that it makes it difficult for the foetal head to pass through the pelvic inlet. In addition, analysis showed that when in an erect position, the pelvis was tilted backwards, meaning that her sacrum was carried almost horizontally as opposed to the normal forward tilt.

Both mummy 23 and 26 were believed to have been dancers of the court, identified by the tattoos on their arms, legs and top of the feet. Both were found to have a large

superficial abdominal scar (i.e. the original incision did not penetrate the abdominal muscle wall). Mummy 23 was young at the time of her death but classified "adult" and given her facial features, also believed to have been of Nubian descent. Mummy 26 was older than the others at the time of her death and like Henhenit, had part of the intestinal wall protruding from the anal opening which again suggests evidence of difficulty in childbirth (Derry 1935:492-4).

Only the skull and part of the skeleton and pelvic bones were all that were found of mummy 29 but they were still able to obtain measures of her pelvis. Her skull and facial features showed that she had Negroid characteristics common to the southern Egyptians.

In analysing the pelvic measure in these five women, they can be classified according to table IV.

Table IV: Classification of pelvic measures

	Transverse	**Anteroposterior**	**Classification**
Henhenit	104.0mm	130.0mm	dolichopellic
No 29	112.5mm	123.0mm	dolichopellic
Aäshait	114.5mm	114.5mm	dolichopellic
No 23	122.0mm	120.0mm	dolichopellic
No 26	126.5mm	115.5mm	mesatipellic

Adapted from Derry (1935:494).

One cannot rule out the possibility of a genetic predisposition to this type of small pelvis, meaning that the five women may have been distantly related. It is possible, that this coupled with a change in stature over a short period of time in the early development of a group of Nubian's, may have contributed to their dolicopellic measurements.

Had only Henhenits' mummy been found, the simple conclusion would have been that it was unusual. However the fact that all five revealed similar characteristics makes it an interesting find on possible common racial characteristics within Nubian women (Derry 1935:495). It would have been interesting had DNA testing been conducted to determine if there were genetic ties between the women, in which case one could conclude that it was a genetic abnormality. Likewise, there is no record of the height of the women as compared to the norm.

Turner (1885:125-143) classified a range of male racial groups into the various types of pelvis being dolichopellic, platypellic or mesatipellic, his observations being that in the vast majority of cases, females in race groups hardly ever display the same pelvic dimensions as their male counterparts. For example, where Australians, Andaman Islanders and Malay men are dolicopellic, the females are mesatipellic. Where African men are dolicopellic, females tend to be mesatipellic or platypellic and where Negro men are mesatipellic, the females are platypellic. While a discussion of the different types of pelvis is not of primary concern here, his observations are, in that Turner (1885:142) concluded that "these modifications all signify that in each race or people the transverse diameter both of the brim, the cavity, and the outlet are as a rule relatively, and indeed for the most part absolutely, wider in the female pelvis than in the male." It seems unusual therefore, that of the five mummies discussed, four of them had pelvic measures on the lower end of the scale.

In looking for an explanation of these measures, one can turn to an analysis of lifestyle. Human growth is the outcome of a range of reactions between the environment and genetic composition of the individual. Two essential components are nutrition and infection. If one analyses the mode of production in ancient Egypt, they rapidly moved from a nomadic lifestyle to an agrarian form of subsistence farming. "In less than 2,000 years, the Egyptian population changed from being an egalitarian hunter-gatherer or pastoral population to a highly ranked agricultural hierarchy with the pharaoh as the divine ruler" (Zakrzewski 2003:219).

Rapid development of an agricultural mode of production means increasing population density, increased exposure to infections, a more sedentary mode of life and sudden changes in nutrition. This change in subsistence farming may be associated with a reduction in area and a reduction in other skeletal measurements (Goodman *et al* 1984; Martin *et al* 1984 in Zakrzewski 2003).

Adaptation to ones environment may, over a long period of time lead to changes in the body stature. Such conditions would give rise to changes in the biological make up of the individuals as a way of natural evolution. However, this would assume that there is a widened gene pool, yet the "geographical isolation of most of the Egyptian habitation area…the limited effect of invasions…probably resulted in the upper Nile populations being a fairly close inbreeding community from the point of view of human ecology" Masali (1972:187).

In Zakrzewski's study (2003:219-228), a range of skeletons were analysed dating from pre-dynastic to the end of the Middle Kingdom. Her study revealed that in the periods

immediately following an increase in agricultural farming, there was a marked increase in stature in both males and females to reach a maximum in the Early Dynastic period. Stature then gradually declines to the Middle Kingdom.

In terms of the impact of this on the anatomy of ancient Egyptian woman we return to the research conducted by Masali (1972:187-197) in which he studied the distribution and variation of individuals in ancient Egypt, relative to their physical dimensions. A total of 127 Dynastic skeletons from Asuit and 133 Dynastic Skeletons from Gebel were studied, along with a smaller group of 60 Pre-dynastic skeletons from Naqada. The collection used was that of the Institution of Anthropology of Turin. Of the skeletons of the Dynastic period, 118 were female.

Dynastic females showed a tendency toward eurymorphic or pyknic stature, i.e. of short and stocky build with wider transverse diameters. Compared with Dynastic females, he found that the "tallest Pre-dynastic women were slenderer than the tallest Dynastic ones, while the shorter ones were also the sturdiest" (Masali 1972:193). What this shows, is that the transition to a more sedentary agricultural mode of production from a nomadic lifestyle, had an effect on both their weight and the strength of their bones. When measures were made of the pelvic girdle across the two groups of women, differences occurred. Pre-dynastic and Dynastic females upper girdle measures were within the norm but the pelvic girdles were narrower in Dynastic women. Of the mummies studied, both males and females had wide shoulders and narrow pelves, with a greater morphological convergence from Pre-Dynastic to Dynastic times, meaning that pelvis measurement in females was reduced over time (Masali 1972:196).

The pelvic girdle refers to the circular ring of bones that connect the spinal column to the femurs, or thigh bones (figure 14). Its main function is weight bearing while its secondary function is to protect the pelvic organs such as the urinary tract and reproductive organs.

This morphological convergence of the sexes may be due to the Egyptians' isolation and limited outside genetic influence, the most striking consequence, was a high mortality rate of women in childbirth. The mummies of Henhenit, Aäshait and the other three bear testimony to this, as do the "high number of fetuses and stillbirths recorded both in Dynastic and Pre-dynastic graves (Masali 1972:196). Masali also draws attention to a Pre-dynastic mummy of the Turin collection, which provides the oldest evidence of prolapse of the uterus (figure 15).

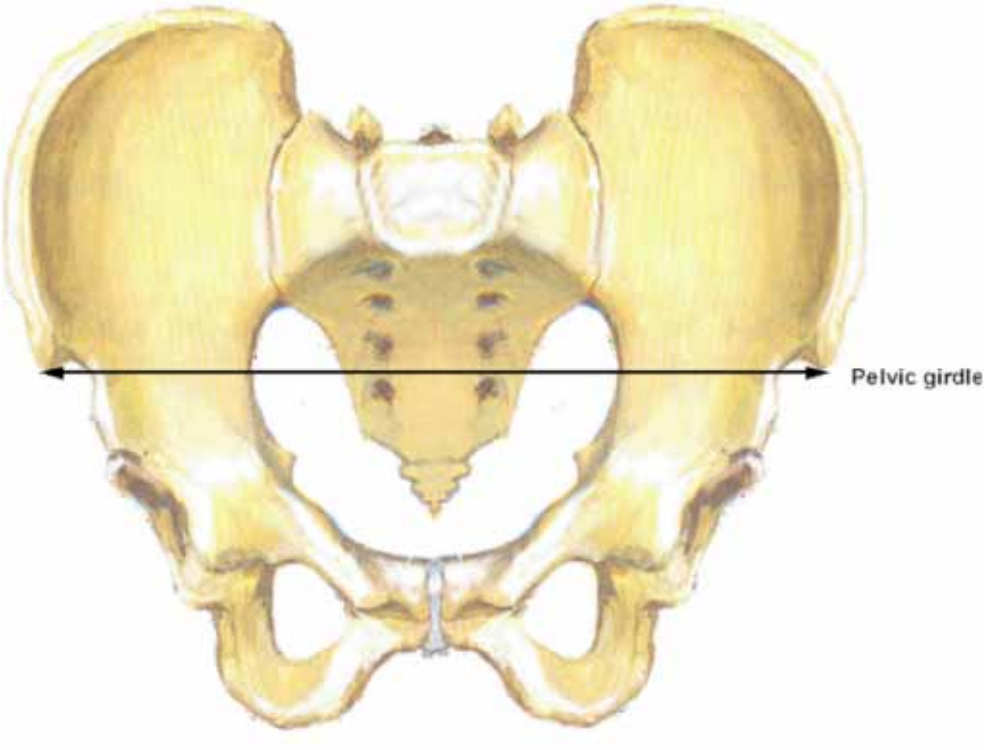


Figure 14. Measurement of the Pelvic Girdle (Adapted from Netter 1989: Plate 336).

Figure 15: Pre-dynastic female mummy showing a uterine prolapse (Masali 1972:196) (Museum of Anthropology, University of Turin).

5.1.2 Pelvic measures of ancient Egyptian women compared to modern Egyptian women

Having examined the measures of the Nubian women in Derrys' study (1935:492) the question is asked, how much do the stature and body proportions of ancient Egyptian women, compare to their more modern counterparts in Egypt? Studies in this area are sadly lacking. It was only in the 1970s when foreign goods found their way into Egypt that architects, engineers and product designers etc realized that there was a lack of anthropometric data on Egyptian women, from an ergonomic viewpoint. An increase in the number of women finding their way into the work force, raised the need for more up to date data on the stature of Egyptian women and a study was undertaken by Moustafa

et al (1987:1089-1098). A randomly selected sample of 4960 women between the ages of twenty to sixty five was taken and body dimensions determined.

The data was allocated according to the ages of women, where they originated in Cairo as well as religious groups. It is the latter grouping that is of interest in our study. When analysing the body measurements of Muslim compared to Christian women (mainly Coptic), they found that the Christian women had retained the original ancient Egyptian characteristics, as estimated in a study by Battrawy (1968 in Moustafa *et al* 1987:1094). Muslim women by contrast, were larger in all body measurements.

Moustafa *et al* (1987:1094) argue that environmental conditions play a large role in body measurements. Those women originating form the hot dry desert regions were leaner with smaller measures, as compared with those of coastal regions. He makes the case that higher amounts of protein may be available in coastal regions as compared to desert regions and that this may contribute to differences in body measurements.

Conclusion

Given the lack of substantive comparative data between modern Egyptian and ancient Egyptian women, it is not possible to determine the extent to which differences occur. This does not mean that as historians we should ignore what data we do have, nor sweep it aside under the assumption that there can be no relevance. The fact that the measures of modern Christian women in Egypt corresponds to that of their ancient counterparts means that there is room for more in-depth studies on hip measures of mummies to do a more detailed comparison. Likewise, one could then investigate

birthing mortality where possible to determine on the basis of deductive reasoning, birthing complications in ancient Egypt.

This chapter has highlighted differences in hip measures of modern western women, as compared with ancient Egyptian women as well as changes in body size and stature from pre-dynastic to dynastic women. Measures show that pre-dynastic women were more slender with a more robust stature and a wider pelvic girdle, as compared with dynastic women who not only developed a narrower pelvic girdle, but also had a reduction in robustness of bone and greater morphological convergence to men. This narrowing of the pelvic girdle may have contributed to the high infant birth mortality rate, as well as a high mortality rate of women during childbirth. Food and availability of resources along with a more sedentary mode of life may have given rise to the changes. We also find that of the modern Egyptian Christian community, hip measures closely resemble those of their ancient Egyptian counterparts.

CHAPTER 6

GYNAECOLOGY OF ANCIENT EGYPTIAN WOMEN

Abstract

The concept of reproduction and its role in society has developed over time to the point that medical practitioners now specialise not only in reproduction, but super specialise in aspects of it. In ancient Egypt, albeit that we cannot find a discipline dealing directly with reproduction and aspects of it, we do find substantial data recording medical prescriptions for complications associated with it, as well as recording of data on ostraca. Various medical papyri are important here. Reproduction incorporates a range of concepts to include puberty; the stage at which reproduction becomes possible, through fertility to conception. Not only did women and practitioners seek to find ways to facilitate conception, but also to control it via methods of contraception and in some cases, abortion. Although medical prescriptions by today's standards may seem bizarre, many of the methods used are plausible when analysed against the pharmacological actions derived from them and their contemporary pharmacological counterparts.

Prescriptions existed for prediction of fertility, conception, foetal gender, excessive bleeding to pains associated with pregnancy. Menstruation, known as hsmn was frequently recorded in texts and ostraca, indicating their understanding in its role in fertility. Aside from reproduction, texts also discuss what appears to be cancer. Further, the analysis of mummies reveals further complications such as osteoporosis.

Introduction

Aspects of physiology and pathology occurring within the field of gynaecology will be covered under one heading, with the physiology and corresponding pathologies found in the ancient texts being discussed, physiology being the "study of regular body functions," and pathology being the "study of diseases and the changes in structure and function which diseases cause in the body" (Bateman *et al* 2005:306 and 294).

The interpretation of the hieroglyphic transcribed to *hsmn* revolves around its application to mean menstruation or purification. Evidence of menstruation being recorded in history will be discussed along with the relevant sections of the papyri which deal with problems of menstruation. The remainder of the chapter will focus on the areas of fertility, conception and contraception and medical prescriptions from the medical papyri as well as additional archaeological discoveries. Various debates in the field as they pertain to interpretation of specific hieroglyphics and activities of women will be discussed.

The field of gynaecology relates to the study of female sex organs and functions, and the treatment of diseases that are specific to women in general.

6.1. MENARCHE AND MENSTRUATION

While pathology pertaining to gynaecology can occur at any age in a woman's life, such as cancers, ovarian cysts or tumours, they are extremely rare before menarche (i.e. onset of first menstruation). Menstruation refers to bleeding as a result of the uterus lining breaking down due to the unfertilised egg being unable to implant itself. There are many aspects of menstruation, such as menorrhea, i.e. normal menstrual bleeding and amenorrhea, being the absence of one or more menstrual periods, usually during

pregnancy and after the onset of menopause, or the age at which a women stops menstruation and can no longer bear children (Bateman *et al* 2005:15).

The term used for menstruation in ancient Egypt has been under constant debate. It is argued by Frandsen (2007:82) to be denoted by *hsmn*[1], figure 16.

Figure 16: Hieroglyph for menstruation or *hsmn* (adapted from Nunn 1996:221).

Much of the debate revolves around the association of *hsmn* with purification and also with reference to the mineral, natron. Janssen (1980:142) argues that the verb *hsmn* means 'to purify' and that its reference may allude to post birth purification. The link between purification and natron comes from old Egyptian which denoted *hsmn* to mean, natron (Bass-Becking 1931:437). Pliny claimed the salt from Memphis was red in colour (Bass-Becking 1931:441). Perhaps its colour and association with cleaning may have contributed to its meaning, 'menstruation'?

The use of the word 'purification' to denote menstruation is evident in the first tale of Setne in which his wife, Ahure, refers to her menstruation as her purification. Albeit that this text falls within the late period in Egyptian history and thus out of the scope of our time frame, it does indicate the use of the term 'purification' for menstruation, in ancient Egypt;

[1] Hieroglyphic representations for *hsmn* vary across the different texts dependent on the area and stage in history that they were written, In some texts, the female determinative is included to represent 'menstruating woman' and in other cases it is referred to as ‘bleeding woman’.

"Neneferkaptah… made a good day with me…and in that same night he slept with me, and lo! he found me [pleasing?]…And when there came my time of making purification I made not purification again: And report of it was made to Pharoah; his heart was glad exceedingly…And when my time of bearing came I bore this child that is before thee, who is named Merab…"(Griffith 2001:10).

Archaeological evidence on menstruation in ancient Egypt is scarce with scattered inscriptions and recipes both for the lack of, or excessive menstruation and even for the use of menstrual blood as a healing substance. Habiger (1998:1) believes that the end of the first line of the below extract from Edwin Smith Papyrus, refers to *hsmn* (menstruation) (figure 17).

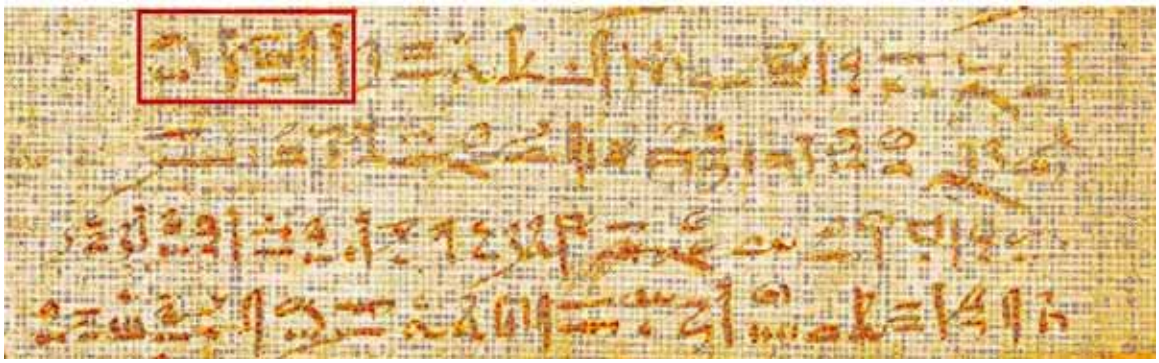


Figure 17: Extract from Edwin Smith Papyrus, refers to *hsmn* (menstruation) (Harbiger 1998:1).

Transcription of the above texts by Breasted (Harbiger 1998:1) reveals a remedy for a woman suffering from what appears to be, retained menstrual blood;

"If you examine a woman suffering in her abdomen, so that the menstrual discharge cannot leave her; and you notice something in the upper part of her vulva: Then you should say: This is a blockage of blood in her womb.

Then you should make for her [a mixture of]: fruit (5), 20 parts; oil/fat, 1/8; sweetened beer, 40 parts; it should be cooked and then imbibed for four days. Then you should make her a laxative for the blood: pine oil; caraway; galena; sweet, aromatic myrrh resin; it should be cooked until a homogeneous consistency is achieved and then her pubic region should be repeatedly rubbed with it.

Additionally you should administer hyena-ear (6) in oil/fat as follows: After it is rotten you should massage her pelvis region repeatedly with it. Then you should put some myrrh resin and frankincense between her thighs and let the vapours penetrate her vulva."

At the temple of the goddess Hathor in Edfu, there is an inscription on the wall which speaks of a particular god's likes and dislikes. Amongst the gods dislikes, are menstruating women (Harbiger 1998:1)[2]**.**

Amongst the many wisdom texts, "The Instructions of Dua-Khety" contain written evidence of menstruation. The text, also known as the "Satire of trades" dates to the Middle Kingdom and contains teachings from a man named Dua-Khety to his son, Pepy,

[2] Despite this claim, extensive research has not yet found a further reference to corroborate this inscription. This is not to say it did not exist.

while he takes him south to learn to be a scribe at the school of writing. In this text, the father tells his son to learn well for this is a noble profession compared to the work that many others have to do. He tells him that in this profession he would never be poor and that there is no greater profession on earth. He then goes on to speak of all the various professions that man has, and lists them from the sculptor to the reed cutter and potter. Amongst the list, he talks of the washerman;

> "The washerman washes on the riverbank being near to the crocodile. 'Father. I go away from the flowing water' says his son or his daughter 'to a job that satisfies me more than all [other] jobs. His foot is soiled by dirt, no limb is clean. He sets to work on the garment of a woman who has her period. He spends the day with a beating-stick and a stone. One says to him: Dirty linen! Come to me! The basket overflows with it…' "(Hall & Hall 2001:55-6).

An important archaeological site providing cases of textual evidence of menstruation comes from the walled village of Deir el Medina, which serves as a village for the workers of the royal tombs near the Valley of the Kings. The complex was started around the 18th Dynasty under the reign of Tuthmosis I, expanded during the 19th and 20th Dynasties and came to an end between 1107 BC to 1078 BC during the reign of Rammeses XI (Meskell 1998:212).

It was within this village that an ostraca containing laundry lists was found. McDowell (1999:60) says that the state provided the people of the village with laundry men, with one launderer allocated to eight households per day. Laundry was either collected, or delivered to the river bank for washing. Many of the workers kept lists of washing received or sent out in a day (see figure 18) such as the following:

Year 1, third month of the winter, day 15. This day, giving clothes to the washermen.

What came from/via him in the third month of winter, day 16.

Given to them at the riverbank to launder:

Kilts	10
Loincloths	8
Sanitary towels	5

Figure 18: Pictorial sketches of clothing on ostraca from Deir-el-Medina with dots to represent the number of each item. Included in the above are loin cloths, shawls and a tunic (McDowell 1999:61).

Other evidence of the use of a tampon or sanitary pad, is assumed to be the Isis Knot, Isis girdle or *Tyet*,  an amulet in the shape of an *ankh* with supported arms on either side (see figure 19). It was generally a knot tied in cloth and was referred to as the girdle knot because it resembled a knot used to secure the garments that the Egyptian gods wore.

Figure 19: Various examples of the Isis Knot or *Tyet* of Carnelian (Thomas & Pravitt 1922:27) and the Red Jasper Girdle of Isis courtesy of British Museum.

Some scholars argue that the Isis-knot also represents a type of tampon used by ancient Egyptian women, given that it was also known as the "blood of Isis" and often made from red jasper or carnelian. The *Tyet* of Isis or *Tyet* of Carnelian was mentioned in the Papyrus of *Ani* (Book of the Dead) where it was used as an amulet of protection, and again in other manuscripts such as the Papyus of Nu and the Saite Recession, In the Papyrus of *Ani*, the Chapter of the Buckle, states, "The blood of Isis, and the strength of Isis, and the words of power of Isis shall be mighty to act as powers to protect this great

and divine being, and to guard him from him that would do unto him anything that he holdeth in abomination" (Budge 1901:33). In the Papyrus of Nu it is said that "This Chapter shall be said over a *Tyet* of carnelian, which hath been washed in a tincture of *ankhamu* flowers and is fashioned out of the trunk of a sycamore tree. It shall be placed on the neck of the deceased on the day of the funeral. If this be done for him the magical powers of Isis will protect his members… The words of the later version known as the Saite Recession are the same as in the Papyrus of Nu (Budge 2007:66a).

One can only speculate as to why it was called the Blood of Isis or associated with the colour red. It may have been the *Tyet*s' association with the sexuality of Isis or even the blood shed after giving birth. It has also been argued that the *Tyet* amulet may also have been a ritual tampon to be inserted into the vagina to prevent or protect the women from a miscarriage (Forest 2005), and thereby ensuring that the womb remained closed.

Figure 20. Image of a *Tyet* taken from the Book of the Dead, Papyri of Ani circa. 1250 BC British Museum, London (Image from Harbiger 1998:1).

6.1.1 Work Absenteeism and Menstruation

The largest and most important body of knowledge on menstruation in ancient Egypt and consequently, as well as absenteeism from work, comes from a large ostraca from the British Museum, ostraca BM 5634 which dates to year 40 of the reign of Rameses II, about 1279-1213 BC. The ostracon in this case, is a large piece of limestone. It comes from the archaeological site of Deir el-Medina (figure 21).

Both sides of the ostracon are inscribed with the names of 40 workmen, each followed by dates of absenteeism from work. Superscripted above each date in red ink, is the reason for absenteeism. The inscriptions cover a period of about 280 days of which only 70 were workdays. In ten cases, the reason for absenteeism of the workmen was due to *hsmn* of his wife or daughter and was written out as follows:

sꜣt=f/ hmt=f		*ḥsmn*	recto 4; 7; 10; verso 7; 9; 17.
sꜣt=/ hmt=f		*m ḥsmn*	*verso* 3; 4.
ḥmt=f		*ḥsmn*	verso 3; 4.

Where

ḥmt=f = his wife and

sꜣt=f = his daughter

In verso 9, the same man is mentioned. One could argue that it must then refer to the same woman, but it may also have referred to a daughter living in the same house Frandsen (2007:90).

Figure 21: Ostracon from the British Museum (BM); ostraca BM 5634: Courtesy of British Museum

Ostraca CGC. 25782 dating to year 3 of Amenmesses reign (circa. 1203 BC) was found in the Valley of the Kings. Interpretation of the signs of ill (with his chief)  and  (Menses) reveals lists of absenteeism with reason given (table V). Interpretation of the signs is complex, but as explained by Frandsen (2007:92), the use of capital letters e.g. "ILL" and "MENSES" indicates certainty of absenteeism, lowercase refers to a degree of certainty and "mentioned," that it was difficult to determine whether the reason given was intended or not.

In ostraca Gardiner 167, we find a list covering a period of 24 days, of which 18 were work days, for period of III *Shemu* (Summer) 14 to IV *Shemu* 7, in day 23 records:

> "(recto 7) (…) Day 23, the scribe Qenhikhopshef, ill, (recto 8)
>  his wife having her menstruation" (Frandsen 2007:94).

Table V: Interpretation of Information provided by ostraca CGC. 25782

NAME OF WORKMEN		INFORMATION ON ABSENCE DUE TO ILLNESS OR MENSTRUATION			
		Day 23	Day 24	Day 25	Day 26
1	Chief Workman Neferhotep	Ill	Menses	MENSES	-
2	Chief Workman Hay	Ill	-	MENSES	menses
3	*Siwadjy*	Ill	Ill	mentioned	-
4	Kasa	Ill	-	-	menses
5	*Ipuy*	Ill	-	mentioned	menses
6	Nekhmut	Ill/ILL	Ill/ILL	menses	ill/ILL
7	Nebnefer	ILL	ILL	mentioned	ditto/ILL
8	Draftsman Nefehotep	Mentioned	MENSES menses	mentioned	-
9	*Qen*	Mentioned	Menses	mentioned	mentioned
10	*Khamu*	Mentioned	Menses	mentioned	mentioned
11	*Qaha*	Mentioned	-	menses/MENSES	mentioned
12	*Penamun*	Mentioned	Ill	-	-
13	*Huy* son of *Huynefer*	-	MENSES	-	mentioned
14	*Rahotel*	-	Ill	mentioned	-
15	Nebnakht son of Nakhtim	-	MEMSES	-	-
16	*Nakhy* son of Buqentef	-	DITTO (MENSES)	DITTO (MENSES)	-
17	*Khaemsba*	-	Menses	menses	menses/MENSES
18	*Hornefer*	-	-	Mentioned	-
19	*Ani*	-	-	-	ill

Frandsen (2007:93).

Ostraca Turin 57388 dated to about the end of the Nineteenth Dynasty, is transcribed as "any off duty because his wife had her menstruation." Likewise ostraca DM 30 line 3 states, "the coming in menstruation of his daughter Nofru".

It is not just the women who were recorded absent due to having their menstruation, but the husbands or fathers of the women concerned (Frandsen 2007:90-91). This raises the question of why in Egyptian practice, the menstruation of a family member was cause for the man to be absent from work? Janssen (1980:97) suggests that "absence from *hsmn* was only permitted under certain conditions (…) Thus, the Deir el-Medina workmen would have been absent from work for a female relative's menstruation only on such occasions when their wives and/or daughters were in some way absent from home or unable to do necessary work in the house." This argument raises another question. When men are entered as absent due to *hsmn*, it is for only one day, maximum two. When the average woman's menstrual cycle lasts several days, one must ask why only one or two days were recorded?

Ostraca OIM 13512 (figure 22) may provide some insight. It is a piece of limestone measuring about 13.2cm x 9.1cm. Written in hieratic, it contains three lines of texts, and although partly broken and incomplete, its translation is clear. It shows possible evidence that when women had their menstruation they left the village and stayed in a special house. Frandsen states that circumstantial evidence based on writing style

points to this piece coming form Deir el Medina to the reign of year 9 of Merenptha (Frandsen 2007:96) [3].

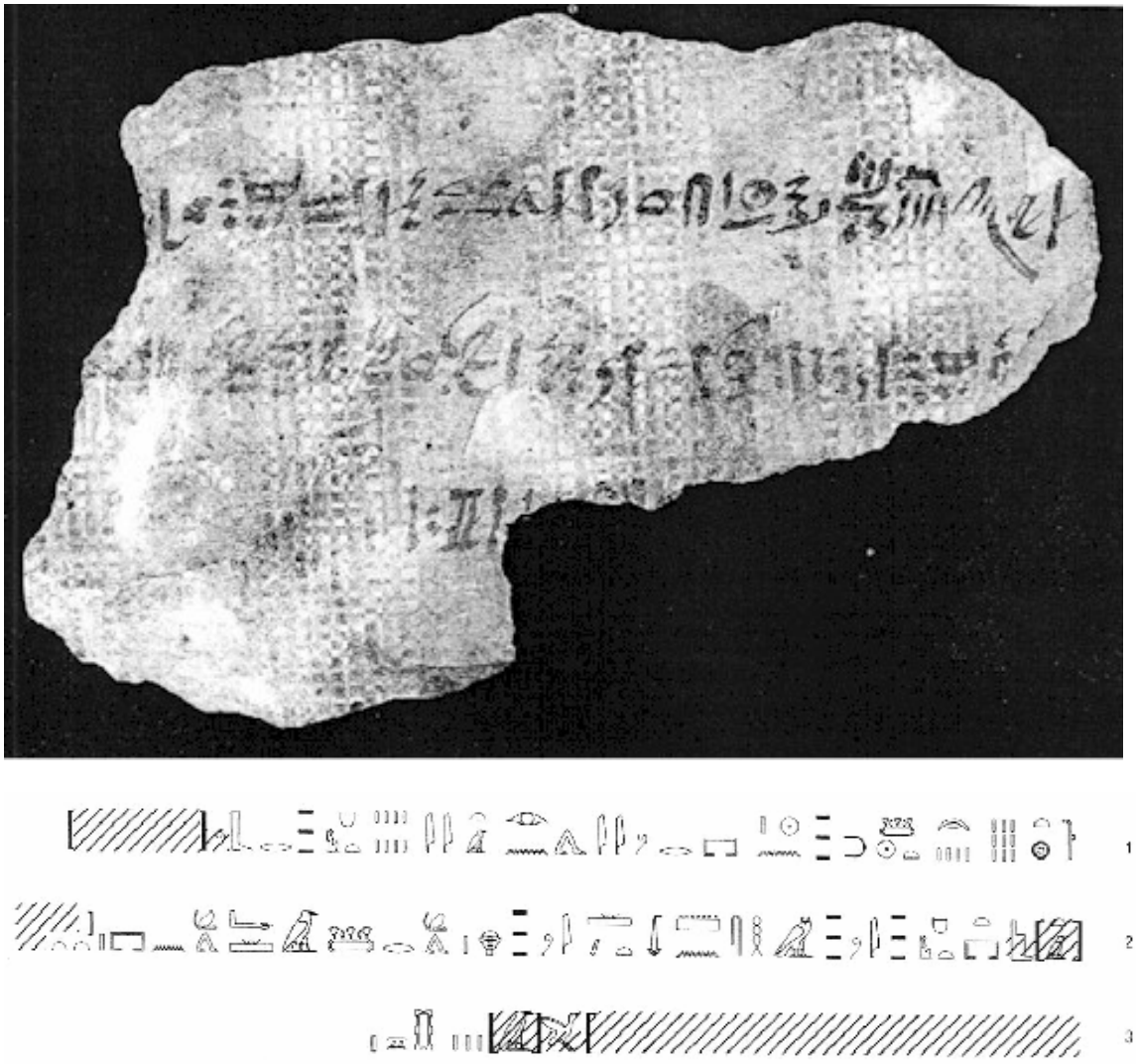


Figure 22 :Ostraca 13512 from Deir El Medina (Wilfong 1999:420).

The translation of the text reads as follows;

[3] Wilfong (1999:420) discussed the possibility that based on an analysis of the writing style and grammar used, that the piece could also date to the early reign of Rameses III. Her argument is based on the use of the *hr* as a pseudo-verbal construction

"(1) Year 9, fourth month of season of Inundation, day 13, the day when these eight women came out of [to/from ///

(2) the] women's place (*st hmt*) of women while they were menstruating. They got as far as the rear of the house which […

(3) …] the three walls..." (Wilfong 1999:420) [4].

Based on the above we can see that the texts refers to eight women were coming from or going to the place where women menstruate. We know that they got as far as the rear of the house at which point the text is broken off, but ends with 'the three walls'. It is unclear to what the three walls refer and if it is the same or a different building. This raises the question – did women go to a special place during their menstruation? Wilfong (1999:420) refers to this place as the 'place of women'. An examination of the literature follows.

6.1.2 The Menstrual Hut and Menstrual Taboo

Wilfong (1999:421) argues that the 'woman's place' was a menstrual hut built on the outskirts of the village. Unfortunately, we do not have records of how long the women went to the 'woman's place,' or whether they went every time they had their menstruation. Given this, one may speculate that they only went for a day or two at the start, thus being absent from home for only one or two days. This raises a further question. If this was the case, could it be that menstruating women were considered

impure, untouchable or of detriment to society? Was the place of women a house in which they were in some way spiritually cleansed?

[4] Cf. Wilfong (1999:421) for a discussion on the hieroglyphic notations and variances for *hsmn*

To gain insight into this, we turn to neighbouring traditional Jewish Ethiopian communities where the blood of both a menstruating and post partum woman (i.e. post childbirth) was considered to be impure. Traditionally, during menstruation and following childbirth, the women must leave their home and go to stay in a menstrual hut, *yamargam gogo*, to avoid contaminating other areas. During these times, other village women would bring them food (Fenster 1998:186).

Further evidence for the concept of menstrual blood as impure, is found in the Old Testament. Leviticus discussed vaginal blood, to include post partum and menstrual blood as impure. Leviticus (15:19-24) states that menstruating women are considered "unclean" for seven days, and that all furniture that she touches or sits on, is likewise considered unclean, to include, inter-alia, any man that she has sexual intercourse with. Further Leviticus (18:19)…indicates "you shall not approach a woman in her time of unclean separation, to uncover her nakedness," indicating that even to "approach" a women during this time may result in contamination (Guterman, Mehta & Gibbs 2008:1).

The concept of a menstrual hut is also not unique to ancient Egyptian societies. The Huaulu of Indonesia use menstrual huts on the edge of the village, where they must stay and bathe in special fountains, so as to avoid "harming" the men. In Mali, south of the Niger, the women of the Dogon people remove themselves from society during their menstruation to the menstrual hut, where they must still work in the fields but may not walk the village streets or go near their family. Likewise, Russian Orthodox Christians send their women to secluded menstrual huts and during their stay; they may not attend church (Guterman, Mehta & Gibbs 2008:1).

Aside from menstrual huts, the concept of menstrual blood as being impure extends to other religions. In orthodox Judaism, a woman must immerse herself in a ritual cleansing bath called a Mikvah, 7 days after the end of her menstruation, as she is considered "Niddah" (ritually unclean) during this period. In some orthodox Christian communities, women may not receive communication during her menstrual period. The Qur'an (2:222) states, "they question thee (O Muhammad) concerning menstruation. Say it is an illness so let women alone at such times and go not into them till they are cleansed. And when they have purified themselves, then go unto them as Allah hath enjoined upon you" (Guterman, Mehta & Gibbs 2008:1).

As early as the 1920's Schick coined the term, 'menotoxic' to refer to the toxic nature of women during their menstruation (Ashley-Montagu 1940:216). He based his argument on an observation that the flowers in his office touched by menstruating women, wilted far quicker than those touched by women who were not menstruating. In a follow up study by Ashley-Montagu (1940:218) he found that menstruating women had the ability to exert a "deleterious effect upon living tissues is surveyed with special reference to the origins of the menstrual prohibitions. Did the ancient Egyptians have a similar observation that is not recorded?

To answer the question, "were women considered unclean and impure or tainted" during their menstruation, we return to the Satire of Trades and the washerman, washing the clothes of menstruating women. If a menstruating woman was seen as impure, or untouchable, it is unlikely that her soiled garments would be washed by a man. As Frandsen (2007:100) states, this "indicates that menstruation was regarded as negative but not dangerous". One further conclusion on this matter may be that the laundry men were considered as low caste or 'untouchables'?

In Papyrus Ebers, we find a prescription where menstrual blood is to be rubbed on the breast of a woman to prevent "hanging", from too much milk post childbirth. In essence, from the onset of menarche (very first menstruation), to menopause (complete cessation of menstruation), a woman is fertile and of child bearing ability. As such, menstruation is associated with fertility. A woman normally menstruates, fourteen days after she has ovulated. Albeit that menstruation indicates that the ovum was not fertilised and as such, the woman did not fall pregnant, the fact that she menstruates, means she is still ovulating and is thus fertile. If menstrual blood was seen as bad, negative or tainted in some way, it is unlikely that it would be used as a medicament, particularly on a woman post child birth.

Haimov-Kochman, Sciaky-Tamir and Hurwitz (2005:5) state that the Egyptians believed that the monthly cycle (menstruation) "ceased during pregnancy because the blood was being diverted to create and sustain the embryo." Given these factors, it would not appear that the menstrual blood was considered negative or tainted.

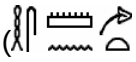
On the purpose of the menstrual hut, we do not have an indication of how long the women went there for, but given that there appears to be contact between men and women during this time, it would not appear that they were considered impure during their menstruation. This argument may be based on the following from ostraca OIC.9, "a man again brought (something) to the woman….when she had her menstrual period". Unfortunately the fragmentary nature of the text precludes us from knowing what came before the "when she had her menstrual period…." And as such we do not know if the item was brought to her after she returned from the hut, or during her period (Frandsen 2007:96).

Perhaps another solution may lie in Herotodus who, writing on Ancient Egypt, stated that "the women who slept in the temple of Amun never had intercourse with men, "however Strabo, the Geographer, argues that they did. To Zeus [Amun] they consecrate one of the most beautiful girls of the most illustrious family ... She becomes a prostitute and has intercourse with whoever she wishes, until the purification of her body [menstruation] takes place" (Gosline 1996:26).

Hartsay (2002:10) points out that in some societies, menstruating woman are seen as imbued with power and therefore that menstruating woman might need protection from 'external hostile forces'.

One may argue that it was the women and not the men that needed protection during this period, given that we see the menstruation being regarded as a time of purification. To this end, we turn to the concept of 'tomb' and the 'divine'.

Frandsen (2007:89) notes that we are told from Old Kingdom sources, that men were not allowed to perform their 'cultic' duties, after sexual intercourse as it was considered taboo, *bwt*. Other references to this exist, such as in Papyrus Jumilhac which lists 20 prohibitions for the nome, of which the third ones reads:

> "Its *bwt* is the menstruating woman ()"

It would appear that human procreation was deemed incompatible with procreation or regeneration of the divine. Aligning this concept to Deir el-Medina and the village workers, we find that the majority of the men were tomb builders. Tombs are associated

with death and the divine transition to the life hereafter. He argues that from this point of view, "it was the fertile menstruating women who were seen as vulnerable and in need of protection" (Frandsen 2007:100). Frandsen draw parallels between the tomb and the womb, both of which symbolised rebirth and birth. Drawing on a representation from the hieratic Papyrus Salt 825 from the Late Period transcribed as "this is a womb whose *bwt* is that it be seen that is, that which the father passed on to his son – without seeing without hearing" (Frandsen 2007:101). If we add to this the concept of the tomb representing the afterlife and regeneration, then his argument is that it is both the women and the tomb that required protection. He (Frandsen 2007:103), states that "we may therefore posit that as long as the men stayed away from the Tomb, they were not polluted by contact with their menstruating women and were no threat to the construction of work, nor did the Tomb, through them, threaten the fertility of their absent womenfolk. During menstruation the latter were both vulnerable to harm from vicarious contact to the Tomb and a menace to the potential cosmic fertility intended for that sacred construction."

Ostraca Brussles 6311 dating to the end of the Nineteenth Dynasty may support Frandsens' argument. It states, "to the coppersmith who brought (or fetched) his god, because this wife of his son Nakhtim had come into menstruation…" In this case, either the son could not touch the god because his wife was menstruating, or that his father could, because he was a coppersmith, and not a worker in the Tombs.

Regardless, none of this explains why the men were only absent for one, maximum of two days and not for longer. Perhaps the answer may be that a form of ritual purification was done, at the end of the menstrual cycle, and not at the start.

What is of interest, is that we find limited information on brothers, sons and fathers being absent from work due to their sister, mother or daughter, having her *hsmn*. Toivari-Viitala (in Frandsen 2007:95) argues that this may be due to the mother either being menopausal or having died by the time the son was old enough to become a workman. Likewise, Frandsen argues that with regard to sisters and daughters, it is conceivable that once they had reached the age of puberty, they were in all likelihood married and in their own homes. One of the few examples found is verso of ostraca MMA 14.6.217 for the dates 12 to 19 of an unknown month which tells of *Pahemnetjer*, absent as his wife is having her menstruation and on verso 7…"his daughter having her menstruation" (Frandsen, 2007:94).

6.1.3 *Hsmn* as Menstruation or Post Birth Purification

Contrary to Frandsen and others arguments, Janssen (1980:142) posits that the interpretation of *hsmn* refers not to menstruation but rather to post birth purification (i.e. the purification ritual after having given birth). A discussion of post birth purification in Ancient Egypt will be covered in the section on obstetrics, later in this thesis. His argument examines ostraca BM 5634 for year 40 of the reign of Rameses II discussed earlier. "That all the wives and daughters of forty workmen during about seventy days only ten times had their monthly periods looks a bit unlikely…. Normally every woman in the community would have had a baby every year, which means for the wives of forty workmen about 8 births in the seventy days recorded" (Janssen 1980:142). Given that five instances for wives were recorded, Janssen argues that his theory is justified and furthermore that the fathers would also be concerned for the purification of their daughters.

(Janssen 1980:142) recognises one possible flaw in his argument, that of the wife of ‘27’, who is absent from work due to two cases of *hsmn* in a period of three months. However he feels that the justification for this may be post birth purification in the first instance, and purification in the second case as a result of a miscarriage.

Wilfong (1999:423) in studying the synchronicity of menstruating women at Deir el-Medina, disagrees with Janssens’ interpretation of *hsmn* as post childbirth purification, yet does agree that there should have been more absences from work due to menstruation than those given.

The argument that the term *hsmn* pertains more to post birth purification rather than menstruation, seems flawed when one examines texts of Hartsay (2002:13) in which she discusses the birthing room at the front of houses at Deir-el-Medina. It is believed that these birthing rooms were the place where the expectant mother was placed in semi-isolation, for both the birth of the child and also for post birth purification. If indeed the woman remained in the front room for purification, then Janssen’s argument that the women left the village for this purpose is open to debate. The other solution could be that both practices worked concurrently.

Frandsen argues that there is enough evidence to support the use of *hsmn*. He cites as examples excerpts from Papyri, such as;

> "If you examine a woman having pain in one side of her vulva, you should say concerning it: this means that her *hsmn* has lost its regularity …When it has started, you shall make for her: smashed garlic, cider and sawdust of fir tree. Her

> pubic region is to be bandaged with it" Papyrus Ebers 832 - 96, 20-91, 1 (Frandsen 2007:82)

and

> "If you examine a woman having pain in her stomach while *hsmn* does not come for her…and you find (…), then you shall say concerning it: this is a case of obstruction of the blood in her uterus" (Papyrus Edwin Smith, verso 20, 13-15) (Frandsen 2007:82)

Later sources point to the use of the term *snft*, meaning bleeding woman; however Frandsen argues that this term pertains more to bleeding as the result of a miscarriage, than to menstruation itself.

For the Egyptian as with many other ancient civilisations, the onset of menarche meant that the girl had reached marital and childbearing age. "In Egypt, a woman was considered married when she "found herself a house" and "many papyri praised the wife who is honoured by her husband" (Sullivan 1997:636).

O'Dowd (2001:51) says that marriage was generally an arranged relationship and was entered into around the ages of 12-13 for females and 15-20 for males. This age for women gives us an insight into the risk and complications that could arise at childbirth. Marriage between brothers and sisters was not condemned and is represented, yet seems primarily as a pharoahonic tradition, assumed to go back to Osiris and Seth who married their sisters, Isis and Nepthys respectively (Ghalioungui, Khalil & Ammar 1963:151).

6.1.4. Complications of Menstruation

Although little is written on menorrhea itself in Ancient Egypt, there are sections of the papyri which may refer to it or complications of it. Prescription 12 of Papyrus Kahun reads:

> "12. Knowledge of a woman pained in her legs. Give thou to her strips of fine linen soaked in *anti* (frankincense ?)..."... [if her movements are] pleasant (?) in her doing everything it is health, if [her movements are painful (?) say thou to her] it is [.....of the womb]. Do thou for her (thus): a *mehui* vase of fresh oil, soak. put *anti* (frankincense?) on her after doing this" (Griffith 1893:1173).

Likewise instruction 17 reads:

> "17. Knowledge of a woman, her blood…mother-of-men (womb), her head is painful and her mouth (?) and the wrist (?) of her hand. [Say thou] with regard to it. Do thou for her (thus) : When the ground has been cleared place a jar upon it of sweet beer, [covering it so as not to allow] anything to fall into it; lay cakes (?) of dates upon the upper side of [this] jar [and...] upon them, and let her sit upon it; if nothing enters it, do thou for her (thus) :…[boil] let cool, let her drink (it) ; but if her blood enters it..." (Griffith 1893:1173).

Habiger (1998:1) discusses a section of Papyrus Ebers which describes a concoction of cedar wood shavings and crushed onions, to be used to correct irregular menstrual bleeding. "If you examine a women who suffers from the side of her pubic region, then you should say: This is an irregularity of her menstruation."

The use of onions (*Allium Cepa L*.) and other herbs as emmenagogues was not unique to ancient Egypt. We find that the Israelites obtained many species of onion from the Egyptians and used them amongst other things, as a spasmolytic. Likewise, the Arabs made use of the knowledge of the Jewish Physicians and used onions to treat menstrual abnormalities. Hippocrates, the Greek physician, recommended A. sativum, (garlic) *A. cepa* (onion) and *A. porrum* as emmenagogues (Jedelská 2007:8). Onion bulbs were also found to have antiplatelet activity i.e. in preventing blood from clotting (Jedelská 2007:18). Could this have been known to the Egyptians and to be part of the reason they used this as an emmenagogue? A study by Sharaf (1967:272) on the effect of onion juice on laboratory rats showed that "in vitro", the higher the dose of onion juice, the greater the uterine contractions.

6.2 FERTILITY, CONCEPTION AND CONTRACEPTION

6.2.1 Fertility

Fertility signifies the ability to procreate and for females, that begins with the onset of menstruation and continues until she reaches menopause. With fertility and procreation being vital to life, the ancient Egyptians invoked the help of goddesses for fertility, as well as the petitioning of deceased ancestors and the reliance on medications prescribed by the *swnw* as evidenced in the various medical papyri.

In studying the various magico-medical papyri that cover obstetrics and gynaecology, Pinch (1994:122-3) finds a pre-occupation with fertility evident in such prescriptions that deal with difficulties of menarche, difficulties of conception, diagnosis of gender, fear of miscarriage, problems associated with childbirth etc. Pinch refers to these as the dangers or ‘threats" of fertility, and places them in four categories. The first are natural threats, e.g. the inability of the mother to fall pregnant, the inability to carry to full term, spontaneous abortion, difficulty in delivery etc. The second refer to supernatural beings such as demons and sinister deities such as Seth, who was seen to be responsible for miscarriages and abortion. The third category is spirits of the dead such as women who may have died in childbirth and the final category, being living people with ulterior motives who may have cast a spell on a person.

Figure 23: Pottery vase First Intermediate Period with petitioners’ plea (Gardiner 1930:19).

Protection of the women before, during and after child birth was paramount and to this end, the use of fertility figurines was common. Many women also visited temples to pray to the goddesses and leave offerings (Chamberlain 2004:284). A magnificent red pottery baseless vase measuring a height of 23cm was found in a tomb dating to the First Intermediate Period. Housed in the Haskell Oriental Museum in Chicago, it was inscribed with hieratic text and contains an appeal from a son to a deceased father to grant his wife, a son (Figure 23).

Its translation reads,

> "(1) This is an oral reminder of that which I said to thee in reference to myself:-" Thou knowest that *Idu* said in reference to his son: (2) 'As to whatever there may be yonder (?), I will not allow him to be afflicted of any affliction'. Do thou unto me the like thereof!" (3) Behold now there is brought (to thee) this vessel in respect of which thy mother is to make litigation. It were agreeable (4) that thou shouldst support her. Cause now that there be born to me a healthy male child. Thou art an excellent Spirit. (5) And behold, as for those two, the serving-maids who have caused Seny to be afflicted, (namely) Nefertjentet and Itjai, (6) confound (?) them, and destroy for me every affliction which is (directed) against my wife; for thou knowest that I have (7) need thereof (?). Destroy it utterly! As thou livest for me, the Great one shall praise thee, (8) and the face of the Great God shall be glad over thee; he shall give thee pure bread with his two hands. Additional remark:-(8 a) Moreover I beg a second healthy male child for thy daughter" (Gardiner 1930:20) [5].

[5] For a full transcription of the hieratic code into hieroglyphic, cf. Gardiner (1930:18).

In this plea, the son mentioned the names of the two maid servants whom he believed had cast a malevolent spirit upon his wife. He also makes an appeal for a "second healthy" son for "thy daughter," which although obscure is believed to refer to the petitioners sister.

Figure 24: Female Fertility Figurine – Middle Kingdom (Gardiner 1930:20).

Figure 25. Funery stela from Memphis dating to the 1st Century BC, for Taimhotep, wife of the High Priest of Ptah (Pinch 1994:125).

From the Middle Kingdom we find female fertility figurines such as figure 24. Likewise we even find royalty appealing to the gods. In figure 25 we find a funerary stela from

Memphis dating to the 1st Century BC, for Taimhotep, wife of the High Priest of Ptah, appealing to the god Imhotep for a son (Pinch 1994:125).

Although at times it is difficult to determine which goddesses pertain specifically to fertility, and which to childbirth and protection, their roles overlap and so many of the goddesses seem to cover both aspects. Numerous fertility figurines are found throughout Ancient Egypt, often in the form of a naked mother with a child. These were often placed in tombs as appeals to the dead or kept in small shrines within the home.

Dating to the Middle Kingdom, is a female statuette similar to a fertility figurine, inscribed on the right thigh with the words, "May a birth be granted to your daughter Seh" (Robbins 1993:77).

Two of the most unusual fertility figurines were found at Beni Hassan, a predominantly Middle Kingdom burial site located between Memphis and Asyut. The one is made of a knotted string. It is believed that the knots represented magical knots though their purpose is unclear. They may have been to keep the womb shut after conception to avoid miscarriage. The second is a seventeenth century BC pottery figurine with an iron ring tightly bound around the thighs. Again, the purpose may have been to keep the womb shut by binding the legs together but likewise, it may have been used to cast a malicious spell on a person to prevent an easy birth.

Unfortunately there are no inscriptions to aid in determining the purpose of this ring (Robbins 1993:77).

6.2.1.1 Fertility Goddesses

Amongst the goddesses of fertility, Isis is seen to be the supreme mother goddess, Depicted in human form with the symbol of her name on her head, she was part of the Egyptian ennead and wife of Osiris. She was involved in resurrecting him and in the conception of Horus. Seen as a protector goddess and associated with both this world and the afterlife, Isis is strongly associated with fertility. Her other roles included those of protection in childbirth and over the newborn infant.

The goddess Hathor, daughter of the sun god Ra, was deemed to be a cow goddess and lady of the sky, whose womb protected the hawk-god. She is symbolised in numerous forms, to include a lady with the symbol of the horns of the cow on her head; a completely bovine form and also as a lady with the ears of a cow. A complex deity in her own right through her connection with music and dance, she was also often mentioned in her role as the potential destroyer of human kind. Her role in fertility is tri-fold, in that she was the protector of lovers and thus fertility, as well as childbirth and transition to the afterlife. As a goddess of childbirth, she manifests as the seven Hathors, to be discussed in detail later (Hart 2005:80).

Considered by many to be the "goddess of the harvest" and "lady of the granaries", the goddess Renenutet was associated with bringing food and abundance, harvest and fertility. Guardian to the pharaoh she is often shown suckling the children of the pharaoh (Remler 2010:164).

By no means exhaustive, the discussion of these goddesses indicates the role of the gods and goddesses in human fertility, and its strong association with the Nile.

6.2.1.2 Fertility and Medicine

Apart from appeals to the gods for fertility, it was also encouraged by means of medical treatments, as is evidenced in the various papyri.

Honey and fenugreek (*Trigonella foenum-graecum*), also known in Ayurvedic medicine as methi) was eaten to "loosen the child in the womb" and prescriptions to increase a woman's libido included milk or stallions saliva (O'Dowd 2001:51). In modern day Egypt, women still use fenugreek to relieve pains from menstrual cramps and also make a tea from the herb called hilba to assist with other abdominal pains. Researchers such as Dawson (1926:240), Passano (1995:31-4) and Savona-Ventura (2009:42-44), claim that Fenugreek has been found to have a range of beneficial actions such as increasing the flow of breast milk post delivery, aiding in the regulation of menstruation, reducing the pain of menstruation and in speeding up delivery of the newborn child.

Remedies for male infertility included juniper, oil, carob, pine and watermelon. Of interest is the additional use of aphrodisiacal prescriptions to include wild lettuce (the favourite food of God Min, god of fertility and sexuality) as well as the root of a mandrake plant (O'Dowd 2001:51). The lettuce that they spoke of in ancient Egypt was very different to the varietals of lettuce that we find in modern society. By contrast, this lettuce was considered to be the wild *Lactuca scariola L*. (or *L. serriola Tomer*), an erect standing lettuce with spiny blueish leaves (Harlan 1986:5). Fig 27-29 above, show various portrayals of lettuce from murals in Ancient Egypt (Harlan 1986:5).

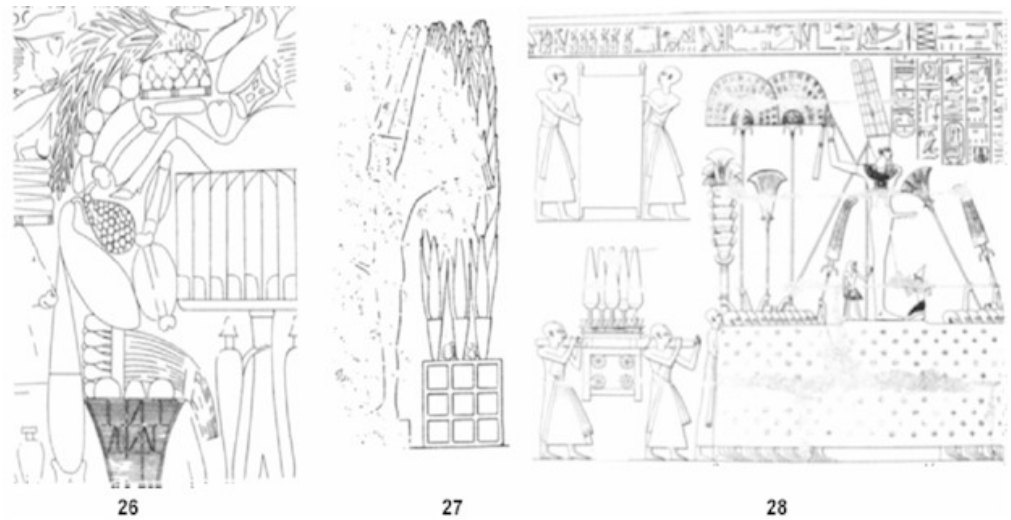


Figure 26: Offerings in rock tomb of Meir, Chapel B, No. The plant at the top with pointed leaves and stem with leaf scars is lettuce.

Figure 27: The fertility god Min with erect lettuce behind him and erect phallus before, from Koptos. The stylised lettuce stands on stylised checkerboard representation of a garden.

Figure 28: Part of the festival of Min from Medinet Habu with men carrying erect lettuce plants on a platform with stylised representation of a checkerboard garden. They follow the statue of Min in the procession.

6.3 CONCEPTION

Conception is defined as the point at which a woman becomes pregnant, and the development of the baby begins (Bateman *et al* 2005:84). The ancient Egyptians were well aware of the relationship between sexual intercourse, semen and pregnancy. For them, the semen was thought to arise from the spinal cord or the heart from whence it traveled via two separate *metu* to the testicles (O'Dowd 2001:51). The belief that the semen arose from the spinal cord is said to have originated in the practice of bull sacrifices to the gods, performed by Egyptian priests along with several carvings and scripts e.g.

> "The bread mould…made of wood…The sixteen members are carved on it, each of them designated by his name…his shin bones [*ks.w*]…his phallus [*d.t*], his spinal column [*pst*]…his neck [*3t*] (Dendera)" (Translated from Chassinat (1966-68: II, 624) in (Schwabe *et al* 1982:448).

and

> "I have brought the phallus and the backbone [*pst*], re-assembled, which are found at *Per-khet* (Mendes)" (Translated from Chassinat 1966-68: II, 365 in Schwabe *et al* 1982:448).

They believed that the "phallus of the bull was an extension of the spine, since bovine retractor penis muscles are attached to the sacral vertebra" (Haimov-Kochman, Sciaky-Tamir & Hurwitz 2005:4).

Another school of thought believed that the semen arose directly from the heart, from whence it was transported to the testicles.

Throughout the ancient texts we find reference to semen as a man's 'seed.' A statue base dedicated to Osiris, now housed in the Louvre Museum, and dating to the 26th Dynasty is inscribed with "I am thy sister Isis…I have played the part of a man though I am a woman, in order to make thy name live on earth, since thy divine seed was in my body" (Manniche 1977:334) In the pyramid texts we read, "you (Osiris) have placed her (Isis) on your phallus and your seed goes into her" (Manniche 1977:336).

Perhaps one of the most explicit verses on sexual conduct comes from the Chester Beatty Papyrus from reign of Rameses V. Within the papyrus we find the story of the

ongoing battle between Horus and Seth as to who shall rule Egypt since Orisis went to the underworld. The battle takes place in three events. In the second event, we find Horus and Seth lying sleeping when Seth attempts to dominate Horus sexually through a homosexual act. Horus manages to catch Seth's sperm in his hand and shows it to his mother, Isis. Isis cuts of the hand of Horus and throws it into a nearby stream. They then collude to get revenge on Seth, so Isis masturbates Horus and then rubs the sperm of Horus on a lettuce plant in Seth's garden. Seth eats the lettuce and becomes pregnant. Seth then complains to the gods who hold council and Horus is called to answer for what he has done. The head god Thoth then calls upon the semen of Horus to declare its whereabouts and it answers from the stream. On calling upon the semen of Horus, it bursts forth as a golden disc on the head of Seth, which Thoth takes possession of (Leach 1976:20-21).

While the contendings of the two gods continue in a third fight, what is evident is the discussion of sexual dominance, sperm, lettuce as an aphrodisiac, and the association between semen with pregnancy. Perhaps the solar disc was to represent birth itself, in the same way as a baby's head 'crowns' at birth.

Papyrus Ebers, paragraphs 854 and 856 deals solely with a discussion of the *metu* and how they work. The *metu* were considered to be vessels and are described as being connected, the plural of which was *met*. They included blood vessels, tendons and muscles that were long and thin and various ducts, said to carry blood, urine, semen, air, mucus, diseases and importantly, "malign or benign spirits" (Nunn 1996:45).

Papyrus Ebers 856a reads, "As to a man there are 1 *metu* in him, to his heart. It is they which give to all his members/limbs" (Nunn 1996:45).

In addition, Ebers 854i reads, "There are two *metu* to his testicles: it is they which give the semen" (Nunn 1996:49).

An excerpt from Papyrus Ebers and Papyrus Berlin regarding the *metu* appears in Table VI.

Table VI The distribution of the *metu* as described in the vessel book

	Ebers Papyrus			Berlin
ANATOMICAL DESTINATION	854		856	163
CONTENTS/FUNCTION				
to the bladder	2n	-	-	urine
to the testicles	4i	-	-	semen
to the liver	4l	-	-	water and air
to the lung and spleen	4m	-	-	water and air

Figures indicate the number of *metu* (adapted from Nunn 1996:45).
Letters refer to the sub-paragraphs of Ebers 854, 856 and Berlin 163

6.3.1 Diagnoses of Pregnancy and Foetal Gender

Papyrus Kahun provides a number of prescriptions for diagnosing pregnancy. The relevant sections of the papyrus are badly damaged and fragmentary making quotation problematic. Later texts however are found to offer similar, more in-depth prescriptions. Prescription 27 of the Papyrus Kahun states:

> "You should have her sit upon a floor overlain with lees of swe*et al*e, placing a mash of dates…vomiting, she will give birth. Now concerning the number of each vomiting that comes from her mouth, this is the number of child bearings…However, should she not vomit, she will not give birth ever" (Stevens 1975:952).

A later text, the Papyrus Berlin, prescription number 193, provides a similar recipe where the woman is to drink a mix of human milk and watermelon. Subsequent vomiting was said to be an indication of fertility, whereas eructation (burping air), was a sign of infertility.

> "To know a woman who will bear from a woman who will not bear. Water-melon, pounded and bottled with the milk of a woman who has borne a male child: make it into a dose. To be swallowed by the woman. If she vomits, she will bear: if she has eructations, she will never bear" (Dawson 1929:141).

The survival and influence of the above prescriptions is important given that it has survived with little change in Greek Medicine. In 'Concerning of the Sterile' of the Hippocratic collection, we find the following text,

> "If you wish to know if a woman will become pregnant, give her to swallow butyron and the milk of a woman who has borne a male child. If she has eructations then she will not conceive, but if now, then she will not" (Dawson 1929:141-142).

In this instance, there is a variation of the determination of pregnancy but a similar principle is used. In the case of Egypt, watermelon is used and in the Hippocratic version, butyron, considered to be cucumber.

A further prescription in Ebers states:

> "ANOTHER METHOD: You place an onion bulb deep in her belly…You should declare about her: "She will give birth". If you do not find …her nostril, you can declare about her: "She will not give birth ever" (Stevens 1975:952).

The fragmentary nature of this text is further elaborated in the later Carlsberg Papyrus which recited placing "an onion bulb deep in her flesh" and leaving it in over night. If her breath smells of onion in the morning then she will give birth but if not, she will not (Forbes 1957:23).

The above prescriptions could be explained by way of the effect of progesterone on the olfactory senses of pregnant women, and also on the tendency for pregnant women to experience more nausea and vomiting, than non-pregnant women. Haimov-Kochman, Sciaky-Tamir and Hurwitz (2005:5) state that the sub-mucosal blood vessels become engorged during pregnancy, resulting in a quicker absorption into the blood stream of the onions sulphur compounds. Research conducted by Nordin *et al* (2004:399-401) showed that two out of three women had olfactory (smell) sensitivity in the very early stages of their pregnancy. This sensitivity declined over the course of their pregnancy.

In addition, it is argued that nausea and vomiting during pregnancy may serve as a foetal protective mechanism, to protect the embryo against potentially toxic herbs and

foods, and "causing pregnant women to physically expel and thereby avoid foods that contain teratogenic and abortifacient chemicals" (Nordin *et al* 2005:400).

Berlin papyrus continues with two further prescriptions;

> "Another test for a woman who will not bear….She is to be fumigated with hippopotamus dung. If she urinates or evacuates, or passes wind at the same moment, she will bear; but if not, she will not bear…" (Dawson 1929:143).

> "Another test. Let her go to bed after thou has anointed her nipples, her arms, and her shoulders with fresh grease. In the morning, though shalt examine her. If thou findest her flesh light green, without being moist – she will bear normally. If though findest it moist like the skin of [the rest of] her flesh – it is uncertain. But if thou findest it dark green when thou examines her - she will bear with difficulty" (Dawson 1929:143).

Papyrus Kahun contains a parallel passage to this and states

> "10. To distinguish her who shall conceive from her who will not conceive. Put thou fresh oil upon…examine her; if thou findest the muscles of her breast *khasha* (? soft) say thou with regard to it, it is a birth. If thou findest them *kenken* say thou with regard to it she will bear late : but if thou findest them like the colour (?)…[say thou with regard to it she will never give birth]" (Griffith 1893:11).

A further test in Kahun Papyruses diagnosis pregnancy via pulsation of the blood vessels claiming that if increased pulsation occurs when a woman's fingers and arms are squeezed, then the woman will conceive.

Dilated veins on the breasts are known to occur during pregnancy as a result of increased production in the hormone, estrogen. The role of the oil as an application is unclear.

This understanding of the change in vessel dilation is evident in a further test for pregnancy in the Kahun papyrus, which called for the physician to smear the breast, arms and shoulders of a woman, with new oil, and if in the morning her blood vessels appeared strong and swollen, then she would bear children. However, if they appeared collapsed, green or dark in colour, then she will most likely only bear children later in life (Shafik & Elseesy 2003:28).

Of interest, is that many of these prescriptions survived into ancient Greek, Roman and some modern cultures. Hippocratic writings contain a test for fertility, in which a woman must, on an empty stomach drink butter mixed with the breast milk of one who has given birth to a son, and that if she has eructation's, she will conceive, and if not, she won't. Likewise, a Hippocratic prescription for a fertility test was to peel garlic and insert it as a pessary. If the women awoke to taste garlic, she was pregnant. Jacob Rueff, a well known midwife who practiced in the mid 1500's in Zurich, claimed that if a women drank the juice of a thistle and then vomited, that it was a sign that she was pregnant. While the exact prescriptions are not the same as the ancient Egyptian ones, the principle is similar (Forbes 1957:22).

A further prescription is found in the Berlin Papyrus;

> "Another test for a woman who will bear or a woman who will not bear. Wheat and spelt: let the woman water them daily with her urine like dates and like sh'at seeds in two bags. If they both grow, she will bear: if the wheat grows it will be a boy; if the spelt grows, it will be a girl. If neither grows, she will not bear" (Ghalioungui, Khalil & Ammar 1963:241).

Interest in the above test has resulted in tests to determine the reliability of the method for diagnosing pregnancy and resultant foetal gender. Manger (1933 in Ghalioungui, Khalil & Ammar 1963:242) used the method of urination from pregnant women onto wheat and barley seeds laid on filter paper beds, in the hope that exposure to air would reduce the toxicity of the ammonia in the urine. His tests were inconclusive. However, he did find that when the barley seeds grew faster than the wheat, a girl was born and for the corollary, a boy. In cases where it is uncertain, a boy was born. In his research, 80% of the cases produced an accurate prediction. Later, Hoffman (1934 in Ghalioungui, Khalil & Ammar 1963:242) found that growth was prevented on various types of barley after applying the urine from non pregnant women. On the contrary, that of pregnant women allowed for a slower rate of growth. However, after a month all seeds watered with the rune of pregnant women showed greater growth patterns.

Ghalioungui, Khalil and Ammar (1963:242-243) continued with research on a sample of 48 specimens of urine, 2 from men, 6 from non-pregnant women and the rest, from pregnant women. They used 4 varietals of seed, namely 2 types of wheat, and 2 types of barley. Each urine sample was split into two parts, 6 for wheat and 6 for barley. In each of the two seed groups, 3 undiluted parts of urine were used; 3 parts of urine were

diluted on a 1/1 ratio with distilled water, on the remaining seed dish, distilled water was used as a control, as per figure 29.

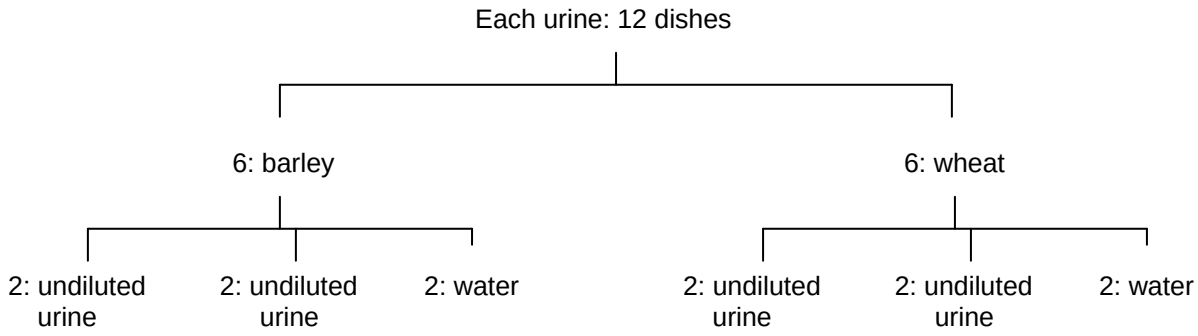


Figure 29: Allocation of samples of Urine to test for gender (Ghalioungui, Khalil & Ammar 1963:243).

The results were as follows:-

1. no growth occurred with urine from non pregnant women or men
2. urine from pregnant women inhibited growth in only 12 cases out of 40. In the remaining 28 cases, appreciable growth was seen
3. It was concluded that it was the urine of pregnant women that caused growth in the wheat and barley, but that the converse was not necessarily true

They claim that it seems justifiable to conclude that when barley and wheat are watered with urine, if any or both kinds of grain grow, then the urine comes from a pregnant woman. The reverse is not true: absence of germination does not eliminate pregnancy" (Ghalioungui, Khalil & Ammar 1963:244).

Forbes (1957:18) argues that many of the early pregnancy tests contained within the Egypt papyri were continued in Greek and Roman medicine. He cites Galen, a Greek

text which states, "Make two little holes containing the urine of a pregnant woman; in one throw barley and the other wheat. Then sprinkle with the urine and shovel earth on top. If the grains of wheat sprout first, she will bear a boy, but if the barley seeds, a girl'. The same method of diagnosis is found again in the 6th century AD, attributed to Moschion and yet again in *Antonio Guainerio's De egritudinibus matricis*, an early medical book on diagnosing pregnancy. In 1540 we find a similar test in The byrth of Mankynde, one of the first books on written on midwifery" and in the *Dreckapotheke* of Paulini in 1714.

Henriksen (1941 in Forbes 1957:19) suggests, following recent tests, that human urine may contain an extract of a plant hormone called auxins, which stimulate plant growth. However Forbes argues that the level of these hormones in urine does not seem to increase with pregnancy.

What is clear is that practitioners of ancient Egypt were aware that foetal gender was determined in vitro, and not simply assigned by the gods at birth.

6.4 CONTRACEPTION

Where conception refers to impregnation, contraception is the use of drugs, devices and remedies to prevent pregnancy. Not only did the Egyptians make use of herbal remedies for conception, they had a wide range of natural recipes for contraception as well. It would appear from the ancient texts that there was little religious interference over a women’s right to contraception. Haimov-Kochman, Sciaky-Tamir and Hurwitz (2005:7) maintains that knowledge of herbal remedies was probably obtained from the knowledge of herders of cattle and sheep who observed that the animals failed to reproduce after grazing on certain plants.

Of all of the surviving medical texts, the oldest, and the one that deals extensively with contraception is the Papyrus Kahun, which has fragmentary prescriptions for vaginal suppositories (Riddle 1992:66):

> "Recipe 1 (Kahun, No 22 (3,6j):
>
> Not to become pregnant, 'that…
>
> Feces of crocodile smash up with fermented dough [or paste]:
>
> Soak….
>
> Recipe 2 (Kahun, No 22 (3,7j)
>
> Another recipe.
>
> 6/7 Pint of honey; sprinkle in her vagina.
>
> This is done with [*hr shmt*] of saltpeter.
>
> Another recipe
>
> […mashed up] with fermented dough/paste, sprinkle in her vagina…"

The third recipe deals with a mix of sour milk to be poured directly into the vagina (O'Dowd 2001:55).

The rationale given behind these three recipes probably rests with the measurement of pH, i.e. the measure of acidity or alkalinity of the products used. Solutions with a pH of less than 7 are acidic, while solutions with a pH greater than 7 are considered alkaline. The normal pH of the vagina is 3.8 to 4.5 while the average pH of sperm is around 7.2-7.8 making it alkaline and thus neutralises the acidity of the vagina (pH 6–7) within seconds and keeps the vagina neutralised for several hours after intercourse, to ensure that the sperm remain viable and able to implant (Olmsted *et al* 2005:6). In essence, if

one is able to maintain the pH of the vagina at around 3 to 5, then this will "acidify" the sperm and render it non-viable thus preventing conception. Modern spermicidal creams such as *Femprotect*©, and *BufferGel*©, work on this principle; to reinforce the mild acidity of the vagina. *Femprotect*© has an acid base of 3.5% of lactic acid and 0.1% sorbic acid per 100g tube and *BufferGel*©, works to maintain a pH of 3.85 in the vagina (Karim *et al* 2011:957). Likewise, *BufferGel*©, is works to maintain a pH of 3.9 (Mayer *et al* 2001:477).

In applying this principle to the three prescriptions, we find that both faeces and fermented dough have an acid pH, thus concurrently working to maintain an acid pH of the vagina. The same principal would work for recipe 3. In recipe 2, the ingredients used are saltpeter and honey. The pH of honey is 3.9 (with an average range of between 3.4 and 6.1). It contains about 181 components, to include a high percentage of acid based compounds such as sugars, phenolic acids, flavonoids, ascorbic acid, organic acids and amino acids to name a few. As such, as with recipes 1 and 3, it would work to maintain an acid pH in the vagina and prevent the viability of the sperm.

Given that honey is found to have strong antibacterial and antibiotic properties, could that have been the reason why Egyptian physicians in antiquity used honey in combination with crocodile faeces, as a way of working as an antibiotic against infection from the fecal matter[6]?

Sipos *et al* (2004:212) claim that an understanding of the use of faecal matter in prescriptions requires recognition of the important role played by the bacteria and fungi

[6] Cf. Bogdanov (1997: 748–753) for a comprehensive discussion on the antibacterial and antimicrobial properties of honey.

found as secondary metabolites in faecal matter. Research has shown that faeces are rich in antibiotic properties and given the diversity of animals/insects/birds and their food intact, different faecal matter produces a different antibiotic effect. It may be for this reason that the physicians of Egypt made use of varying types of faecal matter to include crocodile, donkey and fly excrement. Faeces also contain a number of compounds which have been found to have antioxidant qualities.

Use of crocodile faeces is again echoed in the Ramesseum Papyrus which prescribes a mix of the faeces with fermented dough. Riddle (1992:69) states, given that the Kahun Papyrus is a copy of an earlier text and that "the belief that people could control contraception through substance use is therefore, older than the extant records themselves".

The rationale behind the use of crocodile faeces may have rested on another explanation. Sipos *et al* (2004:211), argue that the medical papyrus often speak of how demon and malign spirits can enter and leave the body through openings of the body. In Papyrus Berlin, an "intruder" is referred to as having negatively affected the health of an individual, and so the physician makes use of the most disgusting prescription available, even for demons, namely excrement. As such, what is the association between crocodile excrement and fertility or conception? Further explanation comes from Ritner [sa] (in Riddle 1992: 67) who argues that "the crocodile is associated with the Egyptian god Seth, the deity who sought to injure Isis in her difficult pregnancy." Some of Seth's bynames have the determinative hieroglyph of the crocodile. It can be argued that crocodiles may be the messenger of the evil deeds of Seth, given that they have the ability to quickly snap up their pray and were feared along the banks of the Nile (Te Velde 1977:150). In The Dialogue between a man and his *Ba* (Soul) of the so called

Wisdom Texts, we find reference to a crocodile god called Khenty. In the discussion, his soul says to the man,

> A common man ploughs his plot. He loads his harvest into a boat. He tows the freight, for his feast day is approaching and he saw the darkness of a North wind arise. He is vigilant in the boat when the Sun sets and gets out with his wife and children, and they perish by a pool infested by night with crocodiles. When at last he sat down, he broke out, saying : "I do not weep for that mother, for whom there is no coming from the West to be on earth another time. I grieve for her children broken in the egg, who have seen the face of Khenty (the crocodile-god) before they have lived! (Van den Dungen 2010:1).

In the Tale of Doomed Prince we hear of how he will die by either the crocodile, or the snake, or the dog. Throughout the texts of ancient Egypt, we find reference to the power of the crocodile and the fear that the Egyptians had of the animal. However, by the same token, they worshipped Sobek, the crocodile god, who was seen to be the one who brought fertility to the land through the inundation. At the temple of Kom Ombo, the first crocodile to appear in the well of the temple each season was sacrificed, mummified and worshipped as a god which had come to tell of the pending rising water levels.

> "We see the crocodile as being associated with life and fertility, as well as death. The crocodile has the ability to snatch up freshly laid eggs of birds, the unprotected new born of animals and thus, the use of its faeces may also have been associated with its ability to destroy and prevent life, particularly in the excerpt above, "I grieve for her children broken in the egg, who have seen the

> face of Khenty (the crocodile-god) before they have lived!" (Van den Dungen 2010:1).

Mythological belief, or factual pharmacological application, one cannot deny the role of both.

Papyrus Ebers contains a number of purely herbal remedies for contraception.

> "[Ebers 783] The Beginning of Recipes that are made for women to cause a woman to stop pregnancy in the first, second or third period [trimester]
> Unripe fruit (?) of acacia
> Colocynth
> Dates
> Titurate of 6/7 pint of honey; moisten a pessary of plant fiber…and place in vagina" (Nunn 1996:196).

Research into combining the above ingredients, shows that when acacia is pounded and subsequent fermentation occurs, lactic acid anhydride is produced, which, when dissolved in water produces lactic acid, the very same compounds are in some contraceptive jellies in the United Kingdom and United States of America. The use of lactic acid was well attested in spermicidal creams until the mid 1950's, at which stage it was replaced with Nonoxynol 9 (N-9), a chemical detergent which is said to kill off or damage the cell membranes of sperm. Some modern day over the counter products still contain lactic acid such as *BufferGel*© and *Femprotect*© (discussed earlier). In addition, Acacia gum (and tree resins discussed later), have been found to have antiseptic properties (Sipos *et al* 2004:245-260).

"One of the most challenging pursuits in the realm of pharmaceutical and medical sciences (today) is the search for newer and more potent drugs with little toxic effects, self-administrable, less expensive and completely reversible. Much of these properties are observed in the drugs of plant origin" (Unny *et al* 2003:233).Their study lists amongst others, varietals of acacia which have been found to work as contraceptives, thus supporting its' use in Ebers 783 (see table VII).

From the herbs mentioned in Ebers 783, Colocynth (figure 30) deserves further discussion, as it is prescribed in no less than 70 ailments across a range of medical papyri (including those of the Leiden, Edward Smith and Chester-Beatty which are not relevant to the discussion of the diseases and health of women). The plant, its juice, pulp and dried powder are used in various internal and external applications (Dawson, 1934:44).

Figure 30: Hieroglyph for Colocynth (adapted from Dawson 1934:41).

Colocynth, classified as *Citrullus colocynthis*, (CCT) is a vine type plant found in large areas of the Mediterranean regions to include Arabia, Syria, parts of Greece, Upper Egypt and Morocco, Spain and Portugal. As a member of the cucurbit family, it falls within the same genus as a watermelon. CCT contains a number of active substances such as saponins, alkaloids and glycosides. The potency of these substances is evident in that some glycoalkaloids have been found to have tetrogenic effects, i.e. result in birth defects. Glycoalkaloids derived from potatoes as an example, were found to cause neural defects in the embryo's of pregnant mice and in other cases, death of the

Table VII. Contraceptive Roles of Varietals of Acacia

Name of the Plant/	Chemical Constituents (s) if any	Uses
Abrus precatorius Dry extract from seeds	PEP–103, PEP–104, Abridin, Steroidal fraction.	Oral contraceptive, prevents implantation of fertilised ovum by inhibiting endometrial alkaline phosphate, induces 100% sterility in mice when injected one day pre and post coitum. Sperm anti-motility activity, Steroidal fraction indirectly influenced the pituitary level, leading to decrease in production and release of testosterone, resulting in significant alterations in the testis.
Acacia arabica		Effective oral contraceptive in rats and inhibits implantation.
Acacia auriculiformis	Two partially characterised triter-penoid saponins (Tg), containing acaciaside Aand acaciaside B with the aglycon structure of acacic acid lactone. (I)	Caused obvious immobilisation of sperm at lowest concentration. ED = 0.35 mg/mL in physiol. saline. ED prevented sperm entry in human cervical mucus and caused death of treated sperm.
Acacia caesia	Acacic acid saponin (I–VI) lupeol, a-spinosterol and stigmasterol.	Spermicidal agent.
Acacia catechu	–	Effective oral contraceptive in rats and inhibits implantation.
Acacia concinna (Bark)	Lupeol, a-spinosterol, hexacosanol a-apinasterone, acacic acid, acacic acid lactone and an amorphous saponin.	Spermicidal and semen coagulating activities. Saponin showed spermicidal activity at 0.004–0.125%.

Adapted from Unny *et al* (2003:245-260).

embryo and abortion (Wang 1993:121). Despite its beneficial properties for diabetes and in some cases high blood pressure, excess dosages can result in death. Elawad *et al* (1984:481) state that "there are …reports of sheep and goat death after consuming the plant". Regarding the reproductive system, CCT induces infertility in male rats (Chaturvedi, Mali & Ansari 2003:47).

Reference has also been made to the colocynth in the King James Version of the bible in 2 Kings 4: 38 – 40, which reads

> "And Elisha came again to Gilgal: and there was a dearth in the land; and the sons of the prophets were sitting before him: and he said unto his servant. Set on the great pot, and seethe pottage for the sons of the prophets.
>
> And one went out into the field to gather herbs, and found a wild vine, and gathered thereof wild gourds his lap full, and came and shred them into the pot of pottage: for they knew them not.
>
> So they poured out for the men to eat. And it came to pass, as they were eating of the pottage, that they cried out, and said, O thou man of God, there is death in the pot. And they could not eat thereof."

The words, wild gourd, have been translated from the Hebrew word, ‘pakkuoth.' Macht (1919:187) argues that although the term pakkuoth can also be rendered as elaterium, "there is …botanical and archaeological (evidence), which seems to point to the colocynth as the correct translation." Regardless of whether the rendering of the term refers to colocynth or elaterium, he argues that both are known to act as powerful or

drastic purgatives and that large doses can result in death. "The poisonous nature of these drugs was well known in the Orient. C. M. Doughty (Travels in Arabia Deserta, Cambridge, 1888, vol. I, p. 132) says of the *Citrullus colocynthis*: 'To human nature it is of so mortal bitterness that little indeed, and even the leaf, is a most vehement purgative. They say it will leave a man half-dead, and he may only recover his strength by eating flesh meat'" (Macht 1919:190).

It would appear that the prescription of Ebers 783 has two purposes, one, to kill off active sperm cells through the use of the resultant production of lactic acid and secondly, to ensure that if conception did occur, contractions of the uterus through the absorption of the colocynth, could result in early abortion.

The use of Colocynth as a contraceptive and abortifacient is not unique to Ancient Egypt. Riddle (1992:70) finds that modern day Arabic women still make use of colocynth to effect abortions. In modern Lagos in Nigeria, recipes containing Colocynth are still prescribed, e.g. for contraception, roots of various plants and a peeled fruit of Colocynth, combined with salt and drunk, and sliced fruit of colocynth combined with a little potash (salt) to be drunk morning and evening, and then finally, as an abortifacient, cooked Cassia leaves, the root of Curculigo pilosa and Colocynth fruit, fermented with water and milled *Zea Mays* (a type of wheat) and drunk three times a day (Bablola 2009:4).

Recipes for abortifacients are evident throughout Ebers Papyrus 801 – 807 and include a range of substances to include beans, terebinth resin, onions, beer and bird dung. (Riddle 1992:70-71). The terebinth, or turpentine tree, is a deciduous tree of the *Anacardiaceae* family. Groom (1981 in Truitt 2009:715) claims that terebinth resin was often referred to as balm, or balsam, namely the "Balm of Gilead" mentioned in Genesis

37:25. Dioscorides the ancient Greek writer in his *De materia medica*, claimed that balm "is a good thing to use for making thick smoke from below to treat female problems and boiled down for sitz baths, dilating the cervix and absorbing moisture," and it can be used to expel the placenta or the foetus (Truitt 2009:718). Truitt notes, that it is unclear if Dioscorides meant that balm was useful as an abortifacient or as an aid in childbirth.

Berlin Papyrus mentions the mandrake plant (*Podophyllum peltatum*) to be used for contraception and interestingly, suggests the same herb for vaginal contractions, but to be crushed and combined with cows milk. *Podophyllum* is an extremely toxic substance which contains lignins and flavonols, including *podophyllotoxin*. It is also a drastic purgative and can cause uncontrollable peristalsis (contractions) (Chamberlain, Reynolds & Yeoman 1972:392) Chamberlain discussed the case of a young woman who in the 32nd week of her pregnancy had vaginal warts which were treated with of *podophyllum* resin (a resin derived from the root of the plant). Aside from various other side effects including temporary paralysis, two days after treatment she developed lower abdominal pain and the foetal heart beat could no longer be heard. After ten days, the infant weighing 2000g was stillborn.

Given Ebers recommendation, it may indicate that the mandrake plant was used as an abortifacient to cause the fallopian tubes to expel the ovum through contractions, thus working in effect as a means of contraception. In addition, the mandrake plant is often mentioned in magical uses to expel the influence of the gods, malign creatures, and spells inflicted by enemies (Dawson 1933:134). It is feasible that the same plant would be used as a contraceptive or abortifacient, being used to expel or get rid of an unwanted foetus or pregnancy.

Many of the above herbal applications were made into a pessary, i.e. a drug made into a soluble material and then inserted into the vagina so that it can be absorbed into the blood (Bateman *et al* 2005:301).

The use of natural and herbal products for medicinal purposes is well attested through history to modern day. "More than 35,000 plant species are being used in various human cultures around the world for medicinal purposes" (Shah *et al* 2009:1959). They conducted a study on herbal plants used by local rural and tribal women in Pakistan for a variety of ailments. Thirty six of these were found to work for contraception, abortion and to induce sterility in men. "Among them 56.75% are abortifacients, 35.13% are contraceptive and 8.1% causes sterility in man." The use of *Cucurbitaceae* (i.e. the cucurbits or gourd family which includes the wild gourds) is echoed among the abortifacients (Shah *et al* 2009:1961).

The first appearance of a combined vaginal and oral contraceptive method, albeit fragmentary, comes from Papyrus Berlin, which contains a prescription using celery combined with oil or beer as follows:

> "…emission of semen…a woman without becoming pregnant. . You should fumigate her vagina with emmer seeds to prevent her receiving the semen. Then you should [make] for her a prescription to loosen [or release] semen: oil [or fat] 5 parts […celery],…sweet beers […heat and drunk for four mornings" (Riddle 1992:72).

In *Diseases of Women,* Hippocrates listed several prescriptions to induce abortion. One includes celery and reads;

> "An efficacious pessary, which expels the afterbirth and draws down the menstrua and the crippled embryo/fetus. Remove wings, legs, and head from five cantharine beetles; next, bruise the leaves and roots of the small caltrop, (*Tribulus terestris*), a shell amount of the crushed hard outer part of boanthemon, (*Chrysanthemum coronarium*), a shell amount of celery seed, fifteen cuttle fish eggs, mix in sweet wine and insert" (Blumenthal, Castleman & Jain 1999:1).

Although celery seeds (Latin: *Apium graveolens, Umbelliferae* family or Sanskrit Ajmoda) are less well known in Western herbal medicine, it is well known in Ayurvedic circles where it has been used to cure a range of ailments to include colds, water retention, arthritis and digestive problems. Pole (2006:2), writing on the indications and contraindications of celery or Ajmoda, says that "it is safe in pregnancy despite mistaken concerns regarding celery seed containing the contraindicated apiol". Apiol is a compound found is such plants as celery and parsley. Despite this, Grimes (2006 in Warriner & Shah 2000:78), classifies it amongst a list of unsafe abortion methods used in the developing world, "boiled apio (celery plant) water with aspirin." Further sources claim that "pregnant women should not use celery seed because it may lead to uterine bleeding and muscle contractions in the uterus, which could cause miscarriage."

Albeit that the recipe from Berlin papyrus above is not given as an abortifacient, in that it reads; "…emission of semen…a woman **without** becoming pregnant... to **prevent** her receiving the semen... to **loosen** [or release] semen", it is evident that the idea was the same, i.e. to bring on uterine contractions to expel the semen and prevent implantation, or, to expel the fertilised ovum before implantation.

Table VIII: Herbal Medications and their effects on pregnancy

Common Name	Latin Name	Relevant adverse effects
Celery	*Apium graveolens*	Uterine stimulant, abortifacient and emmenagogic action.
Castor bean	*Ricinus communis*	Emmenagogue and abortifacient effects.
Garlic	*Allium sativum*	Emmenagogue effects.
Juniper	*Juniperus communis*	Increases uterine tone; possible anti-implantation, abortifacient and emmenagogue effects.
Myrrh	*Commiphora myrrha*	Emmenagogue and abortifacient effects.
Pine	*Pinus*	Abortifacient effects.
Yellow cedar	*Thuja occidentalis*	Emmenagogue and abortifacient effects.

The information contained in this table has been adapted from Ernst (2002:231-234) [7].

As a result of the growing market for herbal medicinal products such as diet pills, supplements etc, Ernst (2002:227) conducted research into the herbal medications available to pregnant women, to analyse the effects of them and to "alert healthcare professionals to the fact that herbal medicine products are not entirely free of risks for pregnant or lactating (breastfeeding) women." Their research showed that of 300 women attending antennal classes in Australia, 12% had taken herbal remedies; of 1200 pregnant Nigerian women surveyed, 12% used native herbs and of 228 pregnant women in South Africa, 55% had used herbal medicines during pregnancy. Amongst the list of

[7] The list of herbal medicines in Table VIII is a vastly reduced list of the herbs contained in Ernst (2002: 231-234). The list above relates only to those products that have been specifically mentioned in the medical papyri discussed in this study. Many of the products mentioned were in evidence in Egypt at the time.

products that work as a uterine stimulant, abortifacient and emmenagogue, is *Apium graveloens* (Ernst 2002:231).

It would appear that there is controversy in the modern world with regards the contra-indications of celery seeds and indeed, herbal medications themselves. Regardless, the mere presence of the varietals of plants used by the ancient Egyptians, point to the fact that they were aware that certain remedies could prevent pregnancy and in some cases terminate it or induce abortion.

6.5 GENERAL GYNAEOLOGICAL COMPLAINTS

6.5.1 The effects of rape

In prescription 9 we find a first reference to that of possible rape of a woman, who consults the physician with pain in her pubic region and all of her limbs, as though she has been beaten.

> "Say thou with regard to it : it is...of the womb. Do thou for her (thus): (Let her) eat oil (fat?) until she is well" (Griffith 1893:11).

In the Tale of Two Brothers we find the story of the wife of the one brother who fabricated a story that she had been sexually assaulted by her brother-in-law. We read:

> "…she took oil and grease and made herself resemble one who had been maltreated…and when her husband came home…he found his wife lying down ill, she was lying down vomiting…" (Stevens 1975:950).

Stevens argues that there is a parallel between her actions and that of the prescription above.

6.5.2 Bladder or Vaginal Infection

Prescription 10 of papyrus Kahun speaks of the diagnosis of a possible bladder or vaginal infection. The prescription follows:

> "Knowledge of a woman whose urine pains her like the …of…urine. Say thou with regard to it: it is falling of the womb. Do thou for her (thus) : *aurit*, corn, *sheni*, *met ent geni*: pound, grind fine, upon *ndadat*- beer one *henu* : cook and drink 4 mornings. Let her wait lying down fasting; next morning let her drink 1 *henu* of the same: let her wait fasting until the time of washing the mouth (?)" (Nunn 1996:91).

Symptoms of urinary tract infections (UTI's) include pain and burning when urinating, urgency to urine, a feeling of pressure in the urethra and lower back or abdominal pain (Cooper & McKesson 2004:1). Given this, there is a possibility that the prescription in Kahun refers to a bladder infection.

6.5.3 Osteoporosis

Osteoporosis, a condition in which the bones become porous, thin and brittle as a result of low levels of oestrogen, calcium and exercise, often associated with menopause (Bateman *et al* 2005:282). An example of the change in bone structure appears in figure 31.

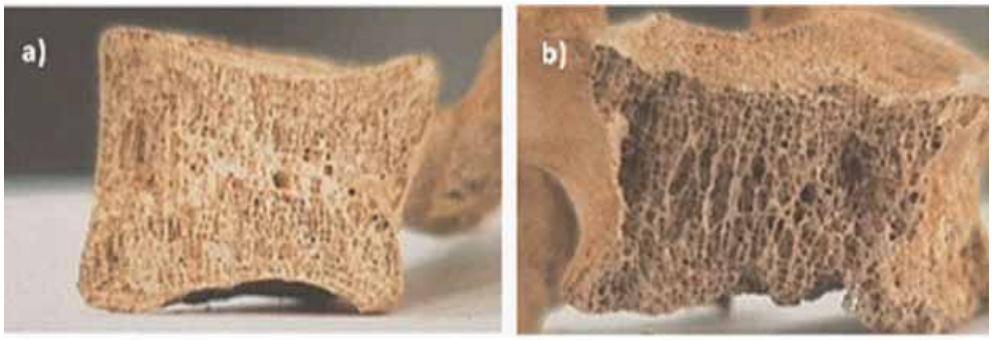


Figure 31. A photo of a section through a normal vertebral bone (a) compared with an osteoporotic vertebral bone (b) (Zaki, Hussein & El Banna 2009:83).

Perusal of the medical papyri as they pertain to women does not reveal any references to conditions associated with breaks of limbs or fracture. Given that advances in the field of osteoporosis have only come to the fore in the 1900's, it is not surprising that breaks and fractures in hips, wrists and vertebrae of women in Egypt was not associated to a gynaecological cause. This does not, however, mean that the condition did not exist. Bone fractures and breaks and discussion of their treatment are evident in the Edwin Smith Papyrus which dates to about 1700 BC. The papyrus is advanced in that it delimits different types of fractures (*heseb*) and the author clearly understands the difference with a closed fracture in which the flesh is healthy (*wedja*) and without any corresponding fresh wound (*webenu*) (Nunn 1996:57). However, within the script we do not find any discussion of hip, wrist or vertebral fractures of women which in current medicine can be associated with possible osteoporosis. This leaves us with analysis of skeletal remains.

There are three methods by which one can study osteoporosis in ancient civilizations; histological studies; scanning electron mycrospcopy (SEM) and X-ray of bone and dual energy X-ray absorptiometry (DEXA) Zaki, Hussein and El Banna (2009:83). While the

methods themselves are not the focus of our study, the results of their usage are. Researchers Zaki, Hussein and El Banna (2009:78) embarked on an extensive study of 74 skeletons, of which 31 were female. Of these, 15 came from the Giza Western Cemetery of the High Officials, and 16 from the Giza South East Cemetery of the workers. Their aim was to look at different factors; evaluate osteoporosis according to skeletal site, (i.e. upper class versus working class graves), age and gender in ancient Egyptians. By including mummies from both working and upper classes they hoped to identify information about the lifestyles and thus causes of osteoporosis of ancient Egyptians.

DEXA was the method of choice used given its accuracy in measuring bone mineral density (BMD); the measure of calcium density in the bone. The results were classified into age groups of 20-29 years (Group I), 30-39 years (Group II), 40-49 years (Group III), 50-59 years (Group IV) and 60 and older (Group V). Using World Health Organisation (WHO) standards of measure for BMD, results were classified, as normal (T-score -1), osteopenic or low bone mass (T-score between -1 and -2.5) and osteoporosis (T-score at or below -2.5). Statistical tests revealed that there were significant changes in BMD measures across all age groups in both males and females. However, a significant loss of BMD was found in females between group I and groups III, IV and V with females showing a much higher loss of bone mass then men. In addition, osteoporosis in female high officials was significantly higher than female workers, directly attributable to lack of exercise and a sedentary lifestyle (Zaki, Hussein & El Banna 2009:81-85).

Compared with modern research on age related bone loss, studies show that BMD was lower in people aged 40-59 in ancient civilisations than in contemporary society, indicating a higher prevalence of osteoporosis. What is of interest is the comparison of

Nubian versus Egyptian mummies in antiquity. Dewey *et al* (1969 in Zaki, Hussein & El Banna 2009:85), found that osteoporosis because earlier in life in Nubian women, probably due to extended periods of breastfeeding and a lack of calcium intake. Likewise, Funk *et al* (1995 in Zaki, Hussein & El Banna 2009:85) reported that BMD decreased in young females with pregnancy in the spine and femoral neck. However, the age of onset of osteoporosis was not found tin the Egyptian skeletons studies. Martin and Armelagos (1986) and Abd-Allag (1987 in Zaki, Hussein & El Banna 2009:85) believe that this may be due to differences in dietary habits, in that the Egyptians were more reliant on a grain diet such as millet and barley which is higher in calcium and iron, while the Nubians who relied more on a diet of cereal and protein.

A further study performed on a complete skeleton of an adult female from Lisht in Upper Egypt, dating to about the XIIth Dynasty, provides evidence of osteoporosis. The female, estimated to be about 60 years old, showed an "intertrochantric fracture of the femur, associated with vertebral osteoporosis" (Dequeker *et al* 1997:886), i.e. at the join of the hip ball and the top of the femur. It is estimated that she survived a few years after the fracture. Given that she appeared to have belonged to a high social class and thus had better access to nourishment and care, this may have contributed to her longer life expectancy.

Jones (1908:455-458) published his research carried out on the remains of about 6000 bodies from an area excavated just south of the first cataract, ranging in age from 4000 BC to 100 AD. Data is not available on the ratio of males to females, but the study did show that there was a 31.25% incidence of radius and ulna (wrist and forearm), humerus 6.2% (upper arm) and 3.75% pelvic fractures. It is unclear whether these could be related to trauma or to osteoporosis.

6.5.4 Cancer

Prescription 2 of the Kahun Papyrus provides the only possible reference to ovarian or vaginal cancer. The patient is treated for pain in her womb and the associated smell of roasted meat. Ghalioungui (1973:105) has argued that this smell could be characteristic of cancer of the uterus, referred to as "that which eats the womb and produces an ulcer" and gives off a smell of rotten, necrotic tissue, reminiscent of roasted meat. In this case, the prescription was to fumigate the area with anything that smelled of roasting meat[8].

The only other reference to possible cancer is found in Ebers, (813):

> "Another remedy for one in whom there is eating (*wenemet*) of the uterus (*hemet*), and ulcers appear in the vulva. Fresh dates, 1; hekenu, 1; stone from the *showre*, broken with water, left overnight in dew and poured into the vagina" (Nunn 1996:81).

6.5.5 Ovarian Dropsy

Ovarian Dropsy is a condition in which the cells in the ovary swell, often from an ovarian cyst or the presence of cancer. In 1825, Granville, an obstetrician performed an autopsy on a mummy for the necropolis of Thebes which dates to circa. 600 BC. The mummy was identified to be that of the Lady Irtyersenu given the inscriptions on her sarcophagus (figure 32) (Granville 1825:269-316).

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[8] Cases of cancer are frequently attested to in the various medial papyri, not just in gynaecological. However, examination of mummified remains shows a relative absence in cancer tumours with only a few cases being found. Up until 2006, only thirty nine cases of malignant tumours had been identified in skeletal remains from ancient Egypt. In recent studies however, this number is increasing with ongoing investigation in the field. Olszewski (2010:182) asks the question, "Why did Egyptians suffer from cancer less frequently than modern society?" She produces possibly reasons such as shorter life span and a more wholesome diet with less carcinogenic.

After an examination of the ossification centres of the bones, Dr Granville concluded that Irtyersenu was about 50 years old at death and had given birth. On further investigation he found a large growth or tumour enveloping the right ovary and that the uterus was larger than expected (figure 33). The remains of the uterine sac were attached to the left ovary, leaving him to conclude the presence of ovarian dropsy (Donoghue *et al* 2010:51). While the Granville mummy does not fall within our delimited study, it does show the presence of additional gynaecological conditions. Later studies showed that the condition suffered by Irtyersenu was cystadenoma. On further investigation it was found that the fat of her body was well interspersed, indicative of a slow degeneration and wasting away from protracted illness. This, combined with further histological observations led the researchers to conclude that she had died of pulmonary tuberculosis. In addition to the presence of the ovarian cyst or dropsy and tuberculosis, later studies also revealed her to have suffered from Tuberculosis as well as osteoporosis (Donoghue *et al* 2010:51).

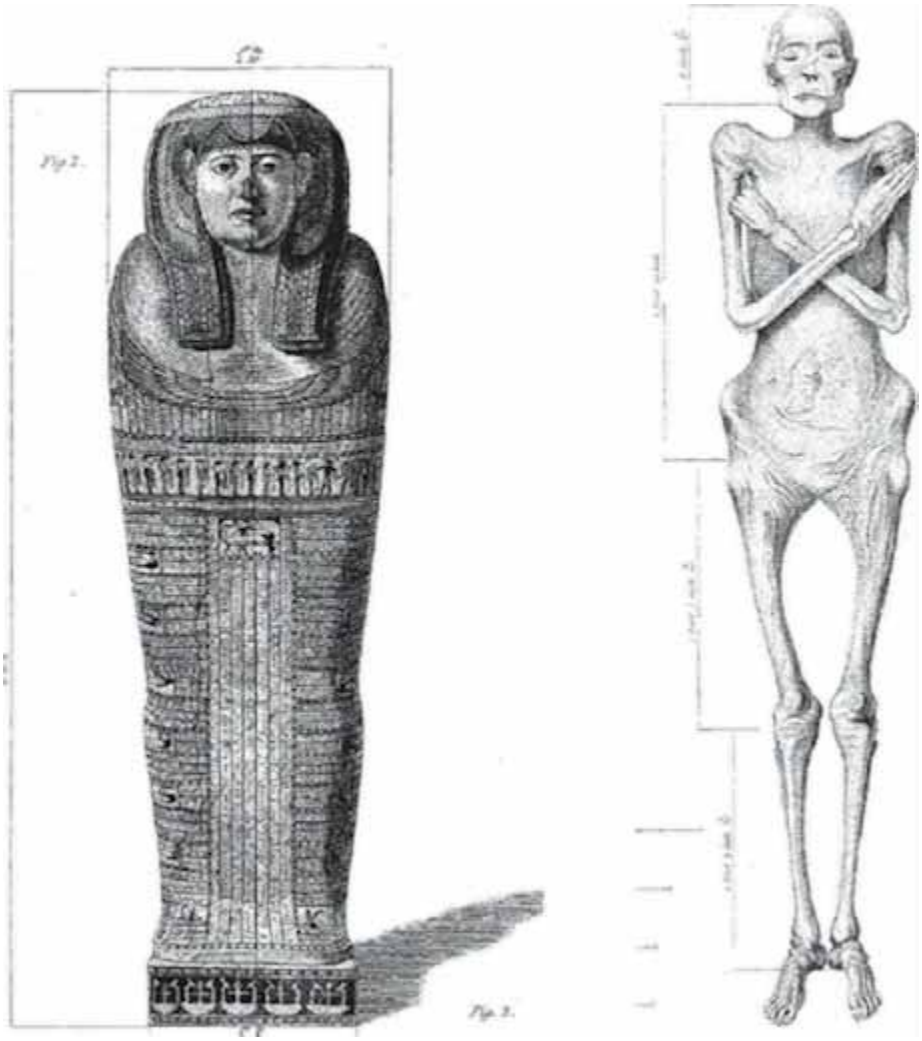


Figure 32: The original appearance of the Granville mummy (a) Inner coffin lid; (b) unwrapped mummy (Granville 1825 in Donoghue *et al* 2010:3).

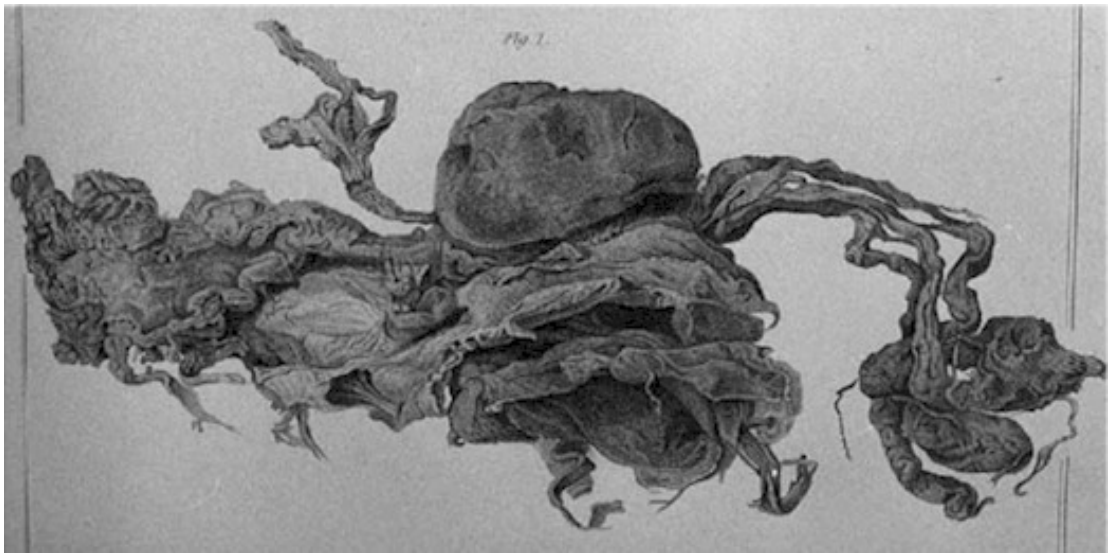


Figure 33: Ovarian Cyst in a mummy AM 1549-1069 (Aufderheide 2003:19)

Conclusion

The study of gynaecology of ancient Egypt reveals a number of interesting debates. It is known that women married once they had reached puberty and thus the onset of menarche and their menstrual periods, which indicated fertility. At this point, a woman could marry and raise children.

What is not clear is what role menstruation played in the lives of the people. We know that men would be absent due to menstruation *hsmn* which clearly was not their own but could relate to that of their wives or daughters. We also know that women seem to leave the home and go to a place of menstruation. Whether this was because the women were considered impure or if they needed protection against malign forces which make be brought home from their husbands, working as tomb diggers is uncertain. Debates also revolve around the actual interpretation of the term *hsmn* argued by many to refer to menstruation, but by others to refer to purification or post birth purification.

The length of time of absenteeism or the period of post birth purification do not tally, raising further questions on whether women left the home for the entire duration of their menstruation or only a short period of time. The fact that menstrual blood was used in healing leads one to ponder the argument that menstruating women were classified as a taboo for negative reasons. While they did not understand what caused menstruation, they were clearly aware of its role in fertility and pregnancy and had prescriptions to rectify irregularity or cessation of it.

Their knowledge of medicine was also advanced enough to realise that foetal gender could be predicted in vitro and that the gender of the child was not simply determined at birth by the gods. Women had a right over their reproductive ability in that they practiced contraception and abortion. Given the uncertainty as to whether their contraceptive methods were intended to act as a contraceptive or abortifacient method, the blurring of these concepts facilitated their discussion under this section on gynaecology.

A wide range of herbal medicines were used in the treatment of gynaecological complaints, many of which have been found to be in evidence in modern therapies in contemporary society.

Aside from gynaecological complaints which are identifiable, there is evidence of others, the basis of which we can only surmise. These include possible evidence of rape. For this we need to reply on correlation between the texts of mythology and the medical texts. There is also possible evidence of uterine cancer though this may also have been a cyst and studies are therefore, inconclusive. Analysis of mummies shows evidence of osteoporosis with an interesting insight into the levels of osteoporosis amongst both upper and lower classes, indicating that both intensity of labour and diet have an impact

on the formation of the disease. The dietary habits of the Egyptians in antiquity coupled with a shorter life span resulted in lower incidence of osteoporosis in mummies than expected. Dietary differences may also account for a higher incidence of osteoporosis in Nubian mummies, compared with their Egyptian counterparts.

CHAPTER 7

OBSTETRICS OF ANCIENT EGYPTIAN WOMEN

Abstract

Firmly entrenched in Egyptian mythology, is the concept of creation and birth, with the sun god Ra being swallowed up every evening by Nut only to be reborn again the following morning. Funerary texts spell out in detail the process of the transition to the underworld for rebirth. The success of a society is largely dependant on the extent to which it can reduce both mother and infant mortality and one would expect that given their mythological focus on birth and death that their medical literature would have a section focusing on this very aspect. The medical texts of ancient Egypt provide a comprehensive discussion of gynaecology, but are surprisingly limited in the field of obstetrics. This given, our reliance on information turns to mythology, archeological buildings, amulets and offerings, the role of the gods, inscriptions and analysis of mummies.

Given the tremendous threat of mortality and complications associated with childbirth, it is not surprising to find the important role played by the gods. Isis, Nephthys, Heqat, Meskhenet, Bes, Tawaret and Renenet deserve special mention here. Giving birth in a squatting position, birthing bricks were used inscribed with images of the gods for protection and apotropaic wands used to ward off evil. In determining complications arising from childbirth, mention is not made in the texts, but with the assistance of modern medical imaging techniques, analysis of mummified remains can aid in providing details.

Introduction

Information on obstetrics in ancient Egypt is limited. Obstetrics relates to that branch of medicine dealing with pregnancy, childbirth and the period immediately following childbirth and includes all complications and pathologies arising from the moment of conception, through pregnancy, birth and post birth and the treatment thereof (Bateman

et al 2005:272). Despite the minimal amount of information, we can use inductive reasoning to extrapolate information from mythology and archaeological remains, to "paint a picture" as it were and shed some light on the field.

Starting with the basis of mythology, we visit the Book of the Earth or Book of Aker to provide some insight into the concept of creation related to childbirth. With this as a base, we will look at some papyri and the role of the gods and amulets in the protection of the mother both pre and during child birth. The actual birth itself is not well documented and for this we rely on papyri and archaeological remains.
Within the medical papyri we find some prescriptions which may pertain to complications derived from pregnancy and these will be examined.

It would appear that the Egyptians had a special place or room for giving birth and these rooms or birthing arbours will be discussed along with inscriptions, and the various votive and supportive aids used in giving birth. The role of the Gods and Goddess and rituals associated form an important part of the discussion.

The remainder of the chapter will explore the role of the placenta and post birthing complications.

7.1 OBSTETRICS AND MYTHOLOGY

One of the most fascinating accounts of the process of creation comes from The Book of the Earth, or the Book of Aker, pieced together from the burial chambers of Rameses VI, of Pedamenopet, the el-Asasif necropolis at Thebes and a range of papyri from the

Amun priesthood of the 21st Dynasty. It is a complex and extensive piece, painted on the tomb walls depicting the birth or creation of the earth.

Stricker (1963-89 in Renggli 2002:3) says that the series depicts the "development and evolution of a human baby from the moment of procreation to birth." He renames the work, the *Embryologic Treatise* and claims that "there was an essential identity between cosmology and embryology, so that any birth (or rebirth) could be seen as a repetition of the creation of the universe. The world is a womb that produces all life, engendered by the celestial fire of the sun" (Stricker 1963-89 in Raven 2005:53). In the beginning, it was the creator god that emerged from the abyss, known as Nu on the primeval mound. From here he created air and water (Shu and Tefnut) who created sky and earth, Geb and Nut, and then their children Osiris and Isis, Nephyths and Seth. In analysing this "treatise", Renggli (2002:5) speaks of the ancient Egyptians' view of the world as land surrounded by a large body of water and a circle shaped mountain surrounding it. Beyond this, is an abyss and chaos, and he argues that in essence, the world can thus be viewed as a cave. Above rests the sky-goddess Nut, like a lid on the universe and below her, her brother Geb, the earth.

The goddesses Isis and Nephyths are the pillars supporting Horus, child of Isis, as a symbol of creation and everything the earth produces, surrounded by a body of water, in the same way as the amniotic fluid surrounds and protects the child (figure 34 and 35). Horus personifies the aspect of the child compared with Osiris, the aspect of the father deceased and reincarnated.

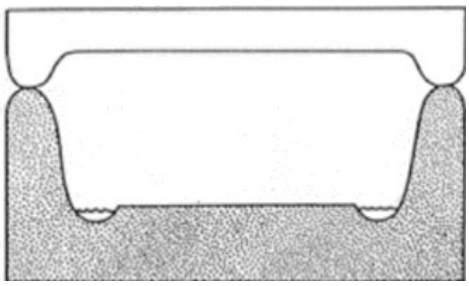


Figure 34. Earth as a cave or Womb (Renggli 2002: 3).

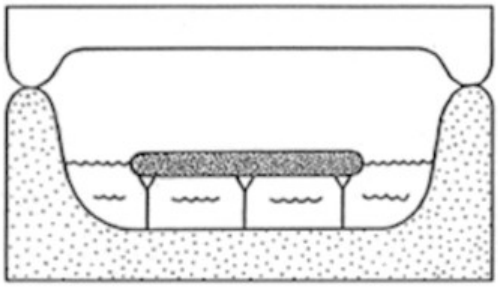


Figure 35. Earth as the pregnant womb with Horus supported by the goddesses (Renggli 2002: 3).

The analysis above rests on the creation mythology of the sun god Ra, god of creation, who starts each morning as a newborn child, reaches adulthood by mid-day and at night, symbolic of old age, enters the mouth of Nut and dies, only to be reborn the next morning through the vulva of Nut.

Returning to the *Embryonic Treatise* Renggli analyses one section of the Book, section D (figure 36). An overview will be affected here. (For a more detailed analysis refer to Renggli 2002:1-18).

It should be stated that it is not known whether the various sections were meant to form one complete work or various works or in fact the correct order for analysis. Interpretations of the work also vary, where the main argument is that it represents the solar journey from sunset to sunrise. Here the god Aker, earth god of the underworld who stands over the separation of the east and west horizons of the underworld, provides a safe passage across his spine for the journey from west to east.

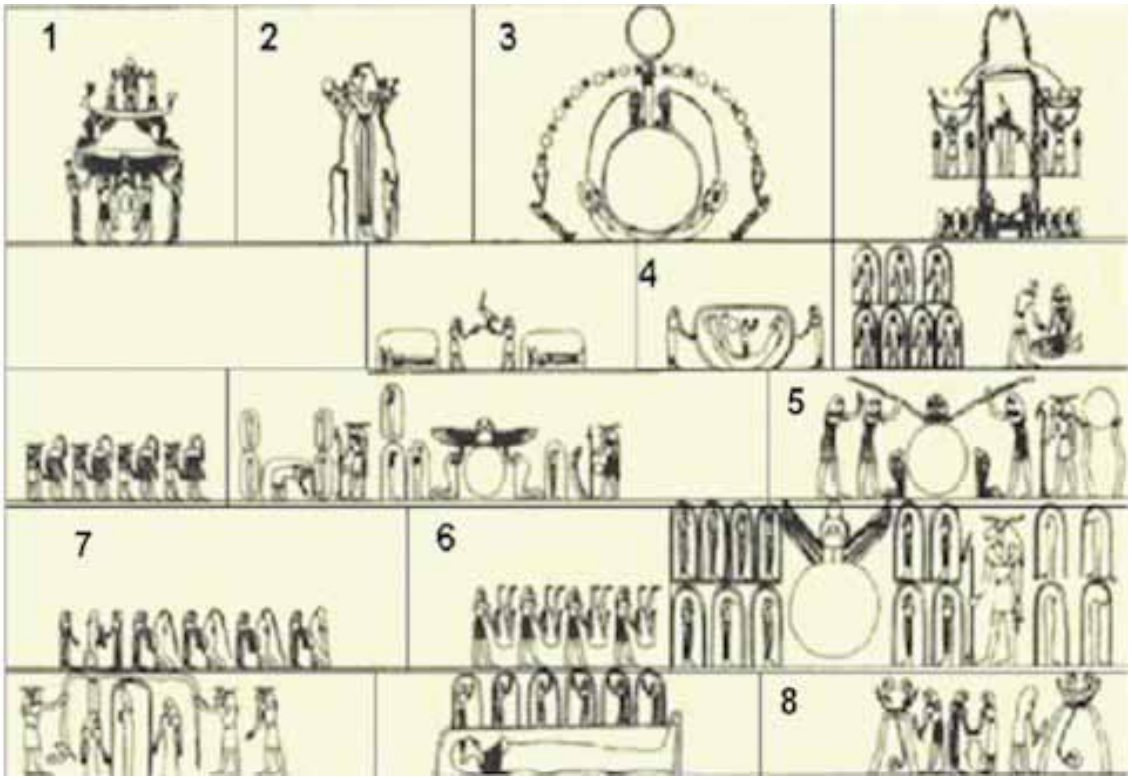


Figure 36. Book of Aker or Book of the Earth, Section D Modified from online: http://www.touregypt.net/featurestories/bookofearth.htm

In the first image (figure 36.1), we find the central figure of Osiris standing in a room whose walls are formed by snakes and above him, the sun god Ra emerges from the sky holding two heads. Each head casts sunbeams into two bowls, one to the left and right of Osiris, each bowl being held by a goddess. Stricker (1963-89 in Renggli 2002:6) argues that this image represents man's genitals, with each testicle (bowls) being given the sunbeams, representative of the soul of a future child. He argues that it is the duty of the man to take the essence of "life", and deposit it in the womb of a woman.

Figure 36.1 Male genitals
(Renggli 2002:6).

Figure 36.2 Female genitals
(Renggli 2002:7).

The female genitals are depicted in figure 36.2 where the Apophis snakes protect what he sees as the womb, with the smaller snake represented of the umbilical cord and the crocodile the waters of the amniotic fluid. The "womb" has two arms, one which receives the cow – symbol of the gift from heaven and the other the sun, symbol of the foetus or rather, the egg.

In the next three figures, we see the process of implantation, fertilisation and protection of the fertilised ovum in the womb. Figure 36.3, shows a small figure standing on a large disk with a smaller disk above its' head. To the left and right are the figures of Isis and Nepthys, goddesses of fertility. Between each goddess and the large disk is a pair of snakes, spewing fire or light down from the sun, which is caught by the pair of arms flanking the large disc, which is symbolic of the womb.

Figure 36.4 is a depiction of the womb, with the child god Horus, standing on the bent body of the father Osiris. In this way, he represents the semen of his father, his reincarnation. Again the goddess Isis and Nephthys protect and close the womb. Figure 36.5 speaks of the churning of the semen. To the far right we see two arms receiving the semen or seed. The large disk is surrounded by two snakes (Renggli 2002:8). The god, Khnum is present, the one who created children on his potters wheel and thus indicative of the merging of the man and woman in creation.

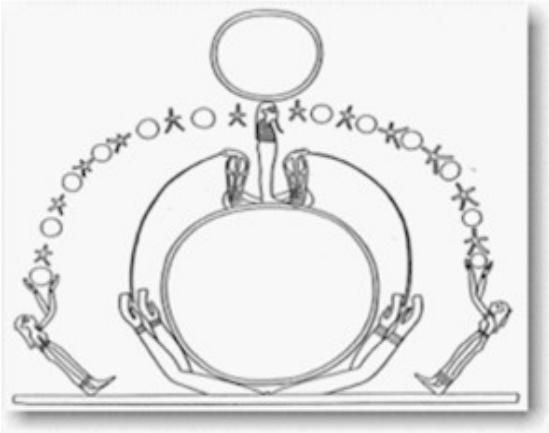


Figure 36.3 The fertilisation (Renggli 2002:8).

Figure 36.4: The drop of semen in the womb (Renggli 2002:9).

Figure 36.5 Churning of the semen (Renggli 2002:10).

In quoting Renggli (2002:9), the ancient Egyptian's concept of man consists of:

"1. The divine essence, the divine being, the soul particle of the sunbeam

2. The soul particle enters the man's heart where it is conducted to his testicles

3. And this divine essence *combines* with the matter of the woman, with her menstrual blood, the female seed, to a germ. This germ therefore is called

4. The god with the two souls, meaning the soul particle of the Sun God Ra which combines with the subordinate soul particle of the father's semen. This essence, the

divine being and matter together make up man. After fertilisation the womb closes. The Uraeus-snakes tie up the germ and defend it by their glow against any intruders."

The ensuring images in the series represent the womb at rest and the womb in motion, represented by the down turned wings of the disk (womb) and the upturned wings (figures 36.7-9).These are said to represent early gestation of the first trimester and then and the next two trimesters when the foetus moves around in the womb. Image number 8, figure 36.6 below, is said to represent the time when the baby turns in the womb during the eighth month of gestation.

Figure 36.6 Head of the baby is turned downward (Renggli 2002:12).

In this image, we find four figures which represent the four enemies of *Ra* seen here as sacrifices for the Sun God, their sacrifice at death being a symbol of birth. In support of Stricker (1963-89 in Renggli 2002:12) Renggli makes reference to the Mayan and Aztec sacrifices that were given as victims to honor their Sun God.

Stricker (1963-89 in Renggli 2002:12) also justifies the use of four on symbolic terms[1].

[1] The figure of four is noted by Renggli (2002) in several places throughout the text:

- Mother Nut had four children in her belly
- The box beneath Osiris contains the four children of Horus representing the four
- Four figures are shown in image 36.6
- In temple drawings, the four enemies of Ra had been seen as sacrifices for the Sun

Independent analyses of the symbolism of four found that the period of inundation when the waters rose from the flood waters allowing the sewing of seed was four months. This may be linked to the harvest or embryo, emerging from the waters of the embryonic fluid. Likewise, the tree of Osiris at Byblos in the myth of Osiris is said to have its magnificent branches each pointing to one of the cardinal points, representing rebirth and balance.

The symbol of the djed pillar, backbone of Osiris, has four vertebrae. Likewise the heavens are said to be supported by four gods,

> "O you four gods who stand at the supports of the sky,
> my father Osiris the King has not died in death,
> for my father Osiris the King possesses a spirit in the Horizon" (Pyramid texts in Brown 2002:1).

We find the four goddesses Isis, Nephthys, Serqet, and Neit protecting the vital organs of the deceased for preservation in the afterlife. The four Sons of Horus also provide the deceased with food and drink that will sustain him in the afterlife as evidenced in utterance 338 of the Pyramid Texts. All symbols are linked to the afterlife and rebirth, and thus birth[2].

Figure 36.7 Birth as a sacrifice (Renggli 2002:13).

- Figure 36.7 shows the four goddesses are seen tying up the arms of the kneeling fetuses.

[2] For further discussion on the role of four, cf. Stricker (1992:45-76).

One of the final scenes of the section depicts, according to Stricker (1963-89 in Renggli 2002:13) the foetus preparing for birth. He argues that birth here is represented as a sacrifice.

The text accompanying this image reads:

> "*Ra*, I'm passing through this mysterious cave, large of fire,
>
> Oh, mysterious one, who thou burns the body in Hades and guards the darkness.
>
> Look at me! I pass through you, you mysterious one!
>
> I am coming through you, great fire" (Renggli 2002:13).

Stricker (1963-89 in Renggli 2002:13) maintains that this phase represents the fire of birth, the foetus preparing to enter the world from 'the mysterious one' known as the womb.

Figure 36.8 The expulsion (Renggli 2002:14).

In the last scene, the expulsion of the foetus takes place, with the head of the foetus being expelled (figure 36.8). In the centre, two goddesses stand in protection over a jar believed to contain the head of the foetus. On the left and right, the foetus pushes up the jar; the cord symbolic of the umbilical cord and placenta that ties it to the mother. "The

embryonic heart is still united with the mother and nutrition takes place as long as the cord functions" (Renggli 2002:14).

Though the above analysis is limited in scope, throughout the mythology and texts of ancient Egypt we find reference to birth and rebirth, signifying the ongoing balance between life and death, life and the afterlife, Osiris as the deceased God, his son Horus as his symbol of life on earth.

7.2. COMPLICATIONS DURING PREGNANCY

Textual evidence on pre-birth complications are scarce within the ancient medical papyri, but the fact that they clearly understood the risks involved is evident in the number of gods and goddesses associated with birth. One of the complications of pregnancy is the risk of early delivery, breach babies, and or miscarriage. To this end, we find a number of amulets of gods and goddesses being called upon to offer protection over mother and child during this time. For Budge (1901:23), the word "amulet" refers to objects and small ornaments carved or created from various substances, and worn to protect a person, living or dead, from attack by malevolent spirits or malicious spells. Such carvings depicted a range of symbols, such as the heart, the *ankh*, the *tyet* etc, as well as gods and goddesses. Ritner (1984:217) claims that the amulets used during birth could have been worn by a pregnant woman to provide protection throughout the entire course of the pregnancy and possibly even post pregnancy for the general protection of her reproductive health.

Of the goddesses that stand in protection over childbirth, Isis features prominently. In the pyramid texts we find Isis imbued with magical powers over the resurrection of her husband's body, as well as in her defense and protection as a mother, over Horus. In the

Book of the Dead in the Chapter of the *Tyet* of Carnelian, it states; "The blood of Isis, the spells of Isis, the magical powers of Isis, shall make this great one strong, and shall be an amulet of protection [against him] that would do to him the things which he abominateth" (Budge 2000:67). In the texts of the funeral chamber we read "Isis saith:− I have come to be a protector unto thee" (Budge 2000:33).

Often coupled with Isis, is her sister Nephthys, who like Isis is frequently mentioned in such manuscripts as the Book of the Dead where she plays the role of nursemaid to Horus.

Tawaret, a goddess in the form of a pregnant hippopotamus with pendulous breasts, the legs and arms of a lion and tail of a crocodile, was called up to protect the women during pregnancy, labour and breastfeeding. The hippopotamus was greatly feared and respected by the ancient Egyptians, and was fiercely protective of her young. Plutarch (in Hart 2005:145) claims that Tawaret was said to have been consort to Seth until he challenged Horus to the throne at which point, she left him in favour of Horus's cause. It may be that for these reasons; the fact that their gestation period is close to humans, 8 months versus humans 9 months, and the fact that the hippopotamus was always present along the banks of the river Nile, which in itself was a symbol of fertility, that her form as Tawaret was used as an amulet of protection. It was believed that her appearance would be apotropaic in dispelling evil spirits.

Figure 37 The frog goddess Heqat taken from the birth colonnade of Hatshepsut at Deir el Bahari (Cooney 1976:208).

With the annual inundation of the Nile featuring prominently in the production of food and survival, it is not surprising that any creatures that found their homes in the marshy waters of the river banks, occupied a place in the Egyptian pantheon of gods. One of these was the frog goddess Heqat (figure 37), often depicted as a frog-headed woman. The concept of numerous frogs emerging from tadpoles in the Nile River, may have contributed to her strong associated with protection during childbirth.

She was closely associated with the god, Khnum and her cult centre is believed to have been at Antinopolis in Middle Egypt.

One of the more complex deities associated with childbirth is Hathor, represented either as a cow goddess or a beautiful woman wearing a sun disc and horns on her head.

In some instances, the goddess takes on both forms and is represented as a woman with cow ears. Among her many roles, she was seen to be a protector of women during childbirth and protector of newborns. In her portrayal of a cow, Hatshepsut at the temple of Deir el Bahari, is shown drinking from the udders of the cow and likewise, is shown standing in a thicket of papyri, suckling King Amenhotep II. Hathor is shown suckling the infant Horus in the marshes of Chemmis, as protection from his evil uncle Seth. It is inscribed, "I have come as your protection. Your mouth is full of my milk, life and stability

is in it." Further reference is made to Hathor as "mistress of Birth" and the "one who saves pregnant women" (Pinch 1982:147) in New Kingdom spells aimed at easing childbirth it is specifically stated that "Hathor, Mistress of Dendera, is the one who is giving birth"' (Pinch 1982:148).

Other goddesses such as Meskhenet and Bes also feature; though appear to be more directly involved in the actual birth than the period of confinement. Renenutet was also identified as the patron goddess of nursing and thus also has a role in childbirth. She is often shown suckling a royal child and deemed ‘nourisher of children' (Pinch 1994:119).

Aside from textual evidence, physical osteological evidence in birthing complications is also limited. To date, the only conclusive evidence we have is that of the 5 Nubian women discussed earlier in this work. Smith and Dawson (1904 in Sullivan 1997:636) put forward a case of illegitimate conception that may have led to the possible murder of a pregnant woman, who appears to have met with a violent death. The cause of her death and reasons for it however, are merely speculative.

Of the medical texts, we find only one reference to pains of the belly and vulva associated with pregnancy, where the prescription calls for 1 *henu* of fresh fat to be rubbed on the pubic area.

Kahun Papyrus contains no mentions of possible problems associated with childbirth.

7.3 PREGNANCY AND CHILDBIRTH

7.3.1 Duration of Pregnancy

The actual duration of pregnancy is not well documented in the medical papyri that fall into our date delimitation; however there are references which give us insight into the fact that they had accurately calculated the months of childbearing. The Papyrus, *Instructions to Ani* written during the New Kingdom, states, "you were born after your months (8)" and in the Doomed Prince that "the hero's mother completed the months of childbearing" (9)" (Sullivan 1997:636).

In the story of Djedi the magician from the Westcar Papyrus dating to about the seventeenth century BC, we find reference to a calculation for the duration of pregnancy. Here we read a conversation between King Khufu and Djedi, an old magician where Djedi prophesies that three sons would be born to Ruddjedet, wife of Re and that the eldest would become high priest of Heliopolis and that he and his brothers would reign over Egypt:

> "(and Djedi said) 'Ruddjedet…is the wife of a priest of Re, lord of Sakhbu, who is pregnant with three children of Re, lord of Sakhbu. He has said about it:' "They will perform this magisterial office in this entire land. The eldest of them will be high priest in Heliopolis." 'And His Majesty fell into a bad mood at this... Then His Majesty said: 'When will Ruddjedet give birth?' (And Djedi said 'She will give birth on the fifteenth day of the first month of the Season of Growing' " (Nederdorf 2009:3840).

Although there is no clear idea on the actual duration of pregnancy in terms of the nine months that we refer to today or approximately 37 – 42 weeks, it does indicate that they were able to predict the time of birth.

Haimov-Kochman, Sciaky-Tamir and Hurwitz (2002:5) state that another text puts the duration of pregnancy at roughly 270 days, i.e. "up to the first day of the tenth month". They further argue that if "two standard deviations of 17 days are taken into account," then the two versions, that of the Horus creation and the latter texts are very close to the normal duration of pregnancy; of 40 weeks, or 280 days.

7.3.2 Medical prescriptions to aid in childbirth

Where some prescriptions were aimed at keeping the womb closed to prevent miscarriage, birth itself is linked to the concept of 'opening'. Throughout the Egyptian texts, we find reference to the word 'opening', particularly as it pertains to the 'opening of the mouth' ritual. In this cultic ceremony re-enacted in Egyptian funeral scenes, the mouth of the deceased is 'opened' to ensure that the deceased can partake of an adult meal in the afterlife. It is said that this ritual, is a re-enactment of the birth process, where the fingers are inserted into the newborns mouth to clear out the meconium (mucus) and amniotic fluid to ensure that the child can breathe, thus ensuring life (Roth 1992:147).

As such, the concept of opening is as closely linked to the afterlife as it is to birth itself. This concept is found in various references as they pertain to the act of giving birth. In Westcar Papyrus from the Old Kingdom, when young women are brought to King Senefru it is stated that they be virgins with shapely bodies, women "who have not been opened in childbirth" (Ritner 1984:214).

Although not falling within our delimitation of study, the Bremner Rhind Papyrus from the Graeco Roman period (approximately 311-312 BC) gives insight to the concept of opening as it pertains to birth. In it we find the Songs of Isis and Nephthys containing the following verses:

1, 20 "0 that thou wouldest come to us in thy former shape, That we might embrace thee, thou forsaking us not. 0 fair of countenance, the well-beloved, Image of Tanen, Male, lord of passion, [The first-born(?)] who opened the womb" (Faulkner 1936:123)

6, 15 "He has made this land as (it was) before; The Lord, the Child who came forth from the womb of her whom the gods made pregnant, Who opened the West (out of) due season, The Child departs untimely" (Faulkner 1936:125)

8, 25 "Unique, mighty of strength, He is indeed a son who opened the womb" (Faulkner 1936:127)

9, 15 "The Ennead is seeking to see thee, O Child, O Lord, who openedst the womb; O Child, love of thee is over thee, O Heir, beneficent in opening (?) it, Beneficent son who went forth from Him-who-sees-and-hears,…Isis has cared for thee; be not far from thy place" (Faulkner 1936:127)

The Ebers Papyrus (800 – 807) provides a group of remedies for products to be placed in the vagina to cause a woman to "give to the earth", or rubbed on the abdomen or sat upon (see table IX) but it is uncertain if these pertain to the process of giving birth or to assist in abortion.

Table IX: Drugs intended to contract the uterus in Ebers Papyrus

"It is a contraction (*saq*) of the uterus"	
Placed in the vagina	Ground seed corn of emmer (Ebers 820)
	Cyperus grass of ground oil/fat (Ebers 820)
	Hemp ground in honey (Ebers 821)
	Senetjer (incense) – resin (822)
	Celery ground in cow's milk (Ebers 822)
	Kheper-wer-plant (823)
	Honey (823)
	Water of carob (823)
"To cause a woman to give to earth"	
To be sat upon	*Niaia*- plant (797)
"To cause all that is in a woman's belly to come down"	
Taken orally	Date juice (Ebers 799)
To be placed in the vagina	Lower Egyptian salt (Ebers799)
	Oil/fat (Ebers 799)
	Sherds of new *henu*-jar ground in oil/fat (Ebers798)
To release (sefekh) a child from the belly of a woman (or from his mother)	
Taken orally	Fresh salt of lower Egypt (Ebers 801)
	Honey (Ebers 801)
	Wine (Ebers 799)
To be placed in the vagina	*Besbes*-plant (Ebers 802)
	Senetjer –resin (Ebers 802)
	Onion (Ebers 802)
	Fresh salt of lower Egypt (Ebers 802)
	Fly's excrement (Ebers 802)
	Juniper berries (Ebers 805)
	Resin of fir tree (Ebers 806)
Applied to the abdomen or bandaged therewith abdomen	Salt of Lower Egypt (Ebers 800)
	White emmer (Ebers 800)
	Sut-hemet plant (Ebers 800)
	Pine oil (Ebers 807)
	Oil/fat (Ebers 807)
	Heken-beetle (Ebers 807)

(Adapted from Nunn 1996:195).

Papyrus Ramesseum IV provides incantations to help to "release a child from the belly of a woman" (Nunn 1996:194).

Of the above remedies, little is known of the pharmacological actions, except dates. Dates have been used by Arabic women for centuries to ease the pain of childbirth, to stimulate contraction of the uterus and to help prevent post birth bleeding. Dates are known to contain a substance similar to oxytocin, a naturally occurring secretion of the pituitary gland which encourages uterine contraction.

Another complication of childbirth is post partum haemorrhage, defined by the World Health Organisation as blood loss of 500 ml or more in the first 24 hours postpartum (i.e post delivery of the child (Khadem *et al* 2007:65). It is found in around 14 million cases annually. Of these 14 million, it is estimated that about 140 thousand women die each year because of it. As a modern therapy, doctors make use of oxytoxin not only to shorten the third stage of delivery but to also reduce blood loss. In a study comparing the use of dates versus oxytoxcin, they found that the oral consumption of dates post partum versus injection with oxytocin, resulted in a lower rate of blood loss during the first three hours post delivery (Khadem *et al* 2007:70).

7.3.3 Place for Childbirth

The place for giving birth is less well documented and gleaned mainly from archaeological evidence. In 1921 and 1922, extensive excavations were carried out in the workmen's village of El'Armana by the Egypt Exploration. In total about half of the houses there were cleared, revealing painted decorations on the inner walls, with scenes of women and dancing. Amongst them were scenes of what appears to be a woman nursing a new born child surrounded by female attendants. Brunner-Traut (1955 in

Kemp 1979:51) says that they represent the commemoration of childbirth and the post-parturition period. It was believed that this occurred in a special room, constructed either within the house or on the roof known as a birth arbour.

Meskell (2000:426), based on her research of the village of Deir el Medina argues that the notion of the room being completely private is open to debate, given the number of people that would have shared the home, and the proximity of the houses to one another. However, Meskell (1998:223) does find evidence for the possibility that the birth process took place in the first room off the street, often termed the "room of the enclosed bed "(the so-called *'lit clos'*– figure 35), given the pervasive imagery of Bes and other deities associated with childbirth such as Tawaret. In House SE5, C5 and SW6, numerous Bes decorations dominate the rooms. In about 53% of the houses in the area, a bed -like structure was found in the first room of the house. They measured on average 1.7 m in length, 80 cm in width and 75 cm in height. In some of the houses the *lit-clos* was plastered and hand painted with moulded imagery of Bes, yet in others very little decoration is evident. The exact purpose of the room is open to speculation. It may have been used during a period of post partition, or for breastfeeding. Given that we know that a birthing stool and bricks were used for delivering a child, it is unlikely that the *lit clos* was the room in which the birth took place.

Many of the *lit clos* (figure 38) of the area are decorated in red on whitewashed walls. Pinch (1994:81) indicates that "red was a very powerful colour, linked with the solar eye goddesses." Meskell (1998:229) argues that the use of the red is apotropaic and powerful and may have been intended to protect men from the unknown dangers of women, given that as the first room off the street, men had to cross through it to get to the other rooms of the house.

Given that there are no texts of dedication of female names on any of the structures, Meskell acknowledges that their purpose is open to interpretation.

Figure 38: An example of a *lit clos* from Deir el Medina (Meskell 1998:22).

It appears likely that the women also made use of this *lit clos* for the post parturition period which was marked by a time of isolation for purification. Again, whether the women were deemed unclean and impure during this period, as with the case of the menstruation hut is unclear, but we do know that the isolation lasted for a period of time. Exactly how long is hard to ascertain, but in the tale of Ruddjedet, the period is 14 days.

In the Late Period of Egyptian history, these birthing rooms or arbours manifested in the building of small temples called *mammisi*[3], often placed at right angles to the main temple. We find them at Dendera, Edfu, Kom Ombo and Philae and also find reference to one from Esna although it has never been located (Kockelmann 2011:1). These

[3] The term "mammisi" is a modern term derived from the Coptic term, ma "place," N "of," and mise/misi "to bear," maNmisi =maM_misi meaning "place of giving birth". The term was coined by Champollion. The ancient Egyptian designation was *pr-mst*, "house of birth" (Kockelmann 2011:1).

mammisi, however, contrary to the *lit clos* of birthing arbour of El-'Amarna, were dedicated to various child gods, and were not used functionally for actual childbirth. It is likely that pregnant women could go to the *mammisi* during and after her pregnancy to give offerings (Chamberlain 2004:285).

7.3.4 Childbirth

The hieroglyph for birth (figure 39) was depicted by a squatting woman with the newborn emerging and is seen in many inscriptions on temple walls and painted ostraca in varying forms.

Figure 39: Hieroglyph for birth (Taken from Haimov-Kochman, Sciaky-Tamir & Hurwitz 2005:5).

Figure 40: Birthing scene Temple of Kom Ombo (Chamberlain 2004:286).

7.3.4.1 Birthing Bricks

Evidence on the use of birthing bricks is found in many reliefs and references, such as the Stella of Torino (102), which states, "He left me like a woman on the bricks" (Ghalioungui 1973:115). Also in Exodus 1, 16 we read "When ye do the office a midwife to the Hebrew women and see them upon the stones…"(Ghalioungui 1973:115).

Figure 41: Wall carvings from the Deir el Medina, show a birthing room with the pregnant woman delivering her newborn, while squatting on bricks, allowing gravity to assist in the delivery of the baby (Haimov-Kochman, Sciaky-Tamir & Hurwitz 2005).

Winkler (1936 in Roth and Roehrig 2002:11) described the process as follows, "a good sized hole is dug. Right and left of this hole are set two up-ended basins (*magur*) or earthen cooking pots (*gdlib*) or bricks, either singly or in stacks of two. The mother puts each foot on the pot or brick and crouches. As a result of this elevation, the midwife can perform her work more comfortably. The hole over which the woman crouches catches the amniotic fluid and the afterbirth. The mother is supported by several women."

Figure 42. Wall relief of childbirth in Treasure hall, temple of Edfu, Egypt (opensource online).

Haimov-Kochman, Sciaky-Tamir and Hurwitz (2005:6) argue that the use of the squatting position is considered to be the most natural form of delivery. Studies have shown that it contributes to more efficient contractions, reduces the duration and pain association with the second stage of labour and also reduces abnormal foetal heart rate patterns.

These birthing bricks were personified by the goddess Meskhenet, (variants include Mesenet, Meskhent and Meshkent) represented as a brick with the head of a woman (figure 43-44). Other depictions show her as a woman's head with the symbol of a cow’s uterus on her head.

Figure 43. Depictions of the goddess Meskenet as a personified brick in Book of the Dead Chapter 125, from a late Book of the Dead in the Egyptian Museum, Turin (Roth & Roehrig 2002:130).

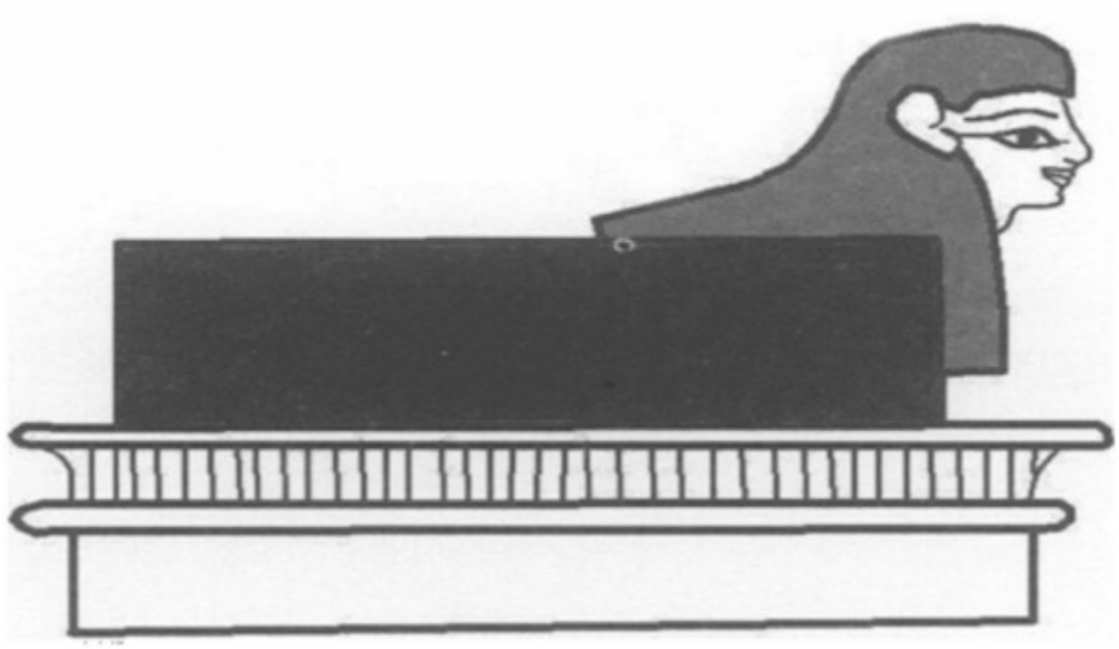


Figure 44. Meskenet from the Papyrus of Ani in The British Museum (Roth & Roehrig 2002:122).

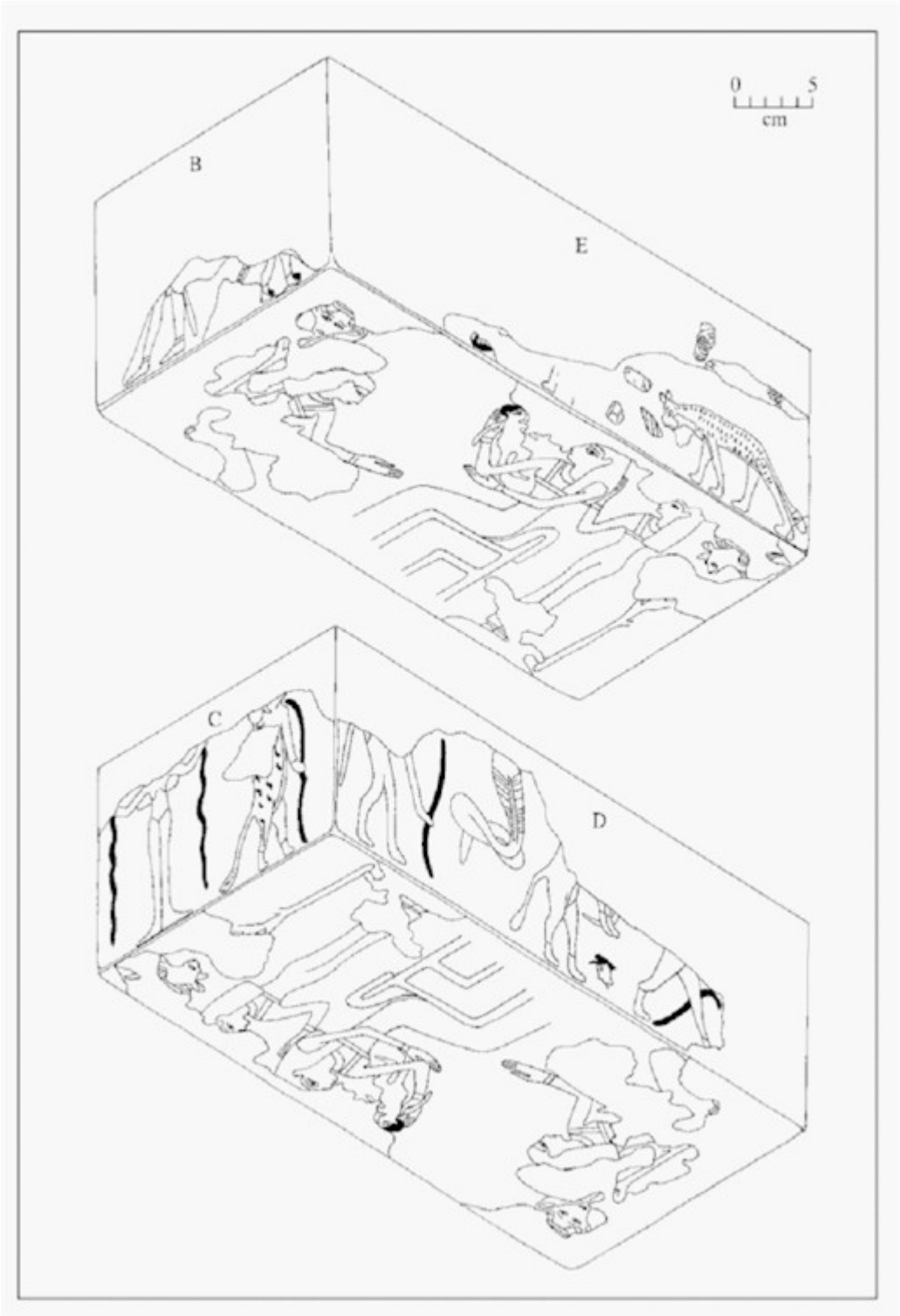


Figure 45. Decorative scheme of the birth brick from South Abydos, Building A. (Wegner 2010:128).

In a later period, Meskhenet became symbolised according to the female portion of the Heliopolitan Ennead, with Meskhenet- the-Great (*Mshnt-wrt*) being identified with Tefnut, Meskhenet-the-Grand (*Mshnt-',t*) with the sky goddess, Nut, Meskhenet-the-Beautiful (*Mshnt-nfrt*) with the mother goddess Isis, and Meskhenet-the-Excellent (*Mshnt-mnht*) with the sister of Isis, Nephthys. Her association with these four goddesses also brings forth the concept of creation, as well as protection (Roth & Roehrig 2002:131).

In the summer of 2001, University of Pennsylvania Museum archaeologists unearthed a colorfully decorated unfired mud brick, from a Middle Kingdom dwelling just outside of Abydos. Dating to about 1700 BC, this brick is believed to have been one of a pair of birthing bricks, also known as Meskhenet bricks. Measuring 14 by 7 inches, it contains scenes of a mother holding her newborn baby, along with various images of protective gods. The upper surface of the birth brick, unlike the bottom and sides, is broken and crumbled away. The brick is believed to have been that of the Princess Renseneb, given the numerous clay seal impressions bearing her name that were located in the area (Innovations Report 2002) (figures 45 – 47).

On one of the decorations on the bricks we see a mother seated holding her newborn child. Either side of her stand two other female figures and she is framed by standards with the head of Hathor, goddess of fertility and childbirth on them. The four sides of the brick contain images of animals depicted in anthropomorphic and zoomorphic terms, to include a lion which has decapitated a human, a serval cat and a goddess holding two snakes.

Of particular interest is the mode in which the art work is rendered on the brick in that it does not follow the conventions of stylisation that we see on most paintings. Instead we

find the mother, holding her child and instead of the usual black hair, she is painted with sky blue hair. In addition, the mother is not seated on a normal chair but a solid throne. Wegner (2010:129) says that "this scene is not simply a depiction of the happy results of delivery, but rather a two - dimensional 'visual spell' which invokes the presence of Hathor during childbirth and even magically transforms the human mother into the divine being."

Figure 46: Colour reconstruction of the mother and child scene on the birth brick (Wegner 2006:35).

Figure 47: Image of the birth brick.

If indeed this was the norm for birthing bricks, or related specifically to women of a higher social order is hard to determine and only the discovery of more of these bricks will shed light on the matter. However, if this was the norm it does shed some possible light on the concept of divinity at birth. If indeed, women were seen to be elevated to a realm of a divine being during birth, this may explain their isolation from men during this period, showing less of a need to separate them because of impurity, but more of a need to separate them as a means to keep the women pure and untainted during the process.

It is believed that over time, the birth bricks slowly developed into the low standing birthing stool, with the earliest representation being within the *mammisi* at Luxor, where Ammenophis III was born (Adamson 1985:176).

The concept of the birthing brick was not only linked to physical birth but also to resurrection and rebirth in the afterlife. For this reason, many royal burial chambers and tombs from the New Kingdom have been found to contain four birthing bricks, often inscribed with spells from Chapter 151 of the Book of the Dead. Royal tombs to date which have been found to contain birthing bricks include Tutankhamen, Amenhotep II, Thutmose IV, Amenhotep III, Horemheb, Rameses I, II, III and Merentah. Detailed instructions are inscribed on the treatment of the bricks, how they are to be baked, placed, decorated and inscribed. Each of these bricks was associated with a different figure; a mummiform image, a recumbent figure of Anubis, the jackal headed god on a shrine, a flame, represented by a reed and a djed-pillar. Each brick to be placed to represent the four cardinal points; north the mummiform figure; east, Anubis; south the flame and west, the djed pillar (figure 49) (Roth & Roehrig 2002:122).

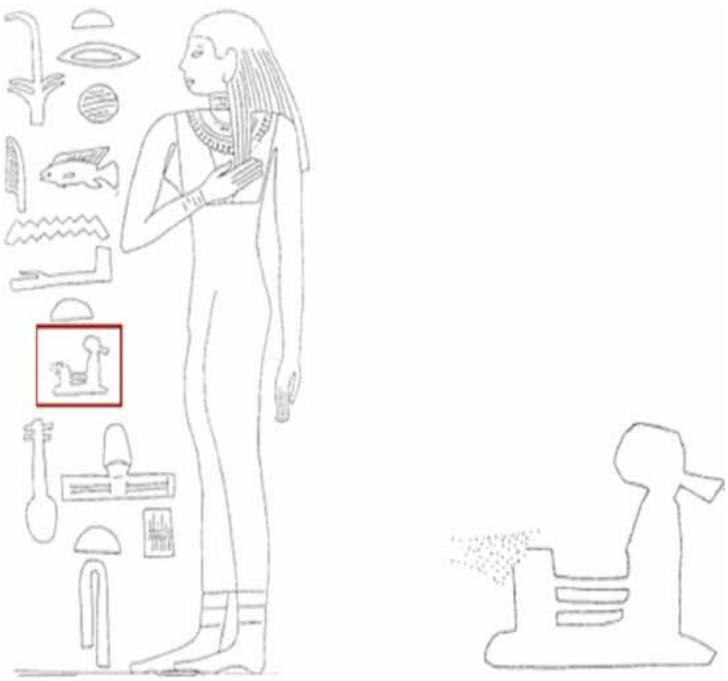


Figure 48: Image from a mastaba at Giza, preceding the name of a woman (Fischer 2000:28).

The use of four bricks is believed to be significant, given that the number 4 had a symbolic connotation. The earliest reference to the use of the four bricks comes from Sixth Dynasty tomb-chapel of Watetkhethor in Saqqara. In one birth brick from the Old Kingdom, we find an unusual glyph which Fischer (2000:27) claims is possibly the symbol for midwife. It is the determinative following the feminine title *In't* and depicts a woman holding an object on her lap and wearing a headscarf (figure 48). Another woman is seen representing what may be the overseer of the *in't, named rht-nswt.* This "designates an occupation of some importance, involving a number of women, and the only important feminine activity of which we have no evidence is midwifery" Fischer (2000:27). Sethe (1916 in Raven 2005:38) claims that in ancient Egypt, certain numerals had important meanings where one was the symbol of unity and universal power and two the complementary of creation.

Wilkinson (1994 in Raven 2005:38) believes that 'four' was believed to represent totality and completeness. The use of four is found in different ceremonies, to include the Opening of the Mouth with the fourfold purifications, the releasing of four birds during coronation ceremonies, the four canoptic jars etc.

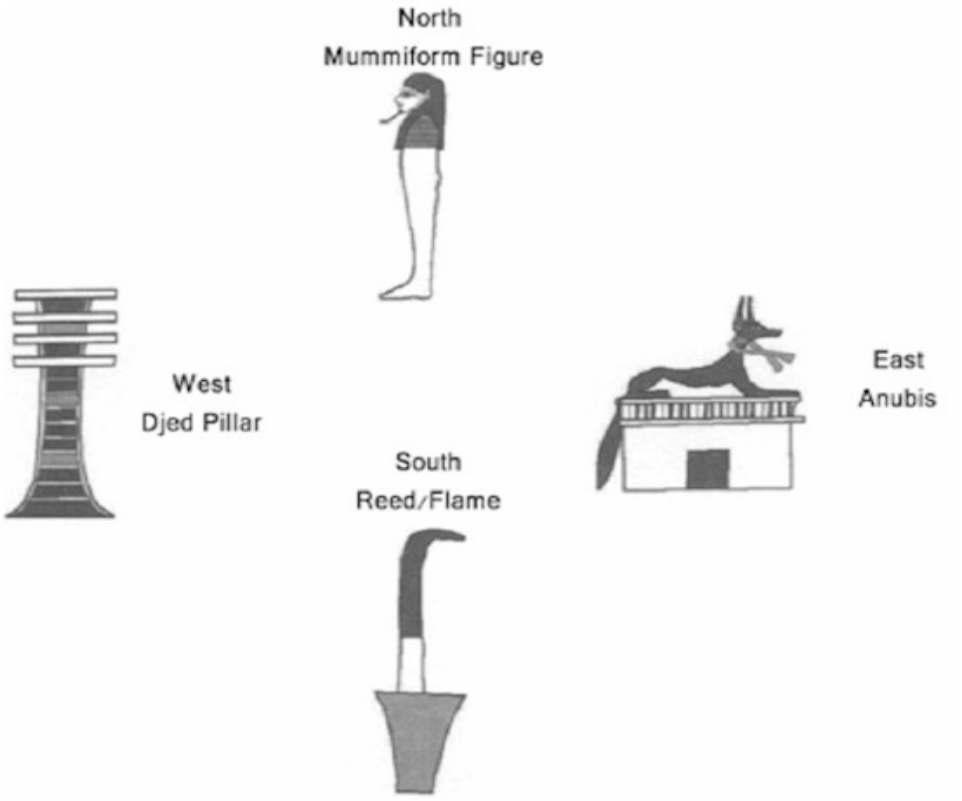


Figure 49. Cardinal point placement of the birth bricks (Roth & Roehrig 2002:122).

The application of a symbolic number and the orientation of the birth bricks to represent the cardinal points is reflected in the orientation of the *mammisi*. The *mammisi* of Philae and Kom Ombo were built on a north-south axis; thus the pregnant goddess thought to be present in its sanctuary faced south. The same is found in the Hathor temple, Edfu and Dendera. In all cases, we find the *mammisi* oriented in a southerly direction. According to Raven (2005:52) "whether physical or symbolic…(this)…fits with our supposition that a woman in childbirth had to conform to the main directions of the cosmos."

Notwithstanding the irregular placement of the bricks, the fact that they were placed in the tombs may be a metaphor for rebirth into the afterlife. Of further interest is that

during the Opening of the Mouth ceremony, the mummy had to be oriented in a specific way with the head facing towards the south, so that left is east and right is west. The importance of this is frequently reflected in tombs, where the depictions of the Opening of the Mouth scenes are painted and inscribed on the north walls, so that any mummy or statue placed in front, or depicted on the wall, would face south.

7.3.4.2 Role of the Gods and Goddesses in Childbirth

Amongst the amulets of protection in birth and the discovery of birthing bricks in tombs, archeologists have unearthed numerous magical wands or "knives" from Middle Kingdom tombs. While they are more prevalent in the Middle Kingdom it is believed that they date back to earlier forms from the Old Kingdom with serrated teeth like edges, where one end was inserted into a wooden handle (figure 50-51).

Their relevance to the birthing process comes to the fore when one analyses the iconography on these magical wands, with other amulets and the iconography on the birthing bricks themselves. Predominantly carved from hippopotamus ivory and following the shape of the tooth, they, like the bricks, were decorated with anthropomorphic and zoomorphic figures and appear to have been used in apoptropaic rituals, particularly during childbirth (Alten Muller 1965 in Wegner 2010:125).

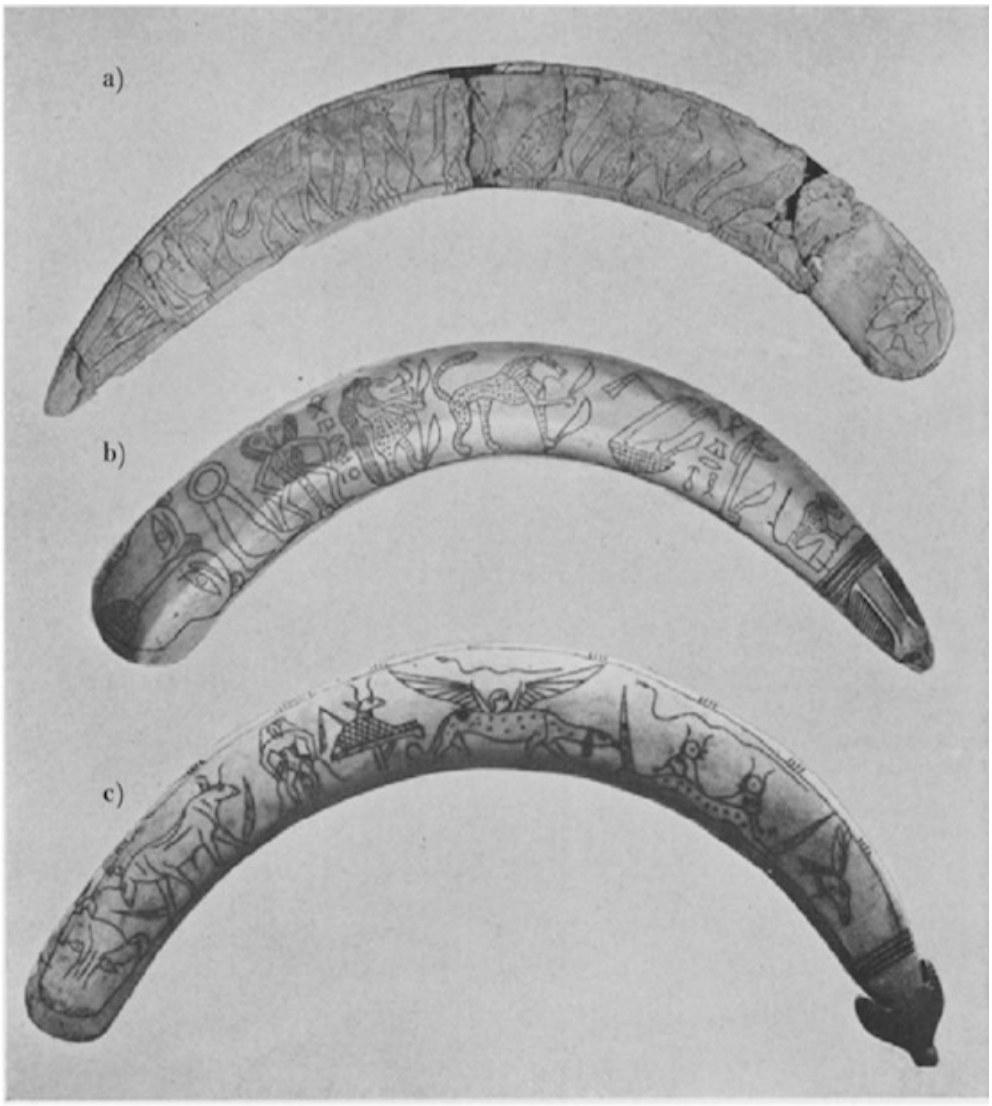


Figure 50: Magical Wands or Knives

- Figure 50a. Boston Museum of Fine Arts New York
- Figure 50b. Museum of Art at Cairo
- Figure 50c. Egyptian Museum

Hartsay (2002:20) says that some wands were inscribed with such phrases as "'we have come to give protection to this child". In other cases the one end of the wand is cuffed as though it has been used to make markings in the sand (Hartsay 2002:20). Some of the inscriptions read, "The numerous protective creatures say: 'we come in order to protect

the life and health of this or that person. " Or, two winged, baboon-headed demons carrying an *udjat* eye may say: "I, the carrier of the sacred eye, have come in order to protect . . ." It would appear that they are intended to provide protection. On the obverse of a wand from the New York Metropolitan Museum of Art, figure 51, is inscribed the words "we have come in order to protect the lady, Merisenb" (Steindorff 1946:46).

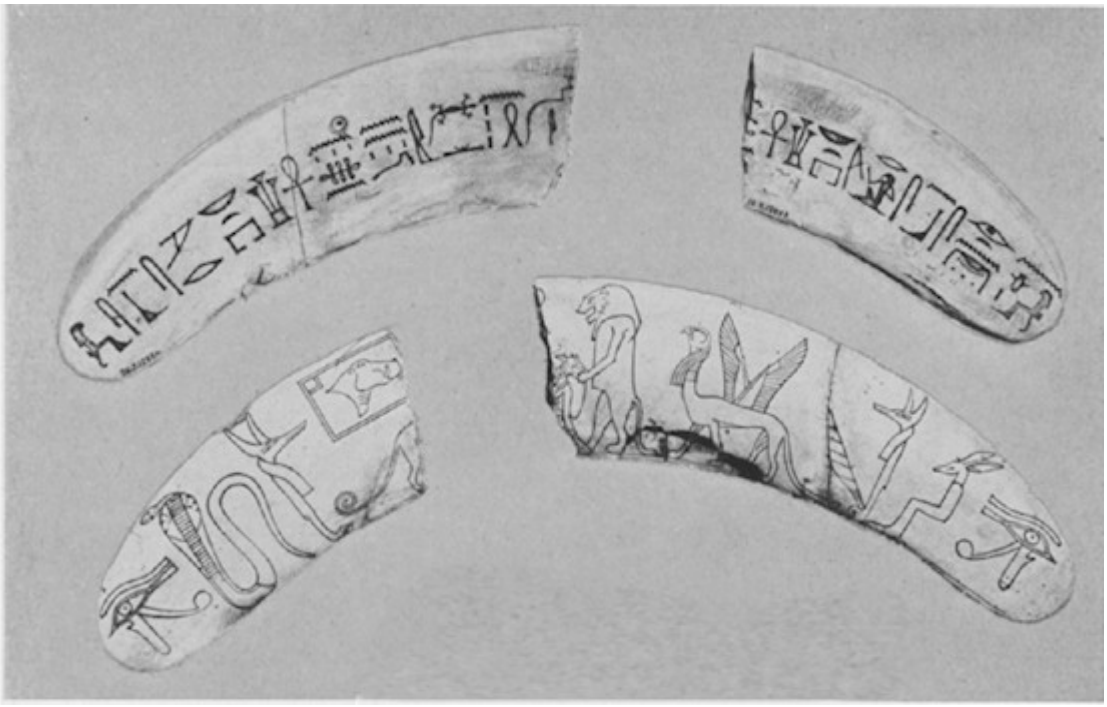


Figure 51: New York Metropolitan Museum of Art, wand to protect the lady, Merisenb (Steindorff 1946:47).

One of the prominent images to appear on the knives is the hippopotamus, representative of the goddess Tawaret who was entrusted with the protection of the home and childbirth. She is mostly depicted standing on her hind legs with the head of a hippopotamus, human breasts, a crocodile tail and the legs of a lion, with a full pregnant belly.

Another figure to frequently appear is the apoptopaic image of Bes, a bandy legged demon always depicted full frontal. Cartwright (1929:193) says that the iconography of Bes does not seem to appear earlier than those found on the magic wands of the Middle Kingdom. Bes served as a protector of women and children and is often depicted 'brandishing' knives in order to ward off evil. He also appears to have played a role in general fertility given his appearance on tattoos of dancing girls (Hartsay 2002:18). Other goddesses which appear on the wands include Heqat, the goddess which assisted in childbirth, the baboon, sacred animal of the mood-god Thoth, Sobek, the crocodile goddess and the lioness who sits on her hind legs and was believed to play a similar role in protection of the home and children.

Steindorff (1946:51) asks the questions: a) who were the wands meant to protect and b) given the number of wands found in burial sites throughout Ancient Egypt, were the knives intended for the living or the dead? Given the inscriptions on some of the wands it would appear that they were used to protect women and children of the house. As to their purpose for protection, Steindorff agrees with Legge (1905) and Petrie (1927) (in Steindorff 1946:51,106) that they were used to protect the living, but in what way they were used is hard to determine. It is probable that the knives were kept next to the bed as protection against evil and likewise, placed in tombs to protect the bearer in the afterlife from snakes and other malign forces.

One of the best indications of the birthing process and orientation of the body according to the cardinal points comes from the Westcar Papyrus, dating from the 18th to 16th Centuries BC during the Hyksos period, which tells of the magical birth of King Cheops and the Kings that succeed him. In this story, it is told that the goddess Heqat (the frog) appeared with the goddess Isis, Nepthys and Meskhenet as the midwives to deliver the

three kings. As each of the Kings (who are triplets) are delivered, Isis stands behind the mother Ruddjedet's head, Nepthys stands at the mothers' feet and Hegat helps with the delivery. One wonders if the placement of women during child birth was also in a southerly direction, given that Westcar specifically states the position of two of the goddesses.

After each child is delivered, he is washed, his umbilical cord cut and he is then placed on a square cushion. The goddess Meskhenet foretells of this future as an excellent king and ruler and Khnum, acts upon the body to make the arms and legs move (Roth & Roehrig 2002:131).

The connection to and role of Khnum in childbirth is regularly attested to in Egyptian inscriptions and texts. Morschauser (2003:732) notes that Khnum and his 'potters' wheel' is linked in mythological texts to pregnancy, birth and the creation of the child. "Khnum would mould and shape each human being at conception "upon his wheel," with the potential child being granted the physical and psychological traits that would define it as an individual… During this time of fashioning, the developing infant was said to be "upon the potters' wheel" (*hr ni.ip*)".

A well known depiction of the role of Khnum is in the birthing colonnade of the temple of Queen Hatshepsut at Deir–el-Bahari. According to the myth, the god Amun-Ra comes to Hatshepsuts' mother in her sleep, places an *ankh* (the symbol of life) against her nose and she conceives. Amen-ra then calls upon the creator god Khnum, to fashion a daughter for him and the body of her ka. The Egyptian concept of "*ka*" is said to be the life force and image of the person, created by Khnum on the potters wheel, which "come into existence with the creation of the human and continues after death" (Fontaine

1981:157). Khnum and the goddess of life, Heqat, then lead Ahmose to a bed where she delivers her daughter, Hatshepsut.

Hornblower (1932:271) provides an interesting analysis of the god Khnum, tracing his role back to his origins. In the early Pyramid Texts Khnum plays an incidental role, where he is mentioned as 'fashioning' the king (kd; pars. 524 and 1769). In Westcar Papyrus Khnum's role is to the give the limbs of the child strength and in the ' Tale of the Two Brothers,' Khnum ‘fashions" a wife for Bata. In the book of the Dead chapter XXX, B, the heart scarab laid on the mummies chest states that it is the dead mans Khnum, who will give strength to his limbs in the next life.

Likewise in the Papyrus of Ani chapter 30 we read, "You (the heart) are *Ka* in my body, Khnum who unites my organs (limbs)" (Lekov 2004:40).

Hornblower (1932:271) argues that in later years when the potters’ wheel was developed, it was natural that Khnum be associated with it. These scenes are well developed on the temple walls of Deir el Medina and also in Luxor where Khnum is seen creating child figures on his potters’ wheel. He argues that the role of Khnum developed over time from being the god that gave strength to the limb of the newborn, to the god that created and fashioned the child on his wheel.

7.3.4.3 The Rituals of and Instruments of Childbirth

Based on the information gleaned to date, it would appear that women were isolated from the men folk during childbirth and that female midwives were in attendance. We know of the use of birthing bricks and the importance of the bricks. The role of the Gods

and Goddesses in the protection of the mother and child during this dangerous process was paramount. We know that once the child is born, he/she is washed, umbilical cord cut and the child is then placed on a square cushion. What we do not know, is if any instruments were used to aid in the birth such as modern day forceps, or if there were any other rituals associated with the process of birth.

What we do have, are ancient texts of rebirth into the afterlife, from which we may speculate, a possible ritual associated with birth itself. If we turn to the top register of the Pyramid Texts in the north wall of the burial chamber of Ani, these spells, "…can be seen to be a coherent sequence, reflecting a progression from birth through the childhood development of a human being" (Roth 1992:118). Roth engages in a detailed discussion of the pyramid texts and the opening of the mouth ceremony, well worth a read, but for our purposes, a short summary will be given.

First, Osiris is called upon to seize all of the enemies of Unas and separate them from Unas but not to loosen his hold on them. They then instruct Unas to go with this *ka*. After this, a libation is offered followed by a offering of cold water and two pellets of natron and Unas is urged to "go forth". Five pellets of natron from the south and then North are offered and in both the former and the latter, Unas is asked to open his mouth. Then a *pss-kf* knife was presented to make firm Unas' lower jaw. The gods then clean his limbs. More spells follow offering incense which is associated with the gods of the four cardinal points, water is given and the formal opening of the mouth with the *ntrtj-blades* takes place. In two places, the texts refer to the efflux that has come from Unas.

If we had to place this in the context of actual childbirth, it appears that several incantations may have taken place, calling upon the gods to seize any enemies of the

unborn child and not to loosen their hold on them so as to protect the child, while it 'loosens' itself from the womb of the mother. The discussion of efflux may refer to the natural effluent from the mother which is a natural process during childbirth. The offering of salt, often associated with purification may have been given and incense burned. The role of the cardinal points of the universe again plays a role, as is the placement of the birthing bricks. The child is washed and again, efflux is mentioned, which may pertain to the releasing of the placenta.

The *pss-kf* knife and the *ntrtj-blades* deserve mention on their own. The blades are mentioned in various places in the Old Kingdom, namely the Pyramid Texts, in the inventory texts of the mortuary temple of Neferirkare at Abu Sir and in offerings lists of the later period of the Old Kingdom. Archaeological evidence of these blades have also been found forming part of a set of instruments for the opening of the mouth, also know as *pss-kf* sets (Roth 1993:57).

The *pss-kf*- knife, a flake of flint usually between 10 and 20 cm in length, that broadens to a fork at one end with a cutting edge (figure 52a) (Roth 1992:113). The *ntrtj-blades* are normally flat black stones, roughly rectangular with the other corner rounded. They always appear in pairs as a mirror image of the other. They are however, not present in all *pss-kf* sets (Roth 1993:59-60).

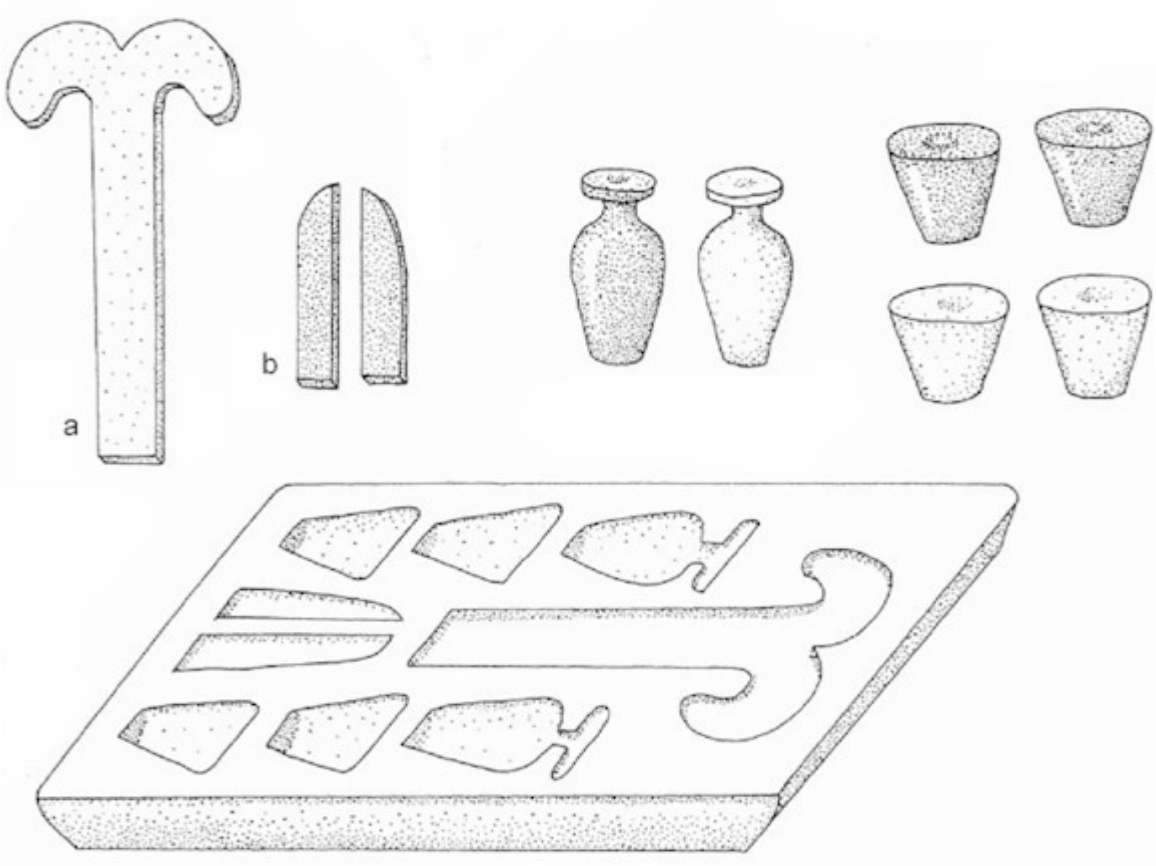


Figure 52: Model of a *pss-kf* set used in the opening of the mouth ceremony from Abu Sir Papyri and the Pyramid Texts (Adapted from Roth 1992:112).

A number of theories have been put forward as to the role and purpose of these instruments. Returning to the opening of the mouth ceremony for Unas above, we read that "incense was burnt and all his limbs were cleaned (Pyr. 28). Then a *pss-kf* knife was presented and said to make firm Unas' lower jaw (Pyr. 30a)" (Roth 1993:62). The mouth of Unas is then opened with the *ntrtj-blades.*

Roth (1992:146) argues that there is not only a strong correlation to the mythological opening of the mouth ceremony and actual childbirth, but that it is also likely that the instruments used, replicate those in childbirth. Her claim is that the *pss-kf* was actually

used to hold the placenta in place while at the same time cutting and tying it off[4]. She raises the point that one could argue the *pss-kf* was used to make firm the lower jaw of Unas and that this would not equate to cutting the umbilical cord. However, she raises an interesting point; that whilst in the womb the child is reliant upon receiving nourishment through the placenta. Once born the child needs to suckle and feed itself and cutting the umbilical cord severs the life line from mother to child and sets it free to feed naturally, hence, making firm the jaw.

"A tenth century Andalusian physician, rArib ibn Sacid al-Katib al-Qurtubi, in a treatise on childbirth, made special mention of the fact that in Egypt it was traditional to cut the umbilical cord with a reed split into two pieces. Whether this was a misunderstanding of some ritual connected with birth, or whether Egyptian midwives retained the ancient custom of 'dividing with a divided thing', this reference is quite possibly an echo of the original use of the *pss-kf*" (Roth 1992:127).

7.3.5 The role of the placenta

Information pertaining to the instruments used in childbirth and the process is sparse, but we do know that the Ancient Egyptians were well aware of the value and importance of the placenta. In the Papyrus of Ani, we read:

[4] According to Roth (1992:126) it is difficult to determine if the ancient Egyptians were aware of the role of the placenta. The term *mwt-rmtw*, 'mother of people', is sometimes translated as 'placenta' but may also refer to 'uterus'. The argument is based on its association with the plural form *mt* as opposed to singular, in which role the placenta would fit.

"What is this,

It is the cutting of the navel string of the body of the Osiris the scribe Ani, whose word is true before all the gods, and all his faults are driven out.

What is this?

It is the purification [of Osiris] on the day of his birth" (Budge 2007:13a).

Ober (1979:594) says that the ancient Egyptians believed that the placenta was made up of retained blood not shed during pregnancy, and therefore that it was the child's "secret helper", a sort of 'quasi-twin' As such, great care was taken in early Egypt of the placenta, given its valuable role in sustaining his life before birth (Davidson 1985:80). Murray (1933 in Davidson 1985:80) argues that the pharaoh's placenta was wrapped in a special bundle called the "bundle of life" and was used to represent the pharaoh during special occasions (figure 53).

Figure 53: The Bundle of Life as represented by Murray (1993 in Davidson 1985:81).

Later, instead of using the pharaoh's actual placenta, it was gradually replaced by an object used to represent it, seen in its earliest form at Hierankopolis on the underground relief panels of the stepped pyramid of King Djoser in the passageways of the north and south tombs. The uppermost portion of the reverse side of the Narmer Pallette found at the end of the 19th century at Hierankopolis, depicts the King in a royal procession preceded by several standard bearers, with the standard closest to him, carrying a bulbous shaped object with an adjoining streamer or tail (figure 54). The latter researchers argue that this represents his placenta with adjoining umbilical cord stump, given that the shape is that of a bilobate disc with a sort of tail hanging down. The complete set of standards is known as the *Wepwawet* standard. Seligmann and Murray (1911:168-169) drawing on parallels to the Hamitic Baganda people of Uganda, argue that this object was representative of the placenta. In addition, Long (1963:240) argues that the hieroglyphic depiction of the placenta  resembles a transverse section of the human placenta showing the villous spaces.

Further research, shows that there was a possible connection between the placenta, and the concept of the K_3 (*Ka*) referred to earlier. For the ancient Egyptians, the *Ka*; the life force of the individual was seen to be a sort of living twin, existing as a parallel spiritual source or sustenance, a vital force which was fashioned in the womb and retained through life. At death the *Ka* would continue to exist until the body of the deceased joined it in the afterlife. The hieroglyph for the K_3, is represented by two outstretched arms held in protection. The connection between the placenta and the K_3 rests solely on the interpretation of what constitutes the K_3 (Blackman (1916:199-206) and Gordon and Gordon (1996:31).

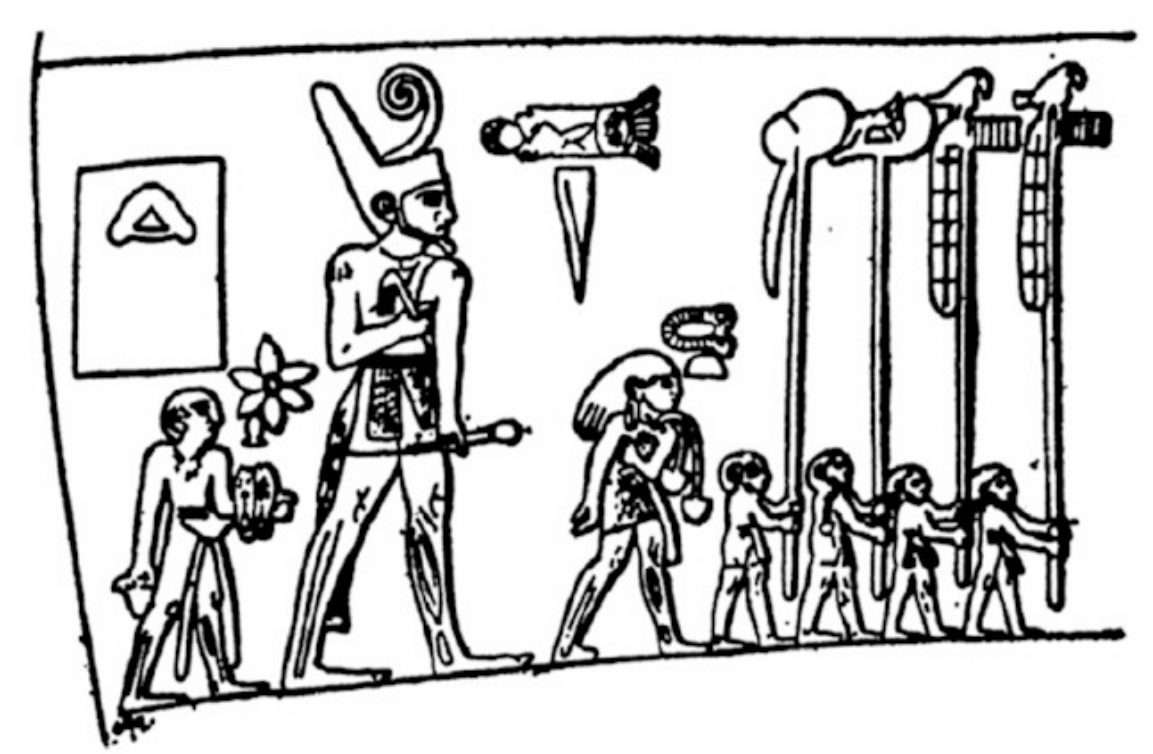


Figure 54. From the palette of King Narmer (c. 3500-3100 BC) showing the king in ceremonial procession preceded by standards. The standard nearest the king is said to represent his placenta and umbilical cord (Ober 1979:594).

Roth (1992:126) following Blackman's study of the Baganda people who viewed the placenta as a still-borne twin, argue that the K_3 may be regarded as "any thing or being or conception that supports and … sustains a persons' life[5]."

7.4 COMPLICATIONS OF CHILDBIRTH

The medical papyrus, though primarily that of the Ebers Papyrus, provides evidence of and remedies for several post birth complications.

[5] Blackman provides an in-depth account of the hieroglyphs that could be interpreted to read, placenta cf. Blackman (1916:235-249).

7.4.1 Perineal Tears

Despite the benefits discussed above of giving birth in a squatting position, it also had its draw backs, one of them being an increase in second degree perineal tears. In a study by Turner *et al* (1986:232-234) on the difference between giving birth in a supine versus squatting position, results showed an increased incidence in perineal tears and post partum hemorrhage, resulting in an increased mean blood loss. However, according to extensive research by Gupta, Hofmeyr and Smyth (2002:7), "the reduction in the duration of second stage of labour and rates of assisted delivery and episiotomy lend support to the concept that second stage bearing down is more efficient in upright positions." Their argument is that the way blood loss is measured is an important factor in determining if there is greater blood loss in squatting versus supine positions.

Ebers provides for treatment of perineal lacerations in the form of the application of topical oils to be applied to the vulva and vagina to reduce pain and swelling. There is also some possible evidence to suggest that the ancient Egyptians were also resolving the problem of tearing with sutures. A passage in Papyrus Kahun (3, 19) discusses "bringing together (*ndry*) (figure 55) of the vagina" (Sullivan 1997:638). Sullivan argues that the concept of *ndry* is evident in other medical papyri such as Ebers and Edwin Smith, where it pertains to the stitching of wounds. Lorenz (1928:310) argues that this term applies to stitching combined with the application of adhesive plaster. In Edwin Smith we read, "thou shouldst draw together for him the gash with stitching". He claims that the word used to indicate stitching or to stitch is that of *ydr*, whereas the term of combined adhesive plaster and stitching, is "*ndry*," meaning "to draw together."

The application of the term suturing to obstetrics is still speculative at this point.

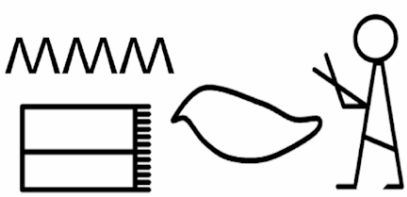


Figure 55. Hieroglyph for stitching *Ndry* – to draw together.

7.4.2 Prolapse of the Uterus

Ebers Papyrus discussed post partum uterine prolapse in which part of or all of the cervix extends into or out of the vagina, and prescribes such remedies as unguents to be rubbed on the limbs, umbilicus, or to be used to fumigate the vagina with "ibis of wax" (Sullivan 1997:637).

7.4.3 Vesicovaginal fistula

Of all post birth complications, this seems to be well documented not only in the medical papyrus, but also in osteological evidence of mummified remains. Papyrus Kahun, has the following prescription

> *"Prescription for a woman whose urine is in an irksome place: if urine keeps coming….and she distinguishes it, she will be like this forever….* (Reeves 1992:19)[6].

The latter prescription with sadly no remedy in ancient times described, according to Reeves (1992:19) a vesicovaginal fistula, which is essentially a tear in the tissue between the bladder and the vagina. This is caused by cephalo-pelvic distortion, where

[6] There are varying interpretations for this section of the Kahun which described prescription no 34. According to Griffith (1898:11), it translates as "….a woman her urine in a painful place: if comes...for if she knows it it is so always. (?) for retention of urine).

the head of the baby is too large for the pelvis of the woman. The head of the baby pushing on the tissue between the bladder and the vagina resulted in blood loss to the tissue causing it to break down and become necrotic. The result is a hole between the bladder and vaginal wall causing incontinence. Falk and Tancer (1954:338) claim that despite the interpretation of this as a vesicovaginal fistula, "these records contain no reference to vesicovaginal fistula. Their argument rests on the assumption that the role of obstetric practice was relegated to women and midwives "who contributed little to our scientific knowledge" (a statement which, in itself is cause for debate), and that the lack of knowledge of their existence was as a result of religious and social factors.

Absence of the modern term, vesicovaginal fistula in ancient texts, does not mean they did not recognise them, but possibly that given that they did not perform surgery nor understand the cause of the condition.

Earlier discussion of Princess Henhenit of the XIth dynasty, Aäshait and mummy 26, showed evidence of varying birth complications, where all three women had parts of their bowel protruding through the anal opening showing an extended and complicated birthing process (Derry 1935:490-498) (see figure 56).

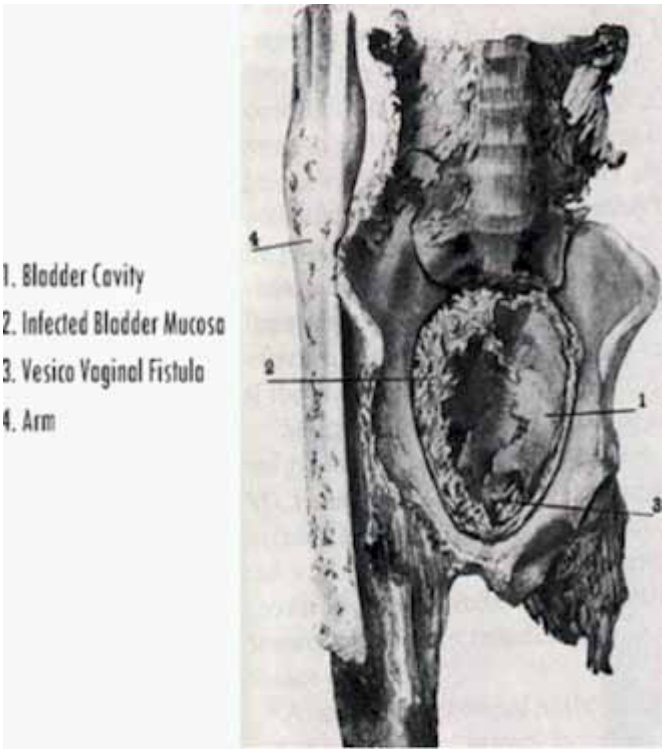


Figure 56:The pelvis of Queen Henhenit. From Zacharin RF. Obstetric Fistula. New York, NY: Springer-Verlag; 1988. Reprinted with permission from Springer-Verlag in Crone, JD – online.

Today, vesicovaginal fistula accounts for about 80% of cases worldwide as a result of obstructed labour in underdeveloped countries, and is a major health problem particularly in sub-Saharan Africa and parts of Asia. The development of such fistula can be devastating to the patient, who, if they survive, may experience both foecal or urinary leaks from the vagina. In the course of modern day medicine, the best treatment is early diagnosis and surgical repair. Such surgical repair was first carried out by Johann Fatio (1649–1691), following on from the theory proposed by Hendrick van Roonhuyse. The technique was revolutionised in the nineteenth century by John Peter Mettauer (1787–1875), James Marion Sims (1813–1883), and Friederich Trendelenburg (1844–1927),

who became the first surgeons to lead the way in the surgical repair of vesicovaginal fistula (Falk & Tancer 1954:340).

7.4.4 Eclampsia

Eclampsia is a prebirth condition in which the mother suffers from high blood pressure as a result of toxaemia, causing her to become hypertensive with the risk of slipping into a coma. Chesley (1974:5999) says that eclampsia was first cited in the Kahun Papyrus. Menascha (in Chesley 1974:5999) rendered a translation of prescription 33 as "To prevent a woman from biting her tongue *auit* pound…upon her jaws the day of birth. It is a cure of biting excellent truly millions of times". He argued that auit refers to a small wooden stick. This rendition was an interpretation from Griffith whose translation was "To prevent (the uterus) of a woman from itching (?) *auit* pound upon her jaws the day of birth." It has been argued that the author of this prescription in Kahun was referring to the condition of eclampsia, given that in such cases eclamptic seizures would have set in and the wooden stick would have been used to prevent the mother from biting her tongue.

7.5 BREAST FEEDING

After birth, babies were breastfed for up to three years, which may have worked as a natural form of contraception. In a New Kingdom text the Instructions of Any we read:

> "Double the food which your mother gave you and support her as she supported you. You were a heavy burden to her but she did not abandon you. When you were both after your months she was still tied to you as her breast was in your mouth for three years" (Tyldesley 1994:23).

The more wealthy families hired the services of a "wet nurse", to breastfeed their children (Reeves 1992:19). The concept of the wet nurse being used to suckle the new born is common throughout Egyptian iconography and texts. It is uncertain if these women were women with babies of their own, or mothers whose children had died in childbirth.

Within Ebers Papyrus, we find a small section on paediatrics which contains a prescription for problems associated with lactation. It states:

> "To get a supply of milk in a woman's breast for suckling a child: Warm the bones of a sword fish in oil and rub her back with it. Or: Let the woman sit cross-legged and eat fragrant bread of soused durra, while rubbing the parts with the poppy plant" (Wickes 1953:154).

Pinch (1994:130) says that some early spells of the Old Kingdom would compare the breasts of the mother, with those of the udders of the Divine Cow (Hathor), or with those of Isis. In some cases, magical amulets were used to protects the mothers breasts and enjoy a good flow of milk.

Aside from the need to provide good healthy milk to the new born, the benefit of human breast milk is evident through its use in other prescriptions. In Ebers we find the milk of a woman who has given birth to a boy being used in a prescription to alleviate a cold or given to a child who will not sleep through the night (Robbins 1993:90). Exactly how

many women suffered from birth and post birthing complications is difficult to determine

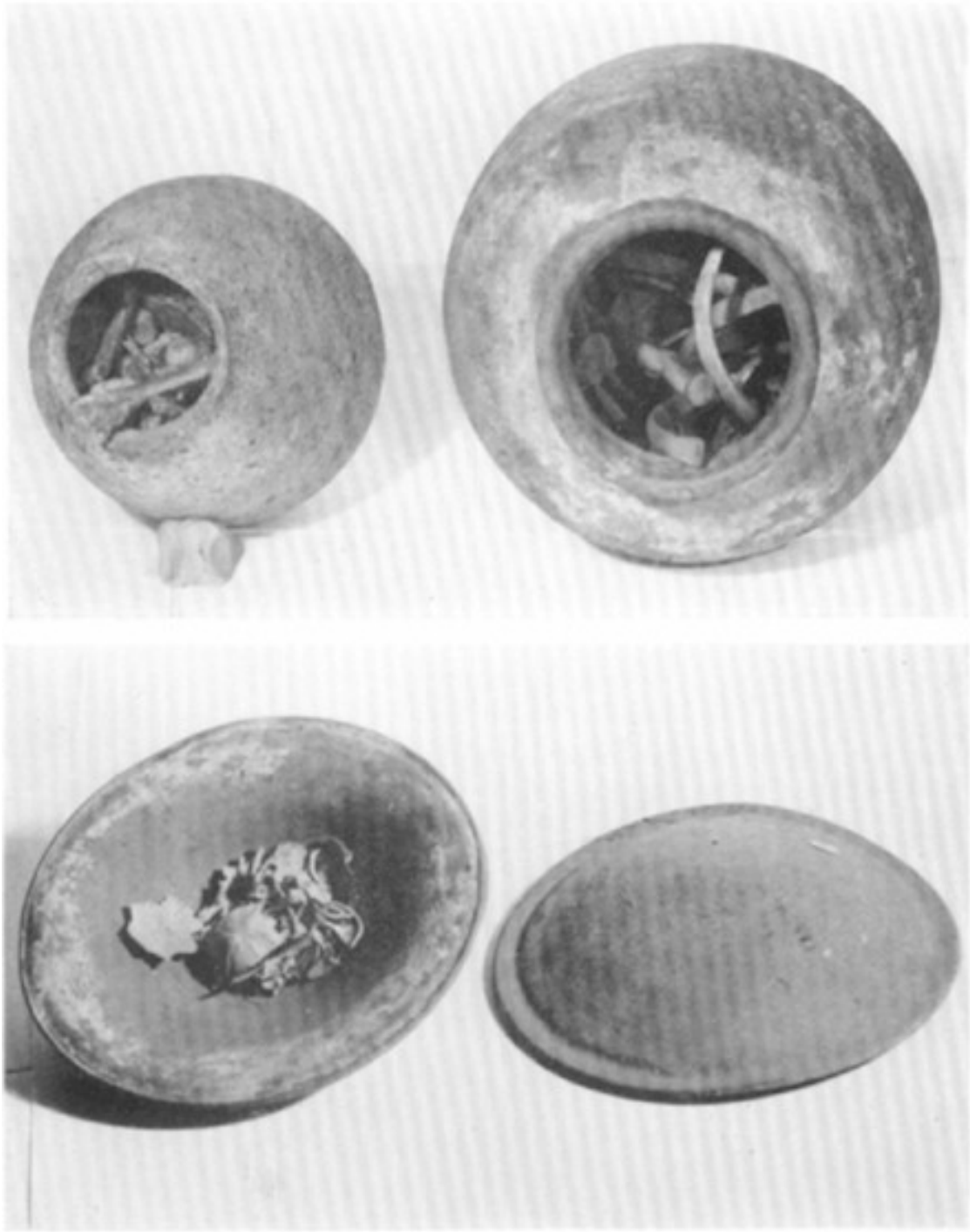


Figure 57. Pots showing remains of infants of fetuses from ancient Egypt (Masali & Chiarelli 1972:166).

as, for want of repetition, we require numerous mummies showing signs of such trauma to enable deductions to be made. However, Meskell (2000:429) highlights an interesting find. At the eastern Necropolis of Deir el Medina, the lowest slopes were reserved for burial of infants and children. Numerous small pits were found, some circular and some square, cut into the rock to about 40 – 90cm deep. It was here that Buỳere Meskell 2000:429) discovered amongst the grave pits, burials of neonates, placentas, foetus and amongst other things, viscera and blood stained material . Given the small pelvic bone measures and young age of marriage, it is not surprising to have this find. The interest of this discovery apart from the actual find lies in that;

a) the Egyptians in antiquity accorded respect to newborns, neonates and fetuses and

b) the placenta was deemed important. If it were not, we would not find their burials here.

7.6. GENERAL CONDITIONS OF UNCERTAIN ASSOCIATION

On page 1 of Kahun, we find 17 different conditions and treatments, such as problems with the eyes, legs etc which despite appearing to be related to general medicine, are linked back to obstetric causes. All 17 start with the recitation, "knowledge (treatment) of a woman…(suffering from…)", followed by "say thou with regard to it" (i.e. diagnose it as…) and then "make thou for it…" (prescribe for it …).

Prescription 1 on Kahun page 1 speaks of a woman who has neck ache and sore eyes, believed to be related to a 'fallen womb', interpreted to refer to prolapse of the uterus, probably as a result of post partum delivery. A combination of prescriptions are given to include vaginal fumigation with a mix of incense and animal fat, fumigation of the eyes with the "shanks of the legs of bee-eaters" (possibly referring to a type of bird), and a diet of raw ass liver. Prescription 3 and 7 also speak of a fallen womb causing buttock,

stomach and leg pain. In this case the remedy prescribed in prescription 3 was as follows:-

> "thou shall do for it (thus) : carob beans 1/64 *hekt: sasha* fruit, 1.64 *hekt*" (11) cow's milk 1 *henu*; cook, cool, make into one mess, (12) drink four mornings" (Griffith 1898:7).

Prescription 5 provides an interesting reference to toothache associated to an itching of the pubic area for which a mix of incense and fat as a fumigant is prescribed along with urine of a donkey.

Prescription 6 speaks of a woman diagnosed with a starving or constricted uterus resulting in pain in all of her limbs and in the sockets of the eyes. It is unclear whether this prescription refers to the pains associated post childbirth, or for a woman whose womb is empty in that she is unable to conceive. The remedy is a prescription of a mix of *ah,* probably dough, mixed with water, and to be drunk for four mornings.

Several other recipes in the first page range from women who cannot get out of bed, to a woman who is constantly thirsty, to problem of bleeding of the womb, which may relate to menstruation or problems with a pregnancy. The remedies range from the application of strips of cloth soaked in frankincense to the application of fresh melted fat.

In the case of prescription 7, the "falling of the womb" may instead refer to the turning and dropping of the baby in the womb, given that the remedy is that one rubs the feet and legs of the women until she feels better. Likewise, in prescription 10 further references to a fallen womb is associated with burning urine, perhaps relating to a bladder infection as a result of a uterine prolapse. Here the remedy given is a mix of

ground beans and reed flowers mixed with about 450ml of *nezazat* beer, cooked together and then drunk for 4 consecutive mornings followed by a day of fasting, then further consumption of 450ml of the mix and a further day of fasting.

The pharmacological effects of carob beans have been found to be beneficial for a number of ailments, from high cholesterol, to stopping vomiting in children to reduction of cancer cells in mice. Sadly, however, the use of the above two remedies for uterine prolapse would have done nothing to cure the condition as surgery is the only course of action. The use of beer in the remedy is uncertain but given that it is cooked, all traces of alcohol would be removed. Further Nunn (1996:140) argues that alkaloids are the active drugs used in most herbal remedies, and that these alkaloids are best extracted from plants and herbs with alcohol.

Conclusion

In the absence of volumes of information on childbirth and the birthing process, we have to rely on the mythology of creation, birth of Gods, birth of the Pharaohs and texts depicting ceremonial journeys into the afterlife. Concrete evidence available to us in the form of architectural remains is often subject to interpretation based on the iconography, such as the presence of specific images of gods such as Tarawet and Bes. The process of birth is fraught with complexity and danger and so the role of the gods in the protection of the mother and her unborn child would have been paramount.

While male practitioners provided consultation and medical prescriptions during pregnancy, we do not find the presence of them during the process of childbirth. The role was relegated to the local women and midwives. Colours, imagery of apotropaic gods and magical wands and amulets, as well as the orientation of the women in labour,

seemed to have played a role. Medical prescriptions for problems during or post pregnancy are evident, though there is uncertainty if they relate to pregnancy or gynaecological complaints.

We are aware of infant burials, along with burials of foetuses and placenta's, confirming complications both of and during childbirth. Of the few mummies examined specifically for birthing complications, those studied by Derry (1935:490-498) show evidence of vesicovaginal fistula. Whether they had instruments to aid in delivery, such as forceps or a means of removing the child is not known. As to the use of other instruments, one can again only speculate on the use of the *pss-kf* sets as to whether these knives were used to cut the umbilical or not.

Much of the Kahun Medical Papyrus refers to issues of unknown origin or that are difficult to determine. In such cases once can only rely on speculation and theory to determine plausible answers.

CHAPTER 8

CONCLUSION

8.1 RESEARCH OVERVIEW

About 500km south of Cairo is the Royal necropolis Umm el-Qaab. The necropolis is divided into sections, with tombs ranging from predynastic tombs in the northern section to tombs from Dynasty II. Numerous excavations have been done at the complex to include Amélineau (1895-1899), Petrie (1899-1901), Peet (1911-1912) and the German Archaeological Institute (DAI) since 1977. Those artifacts that remain have provided a fascinating insight into predynastic development. Of the tombs that remain, the one belonging to Scorpion I in tomb *U*-j, is the most significant as it is here that the earliest recorded evidence of a writing system in the world was claimed to be found (Görsdorf, Dreyer & Hartung 1998:641). The significance of this is that without the development of a writing system to keep a record of things, the ancient system of hieroglyphics would not have resulted in the medical texts and inscriptions that we have today. Further, that the pioneering work of Champollion in transcribing the ancient glyphs has contributed to our being able to develop a medical history of ancient Egypt.

A second important aspect of ancient Egyptian civilisation was their mummification of the deceased, the very technique of which has resulted in the preservation of the human body, enabling us to observe and analyse medical conditions through modern techniques.

In terms of our field of gynaecology and obstetrics, the most significant archaeological artifacts are the medical papyri that have been found over the years and transcribed;

ostraca from villages, inscriptions, old pottery vases, and wall carvings, sculptured bricks, carved wands of ivory; numerous amulets of gods and goddesses and dwelling and religious structures.

In terms of medical pathology, the preservation of mummies has aided in the study of paleopathology and osteopathology of the ancient Egyptians. Research by Derry (1935:490-498) found some ancient mummies of Nubian descent to have dolicopellic pelves, with the fifth mummy being mesatipellic, i.e. they all had a narrow transverse measure making childbirth problematic. Further analysis of a range of mummies (Masali 1972:187-197; Zakrzewski 2003:219–229) showed that the stature of women in the middle kingdom changed, to develop more narrow pelvic girdles, with broader shoulders and morphological convergence of the sexes. Both authors attributed this predominantly to change of life style to a more sedentary mode of production. A high percentage of women died between the ages of 18 and 29 (Nerlich, Rohrbach & Zink 2002:379-385). Predynastic women and women of the early stages of the Old Kingdom had broader shoulders and a taller stature than women form the Middle and New Kingdoms.

The relevant medical papyri are of Kahun Medical, the Rammesseum IV, Edwin Smith, Ebers, Carlsberg VIII and Berlin. Analyses of these texts show their condition to be generally fragmentary making analysis complex. Those that are well preserved such as Edwin Smith, Ebers and the Berlin Medical Papyrus enable us to draw parallels between prescriptions in others texts and provide a more comprehensive understanding of the prescriptions contained therein. The original provenances of the pieces are not always known. Some are believed to be copies from older texts and are thus either copies of copies or copies of an original, (see table X).

Table X: Comparison of Medical Papyri

Papyrus	**Kahun Medical**	**Ramesseum IV**	**Edwin Smith**	**Ebers**	**Carlsberg VIII**	**Berlin**
Date	1850 BC	1700 BC	1550 BC	1550 BC	1500 BC Circa. 1800 BC)	1300 BC
Condition	highly fragmented and fragile state	Fragmented	Good	Good	Fragmented	Good
Location	Illahoun, Fayum	Theban necropolis	Theban necropolis	Theban necropolis	Unknown	Saqqara
Content	G, V	GM, G	GM, G	GM, G	GM, G	GM, G, O
Knowledge base	Medical	Magico-medical	Medical	Magico-medical	Medical	Medical
Author	Unknown – copied by Usertesen II	Unknown	Unknown		Unknown	Neterhotep?
Tomb Owner	Unknown	Priest	Physician	Unknown	Unknown	Unknown
Writing system	Hieratic	Hieratic	Hieratic	Hieratic	hieratic and demotic	Hieratic
Original or Copy	Copy	Unknown	Copy of an older text	Unknown	Unknown, Two scribes Possible copy	Unknown
Similar to						

Abbreviations:
GM - General Medical
G - Gynaecological
O - Obstetric
V – Veterinary

8.2 CONCLUSIONS

8.2.1 Gynaecology in ancient Egypt

At the outset, the question was posed; "given the resource material that we have available, is there sufficient information contained therein to develop a history of gynaecology and obstetrics in Egypt?" The answer to this is divided and we need to differentiate between gynaecology and obstetrics in Egyptian antiquity. While there was a field of medicine specifically devoted to women, information on gynaecology is vast compared to the surprising lack of information on obstetrics.

We know from the texts that the Egyptians had a strong, hierarchically arranged and specialised medical profession in place. What cannot be determined is if there was a field of medicine specifically dedicated to the care of women, i.e. gynaecology and obstetrics. This given, we assume it fell under general medicine and also under the care of midwives in the case of childbirth.

Ostraca and inscriptions attest to gynaecological issues, the main one being menstruation. A number of ostraca from Deir-el-Medina mention menstruation as a cause of absenteeism. An ostraca from the same village provides evidence for the use of menstrual cloths. The "Satire of Trades" wisdom text discusses the washing of menstrual cloths. The Isis knot or *Tyet* of Carnelian points to the possible use of a menstrual tampon. Ostraca 13512 discusses a hut that the women may have gone to while menstruating.

Egyptians in antiquity seemed to be quite open in discussing menstruation and it does not seem that it was an aspect of gynaecology that was 'hidden' or not spoken about. In the Tale of Setne, Ahwere speaks of how when her 'time of purification' came, it did not

come. The text reveals that she is pregnant and bears the pharaoh a child. This openness is further attested to in the 'laundry' ostraca and the satire of trades which openly speak about it. Ostraca BM 5634*,* CGC. 25782, Turin 57388 and others, cite menstruation or purification as the cause of absenteeism. Janssen (1980:142) argues for the application of the term purification as post birth purification, though he recognises some flaws in his theory. Given this open approach to what is believed to be menstruation and not purification, the issue of the menstrual taboo needs examining.

Frandsen (2007:89) mentions that the "*bwt* is the menstruating woman ()". Consideration needs to be given to the fact that it is not the menstruating women that is *bwt*, but rather that the act of intercourse **with** a woman **while** she is menstruating, is *bwt*. That menstrual blood is used as a remedy for menstruation "ceased during pregnancy because the blood was being diverted to create and sustain the embryo" Haimov-Kochman, Sciaky-Tamir and Hurwitz (1995:5), leads to the conclusion that menstruation was not considered *bwt* in ancient Egypt.

We know that average life expectancy in ancient Egypt was very low. In predynastic Egypt it was around 30 years, in Dynastic around 36 years (Masali and Chiarelli 1972:164-166). In the texts, we read prescriptions that were probably there to treat amenorrhea. What is not clear in the texts is whether amenorrhea was as a result of complications in fertile women, or whether it was there to treat what we know today, as menopause. Even if any of these prescriptions were meant to treat menopause, this indicates that the age at which women reached menopause was very young, as compared with contemporary women. In contemporary society, 75 - 80% of women reach menopause between the ages of 45 and 55. Further that the mean age of last

birth is around 40 years, and that this normally comes ten years before menopause (Leridon 2004:1548). This indicates that women in ancient Egypt may have reached menopause at a much younger age than contemporary women. It seems more likely, that the prescriptions for amenorrhea were more for complications of menstruation in fertile women, rather than for those reaching menopause. Marriage was generally an arranged relationship and was entered into around the ages given that women entered into marriage around the age of 12 -13 years (O'Dowd 2001:51). This means that their "fertile child bearing years" were only 24 years. Given that at the age of 36, these women would have been deemed elderly, it is unlikely that they would be producing children up to their mid thirties.

Based on the prescriptions within the medical papyri, they must have had a branch of medicine dealing purely with drugs and their interactions, given that in places specific parts of plants are required. Analysis of many prescriptions show that the pharmacological actions of combined products have merit, such as pessaries used to alter the pH of the vagina to prevent conception, methods of dilating the cervix such as terebinth resin, identification of cancer; the use of colocynth as an abortifacient which is still used in parts of the world today, sometimes with fatal results for the mother. In a civilisation where life was valuable, it is interesting that they allowed for both contraception and abortion, thus giving women the rights over their own bodies.

We know from the scenes of the divine birth at Deir el-Bahari that Khnum fashions both the child and his or her *K3* at the time of conception (Roth 1992:176). Roth claims that "the word *K3* is related to the word *K3*w, 'food, sustenance', and the placenta is the source of that sustenance in the womb". That placentas were given burial rites in burial sites such as those of Deir-el Medina indicates the recognition that the placenta had a

soul. If the ancient Egyptians believed that life began with conception, were the various prescriptions we find within the medical texts meant to serve as abortifacient to expel a viable foetus, or rather to use as uterine stimulants to release a child from the womb after a long, protracted and complicated labour? It is not possible to determine this and further exploration needs to be done in future research.

Compared with contemporary women, the women of ancient Egypt were small in stature with very narrow pelvic measures. Of interest though, was that in the study by Moustafa *et al* (1987:1094) data collected on contemporary Egyptian women showed that Christian women (mainly Coptic), had retained the original ancient Egyptian characteristics, as estimated in a study by Battrawy (1968 in Moustafa *et al* 1987:1094). Could this further support our claim that strong genetic heritability was at play?

We may surmise, though inconclusively, that the decline in body stature was attributable to a myriad of factors, to include a limited gene pool, increased population density, exposure to disease through trade and war, dietary factors and a change in mode of production from agrarian to agricultural. The word, 'inconclusively' is used, given that all studies are dependant on size of population, area from which the mummies came, phase in history, sexual variance in samples and a myriad of factors.

8.2.2 Obstetrics in ancient Egypt

While information on gynaecology is relatively well covered, resource material on obstetrics is limited. For this we rely on wall inscriptions, iconography, painted scenes and the odd medical prescription, incantations and mythological texts. The role of practitioner and protector rested with midwives and gods and goddess of protection for the mother and the unborn child. Birthing scenes tell a story of women giving birth in a squatting position whilst standing on birthing bricks. Magical wands were used to ward off evil and goddesses were called upon for protection of the mother and unborn child. Birthing complications are not recorded and the only evidence we have of this is the mummies discussed earlier with fistula and prolapse.

Despite the lack of recorded texts on obstetrics, mythological texts are open on the birth of the gods. In the tomb of Rameses IV we find several inscriptions on the statue of Nu which read, "The majesty of this god enters her mouth", "... he opens the thighs of his mother Nut; he rises towards the sky" and "he moves towards earth, rising and being born." In the pyramid texts we read "the sky has conceived thee together with Orion, *Dewat* has given birth to thee…" (Piankoff 1934:1). In tombs of the New Kingdom we find several other depictions, all describing the birth of gods. If mythology was so open on the concept of birth, why were the medical texts not? We know from the records that medicine was a predominantly male dominated profession. The role of assisting with childbirth fell on the expertise of midwives and women of the village along with the assistance of the gods. Literacy levels amongst the populace of ancient Egypt within most periods were not more than one per cent (Bains 1983:584). Village women and midwives may not have been in a position to record their techniques and knowledge.

Secondly, in the birthing 'scene' of the Westcar Papyrus we find the goddesses Isis, Nephthys, Heqat and Meskhenet present to assist with the birth. Albeit that the male god Khnum is present, his role is not to assist in the actual delivery of the child. The correlation between these texts and the reality of childbirth in the populace, acts to reinforce the lack of male assistance of doctors or *swnw* in childbirth.

Thirdly, given the danger associated with childbirth from malign forces and natural complications, lack of medical literature on obstetrics may have been a natural progression of the isolation of the mother.

Actual childbirth seems to closely replicate that of the birth of the gods depicted in mythological texts. The work of Renggli (2002:1-18) has provided an invaluable insight into the birthing process. What is of interest is the depiction of the head of the baby turned down, just prior to birth. There is no evidence to show that Egyptians in antiquity performed dissections of humans, yet they were aware that the head of the baby turns before birth. What we do not know is whether they assumed the head always turned down during pregnancy or not.

The fact that they had a clear concept of the need for the womb to 'open' and 'close,' means that they must have had some medical knowledge on the functioning of the foetus in the womb. It could be speculated that observation of animals giving birth would have made them aware of the dilation of the cervix required in order for the head of its offspring to pass through and then applied this knowledge to their practice of midwifery. In birthing scenes, we find women in a squatting position to give birth. We do not know if they started in a supine position until such time as the cervix was sufficiently dilated, or if they waited until the late stages of labour before they entered the "birthing room".

Renggli (2002:1-18) speaks of the womb as a tomb, a similar argument as that presented by (Frandsen 2007:100). Frandsen draws parallels between the tomb and the womb, both of which symbolised rebirth and birth. This given, the womb would be considered sacred thus further supporting the argument that womb of a woman is sacred and that all that is produced from it must by default, be sacred. If this is the case, then *hsmn* would not be considered *bwt* and further substantiate the reason why menstrual blood was used in healing. However, a flaw exists in this argument, in that we do not know if the ancient Egyptians recognised the association between the uterus (womb) and menstruation.

8.2.3 Pharmacopoeia

Analysis of medical papyri reveals that the Egyptians had a vast pharmacopoeia to include herbal and plant matter, human by products, animal, insect and also minerals. A text on ancient Egyptian pharmacopoeia has not yet been found. It is likely to have existed, spelling out the various products, their uses and combination; in much the same was as modern practitioners make us of a 'Monthly Index of Medical Specialities' (MIMS), a practical resource guide for medical practitioners detailing medicines, dosage, indications and contraindications and treatment guidelines and protocols. It is uncertain whether they made use of written texts, or if the information was passed on in school setting and never set to paper.

8.2.3.1 Pharmacopoeia then and now

A starting point in analysing this issue is to take a brief look at modern medicine. Modern medicine makes use of evidence based medicine, i.e. medicine that makes use of scientific method of research and investigation to develop and test various drug regimes to apply to the prevention, cure and treatment of diseases.

The extent to which magic is used varies across the texts. The bulk of the papyri (refer back to Table X) were medical in nature with some relying on medical incantation. One cannot ignore the role of the gods in what we perceive to be scientific use of animal product. The use of crocodile faeces may have bearing on the role of the crocodile in both protection of her young and in the attack of young children along the banks of the Nile. Several threats faced a woman; the inability to fall pregnant, the inability to carry to full term, the threat of a still birth, the threat of miscarriage by sinister deities such as Seth, or malignant spirits of the dead. For this reason, we find the use of amulets of protection and fertility figurines being used. One could argue that the use of magic in ancient medicine rendered it less scientific. However, modern medicine incorporates a range of disciplines to include alternative medicines such as homeopathy, reiki, reflexology etc. Running concurrently with sessions in chemotherapy and several other ailments we find people being part of prayer circles and prayer chains, people praying to their god for protection and healing, prayers for conception. Is ancient Egyptian medicine therefore, less scientific than modern medicine? No doubt this topic would be cause for debate.

The claim in this study is not to profess to be educated in medicine, or to have sufficient knowledge to assume an understanding of pharmacology. The information contained in this study is based on research and analysis of reports. The following section merely asks the questions, to what extent are the <u>principles</u> of modern day gynaecology different to that of ancient Egypt? Of the most controversial gynaecological drugs today is the use of Premarin®, a modern pharmaceutical drug providing estrogens to post menopausal women. In fact, Premarin® is derived from pregnant-mare urine, or PMU

(Williams 1994:1009). While controversy on the farming of these mares for drug development purposes continues, it is interesting to look back at Egyptian history.

Papyrus Kahun contains the following prescription…

> "Knowledge of a woman pained in her teeth and jaws; she knows not [how to open?] her mouth. Say thou to her it is the itching (?) determinative a tooth) of the vulva. Do thou for her (thus) : *kap* her with oil and incense in a bowl (?), pour on her the urine of an ass that has engendered two colts on the day that it has passed it (the urine). If her...is pained from her…shoulder (?) to her...hips" (Griffith 1893:11).

Warranted that the prescription is for an unknown complication or disease or ailment, the fact that they specifically chose the urine of a donkey mare that had just given birth, i.e. who had high levels of estrogen in the urine, may have had some bearing on the prescription.

As a modern therapy, doctors make use of oxytocin to both shorten the third stage of delivery and reduce blood loss. In a study conducted by Khadem *et al* (2007:65), the oral consumption of dates post partum versus injection with a modern oxytocin drug, resulted in a lower rate of blood loss during the first three hours post delivery.

In Western medicine, non-steroidal anti-inflammatory drugs (NSAIDs) are used to alleviate the pain associated with patients suffering with primary dysmenorrhea, such as aceclofenac–drotaverine combination. Use of Fennel essential oil (FEO) in studies is shown to have a similar mechanism of action as such modern anti-inflammatories and

diclofenic or aceclofenac. In ancient Egypt, fennel was used to produce similar effects and used as treatment (Ostad *et al* 2001:303).

One cannot deny that modern medicine has taken great strides through ongoing research, development and redevelopment of drugs, surgery, radiography, radiology etc, but likewise, one cannot argue that Egyptian medicine in its time was less advanced and un-scientific in its' approach.

8.2.4 Towards a brief understanding of women's health in Ancient Egypt.

A history of gynaecology and obstetrics in ancient Egypt begins to emerge. Women married around the age of 12-13 years, at the onset of menarche. Child bearing years extended for about 20 years, ending close to the average of death, around 36 years of age for dynastic women. Cases of menopause may have existed but *swnw* were advanced enough to be able to deal with complications associated with menarche. Their understanding of fertility extended to the knowledge that pregnancy could be prevented by manipulating the pH of the vagina. (Whether they understood the concept of acidity or alkalinity is open to dispute, but they knew of the pharmacological action of combined ingredients to serve this very purpose). Their knowledge also extended to ingredients that would give rise to uterine contractions, used as abortifacients and further that they understood how to, not only diagnose pregnancy, but also fertility and sex of the foetus *in vitro.*

Women were small of stature compared with contemporary women and Christian women of modern Egypt today bear similar statures to their contemporaries of dynastic Egypt. Pelvic measures and body stature declined after the predynastic era, with actions morphological convergence of the sexes occurring. Menarche and menstruation were

not private matters but openly recorded on ostraca and medical texts. In the field of gynaecology, medical prescriptions were predominantly used with minimal magico-medical intervention. Obstetrics however, was dominated more by magic than medical practice and amulets, wands, gods and goddesses called upon for protection. Birthing was done in a squatting position in private in the presence of women and midwives. Complications of labour and child birth are evident in cases of eclampsia, fistula and uterine prolapse. Osteoporosis was evident in mummies, with both diet and lifestyle playing an important role in this, and the formation of bone structure and body stature. The Egyptians had a vast and substantial pharmacopoeia with knowledge of the pharmacological actions and combined actions of ingredients. Their application and use replicates to some extent, some of the drugs used in contemporary society.

8.2.5 Future research questions

a) Can changes in stature and morphological convergence of the sexes be attributed to changes in diet and mode of production, increases in population density and increased exposure to diseases?

Khwaileh (2009:2) defines human stature as the height of a human body in an upright position. This height can be affected by periods of trauma, disease and malnutrition. This given, one would expect to find changes in dietary conditions, increases in disease and increases in trauma related illness. Khwaileh (2009:2) claims that during the dynastic period of Egypt, infectious diseases increased as a result of increasing exposure to wars and trade, as well as increases in population size and density. Access to food would have been greater in the elite groups indicating that the lower social classes would be more prone to shorter stature as a result of lower bone mineral deposits in the formative years.

Khwaileh's observation does not explain why in Derry's research (1935:490-498) the five mummies displaying small pelvic measure and stature, were in fact, of a royal house, indicating greater accessibility to food. Further that these 5 female mummies were of Nubian descent means that other factors could have been at play. BMD was also found to be lower in Nubian than in Egyptian women and to this, the different forms of diet may have been a contributing factor (Zaki, Hussein & El Banna 2009:85).

b) Given that studies by Masali (1969:187-197) and Zakrzewski (2003:219–229) show a decline in stature and that the 5 Nubian mummies of Derry's (1935:490-498) study show small pelvic measures, can we attribute these changes to a 'limited gene pool'?

Information and studies on this are limited. In a study by Havill *et al* (2007:737-746) they found that "high heritability estimates for…bone area, and …BMD (bone mass densitometry) varied across bone sites. Further, the degree of time spent in modern to vigorous activity has a vast impact on bone structure. Their study showed that genetic inheritance plays a significant role in the determining bone size at the hip and spine. Yang *et al* (2005:1136) argue that two factors strongly affect BMD and variations in bone size, namely weight and height. Further that genetics contributes between 49% and 76% for both hip and spine measures. Could it be that the gene controlling hip bone size in Nubian women was stronger than the similar gene of Egyptian women and that over time, this combined with various other factors contributed to smaller hip measures?

c) At what stage did the Egyptian believe life has begun?

The Egyptians knew that the sex of a child could be predicted in vitro would add to this debate. Given that ancient burial sites for neonates, infants, foetuses and placentas have been found, it is argued that their concept of life began with conception. A lack of proper burial of the remains would indicate a lack of respect for the life. Given that specific burial sites were designated, this indicates that a level of respect was present.

8.3 THE SUCCESS OF WOMEN'S MEDICINE IN EGYPTIAN ANTIQUITY

What we cannot determine, is the success rate of prescriptions given the lack of patient records. In the absence of patient records to show follow up consultations or not, it is hard to determine the reliability and efficacy of the medicaments used.

All we can do is to analyse the basis of the prescriptions in terms of pharmacological action and surmise on the perceived success. Our modern day analysis of the pharmacological actions of many prescriptions shows that in theory, they should work, but we lack substantive evidence to support the claim. In some cases where research has been conducted as in the case of urination on barley and wheat, there is a lack of evidence to support or disprove the use of the method. The fact that these records have not been located however, does not mean that they do not exist.

The lack of sufficient exploration of female mummies mentioned frequently in this study presents a problem. The assumption is not that insufficient studies have been done, but that more studies looking at specific questions could raise new insights. It would be interesting to see large scale analysis of female mummies undertaken to determine age at and estimated cause of death, pelvic measures, bone densitometry readings, body proportions relative to area located, comparative analysis of different populations from

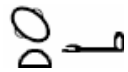
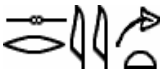
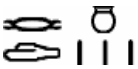
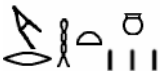
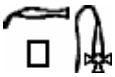
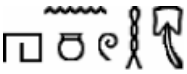
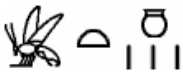
within Egypt and period in which the person lived. An analysis of genetic links would also render interesting results.

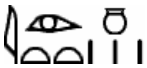
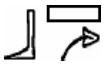
The field of Egyptology is constantly expanding as new evidence is brought to the fore. There are endless reports of excavations in the field, documented measurements, drawing of field sites. One could argue that knowledge of Egypt is inductive, simply by virtue of its reliance on archaeology. It is not just what we see that provides us with information on, or an advancement of the field. It is also the questions we ask. We can only develop a comprehensive history of gynaecology and obstetrics in Egyptology if we start to ask more questions and then seek the answers. The field is vast and many aspects could be explored in greater detail. In the words of Redford (1979:18), "there may be more truth than fiction in the statement that the historian is a kind of artist: vision and intuition are *sine qua non* in his (or her) make-up.

Much of what we know of ancient Egypt is derived from transcription, evidential interpretation, positing of theory, resultant research and collaborative efforts. The richness of the ongoing findings of ancient Egypt, continually add to and expand the field.

At no period of history is sufficient material available complete for all the historians' purposes, and it is often at the most critical junctures that the supply dries up." "The crowning attainment of historical study is a historic sense – an intuitive sense of how things do not happen (how they did happen is a matter of specific knowledge)'" (Brooke 1964:344, 331).

APPENDIX I. Relevant hieroglyphics and their possible corresponding meaning

	bandage
	belly or abdomen, probably uterus
	blood
	copulate
	discharge, elimination of excretion non-specific)
	excrement
	fat
	fat or oil (alternative)
	flesh, possible vagina
	fumigate
	grind or crush
	heqat
	henu
	honey

	ill, sick or in pain
	menstruation
	milk
	resin, formerly thought to be myrrh but probably resins in general
	ro – a measure
	salt
	swelling or tumour
	Swelling or tumour (alternative)
	to vomit
	uterine manifestation of disease, probably a discharge
	volume measure (single *heqet*)
	pour
	vessels or ducts
	remedy or prescription
	irksome, difficult or bad (of illness)

 swelling, tumour or abscess (alt)

 incense, probably terebinth

 obstruction

Adapted from Nunn 1996:217-226

APPENDIX II: Products, method of application and purpose

PRODUCT	METHOD OF APPLICATION	PURPOSE
Unidentified products		
niaia	fumigation	induce labour
Minerals/Chemicals		
mud	external application	excretions of the womb causing pain in the limb
malachite powder	ingestion	womb pain
saltpeter	internal application	induce labour
jar sherds	internal application	induce labour
salt	internal application	induce labour
Human byproducts		
breast milk	ingestion	diagnosis of pregnancy
menstrual blood	external application	menorrhagia
Plant and Herbal products		
carob beans *(Ceratonia Siliqua)*	ingested	vaginal/urterine discharge
sasha fruit	ingested	vaginal/uterine discharge
grass seeds	ingested	vaginal/uterine discharge
ale	ingested	vaginal/uterine discharge
senetjer (incence)	internal application	induce labour
Myrrh (C*ommiphora myrrha)*	used to soak linen rags	menstruation (emmenagogue)
lees of sweet ale	fumigation	menstruation (emmenagogue)
aliquots of date juice *(Phoenix dactylifera)*	fumigation	menstruation (emmenagogue)
Cummn *(Cuminum)*	external application	menstruation (emmenagogue)
pine Oil (wide variety of pine species)	external application	menstruation (emmenagogue)
smashed garlic *(Allium sativum)*	external application	menstruation (emmenagogue)
cider	external application	menstruation (emmenagogue)
Onions *(Allium cepa)*	internal application	menstruation (correction)
butyron boturon	ingestion	diagnosis of pregnancy

cedar wood various forms	internal application	menstruation (correction)
sawdust of fir tree	external application	menstruation (emmenagogue)
fenugreek	ingested	childbirth
lettuce	ingested	aphrodisiac
mandrake plant root *(Atropa mandragora)*	ingested	aphrodisiac
acacia	internal application	contraception
dates	internal application	contraception
emmer seeds	fumigation	contraception
colocynth	internal application	abortifacient
terebinth resin *(Pistacia terebinthus)*	internal application	abortifacient
celery *(Apium graveolens)*	internal application	abortifacient
dates	fumigation	diagnosis of pregnancy
ale	fumigation	diagnosis of pregnancy
watermelon *(Citrullus lanatus)*	ingestion	diagnosis of pregnancy
juniper fruit	internal application	abortifacient
pine resin	internal application	abortifacient
besbes-plant	internal application	induce labour
onion	internal application	induce labour
juniper berries	internal application	induce labour
resin of fir tree	internal application	induce labour
wine	ingested	induce labour
date juice	ingested	induce labour
kheper-wer plant	internal application	induce labour
water of carob	internal application	induce labour
celery	internal application	induce labour
Hemp *(Cannabis sativa)*	internal application	induce labour
cyprus grass	internal application	induce labour
seed corn of emmer	internal application	induce labour
onion bulb	internal application	diagnosis of pregnancy
sycamore fruit	ingestion	relieve uterine pain

Animal / Insect products

ibis of wax	external application	prolapsed uterus
oil	douching	menstruation (emmenagogue)
powdered placenta	external application	promote pregnancy
animal testicles	external application	promote pregnancy

crocodile excrement	internal application	contraception
hippopotamus dung	fumigation	diagnosis of pregnancy
grease (fat)	external application	diagnosis of pregnancy
oils	external application	reduce vaginal swelling
roasted meat	fumigation	eliminate vaginal odours
fly's excrement	internal application	induce labour
honey	Ingested and internal application	Induce labour
crushed *hekin* beetle	external application	induce labour
urine of an ass	internal application	relieve toothache of the womb
fat	ingestion	relieve pain from rape

APPENDIX III: Reference list of ostraca, description and approximate dates

Ostraca[1]	Description	Dates
BM 5634	Limestone, 38.5 x 33 cm. Lines in black ink with supralinear notes in red; obverse 24 lines, reverse 22 lines, top obverse = bottom reverse. Corrections by scribe in red notes underneath rev. 7 (end) and over rev. 18-20; black signs cancelled by red stroke in rev. 21. Complete.	Dynasty 19, year 39 Ramesses II (Helck) and year 40 Ramesses II
OIM 13512	White limestone discoloured to greenish gray, 9.1 x 13.2 cm. Inscribed on one side in black ink (?), 3 lines. Damaged: ends of lines 1-2 lost, beginnings of lines 2-3 lost.	Dynasty 19, year 9 Merenptah or dynasty 20, year 9 Ramesses III
CGC. 25782	Limestone, 36 x 20 cm. Black ink, obverse 27 lines, reverse 24 lines, top obverse = top reverse; signs in red ink over rev. 22. Corrections by scribe in obv. 15, 16, rev. 11 and 21. Complete.	End of dynasty 19; year 3 Amenmesse
Gardiner 167 Also referred to as O. Ashmolean Museum 0167	Limestone, 10.5 x 18.5 cm in two fragments. Two sides; obverse: eight lines; reverse: nine lines. Black ink. Damaged; part of top broken away and ink rubbed off at many separate spots near the edges and along the axis of the ostracon. Top obverse = top reverse	Dynasty 19, Amenmesse; year 3 Amenmesse

[1] The numbers used in the ostraca list represent the main and alternative text numbers current in Egyptology literature, as well as inventory numbers of museums and archaeological excavations.

MMA 14.6.217	Limestone, 16.5 x 15 cm (if facsimile in *Hieratic Ostraca* is on scale of 1:1). Two sides; obverse: twelve lines; reverse: twelve (?) lines. Black ink. Damaged: the bottom right of obverse has broken away and the ink has been rubbed off, especially on reverse which is hardly legible. Top obverse = bottom reverse.	Dynasty19, Seti II; year 1 Seti II
Turin 57388	Limestone, 23 x 16 cm. Damaged on upper and left edges. Two sides; obverse: 11 sometimes effaced lines; reverse: traces of three illegible lines. Black ink. Top obverse = top reverse.	End of dynasty 19 - beginning dynasty 20, late years Seti II to early years Siptah
DM 30 Also referred to as IFAO 00027	Limestone, 15.5 x 15.5 cm. Complete. One side, with 7 lines in black ink. Correction by the scribe in l. 1, 3 and 4	Dynasty19; year 1 Seti I
Brussels 6311	Very clean limestone, 21 x 14.5 cm. Obverse 13 lines in black ink with two signs in red in line 11, reverse 12 lines in black ink with red dots in line 3 and to the right of lines 4-6, red signs (Moeller no. 380) to the right of lines 6 and 7. Corrections by scribe in obv. 1, 5, 7, 13, rev. 2 and 7; rev. 6 cancelled by means of a horizontal stroke. Complete; slight damage at end of rev. 1.	Dynasty 19, Amenmesse

Source: Demarée et al 2009. The Deir el-Medina Database. Leiden

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