# The Anatomy of a Medical Text

## *A Case Study of the so-called Stomach Book from the Ebers Papyrus (§§188-216)*

Research MA Thesis, Egyptology

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# Contents

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# i. Introduction

> It belongs to the prehistory of medical art, when it was devoid of reason and was not yet a true art...'
>
> – Jacques Jouanna, 2012[1]

## i.i: Egyptian Medicine and Medical-Historical Scholarship

The general medical-historical consensus of healing practices from the ancient Nile Valley is that they were highly magical, theologically esoteric, devoid of reason and theory, and thus could have had no impact on the development of Western medical history. [2] In the past, Egyptian pharmacopoeia had been described as a combination of spells and 'simple vegetable or mineral remedies';[3] more recently, it has been defined as a curiosity that used seemingly bizarre ingredients ranging from 'the humble leek to the fat of a hippopotamus, and from pomegranate to fried mice and lapis lazuli'.[4] Definitions of this nature are highly selective and therefore problematic; while these ingredients *were* employed in particular remedies, their frequency is comparatively low[5] and should therefore not be used to characterise ancient Egyptian pharmacy.

Contrary to modern scholarship, ancient non-Egyptian sources elucidate the international prestige attributed to the healing practices of the Nile Valley. As early as is documented in the Amarna Letters (*c.*1300 BCE), foreign rulers requested Egyptian physicians from Pharaoh's court as a matter of urgency.[6] Classical authors such as Homer (*c.*800 BCE)[7] and Herodotus (*c.*450 BCE)[8] comment on the wide knowledge of plant materials employed by the healing practitioners; the latter also gives a foreigner's perception of the healing structure, stating that 'each doctor specialises in a single illness... eye doctors, for example, and others who tend heads, others for teeth or stomachs, and still others for illnesses whose provenance is obscure'.[9] This observation is consistent with the earliest recordings of the title *swnw* 'physician' and its hierarchical variants—including *wr swnw*

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[1] Jouanna on Egyptian medicine, J. Jouanna, 'Egyptian Medicine and Greek Medicine', in J. Jouanna (ed.), *Greek Medicine: From Hippocrates to Galen* (Leiden: 2012), 17.
[2] H. von Staden, *Herophilus: The Art of Medicine in Early Alexandria*, (New York: 1989), 4; Jouanna, in Jouanna (ed.) *Greek Medicine*, *passim*; J. Longrigg also subjectively referred to it as being 'irrational', *Greek Medicine from the Heroic to the Hellenistic Age* (London: 1998), 5; the legacy of these works has persisted and is evident in the cautious language employed in R. Forshaw, 'Trauma care, surgery and remedies in ancient Egypt: a reassessment', in C. Price et al. (eds.), *Mummies, Magic and Medicine in Ancient Egypt: Multidisciplinary essays for Rosalie David*, (Manchester: 2016), 127, 134; C. Price, 'On the Function of "Healing" Statues" in in C. Price et al. (eds.), *Mummies, Magic and Medicine in Ancient Egypt: Multidisciplinary essays for Rosalie David*, (Manchester: 2016), 170, n. 3;
[3] G. Lloyd, *Early Greek Science: Thales to Aristotle* (London: 1970), 4.
[4] V. Nutton, 'The Rise of Medicine', in R. Porter (ed.), *The Cambridge History of Medicine* (New York: 2006), 50.
[5] See the three entries for *pnw* ('mouse') in DrogWb. 197-8; cf. the frequency of *bi.t* ('honey'), an osmotic antiseptic (among other qualities) used for a plethora of internal and external complaints, *ibid*, 149; J. Campbell, 'Pharmacy in ancient Egypt', in R. David, *Egyptian Mummies and Modern Science* (Cambridge: 2008), 216-233.
[6] P. Ghalioungui, *The Physicians of Pharaonic Egypt* (Mainz: 1983), 76-80.
[7] Homer, *The Odyssey* I, 4.227, A. Murray (trans., Cambridge, MA: 1919), 135.
[8] Herodotus, *The Histories* II.77, R. Waterfield (trans., Oxford: 1998), 124.
[9] Herodotus, *The Histories* II.84.

'great physician', *swnw ir.ty* 'eye physician', and *swnw ir.ty pr-ꜥꜣ* 'eye physician of pharaoh'[10]—as well as the specialist manuscripts which were used specifically for wound- and gynaecological-treatments.[11]

Dated to *c*. 1550 BCE, the *Ebers Papyrus* is the largest of the healing papyri from ancient Egypt; it measures over twenty meters in length and contains 110 pages (columns) of text. These texts are divided into a series of 877 'cases' or 'prescriptions' – these are modern terms attributed to distinct passages.[12] The content focuses on a variety of issues including ophthalmological, gynaecological, and dermatological complaints, as well as wound treatment.[13] This document also contains several units of prescriptions known as 'books'. In addition to listing treatments, these texts incorporate valuable anatomical and aetiological information relating to ancient concepts of what has been interpreted as an ancient perception of the 'cardio-vascular system'.[14] Despite the documentary evidence from Egyptian and non-Egyptian sources relating to the practice, the negative historical value judgements persist in determining it as magical or exotic.

An explanation for the continued criticism of Egyptian medical practices might be found in the significant lack of understanding for the tradition – the texts are notoriously complicated and providing an accurate translation for concepts is a challenge.[15] A further explanation might be in the assumptions made regarding the Egyptian knowledge of internal anatomy during the mummification process. A common misconception within Egyptology is the consistency with which the Egyptians placed the internal organs in canopic jars; it is frequently written that the liver was placed with Imsety, the lungs with Hapy, the stomach with Duamutef, and the intestines with Qebehsenuef.[16] Such consistency in the placement of human viscera would justify the assumption that these four organs were perceived as individual entities as does modern conceptions of anatomy; however, recent research

[10] These examples appear as early as the Old Kingdom, cf. R. Hannig, *Ägyptisches Wörterbuch I: Altes Reich und Erste Zwischenzeit* (Mainz: 2003), 1088-9. For or a comprehensive list of the titles of physicians and expatriate physicians, see Ghalioungui, *Physicians*, 38-50.
[11] While the content of the Ebers Papyrus is general, others are more specific; the *Edwin Smith* 'surgical' papyrus treats wounds, the *Brooklyn* papyrus is ophiological, and the aforementioned Kahun papyrus focusses only on the treatment of feminine problems and is thus termed 'gynaecological', see list in *Handbuch*.
[12] This papyrus was first published complete with plates of each 'page' by Georg Ebers in 1875: G. Ebers, *Papyros Ebers: Das Hermetische Buch über die Arzenmittel der Alten Ägypter in Hieratischer Schrift, mit einem hieroglyphisch-lateinischen Glossar von Ludwig Stern* 2 vols. (Leipzig, 1875); cf. the hieroglyphic transcription from the original hieratic: H. Grapow, *Grundriss der Medizin der Alten Agypter V: Die Medizinischen Texte in Hieroglyphischer Umschreibung Autographiert* (Berlin 1958).
[13] J. Nunn, *Ancient Egyptian Medicine* (London: 1996), 32-4; Bardinet, *passim*; *Handbuch*, 22-35; E. Strouhal et al. *The Medicine of the Ancient Egyptians* (Cairo: 2014), 14-15.
[14] See: R. Ritner, 'The Cardiovascular System in Ancient Egyptian Thought', *JNES* 65 (2006), 99-110.
[15] For a summary of these challenges, see T. Pommerening, 'Heilkundliche Texte aus dem Alten Ägypten: Vorschlage zur Kommentierung und Übersetzung, in A. Imhausen and T. Pommerening, (eds.), *Translating Writings of Early Scholars in the Ancient Near East, Egypt, Greece and Rome: Methodological Aspects with Examples* (Berlin: 2016), 176-8.
[16] A. Dodson, 'Canopic Jars and Chests', in D. Redford (ed.), *The Oxford Encyclopedia of Ancient Egypt* (Oxford: 2001), 232; J. Taylor, *Death and the Afterlife in Ancient Egypt* (London: 2001), 64-6.

indicates that such practice was rarely so consistent, and that the tissues of multiple organs are found within one jar.[17]

This paper will focus its analysis on one such book from the Ebers Papyrus – the so-called '*Stomach Book*' (these prescriptions are listed as Eb. 188-216). The Stomach Book can be bifurcated: the prescriptions of the first half of the Stomach Book (Eb. 188-207) include a title and treatment method whilst also outlining relative symptoms, diagnoses, and on occasion a re-examination and re-treatment – these texts fit Pommerening's '*Lehrtexte*' category.[18] The second half (Eb. 208-216) lists simplified instructions for remedy concoctions, consisting of only one or two lines of text – these texts are termed '*Rezepte*' or '*Pharmaka*' by Pommerening.[19] The prescriptions have been compiled as a complete and unbroken unit of treatments for an anatomical feature termed the '*r3-ib*' – a word which—while commonly translated as 'stomach'—has been the cynosure of conflicting opinions. It is hoped that a new and comprehensive appraisal of these prescriptions will act as a framework which will a) enable a reconsideration of the specific focuses of the texts, and b) to demonstrate that further lexicographic analyses are required for establishing emic understandings of the *mechanics* of the Egyptian healing tradition.

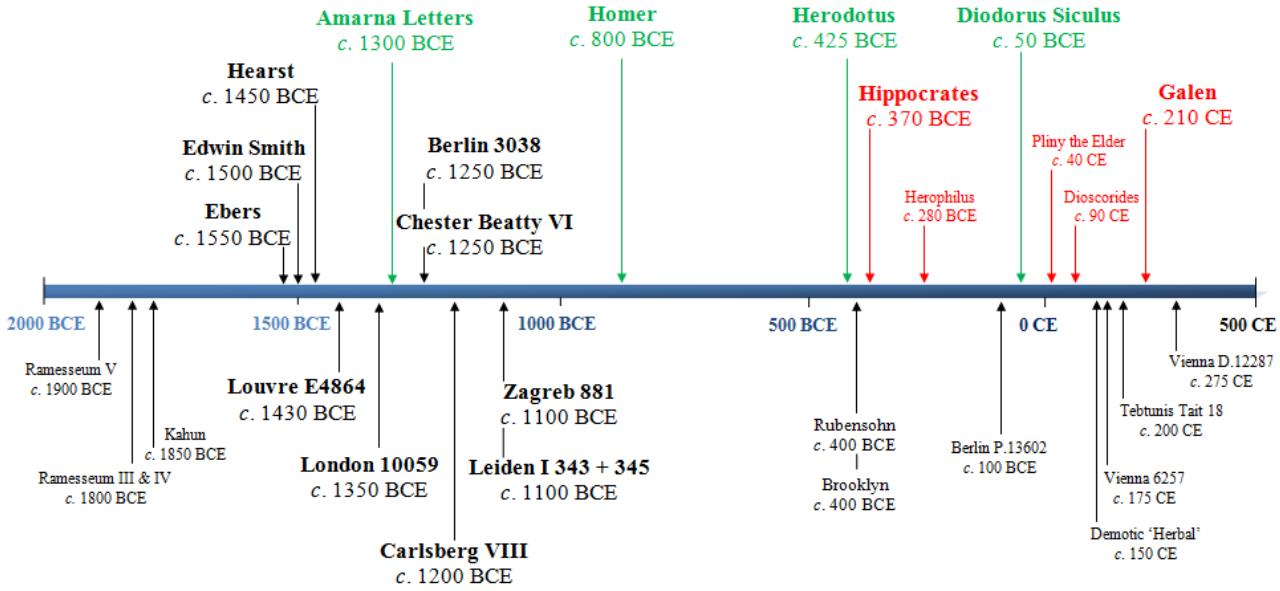


**FIGURE 1**: Timeline of published Egyptian medical documentation (in black), accompanied by ancient sources which mention the medical practice (in green) and Classical medical practitioners (in red).

[17] See F. Rühli et al., 'Canopic Jars: A New Source for Old Questions' in S. Ikram et al. (eds.), *Egyptian Bioarchaeology: Humans, Animals, and the Environment*, (Leiden: 2015), 105-112.
[18] For an indepth analysis of *Lehrtexte* examples, see: T. Pommerening, 'Die *šs3w*-Lehrtexte der heilkundlichen Literatur des Alten Ägypten Tradition und Textgeschichte' in D. Bawanypeck and A. Imhausen (eds.), *Traditions of Written Knowledge in Ancient Egypt and Mesopotamia Proceedings of Two Workshops Held at Goethe-University, Frankfurt/Main in December 2011 and May 2012* (Münster, 2014), 7-46.
[19] *Ibid*, 8; Pommerening, in A. Imhausen and T. Pommerening (eds.), *Translating Writings*, 177-8.

## i.ii: Status Quaestionis: Stomach Book

The importance of the Stomach Book to the study of ancient Egyptian conceptions of human physiology has been noted by past scholarship; however, a consensus as to what the focus of the text—the *r3-ib*—specifically refers to has yet to be reached. In recent decades, several translations of the Ebers Papyrus and the Stomach Book have been published. German scholarship has followed the trend set by the authors of the *Grundriss*[20] who determined that the *r3-ib* refers to what modern anatomical terminology terms the 'stomach'. This translation is consistently employed by Westendorf,[21] Stephan,[22] and Radestock,[23] as well as the Leipzig Universität-based open-access archive *Science in Ancient Egypt*.[24]

Other translators take a different approach. Thierry Bardinet published a translation of the Ebers Papyrus in 1995; his interpretation of the *r3-ib* was consolidated with that of the Egyptian terms *ib* and *ḥ3.ty*, which he understood as '*l'intérieur-ib*' (referring to the interior of the torso) and the 'coeur-*haty*' (referring to the physical heart).[25] Thus, his translation of the *r3-ib* as '*l'entrée du l'intérieur-ib*' (referring specifically to the epigastric region)[26]—though it considers the literal Egyptian terminology—is dependent on his conclusions regarding the translations of both *ib* and *ḥ3.ty*, which have since been criticised for being based on insufficient evidence.[27]

In 1996, James Walker similarly rejected the translation 'stomach' preferring instead to understand the term as simply a synonym for 'chest';[28] he determined that it was 'perceived to be a sort of shrine for the *ib*' and 'means something like "the cave of the *ib*".'[29] Despite his seemingly emic approach, Walker retained a modern medical perception of Egyptian terminology; for example, the understanding of the *mr.wy* 'canals' which are associated with the *r3-ib* in these texts was taken as referring to the cavities either side of the spinal-column, and in the expression *ḏ3(i).n=f t3* 'it has crossed the land', *t3* was taken as referring to the spine itself.[30] Finally, an article from 2002 by Mahmoud Hussein also rejected the translation 'stomach', preferring a more ambiguous translation 'site of bleeding'[31] – this interpretation understood the *r3-ib* as 'site of bleeding', linking it to haematemesis from liver

[20] MedWb. I, 515-518.
[21] *Handbuch*, 578-588.
[22] J. Stephan, *Ordnungssysteme in der altägyptischen Medizin und ihre Überlieferung in den Europäischen Kulturkreis* (Hamburg: 2001), 83-108.
[23] S. Radestock, *Prinzipien der ägyptischen Medizin: Medizinische Lehrtexte der Papyri Ebers und Smith, Eine wissenschaftstheoretische Annäherung* (Würzburg: 2015), 135-164.
[24] This project follows the '*Communis opinio*', *SAE*.
[25] T. Bardinet, *Les papyrus médicaux de l'Égypte pharaonique* (Paris: 1995), 68-80.
[26] *Ibid*, 276.
[27] See W. Westendorf, Review of Bardinet, *Les papyrus médicaux de l'Égypte pharaonique*, *Orientalia* 65 (1996), 360-65; cf. understanding of *ib* and *ḥ3.ty* in R. Nyord, *Breathing Flesh: Conceptions of the Body in the Ancient Egyptian Coffin Texts* (Copenhagen: 2009), 55-143.
[28] J. Walker, *Studies in Ancient Egyptian Anatomical Terminology* (Warminster: 1996), 127.
[29] *Ibid*, 145.
[30] *Ibid*, 137.
[31] M. Hussein, 'Notes on: Ancient Egyptian Medical Terminology: 2 – Medical re-interpretation of *r3-ib*  ', *DE* 53 (2002), 39-46.

cirrhosis (a condition where blood exudes from oesophageal varices because of advanced liver damage and scarring).[32]

Imhausen and Pommerening briefly noted the problem of translating the *r3-ib* as 'stomach' in the introduction to their edited volume. They posit that—because of its terminology and obvious close association to the '*ib*-heart'—the term 'stomach' 'does not adequately express the Egyptian concept anatomically or physiologically'.[33] Using examples of selected Egyptian disorders and their current translation that equate to modern classifications of illnesses, Pommerening also demonstrated that correlations between Egyptian and modern medical concepts is highly problematic.[34] It must be remembered that the idea of an 'upper epigastric region', a 'thoriac cavity', and 'site of bleeding (caused by haematemesis)' are modern classifications for ideas which do not necessarily have ancient Egyptian counterparts.

While the most authors provide translations for the ingredients used in the prescripted remedies, they refrain from incorporating data drawn from treatment methods into discussions of Egyptian physiology.[35] As the ingredients of a remedy constitute the purpose of the written prescription, any attempt to grasp the principles of a medical system must enter in a discussion of the *materia medica*.

Medical anthropological frameworks applied to the study of other medical cultures have largely been ignored in Egyptological approaches to healing practices from the Nile Valley. In 1973, Arthur Kleinman published a seminal article which still forms the basis for contemporary phenomenological and ethnographic research into the practice of medicine in different cultural and historical settings.[36] In this publication, it is noted that medicine (and by extension its language of expression) has a dual reality: the scientific on the one hand is seen as being grounded in a biophysical reality (i.e. observations of bodily functions and chemical reactions), while the ordinary is grounded in human experience (i.e. culturally and environmentally governed concepts and ideologies specific to a community); thus, while the biophysical reality of medicine has increasingly become the primary basis for the science of modern medicine, the practices of distinctive non-Western medical traditions can be better

[32] *Ibid*, 42-5.
[33] A. Imhausen and T. Pommerening: 'Introduction: Translating ancient scientific texts', in Imhausen, A., and Pommerening T. (eds.), *Writings of Early Scholars in the Ancient Near East, Egypt, Rome, and Greece* (Berlin: 2010), 3-4.
[34] The article primarily focussed on highlighting the pitfalls of an over-reliance on out-dated translations, such as that of B. Ebbell, *The Papyrus Ebers, The Greatest Egyptian Medical Document* (Copenhagen: 1937), which is marked as the most popularly cited translation of the document in recent scholarship, T. Pommerening, 'Von Impotenz und Migräne – eine kritische Auseinandersetzung mit Übersetzungen des Papyrus Ebers', in Imhausen and Pommerening (eds.), *Writings of Early Scholars,* (Berlin: 2010), 153-174.
[35] The recent translation of Radestock (*Prinzipien,* 13) refrained from providing a translation of the ingredients, stating that '*Die* Materia medica *ist nicht Thema dieser Arbeit*'.
[36] A. Kleinman, 'Medicine's Symbolic Reality: On the Central Problem in the Philosophy of Medicine', *Inquiry* 16 (1973), 206-13. Reprinted in Good, B., et al. (eds.), *A Reader in Medical Anthropology: Theoretical Trajectories, Emergent Realities* (Chichester: 2010), 85-90; for a medical anthropological appraisal of this paper, see also B. Good, et al., 'Part II, Illness and Narrative, Body and Experience; Introduction', in B. Good, *A Reader in Medical Anthropology: Theoretical Trajectories, Emergent Realities* (Chichester: 2010), 79-84.

studied as a social and cultural enterprise.[37] Ancient Egyptian medical texts should not be seen as an exception to this distinction – the texts are notoriously challenging to translate as they contain language which does not appear in other genres of literature.[38] They must be dissected with a firm knowledge of Egyptian cultural pragmatics as well as an awareness of the use of language that is specific to healing practices. In other words, ancient Egyptian anatomical and aetiological concepts should not be considered as relatable to modern Western classifications of anatomy and disease, particularly as these are cultural constructs.[39]

## i.iii: Research Question

Using the Stomach Book as a case study, this thesis will seek to determine the relationship between conceptions of the anatomy, disease theory, and treatment of the *r3-ib*. To do this, the study will need to answer four subsidiary questions: 1) is there a firm relationship between the individual prescriptions of the Stomach Book? 2) do the symptoms listed in each text elucidate an understanding of conceptions of anatomy? 3) are the diagnoses of each text consistent, or do they represent conflicting ideas? 4) is it possible to identify trends in treatment selection?

## i.iv: Methodology

The Stomach Book of the Ebers Papyrus is the only set of prescriptions—or indeed texts, both medical and non-medical—which exclusively lists treatments for the *r3-ib*; because of this, the source material is ideal for a case study. The study will contribute a new translation (see appendix 1: translations) as well as a new appraisal of the texts based on conceptions of anatomy, disease theory, and treatment selection.

The first chapter will examine the relationship between the prescriptions in the Stomach Book; while this may seem redundant, it is important to establish a firm understanding of the topic of each prescription and how they are connected. The second chapter will lexicographically analyse the anatomical components listed in the symptoms – this will contribute a set of statistics which can be used to measure the associations between the *r3-ib* and other anatomical components. The third chapter will discuss Egyptian perceptions of aetiology using the diagnosis section of each prescription. The final chapter will contribute some remarks based on the statistics of ingredient usage – this will be supplemented by a glossary which will provide English and Latin translations for the Egyptian terms where possible (see appendix 2: glossary of drugs). The provision of these translations is based on existing scholarship only;[40] where disputes exist between translators,

[37] Kleinman, in Good et al., *Medical Anthropology*, 85.
[38] See Pommerening, in Imhausen and Pommerening (eds.), *Translating Writings*, 176-179.
[39] Kleinman, in Good et al., *Medical Anthropology*, 85-6.
[40] These include the varying translations for disputed ingredients given in current editions of the Ebers Papyrus such as Bardinet, *Les papyrus médicaux*; W. Westendorf, *Handbuch der altägyptischen Medizin* 2 vols. (Leiden: 1999); and the online *SAE* archive. Studies into ancient Egyptian herbs and minerals have also been used: DrogWb.; J. Harris, *Lexicographical Studies in Ancient Egyptian Minerals* (Berlin: 1961); G. Charpentier, *Recueil de matériaux épigraphiques relatifs à la botanique de l'Égypte antique* (Paris: 1981); L. Manniche, *An Ancient Egyptian Herbal* (1999 reprint, London: 1989); and R. Germer, *Handbuch der altägyptischen Heilpflanzen* (Wiesbaden: 2008). The various journal articles contributed by W. Dawson (*JEA* 1932-35) and S. Aufrère (*BIFAO* 1983-9) have also been consulted (see detailed entries in the bibliography).

a concise analysis will follow which will employ frameworks for analysing pictorial, lexicographic, and archaeobotanical evidence[41] as outlined by Pommerening in a recent article.[42] Though the glossary will provide suggestions where such disputes exist, the limits of the case study demand that it refrains from drawing any definitive conclusions. Uncertain translations shall be marked with a '(?)'.

A discussion of the role of magic and empirical science in Egyptian medicine will not be followed in this paper as none of the studied prescriptions include instructions for incantations or the use of *ḥkꜣ*.[43] The paper will conclude with an appraisal of the Stomach Book which will be exclusively based on the discussions of the previous chapters.

[41] For the archaeobotanical record, this paper has used the readily available data of Vartavan and Amorós. While the author appreciates that this source is twenty years old and selective in the sites chosen to represent its record, and therefore not definitive, it still provides invaluable data regarding the comparative frequency of plant matter from the pharaonic period.

[42] This article outlines the potential pitfalls in a variety of methods used for translating ancient drug terms, T. Pommerening, 'Wege zur Identifikation altägyptischer Drogennamen – eine kritische Betrachtung', in P. Dils and L. Popko (eds.), *Zwischen Philologie und Lexikographie des Ägyptisch-Koptischen: Akten der Leipziger Abschlusstagung des Akademienprojeckts „Altägyptisches Wörterbuch"* (Leipzig: 2016), 82-111.

[43] See R. Ritner, *The Mechanics of Ancient Egyptian Magical Practice* (Chicago: 1993); C. Leitz, 'Rabenblut und Schildkrötengalle: Zum vermeintlichen Gegensatz zwischen magisch-religiöser und empirisch-rationaler Medizin', in A. Karenberg and C. Leitz (eds.), *Heilkunde und Hochkultur II: Magie und Medizin' und ‚Der alte Mensch' in den antiken Zivilisationen des Mittelmeerraumes* (Hamburg: 2002), 49-73; R. David, 'Rationality versus Irrationality in Egyptian Medicine in the Pharaonic and Graeco-Roman Periods', in H. Horstmanshoff and M. Stol (eds.), *Magic and Rationality in Ancient Near Eastern and Graeco-Roman Medicine* (Leiden: 2004), 133-152.

## 1: Lexicography of Prescription Titles

> Unlike the Edwin Smith papyrus, the Ebers is a collection of different medical texts which have been run together in a rather haphazard order.
>
> – John Nunn, 1996[44]

This paper separates the 'titles', 'symptoms' and 'diagnoses' sections of a prescription for individual analysis. The distinction is based on their unique form, content, and the distinctive information one can extrapolate from each. It must be remembered that—while an etic distinction can be made based on the information it provides the reader—the ancient Egyptians likely made no such distinction. The texts themselves are only bifurcated into the examination (a summary of information relevant to the situation) and the treatment (lists of ingredients and their methods for preparation). The examination is part of an extended 'protasis and apodosis' conditional sentence;[45] formed by both the conditional protasis formed with the marker *ir* and the subsequent main-clause apodosis regularly formed using the *sḏm.ḥr=f* contingency form.[46]

The title of a prescription can be distinguished by three key factors: a) this feature is almost consistently demarcated in red ink;[47] b) the section immediately highlights the subject matter of the prescription, even when it does not form part of an extended grammatical feature (such as in Ebers 208-216); and c) the 'titles' consist of comparatively limited vocabulary. This section of a prescription enables the measurement of the connection between each text within the Stomach Book. It is the nearly-consistent feature which begins each prescription. The following discourse will be formed by a brief consideration of the featured lexemes, listed in the alphabetic order of Egyptological transliteration. The discussion which follows will provide a summary of the information conveyed by the titles in the Stomach Book, as well as identify the link between each text.

### 1.1:  *pḫr.t* (Eb. 196, 198, 200, 208, 212, 214)

Noun: 'remedy'[48]

This word is used in the titles of abbreviated prescriptions 208, 212, and 214. This word is also used in two instructions (Ebers 196 and 200) and one prognosis (Ebers 198). Ritner translated *pḫr.t* as 'potion', a translation followed by Bardinet[49] – this translation is too

[44] Nunn, *Ancient Egyptian Medicine*, 32.
[45] See section 18.12 in J. Allen, *Middle Egyptian: An Introduction to the Language and Culture of the Hieroglyphs* (3rd edn., Cambridge: 2014), 276-7.
[46] See section 19.11, *ibid*, 297-8.
[47] The titles of Ebers 197 and 199 are not demarcated in red ink – this can perhaps be explained as the error either of the prescription's original scribe, or the copyist who compiled the Ebers Papyrus. Modern publications of healing texts follow the demarcation system by the use of italics, underlining, or bold fonts; the latter is used in the translations in the appendix to this paper.
[48] Wb 1, 549.1-12; MedWb.I, 284.
[49] Bardinet, *Les papyrus médicaux* 279-80. Ritner selectively translates both 'prescription' and 'potion' for this word depending on context - this author feels this is unnecessary, especially as to do so allows the translator to selectively apply nuances to the source material; R. Ritner, *The Mechanics of Ancient Egyptian Magical Practice* (Chicago: 1993), 54-5.

assumptive as it has strictly magical connotations which do not match the use of *pḫr.t*. Ebers 200 modifies the word as *pḫr.t ḥr sȝ* 'after remedy', a term which finds similarity in a modification of *sp*  (*sp n*(*i*).*w sȝ* 'after medium'); these phrases indicate that *pḫr.t* has a similar meaning to the term *sp* – it is the name given to a concoction of ingredients used in treatments. While the two appear to be used almost interchangeably, only *pḫr.t* is used in the titles of the Stomach Book, suggesting there was a distinct difference in word usage. The *Science in Ancient Egypt* project translates *pḫr.t* as '*Heilmittel*', and *sp* as '*Mittel*'[50] – this subtle distinction will also be employed here.

### 1.2:  *mn* (Eb. 188, 189, 191, 192, 194-197, 199, 200, 203, 205)

Verb: 'to suffer'[51]

With the exception of Ebers 194, this word mostly occurs in prescription titles; it is perhaps a catch-all term for any kind of medical complaint as it appears it a multitude of contexts throughout the healing papyri.[52] As Allen has noted, the verb *mn* is transitive and is normally used with an object which denotes the cause of suffering.[53] This verb is perhaps etymologically related to the verb *mn* – 'to remain, to endure, to establish',[54] suggesting the translation of 'to suffer' is meant in a context of enduring or experiencing, rather than as an explicit reference to a specific type of pain.

### 1.3:  *rȝ-ib* (Eb. 188, 189, 191, 192, 193, 194, 195, 197, 198, 199, 200, 201, 202, 203, 205, 206, 208, 211, 212, 213, 214, 216)

Noun

Though the Stomach Book is a series of prescriptions qualified with the heading *šsȝ.w n mn rȝ-ib* 'instructional texts for one suffering (from) the *rȝ-ib*', the *rȝ-ib* the anatomical designation is missing in seven prescription titles. In Ebers 215, the whole title is substituted with *k.t* 'another'; in Ebers 190 and 207, the *rȝ-ib* subject matter is clear from the diagnosis of the respective prescriptions; and in Ebers 196, the subject is abbreviated to *s.t* 'it'. These four prescription titles suggest that while the *rȝ-ib* is still the focus of these texts, a precise specification was not a requirement for their format. In Ebers 204, 209 and 210, *rȝ-ib* has been replaced by *gs* (see 1.II.g).

### 1.4:  *ḫȝ*(*i*) (Eb. 188-207)

Verb: 'to examine'[55]

Used throughout pharaonic history in the context of grain measuring, this word is commonplace in medical prescriptions though it is consistently written without the  grain-

[50] See translation for Ebers 200, *Science in Ancient Egypt* archive.
[51] Wb. 2, 66.18-67.4; MedWb.I, 365; R. Faulkner, *A Concise Dictionary of Middle Egyptian* (2002 reprint, Oxford: 1962), 107; Hannig, *Wörterbuch I*, 528; *Ägyptisches Wörterbuch II: Mittleres Reich und Zweite Zwischenzeit* 2 vols. (Mainz: 2006), 1065.
[52] See list in MedWb.I, 365-7.
[53] Allen, *Middle Egyptian*, 351 n. 1.
[54] Wb 2, 60.6-62.26.
[55] Wb. 3, 223.4-16; Hannig, *Wörterbuch II*, 1832; PtolLex., 700.

sack determinative.[56] The link between the verb *ḫ3(i)* and an Egyptian agricultural reality is exemplified by glosses copied in both Ebers 854a and case 1 of the *Edwin Smith Surgical Papyrus*,[57] suggesting it was an agricultural term before being adopted into healing vocabulary. According to Bardinet, the word is also written *wḫ3* further on in Ebers 188 (36, 12) – this seems unlikely;[58] *wḫ3* is more reliably translated as the verb 'to empty'.[59]

### 1.5:  *šnᶜ* (Eb. 188, 190, 193, 198, 199, 201, 202, 204, 206-211, 213)

Noun, 'obstruction'[60]

From the sixth dynasty to the Graeco-Roman Period, *šnᶜ* is used nominally to refer to 'a storehouse' (spelled with the plough sign), or as a verb denoting 'to hinder' or 'to repel'.[61] In the medical texts, this word is written with a flesh or putrefaction determinative, suggesting a specifically physiological meaning; in this context, contemporary scholarship favours '*Verstopfung*',[62] though this translation has connotations of constipation. Ebers 211 specifies that the obstruction in this prescription is one of *wnm snf* 'food and blood' – this is indicative that using the translation of 'constipation' is not consistent with the biophysical or cultural reality embodied by 'obstruction'. To avoid associating this word with any current understanding of disorders, it is preferable to use Bardinet's translation as a simply '*obstruction*'.[63] Ebers 208, 210, 211, and 213 specify that the purpose of these prescriptions was to *dr*  'drive away'[64] the obstruction. Similarly, The Ebers 209 was intended to *srwḫ*  [65] 'treat' the obstruction. Interestingly, this latter verb is used in both medical and mummification contexts.[66]

### 1.6:  *k.t* (Eb. 208, 209, 210, 211, 212, 213, 214, 215, 216)

Noun, 'another'[67]

Used in the Stomach Book to introduce simple remedies without the use of *ḫ3(i)*, an 'examination'. *k.t* might indicate that an aspect of theory from the preceding prescription(s) is relevant to that in which it is used; however, caution should be applied against the assumption that this is always the case. Ebers 209—headed with *k.t*—is a case against an obstruction caused by a demon; Ebers 210—also headed with *k.t*—is against an obstruction in the right side; and finally, Ebers 211—again with *k.t*—is against an obstruction of food and blood. The

[56] Wb. 3, 223.4-16; MedWb.II, 644-6.
[57] 'As for "you examine a man", it is counting a certain individual [like the] counting of something with an *oipe*-measure...' Ritner, *JNES* 65, 102; Grapow, *Grundriss V*, 1; 299-300.
[58] See n.6 for this prescription, *SAE*.
[59] MedWb.I, 207.
[60] MedWb.II, 589-590.
[61] Hannig, *Wörterbuch I*, 1310-11; II, 2472-3; *LED* II 128-9; PtolLex. 1018-19.
[62] *Ibid*; Westendorf, *Handbuch*, 578; Radestock, *Prinzipien*, 135; *SAE*.
[63] Bardinet, *Les papyrus médicaux*, 276.
[64] Wb. 5, 473.1-474.12; MedWb.II, 981-2.
[65] Wb. 4, 193.13-194.6; MedWb II, 775-778.
[66] Wb. 4, 193.13-194.6; Hannig, *Wörterbuch I*, 1172; II, 2281-2.
[67] Wb. 5, 110.7-114.7.

causes of these three examples are all quite distinct; though *k.t* is used, it does not suggest that all are to treat a demonic entity. The translation 'another' is neutral.

### 1.7:  *gs* (Eb. 204, 209, 210)

Noun, 'side'[68]

This word can be modified using *i3b.y*  'left' or *wnm.y*  'right' and refers to an anatomical designation. It is translated by Walker as meaning 'side of the body', though with no further discussion.[69] It appears in the *Pyramid Texts*,[70] and Wilson notes that the word is used to designate a location in relation to the position of the Nile in Ptolemaic texts (east and west).[71] The use of *gs* in the medical texts might be explained by this aspect of Egyptian riverine phenomenology, though further analysis is required to make such conclusions.

Its association with the *r3-ib* in these texts suggests that the internal body was and conceptualised as having left and right abstract counterparts; this theory can be substantiated in a symptom of Ebers 191 which illustrates suffering in the upper arm, the chest, and a *gs n*(*i*) *r3-ib*, 'side of the *r3-ib*' (see below 1.3.10).

### 1.8: A Discussion of Titles

The use of vocabulary for these twenty-nine prescriptions identifies a bifurcation in the titles of these prescriptions. The verb *ḫ3*(*i*) is used for the first half of the Stomach Book (Eb. 188-207) and indicates that more detailed 'examinations' follow, whereas the noun *pḫr.t* is used for the latter half (Eb. 208-216). The latter prescriptions are in abbreviated format (evidenced by the use of *k.t*), they list only the title and treatment. In these texts, the title is the first section of a medical prescription: the 'examination'. This hypothesis is substantiated by the replacement of the other elements of written examination with the verbs *dr* and *srwḫ*, of which *šnꜥ* 'the obstruction' is their object. Rather than listing symptoms and diagnoses, the objectification of *šnꜥ* immediately makes it the subject of the prescription and thus the cause of the illness which needs to be 'removed' or 'treated'.

The verb *mn* is also only found in the first half of a prescription and is used inconsistently as it is absent from seven of the first twenty prescriptions; as this verb is part of the main heading of the Stomach Book, it can be safely assumed that it applied to all texts of the section. Though *šnꜥ* is used in both halves, it is also inconsistent, being absent from fourteen of twenty-nine. These two words appear interchangeable, but this is unlikely, as one is a verb and the other a noun; furthermore, Eb. 199 uses the two together: *ir ḫ3*(*i*)*=k sỉ ḥr mn šnꜥ m r3-ib=f* 'If you examine a man suffering from an obstruction in his *r3-ib*'. From the main heading of the Stomach Book and the various uses of *šnꜥ*, it is possible to suggest that 'the obstruction' is what is causing the complaint (or 'suffering') in all cases.

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[68] Wb. 5, 191.11-194.10.
[69] Walker (*Anatomical Terminology*, 278) follows the translation of D. Meeks, *Annee Lexicographique* I (Paris: 1980), 408 (77.4683).
[70] See *Pyramid Text* 734 in R. Faulkner, *The Ancient Egyptian Pyramid Texts* (Oxford 1969), 314.
[71] PtolLex. 1107.

Though the titles are all variants for the same determined focal point (suffering caused by an obstruction of the *r3-ib* which needs removing or treating), each heading is written in varying styles. The consistencies can be viewed when each clause is listed together (TABLE 1 below). While the formulations of these titles might differ somewhat, their focus is the same; at least in the case of the Stomach Book, the arrangement of prescriptions cannot be described as 'haphazard'.

| **Ebers** | **Title** |
|---|---|
| 188 | *ir ḫ3(i)=k sḏ ḥr šnᶜ n(i) r3-ib=f* |
| 189 | *ir ḫ3(i)=k sḏ ḥr mn r3-ib=f* |
| 190 | *ir ḫ3(i)=k sḏ ẖr šnᶜ* |
| 191 | *ir ḫ3(i)=k sḏ ḥr mn r3-ib=f* |
| 192 | *ir ḫ3(i)=k sḏ ḥr mn r3-ib=f* |
| 193 | *ir ḫ3(i)=k sḏ ẖr šnᶜ n(i) r3-ib=f* |
| 194 | *ir ḫ3(i)=k sḏ ḥr mn r3-ib=f* |
| 195 | *ir ḫ3(i)=k sḏ ḥr mn r3-ib=f* |
| 196 | *ir ḫ3(i)=k sḏ mn=f st* |
| 197 | *ir ḫ3(i)=k sḏ ḥr mn r3-ib=f* |
| 198 | *ir ḫ3(i)=k sḏ šnᶜ=f m r3-ib=f* |
| 199 | *ir ḫ3(i)=k sḏ ḥr mn šnᶜ m r3-ib=f* |
| 200 | *ir ḫ3(i)=k sḏ šnᶜ n(i) r3-ib=f* |
| 201 | *ir ḫ3(i)=k sḏ šnᶜ n(i) r3-ib=f* |
| 202 | *ir ḫ3(i)=k sḏ ẖr šnᶜ n(i) r3-ib=f* |
| 203 | *ir ḫ3(i)=k sḏ ḥr mn r3-ib=f* |
| 204 | *ir ḫ3(i)=k sḏ ẖr.y šnᶜ n(i) r3-ib=f* |
| 205 | *ir ḫ3(i)=k sḏ ḥr mn r3-ib=f* |
| 206 | *ir ḫ3(i)=k sḏ ẖr šnᶜ n(i) r3-ib=f* |
| 207 | *ir ḫ3(i)=k sḏ ẖr šnᶜ* |
| 208 | *pẖr.t n(i).t dr šnᶜ m r3-ib* |
| 209 | *k.t n(i).t srwḫ šnᶜ m gs* |
| 210 | *k.t n(i).t dr šnᶜ m gs* |
| 211 | *k.t n(i).t dr šnᶜ wnm snf ḥr r3-ib* |
| 212 | *k.t n(i).t r3-ib* |
| 213 | *k.t n(i).t dr šnᶜ m r3-ib* |
| 214 | *k.t n(i).t r3-ib* |
| 215 | *k.t* |
| 216 | *k.t n(i).t r3-ib* |

**TABLE 1**: List of title variations in Ebers 188-216.

## 2: Lexicography of Symptoms

> The medical papyri, especially the Edwin Smith, demonstrate an understanding of anatomy and include a detailed vocabulary of Egyptian anatomical terms for the external and upper parts of the body.
>
> Roger Forshaw, 2016[72]

The 'symptoms' section of a prescription is distinct from the title and diagnoses sections based on the information it conveys. This component lists the observable symptoms which have manifested as the result of the believed obstruction in the *r3-ib*, as well as those found during the examination process. A separate analysis of the symptoms allows this portion of the thesis to understand how the Egyptians perceived the physiology of the *r3-ib* and which parts of the body could be afflicted because of an obstruction within it.

Unlike the titles, the symptoms are unique to each prescription. They are frequently punctuated with grammatical or instructional 'markers', the first of these being the repetitive protasis *ir ḫ3(i)=k si ḥr mn šnᶜ r3-ib=f* title formula previously discussed. This first marker can be followed by a circumstantial *iw* + subject-*sḏm=f* construction[73] which lists symptoms observable prior to an examination (e.g., *iw=f q3s=f ᶜš3* 'while he vomits greatly'[74]). Contrary to these, the symptoms detected because of an examination are frequently marked with either an additional unmarked protasis *gmm=k* 'if you find',[75] or a marked protasis *ir gm=k* 'should you find' construction;[76] there is also one example of the negative *n(i) gm.n=k* '...and you do not find' construction.[77] The grammatical formulation of the examination thus distinguishes between 'observable symptoms' and 'found' or 'examined symptoms'. The individual marking of these two classes of symptoms perhaps informs the reader on the nature of ancient Egyptian doctor-patient relationships;[78] the latter symptoms are marked as being found specifically by the physician (expressed with the second-person subject pronoun *=k*), indicating his professional aptitude for the role. While this is the general rule, it was also possible to omit the markers entirely, as can be seen in Ebers 190 which omits both the *r3-ib* anatomical subject, as well as any markers which may have preceded the listed symptoms.

Ebers 188—the first prescription of the Stomach Book—includes *sḏm.ḫr=k* constructions using the verbs *m33* 'to see/to look' and *wḥm* 'to repeat' as additional markers. This prescription is the only text to use this construction with the verbs *m33* and *wḥm*. The

[72] Forshaw, *Mummies, Magic and Medicine*, 127.
[73] See section 18.6 in Allen, *Middle Egyptian*, 269-70.
[74] Eb. 192.
[75] These are 'future-' or 'prospective-*sḏm=f*s' and are balanced with the *ḏd.ḫr=k* diagnoses marker (see section 1.4), Allen, *Middle Egyptian*, 270-71; Eb. 188, 189, 190, 193, 198, 199-203, 204, 206-7, (see TABLE 2 on page 17).
[76] This is the subjunctive form of the *sḏm=f* – they are balanced with the *ḏd.ḫr=k* diagnosis marker, Allen, *Middle Egyptian*, 271-3 Eb. 188, 192, 195, 203, 205.
[77] Eb. 197.
[78] For this and the 'phychological aspect of general practice' see the seminal work M. Balint, *The Doctor, his Patient, and the Illness* (2nd edn., London: 1964).

first construction with *m33—m33.ḫr=k sw sṯ(3)s* 'you have to see him stretched out'[79]—precedes the *gmm=k* marker and instructs the physician on how to perform the examination, namely the patient is to be 'stretched out'. The second construction with *wḥm—wḥm.ḫr=k m3n=f* 'you have to repeat seeing him'—is found following the treatment section of this prescription (see chapter 4 for treatments) and introduces the instructions for re-examination. In the second construction, *wḥm* references the earlier construction with *m33* – here, the precise instructions for 'seeing him stretched out' is condensed into the infinitival form of *m33*,[80] thus abbreviating the instructions which give this action meaning.

The exclusive occurrence of these two verbs in the first text of the Stomach Book suggests two things: a) that the *sḏm.ḫr=k* construction following the first protasis found in Ebers 188 forms the first apodosis which is followed by the second conditional sentence formed with an unmarked *gmm=k,* and b) that the absence of these instructions in the subsequent prescriptions indicates that it was an unimportant element which could be omitted. As demonstrated by both the abbreviation of instructions in Ebers 188 and the total absence of examination markers in Ebers 190, the repetition of markers in these texts was not a priority for the ancient scribe.

A second *sḏm.ḫr=k* construction can be found to precede the secondary conditional sentences formed with the verb *gm*; variants of the *rḏi.ḫr=k ḏr.t=k ḥr=f* 'then you have to place your hand upon him' instruction occurs in Ebers 189, 193, and 203. An explanation of its meaning is perhaps found in Ebers 856a and Edwin Smith case 1: 'whenever any priest of Sekhmet or any physician places his hands and his fingers upon... then he is taking a measure (*ḫ3i*)'.[81] The current concensus is that this expression refers to the action of taking a patient's pulse.[82] The limited frequency with which these constructions occur further suggests that a) the information on how to conduct the examination they conveyed was evident to physician by the use of *ḫ3i* in the title and therefore any further explanation or consistent repetition was unnecessary, or b) the use of all three constructions in the first two texts of the Stomach Book (Eb. 188-9) was enough to elucidate the methods of examination required for treating the *r3-ib*. While each marker is not always present in each prescription, the texts are ordered into a format which begins with the title, followed by the observable symptoms marked with *iw,* the *sḏm.ḫr=k* construction, and finally the examined symptoms marked with *gm*. The symptoms are consistently followed by diagnoses and treatments (discussed below), before any potential re-examination and subsequent treatment (see TABLE 2).[83]

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[79] The precise meaning of *sṯ(3)s.y* 'streched out' is indicated by the  determinative. The *SAE* follows Westendorf's interpretation of this expression as '*du sollst ihn (auf den Rücken) ausgesteckt betrachten*', (*Handbuch*, 578); however, such a precise position is not specified by either the context or the determinitive (which faces downward). It is perhaps safer to translate 'streched out' without reference to a specific position.
[80] This is the two-radical form of the infinitive with a final *n* before the pronominal suffix *=f*; see Allen, *Middle Egyptian*, 181.
[81] Grapow, *Grundriss V*, 1; 299-300.
[82] See: Ritner, *JNES* 65, 102.
[83] cf. Tab. 3 '*Struktur der Lehrtexte des Wundenbuchs*', Pommerening, in Imhausen and Pommerening, *Translating Writings*, 198.

This section will discuss the implications of the listed symptoms according to the anatomical feature to which they pertain – these will be arranged according to the alphabetic order of Egyptological transliteration. Specific anatomical distinctions are grouped where they are components of the same symptom. It will seek to determine themes in symptoms, as well as attempt to further illuminate an emic characterisation of the *r3-ib*; anatomical theory will be deduced from the relationship between the *r3-ib* and other listed body parts in which each symptom manifests. Finally, each entry will reconsider the current translations; while the restrictions of this paper do not enable a complete lexicographic analysis of anatomical terms from all healing papyri, any problematic methodologies accepted as the base for current translations will be highlighted, stressing the need for further research.

| | **Ebers** | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 |
| **Title** | t | **T** | **T** | **T** | **T** | **T** | **T** | **T** | **T** | t | **T** | t | **T** | **T** | **T** | **T** | **T** | **T** | **T** | **T** |
| Title extension | x | **X** | | | **X** | | | **X** | | x | | | | | | | | | **X** | x |
| *sḏm.ḫr=k* Instruction | x | x | | | | **X** | | | | | | | | | | x | | | | |
| *gmm=k* Symptom | x | x | | | x | x | | x | | x | x | x | x | x | | x | | x | | **X** |
| Un-marked Symptom | | | x | x | | | **X** | | **X** | | | | | | x | | **X** | | | |
| **Un-marked Diagnosis** | | | | d | | | d | | | | | | | | | | | d | d | **D** |
| ***ḏd.ḫr=k* Diagnosis Marker** | d | **D** | d | **D** | **D** | **D** | **D** | **D** | **D** | **D** | **D** | **D** | **D** | **D** | **D** | **D** | **D** | | | |
| ***ir*(*i*).*ḫr=k* Remedy Marker** | **R** | **R** | **R** | **R** | **R** | **R** | **R** | **R** | **?** | **R** | **R** | **R** | **R** | **R** | **R** | **R** | **R** | **R** | | r |
| Re-exam. (instruction) | x | **X** | **X** | **X** | | | **X** | | | | **X** | | | | | x | **X** | x | **X** | x |
| *gmm=k* Symptom | x | x | x | | | | | | | | | | | | | x | x | | x | |
| Un-marked Symptom | | | | | | | | | | | | | | | | | | | | **X** |
| ***ḏd.ḫr=k* Diagnosis** | **D** | **D** | | **D** | | | **D** | | | | | | | | | | | | **D** | d |
| **Remedy** | | ? | | ? | | | ? | | | | r | | | | | r | **R** | **R** | **R** | |
| Re-exam. (instruction) | **X** | | | | | | | | | | | | | | | | **X** | **X** | | x |
| *gmm=k* Symptom | x | | | | | | | | | | | | | | | | x | | | |
| Un-marked Symptom | | | | | | | | | | | | | | | | | | x | | x |
| ***ḏd.ḫr=k* Diagnosis** | **D** | | | | | | | | | | | | | | | | | | | **D** |
| **Remedy** | | | | | | | | | | | | | | | | **R** | **R** | ? | | **?** |

**TABLE 2**: Summary of symptom classifications used in each prescription. Bold capitals are used for sections written in red-ink, regular lower-case letters are used for those written in black.

## 2.1: 𓄣 *ib* (Eb. 188, 196, 198, 205, 206, 207)

An understanding of the term *ib* is perhaps the most crucial indicator for obtaining an accurate translation of *r3-ib*. Though this word forms the second nominal component of *r3-ib,* it is also the most frequent anatomical designation that is independently cited in the symptom section of a prescription. It is currently translated as 'heart' in modern Egyptological dictionaries alongside the term *ḥ3.ty*.[84]

Nyord's recent examination of the Egyptian conceptions of human anatomy as detailed in the *Coffin Texts* highlighted two 'schools of thought' concerning the specific distinction between *ib* and *ḥ3.ty*.[85] The first follows the tradition set by Piankoff in 1930 which classified *ḥ3.ty* as the physical organ,[86] and *ib* as the facet of that organ which processed emotion, thought, wisdom, and misdeeds;[87] this school—labelled '*ib* as (metaphorical) heart' by Nyord[88]—has many advocates, including Walker, Westendorf, Radestock, and the *SAE*.[89] The second less-popular interpretation—labelled '*ib* as stomach/interior' by Nyord[90]—was first posited by Ebbell in 1937 – this interpretation understood the *ib* as '*der Magen*' or '*Ventriculus*'.[91] The most recent advocate for this tradition is the study of Bardinet which interpreted the *ib* as '*l'intérieur*-ib'.[92] Nyord's doxography of *ib* and *ḥ3.ty* scholarship favours the point of view of Bardinet, who determines that a translation of *ib* does not necessarily '*correspond[re] à une réalité anatomique assez precise*'[93] over that of Westendorf whose 'point of departure is modern anatomical terminology'.[94] He concludes that, despite the two dissimilar strains of opinion, the two interpretations are 'drawing ever-closer together'.[95]

The orthography of both *ib* and *ḥ3.ty* use the Gardiner F34 𓄣 hieroglyph; while *ḥ3.ty* uses this symbol as a determinative, *ib* is commonly written with it as an ideogram (occasionally accompanied by the 𓊃 flesh determinative, marking it is an anatomical concept). Despite this connection, the difference in meaning between these two lexemes is substantiated in the Stomach Book by the fact that *ḥ3.ty* does not occur as a focus in any of these prescriptions. These prescriptions treat an Egyptian perception of a system which included or was strongly associated with the *ib* and seemingly not the *ḥ3.ty*.

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[84] Wb. 1, 59.10-60-11 cf. *ibid* 3, 26-7.19; MedWb. I, 35-43 cf. *ibid* II, 577-582; Hannig, *Wörterbuch I*, 62-4, cf. *ibid*, 766-7; Hannig, *Wörterbuch II*, 151-159; cf. *ibid*, 1606-7.
[85] Nyord, *Breathing Flesh*, 55-143.
[86] An understanding which is currently unanimous: *ibid* 142-3; Walker, *Anatomical Terminology*, 147; Bardinet, *Les papyrus médicaux*, 68-79; Westendorf, *Handbuch* 108-118; Radestock, *Prinzipien*; *SAE*.
[87] A. Piankhoff, *Le 'coeur' dans les texts égyptiens depuis l'Ancien jusqu'à la fin du Nouvel Empire* (Paris: 1930).
[88] Nyord, *Breathing Flesh*, 62-3.
[89] Walker, *Anatomical Terminology*, 182-6; Westendorf, *Handbuch*, 108-119; this interpretation has also been loosely adopted by the *SAE* which translates *ib* as '*ib*-Herz'.
[90] Nyord, *Breathing Flesh*, 61.
[91] B. Ebbell, 'Ägyptische anatomische Namen', *AcOr* 15 (1937), 293-310.
[92] Bardinet, *Les papyrus médicaux*, 68-80.
[93] Nyord, *Breathing Flesh*, 65; citation Bardinet, *Les papyrus médicaux*, 71.
[94] Nyord, *Breathing Flesh*, 64.
[95] *ibid*, 65-8.

The pre-examination symptom of Ebers 188 notes that *dns=f r wnm t*ꜣ *iw ḫ.t=f ḥns.t*(*i*) *ib=f ḫs*(*i*)*=f r šm.t mi si ḥr mn t*ꜣ*.w n*(*i*)*.w pḥwy* 'it is heavy to eat bread as his belly is narrowed and his *ib* is weak and will go like a man suffering heat of the rear' (for *ḫ.t*, see below 1.3.12; for *pḥwy*, see below 1.3.5). It is notable here that the 'heaviness' or 'difficulty' for eating 'bread' (perhaps symbolic for 'food'[96]) is linked to the statement 'his *ib* is weak', associating it with the process of digestion. This relationship is further evidenced in a re-wording of this symptom in Ebers 205, where it is stated *iw ḫ.t=f ḥns.ti r t*ꜣ *iw ib=f dns=f* 'while his belly is narrowed against bread and his *ib* is heavy'. Furthermore, Ebers 206 notes that *iw=f ib=f ꜥw=f qsn ꜥq n=f wnm.n=f t*ꜣ *nb* 'his *ib* is anxious and entering to him is difficult after he has eaten any bread'.

The symptoms of Ebers 207 reveals another aspect of the organ – here, the *ib* of the patient is described as *ꜥw* 'fearful' and *ir*(*i*)*=f dbdb* 'beating'. The latter symptom indicates a link between the *ib* and a physiological function of the heart organ. After the *gmm=k* symptom examination marker, however, the physician finds 'his *ib* hot and his belly swollen', and further on in the text this is linked to the condition: *ir hꜣ*(*i*) *n=f nꜥꜣ.t mi ꜥrw.t km.t* 'if *na'adjet* descends from him (his rear, see section 1.3.5) like the black *arut*'.[97] This prescription enables a valuable insight into the nature of the *ib* – while it could 'beat' like the heart organ, Egyptian physiology viewed it as being part of the digestive process which ended at the rear. Despite the 'beating', the symptoms of Ebers 207 fails to provide conclusive evidence that the physical heart organ is referenced here; the *ib* is a tangible aspect of the body – it is capable of being examined by a physician, who lays his hands on the patient and finds his *ib* 'hot'. The connection between *ib*, belly, and anus here describe an Egyptian interpretation of internal physiology which is not necessarily correspondent with modern definitions. It would certainly be difficult to find one's heart region 'hot'. In these examples, the *ib* was conceived as an entity which was a) strongly associated with the belly,[98] b) formed part of the inner mechanics of the human body which processed food, and c) not restricted to the physical heart region.

Aside from symptoms citing a malfunction of food processing, the *ib* of the patient is also said to be *iw ib=f bꜣg*(*i*)*=f mi kḥ ḫp*(*i*) 'weary like one who wheezes and passes' in Ebers 196. This symptom differs from those mentioned above. Here, a weary *ib* is synonymous to extreme exhaustion and perhaps ultimately death,[99] marking the *ib* as central to Egyptian conceptions of human physiology and sustained existence (for further analysis of the use of metaphors marked with *mi*, see section 1.III.s). While its 'digestive' function noted by Ebbell cannot be denied,[100] the translation of *ib* as 'stomach' and *rꜣ-ib* as 'cardia' (the modern term for the upper portion of the stomach) cannot be substantiated.

[96] Wb. 5, 209.4-211.4.

[97] Unfortunately, the precise meaning of *na'adjet* and *arut* are lost to us; both are written with the 𓂧 putrefaction determinative, suggesting a putrefied substance (such as types of faeces) is what is being referred to, MedWb. I, 147; 447.

[98] As noted by Nyord, *Breathing Flesh*, 142-3.

[99] In other contexts, the verb *ḫp*(*i*) 'to pass' has connotations of dying, see: MedWb. 2, 652.

[100] Ebbell, *AcOr* 15, 293-6.

If one blends the lines between the two schools of thought further, *ib* becomes a concept which is unrecognisable to the modern understanding of human physiology. The *ib* becomes a distinctly Egyptian conception of the inner workings of the human body which processes thought, emotion, and knowledge,[101] sustains central energy, and plays a role in processing food through the body. While it could be useful to attempt the identification of *ib* with a physical organ, the ancient conception does not necessarily need to correlate seamlessly to a specific organ within the body: it could refer to one organ, to a group of organs, or even to an abstract perception of an internal system. Given our understanding of the use of *ib* from previous scholarship and in these prescriptions, the latter provides the most freedom for an emic understanding, particularly Ebers 196 – a prescription for an obstruction of pus which has knotted in his *ib*.

While this paper is not the place to provide a comprehensive definition, the translation 'heart' has too many modern anatomical and metaphorical connotations – because of this, this case study will temporarily use the translation 'core'. 'Core' provides a neutral term which designates an interior region of the body that is central to many physiological functions – it is not associated with a modern organ in particular, but rather an abstract notion. It therefore maintains the flexibility of the term *ib* to describe something within the body which functions outside of modern expectations of the heart.

Translation: *ib*-'core'

Frequency: 6

### 2.2: *ir.ty*, *fnḏ*, *ḥ3.t* (Eb. 192, 195)

There can be no doubt that *ir.ty* refers to the 'two eyes' – a dual form from *ir.t* 'eye' formed with the determinative; likewise, the translation of *fnḏ* as 'nose—written ideogrammatically with the determinative—is not disputed.[102] The term *ḥ3.t* is rather more obscure, literally meaning 'the front' or 'forepart'.[103] These words occur twice within the Stomach Book, though Ebers 192 and 195 have been interpreted as being identical and therefore copies; similarly, Ebers 191 and 194 are likewise considered identical – in these two texts there are slight but significant variations in the method of ingredient preparation: the former was to be prepared in oil, and the latter with beer (a fundamental difference in pharmacology, see chapter 2). In addition, both pairs of text contain spelling variations.[104] Because of these discrepancies, the occurrence of the anatomical regions listed will be registered for both prescriptions.

[101] As demonstrated by both Walker and Nyord.
[102] Wb. 1, 106-7; 577.10-15; MedWb. I, 68-78; 304-6; Bardinet, *Les papyrus médicaux*, 277-8; Walker, *Anatomical Terminology*, 266, 269; Westendorf, *Handbuch*, 579; Nyord, *Breathing Flesh*, 178-200; 202-4; Radestock, *Prinzipien*, 141; *SAE*.
[103] Wb.; MedWb. 2, 576-7.
[104] Grapow, *Grundriss V*, 155-6; Bardinet, *Les papyrus médicaux*, 277-8; Westendorf, *Handbuch*, 579-581; Radestock, *Prinzipien*, 139-40, 142; *SAE*. It is necessary to note that neither Bardinet nor Radestock list prescriptions 194 and 195 independently, despite the variations.

The symptoms for these prescriptions detail a circumstantial situation where the patient is suffering from his *r3-ib* and *q3s=f ˁš3* 'vomits greatly' (see entry for symptoms of the *r* 'mouth', 1.3.9). This symptom is followed with: *ir gm=k st ḫnt.y r ḥ3.t=f iw ir.ty=fy šsm.ty iw fnḏ=f tḫb=f* 'should you find it forwarded to his *h3.t* while his two eyes are inflamed and his nose runs'. Two sets of symptoms are listed here. The observable symptom is the patient's profuse vomiting. The second 'examined' symptom—that 'it is against his *ḥ3.t*, his eyes are inflamed and his nose runs'—follows an *ir gm=k* subjunctive construction and is thus conditional.

The abstract notion of 'it being forwarded to his *ḥ3.t*' is linked to the more specific symptoms concerning the eyes and nose in the second clause, suggesting that the ambiguous 'front' or 'forepart' being referenced here is the patient's facial area. This symptom therefore illuminates a perceived theoretical link between the Egyptian notion of the *r3-ib* and the facial features.

Translation: 'the eyes and nose'

Frequency: 2

### 2.3:  *ˁ.t* (Eb. 189, 205);  *ḫˁ.w* (Eb. 197)

Historically, previous authors of dictionaries provided inconsistent translations for the terms *ḫˁ.w*, *ˁ.t*, and *iwf*, each variously having been assigned the translations 'skin', 'flesh', 'body', 'limbs', or 'members'.[105] While Wilson posited that 'generally, the context of the sentence makes the reading clear',[106] Walker stated it as problematic as it 'conveys the impression that they are, to some extent, synonymous'.[107] As these anatomical components only occur in three prescriptions collectively, this discussion will adopt the current translations of recent authors, who determined that *ˁ.t* refers to a non-specific 'bodily part',[108] and *ḫˁ.w* to the 'body'.[109]

In Ebers 189, the symptoms include a description of the *ˁ.t* as being *dns.ti r=f mi bsw.w n wrḏ.t* 'heavy because of it like those come forth from weariness': all his bodily parts are 'heavy'—perhaps imagery for extreme exhaustion—because of the obstruction. The metaphor following *mi* states that this is like 'those come forth[110] from weariness'; though it is problematic to make a modern diagnosis from this elusive expression, it is important to

[105] Faulkner, *Middle Egyptian*, 164; cf. MedWb. II, 585.
[106] PtolLex. 621.
[107] Walker, *Anatomical Terminology*, 3.
[108] Bardinet, *Les papyrus médicaux*, 276; Westendorf, *Handbuch*, 578; Nyord, *Breathing Flesh*, 339-42; Radestock, *Prinzipien*, 137; *SAE*. Ebbell preferred the translation 'limb', Ebbell, *Papyrus Ebers*, *passim*. Walker (*Anatomical Terminology*, 19) noted that this translation is misleading as the term encompasses the limbs, torso, head, neck, and organs of the human body.
[109] Bardinet, *Les papyrus médicaux*, 278; Westendorf, *Handbuch*, 581; Nyord, *Breathing Flesh*, 337-9; Radestock, *Prinzipien*, 144; *SAE*.
[110] The rare verb  *bsw.w* is translated as 'to come forth, to emerge, flood out' and is found as early as the Old Kingdom, Wb. 1, 474; *LED* I, 139; MedWb. I, 252; Hannig, *Wörterbuch I*, 423; PtolLex., 330. The *SAE* translates *Ausbruch*, an interpretation posited in B. Ebbell, *Alt-ägyptische Bezeichnungen für Krankheiten und Symptome* (Oslo: 1938), 19.

note the riverine terminology chosen in the form of the verb '*bsi*',[111] as well as the relationship between *dns* and *wrḏ* which characterise the symptoms observable in the bodily parts.[112]

In an examination in Ebers 205 it is stated that *ꜥ.t=f nb.t nbi.t ḫr dḥr.t* 'his every bodily part (sing.) is a flame with bitterness'. This appears to be another elusive expression, perhaps used in this case to illustrate pain; the precise nature of this symptom is again difficult to determine.

The single use of *ḥꜥ.w* is found in Ebers 197: *iw ḥꜥ.w=f ḫm33=f šm3yw r-ḏr=f ir ḫ3(i)=k sw n(i) gm.n=k ḫ3y.t m ḫ.t wpw-ḥr ḥnw.t n(i).t ḥꜥ.w mi py.t* 'his *ḥꜥ.w* is abnormally wrinkled all over. If you examine him, should you not find the condition in the belly other than a *ḥnw.t* of the *ḥꜥ.w* like *py.t...*' Unfortunately, the specific details of this symptom are lost as both *ḥnw.t* and *py.t* are hapaxes.[113] 'The *ḥꜥ.w* is abnormally wrinkled all over' is particularly interesting as it details a visual symptom. Whereas *ꜥ.t* is used metaphorically in both cases to express intense exhaustion or pain, *ḥꜥ.w* is used to refer to the surface of that designation upon which observable symptoms manifested. This case study is not inclusive enough to support a new distinction between the uses of these words; however, it is significant to note that the *r3-ib* can afflict both the body (-surface; likely 'skin', though this study will refrain from loosely translating such terms), and the body parts.

*ꜥ.t*

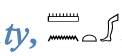
Translation: 'bodily part'

Frequency: 2

*ḥꜥ.w*

Translation: 'body'

Frequency: 1

### 2.4:  *wꜥr.ty*,  *mn.ty*,  *dbbw* (Eb. 206)

The word *wꜥr.t* refers to a specific portion of the leg and is used in the dual form 'both leg (parts)' in Ebers 206: *iw mn=f wꜥr.ty=fy* 'he suffers from both his leg (parts)'. Walker posits that this prescription refers to the 'whole leg'.[114] This seems unlikely considering the context of their placement: the *wꜥr.ty* occur as part of a larger description of one symptom in Ebers 206: the patient 'suffers from his *wꜥr.ty*' *dbbw nn mnt.y=fy* 'and the *dbbw*, (but) without his *mn.ty*'. The latter word  *mn.ty* is unanimously accepted as 'thighs' by the authors of

[111] See uses of *bs*(*i*) for describing the flood and bringing forth water in both the New Kingdom and Ptolemaic Periods: *LED* I, 139; PtolLex., 330.
[112] *ꜥ.t* is not a collective noun, Walker, *Anatomical Terminology*, 20.
[113] MedWb. I, 260; II, 607.
[114] Walker, *Anatomical Terminology*, 77.

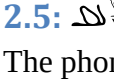
dictionaries and extant translations of the Ebers Papyrus,[115] making Walker's suggestion 'the whole leg' for *wʿr.ty* in this context problematic. Walker provides a second translation for *wʿr.ty* in other contexts: 'hip' or 'hip joint' – this is based on a non-medical text context where it is frequently listed in association with the *qʿḥ* 'shoulder joint'.[116] Nyord followed this second translation, and determined *wʿr.ty* less specifically as 'the (upper) leg'; he substantiates his claim using Walker's examples, as well as passages from the Coffin Texts where, for example, the deceased is said to be placed *ḥr* 'upon' the *wʿr.ty* of a deity.[117]

The second noun of this symptom—  —*dbbw*—is a hapax and therefore elusive; though Ebbell suggested a translation of *dbbw* as 'hip', Walker's analysis concluded that this could not be confirmed.[118] The orthography of *dbbw* uses plural strokes; while there is currently no *comparanda* for this word, it seems unlikely that plural strokes would be used to determine a singular entity such as the modern anatomical component 'hip'. Regardless of this uncertainty, it can be conclusively posited that the symptom does not refer specifically to the patient's *wʿr.ty*, but rather an area which incorporates both the *wʿr.ty* and the *dbbw* but not the thighs – this could indeed include the hip-region and perhaps the groin, but the text specifies that the symptom does not occur in (or perhaps as far down as) the thighs.

The symptom for an obstruction in the *rȝ-ib* listed in Ebers 206 manifests in the upper-leg or perhaps even hip region; rather than list each anatomical component used to describe this symptom individually, this analysis will cautiously classify the anatomic reference as a 'grouped symptom', referring to the 'upper leg/lower hip' region.

Translation: 'upper leg/lower hip' (*wʿr.ty*: upper legs; *dbbw*: unknown; *nn mn.ty*: without thighs)

Frequency: 1

## 2.5:  *pḥwy* and  *pḥwy.t* (Eb. 188, 207; see also 198, 203)

The phonogrammatic spelling of *pḥwy* uses the hind part of a lion and as such has been ascribed the translations 'rear end'[119] and—perhaps too specifically—'pelvis'.[120] Comparatively, the spelling *pḥwy.t* is now commonly accepted as meaning 'rectum',[121] though the authors of the *Wörterbuch* and the *Grundriss* erroneously understood *pḥwy* and *pḥwy.t* as variant spellings of the same anatomical entity.[122] The rear end is explicitly mentioned twice as the focal point of symptoms of an obstruction in *rȝ-ib*.

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[115] This is clarified by its use in healing and non-healing text contexts, as well as the dual-leg  determinatives used to write the word, MedWb I, 370; Bardinet, *Les papyrus médicaux*, 282; Walker, *Anatomical Terminology*, 291; Westendorf, *Handbuch*, 585; PtolLex., 438; *SAE*.
[116] Walker, *Anatomical Terminology*, 71; 73-6.
[117] Nyord, *Breathing Flesh*, 275.
[118] Walker, *Anatomical Terminology*, 77. As this word does not occur in the Coffin Texts, it was not discussed by Nyord.
[119] Hannig, *Wörterbuch I*, 468; II, 930; Nyord, *Breathing Flesh*, 300; *SAE*; Faulkner, *Middle Egyptian*, 92; PtolLex., 361; *LED* I, 153.
[120] Walker, *Anatomical Terminology*, 221.
[121] *Ibid*; Hannig, *Wörterbuch II*, 932; PtolLex., 361; Faulkner, *Middle Egyptian*, 92.
[122] Wb. 1, 535.14-537.2; MedWb. I, 273-281; cf. Walker, *Anatomical Terminology*, 221.

As seen above, Ebers 188 lists the symptom *ib=f ḫs(i)=f r šm.t mi si ḥr mn t3.w n(i).w pḥwy* 'his core is weak and will go like a man suffering heat of the rear'. The use of *mi* following 'his core is weak' directly links this symptom to another condition 'heat of the rear', which is listed elsewhere as an independent condition.[123] Though the symptom highlights an indirect link between the *r3-ib* and the *pḥwy* via the *ib*, understanding precisely what 'heat of the rear' is requires further analysis which is outside the scope of this paper.

Ebers 207 provides further information on the link between an obstruction of the *r3-ib* and symptoms in the rear end region – here, the obstruction is said to *h33 m pḥw.t=f mi šš.t n(i).t iwry.t* 'descend from his rear like the *sheshet* of beans'.[124] This passage not only highlights an anatomical connection between the two regions, it also demonstrates the downward 'descent' of substances from the *r3-ib* which exit at the anus, a notion which is reflected in Ebers 203: *ir(i).ḫr=k n=f sp.w šsm.w r h33=f* 'then you have to make strong mediums for him until it descends'. Finally, the notion of the obstruction 'descending' to the anus is noted in Ebers 198, though in this case in conjunction with the *r3* 'mouth' (see section 1.3.9)

Translations: *pḥwy* 'rear (-end)'

*pḥwy.t* 'rectum'

Frequency: 4

### 2.6:  *psḏ* (Eb. 200)

This word—unanimously accepted as denoting the 'back'[125]—is spelled with the  determinative depicting the spine and ribs of an animal.[126] Nyord posits that *psḏ* denotes the surface of the back area, rather than the spinal column (*im3ḫ*) which in the Coffin Texts is said to '"come forth" (*pri*) from the back'.[127]

The symptom of Ebers 200 conforms to the surface schema usage of *psḏ*: *gmm=k s.t ḥr psḏ=f mi 3tp ḫr.y-dm.t* 'you will find it upon his back like one laden (with) a bite/sting'. In this passage, the condition (*ḫ3y.t*)—abbreviated using the pronoun *st*—is located upon his back and—using an adverbial clause following *mi*—is like the lived experience of 'bitten' or 'stung' by a poisonous animal.[128] This explanation indicates the severity of the condition as well as perhaps illustrating intense pain. The symptom manifests on the surface of the back, though—as demonstrated by the prescription titles—is caused by a defect of the *r3-ib*.

[123] For examples, see: Ebers 139, 142, 153-5, 856c; Berlin 163c; Chester Beatty 10.
[124] *šš.t* is another hapax, MedWb. II, 870.
[125] Wb. 1, 556.1-9; MedWb. I, 229; Bardinet, *Les papyrus médicaux*, 279; Walker, *Anatomical Terminology*, 269; Westendorf, *Handbuch*, 582; Nyord, *Breathing Flesh*, 136; Radestock, *Prinzipien*, 148; *SAE*.
[126] Allen, *Middle Egyptian*, 478.
[127] Nyord, *Breathing Flesh*, 136-7.
[128] Perhaps by a snake as the expression is used in the demotic Brooklyn Papyrus from the Ptolemaic Period see: S. Sauneron, *Un traité égyptien d'ophiologie: Papyrus du Brooklyn Museum, nos 47.218.48 et 85* (Cairo: 1989), 238. Westendorf translates this as a scorpion sting, though he provides no explanation for this decision, Westendorf, *Handbuch*, 582.

Translation: ‘back’

Frequency: 1

### 2.7:  *mr/mr.wy* (Eb. 188, 198)

Outside the medical literature, the common term *mr* translates to ‘canal’ – this word appears in a variety of contexts from the earliest written records to the Graeco Roman Period.[129] It is significant also that the term is written ideogrammatically with the biliteral phonogram  *mr* – a sign depicting a canal that can be used as the determinative for words referencing bodies of water.[130] In the healing texts, canals are envisioned as being within the body in singular, dual, and plural forms; however, as a word denoting a common topographical feature of the Nile Valley, the use of this term suggests that the ancient Egyptians perceived internal physiology as being similar to those dominant features from their geographical surroundings.

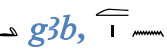
The use of *mr* as drawn from Egyptian riverine terminology in these texts is best exemplified by the symptom of Ebers 198: *gmm=k ḏbꜣ.n=f ḏꜣ(i).n=f mr iw ib=f ḥws=f iw rꜣ-ib ḫm=f* ‘you will find it has clogged and it has crossed over the canal, his core is afflicted and his *rꜣ-ib* is parched’. While the precise nature of this symptom is ambiguous, the use of riverine imagery is a key feature. *ḏꜣ(i)*—written with the determinative  —is a verb which denotes ‘crossing water’ and is another frequently occurring word found throughout a variety of contexts and periods.[131] Thus, the *šnʿ* ‘obstruction’ is what has *ḏbꜣ.n=f* ‘clogged’ and ‘crossed over the canal’—an expression perhaps suggesting the blockage is from ‘riverbank’ to ‘riverbank’ and therefore total—resulting in the patient’s core being afflicted and his *rꜣ-ib* being *ḫm* ‘parched’ and devoid of essential moisture.[132] It is notable that the verb *ḏbꜣ* appears similarly in two inscriptions from the island of Sehel dated to the reigns of Tuthmose I and Tuthmose III, both of which read: *wḏ ḥm=f šꜣd mr pn m-ḫt gm.t=f sw ḏbꜣ.w m inr.w* ‘His Majesty ordered the digging of this canal after he found it clogged with stones’.[133]

Aside from the apparent riverine terminology used here to understand human physiology, this symptom also uses opposing symmetry: *ir gm=k mr.wy m ḥ.t=f gs wnm.y tꜣ.w gs iꜣb.y qb* ‘should you find the two canals in his body the right-side hot and the left-side cool’. While it is difficult to assign a modern medical designation to these ‘canals’, their use of opposing symmetry is perhaps consistent with the bifurcation of the *rꜣ-ib* into ‘sides’. It is interesting to note that the ancient Egyptians made a connection between opposing anatomical symmetry and temperature.

Translation: ‘canal’

Frequency: 2

[129] Wb. 3, 96.13-97.12.
[130] Allen, *Middle Egyptian*, 488.
[131] Wb. 5, 511-513.14.
[132] Wb. 3, 277.12-13; Faulkner, *Middle Egyptian*, 190; Hannig, *Wörterbuch II*, 1883-4.
[133] See A. Gasse and V. Rondot, *Les Inscriptions de Séhel* (Cairo : 2007), 130, 137.

## 2.8:  *mn<u>d</u>*,  *gꜣb*,  *gs n(i) rꜣ-ib* (Eb. 191, 194)

Both Ebers 191 and 194 list the symptom *iw=f mn=f gꜣb=f mn<u>d</u> gs n*(*i*) *rꜣ-ib* 'he suffers from his *gꜣb*, a breast *mn<u>d</u>*, and a side of the *rꜣ-ib*'. The term *mn<u>d</u>* incontestably refers to the 'breast'; this is evident from both the use of the determinative  in its spelling, and the many descriptions of a *mn<u>d</u>* being 'suckled' by an infant.[134] The prescriptions do not clarify whether their focus lay in the left- or the right-side of the body; neither 'breast' nor 'side of the *rꜣ-ib*' are qualified with the adjectives *wnm.y* or *iꜣb.y* as they are in the symptom concerning the *mr.wy*. Because of this ambiguity, the current translation prefers the use of an indefinite article.

The precise meaning of *gꜣb* (or *gbꜣ*) in this symptom is debated. The use of the arm  determinative and the word's frequent occurrence in dual form has indicated the meaning 'arm' to some scholars.[135] Other translators prefer to see this word as exclusively meaning the 'upper arm';[136] Walker expands this school of thought by assigning its meaning to the modern term 'humerus'.[137] Nyord also sees this as referring to the upper arm, but notes that in sacred contexts it is used to refer specifically to the wings of 'breath-' or 'air-giving' deities.[138] The symptoms of Ebers 191 and 194 are not specific enough to provide support for one argument over the other; it is clear, however, that either a part of, or the whole arm is meant by this word.

The anatomical units *mn<u>d</u>*, *gꜣb*, and *gs n*(*i*) *rꜣ-ib* are grouped together here to determine one specific symptom: *mn* 'suffering' from these three distinguishable regions. The nature of the symptom is elucidated further in the statement *iw <u>d</u>d.tw r=f wꜣ<u>d</u> pw* 'it is called the "green" – this clause suggests that "the green"—or perhaps "green sickness"[139]—was an Egyptian cultural perception of a symptom which was presumably well known. Identifying a link between a cultural perception and modern medical terminology is problematic; what is notable here is that an obstruction of the *rꜣ-ib* was believed to cause some variable of pain in this part of the body, highlighting a link between the two regions. Furthermore, this symptom is further evidence of an Egyptian belief in the bipartite nature of the human body.

Translation: 'breast, arm, side of *rꜣ-ib* area'

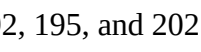
Frequency: 2

[134] Wb. 2, 92.11-93.8; MedWb. I, 375; Walker, *Anatomical Terminology*, 269. See examples listed in Nyord, *Breathing Flesh*, 135-6.
[135] Bardinet, *Les papyrus médicaux*, 277; PtolLex, 1098; Radestock, *Prinzipien*, 139.
[136] MedWb. II, 910-12; Westendorf, *Handbuch*, 579.
[137] Walker, *Anatomical Terminology*, 277.
[138] Nyord, *Breathing Flesh*, 248.
[139] This term is only found in these two prescriptions. The word is accompanied by the  putrefactive determinative, suggesting a bad condition, see MedWb I, 165.

## 2.9:  *r3* (Eb. 198, see also 190, 192, 195, 202)

The *r3* 'mouth'[140] is not explicitly mentioned in the symptoms of the Stomach Book prescriptions; however, in four symptoms the mouth is the exit-point for symptomatic manifestations, directly or indirectly linking the *r3-ib* to this orifice.

The first symptom of Ebers 190 expresses that the patient *ir*(*i*)=*f f3*(*i*).*t n*(*i*).*t sry.wt* 'it makes lifting of coughs'.[141] The grammatical features (e.g. *gmm=k*, *ir gm=k*, *ḏd.ḫr=k*) which typically punctuate these prescriptions are absent in this text, however the subject and its auxiliary verb *ir*(*i*) immediately follows the obstruction in the title, suggesting this symptom was evident without examination (i.e. it would typically precede the *gmm=k* marker). The clause can loosely be translated as 'the obstruction produces coughing', though the precise Egyptian terminology stresses that the direction of coughing is upward from the obstruction in the *r3-ib*. As the mouth is the physical exit of the physiological phenomenon of coughing, this symptom indicates a link between the *r3-ib* and the mouth.

Ebers 192, 195, and 202 express that the patient  *q3s* 'vomits'. The determinatives used for this verb indicate the action of liquids or substances exuding from the mouth. The *Science in Ancient Egypt* online project notes '*Die Bedeutung „erbrechen" beruht sicher hauptsächlich darauf, dass es u.a. als eine Begleiterscheinung von Magenbeschwerden genannt wird*'.[142] It is particularly interesting to note that during the Graeco-Roman Period, this verb was used to describe the 'spitting out' of produce from cultivated fields[143]– suggesting that the later use was a term derived from older physiological terminology. Ebers 202 offers clarification that vomiting is meant: *iw=f qꜥs=f mr wr.t* 'he vomits the illness greatly'; in this passage, the *mr* 'illness' is what is being vomited.

Ebers 198 makes an interesting comparison between the *r3* and the *pḥwy* ('rear end', discussed above in section 1.3.5). Following the first treatment of this prescription, an observation reads that the condition *h3*(*i*) *sp pn m r3=f r-pw m pḥw.*(*y*)=*fy r-pw mi snf n*(*i*) *š3*(*i*) *m-ḫ.t ḏ3f=f* 'descends from his mouth or from his rear like the blood of a pig after it is burned'. This symptom exhibits optional symmetry and ultimately associates the *r3-ib* with both opposing orifices of the digestive system.

Translation: 'mouth'

Frequency: 5

[140] Wb. 2, 389.1-390.9.
[141] The translation of *sry.t* as 'cough' can be obtained from the context of its use in both the medical texts and non-medical texts – for examples of the latter, see the list of occurrences in Hannig, *Wörterbuch II*, 2281; and *LED* II, 57. The variation in the use of the  , , and  determinatives for this word is also indicative of its meaning, Wb. 4, 192.19-193.2; MedWb II, 773.
[142] See note 1 to 'Eb. 192=195', *SAE*.
[143] Wb. 5, 17.4-6; PtolLex., 1047-8.

## 2.10:  *r3-ib* (Eb. 189, 193, 198, 199, 203, 206, 209, 210)

The remarks made here will be restricted to a comparison of *r3-ib* 'physiology' as discernible from the listed symptoms and the interpretations of modern scholarship (notably Walker).

In Ebers 189, the *r3-ib* appears in two symptom clauses (following the previously cited statement that the patient's bodily parts 'are heavy... like those come forth from weariness'); the first: *rḏi.ḥr=k ḏr.t=k ḥr r3-ib=f* 'then you have to place your hand upon his *r3-ib*', and the second: *gmm=k r3-ib=f srw iw<=f> šm iw ḫr ḏbʿ.w=k* 'you will find his *r3-ib srw* as it goes and comes under your fingers'. The verb *srw* is a hapax and a certain translation has yet to be achieved; modern scholarship follows the unproven translation of Ebbell, who suggested that this verb meant '*pauke*'.[144] More significantly, this examination and symptomatic statement exhibits a tangible nature of the *r3-ib* - it suggests it has a surface upon which one can 'place his hand'.

Accepting this interpretation of the symptoms of Ebers 189 allows for greater understanding of similar clauses in other prescriptions. While neither the *r3-ib* nor the examination clause marked by *rḏi.ḥr=k* is mentioned, the same tangible quality is observable in the nearly identical symptom finding of Ebers 199: *gmm=k sw šm=f iw=f ḫr ḏbʿ.w=k mi mrḥ.t m-ḫnw ḫn.t* 'you will find it goes and comes under your fingers like oil inside a tube'. Conversely, the symptom clause of Ebers 203 is explicit in that it pertains to the right-hand side of the *r3-ib*: *rḏi.n=k ḏr.t=k ḥr=f ir gm=k ṯs.n=f ḥr gs=f wnm.y* 'after you have put your hand upon him, should you find it has knotted in its right side...' The obstructions of Ebers 209 and 210 are similarly located in the 'right side'. As noted in the previous section, these prescriptions are specifically referencing a 'right-hand side' of the patient's *r3-ib*, strongly indicating that Ebers 203 equally references the same specific side of the *r3-ib*.

Although these examples highlight the *r3-ib*'s tangible and divisible nature, the obstructions themselves are nevertheless a perceived phenomenon of internal '*r3-ib*' physiology. The symptom of Ebers 198 illustrates internal blockages with imagery drawn from the Egyptian lived-experience; here, the *r3-ib* is 'parched' because of the obstruction which has 'clogged and crossed the canal'. The two sets of symptoms listed in Ebers 206 further the internal nature of the *r3-ib*. In the first—*iw<=f> ḫns*(*.w*) *sw3*(*.w*) *ḥr r3-ib=f* 'it has narrowed and passed upon his *r3-ib*'—the use of the verb *ḫns* expresses a narrowed state often reserved for descriptions of *ib* or the *ḫ.t* in contexts where bread is 'heavy' to eat (see sections 1.3.1 and 1.3.12 respectively). In the second—*ir ḫ3*(*i*)*=k sw gmm=k r3-ib=f ḏb3*(*.w*) *mi sḫ.t ḥwi.n=s wnw* 'if you examine him you will find his *r3-ib* clogged like a woman after

[144] B. Ebbell, *Die Alt-Ägyptische Chirurgie: Die Chirurgischen Abschnitte der Papyrus E. Smith und Papyrus Ebers – Übersetzt und mit Erläuterungen Versehen* (Oslo: 1939), 76; cf. Bardinet, *Les papyrus médicaux*, 276; Westendorf, *Handbuch*, 578; Radestock, *Prinzipien*, 137; the *SAE* follows the second suggestion made by MedWb. I, 775: '*Ob es vielleicht schlicht das Verb zum sr.jt-Husten ist?*', though this seems unlikely given the contexts in which the associated expressions occur; cf. Eb. 199: 'it goes and comes under your fingers like oil inside a skin'.

she has beaten a child'—an elusive metaphor is drawn upon from the source domain of miscarriages[145] to elicit notions of internal pain.

From the symptoms in which it is listed in the Stomach Book, the *r3-ib* exhibits both an internal quality closely associated with constricted matter and internal pain, as well as a tangible surface area through which symptoms are detectable from an examination. The conceptual metaphor theory employed by Nyord in the capacities of 'container' and 'surface schemas' can therefore be applied to an understanding the *r3-ib*.[146] This understanding is consistent with Walker's citation of a passage in the biography of Nebnetjeru from the reign of Osorkon II (*c.* 850 BCE): 'the *ib* is a god, his shrine is the *r3-ib*; it/he rejoices when the body is in festivity'. Walker interprets this statement as a confirmation that the *r3-ib* was perceived as the 'shrine', 'cave of the psyche', or 'thoriac cage'.[147] While not incorrect, it is perhaps preferable to modify this interpretation of the *r3-ib* as an entity which surrounds the *ib* 'core' (see section 1.III.a), but has an internal and external quality and therefore an independent anatomical and physiological function which is perhaps abstract in terms of modern medical human anatomy.

Frequency: 6

### 2.11:  *ḥr* (Eb. 206, 207)

The *ḥr* 'face'[148] occurs in the symptoms of two prescriptions of the Stomach Book. These express states in which the face becomes because of an obstruction in the *r3-ib*.[149]

Following the symptom in Ebers 206 where the patient's *r3-ib* is described as 'clogged like a woman after she has beaten a child', the description is qualified with the statement *iw ḥr=f ḫm33* 'his face is wrinkled'. Though the context of the symptom might suggest that the face is 'wrinkled' because of the pain expressed by the metaphor in the first clause, it is more probable that *ḫm33* expresses the same visible wrinkling of the skin found in Ebers 197 (see the discussion of *ḥ.w* and Ebers 197 in section 1.III.c).

Ebers 207 similarly expresses a visible facial-surface abnormality: *iw ib=f ꜥw=f iw ḥr=f ꜥ3ḏ* 'his core is fearful and his face paled (?)'. The verb *ꜥ3ḏ* is another hapax, though is unanimously translated as 'to be pale' by scholars.[150] The use of the ⊙ determinative suggests the reference to brightness. Ultimately, while it is possible to dispute the precise meaning of

[145] Westendorf, *Handbuch*, 585 n. 55 compares this expression to a passage in Kahun 9 and translates '*wie (bei) einer Frau, die ein Embryo geschlagen*'; this translation is followed by Radestock, *Prinzipien*, 158 and the *SAE*,
[146] Nyord, *Breathing Flesh*, *passim*.
[147] Walker, *Anatomical Terminology*, 130-31.
[148] Undisputed translation, Wb. 3, 125.6-127.14.
[149] This word—written ideogrammatically—is among the most common anatomical designations listed in Egyptian texts – its translation is unanimous and therefore requires no discussion for appropriate translation; see listings in: Wb. 3, 125.6-127.14.
[150] MedWb. I, 134; Bardinet, *Les papyrus médicaux*, 282; Westendorf, *Handbuch*, 585; Radestock, *Prinzipien*, 160. Only the *SAE* web-entry includes a '(?)' next to the translation to mark its uncertainty, though gives no further explanation.

this term because of its rarity, the expression clearly refers to an altered state of appearance—a visible symptom—because of an obstruction of the *r3-ib*.

Translation: 'face'

Frequency: 2

## 2.12:  *ḥ.t* (Eb. 188, 189, 197, 205, 207)

Egyptological dictionaries unanimously list the term *ḥ.t* as 'belly'[151] – this translation has been agreed upon by recent editions of the Stomach Book.[152] Contrary to popular opinion, Walker argued that the word more aptly denotes the torso, dismissing claims that it refers to the belly or any other translation restricted to the abdominal region.[153] Walker's view has slowly begun to take hold. Curiously, Nyord translates torso at the start of his discussion on that anatomical region, though reverts to belly for the remainder, giving little reasoning.[154] The *SAE* uses the term '*Rumpf*' as its preferred translation.[155]

Walker's choice of translation is based primarily on three key details. The first discussion concerns the orthography of the word, written  – this uses what Gardiner called the 'underbelly' sign  as an ideogram.[156] Walker also cites anatomical 'lists' which assign specific anatomical components to associated deities in an ordered form from the head downward.[157] It should be remembered that though important, the lists are not exhaustive; in addition, the precise translation for 'internal organs' such as the spleen (*nnšm*) and intestines (*mḥtyw*), which potentially require a re-examination.[158] The final facet of his argument rests on the association with the *ḥ.t* with other anatomical designations, specifically the *mḥtyw* 'intestines', the *šptyw* 'bladder', and the *id.t* 'womb/uterus', but also the *šnb.t* 'chest', the *sm3* 'respiratory tract', and the *ib*, *ḥ3.ty*, and *r3-ib*.[159] While the latter 'associations' can be seen in the literature, does this necessarily mean that one anatomical region is part of the other? For now, this analysis will retain the initial translation 'belly', though with 'an eye to the future' for the acquisition of an emic understanding based on lexicography.

The *ḥ.t* is one of the more commonly occurring anatomical designations cited in the Stomach Book, and—as noted previously—the *ib* and the *ḥ.t* often appear together in symptomatic descriptions (see section 1.3.1); the link between the *ḥ.t*, the *ib*, and the *r3-ib* thus appears to be greater than that of the latter and any other organ. In Ebers 188, the symptom *dns=f r wnm t' iw ḥ.t=f ḥns.t(i)* 'it is heavy to eat bread as his belly is narrowed'

[151] Wb 3, 356.3-357.17; MedWb. II, 673; Faulkner, *Middle Egyptian*, 200; *LED* I, 379; PtolLex., 777; Hannig, *Wörterbuch II*, 1969.
[152] Bardinet, *Les papyrus médicaux*, 276; Westendorf, *Handbuch*, 578; Radestock, *Prinzipien*, 135.
[153] Walker, *Anatomical Terminology*, 91; 91-123.
[154] Nyord, *Breathing Flesh*, 55-60; cf. 69-*passim*.
[155] *SAE*, see for example the translation of Ebers 188.
[156] Walker, *Anatomical Terminology*, 91.
[157] *Ibid*, 92.
[158] These terms are infrequent when compared to the *ib*, *ḥ3.ty*, or *wf3*; explanations for the rendering of these terms appears insufficient (cf. the lack of discussion for these, Walker, *Anatomical Terminology*, 265-279; Nyord, *Breathing Flesh*, 130). It is important to ask whether the Egyptians saw these anatomical components as we do, or whether we are attaching modern conceptions to ancient terminology.
[159] Walker, *Anatomical Terminology*, 105; 111.

links difficulty eating with a narrow *ḫ.t*. The relative temperature of this anatomical region is also noted in this prescription; after an examination, the physician finds *ḫ.t=f tȝ* 'his belly is hot'. This heat is opposed post-treatment, where the *ḫ.t* is then noted to be *qb.ti* 'cool'; this is linked to the *mr.wy* (see section 1.3.7), which are noted to be within the *ḫ.t*. Whether these symptoms describe physical heat is debatable – it certainly seems the terms used are evidence enough of a cultural phenomenon that dictated the meaning of hot and cold. The notion of temperature is also paralleled in Ebers 189, though here it discusses this relative to the *ḏrww* (see section 1.3.13) – an anatomical component with which the *ḫ.t* was also associated. In this prescription, opposing symmetry again plays a role, as the *ḏrww* are said to be *šm*(*m.w*) 'hot',[160] whereas the *ḫ.t* is *qb.ti*. The ideas regarding heat and opposing symptoms represented in these two prescriptions are similarly found in Ebers 205 and 207.

In Ebers 197 the *ḥ.w* 'body' is stated to be 'wrinkled and abnormal entirely' and the following conditional statement 'if you do not find the condition in his *ḫ.t* other than *henut* of the body like *pyt*' localises the condition to the *ḫ.t* of the body. A translation of 'in the torso' for *ḫ.t* would perhaps make this condition rather ambiguous.

Translation: 'belly'

Frequency: 5

## 2.13:  *ḏrw*(*w*) (Eb. 189, 190, 204)

The term *ḏrww* is translated as the 'side' of the body[161] – this term differs from the use of *gs* 'side'; the latter is used as a nominal qualifier for an anatomical component, whereas *ḏrww* refers to an anatomical entity in its own right. This word refers to the physical side or 'flank' of the body, and should not be confused with the modern anatomical term 'flank' which denotes the side of the body above the pelvis and below the abdomen. The word is rarely written with either plural or dual strokes, though the latter is sometimes expressed with the use of a double  -*w* phonograms or double  flesh determinatives, perhaps indicating that the noun should be transliterated *ḏrw.wy* (as a dual).[162]

The *ḏrww* are a focal point of symptomatic manifestation in three prescriptions. As noted, it appears in association with the *ḫ.t* in Ebers 189, where the condition requires the *ḏrww* to be 'hot' and the belly 'cool'. Ebers 190 and 204 differ from this – rather than determining the temperature of the Drww, the symptoms express that the condition is to be found 'under his sides'. In Ebers 190, this condition is described *mi ḏrw.t n*(*i*).*t ḥs* 'as a *djerut* of faeces'.[163] The comparison here is with another condition where faeces was believed to have accumulated under the sides of the body internally, though there are yet no examples of

[160] MedWb. II, 853.
[161] Wb. 5, 602.1-20; MedWb. II, 1009-10 Faulkner, *Middle Egyptian*, 324; Bardinet, *Les papyrus médicaux*, 276; Walker, *Anatomical Terminology*, 279; Westendorf, *Handbuch*, 189; PtolLex., 1243; Hannig, *Wörterbuch II*, 2852; Radestock, *Prinzipien*, 137; *SAE*.
[162] MedWb. II, 1009.
[163] The term *djerut* is a hapax and so its precise meaning is so-far uncertain; however, it might be of importance that *ḏrww* and *ḏrw.t* perhaps had a similar sound as indicated in their nearly identical orthography: cf.  , . The translation '*Klumpen*' has been suggested for this term, though this is highly uncertain; *ibid*.

this elsewhere. Ebers 204 replicates this notion in the symptom *ỉw=f ḫr ḏrw(w)=f n(i) ḏ3(i).n=f t3* 'it is under his flanks and it has not crossed the land.'[164] In both examples, the *ḏrww* fit Nyord's container schema – they both contain a condition which is said to be under and therefore within the sides.

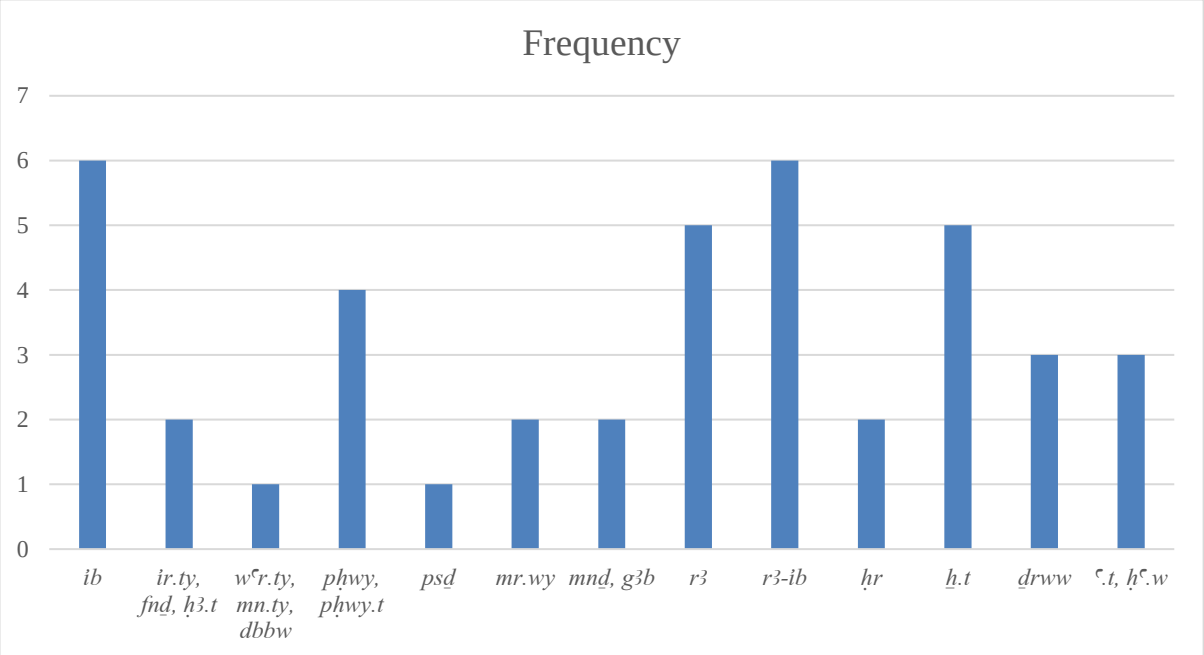
The obstruction of the *r3-ỉb* thus causes two kinds of symptoms to develop in the *ḏrww*, expressing a link between the two anatomical components; while both symptoms are markedly dissimilar manifestations, there appears to be a potential link to the nature of the obstruction – they are both associated with digestion. The symptom of heat in the Drww in Ebers 189 appears to be associated with the belly and is expressed by opposing symmetry; Ebers 190 and 204 both potentially exhibit a situation formed by faecal matter, a substance associated with the insides of the *ḫ.t* and the digestion of food.

Translation: 'sides (of the body)'

Frequency: 3

## 2.14: A Discussion of Anatomy

From an analysis of the Stomach Book, the symptoms section of a prescription can inform much on the ancient Egyptian conceptions of the human body and how medical complications were believed to manifest. An obstruction of the *r3-ỉb* can result in areas all over the body being affected in some way, as can be seen in the graph below (DATA 1):




**DATA 1**: Frequency of symptoms in (groups of) anatomical components.

[164] The expression 'it has not crossed the land' is perhaps an alternate method of expression for 'blocked' as has been seen with *ḏ3(i).n=f mr* 'it has crossed the canal'. The use of *t3* could also be a scribal error for *mr*, see Walker, *Anatomical Terminology*, 137.

In the symptoms, both the *r3-ib* and the *ib* are cited an equal number of times. Though the *r3-ib* is the clear anatomical focus as determined by the titles, the term *r3-ib* and the frequency with which the *ib* occurs might suggest that the *ib* being afflicted in these conditions is implied.

The *ḫ.t* and the *r3* also appear comparatively frequently, and the regular use of the verb 'to descend'—particularly in connection with the *pḥwy*—suggests that the *r3-ib* is indeed strongly linked to digestion. These frequencies draw strong connections between these anatomical regions and the *r3-ib*. Other anatomical regions appear less frequently; nevertheless, they still indicate that the *r3-ib* was believed to have an anatomical connection to these areas. The connections between components illustrated by this graph demonstrates that Egyptian conception of human anatomy was quite dissimilar from our own.

By dissecting these symptoms, it is also possible to detect informants from both biophysical and cultural realities which dictated the ancient Egyptian's understanding of human physiology. Cultural realities are perhaps the most challenging to interpret: these are phenomenological influences borne from any social, cultural, or geographical experience which impacted the way in which the individual or a collective society thought and behaved.[165] Geographical influences are perhaps the easiest to detect in these symptoms. Ebers 198 exhibits the most obvious among these: 'if you find it has clogged and crossed over the canal, while his core is afflicted and his *r3-ib* is dry as dust…'. Ebers 188 also shows that the ancient scribe envisioned internal physiology using the terminology found elsewhere to describe aspects of the riverine landscape – namely the canals or water channels. The visualisations of internal channels and expressions such as the 'crossing over' the of channel—i.e., bank to bank—is perhaps also indicative of an influence of the geographical human reality on the conceptualisation of the body. The left- and right- sides of anatomical components and the use of opposing symmetry determining hot and cold sides within these symptoms appear to be interrelated, and are a prevalent feature throughout the Stomach Book prescriptions.[166] The concept of one side of an anatomical designation being hot and the other cold is especially peculiar to modern anatomy; precisely what it refers to or where it originated is elusive from an etic perspective. While it is possible to suggest from these passages that the phenomenological experience of the Nile Valley—a landscape divided by the river into east- and west-banks—could have been a determining factor for a belief in bifurcated internal systems, the evidence is not conclusive. Further research is needed.

The use of adverbial clauses introduced by *mi* 'like' mark explanations which require the Egyptian lived-experience to fully grasp their meaning. Though these clarify the precise meaning of particular symptoms for the ancient reader, they often use cultural-specific terminology which is lost to the etic observer. While some expressions can be paralleled elsewhere—such as 'his core is weak and will go like a man suffering *heat of the rear*',

[165] See: Kleinman, in Good et al., *Medical Anthropology*, 84-6.
[166] Specifically: Ebers 188-191; 194; 198, 203-5; 207; 209-10.

which is noted as a condition in another prescription—other adverbial clauses are far more challenging.

Egyptian visualisations of human physiology are also drawn from biophysical realities. These are most notable in prescriptions which pertain to the digestion processes of food and ways in which this can malfunction; the symptoms make frequent references to bread being difficult to eat because the belly is 'narrowed' against it, to obstructions and other matter 'descending' through the rear, and the patient vomiting 'greatly'. Other physiological functions are also referenced in these texts, such as the core 'beating' (an action now understood as one performed by the cardiac muscle). Though equally prevalent, the biophysical realities in this text do not enable us to ascribe modern terminology to the anatomical components referenced. Though one might recognise references to the physiological functions of digestion, other phenomena obscure such an interpretation; red eyes and a running nose, extreme exhaustion, and intense pain in various body parts including the surface of the body are not characteristic of constipation of digestive defects. It is important also to note that the physician is advised to examine the patient by placing his hand on the affected areas, suggesting that this 'internal' system had a tangible quality and thus a surface.

The combination of these realities posits three key conclusions. Firstly, the Egyptian perceptions of the human body were dissimilar from modern comprehensions because of the realities to which it was exposed. Whereas modern conceptions are increasingly drawn from the biophysical sphere, Egyptian perceptions were influenced by both biophysical observation and experiential phenomena. Secondly, the obstruction of the *r3-ib* could cause symptoms throughout the body, and these were perhaps not limited to those found in these prescriptions! The *r3-ib* was a central aspect of Egyptian physiology. Finally, while the obstructions are within the body, the symptoms do not strictly pertain to modern conceptions of the digestive system but have both internal and external loci.

## 3: Lexicography of Diagnoses

> The medical system is an ordered coherent body of ideas, values, and practices embedded in a given cultural context from which it derives its signification. It is an important part of the cultural world and as such it is structured, like any other segment of social reality, by the regnant body of symbolic meanings. The medical system forms an indissoluble and hierarchical whole in which healing acts are closely linked with ideas about disease causation and models for classifying disease.
>
> – Arthur Kleinman, 1973[167]

Much like the symptom section of a prescription, the diagnoses can be distinguished by the information they convey to the reader. As noted above, it must be remembered that the title, examination, and diagnoses section of these texts forms part of a larger grammatical protasis-apodosis conditional sentence.

Aside from the repetitive statement in the title, the diagnoses are perhaps the easiest aspect of an examination to recognise – bar two exceptions, they are consistently written following the formula *ḏd.ḫr=k r=s/f*. As with the grammatical features which mark specific categories of symptoms, this formula can be omitted, as is the case in Ebers 190, 205, and 207; furthermore, the addition of the preposition *r* + suffix-pronoun element is omitted in a further three prescriptions: Ebers 196, 202, and 203.[168] Following the *ḏd.ḫr=k r=f* apodosis, the clauses are constructed using the A *pw* nominal sentence structure.[169] When the diagnosis apodosis marker is absent, the A *pw* sentence often remains, making certain that Ebers 190 and 205 include a diagnosis clause despite the absence of an apodosis marker. The A *pw* structure does not occur in Ebers 196, 199, 203, and 204. The current study will maintain a cautious approach and will therefore not superimpose <*ḏd.ḫr=k r=f*> into prescriptions where it is missing. The omissions demonstrate that these repetitive grammatical markers were not essential for the physician's understanding of a prescription; even where either element is omitted, the format follows the same title – observable symptom – instruction – found symptom – diagnosis – treatment structure (see Tab. 2).

Pommerening listed the determinatives which aid classifications of terms for illnesses;[170] however, while these are fundamental to translations, the terms occurring in the diagnosis clauses are primarily marked with the 𓂧 putrefaction determinative, the current discussion will instead assess categories by lexicographic groupings. This will consider Egyptian conceptions of disorder causation by assessing word groups relating to 'food', 'faeces', 'accumulated matter', 'entities', 'putrefaction', 'blood', 'restlessness of your house', and 'non-specific' diagnoses. The discussion which follows each entry will assess the appropriateness of categorising such diagnoses. After this discussion, a broader discussion

[167] Kleinman, in Good et al., *Medical Anthropology*, 86.
[168] These figures do not include the condensed prescriptions Eb. 208-216 as their format is condensed into simple titles (see section 1.2).
[169] See section 7.9 of Allen, *Middle Egyptian*, 91-2.
[170] See Tab. 1: '*Klassifikatoren hinter Leidenserscheinungen und Vorschlag zur Übertragung nicht zu übersetzender Fachtermini in heilkundlichen Texten*', Pommerening, in Imhausen and Pommerening, *Translating Writings*, 192.

will be entered which will combine the discussions from previous sections and attempt to discern precisely what the prescription 'examinations' refer to, how the relevant illnesses were believed to manifest, and the beliefs concerning their aetiology.

## 3.1: Food (Eb. 188, 189, 207; see also 205, 211)

Aetiologies relating to consumed matter are defined by the occurrences of words such as *wnm* 'food', 'to eat';[171] and *t*' 'bread', 'food'.[172] As made apparent by an analysis of the symptoms, food and its consumption was a determining factor of symptomatic observation. An analysis of the diagnoses clauses indicates that food and the action of eating was cited as a cause for obstructions in five prescriptions (including one from the abbreviated prescriptions of Ebers 208 to 216, where causes are occasionally mentioned in brief format within the titles) – these are Ebers 188, 189, 205, 207, and 211.

The Stomach Book includes references to  *ḏ3f* 'cooked meat' being the cause of the obstructions; while the precise nature of this meat is elusive as it only appears in Ebers 189 and 207, the determinatives make clear that it was a form of  flesh which had been—perhaps improperly—exposed to  fire.[173] Following the *ḏd.ḫr=k* construction in Ebers 189 it is stated: *nniw pw n*(*i*) *wnm tm rḏi wnm=f ḫnt* 'it is an inertia of food which does not allow him to eat further'; the post-treatment prognosis clarifies that *iw nniw=f h3*(*i*).*y rḏi.ḫr=k mki=f r3=f r ḏ3f nb* 'his inertia has descended; then you have to ensure that he protects his mouth against any cooked meat'. The concepts expressed in these clauses are reflected in the diagnostic clauses of Ebers 207: *sḫn pw mḏ wnm.n=f ḏ3f* 'it is a swelling which is deep after he has eaten cooked meat'; again, the post-treatment prognoses clarify that *iw ḏ3f pn h3*(*i*).*y r3-ib=f is.y ḥ.t=f ḫn.ti* 'This cooked meat has descended, his *r3-ib* is ruined and his belly has inflamed' and *ḏd.ḫr=k r nw n.ty m r3-ib=f iw<=f> h3*(*i*).*y* 'then you have to say regarding these which are in his *r3-ib*: "it has descended".' Both treatments concern a type of flesh which has been eaten, caused obstructions, and should ultimately exit via the rear following treatment (for the connection between *h3*(*i*) 'to descend' and *pḥwy* 'rear', see section 1.3.5).

Ebers 205 and 211 exhibit another example of food being the cause of a disorder; however, in these cases 'food' is not defined further. In Ebers 205, the symptoms pertain to food as the *ḥ.t* is 'narrowed against food'; an unmarked diagnosis in the text further states *t*' *m ꜥw3 ḥ.t m ꜥb t*' *m 3pd.w* 'bread is rotten, things are impure, and "bread is from birds".'[174] While this clause is elusive, it is important to note that bread (or food) is 'rotten'.[175] Ebers

[171] Wb. 1, 320.1-321.14; MedWb. I, 185-9.
[172] Wb. 5, 209.4-211.4; MedWb. II, 931.
[173] The authors of the *Grundriss* translated '*verbrennen*' and '*verbranntes Fleisch*', though 'burned' seems somewhat assumptive as this could relate to any form of flame-exposed meat, MedWb II, 995.
[174] Westendorf suggests that there is infact a missing element here which should be read '{*dann sollst du dagegen anwenden bzw.ihm geben*}', Westendorf, *Handbuch*, 585. While this is indeed possible, it seems likely that what follows the symptomatic clause (*ir m-ḥ.t sš*(*i.w*) *ḫr ḏbꜥ=k mi nš3 n*(*i*) *šꜥy ꜥ.t=f nb.t nbi.t ḫr dḥr.t* 'if after it spreads out under your fingers like grains of sand and all his burning body parts have bitterness') should be a *ḏd.ḫr=k* diagnostic marker, if anything.
[175] Wb 1, 172.3-5.

211 also cites non-specific food-matter in connection with blood as forming the obstruction *k.t n*(*i*)*.t dr šnᶜ wnm snf ḥr r3-ib* ‘another for driving away an obstruction of food and blood’.

Ebers 188 is more complex than the examples previously cited as it contains an initial examination and treatment, followed by two re-examination passages; the text contains three *ḏd.ḫr=k* markers. The symptoms of this prescription have been noted as pertaining to difficulty in eating by the statement ‘it is heavy to eat bread while his belly is narrowed and his core weak’, and the first diagnosis marker concludes *sp pw n*(*i*) *mis.t* ‘it is a case of the *mis.t*’. The term *mis.t* is popularly translated as ‘liver’, and the clause is understood as referring to the patient’s liver as the cause of the complaint.[176] Contrary to the *Communis opinio*, this conclusion is difficult to qualify based on its occurrences; the authors of the *Wörterbuch* had even noted the uncertainty for this translation,[177] and neither Walker or Nyord entered a detailed discussion of this component.[178]

A glance at the contexts of occurrences for *mis.t* listed in Hannig’s *Wörterbücher*[179] and the Berlin-based online dictionary of ancient Egyptian *Thesaurus Linguae Aegyptiae* demonstrate that from as early as the Old Kingdom, it is a term primarily found in funerary-offering texts. The Coffin Texts similarly employ this word in the context of food offerings, as well as in anatomical listings.[180] Finally, magical papyri from the New Kingdom include spells which use *mis.t*—an anatomical component of an animal—as an ingredient to be ritually consumed.[181] Within the healing texts listed by the authors of the *Grundriss, mis.t* occurs more frequently as an ingredient than an anatomical feature to be treated; the latter case is only found in six prescriptions.[182] While it is certain that the word pertains to an internal anatomical feature, there is yet still little evidence to support its translation as ‘liver’.

The second diagnosis-marker of Ebers 188 is followed by *ḫ3y.t pw ḥr mḫr wnm=s* ‘it is the condition stopping the eating (of) it’. The final marker notes that *iw mis.t=f pḫ3.ti iw<=f> nḏ3ḏ3.ti n=s* ‘his *mis.t* is cleared as <he> is watery because of it’. The indication that *mis.t* is a commonly found consumable anatomical component from animals might indicate that—at least in the diagnosis of Ebers 188—*mis.t* is a consumed ingredient, rather than an organ which has caused the obstruction of the *r3-ib.* This hypothesis would fit the context of Ebers 188, where a consumable is evidently cited as the cause of the problem, as well as in

[176] MedWb I, 357-8; Bardinet, *Les papyrus médicaux*, 276; Westendorf, *Handbuch*, 578; *SAE*. In her commentary for this text, Radestock (*Prinzipien*, 136) notes that because of this statement, ‘*die Leber (mjs.t) wird offenbar als permeables Organ aufgefasst*’.
[177] See comments for Wb. 3, 44.11: ‘*vermutlich die Leber, vgl. Altkopt* ⲙⲁⲟⲩⲥ; importantly, the meaning of the Coptic word ⲙⲁⲟⲩⲥ is also uncertainly ascribed as ‘liver’, see W. Vycichl, *Dictionnaire étymologique de la langue Copte* (Leuven: 1983), 127.
[178] Walker, *Anatomical Terminology*, 269; Nyord, *Breathing Flesh*, 130.
[179] Hannig, *Wörterbuch I*, 513-5; Hannig, *Wörterbuch II*, 1036.
[180] A de Buck, *The Egyptian Coffin Texts* I-VII (Chicago: 1935): CT 67, I 289c; CT 165, III 6b; CT 936, VII, 143; CT 945, VII, 159t; and CT 1133, VII 476; cf. R. Faulkner, *The Ancient Egyptian Coffin Texts* I-III (Oxford: 1973-8), I, 63; 143; III, 83; VII, 70-77; 82-4; 171.
[181] Notably from cattle, a goat, and a pig; BM EA 10059, Incantations 23-4, 28, see: C. Leitz, *Magical and Medical Papyri of the New Kingdom* (London: 1999), 65-6; 69.
[182] These are Ramesseum III B1, Ebers 188; 447; 854l; 855d, and Edwin Smith 19, 4, MedWb I, 357-8; cf. DrogWb., 223-5.

the context of the food-related aetiologies. Further speculation as to the precise meaning of *mis.t* is beyond the scope of this paper.

Aetiology: digestive disorder

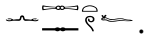
Frequency: 5

Matter: food (specified or unspecified)

Frequency: 5

## 3.2: Knots and Upliftings (Eb. 190, 193, 198, 202, 203, 204; see also 196, 211)

In this paper, the classification 'knots' refers to any aetiology concerned with the verb *ṯs*, translated as 'to knot' in its most basic form – this term is used with the nuance of knotting or bringing things together.[183] 'Upliftings' pertains to the term *ṯsi*, which is translated as 'to raise, bring upward, or lift up'.[184] These cases are challenging to understand if one attempts to correlate them exclusively with the modern nuances of these terms;[185] however, a thorough analysis of these diagnoses can indicate a unique aspect of ancient Egyptian perceptions of physiology and aetiology.

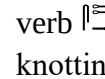
The term *ṯs* 'to knot' is found in a variety of forms, the most frequent is in the negated *sḏm.t=f* form:  . The diagnosis of Ebers 193 reads *sḫn pw n*(*i*) *ḥs nỉ ṯs.t=f* 'it is a swelling of faeces which has not yet knotted'; knotted faeces again appears as an aetiology in Ebers 202: *ṯ3*(*i*) *pw n*(*i*) *ḥs nỉ ṯs.t=f* 'it is an accumulation of faeces which has not yet knotted'. Based on the outlined common uses of *ṯs* as delineating the action of 'bringing together', these passages indicate that hardened or 'knotted' faecal matter was believed to pass through the body to excretion with greater ease, and that an 'accumulation' or even 'swelling' of un-knotted matter (perhaps softer or liquified stools) presented problems to internal physiology.

Un-knotted matter was not restricted to faeces. In Ebers 198, the physician reads: *snf pw š3 nỉ ṯs.t=f* 'it is a blood-nest which has not yet knotted'. Though modern medical practices understand these as two distinct bodily substances, the terminology used here implies the existence of an Egyptian belief system which perceived similar physiological functions for blood and faecal matter. This diagnosis suggests that—before being excreted—blood should 'knot' or harden internally in a similar fashion to faecal matter. While blood is something that is not a 'consumed matter', it is important to note that Ebers 211 also cites blood as the cause of the obstruction in coordination with food.

Knotted matter can also be the cause of an obstruction. As seen with the symptoms listed in Ebers 204, this prescription uses riverine terminology to define the diagnosis: *ỉw*

[183] Wb. 5, 396.12-399.3; MedWb. II, 967-8.
[184] Wb. 5, 405.1-407.15; MedWb. II, 970.
[185] For a concise discussion of the changes to cultural perceptions of diagnoses over time, see: Pommerening, in Imhausen and Pommerening (eds.), *Translating Writings*, 191.

*ir*(*i*).*n=f wḏb ṯs.n=f šʿy.t* ‘it has made a riverbank and has knotted a sandbank’. The identity of the substance which caused this accumulation is elusive; however, the aetiology of knotting is again represented by the verb *ṯs.n*. The knotted substance—referred to as a ‘sandbank’—is the physical cause of an internal problem. Ebers 203 similarly cites knottings as the cause of a condition in the *r3-ib*: *iw<=f> ṯ3*(*i*).*n ir*(*i*).*n dp* ‘it has accumulated and made a lump. This omitted third-person pronoun refers back to a substance which has knotted cited in the found symptoms: *ir gm=k ṯs.n=f ḥr gs=f wnm.y* ‘should you find it has knotted upon his right side’; this text implies the knotted matter causing the obstruction is physically observable upon his right side.

It is this pathogenic function of a knotting which is identical with the aetiologies concerning ‘upliftings’. In Ebers 190, the physician reads: *sṯs.w pw ḥr ḏrww=f iw ḥns.n r3-ib=f* ‘it is what is caused to uplift upon his sides after his *r3-ib* narrowed. In this example, the verb  *ṯs*(*i*) is used nominally as ‘what has uplifted’. In a similar fashion to a knotting, this uplifting is ‘upon his sides after his *r3-ib* narrowed’. The uplifted substance is not classified; however, it is interesting to note that it is caused because of the *r3-ib* having ‘narrowed’, suggesting a potential link between the aetiologies of food, knottings, and upliftings.[186]

Ebers 196 further elucidates the physiology of upliftings: *ḥnw.t pw n*(*i*).*t ṯs.w nỉ sṯs.n.tw=f n*(*i*) *w3ḥ ib ḥr sp ḥwrw iw ir*(*i*).*n=f ḫsd iw sḥw3 ry.t iw mḏ*(*d*).*n ḫ3y.t* ‘it is a *henut* of raised-matter which cannot be uplifted; the heart is not friendly because of the wretched condition as it has made a *khesed* and the decay-substance is pus as the condition has pressed’. Challenges in understanding are presented by the uncertain terms *ḥnw.t* and *ḫsd*,[187] as well as the apparent word-play between the nuances of *ṯs.w* ‘raised matter’ and *sṯs* ‘to cause to uplift’.[188] What is discernible is that—as opposed to un-knotted matter associated with the irregular progression of faeces and blood—this raised-matter was expected to have been ‘uplifted’ or ‘brought up’ in a regular physiological circumstance. In this diagnosis, the raised matter is not brought up, but instead remains within the body, causing irregularities in the core. The *sḥw3 ry.t* ‘decay-substance is pus’. Upliftings and knottings in the *r3-ib* are thus made from observable bodily substances and they form—or do not form—to the detriment of the patient’s health.

Aetiology: knottings and upliftings

Frequency: 7

Matter: faeces

Frequency: 2

[186] The symptom of Ebers 188 cites *dns=f r wnm t’ iw ḫ.t=f ḥns.tỉ* ‘he is heavy to eat bread as his belly is narrowed’; see sections 1.3.1 and 1.3.12 for a discussion of this symptom.
[187] The latter term is suggested as ‘*Geschwulst*’, though this is by no means certain; MedWb. II, 607; 669.
[188] Parkinson argues that in literary texts, wordplay ‘complicates rather than explains’ but also represents ‘an intensely reflexive system’. In this diagnostic passage, the nuances of both terms are reflexive upon the other; R. Parkinson, *Poetry and Culture in Middle Kingdom Egypt* (London: 2002), 124-5.

Matter: blood

Frequency: 2

Matter: pus

Frequency: 1

### 3.3: Pathogenic Substances (Eb. 192, 195, 199, 200, 206; see also 196)

In this case study, the classification 'pathogenic substance' is based on the use of the terms *wḫdw* and *st.t*. These terms are classified as different from both 'food' and the 'knots and upliftings' categories as they are neither substances associated with the action of *wnm* 'to eat' or substances capable of *ṯs* 'knotting' or *ṯs*(*i*) 'uplifting' within or upon the body.[189] Both *wḫdw* and *st.t* occur relatively frequently as causes of disorders throughout the healing texts.[190] Discussions of the former as representing an Egyptian belief in the development of pathogenic bodily substances are well established and the current consensus is that *wḫdw* translates vaguely as '*Leidensmacher*'[191] or '*Krankheitsauslöser*'.[192] The translation '*Schleimstoffe*' is generally accepted for *st.t*,[193] though the *SAE* project prefers the term '*Sekrete*';[194] the varied use of both Gardiner Aa2  and Gardiner N35a  as determinatives for *st.t* and its cognates indicate its relationship with liquified matter.[195]

Ebers 200 makes the only reference to the pathogenic nature of *wḫdw* in the Stomach Book: *wḫdw pw th*(*i*)*.w ḥr psd=f mr irı̓.y=i m sp.w n*(*i*)*.w s3 ꜥq r=f m bṯ sw* 'it is *wekhedu* that has diverted upon his back – an illness which I will treat with after-treatment. Enter against it, do not abandon him'. Both the Ebers and Berlin 3038 Papyri include *Lehretexte* dedicated to the 'rooting-out of *wekhedu* from every bodily part (*ꜥ.t*) of a man' – this text elucidates that *wekhedu* was believed as a pathogenic substance that could be transmitted throughout the body by a series of ducts (*mt.w*).[196] In Ebers 200, the *wekhedu* has 'diverted' (*thi*)[197] from its regular trajectory 'upon' the back of the patient and caused a condition of the patient's *r3-ib*.

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[189] For the various uses and constructions listed in the healing texts, see: MedWb. I, 207-215; MedWb. II, 812-14.
[190] *Ibid*.
[191] K. Kolta and H. Tessenow, '"Schmerzen", "Schmerzstoffe" oder "Fäulnisprinzip"? Zur Bedeutung von *wḫdw*, einem zentralen Terminus der altägyptischen Medizin', *ZÄS* 127 (2000), 52; cf. R. Steuer, *wḫdw: Aetiological Principle of Pyaemia in Ancient Egyptian Medicine* (Baltimore: 1958).
[192] R. Steuer, ;
[193] MedWb. II, 812-14; Westendorf, *Handbuch*, 579; Radestock, *Prinzipien*, 141; cf. transcription for the entry "(*sti*) *strömen, gießen*", MedWb. II, 815.
[194] *SAE*; Bardinet does not provide a translation for "*setet*" and instead correctly criticises previous attempts to associate the word with known medical disorders, such as myocardial infarction; Bardinet, *Les papyrus médicaux*,168; 277.
[195] Wb. 4, 328.9-329.16; Hannig, *Wörterbuch II*, 2380; Faulkner (*Middle Egyptian*, 255) proposes 'shooting pains', speculating a link between the current term and *sti* 'to shoot'; however, the lack of the  determinative in the current term makes this unlikely.
[196] Ebers 856a-h; Berlin 3038 163a-h. For discussions on this, see: Bardinet, *Les papyrus médicaux*, 113-120; Westendorf, *Handbuch*, 119-138; Ritner *JNES* 65, 99-110; Radestock, *Prinzipien*, 181-3.
[197] 'to go astray', Wb. 5, 319.3-320.23.

The severity of the condition is emphasised by the imperative clauses ‘enter against it, do not abandon him’.

The severity of the condition caused by the *wekhedu* pathogen is reflected in a treatment for *st.t*. Ebers 206 reads *šnᶜ pw n*(*i*) *st.t ᶜq r=f m bṯ sw* ‘it is an obstruction of *st.t*. enter against it, do not abandon him’. In this passage, the obstruction *is* the liquid-related pathogenic substance itself which have ultimately caused the symptoms of a ‘narrowed’ *rꜣ-ỉb*. Ebers 192 and 195 also diagnose a condition caused by *st.t*: *sḥwꜣ.w pw n*(*i*)*.w st.t=f nỉ hꜣ*(*i*)*.n*<=*f*> *r npḥ.w=f m st.t=f* ‘it is the decay-substances of his *st.t*; <it> cannot descend to his groin as his *st.t*. Based on the current translations of *st.t* and the associated symptom ‘his eyes are inflamed and his nose runs’, it is tempting to suggest that *st.t* refers to mucus. Though such a conclusion cannot be substantiated by the source material for this case-study, *st.t* is—in these cases—described as a ‘decay(-substance)’ (*sḥwꜣ.w*)[198] which ‘cannot descend’ downward, suggesting it is again—as with Ebers 206—the obstructing matter itself.

The diagnosis of Ebers 199—while not explicit—is a potential reference to *st.t*. Following the *ḏd.ḫr=k r=s* diagnostic marker, the prescription reads: *hꜣ*(*i*)*.y=f m rꜣ=f m ḥsꜣ* ‘it should descend from his mouth as mucilage’. The term *ḥsꜣ* is more commonly found as the name for ‘mucilage’ drawn from a variety of plants which is used as an ingredient in remedies.[199] Again, it is tempting to suggest that *ḥsꜣ* here refers to a mucus- or phlegm-like substance which ‘should descend from his mouth’ and thus is a word used to render a biophysical observation. The use of the subjunctive *sḏm=f* form of *hꜣ*(*i*)*=f* is indicative that this substance is *not* being expectorated – it is therefore causing an obstruction in the *rꜣ-ỉb* in a similar manner to *st.t*.

While neither *st.t* nor *wḫdw* are noted anywhere within the healing text corpus as substances which stop eating or knot together, there exists a lexical link between *st.t* and *ry.t* as both have a decay-substance aspect (for the latter, see the discussion of the diagnosis of Ebers 196 in the above section 1.4.2).

Aetiology: pathogenic substances

Frequency: 6

Matter: *wekhedu*

Frequency: 1

Matter: *setet* (mucus?)

Frequency: 3

Matter: mucilage (mucus?)

[198] From the verb ‘to decay’; Wb. 4. 212.17-18; MedWb. II, 784.

[199]  ‘*Pflanzenschleim*’, see: DrogWb. 364-9.

Frequency: 1

Matter: unspecified (uplifting)

Frequency: 1

## 3.4: Deceased Entities and Demons (Eb. 191, 194, 201, 209)

In a selection of diagnoses, it is evident that obstructions in the *r3-ib* were also believed to be caused by 'supernatural' entities. Two classes of entities can be distinguished based on their character: those which classify as spirits of deceased humans (*mwt.w*),[200] and those which classify as 'demonic' entities (*hy.t* and *nsy.t*).[201] As Pommerening notes, entities of either specification are easy to recognise in medical literature as they are written using Gardiner A14  as a determinative.[202]

The diagnoses of Ebers 191 and 194 claim *ꜥq.t m r3 pw m(w)t pw ḫns(i) n=f* 'it is what enters in the mouth; it is a *mut* which has spread to him'. These prescriptions demonstrate that the *mut* are capable of entering the afflicted via the mouth and subsequently cause the obstruction in the *r3-ib*. The demonic entities similarly cause an obstruction of the *r3-ib* – this is clearly specified in Ebers 201 much in the same way that *st.t* is classified as the obstruction in Ebers 206: *šnꜥ pw hy.t ngg=k iw=f mi nsy.t ṯs.n=s m ḫ.t* 'it is an obstruction of the *heyet*-demon which you will break open – it is like the *neseyet*-demon which has knotted in the belly'. The connection between a condition caused by a *heyet*-demon and one caused by the *neseyet*-demon—expressed in the adverbial clause marked with *mi*—supports an understanding of the abbreviated prescription Ebers 209: *k.t n(i).t srwḫ šnꜥ m gs wnmi ḏꜥ.n sw nsy.t* 'another of treating an obstruction in his right-side after a *neseyet*-demon has opposed him'.

While these diagnoses are classified as embodiments of distinct aetiologies by the unique choice of determinative used for the morphology of these nouns, the boundaries between the conditions caused by entities and the aforementioned classifications can be blurred. The diagnosis of Ebers 206 highlights similarities in both attestation of what the obstruction is—in this case, a *šnꜥ* caused by an entity rather than a pathogenic substance—as well as linking the entities with those substances which can cause knottings. Finally, the knotting of the *neseyet*-demon is stated as being able to occur in the belly, an anatomical region which—as has been seen in both symptoms and the class of food aetiologies—is often associated with eating and digestion in these texts.

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[200] For a summary of deceased entities and their role in Egyptian culture, see: M. Müller, 'Feasts for the Dead and Ancestor Veneration in Egyptian Tradition', in V. Rimmer Herrmann and J. Schloen (eds.), *In Rememberance of Me: Feasting with the Dead in the Ancient Middle East* (Chicago: 2014), 85-94; see in particular the subheaded section: 'the deceased as harmful spirits'; *ibid*, 90-91.

[201] While the term 'demon' is a 'value-loaded' modern distinction, it is used within Egyptology to define '"minor divinities", assistants to superior powers, or agents of chaos and evil', see: P. Kousoulis, 'Introduction' in P. Kousoulis (ed.), *Ancient Egyptian Demonology: Studies on the Boundaries between the Demonic and the Divine in Egyptian Magic* (Leuven: 2011), 9-21.

[202] Pommerening, in Imhausen and Pommerening, *Translating Writings*, 192; this symbol is rendered in hieratic with the  determinative; cf. the transcription for *nsy.t* in Leitz, *Magical and Medical Papyri*, pl. 27.

Aetiology: entities

Frequency: 4

Matter: *mut*

Frequency: 2

Matter: *heyet*-demon

Frequency: 1

Matter: *neseyet*-demon

Frequency: 1

## 3.5: 'Restlessness of your House' (Eb. 197)

A final aetiological classification that can be drawn from the Stomach Book is embodied by the diagnosis clause of Ebers 197: *ḏd.ḫr=k r=f nḥ3 pw n*(*i*) *pr=k* 'then you have to say regarding it: "it is the *nḥ3* of your house".' The treatment section of this prescription is concluded by the statement that the remedy should be consumed for four mornings *r ḥtm ib.t=f r dr nḥ3 ib=f* 'until his thirst is destroyed and until the *nḥ3* of his core is driven away'. According to the authors of the *Grundriss*, this text is the only known occurrence of this '*Krankheit*' in all the healing texts analysed for the volumes; however, cognates of *nḥ3* occur in other prescriptions and seemingly refer to 'unevenness' in the context of wound examinations.[203] The examination of Edwin Smith case 4 reads 'if you examine a man for a gaping wound in his head which has penetrated to the bone and split his skull, you have to probe his wound. Should you find something there *nḥ3* under your fingers…'.[204]

Westendorf and Radestock translated the passages of Ebers 197 as variants of '*die Unruhe deines Hauses*' and '*Unruhe seines Herzens*',[205] whereas Bardinet opted for the translation '*C'est une désagrégation de ta maison (= de toi-même*)!' and '*jusqu'à ce que soit chassé ce qui de son intérieur*-ib *est désagrégé*'.[206][207] As noted by the *SAE*[208] Lloyd's translation of the diagnosis in Ebers 197 as '"it is distress for your house", i.e. "you are in for a bad time"' follows this trend.[209] For the examination in Edwin Smith case 4, however, he expanded the suggestion of 'uneven' posited by the von Deines and Westendorf to being a specific reference to 'a comminuted fracture, i.e. a fracture where the skull is split and fragments of bone are broken off and remain embedded in the wound'.[210] In non-medical

[203] In these cases, the term *nḥ3* was registered as meaning '*uneben*' or '*unruhig*' by von Deines and Westendorf; MedWb. I, 471.
[204] J. Allen, *The Art of Medicine in Ancient Egypt* (New York: 2005), 74; cf. J. Breasted, *The Edwin Smith Surgical Papyrus* II (Chicago: 1930), pl. 2.
[205] Westendorf, *Handbuch*, 581; Radestock (*Prinzipien*, 144) opted to translate *nḥ3* as '*Unwohlsein*(?)'.
[206] Bardinet, *Les papyrus médicaux*, 278-9.
[207] Radestock, *Prinzipien*, 144.
[208] *SAE*, Ebers 197, n. 4.
[209] A. Lloyd, 'One more Hammamat Inscription 191', *JEA* 61 (1975), 63.
[210] *Ibid*, 60.

contexts, Lloyd further suggested the term had the meaning of 'fierce, wild' in texts where Pharaoh is described as being '*nḥ3* and strong like that of a lion', 'a charging(?) lion, *nḥ3* and strong, grasping with its claw', and '*nḥ3* and strong like a jackal'.[211] From the varying nuances in each given context, it is possible to deduce that *nḥ3* actually has the meaning of being 'unsettled', or perhaps even 'restless'. These translations are neutral, they have neither negative or positive meanings but simply describe the condition of something. Of course, if these deductions are appropriate, then the term is used with negative connotations as should perhaps be expected for diagnosing a medical condition.

From a translation of the diagnosis *nḥ3 pw n*(*i*) *pr=k* as 'it is the restlessness of your house', it would be tempting to suggest that this refers to stress as the cause of the obstruction in the patient's *r3-ib*; however fascinating, such a bold interpretation would classify as anachronistic. What is important to note here is that this condition is set aside from other diagnoses based on the 'restlessness' coming from the patient's house and therefore being in the patient's *ib* in a cognitive sense. This aetiology is further removed from other classifications based on the use of the Gardiner A2  determinative for *nḥ3* as it occurs in Ebers 197.[212] While Gardiner Aa2  is used for occurrences of *nḥ3* in the cases of wound-treatment (perhaps reflecting the seemingly putrefactive nature of the wound), the circumstances described in Ebers 197 do not pertain to a physical wound. Thus, while enigmatic for the modern researcher, the aetiology listed here is clearly more abstract than the other classes.

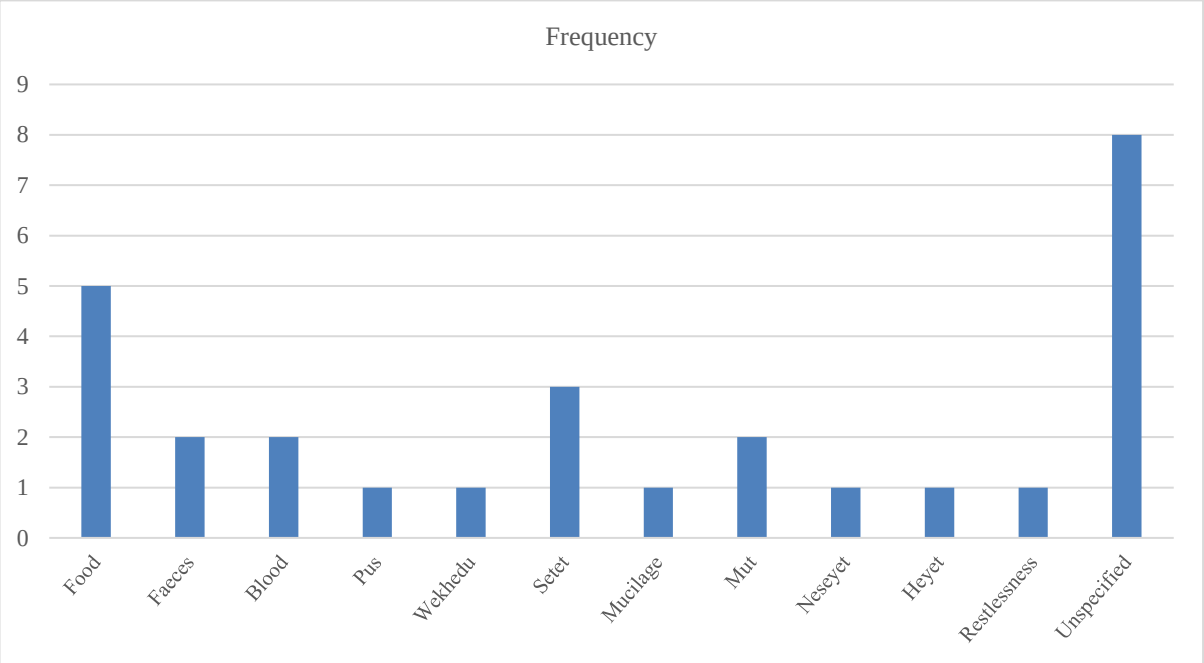
Aetiology: 'the restlessness of your house' (an abstract notion)

Frequency: 1

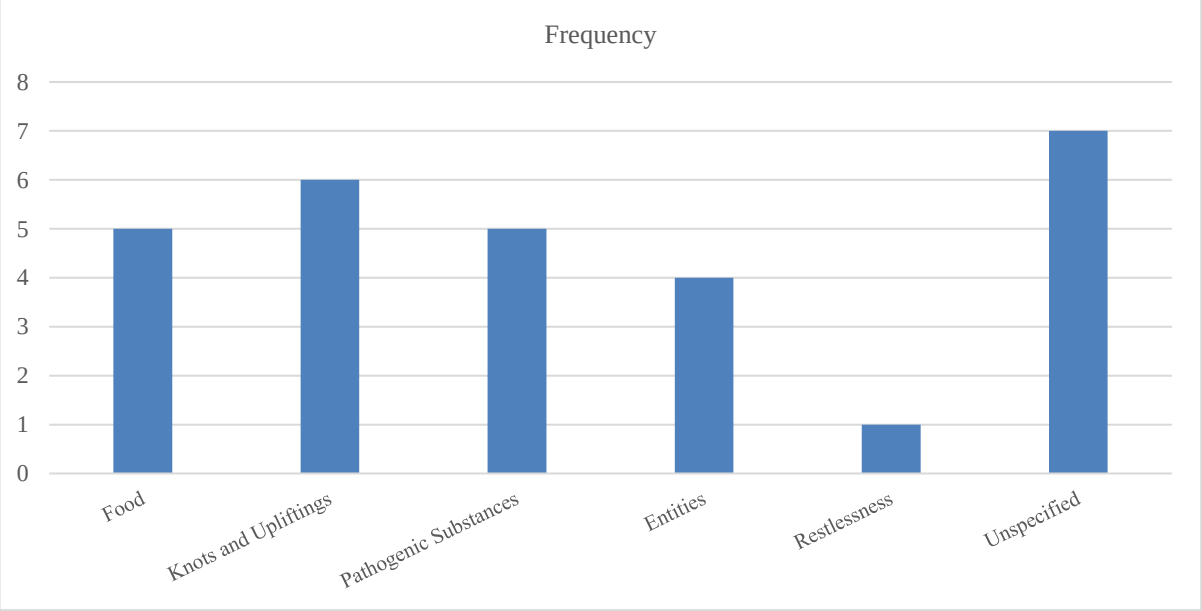
[211] *Ibid*, 64.
[212] MedWb. I, 471.

## 3.6: A Discussion of Aetiology

Because of their abbreviated format, it is difficult to determine the precise aetiology pertaining to Ebers 208, 210, 212-216 other than 'an obstruction' – these prescriptions are either *k.t n(i).t dr šnˁ* 'another of driving away an obstruction', or simply *k.t* 'another'. From the remaining texts which *do* include a diagnostic statement it is possible to identify specific Egyptian beliefs concerning the aetiology of complaints and compile the following data which illustrates their frequency:




**DATA 2**: frequency of aetiological matter.



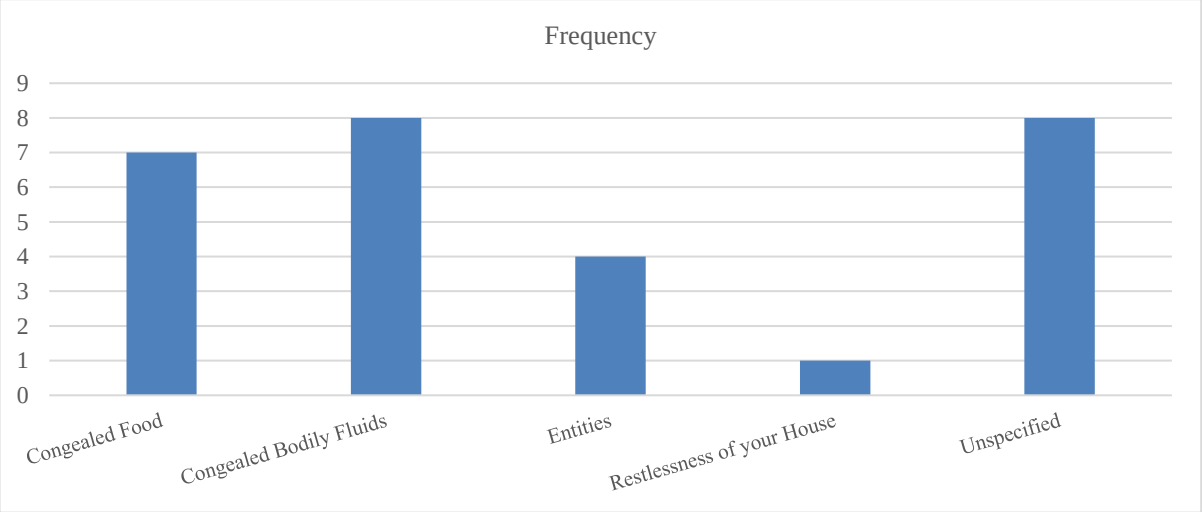

**DATA 3**: Frequency of aetiological classifications.

From the first chart (DATA 2) it is possible to determine that—aside from the unspecified aetiologies—consumed matter ('food') is the most frequently occurring cause of

an obstruction in the *r3-ib*. *Setet*—a word which embodies a potential mucus-like substance—occurs three times, whereas the remainder occur only once or twice. The second chart demonstrates that the abstract notion of 'restlessness' occurs far less frequently than the other aetiologies.

How reliable is this data against the classifications? As has been seen in the above discussions of aetiologies, these classes—while reliant on aspects of terminology and word-use—are not absolute. Within each class, certain ideas can be represented by more than one term, as is the case with *wnm* and *t*', and perhaps also—if the present deductions are correct—*st.t* 'mucus?' and *ḥs3* 'mucilage'. Furthermore—and perhaps more significantly—there is a traceable amount of fluidity between these classes; Ebers 196, 205, and 211 are the clearest evidence of this. Ebers 196 diagnoses a '*henut* of knotted matter'; it is further explained that the condition 'has made a *khesed* and the decay-substance is pus'. Because pus is a substance which can knot or 'harden', it is listed in the 'knots and upliftings' class, but it is also seen as a *sḥw3.w* 'decay-substance', a term usually used for the diagnoses of pathogenic mucilage. Similarly, Ebers 205 cites that because of the condition, 'food is rotten (*ʿw3*) and things are impure'; while the context of this prescription determines its digestive association, the idea of food becoming 'rotten' and 'impure' perhaps represents the Egyptian conception of the biophysical transformation of food into faeces. Should food and faeces be classified separately as distinct aetiologies? Finally, Ebers 211 cites both food *and* blood as the material of obstruction, indicating that a combination of coagulant and consumable matter could inflict an obstruction on the *r3-ib*.

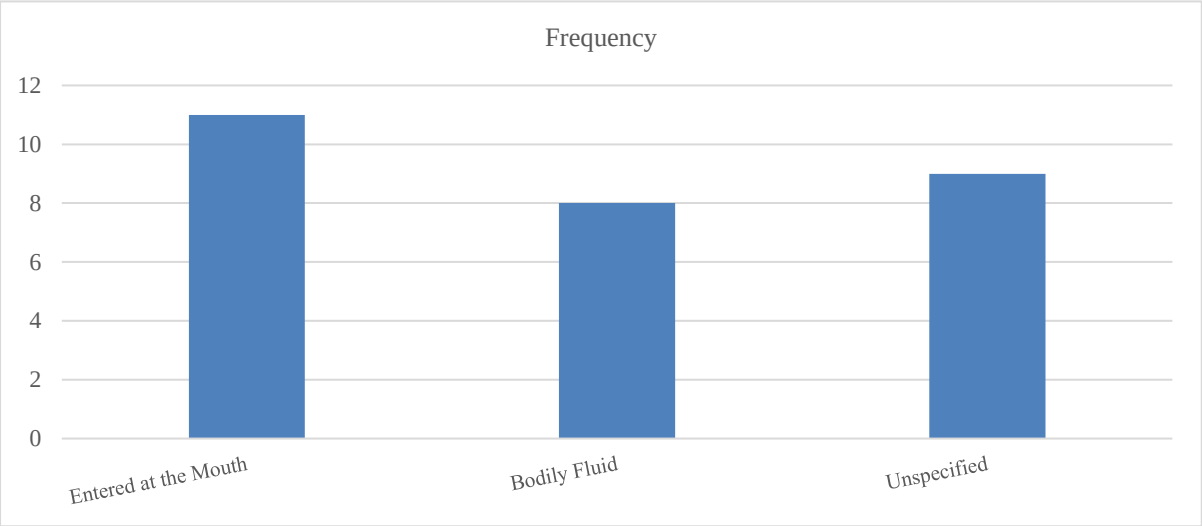
If these crucial details are acknowledged, it is possible to manipulate the data by asking a series of questions; for example, is there a disparity between conditions caused by consumed matter (food, faeces) and congealed bodily fluids (blood, pus, mucilage, *wekhedu*):




**DATA 4**: Disparity between consumed and non-consumed aetiological matters.

More abstractly, it is possible to also determine if there is a disparity between aetiologies pertaining to causes from external inputs (food, demons, the *mut* which 'enters in

the mouth') and those which arise from within the body:




**DATA 5**: Disparity between external and internal aetiological substances.

As can be seen in the graphs, these prescriptions are representatives of a variety of beliefs concerning medical aetiology – the common feature of each prescription is the obstruction itself. Much like the symptoms of a prescription, the diagnoses exhibit aetiological beliefs which merge both biophysical realities with cultural perceptions of those realities. Aetiologies concerning bodily fluids involve either *the observable*: blood, mucus, pus; or *the culturally envisioned*: *wekhedu*. Other aetiologies involve varying stages of digested matter, demonic influences, and even an abstract notion known only as the 'restlessness of your house'. These results demonstrate that a reconsideration of the Stomach Book is necessary. The prescriptions do not solely seem to treat digestive disorders, but rather obstructions formed within the *rꜣ-ib* from a variety of internal and external sources.

## 4: A Statistical Analysis of Remedies

> The translator not only considers the literal translation, but also assigns a plant that fits the criteria of both language and medicinal application, consistent with the literary and artistic evidence (Dawson 1926). Philology is unlikely to resolve the uncertainties…
>
> – Jacqueline Campbell, 2008[213]

Drawing a definitive conclusion regarding the precise use of all pharmacopoeia in the Stomach Book prescriptions is problematic in this type of case study. As can be seen from the ingredients catalogue (Appendix 3: Ingredient Catalogue I), there are over 80 entries of ingredients used in only 29 remedies, and many of these ingredients only appear once throughout the source material. To undertake a study of each individual ingredient would require the use of all available healing-text source material – a monumental task far beyond the scope of this project. What is possible for this paper is to present the results of accumulative statistics and attempt to draw some conclusions regarding the types of preparation and treatment methods, as well as to draw some preliminary conclusions regarding the motivations for ingredient selection. It must be noted that—as this is only a case study—the results of the statistical analysis may not necessarily be exclusive to these prescriptions but may instead be paralleled elsewhere in the healing-text corpus – such questions remain to be answered.

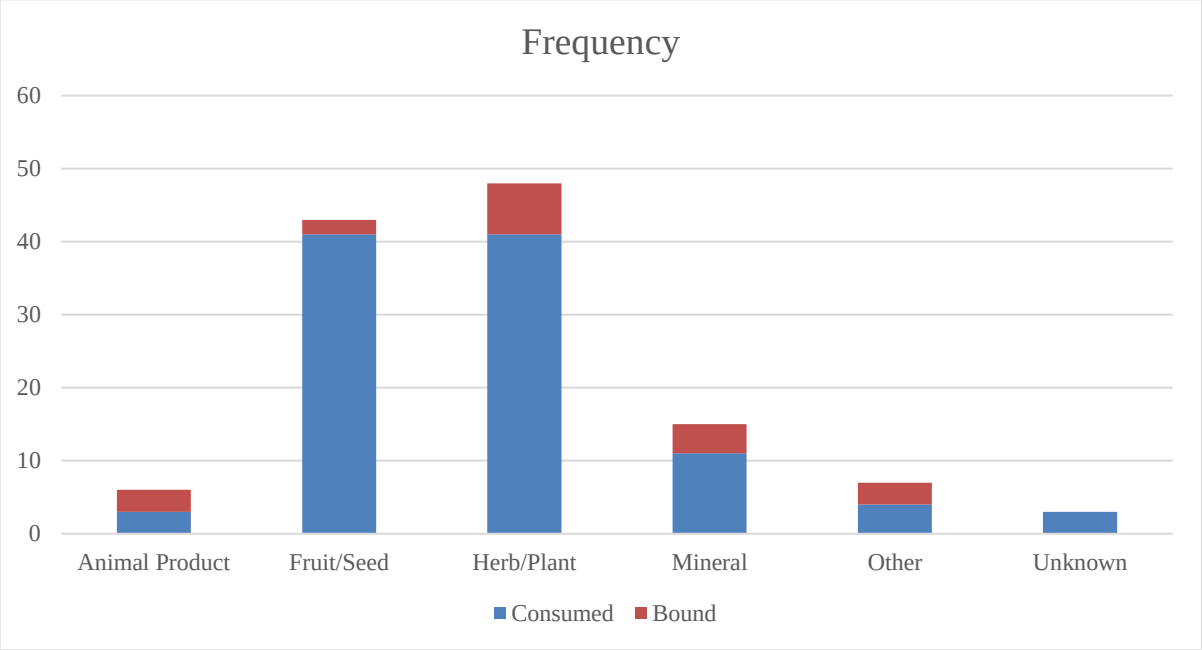
In the *Lehrtexte* prescriptions of the Stomach Book (Ebers 188-207), the treatment aspect of a prescription is marked by the construction *ir*(*i*)*.ḫr=k n=f* 'then you have to make for him'. In Ebers 191, 195, 198, 199, and 201, the list of ingredients and preparation methods follows immediately after this marker – the remainder of treatments offer brief insights into the nature of remedy that was to be made.

Following the treatment marker, varying strengths of remedies can be indicated using *sp.w šsm.w* 'you have to make strong treatments for him';[214] Ebers 203 further elaborates on the purpose for this strength: *sp.w šsm.w n mrḥ.t r ḥ33.n=f* 'until it has descended'. Ebers 196 uses similarly aggressive language *n=f sp.w n*(*i*)*.w ng*(*i*)*.t st m pḫr.t* 'you have to make treatments of breaking it open for him with a remedy'. Less powerful terms are also used, such as the verb *pḫ3* 'to clear':[215] Ebers 207 was intended as *sp n iʿ*(*i*)*.t ḏ3f n pḫ3 q3b=f* 'a treatment for washing cooked meat and for clearing his intestines'. The verb *ḏdb* also appears as a specification for the strength of a remedy,[216] though its precise meaning is yet

[213] J. Campbell, 'Pharmacy in ancient Egypt', in R. David, *Egyptian Mummies and Modern Science* (Cambridge: 2008), 218.
[214] Eb. 190, 203, 205.
[215] Eb. 189, 207.
[216] Eb. 191, 194, 205.

uncertain.[217] Other remedies are simply classified as *sp.w n(i).w smy.wt* 'treatments of herbs',[218] or even *sp.w r=s* 'a treatment against it'.[219]

While an assessment of the strengths of each prescription would require these remedies to be reproduced and tested for specific pharmaceutical and other qualities[220] (a task unfortunately outside the scope of this study), a concerted attempt to assess ancient prescriptional efficacy against modern understandings of aetiology should be considered anachronistic. Instead, the ancient Egyptian prescriptions should be measured against their own stated objectives – to remove the obstruction by causing the affliction *hꜣ(i)* 'to descend' with a remedy. To do this, the varying pharmaceutical qualities of individual ingredients will be inventorised according to these objectives in order to establish trends – this can then be used as an analytical tool for attempting to suggest potential motivations for their initial selection. The data presented here lists each occurrence of individual ingredients drawn from the two databases listed in appendix 3; the latter were accumulated from the retranslation (appendix 1) and glossary (appendix 2) created for this case-study.

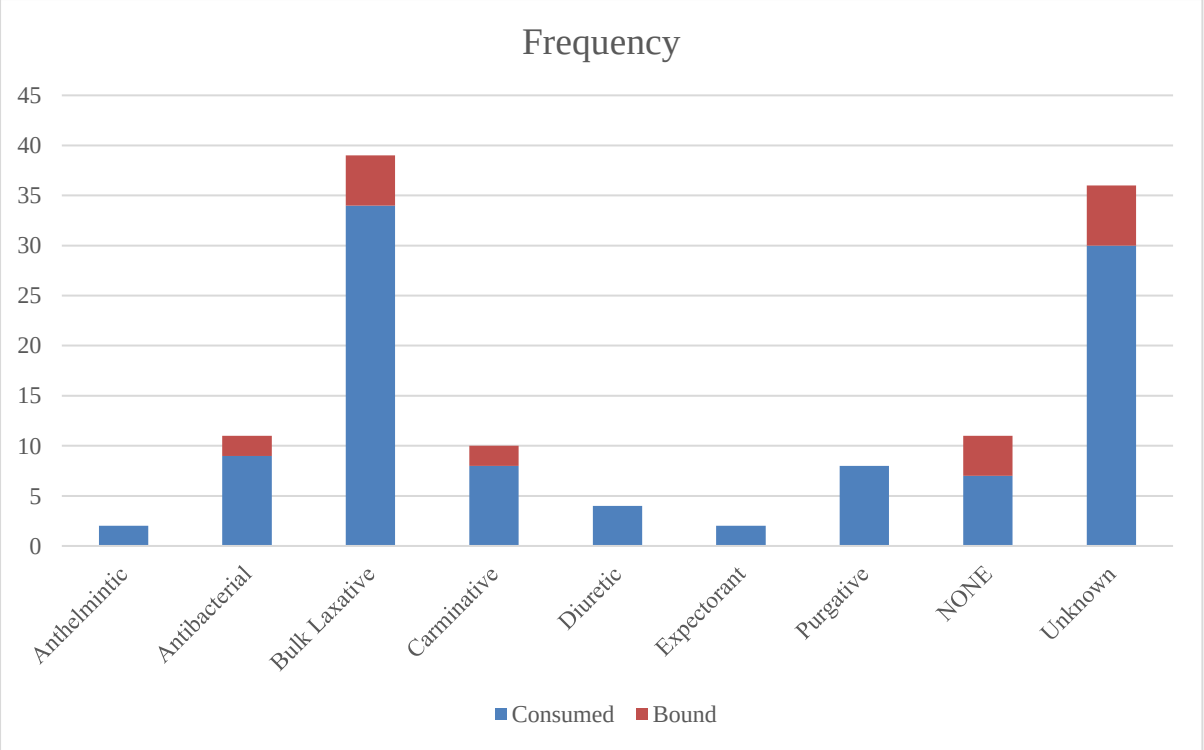



**DATA 6**: overview of ingredient categories.

[217] MedWb. II, 1017; Bardinet (*Les papyrus médicaux*, 227) translates '*fortifiant*' and Westendorf (*Handbuch*, 579) '*aufputschende* (?)'. The verb seems to be related to *ḏdb* 'to sting', though this is written with dissimilar determinatives, cf. PtolLex. 1253; *LED* II, 227.
[218] Eb. 188, 193, 206; Ebers 188 and 206 are further labelled as *sp n sšt3 n(i) smy.wt irr.w swnw* 'treatments from the secret knowledge of herbs which a physician uses'.
[219] Eb. 197, 200, 203, 204.
[220] This important analytical methodology was pioneered by Pommerening and enables the production of both emic and etic analyses of the reconstructed material. For an example of this—as well as a summary of the challenges faced in creating such tests, see the sample reconstruction of Ebers 63, a remedy against worms: Pommerening, in Imhausen and Pommerening (eds.), *Translating Writings*, 263-7.

Based on the determinatives used for each ingredient[221] and the physical character of each known ingredient (see appendix 2), ancient Egyptian pharmacopoeia can be categorised into plants, fruits and seeds, minerals, and animal products. As can be seen from the chart on the previous page (DATA 6), the majority of ingredients used fall in either the fruits and seeds, or the herbs and plants categories; of these, a minimal number were to be applied topically – the majority were to be ingested as liquid or solid matter. Minerals are comparatively low, and the use of animal products in these prescriptions lower still. It is perhaps interesting that of the animal products used, 50% of them are to be consumed, and the other half applied topically; for the other three categories, the ratio is heavily in favour of items which are to be consumed. Overall, very few of the ingredients were administered topically comparatively, perhaps suggesting that the afflicted region had more affiliation with an internal structure than an exterior surface condition.

A significant challenge in translating and analysing the chemical properties of ancient Egyptian pharmacopoeia becomes apparent when they are incorporated into datasets such as the graph below (DATA 7). It is impossible to ignore the staggering number of yet unknown or uncertain ingredients; however, this should not deter a study of those ingredients that are known or have been suggested with relative confidence based on the aforementioned criteria.




**DATA 7**: overview of pharmacological properties of solid ingredients.

[221] For a concise summary of the use of determinatives for ingredients, see Tab. 2 in Pommerening, in Imhausen and Pommerening (eds.), *Translating Writings*, 194.

When their individual pharmaceutical properties are examined in accordance with the instructions of the prescriptions, the measurable ingredients exhibit a series of qualities associated with digestion, gut motility, and excretion. The graph illustrates that classes of complex carbohydrates were selected far more frequently than other classes in these remedies – these are bulk-forming laxatives, the 'luminally active bulk formers such as whole grain, figs and fruits' which 'increase the volume of the gastrointestinal tract'.[222] Comparatively, purgatives—agents with a strong and often aggressive laxative effect—appear only 10 times in this analysis. Of the other agents used in comparable frequency, antibacterials occur 11 times; carminatives—ingredients which essentially calm gastrointestinal tract of flatulence and the discomfort pertaining to it—are used 10 times; diuretics—those which increase urination—occur 9 times; and both anthelminitics—ingredients which treat parasites such as worms—and expectorants—used to treat coughs—are only used twice. The author has found little solid evidence for the outcome of consuming various ochres and animal products; regarding their pharmaceutical effects, these have been marked here as having 'NONE' (see appendix 2 and the second database of appendix 3).

The preparation methods specified in these prescriptions also employ a range of (semi-) liquids in which the dry ingredients were to be *šbb*'mashed' *ʿtḫ* 'strained', *psi* 'cooked' or *nḏ* 'pulverised'. An analysis of the preparation methods demonstrates a clear preference for the use of oils, honey, and alcoholic liquids; milk and water are infrequently used (see DATA 8 on the following page). Pharmacologically, alcoholic liquids have many functions, the most obvious being the emetic when over indulged; however, they can also act as the vehicle for chemical extraction in the preparation of herbs.[223] The high-sugar content of honey has a similar osmotic effect, but can also act as a demulcent – the latter quality being shared by milk.[224] Finally, oils act as a lubricant laxative, increasing gut motility.[225] Though these facts are not intended to provide a definitive answer to the preference of these ingredients over the use of water, they certainly indicate that there is more to these preparation methods than simply providing a vehicle with which to consume the solid pharmacopoeia.

As noted above, an adequate comprehension of ingredient selection motivations cannot be gained unless such statistics as compiled in this case study are compared to the remedies for other afflicted areas. It is certainly significant that the results acquired in this research signals toward a desire for faster excretion.

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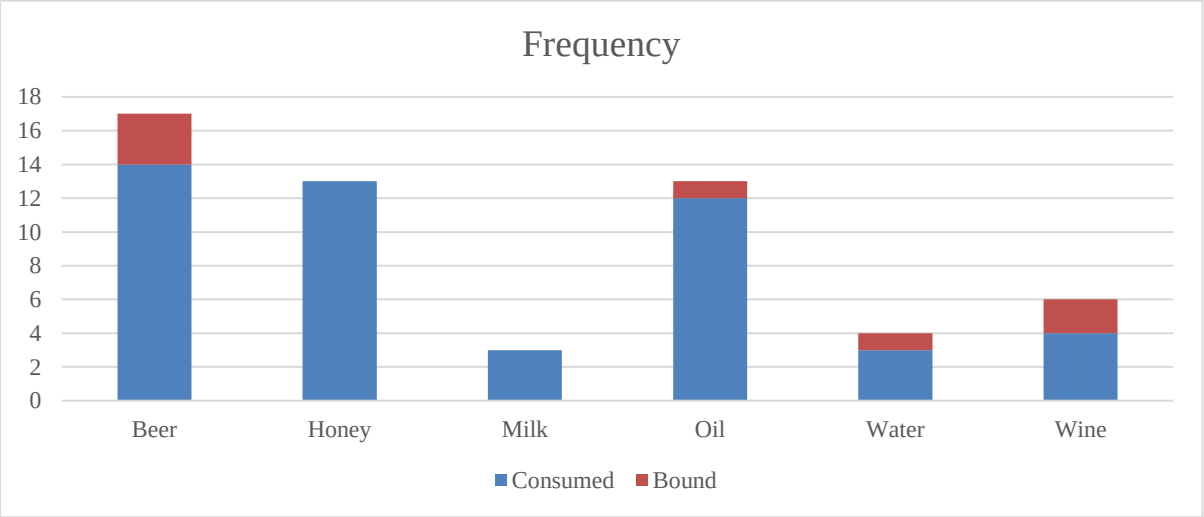
[222] *Ibid.*

[223] For a summary of this, see J. Campbell, J. R. Campbell, and A. David, 'Do the Formulations of Ancient Egyptian Prescriptions Stand up to Pharmaceutical Scrutiny?', in J. Cockitt and R. David, *Pharmacy and Medicine in Ancient Egypt: Proceedings of the Conferences held in Cairo (2007) and Manchester (2008)* (Oxford: 2010), 16-18; R. Metcalfe, 'Good for what Ales you – A Prospective Study into the role of Beer in Ancient Egyptian Medicine', *ibid*, 108-9.

[224] J. Campbell, 'Pharmacy in Ancient Egypt', in David, R. (ed.), *Egyptian Mummies and Modern Science* (Cambridge: 2008), 227.

[225] *Ibid.*




**DATA 8**: overview of the use of different mediums for preparation or vehicles.

## 5: The *R3-ib* and the '*R3-ib* Book'

> Wenn du einen Mann untersuchst mit einer Verstopfung seines Magens, er ist drückend beim Essen von Speise, sein Bauch ist eng, sein Harz ist schwach zum Gehen, wie bei einem Mann, der an Hitze des Afters leidet.
>
> – Translation of Ebers 188, Susanne Radestock, 2015[226]

As noted in the introduction to this paper, the Egyptian conceptions of internal anatomical structures may not be as consistent with modern determinations as previously imagined. While the results of the statistical analysis of the so-called Stomach Book prescriptions seem to suggest the ingredients were used to improve digestion and excrete matter faster, they are not necessarily evidence that these remedies correspond to the modern treatment of constipation, stomach disorders, or the digestive system in general.

As outlined by this case study, each prescription treats the ancient Egyptian perception of obstructions in an anatomical entity known as the *r3-ib*. The term *r3-ib* alone—literally meaning the 'opening of the *ib*'—demonstrates that the organ was closely associated with the *ib* itself, the core component of Egyptian physiology which governed abstract notions of emotion as well as the management of input substances such as food. This hypothesis is substantiated by a systematic lexicographical examination of the symptoms in these prescriptions. A further link between the *r3-ib* and the *ḫ.t* 'belly', as well as the *r3* 'mouth' and *pḥwy* 'rear' place the anatomical designation at the centre of human physiology; thus, the *r3-ib* was perceived as an anatomical entity through which matter should normally *h3*(*i*) 'descend' without hindrance. The obstructions which formed in this central physiological component were not only associated with food and digestion, but with all substances which could enter or develop in that centrally placed region. These obstructions could include demonic or deceased entities; bodily substances such as blood, mucus, or pus; perceived pathogenic substances; and even an elusive abstract notion known as 'the restlessness of your house'. Though dissimilar from modern knowledge concerning the causation of medical conditions, these facts do not necessarily disqualify a translation of 'stomach'; however, the *r3-ib* is also viewed as a structure with a tangible quality that could be used to detect particular symptoms such as knottings and upliftings. The tangibility of the limits of the *r3-ib* is not only observed in the instructions to a physician to 'place his hand' upon the anatomical region, but also by a minority of topical treatment methods applied to the surface of the body, often by bandaging. Furthermore, the anatomical component was subdivided into left- and right-sides; and was believed to be anatomically connected with the upper extremities of the human body (namely the arms, chest, and head, but also the upper thigh and pelvis region).

In addition to the identification of dissimilar anatomical and aetiological concepts listed in these texts, an awareness and attempted comprehension of ancient Egyptian phenomenological aspects further separates the ancient healing practices from our own. The descriptions and metaphors used in the examination sections to clarify particular conditions

[226] Radestock, *Prinzipien*, 135.

and treatment methods make frequent reference to the surrounding environment, as well as notions which were clearly well established in native Egyptian thought. The use of agricultural and riverine terminology to determine the character and function of the internal body is distinctly Egyptian and cannot be correlated to modern anatomical or aetiological understandings. Their presence in these texts confirms the unique biophysical and cultural realities which informed the healing practices of the ancient Nile Valley.

Though much of the ancient Egyptian pharmacopoeia is yet unknown, it is possible to identify certain motivators behind the selection of ingredients for remedies based on the prescriptions themselves. It is clear from the terms used in these texts that the remedies were intended to *dr* 'drive out' *pḫꜣ* 'clear' or *ng*(*i*) 'break' open the obstructions perceived to have been caused by various substances, notions, and entities. While the lack of specifically prescribed ritual incantations—even in cases where demonic and deceased entities are cited to be the cause—might indicate that these remedies were based primarily in a biophysical reality, it is necessary to compare the pharmacological statistics obtained from a study of other remedies to measure the independent character of these remedies.

In closing, a case-study of the source material—while limited in areas—demonstrates three fundamental characteristics of Egyptian healing practices in general. Firstly, that the title 'Stomach Book' is anachronistic. Egyptian traditions should be studied and appreciated by their own terms – thus, this collection of prescriptions is better termed the *Rꜣ-ỉb Book*, as it is a compendium which discusses and treats the uniquely Egyptian concept of the *rꜣ-ỉb*. While this might be frustrating to the intrigued layman, it is crucial for any attempt at understanding treatment methods – an attempt to correlate modern knowledge and ancient perceptions of human physiology—though intriguing—is intrinsically flawed and obscures the realities from which that culture operated. Secondly, the systematic and lexicographic analysis of prescriptions by constituent components, determined on the basis of the information they provide, supplies a full understanding and method for comparison. This ultimately results in a thorough appreciation of concepts which are difficult for the etic observer to grasp. Finally, labelling the Egyptian healing tradition as 'irrational' or even 'magico-medical' has no founding. Prescriptions should not be studied based on their efficacy or the balance between empirical science or magical practices. It is more productive to conduct a measurement of the phenomenological aspects—the biophysical and cultural realities—which informed Egyptian physiology and motivated treatments.

The healing practices documented in the *Rꜣ-ỉb* Book are the product of ancient Egyptian phenomenological settings and are thus steeped in culturally unique theory which determined the practices. For this reason, the *Rꜣ-ỉb* Book is not *devoid of reason*.

# Appendix 1: Translations

## Ebers 188 (cl. 36, 4-17)

***šs3.w n mn r3-ib**:*

*ir ḫ3(i)=k si ḥr šnᶜ n(i) r3-ib=f dns=f r wnm t' iw ḥ.t=f ḥns.t(i) ib=f ḫs(i)=f r šm.t mi si ḥr mn t3.w n(i).w pḥwy, m33.ḫr=k sw st(3)s gmm=k ḥ.t=f t3 šnᶜ m r3-ib=f ḏd.ḫr=k r=f sp pw n(i) mis.t*

***ir(i).ḫr=k sp n sšt3 n(i) smy.wt irr.w swnw** p3ḫ-zr(i).t (i)ny.t n(i).t bnr **šbb ᶜtḫ ḥr mw swr(.w) in si r dw3y.t 4 r wḫ3=k ḥ.t=f***

*ir m-ḫt ir(i).t nn ir gm=k mr.wy m ḥ.t=f gs wnm.y t3.w gs i3b.y qb **ḏd.ḫr=k r=s** ḫ3y.t pw ḥr mḫr wnm=s*

***wḥm.ḫr=k m3n=f** gmm=k ḥ.t=f qb.ti r-ḏr=s **ḏd.ḫr=k** iw mis.t=f pḫ3.ti iw<=s> nḏ3ḏ3.ti n=s sšp.n=f sp*

**Instructional texts for one suffering from the *r3-ib***:

If you examine a man with an obstruction of his *r3-ib* while he (finds it) heavy to eat bread,[227] and while his body is narrowed and his heart is weak and will go like a man suffering heat of the rear, then you have to look at him stretched out (i.e. lying on his back). If you find that his belly is hot and the obstruction is in his *r3-ib*; then you have to say regarding it: 'it is a case of *mis.t*'.

You have to make a treatment from the secret knowledge of herbs which the physician makes: *pakh-seret* and *Phoenix dactylifera* L. (date) kernels; to be mashed, strained with water, and drunk by a man for four mornings until you empty his body.

After making these, should you find the two canals in his body, the right side hot and the left side cool, **then you say regarding it**: 'it is the condition stopping its eating'.

**You have to repeat seeing him,**[228] if you find his body cool entirely; **then you will say**: 'his *mis.t* is cleared as it is watery from it. He has accepted the treatment'.

[227] *SAE* and Radestock translate '*Speise zu essen*', the latter transliterates *ḥtp* (*Prinzipien*, 135) as the word here – though this is problematic as  --used to refer to offering food—is not written here. This word is rendered *t*  and literally means 'bread' (Wb. 5, 209.4-211.4); this is what will be translated here.
[228] The infinitive form '*m3n=f*' is preferred here over Radestock's *m33 n=f* (*Prinzipien*, 136).

## Ebers 189 (cl. 36, 17 – cl. 37, 4)

***ir ḫ3(i)=k si ḥr mn r3-ib=f iw ꜥ.wt=f nb.t dns.ti r=f mi bsw.w n wrḏ.t*** *rḏi.ḫr=k ḏr.t=k ḥr r3-ib=f gmm=k r3-ib=f srw iw<=f> šm iw ḫr ḏbꜥ.w=k* ***ḏd.ḫr=k r=s*** *nniw pw n(i) wnm tm rḏi wnm=f ḫnt*

***ir(i).ḫ<r>=k n=f pḫ3=f nb*** *(i)ny.t n(i).t bnr ꜥtḥ ḥr h(n)q.t n(i).t 3q iw(i) wnm.t=f*

***ir ḫ3(i)=k sw m-ḫ.t ir(i).t nn*** *gmm=k ḏrww=f šm(m.w) ḫ.t=f qb.ti* ***ḏd.ḫr=k*** *iw nniw=f h3(i).y rdi.ḫr=k mki=f r3=f r ḏ3f nb*

**If you examine a man suffering from his *r3-ib* while all his bodily parts are heavy because of it like those come forth from weariness,** then you have to place your hand upon his *r3-ib*. If you find his *r3-ib* is *serew* while it goes and comes under your fingers, **then you have to say regarding it**: 'it is an inertia of food that does not let him eat further'.

**You have to make a 'clear-all' for him:** *Phoenix dactylifera* L. (date) kernels, to be strained with expired beer. His food will return.

**If you examine him after doing this** and you find his sides hot and his body cool; **then you say**: 'his inertia has descended'. You have to ensure that he protects his mouth against any cooked meat.

## Ebers 190 (cl. 37, 4-10)

***ir ḫ3(i)=k si ḥr šnᶜ*** *ir(i)=f f3(i).t n(i).t sry.t iw ḫ3y.t=f ḥr ḏrww=f mi ḏrw.t n(i).t ḥs sṯs.w pw ḥr ḏrww=f iw ḥns.n r3-ib=f*

***ir(i).ḫr=k n=f sp.w ššm.w n(i).w swr(.t):*** *3ḥ-w3ḏ ps(i.w) ḥr mrḥ.t bi.t sᶜm* ***r-1/32*** *pr.t-šni* ***r-1/16****, š3š3* ***r-1/8*** *rḏi(.w) ḥr=f ps(i.w) m ḫ.t wᶜ.t swr(.w) r hrw 4*

***ir ḫ3(i)=k sw m-ḫt*** *gmm=k sw m ḫ3y.t=f n(i).t sp tp.y snb=f pw*

**If you examine a man with an obstruction.** He makes a rising of cough.[229] His pathogenic-substance is under his sides like a *djerut* of faeces.[230] 'It is that which is uplifted upon his sides, his *r3-ib* has narrowed'.

**You have to make strong treatments of drinking for him:** Unbaked *ah*-dough to be cooked in oil and honey; *Artemisia* sp. **1-32 *ro***, colocynth fruit (?) (*Citrullus colocynthis* (L.) Schrad.)) **1-16 *ro***, *shasha*-plant **1/8 *ro***, to be put with it (the unbaked *ah*-dough), cooked as a compound, and drunk for four days.

**If you examine him after,** you will find him with his pathogenic-substance of the first treatment, it means he is healthy

[229] A prospective conditional *gmm=k* 'if you find' is perhaps omitted here.
[230] Westendorf (*Handbuch*, 579) notes that the scribe perhaps omitted the phrase '*ḏd.ḫr=k r=s*'.

## Ebers 191 (cl. 37, 10-17)

***ir ḫ3(i)=k si*** *ḥr mn r3-ib=f iw=f mn=f g3b=f mnḏ gs n(i) r3-ib iw ḏd.tw r=f w3ḏ pw* ***ḏd.ḫr=k r=s*** *ʿq.t m r3 pw m(w)t pw ḫns(i) n=f*

***ir(i).ḫr=k n=f sp ḏdb n smy.wt*** *pr.t tḥw3* ***1*** *ḫ3s.yt* ***1*** *niwiw* ***1*** *innk* ***1*** *dšr.w n(i).w sḫ.t* ***1*** *ps(i.w) ḥr mrḥ.t swr(.w) in si*

***rḏi.ḫr=k*** *ḏr.t=k* ***ḥr=f qʿḥ.ti r nḏm g3b šw m ih ḏd.ḫr=k*** *iw ih pn h3(i).y r q3b m3ʿ r pḥwy.t ni wḥm=i sp r-sy*

**If you examine a man** suffering from his *r3-ib* while he suffers from his upper arm and breast and the side of the *r3-ib*, it is what is called the 'the green-sickness', **then you have to say regarding it**: 'it is what enters in the mouth; it is a *mut* who has spread to him'.

**You have to make a *djedeb* treatment from herbs for him:** *Pisum sativum* L. (peas) **1**, *khasyt*-plant **1**, *neyuyu*-plant **1**, conyza (?) (*Conyza* sp.) **1**, the red of *Hordeum polystichum* Döll. subsp. *hexastichum* (six-row barley) **1**, to be cooked with oil and drunk by the man.

**Then you have to put** your hand[231] **upon him bent in order to (make) pleasant the upper arm and free** (it) **from the suffering; then you say:** 'the problem[232] has descended to the intestines and to the anus. I will not repeat the treatment'.

[231] Inserted later in black ink.
[232] Radestock (*Prinzipien* 139) accidentally transliterates *ḫ3j.t pn*, though *ih* is written.

## Ebers 192 (cl. 37, 17 – cl. 38, 3)

***ir ḫ3(i)=k si ḥr mn r3-ib=f iw=f q3s=f ˁš3*** *ir gm=k st ḫnt.y r ḥ3.t=f iw ir.ty=fy šsm.ty iw fnḏ=f tḫb=f* ***ḏd.ḫr=k r=f*** *sḥw3.w pw n(i).w st.t=f ni h3(i).n<=f> r npḥ.w=f m st.t=f*

***ir(i).ḫr=k n=f*** *šns n(i) sw.t sˁm r ˁ3.t wr.t rḏi(.w) dbḥ ḥr=f <mḥ.w> m ḥḏw ḥnˁ si3r r=f m ḥ(n)q.t* ***iwf ḏd3 n(i) iḥ wnm in si sˁm m ḥ(n)q.t n(i).t ḥ3w-ḫ.t*** *r wn ir.ty=fy r sbi ḫn.t=f h3(i).y m st.t*

**If you examine a man suffering from his *r3-ib* while he vomits greatly**, if should you find it forwarded to his face while his two eyes are inflammed and his nose runs, **then you have to say regarding it: '**it is the decay-substances of his mucus; <it> cannot descend to his groin as his mucus'.

**You have to make for him:** baked-goods of *sewet* and *Artemisia* sp. to very great (amounts). Place the measuring-vessel with it <filled> with *Allium cepa* L. (onion) and sieve against it[233] with beer and **the fatty flesh of a cow; to be eaten by a man and swallowed with *hau-khet* beer** until his eyes open and until his congestion departs and has descended as mucilage.

[233] The term *s3r* means 'to sieve'; it is uncertain if this is what is meant here as the spelling is slightly dissimilar.

## Ebers 193 (cl. 38, 3-10)

***ir ḫ3(i)=k si ḥr šnᶜ n(i) r3-ib=f rḏi.ḫr=k ḏr.t=k ḥr=f*** *gmm=k ḫ3y.t=f swmt.w=f 3wr spd.tw ḏbᶜ.w ḥr=f* ***ḏd.ḫr=k r=f*** *sḫn pw n(i) ḥs ni ṯs.t=f*

***ir(i).ḫr=k n=f sp.w n(i).w smy.wt*** *dšr.w n(i).w mnḏi* ***r-7.5*** *ps(i.w) <ḥr> mḥr.t {ḥr} bi.t tiᶜm* ***r-1/16*** *pr.t-šni* ***r-1/16*** *š3š3* ***r-1/8*** *giw n wḏb* ***r-1/16*** *giw n ḥsp* ***r-1/16*** *irp irṯ.t* ***wnm sᶜm m h(n)q.t nḏm.t r snb=f ḥr*** *ᶜ.wy*

**If you examine a man with an obstruction of his *r3-ib* then you have to place your hand upon him**, if you find his condition and his thickenings[234] trembling (while) fingers[235] are pointed upon him; **then you have to say regarding it**: 'it is a swelling of faeces which has not yet knotted'.

**You have to make treatments of herbs for him:** *desheru-nyu-menedji* cereal **7.5 *ro***, to be cooked <with> oil and honey;[236] *tiam* plant **1/16 *ro***, colocynth fruit (?) (*Citrullus colocynthis* (L.) Schrad.)) **1/16 *ro***, *shasha* plant **1/8 *ro***, *Cyperus* sp. from the riverbank **1/16 *ro***, *Cyperus* sp. from the meadow **1/16 *ro***, wine, milk, **to be eaten and swallowed with sweet beer until he is healthy**.

[234] Westendorf (*Handbuch*, 580 n. 42) suggests that this should possibly be read '*swmt*(*.ti*) – *mti.w=f 3wr*', though the original hieratic (cl. 38, 5; Ebers 1875, cl. 38), shows that the final  strokes are more likely determinatives as part of the preceding verb *swmt*. While this could possibly be two subject-stative constructions, the word *mtw* does not appear elsewhere in the *r3-ib Book*. Radestock (*Prinzipien* 142) and the *SAE* both translate *swmt.w* 'thickenings' – such an abstract translation is deemed more appropriate here.

[235] The transcription spd.ti is consistent with the original hieratic; however, it makes little grammatical sense here – it is clearly 'the fingers' which are intended to be 'pointed upon him' as is found elsewhere; a passive *sḏm.tw=f* has been adopted here as it better fits the syntax.

[236] The transliteration has been edited here in accordance with all other occurrences of the use of this passive *sḏm=f* (with undefined subject) and adverbial predicate: here is written *ps*(*i.w*) *mrḥ.t ḥr bi.t*, rather than *ps*(*i.w*) *ḥr mrḥ.t bi.t*.

## Ebers 194 (cl. 38, 10-17)

***ir ḫ3(i)=k si ḥr mn r3-ib=f iw=f mn=f g3b=f mnḏ=f gs n(i) r3-ib=f*** *iw ḏd.t(w) r=f w3ḏ* ***ḏd.ḫr=k r=s*** *ˁq.t m r pw m(w)t pw ḫns(i) n=f*

***ir(i).ḫr=k n=f sp ḏdb n smy.wt*** *tḥw3* ***1*** *ḫ3s.yt* ***1*** *niwiw* ***1*** *innk* ***1*** *dšr.w n(i).w sḫ.t* ***1*** *ps(i.w) ḥr ḥ(n)q.t swr(.w) in si*

***rḏi.ḫr=k ḏr.t=k ḥr=f qˁḥ.ti nḏm g3b šw m ih ḏd.ḫr=k*** *iw ih h3(i).y r q3b m3ˁ n pḥwy.t ni wḥm sp r-sy*

**If you examine a man suffering from his *r3-ib* while he suffers from his upper arm and his breast, and of the side of the *r3-ib,*** it is what is called the 'the green-sickness'; **then you have to say regarding it**: 'it is what enters in the mouth; it is a *mut* who has spread to him'.

**You have to make a *djedeb* treatment for him:** *Pisum sativum* L. (peas) **1**, *khasyt*-plant **1**, *neyuyu*-plant **1**, conyza (?) (*Conyza* sp.?) **1**, the red of *Hordeum polystichum* Döll. subsp. *hexastichum* (six-row barley), to be cooked in beer and drunk by the man.

**Then you have to put your hand upon him bent in order to (make) pleasant the upper arm and free** (it) **from pain, then you say:** 'the problem has descended to the intestines and to the anus. I will not repeat the treatment'.

## Ebers 195 (cl. 38, 17 – cl. 39, 2)

***ir ḫ3(i)=k si ḥr mn r3-ib=f iw=f q3s=f ˁš3*** *ir gm=k st ḫn.ty r ḥ3.t=f iw ir.ty=fy šsm.ty iw fnḏ=f tḫb=f* ***ḏd.ḫr=k r=f*** *sḥw3.w pw n(i).w st.t=f ni h3(i)<=f> r npḥ.w=f m st.t=f*

***ir(i).ḫr=k n=f*** *šns n(i) sw.t sˁm r ˁ3.t wr.t rḏi(.w) dbḥ ḥr=f mḥ(.w) m ḥḏw ḥnˁ si3r.t=f m ḥ(n)q.t* ***iwf ḏd3 n(i) iḥ wnm in si sˁm m ḥ(n)q.t n(i).t ḫ3w-ḫ.t*** *r wn ir.ty=fy r sbi ḫn.t=f h3(i).y m st.t*

**If you examine a man suffering from his *r3-ib* while he vomits greatly,** should you find it forwarded to his face while his two eyes are inflammed and his nose runs, **then you have to say regarding it: '**it is the decay-substances of his mucus; <it> cannot descend to his groin as his mucus'.

**You have to make for him** baked-goods of *sewet* and *Artemisia* sp. to very great (amounts). Place the measuring-vessel with it filled with *Allium cepa* L. (onion) and sieve against it with beer and **the fatty flesh of a cow; to be eaten by a man and swallowed with *hau-khet* beer** until his eyes open and until his congestion departs and has descended as mucilage.

## Ebers 196 (cl. 39, 2-7)

***ir ḫ3(i)=k si mn=f st m wnwt*** *mi wnm.w n(i).w ḥs iw ib=f b3g(i)=f mi kḥ ḫp(i)* ***ḏd.ḫr=k*** *ḥnw.t pw n(i).t ṯs.w ni sṯs.n.tw=f n(i) w3ḥ ib ḥr sp ḥwrw iw ir(i).n=f ḫsd iw sḥw3(.w) ry.t iw mḏ(d).n ḫ3y.t*

***ir(i).ḫr=k n=f sp.w n(i).w ng(i).t s.t m pḫr.t***

**If you examine a man suffering from it repeatedly** like the eaters of faeces, his heart is weary like one who wheezes and passes, **then you have to say:** it is a *henut* of raised-matter, it cannot be brought up; the heart is not friendly because of the wretched condition, it has made a *khesed*, the decay-substance is pus, the condition has pressed.

**You have to make treatments of breaking it open for him as a remedy.**

## Ebers 197 (cl. 39, 7-12)

*ir ḫ3(i)=k si ḥr mn r3-ib=f iw ḥ‘.w=f ḫm33=f šm3yw r-ḏr=f ir ḫ3(i)=k sw n(i) gm.n=k ḫ3y.t m ḫ.t wpw-ḥr ḥnw.t n(i).t ḥ‘.w mi py.t* ***ḏd.ḫr=k r=f*** *nḥ3 pw n(i) pr=k*

***ir(i).ḫr=k n=f sp.w r=s*** *didi n 3bw nḏ dš(r) ḏ3r.t ps(i.w) ḥr mrḥ.t bi.t wnm in si r ḏw3y.t 4 r ḥtm ib.t=f r dr nḥ3 ib=f*

If you examine a man suffering from his *r3-ib* while his body is *khemaa* and is abnormal entirely; if you examine him and you do not find a condition in his belly other than the *henut* of the body like the *pyt*, **then you have to say regarding it**: ‘it is the restlessness of your house’.

**You have to make a remedy for him against it:** haematite from Elephantine, crushed, *desher*, carob pods (?) (*Ceratonia siliqua* L.), to be cooked with oil and honey, and eaten by a man for four mornings until his thirst is eradicated and until the restlessness of his heart is removed.

## Ebers 198 (cl. 39, 12-21)

***ir ḫ3(i)=k šnᶜ=f m r3-ib=f*** *gmm=k ḏb3.n=f ḏ3(i).n=f mr iw ib=f ḥws=f iw r3-ib=f ḫm=f* ***ḏd.ḫr=k r=f*** *snf pw š3 ni ṯs.t=f rḏi.ḫr=k h3(i)<=f> m pḫr.t*

***ir(i).ḫr=k n=f*** *sᶜm* ***r-1/8*** *pr.t-šni* ***r-1/16*** *išd* ***r-1/8*** *š3š3* ***r-1/8*** *ps(i.w) ḥr ḥ(n)q.t n(i).t ḥ3w-ḫ.t ᶜfti m ḫ.t wᶜ.t swr(.w) in si*

***h3(i) sp pn m r3=f r-pw m pḥw(y)=fy r-pw mi snf n(i) š3(i) m-ḫt ḏ3f=f sk ir(i).n=k n=f wt ḥr[=s] r b3g(i).t=s m-ḥ3.t sk n(i) ir(i).t=k sp pn***

*ir(i).ḫr=k n=f nwd.t tp.t m3ᶜ.t m ᶜḏ n(i) iḥ ᶜr n(i) m3t.t š3wy.t ᶜntiw ᶜ3g.t* ***nḏ wt ḥr=s***

**If you examine his obstruction in his *r3-ib***, if you find it has clogged and it has crossed over the canal while his heart is narrowed and his *ra-ib* is dry as dust; **then you say regarding it:** 'it is a blood-nest that has not yet knotted'. You will cause <it> to descend with a remedy.

**You have to make for him:** *Artemisia* sp. **1/8 *ro***, colocynth fruit (?) (*Citrullus colocynthis* (L.) Schrad.)) **1/16 *ro***, desert date (?) (*Balanites aegyptiaca* Del.) **1/8 *ro***, *shasha* plant **1/8 *ro***. To be cooked in *haukhet* beer, brewed as a compound, and drunk by the man.

**This treatment descends from his mouth or from his rear or whichever, like the blood of a pig after it is burned, after you have made a binding for him because [of it] so that it coagulates before you have made this remedy.**

You have to make a high quality ointment for him with pieces cow fat, the *ar*-part of *Apium graveolens* L. (celery), *Coriandrum sativum* L. (coriander), *Commiphora* sp. (myrrh), *aaget*-resin. **To be pulverised and bound with it.**

## Ebers 199 (cl. 39, 21 – cl. 40, 5)

*ir ḫ3(i)=k si ḥr mn šnᶜ m r3-ib=f gmm=k sw šm=f iw=f ḫr ḏbᶜ.w=k mi mrḥ.t m-ḫnw ḫn.t* ***ḏd.ḫr=k r=s*** *h3(i).y=f m r3=f m ḥs3*

***ir(i).ḫr=k n=f*** *mimi* ***r-7.5*** *iny.t n(i).t bnr* ***r-7.5*** *šb ᶜtḫ m ḥs3 t3y nḏ ps(i.w) ḥr mrḥ.t bi.t wnm in si <r> dw3.t 4 sk wt nn ḥr mik3.t swšr nḏ 3mi.w*

If you examine a man suffering from an obstruction in his *r3-ib*, if you find it goes and comes under your fingers like oil inside a tube, **then you have to say regarding it:** 'it should descend from his mouth as mucilage'.

**You have to make for him:** emmer seed-corn (?) (*Triticum turgidum* L.)**7.5** ***ro***, *Phoenix dactylifera* L. (date) kernels **7.5** ***ro***. To be mashed and strained with (male?) *hesa*-plant-sap, pulverised, cooked with oil and honey, and eaten by a man <for> four mornings. In the meantime, bind these with *mikat*. To be dried, pulverised, and mixed.

## Ebers 200 (cl. 40, 5-10)

***ir ḫ3(i)=k si ḥr mn r3-ib=f*** *gmm=k st ḥr psḏ=f mi 3tp ḫr.y-dm.t* ***ḏd.ḫr=k r=s*** *wḫdw pw th(i) ḥr psd=f mr iri.y=i m sp.w n(i).w s3 ᶜq r=f m bṯ sw*

***ir(i).ḫr=k r=f*** *ḫmt.w n(i).w ḏsfw ḥnᶜ rḏi.t n=f pḫr.t ḥr s3 ḫ.t-ds* ***1*** *niwiw* ***1*** *ḏrḏ-n(i)-šnḏ.t* ***1*** *bsn n(i) iqd.w* ***1 nḏ ps(i.w)*** *ḥr t3ḥ.t n(i).t ḥ(n)q.t nḏm.t wt ḥr=s r hrw 4 r snb=f ḥr ᶜ.wy*

**If you examine a man suffering from his *r3-ib*,** if you find it upon his back like one laden with a bite/sting, **then you have to say regarding it**: 'it is *wekhedu* that has diverted upon his back – an illness which I will treat with after-treatment'. Enter against it, do not abandon him.

**You have to make against it:** *a khemetunyw-djesfu*-medicament, together with giving to him a remedy for after: *khet*-wood of the *des*-plant/tree **1**, *neyuyu*-plant **1**, the leaf of *Acacia nilotica* (L.) Del. (nile acacia) **1**, natron of the builder **1**, **to be pulverised and cooked** with the sediment of sweet beer. To be bound with it for four days until he is healthy.

## Ebers 201 (cl. 40, 10-14)

***ir ḫ3(i)=k šnᶜ n(i) r3-ib=f*** *gmm=k sw dḥr r ᶜ3.t wr.t* ***ḏd.ḫr=k r=s*** *šnᶜ pw hy.t ngg=k ỉw=f mỉ nsy.t ṯs.n=s m ḫ.t*

*ỉr(i).ḫr=k n=f tỉᶜm* **1**, *š3š3* **1**, *gỉw-n(i)-wḏb* **1**, *gỉw-n(i)-ḥsp* **1**, *ḏ3r.t* **1**, *ps(i.w) ḥr ḥ(n)q.t nḏm.t r ng(i).y=k sp pn n(i) hy.t*

**If you examine an obstruction of his *ra-ib***, if you will find him bitter more than anything, **then you have to say regarding it:** it is an obstruction of the *heyet*-demon which you will break open - it is like the *neseyet*-demon which has knotted in the belly.

You have to make for him: *tiam* plant **1**, *shasha* plant **1**, *Cyperus* sp. from the riverbank **1**, *Cyperus* sp. from the meadow **1**, carob pods (?) (*Ceratonia siliqua* L.), to be cooked with sweet beer, until you break open this case of the *heyet*-demon.

## Ebers 202 (cl. 40, 14-18)

***ir ḫ3(i)=k si ḫr šnᶜ n(i) r3-ib=f*** *ỉw=f q3s=f mr wr.t mn=f s.t mỉ sḫd.t* ***ḏd.ḫr=k:*** *ṯ3(i) pw n(i) ḥs nỉ ṯs.t=f*

***ỉr(i).ḫr=k n=f swr.t*** *d3b* **r-1/8**, *ỉrt.t* **r-1/16**, *nqᶜw.t* **r-1/8**, *sḏr ḥr ḥ(n)q.t nḏm.t* **r-10** *ᶜṯḫ swr(.w) ᶜš3 sp-snw r snb=f ḥr ᶜ.wy*

**If you examine a man with an obstruction of his *r3-ib*** while he vomits the illness greatly and he suffers it like the *sechedet*-illness, **then you say:** it is an accumulation of faeces which has not yet knotted.

**You have to make a drink for him:** *Ficus carica* L. (figs) **1/8 *ro***, milk **1/16 *ro***, *Ficus sycomorus* L. (sycamore figs) **1/8 *ro***, to spend the night in sweet beer **10 *ro***, strained, and drunk many times until he is healthy.

## Ebers 203 (cl. 40, 18 – cl. 41, 5)

***ir ḫ3(i)=k si ḥr mn r3-ib=f*** *rḏi.n=k ḏr.t=k ḥr=f ir gm=k ṯs.n=f ḥr gs=f wnm.y* ***ḏd.ḫr=k*** *iw<=f> ṯ3(i).n ir(i).n dp*

***ir(i).ḫr=k n=f sp.w r=s m ḥr.w-ˁ*** *mimi ˁtḫ swr(.w) r hrw 4*

***ir ḫ3(i)=k sw m-ḫt ir(i).t nn*** *gmm=k ḫ3y.t=f iptn mn.ti mi imi-ḥ3.t ir(i).ḫr=k n=f sp.w šsm.w r h33=f r snb=f pr.t-tḥw3* ***r-34****, šsp.t ḥm3y.t nḏ ps(i.w) ḥr ḥ(n)q.t nḏm.t*

***ir(i).ḫr=k n=f sp.w šsm.w n mrḥ.t r h33.n=f*** *ˁ3.t sḫ.t* ***nḏ*** *ps(i.w)* ***ḥr mrḥ.t bi.t*** *wnm in si r hrw 4*

**If you examine a man suffering from his *r3-ib*** after you have put your hand upon him, should you find it has knotted upon his right side, **then you have to say: ‘**it has accumulated and made a lump’.

**You have to make treatments against it for him with quick remedy**: emmer seed-corn (?) (*Triticum turgidum* L.); to be pulverised and drunk for four days.

**If you examine him after doing this:** you will find this[237] condition of his suffering like before, then you have to make strong remedies for him until it descends and until he is healthy: *Pisum sativum* L. (peas?) **1/34 *ro***, *shesepet*-seed of the *hemait* {?}. To be pulverised and cooked with sweet beer.

**You have to make strong treatments from oil for him until it has descended:** *aat*, *Hordeum polystichum* Döll. subsp. *hexastichum* (six-row barley). **To be pulverised** and cooked **with oil and honey,** eaten by a man for four days.

[237] Note the use of the older adjectival demonstrative *iptn*, which is not found in any other example from the Stomach Book.

## Ebers 204, (41, 5-13)

***ir ḫ3(i)=k si ḫr.y šnᶜ m gs=f i3b.y iw=f ḫr ḏrw(w)=f n(i) ḏ3(i).n=f t3 ḏd.ḫr=k r=f*** *iw ir(i).n=f wḏb ṯs.n=f šᶜy.t*

***ir(i).ḫr=k n=f sp.w n(i).w*** [Empty Space] ***imi=f ḥ3.t*** *m psḏ* ***r-1/4*** *nḏ tiᶜm* ***r-1/6*** *pr.t šni* ***r-1/16****, š3š3* ***r-1/8****, ps(i.w) m ḫ.t wᶜ ḥr mrḥ.t* ***r-2/3****, bi.t* ***r-1/3****, wnm in si r hrw 4*

***ir ḫ3(i)=k si m-ḫ.t ir(i).t nn*** *gmm=k sw sš(i.w) sbi(.w) ḫr.w* ***ir(i).ḫr n=f*** *tmw.t psḏ ps(i.w) ḥr qd wnm in si r mḥ ḫ.t=f r sp3 q3b=f r hrw 4*

***rḏ(i).ḫr=k ḏr.t=k ḥr=f*** *gmm=k st šᶜ sk mi ḫ.t m w3ḥ.yt*

***ir(i).ḫr=k n=f ḥr.w-ᶜ r qbb<=f>:*** *mimi 1, iwḥ 1, mw, ᶜtḫ, swr(.w) r hrw 4*

**If you examine a man with an obstruction in his left side while it is under his side and it does not cross the land; then you have to say regarding it: ‘**it has made a riverbank and it has knotted a sandbank’.

**You will make treatments of** [Empty Space] **before it for him** with: *pesedj* **1/4** ***ro***, to be pulverised, *tiam* plant **1/6** ***ro***, colocynth fruit (?) (*Citrullus colocynthis* (L.) Schrad.)) **1/16** ***ro***, *shasha*-plant **1/16** ***ro,*** to be cooked as a compound with oil **2/3** ***ro***, and honey **1/3** ***ro***, to be eaten by a man for four days.

**If you examine the man after doing this**, if you find him spread-out and gone downwards; **you have to make a powder for him:** *pesedj*, to be cooked in a pot and eaten by the man until his body is full and until his intestines are *sepa*; for four days.

**You have to put your hands upon him,** if you find it detached and removed like things in a harvest, **then you have to make a quick remedy for him until he is cool:** emmer seed-corn (?) (*Triticum turgidum* L.) **1**, *iweh*-seed/fruit **1**, water, to be strained and drunk for four days.

## Ebers 205 (cl. 41, 13-21)

***ir ḫ3(i)=k si ḥr mn r3-ib=f*** *ir gm=k sw d̲3(i).n=f mr iw=f mn=f šw.ty=fy iw ḫ.t=f ḥns.ti r t' iw ib=f dns=f {...?} m ˁq r=f bṯ.w pw* ***ˁḫ3=k ḥnˁ=f m sp.w šsm.w m-ḫt inq=f m mw it***

*ir r-s3 iw=f ḫr d̲bˁ=k* ***ir(i).ḫr=k n=f*** *dw3.wt 4 m d̲sfw ˁq r=f d̲db irw=f wˁḥ* ***r-1/2*** *šspn(i).t qmy.t* ***r-1/8*** *sty* ***r-1/16*** *ps(i.w) ḥr mrḥ.t bi.t wnm in si r hrw 4*

***ir m-ḫt sš(i.w) ḫr d̲bˁ=k*** *mi nš3 n(i) šˁy ˁ.t=f nb.t nbi.t ḫr dḥr.t {...?} t' m ˁw3 ḫ.t m ˁb t3 m 3pd.w ˁq r=f m bṯ sw*

**If you examine a man suffering of his *ra-ib***: should you find it having crossed the water, he suffers of his two sides, his body is narrowed against bread, and his heart is burdensome. {...?}[238] Do not go against it, it is an incurable one. **You will contend together with it with strong remedies after it has been soaked in barley water.**

If after (this) it comes (again) under your fingers, **then you have to make for him** four morning *djesfu* medicaments that enter against it and *djedeb* his character: *Cyperus esculentus* L. rhizomes (tiger nut) **1/2-*ro***, *shesepet*-part of *qemit*-resin **1/8-*ro***, ochre **1/16 *ro***. To be cooked with oil and honey and eaten by a man for four days.

**If after it spreads out under your fingers** like grains of sand, his every bodily part is a flame with bitterness {...?}[239] food is rotten, things are impure, and bread from birds.[240] Go against it, do not abandon him.

[238] Westendorf (*Handbuch*, 584) suggests that there is a significant fragment left out here: '{Das ist... Eine Krankheit, die man nicht behandeln kann.}

[239] Another missing element: '{dann sollst du dagegen anweden bzw. ihm geben}', Westendorf, *Handbuch*, 1999, 585; there certainly seems to be missing a grammatical element here, as the apodosis/protasis element has not been completed.

[240] This section seems corrupted during copying process; Westendorf, *Handbuch*, 585: '*Brot in Verfaulung; etwas von Schmutzigem (??); Brot/Speise von Geflügel (?)*'; Bardinet, *Les papyrus médicaux*, 281: ‚*pain corrompu, immondices, pain de volaille*'.

## Ebers 206 (cl. 41, 21 – cl. 42, 8)

***ir ḫ3(i)=k si ḥr šnᶜ n(i) r3-ib=f iw ib=f ᶜᶜw=f qsn*** *ᶜq n=f wnm.n=f t' nb iw ḥns(.w) sw3(.w) ḥr r3-ib=f iw mn=f wᶜr.ty=fy dbb.w<=f> nn mn.ty=fy* ***ir ḫ3(i)=k sw*** *gmm=k r3-ib=f ḏb3(.w) mi si.t ḥwi.n=s wnw iw ḥr=f ḫm33(.w)* ***ḏd.ḫr=k r=f*** *šnᶜ pw n(i) st.t ᶜq r=f m bṯ sw*

***ir(i).ḫr=k n=f sp.w n(i).w s(š)t3 r ḥr(.y) swnw wp.(w)-r s3.t=k ḏs=k:*** *it w3ḏ nn w3(i).t=f ps(i.w) ḥr mw nn rḏi.t 3fry=f prr=f m ḫ.t r 3mi=f ḥr ny.t n(i).t bnr ᶜṯḫ swr(.w) r hrw 4 r snb=f ḥr ᶜ.wy*

**If you examine a man with an obstruction of his *r3-ib*: his heart is anxious and difficult,** enter to him after he has eaten any food; it is restricted in his *r3-ib*, while he suffers (from) his upper legs and the *debebu* but without his thighs, **if you examine him**, and if you find his *r3-ib* clogged like a woman who has beaten a child while and his face is *khemaa*, **then you have to say regarding it:** it is an obstruction of mucus. Enter against it, do not abandon him.

**You have to make the treatments of secret knowledge for him from what is with the physician, besides your own daughter:** fresh *Hordeum vulgare* L. (barley) without drying it (out). To be cooked in water, without letting it boil, it will go forth from the fire; to be mixed with *Phoenix dactylifera* L. (date) kernels; pressed and drunk for four days until he is healthy.

## Ebers 207 (cl. 42, 8 – 43, 2)

***ir ḫ3(i)=k si ḥr šnᶜ iw ib=f ᶜᶜw=f iw ḥr=f ᶜ3ḏ iw ib=f ir(i)=f dbdb ir ḫ3(i)=k sw gmm=k ib=f t3.w ḥ.t=f stn(n).t(i) sḫn pw mḏ wnm.n=f ḏ3f***

*ir(i).ḫr=k sp n iᶜ(i).t ḏ3f n pḫ3 q3b=f m swr.t ḥ(n)q.t nḏm.t sḏr ḥr nqᶜw.t šwi.t wnm swr r hrw 4*

*dw3=k ḥr ntf rᶜ nb ḥr m33 h3y.t m pḥ.wy=fy* ***ir h3(i) n=f nᶜ3ḏ.t mi ᶜrw.t km.t*** *ḏd.ḫr=k r=f iw ḏ3f pn h3(i).y r ib=f isy ḥ.t=f ḥn.t(i)*

***ir ḫ3(i)=k sw m=ḫ.t ir(i).t nn*** *iw ḫ.t h33 m pḥw(y).t=f mi šš.t n(i).t iwry.t iw i3d.t ḥr=s st.t mi nšw n(i) tp3w.t* ***ḏd.ḫr=k*** *r nw n.ty m r3-ib=f iw<=f> h3(i).y*

***ir(i).ḫr=k n=f sp.w sqb {ḥr rḏi(.t) nw} tp ḫ.t rḏi mḏd=f ps(i).t ḥr qd***

**If you examine a man** with an obstruction while his heart is fearful, his face is pale, and his heart pounds; **if you examine him, you will find his heart hot and his belly swollen,**[241] **it is a swelling which is deep after he has eaten cooked meat.**

You have to make a treatment for washing burned flesh and for clearing his intestines with a drink of sweet beer, to be left overnight with dried *Ficus sycomorus* L. (sycamore fig). To be eaten and drunk for four days. You should (perform a) morning (examination) because of it every day upon seeing what has descended through his rear.

**If *na'adjet*-substance descends from him like the black *arut*-substance,** then you say regarding it: 'this cooked meat has descended to his heart;[242] his body is evil and inflamed'.

**If you examine him after doing this:**[243] the thing descends from his anus like the *sheshet* of beans, dew is upon it and the mucilage is like the discharge of the *tp3w.t*-part of the sycamore tree, **Then you have to say** regarding these which are in his *r3-ib*: 'it has descended'.

**You have to make treatments for him which make cool {upon putting *nw* ?}**[244] **above the fire; cause its pressing, cooking upon the pot.**

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[241] The *ḏd.ḫr=k* marker has been omitted here.

[242] Westendorf interprets *r ib=f* as (*r*) *r*(*3*)-*ib=f*, attributing the omission to a line-break, (*Handbuch* 586 n. 57) – this is followed by Radestock, *Prinzipien*, 161. While this is a possible interpretation, the anatomical focus of this passage makes it more likely a reference to the earlier symptomatic passage where the *ib* is described as being hot and the *ḫ.t* swollen, thus creating a balance between symptom and diagnosis.

[243] Westendorf suggests that *gmm=k* is missing here, which would make this prescription consistent with the Stomach-Book format – this is possible and perhaps probable, but its omission is significant and should not be ignored.

[244] Fragment missing – contradiction between making a treatment 'to cool' and placing something (*nw*?) 'upon fire' has been interpreted by Westendorf as potentially corrupted text (*Handbuch*, 586, n. 58); his suggestion that this could also refer to the *ḥrw*-medicament seems unlikely.

## Ebers 208 (cl. 43, 2-4)

*k.t* ***pḫr.t n(i).t dr šnᶜ m rꜣ-ib*** *tꜣ n(i) nbs* ***1*** *bddw-kꜣ* ***1*** *ryt miw* ***1****, ḥ(n)q.t nḏm.t* ***1*** *irp* ***1*** *ir(i.w) m ḫ.t wᶜ.t wt ḥr=s*

Another **remedy of driving away an obstruction in the *rꜣ-ib*: *Zizyphus spina Christi*** (L.) Desf. bread **1**, *bededu-ka* (*Lagenaria* sp.?) **1**, cat pus **1**, sweet beer **1**, wine **1**, to be made into a compound, and bound with it.

## Ebers 209 (cl. 43, 4-8)

***k.t n(i).t srwḫ šnᶜ m gs wnmi ḏꜣ.n sw nsy.t*** *šnf.t* ***20*** *sḫ.t ḥḏ.t* ***r-8*** *sḫ.t wꜣḏ.t* ***r-8*** *sd.w n(i).w ḫꜣsy.t* ***r-16*** *pr.t wᶜn* ***r-16*** *mꜣt.t ḫꜣs.t* ***r-8*** *mꜣt.t mḥ.t* ***r-8*** *ḫꜣ.w n(i).w sšn* ***r-8*** *ᶜntiw* ***r-16*** *ḫ.t-ds* ***r-8*** *wꜣḏw n(i) wiꜣ* ***r-8*** *sft* ***r-16*** *twn* ***r-8*** *bi.t* ***r-32*** *ḥ(n)q.t* ***5*** *mrḥt s.t* ***r-8*** *sḏr iꜣd.t ᶜtḫ swr(.w) r hrw 4*

**Another of treating an obstruction in his right side after a *neseyet* demon has opposed him:** *shenefet* **20 *ro***, white *Hordeum polystichum* Döll. subsp. *hexastichum* (six-row barley) **1/8 *ro***, green *Hordeum polystichum* Döll. subsp. *hexastichum* (six-row barley) **1/8 ro**, *sedu* of the *khasyt*-plant **1/16 *ro***, *Juniperus oxycedrus* L. (juniper berries) **1/16 *ro***, foreign *Apium graveolens* L. (celery) **1/8 *ro***, Lower Egyptian *Apium graveolens* L. (celery) **1/8 *ro***, *Nymphaea* sp. (lotus) rhizome **1/8 *ro***, *Commiphora* sp. (myrrh) **1/16 *ro***, *khet*-wood of the *des*-plant/tree **1/8 *ro***, verdigris **1/8 *ro***, coniferous oil (?) **1/16 *ro***, *tewen*-plant **1/8 *ro***, honey **32 *ro***, beer **5 *ro***, fat of a pintail duck **1/8 *ro***, to be left overnight in the dew, pressed, and drunk for four days.

## Ebers 210 (cl. 43, 8-13)

***k.t n(i).t dr šnᶜ m gs wnmi ḫft ᶜḫm*** *dꜣb.w* ***r-8*** *išd.w* ***r-8*** *qsn.ty* ***r-16*** *wnšy* ***r-16*** *ins.t* ***r-16*** *pr.t wᶜn* ***r-16*** *irt.t* ***r-8*** *bi.t* ***r-8*** *snṯr pḫꜣ* ***r-8*** *qmi.t ḥḏ.t* ***r-32*** *nqᶜw.t* ***r-16*** *ḫnty* ***r-32*** *ḏrḏ n(i) šnd.t* ***r-32*** *irp* ***5*** *ḏrḏ n(i) nbs* ***r-32*** *ḏrḏ n(i) nh.t* ***r-32*** *ḥ(n)q.t* ***25*** *sḏr n iꜣd.t ᶜtḫ swr(.w) r hrw 4*

**Another of driving away an obstruction from the right side by elimination:** figs **1/8 *ro***, desert date (?) (*Balanites aegyptiaca* Del.) **1/8 *ro***, *qesenty*-mineral **1/16 *ro***, *Vitis vinifera* L. (raisins) **1/16 *ro***, *ineset*-plant **1/16 *ro***, *Juniperus oxycedrus* L. (juniper berries) **1/16 *ro***, milk **1/8 *ro***, honey **1/8 *ro*,** cleaned *Boswellia* sp. (incense) **1/8 *ro***, white resin **1/32 *ro***, *Ficus sycomorus* L. (sycamore figs) **1/16**, ochre **1/32 *ro***, leaf of the *Acacia nilotica* (L.) Del. (Nile acacia) **1/32 *ro***, wine **5**, leaf of the *Zizyphus spina Christi* (L.) Desf. **1/32 *ro***, leaf of the *Ficus sycomorus* L. (sycamore fig) **1/32 *ro***, beer **25**, to be left to the dew, pressed, and drunk for four days.

## Ebers 211 (cl. 43, 13-15)

***k.t n(i).t dr šnᶜ wnm snf ḥr r3-ib*** *t3 n šb.t **1** ḥs3 n(i) ᶜw3y.t **1** b3q **1** ir(i.w) m ḫ.t wᶜ.t wt ḥr=s*

**Another of driving away an obstruction of food and blood in the *r3-ib*:** Melon juice/liquid/oil/mash **1**, fermented mucilage (unknown source) **1**, *Moringa peregrina Fiori* (moringa) oil **1**, to be made into a compound and bound with it.

## Ebers 212 (cl. 43, 15-19)

***k.t pḫr.t n(i).t r3-ib*** *wᶜḥ **r-5** wnšy **r-5** šnḏ t3 **r-1/4** d3b.w **nhi** nqᶜw.t n(i).t nh.t ḏ3r.t r-pw n(i).t w.t nḏ nᶜᶜ rḏ(i).ti ḥr ḥ(n)q.t nḏm.t n(i).t dbḥw sḏr n i3d.t nn rḏ(i).t m33=s šw sk3p rḏ(i.w) n=sn bḏ.t **r-5** ᶜḏ s.t **r-5** ir(ḏ.w) m ḫ.t wᶜ.t swr(.w) ḏn sḏ sḏ.t r-pw*

**Another remedy of the *r3-ib*:** *Cyperus esculentus* L. rhizome (tiger nut) **5** ***ro***, *Vitis vinifera* L. (raisins) **5** ***ro***, colocynth plant (?) (*Citrullus colocynthis* (L.) Schrad.)) **1/4** ***ro***, *Ficus carica* L. (figs) **a small amount**, *Ficus sycomorus* L. (sycamore figs) of the *Ficus sycomorus* L. tree or *Ceratonia siliqua* L. (carob pods) of the oasis; finely pulverised and put in sweet beer of *debehu*; to be left overnight in the dew, without letting it see the sun, to be covered; honey **5** ***ro***, and the fat of a goose **5** ***ro***, is to be given to them, and into a compound. To be drunk by the man or woman.

## Ebers 213 (cl. 43, 19-21)

***k.t n(i).t dr šnᶜ m r3-ib*** *t3 n(i) nbs **1** ḥs miw **1** mnš.t **1** bddw-k3 **1** ḥ(n)q.t nḏm.t **1** irp **1** ir(ḏ.w) m ḫ.t wᶜ.t wt ḥr=s*

**Another of driving away an obstruction in the *r3-ib*:** *Zizyphus spina Christi* (L.) Desf. (ziyphus) bread **1**, cat faeces **1**, red ochre **1**, bottle-gourd (?) (*Lagenaria* sp.) **1**, sweet beer **1**, wine **1**; to be made into a compound and bound with it.

## Ebers 214 (cl. 43, 21 – cl. 44, 1)

***k.t pḫr.t n(i).t r3-ib*** *bḏ.t **1** b3q **1** snṯr **1** irp **1** ir(ḏ.w) m ḫ.t wᶜ.t ps(ḏ.w) wnm*

**Another remedy of the *r3-ib*:** honey **1**, *Moringa peregrina* Fiori (moringa) oil **1**, *Boswellia* sp. (incense) **1**, wine **1**, to be made into a compound, cooked, and eaten.

## Ebers 215 (cl. 44, 1-3)

***k.t*** *bḏ.t **2** q3ḥ n(i) mḏmḏ **2** šnḏ-t3 **1** ir(ḏ.w) m fq3 4 <wnm> r hrw 4 ḏr r-s3 ps(ḏ.w) bḏ.t ḫr-ḥ3.t ḫr.tw ḏḏ.tw h3(i) q3ḥ n(i) mḏmḏ šnḏ-t3 wnm r hrw 4*

**Another:** honey **2**, flour of the emmer seed-corn (?) (*Triticum turgidum* L.) **2**, colocynth plant (?) (*Citrullus colocynthis* (L.) Schrad.)) **1**, made into four cakes <and eaten> for four days. If after the honey is cooked beforehand, then one should cause the flour of the Emmer seed-corn (?) (*Triticum turgidum* L.) and the Colocynth Plant (?) (*Citrullus colocynthis* (L.) Schrad.)) to descend. To be eaten for four days.

## Ebers 216 (cl. 44, 4-5)

***k.t n(i).t r3-ib:*** *snṯr* ***r-1/34*** *pr.t šni* ***r-5*** *šni-t3* ***r-1/4*** *bi.t* ***r-1/4*** *irp* ***r-5*** *mrḥ.t s.t* ***r-5*** *ps(i.w) wnm r hrw 1*

**Another of the *r3-ib*:** *Boswellia* sp. (incense) **1/34 *ro***, Colocynth fruit (?) (*Citrullus colocynthis* (L.)) **5 *ro***, Colocynth plant (?) (*Citrullus colocynthis* (L.) Schrad.?)) **1/4 *ro***, honey **1/4 *ro***, wine **5 *ro***, oil of a goose **5 *ro***, to be cooked, and eaten for one day.

## Appendix 2: Glossary of Drugs

This glossary provides a list for each individual ingredient found in the Stomach Book. Entries without translation notes are ingredients for which the translation is unanimous amongst Egyptological dictionaries and translators.

*ꜣḥ wꜣḏ*  – Fresh Dough (?) (Eb. 190): Westendorf and Stephan translated this ingredient as '*frischer Brei (von Datteln?)*';[245] other translators are less specific, though they have retained the idea that *ꜣḥ* refers to a type of porridge.[246] Hannig notes that this ingredient occurs frequently in offering lists from the Old Kingdom,[247] and a scene in the tomb-chapel of Niankhkhnum[248] shows a man standing in a large beer-vat preparing the *ꜣḥ* which—as seen by the determinatives—was made from a type of grain. The Gardiner X4 bread-roll determinative is used for this ingredient in Ebers 190, suggesting this is perhaps a dough-like material.

*iwf ḏdꜣ n*(*i*) *iḥ*  – Fatty Flesh of Cattle (Eb 192, 195).

*iwḥ*  Unknown Fruit (Eb 204).

*iny.t n*(*i*).*t bnr*  – Date Kernel (Eb. 188, 189, 199, 206): dates were used as sweeteners for beer due to their high sugar content. The carbohydrates of which are bulk-forming laxatives.[249]

*innk*  – Conyza (?) (*Conyza* sp.) (Eb. 191, 194): Germer showed that the previous interpretations of thyme[250] (Thymus vulgaris L.) water-mint (*Mentha aquatic* L.) were not possible as the former does not appear on the archaeobotanical record before the Ptolemaic Period and the latter at all.[251] The final suggestion followed by Charpentier,[252] Westendorf[253] and Bardinet[254] was an undetermined species of conyza; according to de Vartavan and Amorós, *Conyza dioscoridis* appears on the record during the Eighteenth Dynasty.[255]

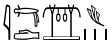
*ins.t*  – Unknown Plant (Eb 210): aniseed (*Pimpinella anisum* L.) was suggested by Manniche based on the similarity between Egyptian *ins.t*, Greek ανησσον, and Arabic *jansôn*, and that the plant is ,indiginous to Egypt and Asia Minor;[256] however,

[245] Westendorf, *Handbuch*, 1999, 579; Stephan 2001, 91.
[246] Bardinet, *Les papyrus médicaux*, 227; *SAE*.
[247] Hannig, *Wörterbuch I*, 10.
[248] A. Moussa and H. Altenmüller, *Das Grab des Nianchchnum* (Mainz: 1977), pl. 23; see also *ibid*, 70.
[249] Manniche, *Herbal*, 133-4; Germer, *Handbuch*, 314-5; Campbell, in David (ed.), *Mummies and Modern Science*, 227.
[250] Used by Campbell, *Pharmaceutical and Therapeutic Merit*, 232.
[251] Germer, *Handbuch*, 29; cf. C. Vartavan and A. Amorós, *Codex of Ancient Egyptian Plant Remains. Codex des restes végétaux de l'Égypte ancienne* (London: 1997), 172; 225.
[252] Charpentier, *Recueil*, 149.
[253] Westendorf, *Handbuch*, 579.
[254] Bardinet, *Les papyrus médicaux*, 227.
[255] de Vartavan and Amorós, *Codex*, 84.
[256] Manniche, *Herbal*, 135.

according to the study of de Vartavan and Amorós, aniseed does not occur until the Roman Period.[257]

*irp*  – Wine (Eb 193, 208, 210, 213, 214, 216).

*irṯ.t*  – Milk (Eb 193, 202, 210): milk is a soothing demulcent.[258]

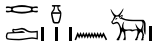
*išd*  – Desert date (?) (*Balanites aegyptiaca* (L.) Del.) (Eb 198, 210): according to Germer, it is yet uncertain whether *išd* refers to the persea tree (*Mimusops laurifolia* (Forssk.) Friis.) or the desert date tree (*Balanites aegyptiaca* (L.) Del), though her opinion is more in favour of the latter as *š3w3b* is already known to refer to the persea fruit.[259] Both species are found throughout the pharaonic period.[260] Desert dates are a known anthelmintic which removes parasites – particularly worms.[261]

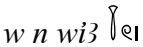
*it w3ḏ*  – Fresh Barley (Hordeum vulgare, L.) (Eb. 206): cereals such as barley are high in carbohydrates, qualifying it as a bulk-forming laxative.[262]

*ꜥ3.t*  – Unknown Mineral (Eb. 203)

*ꜥ3gy.t*  – Unknown Mineral (Eb 198)

*ꜥntiw*  – Myrrh (*Commiphora* sp.) (Eb 198, 209): species of myrrh are strong antibacterials – it has also been used in traditional medicines to treat stomach complaints by stimulating the appetite and the flow of digestive juices.[263]

*ꜥḏ n iḥ*  – Fat of a Cow (Eb 198).

*w3ḏ.w n wi3*  – Verdigris (Eb. 209): as a copper-based mineral, this product has antibacterial properties.[264]

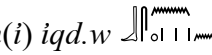
[257] de Vartavan and Amorós, *Codex*, 203; see also models of persea fruit in the tomb of Tutankhamun, R. Gale et al., 'Wood', in P. Nicholson and I. Shaw (eds.), *Ancient Egyptian Materials and Technology* (Cambridge: 2000), 334-371.
[258] Campbell, in David (ed.), *Mummies and Modern Science*, 227.
[259] Germer, *Handbuch*, 37.
[260] de Vartavan and Amorós, *Codex*, 47-9; 173-6.
[261] D. Chothani and H. Vaghasiya, 'A review on *Balanites aegyptiaca* Del. (desert date): phytochemical constituents, traditional uses, and pharmacological activity', *Pharmacogn Rev.* Jan-Jun; 5(9) (2011) 55-62.
[262] Campbell, in David (ed.), *Mummies and Modern Science*, 227; Y. Lee et al., 'Biological Activity of Barley (*Hordeum vulgare* L.) and Barley By-Product Extracts', *FSB* 19(3) (2010), 785-791.
[263] Su et al., 'Cytotoxicity activity of extracts and compounds from Commiphora myrrha resin against human gynecologic cancer cells', *JMPR* 5(8) (2011), 1382-1389.
[264] Campbell, in David (ed.), *Mummies and Modern Science*, 227.

*wʿḥ*  – Tiger Nuts (*Cyperus esculentus* L.) (Eb. 205, 212): the tiger-nut or chufa from the *Cyperus esculentus* is high in starch which absorbs water, acting as a digestive binder to treat diarrhea and loose stools.[265]

*wnšỉ*  – Raisins (*Vitis vinifera* L.) (Eb. 210, 212): raisins and grapes are a known bulk laxative.[266]

*bꜣq*  – Moringa Oil (*Moringa peregrina* Fiori) (Eb. 211, 214): the pharmaceutical effect of Moringa is not clear; as an oil, it arguably acts as a lubricant laxative.[267]

*bỉ.t*  – Honey (Eb. 190, 193, 197, 199, 203-5, 209, 210, 212, 214-16): when digested, honey acts as a demulcent. Applied topically, it acts as an antibacterial by absorbing water and preventing the growth of bacteria.[268]

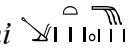
*bsn n*(*ỉ*) *ỉqd.w*  – Natron of the Builder (Eb 200): unknown type of natron, but if it is similar to that used during mummification, it is perhaps antibacterial?

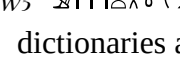
 *bddw-kꜣ* – Calabash (?) (*Lagenaria vulgaris* Ser.) (Eb 208; 213): based on the Coptic and Arabic cognates, a popular translation for this term was the watermelon (*Citrullus vulgaris* Schrad.).[269] Pommerening identified that an Egyptian prescription using *bddw-kꜣ* had transmitted into the Hippocratic Corpus where *bddw-kꜣ* was transmitted as βούτυρον, the Greek word for the bottle-gourd (*Lagenaria siceraria* (Molina) Standley) – a melon-like fruit. Pommerening posits that if the *bddw-kꜣ* was a species of lagenaria, then the mythological connection between the *bddw-kꜣ* and the ejaculation of Seth becomes clearer as the seed of the bottle-gourd produces a white fluid.[270] The species *Lagenaria vulgaris* Ser. appears on the record compiled by de Vartavan and Amorós.[271] Lagenaria species are known to possess hepatoprotective qualities and are a good source of fibre which add bulk to the stool, stimulating gut motility.[272]

*pꜣḫ-sr*(*ỉ*).*t*  – Unknown Plant (Eb. 188).

[265] R. Manek et al., 'Physiochemical and Binder Properties of Starch Obtained from *Cyperus esculentus*' *AAPS PharmSciTech* 13(2) Jun 2012, 379-388.
[266] Germer, *Handbuch*, 362; Campbell, in David (ed.), *Mummies and Modern Science*, 227.
[267] Germer, *Handbuch*, 302-3; Campbell, in David (ed.), *Mummies and Modern Science*, 227.
[268] *Ibid*, 227; 230.
[269] Darby et al., *Food: the Gift of Osiris* 2 vols. (London: 1977), 717-8; Manniche, *Herbal*, 92-3; Westendorf, *Handbuch*, 586.
[270] See Pommerening, in Imhausen and Pommerening (eds.), *Translating Writings*, 255.
[271] de Vartavan and Amorós, *Codex*, 147.
[272] Rajasree et al., 'Phytochemicals of Cucurbitaceae Family – A Review', *IJPPR* 8(1) (2016), 113-123

*pr.t wʿn*  ;  – Juniper Berries (*Juniperus oxycedrus* L.) (Eb 209, 210): juniper berries are used in many traditional medicines and act have antibacterial, diuretic, and carminative properties.[273]

*pr.t-šni*  – Colocynth (?) (*Citrullus colocynthis* Schrad.) (Eb 193; 198; 204; 216): the acquisition of an accurate translation for this term has been the focus of much dispute. Many translators prefer not to provide a translation for this term,[274] wheras others translate the term literally as 'hair-fruit'.[275] Campbell and David suggested that *šni-tȝ* and *ḏȝr.t* translate as colocynth and carob respectively;[276] if this study is correct, then *šni-tȝ* and *pr.t-šni* might be related and perhaps varying parts of the same plant. This would correspond to Ebers 216, where both *pr.t-šni* (the fruit?) and *šni-tȝ* (the plant?)[277] are to be prepared in honey, wine, and oil. A challenge to this hypothesis is the nature of the sources used by Campbell and David: the translations of Dawson[278] and Ebbell whose translations are now heavily disputed.[279] Colocynth is an aggressive purgative which leaves an intense aftertaste of bitterness;[280] however, as these products were consistently cooked in oil, wine, or beer, it is yet to be measured whether the toxicity of this species remains after its subjection to such preparation methods. Dispite the claims, the hypothesis has not been disproven by current lexicography and thus should not be discounted, particularly as the colocynth plant—which grows on weaving vines along the ground in sandy conditions[281]—fits the profile of the Egyptian name 'hair of the earth' and 'hair-fruit'. Furthermore, the plant—as a strong purgative—would also be appropriate as an ingredient for a remedy required to be *šsm.w n(i).w swr* 'strong of drinking' (Ebers 190).

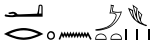
*pr.t tḥwȝ*  – Peas (?) (*Pisum sativum* L.) (Eb. 191; 194; 203): current dictionaries and text editions of the medical papyri favour a translation of *Pisum sativum* L. for *tḥwȝ*.[282] Germer argues that this translation is unknown based on the uncertainty over the cultivation of the pea in ancient Egypt;[283] regardless of possible cultivation, *Pisum sativum* L. Occurs frequently on the archaeobotanical record,

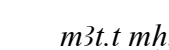
[273] Manniche, *Herbal*, 110.
[274] Bardinet, *Les papyrus médicaux*, 227; Westendorf, *Handbuch*, 579, *SAE*.
[275] Germer, *Handbuch*, 69-71.
[276] J. Campbell and R. David, 'The Application of Archaeobotany and Pharmacognosy to Reassess the Translation of *šnj-tȝ* and *ḏȝr.t* in the Medical Papyri', in K. Griffin (ed.), *Current Research in Egyptology 2007: Proceedings of the Eighth Annual Symposium, Swansea University 2007*, (Oxford: 2008), 15-24.
[277] Ebbell translates *šni-tȝ* as colocynth; Ebbell, *Papyrus Ebers*, 31.
[278] Dawson translated *ḏȝr.t* as colocynth; Dawson, 'Studies in the Egyptian Medical Texts—III', *JEA* 20 (1934), 42.
[279] For a detailed discussion on the problems of relying solely on antiquated translations such as that of Ebbell, see: Pommerening, in Imhausen and Pommerening (eds.), *Writings of Early Scholars*, 153-174.
[280] Campbell and David, *CRE 2007*, 15; R. Cappers et al., 'Plant Remains from the Predynastic el-Abadiya 2 (Naqada Area, Upper Egypt), in S. Hendrickx et al. (eds.), *Egypt at its Origins: Studies in Memory of Barbara Adems* (Leuven: 2004), 285.
[281] Germer, *Handbuch*, 227.
[282] DrogWb., 560-1; Darby et al., *Food*, 690; Bardinet, *Les papyrus médicaux*, 277; Westendorf, *Handbuch*, 579.
[283] Germer, *Handbuch*, 157.

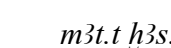
suggesting the ancient inhabitants of the Nile Valley had access to it for use in medical remedies.[284] *Pisum sativum* is high in fibre and starch, making it a bulk-laxative.[285]

*psḏ*  – Unknown (Eb 204): the authors of the *Grundriss* determined that *psḏ* is '*noch nicht sicher bestimmt*'. Ebbell suggested a species of henbane (*Hyoscyamus* sp.), however—as Germer correctly identified—this word is never written with a plant determinative as one might expect.[286]

*m3t.t*  – Celery (*Apium graveolens* L. var. graveolens): celery has both carminative and diuretic properties.[287]

*ʿr n m3t.t*  – Unknown Part of Celery (Eb. 198).

*m3t.t mḥ.t*  – Northern Celery (Eb. 209).

*m3t.t ḫ3s.t*  – Foreign Celery (Eb. 209).

*mimi*  – Emmer seed-corn (?) (*Triticum turgidum* L.) (Eb. 199; 203; 204; 215): this ingredient is heavily debated in Egyptological scholarship. Dawson[288] and Ebbell[289] translated *ammi* based on the similarities between both the Egyptian and Greek terms; though they note that the archaeobotanical evidence for this plant is unreliable,[290] this translation is favoured by the studies of Campbell, Saeed, and David.[291] The authors of the *Grundriss* suggested an alternative translation as being Durra (*Sorghum bicolor* Moench.);[292] however, as pointed out by Germer,[293] this ingredient appears far too sporadically on the archaeobotanical record to account for its frequency in the healing texts.[294] Gardiner suggested 'seed-corn of emmer(?)',[295] a translation followed by Manniche[296] and deemed the most probable of all suggestions by Germer.[297] Emmer is perhaps a questionable suggestion as *bd.t* is already attested as referring to *Triticum*

[284] de Vartavan and Amorós, *Codex*, 208-9.
[285] R. Rungruangmaitree and W. Jiraungkoorskul, 'Pea, *Pisum sativum*, and its Anticancer Activity', *Pharmacogn Rev.* Jan-Jun; 11(21) (2017), 39-42.
[286] Germer, *Handbuch*, 73.
[287] Manniche, *Herbal*, 76-7; Germer, *Handbuch*, 200.
[288] W. Dawson, 'Studies in Egyptian Medical Texts V', *JEA* 21 (1935), 37.
[289] Ebbell, *Papyrus Ebers*, 53.
[290] There is only one entry in the record from New Kingdom Memphis, the status of which is unconfirmed, Vartavan and Amorós, *Codex*, 38.
[291] Campbell et al., 'A Reassessment of Warren Dawson's "Studies in Ancient Egyptian Medical Texts" 1926-1934, in the Light of Archaeobotanical and Pharmacological Evidence', in J. Cockitt and R. David (eds.), *Pharmacy and Medicine in Ancient Egypt: Proceedings of the Conferences held in Cairo (2007) and Manchester (2008)* (Oxford: 2010), 34.
[292] DrogWb., 222-3.
[293] Germer, *Handbuch*, 77.
[294] Vartavan and Amorós, *Codex*, 241-2.
[295] A. Gardiner, *The Wilbour Papyrus* II, *Commentary* (Oxford: 1948), 113-6.
[296] Manniche, *Herbal*, 152.
[297] Germer, *Handbuch*, 77.

*turgidum* L.[298] It should be remembered that though the Gardiner U10 symbol  is primarily used as a determinative for seed-corn, it can also be used to determine such things as date kernels (see entry for *ỉny.t n*(*i*)*.t bnr*, above). As noted with barley, cereals are high in carbohydrates and therefore act as bulk-forming laxatives.

*mik3.t*  – Unknown Fruit/Seed (Eb 199): Ebers 199 instructs that this ingredient is to be dried, pulverised, and mixed, suggesting it is more likely to refer to a fruit or seed rather than a mineral.

*mw*  - Water (Eb. 188, 204, 206).

*mw n*(*i*)*.w ỉt*  – Barley Water (Eb 205): barley water acts as a demulcent when ingested.[299]

*mnš.t*  - Red Ochre (Eb. 213).

*mnḏỉ*  – Unknown

*dšr.w n*(*i*)*.w mnḏỉ*  – Red Part of Unknown (Eb. 193).

*mrḥ.t*  – Oil/Fat (Eb. 190; 191; 193; 197; 199; 203; 204; 205).

*mrḥ.t z.t*  – Oil of a Duck (Eb 209).

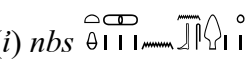
*niwỉw*  – Unknown Plant (Eb. 191; 194; 200): in the past, translators of the medical papyri suggested varying species of mint for this term;[300] this suggestion seems based largely on the similarities between *niwỉw* and the Arabic for mint *na'a'*.[301] For a plant which does not occur so frequently on the archaeobotanical record,[302] but regularly in the healing papyri,[303] this suggestion seems unlikely. Neither Germer[304] nor Bardinet[305] translate this term.

*nqʿw.t*  – Sycamore Fig (*Ficus sycomorus* L.) (Eb 202; 207; 210; 212): the fruit of the sycamore fig tree is used as a bulk-forming laxative; modern research shows that

[298] *Ibid*, 66; Gardiner suggested that *mimi* was simply a synonym for this word, as the two never appear together in prescriptions, Gardiner, *Wilbour Papyrus* II, 114.
[299] Campbell, in David (ed.), *Mummies and Modern Science*, 227.
[300] Westendorf, *Handbuch*, 582-3
[301] Manniche, *Herbal*, 120.
[302] Vartavan and Amorós, *Codex*, 172.
[303] DrogWb. 293.
[304] Germer, *Handbuch*, 81-2.
[305] Bardinet, *Les papyrus médicaux*, 208.

the *Ficus Sycomorus* tree has antibacterial, antifungal, anti-diarrhoeal, sedative and anticonvulsant activities.[306]

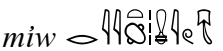
*nbs*  – Ziziphus Tree (*Zizyphus spina Christi* (L.) Willd.): products of the zizyphus tree are still used in Egypt as a demulcent and digestive stimulant. It has been proven that both the fruit and tree-extracts have antibacterial properties.[307]

*t3 n(i) nbs*  – Ziziphus Bread (Eb. 208; 213) .

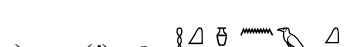
*ḏrḏ n(i) nbs*  – Ziziphus Leaf (Eb 210).

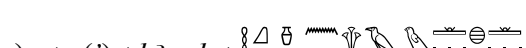
*nh.t*  – Sycamore Tree (*Ficus sycomorus* L.): see entry for *nqʿw.t* (above) for pharmaceutical properties of this tree.

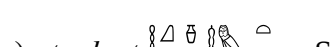
*ḏrḏ n(i) nh.t*  – Sycamore Leaf (Eb 210).

*ry.t miw*  – Cat Pus (Eb 208).

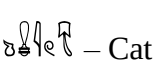
*ḥ(n)q.t*  - Beer (Eb. 192; 194; 195; 209; 210)

*ḥ(n)q.t n(i).t 3q*  – Expired Beer (Eb. 189).

*ḥ(n)q.t n(i).t ḥ3w-ḫ.t*  – Unknown Beer (Eb. 192, 195, 198).

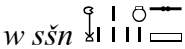
*ḥ(n)q.t nḏm.t*  – Sweet Beer (Eb 193; 201; 202; 207; 208; 212; 213).

*t3ḥ.t n(i).t ḥ(n)q.t nḏm.t*  – Dregs of Sweet Beer (Eb 200).

*ḥs miw*  – Cat Faeces (Eb 213).

*ḥs3*  – Plant Mucilage (Eb 199);  *ḥs3 n ʿw3y.t* – Unknown Fermented Plant Mucilage (Eb 211).

*ḥḏw*  – Onion (*Allium cepa* L.) (Eb 192; 195): as well as having diuretic properties, onions are known expectorants.[308]

*ḫ3.w n(i).w sšn*  – Lotus Rhizome (Eb 209): though this plant can be used to help tackle liver disease, it is unlikely the Egyptians understood the concept of cirrhosis.[309]

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[306] Manniche, *Herbal*, 103-4; Campbell, in David (ed.), *Mummies and Modern Science*, 227; D. Amenu, 'Antimicrobial Activity of Medicinal Plant Extracts and Their Synergistic Effect on Some Selected Pathogens', *AJEM* 1(1) (2014), 18-29.

[307] A. Abdelaaty et al., 'Chemical and Biological Investigations on *Zizyphus spina-christi* L.', *Phytotherapy Research* 15 (2001), 593-597.

[308] Manniche, *Herbal*, 69-70.

[309] Tsuruta et al., 'Polyphenolic extract of lotus root (edible rhizome of Nelumbo nucifera) alleviates hepatic steatosis in obese diabetic db/db mice', *LHD* 10:202 (2011), 1-8.

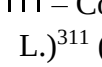
*ḫ3sy.t*  – Unknown Plant (Eb. 191, 194, 209).

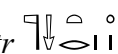
*ḫnty*  – Ochre (Eb 210).

*ḫt-ds*  – Unknown Plant (Eb 200; 209).

*sʿm*  – Artemisia (*Artemisia* sp.) (Eb 192, 195, 199): as well as being an antisceptic, artemisia species have a known carminative effect.[310]

*sft*  – Coniferous Oil (*Abies cilicica* Carr./*Cedrus libani* Loud./*Cupressus sempervirens* L.)[311] (Eb 209).

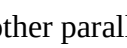
*snṯr*  – Incense (*Boswellia* sp./*Pistacia terebinthus* L.)[312] (Eb. 210; 214; 216): both Pistacia terebinthus L. and species of Boswellia have significant antibacterial properties.[313]

*sḥ.t*  – Six-row Barley (*Hordeum polystichum* Döll. subsp. *hexastichum*) (Eb. 203): as noted by Pommerening,[314] the six-row subspecies of barley was found by Edel in vessels labelled with *sḥ.t* from Qubbet el-Hawa. While this is almost certainly indisputable evidence that the two words corrolate, it draws into further question what the specifications for *sḥ.t* found in the Stomach Book refer to (white, green, 'the red of'). As a cereal, this ingredient qualifies as a bulk-forming laxative.

*sḥ.t wꜣḏ.t*  – Green Six-row Barley (*Hordeum polystichum* Döll. Subsp. *hexastichum*) (Eb. 209)

*sḥ.t ḥḏ.t*  – White Six-row Barley (*Hordeum polystichum* Döll. Subsp. *hexastichum*) (Eb. 209)

*ḏšr.w n(i).w sḥ.t*  – the Red of Six-row Barley (*Hordeum polystichum* Döll. Subsp. *hexastichum*) (Eb. 191, 194).

*šꜣwy.t*  – Coriander (Eb. 198); *šꜣwy.t* is only found in Ebers 198 and has no other parallels; however, the term SAw—sometimes written  —means coriander. It is highly likely that this is an unusual writing for coriander, rather than a hapax. Coriander is a stimulant, carminative, and digestive.[315]

*šꜣšꜣ*  – Unknown Plant (Eb. 190; 193; 198; 201; 204).

[310] Manniche, *Herbal*, 80.
[311] See Germer, *Handbuch*, 47-9.
[312] *Ibid*, 117-122.
[313] *Ibid*, 211.
[314] Pommerening, in Dils and Popko (eds)., *Zwischen Philologie und Lexikographie*, 89.
[315] Manniche, *Herbal*, 94.

*šni-tȝ*  – Colocynth Plant (?) (*Citrullus colocynthis* Schrad.) (Eb 215; 216): see *pr.t-šni.*

*šnf.t*  - Unknown (Eb 209).

*šns n*(*i*) *sw.t*  – a Baked Good from Emmer (?) (*Triticum* sp.) (Eb. 192; 195)

*šnḏ.t*  – Nile Acacia (*Acacia nilotica* Del.): modern research shows that Acacia nilotica has antibacterial, astringent, antimicrobial activities.[316]

*ḏrḏ n*(*i*) *šnḏ.t*  – Leaf of the Nile Acacia (Eb 200, 210).

*šsp.t ḥmȝy.t*  – Unknown Plant (Eb. 203): opinions are divided over the translation of this ingredient; both fenugreek (*Trigonella foenum graecum* L.)[317] and the bitter almond (*Amygdalus communis* L.)[318] have been favoured in recent publications, and neither can be proven.[319]

*qmi.t*  – Resin.

*qmi.t ḥḏ.t*  – White Resin (Ebers 210).

*šsp.t qmi.t*  – Resin Pellet (Eb. 205).

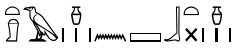
*qsnt.y*  – Unknown Mineral (Eb 210).

*giw*  – Cyperus (*Cyperus sp.*): this plant is commonly translated cautiously as a species of cyperus.[320] Germer disputed this, stating that '*Für die Erdmandel ist heute der ägyptische Name wʿḥ identifizier*t'. This perhaps seems a bit too critical; the tiger-nut (*wʿḥ*)—the rhizome from the species *Cyperus esculentus* L.—can be cultivated in dry or wet terrain. Contrary to this, other species of cyperus are commonly found on the archaeobotanical record;[321] these plant species have a similar appearance to each other, which provokes one to question whether the Egyptians would have distinguished between the species. Cyperus species in general are medicinally diverse and are used in both Ayurvedic and Traditional Chinese Medicine: the leaves, roots, and tubers have many pharmaceutical properties, including both diuretic and astringent properties.[322]

[316] Ali et al., 'Review: Acacia nilotica: A plant of multipurpose medicinal uses', *JMPR* 6(9), 1492-1496.
[317] Manniche, *Herbal*, 151-2.
[318] Westendorf, *Handbuch*, 584
[319] Germer, *Handbuch*, 94-5.
[320] DrogWb., 536; Bardinet, *Les papyrus médicaux*, 278; Westendorf, *Handbuch*, 583;
[321] Vartavan and Amorós, *Codex*, 93-4.
[322] L. Kakarla et al., 'A Review on Biological and Chemical Properties of Cyperus Species', *RJPBCS* Jul-Aug 5(4) (2014), 1142-1155.

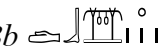
*gi̯w n wḏb*  – Cyperus of the riverbank (*Cyperus sp.*) (Eb. 193; 201).

*gi̯w n(i) ḥsp*  – Cyperus of the meadow (*Cyperus sp.*) (Eb 193; 201).

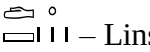
*t3 n(i) šb.t*  – Unknown Liquid (Eb 211).

*ṯwn*  – Unknown Plant (Eb 209).

*tiʿm*  – Unknown Plant (Eb 193; 201; 204).

*d3b*  – Fig (*Ficus carica* L.) (Eb 202; 210; 212): figs are high in fibre and are a well known bulk-laxative.[323]

*didi n 3bw*  – Haematite (Eb 197).

*dšr*  – Linseed (?) (*Linum usitatissimum* L.) (Eb 197): the name of this plant and the determinative used for writing makes Linseed a possible candidate, though this still cannot be proven for certain. The term is perhaps connected to the Coptic term for linseed: **ⲟⲣⲉⲱ**. In medicine, linseed was formerly used as a laxative but is now considered unsafe.[324]

*ḏ3r.t*  – Carob Pods (*Ceratonia siliqua* L.) (Eb 197, 201, 212): the carob pod is high in fibre and also a bulk-forming laxative.[325]

[323] Manniche, *Herbal*, 102; Campbell, in David (ed.) *Mummies and Modern Science*, 227.
[324] Manniche, *Herbal*, 116; Germer, *Handbuch*, 164; 286.
[325] Campbell, in David (ed.), *Mummies and Modern Science*, 227.

## Appendix 3.1: Inventory of Ingredient Use

## Appendix 3.2: Database of Ingredients

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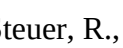
Steuer, R.,  *wḫdw: Aetiological Principle of Pyaemia in Ancient Egyptian Medicine* (Supplements to the Bulletin of the History of Medicine 10, Baltimore: 1948).

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## List of Abbreviations

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