

THE EDWIN SMITH PAPYRUS

Updated Translation of the Trauma Treatise and Modern Medical Commentaries

Gonzalo M. Sanchez & Edmund S. Meltzer

LOCKWOOD PRESS

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Edwin Smith. By Francesco Anelli, 1847.
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Gonzalo M. Sanchez
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Foreword

Since the dawn of history, medical care has been a blend of magic and science. It is the curse of human nature that drives us to act according to our beliefs and disregard facts that fail to fit them. Much has been made of the role of magic in ancient Egyptian medicine, and its role was, indeed, very important. Were it not for the Edwin Smith papyrus, we might well believe that magic was the essence, if not the whole, of the ancient profession, and relied on exploiting the patient's belief in hope of generating a powerful placebo affect. That probably happened, but this amazing document shows that those physicians, called *swnw*, also practiced valid evidence-based medicine four millennia ago!

I look to a book's Foreword to tell me why I should read it. In this instance, it is widely recognized that James Henry Breasted produced a masterpiece in his translation of the Edwin Smith papyrus. But that was in 1930. The practice of medicine and our understanding of many conditions have taken massive leaps forward. Simultaneously, there has been steady progress by philologists in clarifying the ancient language. The production of the monumental *Grundriss der Medizin der alten Ägypter* (9 vols.; Hermann Grapow, Wolfart Westendorf, and Hildegard von Deines; Berlin: Akademie, 1954–1973) has provided an invaluable resource in subsequent studies.

We are fortunate to have the expertise of an outstanding neurosurgeon, Gonzalo Sanchez, combined with that of a dedicated and well-recognized scholar of the ancient text, Dr. Edmund Meltzer, to update our knowledge of this document. Their comprehensive new translation advances our understanding of ancient medical practice and further clarifies it as a thoroughly rational approach to assessing and managing the conditions presented.

The papyrus is primarily an ancient text book regarding trauma. In current parlance, most of these cases are neurosurgical problems, while the bulk of the remainder consists of orthopedic problems or simple trauma. The analysis of many of these complex skull injuries is relatively simple and straightforward for a skilled practicing neurosurgeon such as Gonzalo Sanchez. However, that analysis would require considerable research for me and my colleagues in other specialties, and be a truly imposing, nearly impossible challenge for those without medical training. Dr. Sanchez shows us the subtle distinctions between these injuries and how the ancient *swnw* similarly distinguished them to manage each in a rational manner. This could only have evolved from the *swnw* carefully and systematically observing a number of cases. No doubt trial and error informed them in their judgments of what to treat and how to treat it.

The cases that today would go to the hands of an orthopedic surgeon are more easily understood. The need to realign and stabilize broken bones to reduce pain and promote healing is obvious, as is the desirability of replacing dislocations. It is worthy of note that the *swnw* discerned important elements of these procedures that mirror those in use today. Furthermore, the limited pharmacopeia they utilized also reflects careful consideration of both benefit and avoidance of harm.

The inclusion of a Visual Index for the illustrations is a nice innovation. The illustrations are clear, well-labeled and to the point for each case. Figures also clarify some of the cases. This is especially important for the nonmedical reader.

As the text develops, a clear exposition of the thought processes leading to the identifications is clarified via voluminous footnotes. The footnotes also permit us to follow the authors' joint consideration of the work of other scholars in relation to their own and to present alternative interpretations. For the serious reader this is a refreshing approach lacking in many texts. As such, the work becomes accessible to the general public interested in all aspects of Egyptology rather than exiling it to the arena of arcane work for specialists.

The authors' collaboration has provided us important clarification of several terms that had been interpreted by Breasted in a manner that did not make good sense in the medical scenario. For example, in Case #6

Breasted interpreted the word *ryt* to mean "pus," but the new interpretation to mean "discharge" is more rational. Several other important words, such as *wbnw*, *mtw*, and *dgmy*, are now assessed in relation to their determinatives in the text to correlate with the different wounds, vessels/tendons, and particularly the subtle degrees of alteration of level of consciousness such as torpor, stupor, and coma.

In Case # 41 Breasted identified *bnf* as dung. If that were correct it would be the only instance in the text where a counterproductive and actually harmful medication was prescribed. The authors' new interpretation as "ox bile" brings the ancient pharmacopeia back to the realm of the rational as a strong case can be made for bile having therapeutic value.

Today we take scientific medicine for granted, but it took thousands of years before any significant advances were made from what the *swnw* practiced. We did not understand the human circulatory system any better than they did until the work of William Harvey in the seventeenth century. Yet the *swnw* did recognize a relationship between the heart and the pulse as seen in Case #1. They further recognized that the intact fused human skull of an adult prevents detection of the pulsation of the brain as can be found in the open fontanels of a baby or a disastrous injury exposing the brain as in Case #6.

The attention to detail of examination for each case permitted them to discern subtle differences to classify them. These distinctions then permitted them to make astute predictions for the outcome of each case. In fact it was not until well into the twentieth century that we have been able to improve on the treatments they recommended for the neurosurgical injuries cited and thus provide somewhat better prognoses.

We can only guess at the processes by which the ancient physicians reached their conclusions about the appropriate therapies for the forty-eight conditions discussed in this text. Some treatments, such as suturing a laceration, appear so obvious that anyone would accept them. Others, such as the skull injuries, would have required very careful observation to discern subtle differences. Perhaps most important is their avoidance of treatments that might aggravate the problem more than they would assist it. The latter are often found in magic-based therapies as in the Ebers Papyrus and others.

The medical profession did not understand the nature of the infection process until the mid-nineteenth century and even then could do nothing but provide little more than cleanliness and drainage until the dawn of the antibiotic era in the mid-twentieth century. Clearly the *swnw* knew as much and understood the need for cleanliness and the desirability to leave some wounds open or to provide a wick for drainage as in Cases #28 and #39. Furthermore, their limited pharmacopeia did serve to reduce risk or ameliorate infection. Even when the *swnw* following these instructions had little or nothing to offer, they still avoided doing harm. A nice example of this restraint is the demonstration of masterful non-intervention as seen in the patient with neurofibromatosis (Case #45).

The *swnw* who followed this text were often using what are best practices today. A good example is the reduction of a dislocated jaw. The concept is deceptively simple: just push the jaw down and back. But, the unaware therapist who puts his thumb on the back lower molars may be rewarded by a serious bite of the thumb as the jaw snaps shut in place! The directions for this case clearly indicate the operator must place his thumbs past the molars, thus avoiding this hazard.

The initial translation of this work by Henry Breasted from 1920–1930 was an enormous undertaking that transformed our thinking about the ancient practice of medicine. His work in converting the hieratic script to hieroglyphs and then laboriously translating the text is a monument to his scholarship and tenacity. In the intervening years great changes have occurred in the practice of medicine as well as in interpretation and understanding of the ancient Egyptian language.

Every subsequent consideration of this document has been based on Breasted's hieroglyphic translation. However, the authors of this new assessment have accepted the formidable challenge of returning to the original hieratic script. In the process they show us indications of subtle alterations in the scribe's work, suggesting fatigue, or the need for breaks to acquire a new pen, or haste, prompting the use of abbreviations or the intro-

duction of an error that required subsequent revision. This new translation and commentary move our understanding forward to a significant degree.

Evidence-based medicine has become the mantra for medical care at the dawn of the twenty-first century. As the term implies, good medical care should be based on solid evidence. It is a sad fact that many of the practices of modern medicine are more hallowed by time and tradition than by factual data. For an example in my own specialty of gynecology, countless women suffered through uncomfortable Pap smear examinations because every text book stated that lubrication should not be used. When actually studied, it was found that the use of a lubricant had no adverse effect at all on the accuracy of the test. Following unverified advice has been part of medicine throughout history.

Were it not for the Edwin Smith papyrus, we would have a totally distorted view of ancient Egyptian medicine. We might consider them superstitious and naively incompetent, but the Edwin Smith papyrus shows us that the patients treated by the standards of this document received care that was as good or better than any place in the world prior to the last 150 years. The volume in hand enhances our appreciation of the sophistication of these ancient physicians in their evaluation and management of this remarkable variety of cases. We can be grateful that Edmund Meltzer and Gonzalo Sanchez were willing to tackle the extraordinary challenge of going back to the original hieratic text and doggedly following through to produce this splendid new addition to our corpus of texts on ancient Egyptian medicine.

W. Benson Harer, Jr., MD, FACOG

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We tender our most grateful thanks to all of the above colleagues and institutions. All opinions that we express in this work, and any remaining errors, are our own.

Note on Transliteration

The authors have adopted the following conventions for transliteration:

The single reedleaf is represented by *i*, the double reedleaf by *y*. The ending *y* is used on nisbe adjectives and the relative word *nty*.

The preposition "to, for," the genitival adjective in its simple form, and the negative arms as a particle are all transliterated *n*. Where written out, the feminine genitive word is transliterated *nt* and the masculine plural *nw*. It was decided that it would be too cumbersome to transliterate repeatedly *n*(*y*), *n*(*y*)*t*, *n*(*y*)*w* for the inflected forms of the genitive word. As far as the negative arms are concerned, we decided that they should be rendered by a simple *n*, not *nj* or *ni*, especially in view of the use of the negative arms as a variant of the waterline *n* in hieratic of this period, including this document.

A dot is used to separate the formative (if any) and suffix-pronoun subject of a verbal complex (e.g., *sḏm.ḫr.f*) or mutatis mutandis the heavier endings of the Stative (*rḫ.kwi*, *ꜥnḫ.ti*), *sḏmty.fy* forms, etc. It is not used to separate feminine and plural endings (e.g., *ḏrt*, *ḏbꜥw*) or the initial augment or prefix added to a verbal stem (*išwy*, *sḫpr*).

A hyphen is used to separate elements of a compound word or name, for example, *ḥr-ib.f*, *mn-ḫpr-rꜥ*.

Angular brackets are used only to contain elements that are omitted in error by the scribe, not optional ones; thus *sḏm.<i>n.f, <m> bit*.

Curly brackets are used to contain elements that are added or included in error by the scribe, such as *gm.n.*{*n.*} *f.*

Square brackets are used only for restorations; e.g., *iwf* [*wꜣḏ*].

Parentheses are used sparingly to enclose optional elements that are not written in the Egyptian text. On the whole they have been avoided in the running transliteration, so as more closely to reflect the text, but used more freely in the notes.

Note on Column and Line Numbering

The present work employs the same numbering of the columns of the papyrus as Breasted and Allen. These scholars follow the same numbers as regards the Recto, but Breasted numbers the Verso consecutively with the Recto while Allen begins again with "Verso, Column 1" etc. We do not translate the Verso but in one regard we follow Breasted's practice more closely, as he used Roman numerals for the columns while Allen uses Arabic numerals. Breasted and Allen refer to the column that originally preceded what we now designate as Column I; this "lost column" (Breasted, *Edwin Smith*, 2:xi–xii) contained the title of the work and the very beginning of Case 1 (ibid.; cf. Allen *AM*, 70). Like Breasted, we use Arabic numerals for the lines.

When we received Smith's original handwritten manuscript, we found that he uses both Roman and Arabic numerals in the margin. His Roman numerals do not correspond to the columns but are his own numbering of the 48 cases and show how accurately he understood these subdivisions. His Arabic numerals are of the format "1.18" etc. It appears that the first number labels the column, and the number after the point designates the line. The lines are not numbered individually. Smith begins with "0.18" followed fairly closely by "1.1"; it is clear that "0" corresponds to the "lost column" mentioned above. There is, however, a discrepancy, because Smith concludes in his column "21" while there are twenty-two columns and Smith himself states that the Verso comprises five columns ("pages").

Abbreviations

Allen, *AM*	Allen, James P., *The Art of Medicine in Ancient Egypt*. New York: The Metropolitan Museum of Art; New Haven: Yale University Press, 2005
Allen, *ME*	Allen, James P., *Middle Egyptian: An Introduction to the Language and Culture of Hieroglyphs*. 2nd rev. edition. Cambridge: Cambridge University Press, 2010
Breasted, *Edwin Smith*	Breasted, James Henry, *The Edwin Smith Surgical Papyrus*. 2 vols. The University of Chicago. Oriental Institute Publications. Chicago: University of Chicago, 1930
Edel, *AG*	Edel, Elmar, *Altägyptische Grammatik*. 2 vols. Analecta Orientalia 34/39. Rome: Pontifico Istituto Biblico, 1955/1964
ESM	Edmund S. Meltzer
Faulkner, *CDME*	Faulkner, R. O., *A Concise Dictionary of Middle Egyptian*. Oxford: Griffith Institute Asmolean Museum, 1962. Repr. Frome and London: Butler & Tanner, 1996.
Gardiner, *EG*^{3}	Gardiner, Alan H., *Egyptian Grammar*. 3rd ed. Oxford: Oxford University Press/ Griffith Institute, 1957
GEC	Lefebvre, Gustave, *Grammaire de l'égyptien classique*. 2nd ed. Le Caire: Institut français d'archéologie orientale, 1955
GMS	Gonzalo M. Sanchez
Grundriss	Grapow, Hermann, Wolfart Westendorf, and Hildegard von Deines, *Grundriss der Medizin der alten Ägypter.* 9 vols. Berlin: Akademie, 1954–1973
Grundriss 4/1	von Deines, Hildegard, Hermann Grapow, and Wolfhart Westendorf, *Übersetzung der medizinischen Texte*. Vol. 4/1 of *Grundriss der Medizin der alten Ägypter*. Berlin: Akademie, 1958
Grundriss 5	Grapow, Hermann, *Die Medizinischen Texte in hieroglyphischer Umschreibung Autographiert*. Vol. 5 of *Grundriss der Medizin der Alten Ägypter*. Berlin: Akademie, 1958
Grundriss 6	von Deines, Hildegard, and Hermann Grapow, *Wörterbuch der ägyptischen Drogennamen*. Berlin: Akademie, 1959
Grundriss 7	von Deines, Hildegard, and Wolfhart Westendorf, *Wörterbuch der Medizinischen Texte*. Vol. 7 of *Grundriss der Medizin der alten Ägypter*. 2 vols. Berlin: Akademie, 1961–62
Grundriss 8	Westendorf, Wolfhart, *Grammatik der medizinischen Texte*. Vol. 8 of *Grundriss der Medizin der alten Ägypter*. Berlin: Akademie, 1962
Hoch, *MEG*	Hoch, J. E., *Middle Egyptian Grammar*. SSEA Publications 15. Mississauga, Ontario: Benben, 1996
Urk.	Steindorff, Georg, ed., with Kurt Sethe and Heinrich Schäfer, *Urkunden des ägyptischen Altertums*. 8 vols. Leipzig: Hinrichs, 1904–
Wb.	Erman, Adolf, and Hermann Grapow, *Wörterbuch der ägyptischen Sprache*. 5 vols. Leipzig: Hinrichs, 1926–1931

General and Medical Introduction

Gonzalo M. Sanchez, M.D.

The Edwin Smith Papyrus is a didactic trauma treatise from ancient Egypt (ca. 1650–1550 BC) written in hieratic script, a cursive form of writing that developed alongside the hieroglyphic system. This rolled document was purchased in 1862 by Edwin Smith, an American who graduated from New York University and later became an antiquities dealer in Luxor. Knowledge of hieratic at this early time was scant. Smith was enthused with ancient Egypt, and he was dedicated to the study of ancient Egyptian scripts. Nine years prior to his acquisition of this medical text, which carries his name, Smith was recognized in a paper read before the Academy of Science of St Louis[1] where he was acknowledged as having devoted his leisure to Egyptian studies. When the French Egyptologist Théodule Devéria visited Smith in Luxor on March 19, 1862, he described him as "the hermit of Thebes … devoting himself to the translation of a medical treatise written in beautiful hieratic."[2]

The papyrus was sold to Smith by a dealer named Mustapha Aga in three fragments (with the first column missing) between January 20th and March 17th, 1862. Smith recognized these fragments as belonging to a single scroll. Reconstituted as one, the papyrus measured 4.68 meters in length by 32.5 to 33 centimeters in width and consisted of recto and verso. The recto constitutes the trauma treatise, the subject of this work. There are seventeen columns of writing in 377 horizontal lines in the recto. The verso, not addressed in this work, has 92 lines and contains recipes and incantations akin to those found in other medical papyri, lacking the objectivity and rational approach to medical subjects and trauma found in the recto. In Breasted's opinion, the entire recto and the first three columns of the verso were written by the same individual. It will immediately be noted that in this edition we are including the 48 clinical cases, and not the mainly ritualistic and cosmetic material in the verso. This is not because we disparage such material as some other commentators do (including, alas, Edwin Smith himself), as our remarks in the Case 9 commentary should make clear. Our purpose in this work is to advance the understanding of the clinical/trauma section of the papyrus, and thus to arrive at a more definitive translation and explore what it reveals about the methodology of the Egyptian approach to trauma medicine. The verso material is similar in character to that seen in other Egyptian medical papyri and it is not the continuation of, nor is it related to, the trauma treatise in the recto of the Edwin Smith Papyrus. Although of scientific interest to the epidemiology of infectious disease, the verso does not require input from a medical specialist, nor does its renewed study provide the same degree of advancement in our understanding of ancient Egyptian medical methodology and knowledge, as does the study of the wounds section.

Edwin Smith referred to this papyrus as "my lesser Med. Pap." This papyrus was part of his private collection and not for sale. The larger medical papyrus, also in Smith's possession, was originally known as the Papyrus Smith and in 1872 was sold to Georg Ebers, who changed the papyrus's name and published it in 1873 as the "Ebers Papyrus." Meanwhile, Edwin Smith worked diligently in his papyrus's translation, taking the papyrus with him when he departed Luxor for Naples in 1876. After his death in 1906, his daughter donated the

1. F. G. Kilgour, "Locating Information in an Egyptian Text of the 17th Century B.C.," *Journal of the American Society for Information Sciences* 44 (1993): 292–97.
2. Théodule Devéria cited by ibid., 292.

papyrus to the New York Historical Society. It was later housed from 1938 to 1948 in the Brooklyn Museum. The New York Historical Society presented the papyrus to the New York Academy of Medicine in 1948, where it has resided to date, with the exception that the papyrus was publicly exhibited at the Metropolitan Museum of Art during "The Art of Medicine in Ancient Egypt" exhibit September 13, 2005, to January 15, 2006, under the expert direction of James P. Allen Ph.D., who also produced an updated translation for the Metropolitan Museum of Art published Catalogue.

Translation by James Henry Breasted

Professor James Henry Breasted, first chair in Egyptology and Oriental History in the United States, and founder of the Oriental Institute at the University of Chicago was requested in 1920 by the New York Historical Society to translate and publish the papyrus. After examining the document Breasted could not refuse. His preliminary report was published in the *New York Historical Society Quarterly Bulletin* Vol. 6(1) in April of 1922 and a more technical report was published as "The Edwin Smith Papyrus: Some Preliminary Observations," in *Recueil d'études égyptologiques dédiées à la mémoire de Jean-François Champollion* (Paris: Champion, 1922), 385–429.

The scroll contained a recto (front) forming approximately seven-eighths of the written papyrus and a verso (back). Although Breasted translated the entire document, he recognized the contents of the recto as being of great importance to Egyptology, medicine, and world history. The verso consisted of "incantations and recipes … a later addition, having no relation to the front."[3] Breasted's comprehensive work on this highly complex ancient medical document had no historical precedent and he admitted to possessing no competency in the medical field. Breasted then sought medical advice from his friend, Dr. Arno Luckhardt (American Physiologist, at the University of Chicago).[4]

Breasted identified the papyrus as a partial copy of a didactic medical text produced in the latter part of the seventeenth century BC, and determined that the complex structure and topographical organization address a series of trauma studies, "case types," organized anatomically from the head down and in order of increasing severity of injury. Breasted labeled the distinct segments he discerned within each case in the papyrus as: "Title," "Examination," "Diagnosis," and "Treatment." Recognizing that concepts and terminology appearing for the first time were explained at the end of that case, Breasted established these explanations as "glosses."[5] The terms, then, were used in later cases without further explanation. Text rubrics usually indicated the beginning of a new case (title), important elements of diagnosis and explanatory notes.

After ten years of meticulous work, Breasted's definitive work on the papyrus was published in two volumes by the University of Chicago Oriental Institute Publications as "The Edwin Smith Surgical Papyrus." With this work, Breasted gifted the world of medicine and history with the most outstanding medical document from antiquity.

Verdicts/Prognoses

Not unlike Greek and Roman medicine, the ancient Egyptian physician's diagnostic opinions were tied to treatment potential for each injury. Three verdicts are issued:

3. James Henry Breasted, *The Edwin Smith Surgical Papyrus* (2 vols; The University of Chicago. Oriental Institute Publications 3–4; Chicago: University of Chicago Press, 1930), 6.
4. Arno Benedict Luckhardt, 1885–1957. Online: http://www.the-aps.org/publications/tphys/legacy/1970/issue1/1.pdf.
5. Throughout the translation presented here, Breasted's "glosses" are described as "explanations."



James Henry Breasted with plates of the Edwin Smith Papyrus in 1929 at his office, Haskell Hall, The Oriental Institute of the University of Chicago.

1. "a medical condition which I will handle/deal with"
2. "a medical condition I will fight with"
3. "a medical condition that cannot be handled/dealt with"

Verdict 1 is self-explanatory. Verdict 2 implies uncertainty about treatment results, but having "a fighting chance." Verdict 3 is exactly what it means, without implying that the patient will not be treated, but merely a declaration of their lack of expectation for successful treatment. Some cases were truly lethal, but some were not, the reality being that there was effective treatment that could be rendered as in a broken jaw, or fractured ribs. At first, these choices appear to be a sort of "triage." In reality the verdicts are expression of their realistic opinions and expectations of the patient's clinical course using the available treatments, with no equivalence in verdict 3 "a medical condition that cannot be handled/dealt with" to withholding, or delaying treatment. This is an important difference in our translation from Breasted's, who interpreted this verdict as: "An ailment not to be treated." The great majority of clinical situations in the Edwin Smith papyrus receiving verdict 3 were treated.

Our understanding today of basic sciences, medicine, surgery, and trauma is clearly much more complete. Four thousand years have passed since the Edwin Smith Papyrus was written, and, thus, the benefits of accumulated medical wisdom, antibiotics, anesthesia, surgery, and imaging studies. Yet, we face each trauma patient anew. In evaluation of these patients, we follow a clinical protocol, looking for those same important signs singled out by our predecessor, the Egyptian physician (*swnw*), so long ago. Medicine of ancient Egypt can pronounce as its most precious legacy the development and implementation of an elaborate clinical methodology to study each patient, the same methodology attributed by Plato to Hippocrates, but more than a thousand years after its actual origin with the Egyptian *swnw*.

This methodology established the grounds and facilitated progress in the rational knowledge of the human body, in health and in disease. Greek medicine was the direct beneficiary of the building blocks originated by the *swnw*, as we see here, which heralded the full future of medicine's development scientifically.

Of Special Interest to the Medical Field

The Edwin Smith Papyrus probably is a partial rendition of a comprehensive didactic medical treatise on trauma. No other copies have been found, nor have scholars determined its precise applications. The existence of established medicine and medical texts already in use by this time in ancient Egypt is recorded from the reign of Pharaoh Neferirkare, Fifth Dynasty (2450–2300 BC). The Vizier Ptahhotep suffered a stroke during an inspection of works with the King. The royal physicians were immediately summoned and the medical books were brought in and consulted. But unfortunately, there was nothing that could be done for the Vizier, and he died.

Of the forty-eight clinical cases in the Edwin Smith Papyrus, there are fourteen head injuries, seven cervical injuries, and one injury to the lower spine, all of which are of particular interest to the neurologist, neurosurgeon, and traumatologist. Injuries or lesions of the chest and arms constitute the rest of the treatise. Injuries are presented by the ancient Egyptian physician by key examination findings, given with sufficient clarity to allow us to form a medical opinion of the type of injury and of the patient's condition. The injuries described in this document for a specific anatomical area, are presented in order of increasing severity. Thus, it is possible to understand those factors that guided the Egyptian physician to reach a verdict (treatability assessment/prognosis) in cases that otherwise appear to be of similar gravity.

Breasted's original translation has been subject to various medically oriented interpretations, most notably by Courville in 1949,[6] Bardinet in 1995,[7] and Westendorf in 1966 and 1999.[8] In 2001, Brawanski first approached a full medical interpretation of the first eight cases of this document in modern terms.[9] Additionally, he has provided further valuable medical interpretation and commentaries of other selected cases. Further progress on philological and selective surgical issues has been made by many authors, most prominently by Grapow, von Deines, and Westendorf, the authors of the *Grundriss der Medizin der alten Ägypter*.[10] Other works have been presented by authors Walker,[11] Nunn,[12] Ghalioungui,[13] Chapman,[14] Majno,[15] Goodrich,[16] and, most recently, Allen's previously cited recent translation.[17] Despite point clarifications and better understanding of the Edwin Smith Papyrus, some passages still remained obscure. Some were considered to be scribal errors, and a few segments did not make clinical sense.

Brawanski called attention in 2001 to the fact that our modern clinical evaluation and treatment strategies in the management of head injury use comparable criteria to that existing at the time of the Edwin Smith

6. C. B. Courville, "Injuries to the Skull and Brain in Ancient Egypt," *Bulletin of the Los Angeles Neurological Society* 14/2 (1949): 53–82.

7. Thierry Bardinet, *Les papyrus médicaux de l'Égypte Pharaonique: traduction intégrale et commentaire* (Lyon: Fayard, 1995).

8. Wolfhart Westendorf, *Papyrus Edwin Smith: Ein medizinisches Lehrbuch aus dem alten Ägypten: Wund- und Unfallchirurgie, Zaubersprüche gegen Seuchen, verschiedene Rezepte*. Bern: Hans Huber,1966; Wolfhart Westendorf, *Handbuch der altägyptischen Medizin* (vol. 2; Leiden: Brill, 1999).

9. A. Brawanski, "Die Fälle 1–8 des Papyrus Edwin Smith," *Studien zur altägyptischen Kultur* 29 (2001): 7–39.

10. Hermann Grapow, Wolfart Westendorf, and Hildegard von Deines, *Grundriss der Medizin der alten Ägypter* (9 vols.; Berlin: Akademie, 1954–1973), esp. vols. 5 (Grapow, *Die medizinischen Texte in hieroglyphischer Umschreibung Autographiert*, 1958) and vol. 4 (von Deines, Grapow, and Westendorf, *Übertsetzung der medizinitschen Texte*, 1958).

11. James H. Walker, *Studies in Ancient Egyptian Anatomical Terminology* (The Australian Centre for Egyptology Studies 4; Warminster: Aris & Phillips, 1996),

12. John F. Nunn, *Ancient Egyptian Medicine* (Norman, OK: Oklahoma University Press, 1996).

13. Paul Ghalioungui, *Magic and Medical Science in Ancient Egypt* (Amsterdam: Israël, 1963).

14. P. H. Chapman, "Case Seven of the Smith Surgical Papyrus: The Meaning of *tp3w*," *Journal of the American Research Center in Egypt* 29 (1992): 35-42

15. Guido Majno, *The Healing Hand: Man and Wound in the Ancient World* (Cambridge, MA: Harvard University Press, 1975).

16. J. T. Goodrich, "History in Spine Surgery in the Ancient and Medieval Worlds," *Neurosurgical Focus* 16/1 (2004).

17. James P. Allen, *The Art of Medicine in Ancient Egypt* (New York: The Metropolitan Museum of Art; New Haven: Yale University Press, 2005).

Papyrus. The same observation struck me when I first became acquainted with this papyrus as a neurosurgical resident in Bellevue Hospital, New York City, in 1965. It was in that year that the book *Neurosurgical Classics* (ed. Robert H. Wilkins; New York: The Harvey Cushing Society, 1965) was published. Containing the neurosurgical classical works up to that time, *Neurosurgical Classics* began with an excerpt of James Henry Breasted's *The Edwin Smith Surgical Papyrus*. Reading on, I was astonished to realize that the ancient Egyptian physicians had faced thousands of years ago, challenges no different from ours, and, that their clinical approach to their injured patients was strangely familiar to me, because it followed the same rational clinical approach within their evaluation and treatment. At the Emergency Room, every head injury required us to follow a methodology and to have the clinical awareness to look for important examination findings, just as the Egyptian physician had practiced with his patients four thousand years before. This was the beginning of my life-long interest in the Edwin Smith Papyrus.

It was particularly through my study of Case #7 and the impasse I reached in understanding that case where the head injury is complicated by infection, that I fully understood the necessity of approaching the text as a physician, and that a succinct and thorough interpretation of the entire Edwin Smith Papyrus was awaiting realization. I initially sought the assistance of Ms. Alwyn L. Burridge, M.A. Egyptology, who also had a keen interest in this medical document, and who greatly contributed with her own interpretation of the hieratic text. Ms. Burridge has also collaborated with me in a medical-Egyptological publication on head injuries and with me and Dr. Joost van Middendrop in spinal trauma cases, both based on the Edwin Smith Papyrus.[18] The participation in the current work of Egyptologist and linguist Edmund S. Meltzer Ph.D. has produced the most updated and medically concordant translation of the original text. This work of Sanchez and Meltzer fulfills a need for both modern medical opinion and documentation with relevant medical scientific literature, as well as the exhaustive medically oriented philological analysis of the text.

In our methodology, we have given primacy to interpret the text in its medical context, restraining from speculation. However, given the wealth of data and the significance of this early medical document, we felt it to be critically important to say not more, but, to say no less than is written. Each case is interpreted on sound and reasonable clinical data. Where we digress from other authors' interpretations, it is merely on different clinical points of view, but always based on the textual evidence, the structure of the original document, or on comparable data from other medical papyri. To facilitate text analysis, the hieratic text belonging to each individual case has been isolated from surrounding material. Pertinent figures are included at the end of most cases, and, to fully display the quality of the clinical material contained in this papyrus and as a quick reference, a "Visual Index" section has been included at the back of the volume. Concise reference sections on Open and Closed Injuries (appendix 1), Neurological Symptoms and Signs (appendix 2), a compilation of cases with the verdict "(a medical condition) that cannot be handled/dealt with" (appendix 3), and Analysis of Nasal Anatomical Terminology (appendix 4) have been added as practical references for the reader. Our new translation derives from an advanced linguistic understanding of the text and from its central strong medical orientation culminating in a fluid, logical, medically sound, and contemporary document. The word "surgical" is not used in our translation, as the document deals very little with actual surgery.

The Egyptian physicians' clinical experience led them to record features that were important in formulating their verdicts, and in noting relationships between head or spine injuries and their neurological consequences. Neurological symptoms and findings are not included in the compound (open) severe cranial injuries, but are included in the closed head injuries. This could be related to the numerous possible combinations of neurological

18. Gonzalo M. Sanchez and Alwyn L. Burridge, "Decision Making in Head Injury Management in the Edwin Smith Papyrus," *Neurosurgical Focus* 23/1 (2007): 1–9. Jost J. van Middendorp, Gonzalo M. Sanchez, and Alwyn L. Burridge, "The Edwin Smith Papyrus: A Clinical Reappraisal of the Oldest Known Document on Spinal Injuries," *European Spine Journal* 19/11 (2010): 1815–23. Online: http://www.springerlink.com/content/vk460l07q7028186/fulltext.pdf.

deficits possibly present in the acute stage, depending upon what areas of the brain sustained injury. However, this is most likely related to survivability being more frequent in closed head injuries, allowing for observation and recording of residuals. A similar situation could apply to a complication of the acute head injury, which in fact, constitutes a new entity as in Case #7, First Alternative Course: Infection–*ti3* (Tetanus). Spinal-cord injury neurological deficits are well detailed.

The Edwin Smith Papyrus is of importance to anyone with an interest in medicine and medical history. It is a document that brings us back in time to witness the practice of our profession already as an established "art," not long after the writing of language had begun. It was a time in which terms had to be created for anatomy, for symptoms, and eventually for diseases. This medical didactic text clearly begins with the explanation of the reason for all of us to be in the field: the patient. Case #1, Explanation A, details in ancient terms what it means "to examine a patient." It then follows with a dissertation of the vascular system from which we elucidate the ancient Egyptian physicians' concepts of areas in clinical medicine that we recognize today.

In the Edwin Smith Papyrus we can glean specifics in the following medical fields:

- Anatomy and Physiology:
  - The heart and its relations to the entire body through the pulse
  - Brain convolutions
  - Cerebrospinal fluid
  - The frontal sinus
  - The nasal cavities
  - The anterior fontanelle pulsations

- Anatomical pathology:
  - Craniofacial fractures
  - Bone fragmentation visible inside the ear canal
  - Various soft tissue wounds
  - Various types of bone fractures and joint dislocations
  - Cervical disc tears
  - Cervical compression fracture
  - Cervical burst fracture
  - Infected wounds
  - Necrotic wounds
  - Chest wall injuries to bone and soft tissue;
  - Possible neurofibromatosis
  - Lumbar disc sprain

- Pathogenesis:
  - Traumatic meningismus
  - Systemic infection developing from an open head injury
  - Intracranial tissue damage from external trauma
  - Detection of transmitted brain pulsations in head injuries as being the consequence of cranial vault disruption and comparing this finding to the examination of an infant's open fontanelle
  - A glimpse to their theory about disease spreading through the blood vessels
  - Mechanisms of cervical injuries resulting in spinal cord injury

- Clinical Data:
  - What it means "to study a man"
  - The pulse
  - Tetanus
  - Depressed level of consciousness in head injury
  - Aphasia
  - Epistaxis and otorrhagia in base of the skull fractures
  - Oculomotor paralysis from head injury
  - Spastic hemiparesis
  - Traumatic esophageal cutaneous fistula
  - Spinal cord injury with quadriplegia, urinary incontinence, ileus and priapism
  - Crepitus in comminuted fractures
  - Intercostal pain
  - The meaning of "the period of crisis" after head trauma

- Therapy:
  - "In bed (under observation and support)"—resting a patient in quiet quarters, under observation
  - Use of the sitting position in severe head trauma
  - Auricle of the ear injury surgical repair detail
  - Technique of mandibular dislocation reduction
  - Treatment of wounds by the use of fresh meat and honey
  - Treatment of infected wounds
  - Stitching and applying strips of cloth to wounds
  - Cauterizing an abscess
  - Avoid bandaging in severe head injuries
  - Warning about the presence of large vessels behind the sternoclavicular joints

The Edwin Smith Papyrus is a surviving sample of a comprehensive medical didactic text on trauma, emerging shortly after development of written language, at the birth of scientific medicine. The importance to modern medicine is accurately captured by Goodrich: "The Edwin Smith Papyrus provides modern neurosurgeons with a window in time through which they can wonder at the challenges and insights faced by ancient Egyptian healers at the dawn of the medical profession."[19] Referring to ancient Egyptian medicine, embodied in the "*swnw*" the word for physician, Guido Magno concludes: "If fame is a measure of success, we can only congratulate the *swnu* [sic]. In the Mediterranean world his art was unsurpassed, until it was absorbed by Greek Medicine."[20]

19. J. T. Goodrich, "History in Spine Surgery in the Ancient and Medieval Worlds," *Neurosurgical Focus* 16/1 (2004): 2.
20. Majno, *The Healing Hand*, 140.

Philological Introduction

Edmund S. Meltzer, Ph.D.

I was both delighted and honored when I was invited to join a project to produce a new edition of the Edwin Smith Papyrus including a translation and both Egyptological and medical commentaries.

We devoted a great deal of thought to the grammatical approach to adopt for the translation and decided to proceed according to the Standard Theory, that is, the analysis of the function and syntax of Egyptian verb-forms pioneered and developed by Hans J. Polotsky, elaborated and expanded by other scholars including Mordechai Gilula, John Callender, Paul John Frandsen, Friedrich Junge, Eric Doret, Leo Depuydt, and James Hoch.[21] There are several reasons for this. The primary reason is that I am not convinced by the arguments that have been advanced against it, or the alternatives that some have proposed in its place. I have addressed this in several publications and papers, most recently, "Once Again Initial Adverbials and the Standard Theory," presented at the Annual Meeting of ARCE in Chicago, April 2011. While I am somewhat flexible and open to different approaches, and I do not think that the Standard Theory, at least in its current forms, solves all of the problems of Egyptian grammar, I find the Standard Theory of unmatched heuristic usefulness in working with Egyptian grammar. While working through the cases of Edwin Smith, I found that with very few exceptions (which are discussed in the commentary), the clauses fell very felicitously and elegantly into place and the forms could be identified when a Standard Theory model was applied. While we do not expect the present translation to put to rest different suggested solutions for many passages, I think that it can stand as a cogent and consistent understanding of the text, enhancing the credibility and utility of the Standard Theory while also further enhancing the credibility and validity of the medical content.

As an example of a significant insight resulting from the application of the Standard Theory model, I would draw special attention to the use of the geminating *sḏm.f gmm.k*. There is a very clear reason why the examination description uses the nominal form or Manner Nominalization, and why it should not be taken as a "virtual conditional." The conditional is found in the opening clause or protasis, "If you examine a man" who has a particular type of wound that is specified. Then the examination shows particular findings, "How you find his cranium," "How you find him, etc." (is) in such-and-such a condition. The master physician, that is, the author of the papyrus, knows full well what the student or "intern" will find with that particular type of wound. He is not saying, If you find A you will do A and if you find B you will do B. He is saying, How you will find him is this way. When a particular kind of wound admits two or more possible scenarios or variations that dictate different courses of treatment and he does want to say "If A is happening you will do A and if B is happening you will do B," he uses another marked conditional protasis with *ir gm.k* "If you find," with an explicit conditional, suggesting the inference that in such a case the findings might not be that uniform—but the point is that he uses

21. For orientation see L. Depuydt, "The Standard Theory of the 'Emphatic' Forms in Classical (Middle) Egyptian: A Historical Survey," *Orientalia Lovaniensia Periodica* 14 (1983): 13–54; a valuable overview of Polotsky's work is presented in a review of his *Collected Papers* (Jerusalem: Magnes Press, Hebrew University 1971) by H. S. Smith, P. Johnson and J. Barr, *Journal of Semitic Studies* 18 (1973): 129–44. A teaching grammar with a very accessible account of the Standard Theory is James Hoch's *Middle Egyptian Grammar*. Polotsky's most comprehensive statement is "Les transpositions du verbe en égyptien classique," *Israel Oriental Studies* 6 (1976): 1–50.

a marked or explicit conditional. Otherwise, he is using a form that is not intended as a conditional. The nearly universal tenency to take these *gmm.k* clauses as "virtual conditionals" illustrates the dangers of an approach to Egyptian grammar that takes it as containing a large percentage of "virtual" or unmarked clauses that can be pressed into service almost at the convenience of the translator (a strong tendency of the Gardiner or pre-Standard Theory approach) as compared with an approach in which most clauses are marked for a given grammatical function or identity. The former approach is conducive to producing a translation that largely follows the expectations of the translator; as Junge says, "everybody gets the Egyptian he deserves."[22]

It should be noted that what we and Callender[23] call the Manner Nominalization (a formulation that was also endorsed by R. J. Williams [review of Callender, *Middle Egyptian*, *Journal of Biblical Literature* 98 (1979) 103–4, and on numerous occasions in class discussions]), and Hoch calls the Explicatory Sentence,[24] is also accepted by Borghouts in the recently published English edition of his grammar, *Egyptian: An Introduction to the Writing and Language of the Middle Kingdom* (Leuven: Peeters, 2010), secs. 61–64, in which the form is characterized as "a description of how an action or state unfolds …," "howness," though he explains it as a consequence of imperfective aspect, a connection which we reject. In our view the Manner Nominalization is aspect-neutral, and close attention to the meaning and situation of every adverbial complement reveals incongruities in the attempt to fit them all into a concept of imperfectivity. The adverbial complement or "pivot" can have momentary as well as durative or frequentative meaning (as ibid., sec. 62 ex. 10). Moreover, the multifarious ways in which Borghouts differentiates the concept of imperfectivity make it difficult to draw the line or exclude a proposed example—a situation analogous to the application of the "context of plurality" to geminating participles and relative forms by Schenkel and Allen.[25] In effect, Borghouts' position is a crypto-Gardinerian one. The essential point, though, is that his recent and major synthesis of grammar also utilizes the Manner Nominalization though it departs from our grammatical analysis in some respects.

Conditional protases that themselves contain a Manner Nominalization are discussed by H. Satzinger, "Die Protasis *ir sḏm.f* im älteren Ägyptisch," *Lingua Aegyptia* 3 (1993): 121–35. The identity of the form following *ir* in the simplest or most basic protasis is sometimes the Prospective *sḏm.f* but most typically a form that seems identical with the circumstantial *sḏm.f* and can be identified as the Active *sḏm*(*w*)*.f* (Hoch, *Middle Egyptian Grammar*, secs. 134, 188; Satzinger, "Die Protasis *ir sḏm.f*," 122–23).

One deceptively simple form that recurs numerous times in Edwin Smith is the favorable verdict or prognosis *iry.i*, for which we have followed Allen (*AM*, 70) in translating "which I will handle/deal with." This seems very felicitously in keeping with the versatility and flexibility of the verb *iri*. I agree with Breasted in identifying this as the Prospective Relative Form, which, when Breasted wrote, had recently been identified by Gunn (Breasted, *Edwin Smith*, 95). This presents a potential problem, however, because as apparent equivalents of "marked" relative clauses with *nty*, relative forms are generally regarded as having *definite* referents or antecedents, an approach that I have not rejected, though "I do not think that participles and attributive adjectives are to be regarded as inherently definite."[26] The prognosis clause seems to involve an indefinite antecedent, "a medical condition," "an ailment," etc. It seems to me that a solution is to be found in the discussion of J. Gwyn Griffiths in his article, "The Relative *Nty* with Generic Reference," *Journal of Egyptian Archaeology* 54 (1968):

22. "How to Study Egyptian Grammar and to What Purpose. A Summary of Sorts," *Lingua Aegyptia* 1 (1991): 401.

23. John B. Callender, *Studies in the Nominal Sentence in Egyptian and Coptic*. Near Eastern Studies 24. Berkeley and Los Angeles: University of California Press, 1984.

24. James E. Hoch, *Middle Egyptian Grammar* (SSEA Publications 15. Mississauga, Ontario: Benben, 1996), sec. 148.

25. See my comments in "Participles, Relative Forms and Gemination in Middle Egyptian: A Working Paper," *Lingua Aegyptia* 1 (*Proceedings of the Second International Conference on Egyptian Grammar (Crossroads II) Los Angeles, October 17–20, 1990* (1991), 232–34.

26. "Problems of Adjectival Constructions in Old and Middle Egyptian" (PhD dissertation, University of Toronto, 1980), II.5.

60–66. Griffiths concludes, "There is still a process of definition involved, but it now relates to a type or class…." In accordance with this analysis, I think that *mḥr ỉry.ỉ* should be strictly understood as something like "a medical condition of the type that I will handle," or perhaps "the type of medical condition that I will handle," but we shall continue to use the simpler version in our running translation for convenience. (The concept of "specificity" in Egyptian grammar was elaborated in much greater detail by J. B. Callender.[27]

Of the three prognoses or verdicts, *n ỉrw.ny* is the only one that cannot be parsed as a relative form and that should be taken as the true virtual relative, if that is not an oxymoron. Breasted's ingenious explanation as a passive participle + the prepositional adverb *ny*, though impressive, is not feasible because it would not emply the negation with *n* (which observation would also apply to a relative form), nor can there be a question of the archaizing use of *n* for *nn* if, as has become widely accepted, the construction is a form of the *n sḏm.n.f* negation of ability. This prognosis is taken as the variant of the *n sḏm.n.f* with the formative with impersonal subject *ny* by Allen (*ME*, sec. 18.5, pp. 227–28), Westendorf (*GMT*, 177–78, sec. 245) and von Deines and Westendorf in the dictionary of the medical texts.[28] The ending *w* does not find a facile explanation however; Westendorf notes the possibility that it represents the weak radical of the 3ae inf. verb, but acknowledges that this does not have apparent parallels in Smith. I am inclined to accept it nonetheless, in light of the "abnormal" form *dy.n.ỉ* and the writing *ỉỉw.n.ỉ* with the base of the verb *ỉỉ*, that is, the reedleaf with legs (Gardiner, *EG*[3], sec. 413). I am open to a clearer and more solidly substantiated identification but have not yet found it. The translation adopted here, "a medical condition) that cannot be handled/dealth with," takes the verb *ỉrỉ* itself in the same sense as the positive prognosis *ỉry.ỉ*.

Another principle to which I have tried very hard to adhere in this translation is *lectio dificilior* ("the more difficult reading"). This principle holds that of two or more textual witnesses, the one that presents most difficulty is likely to be the correct or original text because it is more probable that simpler readings have been "dumbed down" or simplified to gloss over difficulties. (This consideration is very pertinent in Egyptian textual studies, where literary texts often survive in schoolboy copies.) Similarly, with only one witness as in Edwin Smith, emendation of a text is considered a last resort and usually a way of evading difficulties rather than trying to explain them. Only under great duress have I departed from this guiding principle of textual study. I have only accepted emendations when they are amply supported by precedents and parallels, whenever possible, forms that occur numerous times in the text, such as *sḏm.<ỉ>n.f* alongside similar passages in which the reedleaf in *sḏm.ỉn.f* is written. This includes arriving at separate readings for two passages that are often emended to bring them in line with each other, when individual viable readings are possible and a sensible meaning can be arrived at for the text as it stands. My teachers, expecially Klaus Baer and Donald Redford, emphasized the importance of *lectio dificilior* and I remember clearly my colleague Jim Sanders at The Claremont Graduate School saying "respect the text, respect the text, respect the text."

In line with this last, it has of course been ever present in our minds throughout this project that the papyrus is written in hieratic, which we transcribe into hieroglyphs as an Egyptological expedient.[29] Hieratic is a more fluid and flexible, and, one might say, spontaneous script than hieroglyphs. Recently I have entered into communication with Dr. Angela McDonald of Glasgow, and she has sent me one conference presentation and two articles prominently featuring the use of hieratic,[30] along with additional reflections and observations.

27. *Studies in the Nominal Sentence in Egyptian and Coptic* (Berkeley and Los Angeles: University of California Press, 1984), 115–203.

28. *Wörterbuch der Medizinischen Texte*. Grundriss der Medizin der alten Ägypter 7/1 (Berlin: Akademie, 1961–62), 94.

29. On the place of hieroglyphs and hieratic in ancient Egyptian literacy and the Egyptological construct of Egyptian language studies, see E. Meltzer, "Hieratic Is Beautiful: Ancient Egyptian Calligraphy Revisited," in *Writing Systems and Cognition* (ed. W. C. Watt; Dordrecht: Kluwer, 1994), 293–301.

30. "Writing as a Weapon in Letters to the Dead," presented at the British Egyptological Conference at the British Museum; "A Metaphor for Troubled Times: The Evolution of the Seth Deity Determinative in the First Intermediate Period," *ZÄS* 134 (2007): 26–39;

I thank Dr. McDonald for her collegiality and generosity. Her work pays detailed attention to the forms of hieratic determinatives that have "automatically" been transcribed a standardized way in most dictionaries and editions of texts, and finds that subtle distinctions and variations relevant to the meaning are present. Thus for instance she writes, "Evidently alongside the giraffe, the cat, the dog, the jackal (in the Coffin Texts only), and the Seth animal may all act as determinatives of *sr*, each perspectivising the meaning of the word in different ways." ("Curiosity of the Cat," 375). Again, "However, the other contexts in which Sethian words are used draw out an additional nuance of their determinative …" ("A Metaphor for Troubled Times," 30). We think that Dr. McDonald's observations are applicable to the use of hieratic determinatives in P. Edwin Smith, such as the flesh or discharging lips determinative on *wbnw* "wound" and the knife spouting or dripping blood on the word *kft*, although the attempt to translate graphic variants consistently on the basis of the dterminative did not ultimately hold up with sufficient rigor, since for instance the word *wbnw* "wound" referring to the selfsame wound might appear with different determinatives in adjacent or proximate lines of the same case, or in writings of the title of the same ancient medical book that is being cited.

The scribe of the present copy is of course not the author. As all have recognized from the beginning of the truly modern study of this document, the Edwin Smith Papyrus is a copy of an older original. How much older has been debated. We support a date in the range from the end of the Old Kingdom to the early Middle Kingdom, or very roughly ca. 2200–2000 BC. The earlier enthusiastic ascriptions of the work to the Old Kingdom or even to Imhotep himself have been abandoned (though some continue to maintain them; see, e.g., el-Kinawy cited by McDonald in the quote in the following paragraph). There are, however, words and remedies that certainly go back that far, a conspicuous example being *imrw* "Alum(?)," sometimes written with the Old Kingdom value of the *mi* sign as *mr* + the phonetic complement *r*, as was already noted by Breasted. It should be emphasized, though, that not all of the criteria for "archaism" cited by Breasted hold up today. The omission of the preposition *m* is *not* an archaism but rather a Late Egyptianism as described by B. Kroeber.[31]

One statement of McDonald relates to the Seth-animal determinative and the proposed date of a putative *Urtext* or *Vorlage* of the extant papyrus, dovetailing with our own perspective that the original text from which Edwin Smith was copied dates to the First Intermediate Period ("A Metaphor for Troubled Times," 29 n. 14):

> It is generally acknowledged that P. Edwin Smith goes back to an older original manuscript. Breasted's suggestion of an Old Kingdom date (1930, xiii) continues to be cited (e.g., el-Kinawy 2003, 47), and the use of the Seth deity determinative supports a date between the Old Kingdom and early Middle Kingdom.

I concur with the dating of P. Edwin Smith in the Second Intermediate Period or the period covered by the Hyksos and the Theban Seventeenth Dynasty as proposed by Breasted and Allen; Grapow (*Grundriss* 2:88–89) prefers the very end of that range, stating that both Smith and Ebers (which he considers "brother" manuscripts) were written down ca. 1550 BC, and that it is trivial whether, as Breasted opined, Smith is somewhat older than Ebers. Palaeographically, the hand of Smith has many similarities with Ebers, Westcar, and the Rhind Mathematical Papyrus. While there are many broad similarities among hieratic hands of the Twelfth Dynasty through the beginning of the Eighteenth, the preponderance of forms in Smith concentrate in the last part of this continuum. For what it may be worth, I tend to agree with Breasted that Smith is a little earlier than Ebers. It should be noted however that one of the variables in palaeographical dating is the overlapping careers of scribes who wrote at the

"The Curiosity of the Cat in Hieroglyphs," in D. Magee et al., eds., *Sitting Beside Lepsius: Studies in Honour of Jaromir Malek at the Griffith Institute* (Leuven-Paris-Walpole MA: Peeters/Departement Oosterse Studies, 2009), 361–79.

31. Die Neuägyptizismen vor der Amarnazeit (PhD dissertation, Tübingen, 1970), 46–47, citing *GMT*, sec. 340.1 for examples in both Smith and Ebers. For earlier instances of fluctuation and irregularity involving m, see E. Meltzer, "The 'Misplaced Letter to the Dead,' and a Stela, Found Again," paper presented at the annual meeting of the American Research Center in Egypt, Seattle, 2008.

CASE	TITLE	DIAGNOSIS	EXPLANATIONS
1	+		+
2	+		+
3	+	+	+
4	+	+	++
5	+	+	
6	+		++
7	+	++	All
8	+	2nd	All
9	+	+	
10	+	+	+
11	+	+	All
12	+	+	All
13	+	+	
14	+	+	
15	+	+	
16	+	+	
17	+	+	
18	+	+	
19	+	+	+
20	+	+	
21	+	+	
22	+	+	+++
23	+	+	
24	+	+	
25	+	+	
26	+	+	+
27	+	+	
28	+	+	
29	+	+	
30	=	+	+
31	+	+	+
32	+	+	+
33	+	+	++
34	+	+	+
35	+	+	
36	+	+	
37	+	+	++
38	+	+	
39	+	+	+
40	+	+	+
41	+	+	All 5
42	+	+	+
43	+	+	+++
44	+	+	
45	+	+	++
46	+	+	+
47	+	++	+
48	+	+	

Table 1: Rubrications in the Edwin Smith Papyrus signal what the author and/or the scribe considered the most important segments in a given Case. All titles starting in black had a preceding phrase in red color.

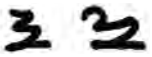
same time but were educated earlier or later than their colleagues; thus an older scribe can write an "older" hand while a younger contemporary can write a "later" hand.[32] Therefore this question may not be able to be solved with certainty, though I for one would hesitate to consider it "*unerheblich*" as does Grapow.

One feature of the hieratic hand of P. Edwin Smith, which it shares with other texts of the time continuum referred to above, is the use of a more uncial, if we may use that word, and a more cursive variant of the same sign or group.[33] (I do not designate the forms as more literary and more epistolary or documentary, because the cursive forms occur alongside the less reduced forms in literary texts such as Sinuhe.) Several of the prominent examples of this phenomenon are:

M  and less frequently 

P , etc., the more cursive , and once the very cursive 

Y (double reedleaf) normally , etc., rarely 

Mn with phonetic complement  alongside the more cursive 

ḥr (face with stroke)  and

The scribe makes errors that, in a number of cases, he corrects himself, but is, on the whole, an adequately proficient scribe who writes in a good legible hand. There is at least one case in which the scribe seems to confuse a word in taking dictation, writing *iʿi* "wash" instead of **ʿi* "ascend, extend" (Case #40), an error very difficult to explain on the basis of copying a written text.

One last aspect of the scribe's practice needs to be addressed, namely, the use of rubrics or sections in red ink, a feature of many Egyptian papyri. Breasted characterizes this by saying, "the scribe of the Edwin Smith Papyrus employs very plentiful rubrics, so plentiful indeed that his discussion of a case may conclude with a remark in red, obliging the scribe to begin the next case in black in order to secure his desired contrast." He also remarks that when the scribe corrects his own errors, "in almost all cases he has detected these errors and has made his corrections in red ink over black, and in black ink over red" (1:29). Allen parallels Breasted's observation: "Each case begins with a title, usually written in red ink except where the final words in the previous case were in red" (70).

Kilgour made an attempt to define the overall pattern of the scribe's use of rubrics in an article most noteworthy for its extremely negative characterization of Edwin Smith himself (see below).[34] After some remarks on the use of rubrics in other Egyptian texts, Kilgour maintains that the alternation of red and black is a way of "indexing" so as to retrieve information, summarizing that "the use of red ink for titles and diagnoses in surgical cases, aided by a natural and logical arrangement of the cases, facilitated finding information in" the Edwin Smith Papyrus.[35] He states that "the beginning of Case 21 … is out of sequence because the scribe mistakenly wrote the last three-quarters of the treatment in red."[36] We feel that this is very problematic and that, in keeping with the text-critical principle of *lectio dificilior*, we should start with the presumption that the scribe knew what he was doing and had a reason for writing that passage in red, rather than assume that he was in error because

32. See Meltzer, "Misplaced Letter to the Dead"; cf. R. A. Parker, *A Saite Oracle Papyrus from Thebes* (Brown Egyptological Studies 4; Providence: Brown University Press, 1962), 14.

33. See G. Möller, *Hieratische Paläographie* I (Leipzig: Hinrichs, 1927), passim.

34. "Locating Information in an Egyptian Text of the 17th Century B.C.," *Journal of the American Society for Information Science* 44 (1993): 292–97.

35. Ibid., 296.

36. Ibid.

of our own expectations. (In addition, we do not think it is accurate to describe the cases as "surgical cases.") In studying the use of rubrication in the papyrus, we have made a chart that is given here on p. 13 above, showing the occurrence of rubrics (as distinct from corrections of individual signs and words), which we think does much to clarify the overall picture. In our best judgment, the occurrence of rubricized passages indicates the most important segments of a given case, with the proviso that if the end of a case is in red, the title of the next one will be in black. This one adjustment leaves the overall purpose of rubrication intact, that is, the setting off of what were considered the most important segments in red.

The copying of this text in the Second Intermediate/Hyksos period testifies to this period as a time of literary and scribal activity and preservation/proliferation of significant Egyptian cultural documents under Hyksos rule; note the emphasis on Egyptian scribal expertise and literary knowledge by the Hyksos king Apophis described on the scribal palette of Atju.[37] Another prominent example of a period of foreign rule marked by indigenous textual productivity and emphasis on the indigenous textual legacy is the Kassite period in Babylonia.[38]

A vital part of our methodological foundation and of the working method that we have adopted is the relationship between the Egyptological/philological and the medical components of this endeavor. The Egyptological and medical aspects have had a reciprocal and interactive relationship in arriving at the present translation. In each of the forty-eight cases, a preliminary, but in our opinion sound, translation was given to Dr. Sanchez, who interpreted the results clinically and wrote the detailed and comprehensive medical commentaries, and who responded to the translations with queries regarding the clinical corollaries and implications of both lexical and grammatical issues, and the medical consequences of different possible translations of a given passage. In light of all of our work, we can venture a basic reflection. The sophistication of the medical descriptions, diagnoses, prognoses, and prescriptions in this text, explored and explained in great detail by Dr. Sanchez, make us confident in considering the author a "master physician" and "master teacher." The master physician is not intimidated even by very serious symptoms but is guided by a body of precedent as well as experience in assessing the response of different injuries to a wide variety of treatments. The master physician writes in systematic formulations in balanced, elegant, and well-thought-out prose; the master physician is a consummate professional. The master physician cites and quotes earlier medical treatises and explains concepts and phraseology in a manner understandable to his students. This is not some slapdash hastily conceived or executed compilation. This is an impressive display of expertise of which any practitioner could be proud.

In the notes to the translation, we have tried to include those points that indicate why we are translating the text a particular way, and we have tried to convey some of the process of weighing alternatives and the criteria that we have regarded as important in opting for a particular translation. We have included notes that we hope will be helpful to the student who has not previously tackled this type of text. We hope that we have succeeded not only (at least for the most part) in justifying our proposed translations, but in communicating to the Egyptological and non-Egyptological reader alike something of the challenge and excitement and dynamic nature of the translation process as we have experienced it, the interaction with both grammatical structure and medical content, and moreover the interaction with an ancient author who was both a highly skilled and knowledgeable physician and an extremely articulate and intelligent human being.

One point needs to be clarified in the presentation of any new translation of the Edwin Smith Papyrus or indeed any Egyptian text, especially for the non-Egyptological reader. Of course we have undertaken the present work because we think that there are improvements large and small that can be ventured over the work of previous translators and commentators. As already remarked, we are not so overweening as to expect the present

37. D. B. Redford, *Egypt, Canaan, and Israel in Ancient Times* (Princeton: Princeton University Press, 1992), 122; idem, *Pharaonic King Lists, Annals, and Day-Books* (Mississauga: Benben, 1986), 163 and n. 171; H. Goedicke, "The Scribal Palette of Athu (Berlin Inv. Nr. 7798)," *Chronique d'Égypte* 63 (1988): 42–56.

38. See, e.g., Gwendolyn Leick, *The Babylonians: An Introduction* (New York: Routledge 2003), 46, 49–51.

effort to end debate. At the same time, it will be evident and is inevitable that the overlap with the efforts of previous translators is considerable. Egyptian is after all a known language, thanks to generations of pioneering scholars (on whom more below). While there is room for innovation and debate in both grammar and lexicon, the options for translating a given expression are often limited. Most Egyptologists will come up with the same basic text (which is indeed a test of whether a language has been deciphered, and was an early test to confirm the decipherment of Akkadian), as is apparent in comparing the major anthologies of literary and historical texts. Having said that, we reiterate that the potential progress offered by another comprehensive examination of the Edwin Smith Papyrus's medical cases was more than sufficient to justify our undertaking the present work, and we hope that the medical and Egyptological reader will agree.

Edwin Smith and His Contribution

While the Civil War was raging in North America, a conflict in which, with grim irony, unprecedented demands were placed on battlefield surgeons in the treatment of catastrophic wounds, one American, Edwin Smith, who had been living in Egypt since 1858, purchased the papyrus that is the subject of this volume (in January 1862 to be precise). He acquired the document from the well -known dealer and consular agent Mustafa Aga (Ayat), whose name is probably more widely associated with the events surrounding the discovery of the Deir el-Bahri cache of royal mummies. In his edition, Breasted gives a very detailed account of the history of the papyrus, which had to be reconstituted from a composite "papyrus" glued together by the dealer, an extremely patient and painstaking endeavor on Smith's part. Breasted also presents a detailed narrative of many of the events and accomplishments associated with Smith himself, who had studied Egyptology and had what was for his time an expert knowledge of the Egyptian language, and most notably an outstanding proficiency in the hieratic script. Smith was the first to read and communicate to the Egyptological community important hieratic texts including the correct reading of the date of the Ebers Calendar. This leads to one circumstance that has occasioned some confusion, that the larger medical papyrus subsequently acquired by Georg Ebers and known as Papyrus Ebers was in the keeping of Smith before Ebers acquired it, and it had become widely known and referred to by Egyptologists as "Papyrus Smith." This also led to some acrimony and aspersions cast on Smith's reputation, which has come down to our time significantly flawed in the major sources of Egyptological reportage. This is the nature of Barbara Mertz's account, which includes the very backhanded compliment, "Like many of his fellow 'adventurers,' he was no simpleminded crook."[39] Mertz concurs in Breasted's admiration of Smith's linguistic attainments. Her account largely converges with that of John Wilson, who also calls the purchaser of the renowned papyrus an "adventurer."[40] Wilson calls Smith "An equivocal figure," while admitting that "He was a good decipherer of hieratic." Wilson's substantial section on Smith includes shady aspects of his life and career (leaving his family in America, moneylending, involvement with forged antiquities). Wilson further draws attention to idiosyncratic ideas that Smith developed about the analysis of Egyptian words and takes a rather dismissive tone. The ideas may have been wrong, but we should not forget that Egyptian philology was in a more exploratory state at that time. (Also, to the language expertise of Smith's correspondent C. W. Goodwin, Wilson should add Chinese.) While Wilson is critical, presenting Smith "warts and all" as it were, F. G. Kilgour has drawn up what is to all intents and purposes a bill of indictment against Smith in an article ostensibly devoted to the organization and color-coding of information in the Smith Papyrus and other Egyptian texts.[41] In the information structure of the article itself, the biographical section on Smith is more a digression or distraction than anything else and is

39. *Red Land, Black Land: Daily Life in Ancient Egypt* (2nd ed.; New York: Morrow, 2008), 250.
40. *Signs and Wonders upon Pharaoh* (Chicago: University of Chicago, 1964), 52–57, 230.
41. "Locating Information in an Egyptian Text," 292–97.

scarcely relevant to the author's alleged theme. It might have been relevant to point out that Smith succeeded in understanding the sequence and information structure of the papyrus well enough to reconstitute it correctly from the composite collage in which it had been mounted. Kilgour states flatly that "Smith was a born loser"[42] and leaves no stone unturned that would reveal anything discreditable, some of which he seems to narrate with relish. He quotes the last part of Breasted's paragraph, which we cite below, affirming Smith's extraordinary level of understanding of the text, as well as a published reference to Smith's identification of a name on a seal in the Abbott collection with one in a hieratic papyrus[43] and a statement of Deveria that Smith was devoting himself to the translation of the papyrus,[44] but he quotes this all in an *en passant* fashion; he has nothing to add about Smith's scholarly achievements or contributions to Egyptology and essentially glosses over them, seeming to be in a hurry to proceed to the "dirt." He does not seem to entertain the possibility that a person capable of making Smith's contributions to Egyptian studies might not have been such a total loser after all. When at length Kilgour writes that "poor Smith gained his just renown" posthumously with the revelation to the world of the remarkable contents of the papyrus,[45] he does not suggest that Smith himself really did anything to earn that renown and refers only to the work of scholars who studied the papyrus in the twentieth century. To focus on the positive, which we think is substantial enough to justify an appreciative view of Smith's legacy, the letters that he wrote to C. W. Goodwin, mentioned by Breasted, Wilson, and Kilgour, are included in Warren R. Dawson's biography of Goodwin[46] and include Smith's solutions of difficult hieratic forms. Kilgour cites Dawson's work on Goodwin[47] but quotes the letters only insofar as they show Smith in a discreditable light. Also, Breasted's assessment of Smith's surviving notes on the papyrus to which both of them devoted so much labor, already mentioned above, should carry weight (*Edwin Smith*, 21):

> Among Mr. Smith's meager papers handed to me by the New York Historical Society I find a manuscript containing a remarkable attempt by Mr. Smith at a complete translation of the papyrus…. When we recall how scanty was the knowledge of hieratic in the sixties of the last century, when this effort at a translation was written out, not to mention also the very limited knowledge of the Egyptian language itself …, it is extraordinary how much of the document Mr. Smith has understood.

We are very pleased to be able to announce in this publication that our inquiries have succeeded in locating the elusive Smith manuscript in the files of the New York Historical Society at the Brooklyn Museum, in the form of photostats of thirteen handwritten pages. We tender our grateful thanks to Dr. Edward H. Bleiberg, Curator, Egyptian, Classical, Ancient Near Eastern Art, for cheerfully granting permission to publish it, to Ms. Kathy Zurek-Doule for sending us images of the photostats as well as inverted positive exposures which are far more legible, and to Librarian Sandy Wallace and Graduate Intern Jessica Popkin, all of whom have distinguished themselves by their extremely collegial cooperation and helpfulness. The entire manuscript is illustrated and transcribed with a brief introduction in an appendix to the present work. A truly in-depth understanding will, however, require a far more extensive commentary, which the authors plan to provide in a separate publication. Even at first blush, we are impressed by the accuracy which Smith was able to achieve in some of his translation, the rigorous and methodical nature of his approach and use of terminology, and the striking perceptiveness of his intuitions. Of course his work would have been entirely impossible without his fluency in the reading of hieratic.

42. Ibid., 292.
43. Ibid.
44. Ibid., 292–93.
45. Ibid., 293.
46. *Charles Wycliffe Goodwin, 1817–1878: A Pioneer in Egyptology* (Oxford: Oxford University Press, 1934).
47. "Locating Information in an Egyptian Text," 292–93.

Speaking of the British Egyptologist Samuel Birch, T. G. H. James notes the rudimentary state of the study of hieratic in that era of Egyptology.[48] Muller quotes James:

> One of the most remarkable things about his early work is that he began to study hieratic papyri, notes James … "In 1841, the first hieratic papyri were published with 'very succinct' notes provided by Birch. James notes that 'it was still difficult to decipher these texts, but he made a pretty good shot at determining the nature of their contents.'"

It is remarkable that about twenty years later, Smith was able to do so much more, decades before the availability of any such reference tools as Georg Möller's *Hieratische Paläographie*.

Edwin Smith apparently never published anything in his own lifetime. In this he resembled his fellow pioneer, the far more lauded and lionized Charles Edwin Wilbour (who, it can be remembered, also had a checkered past). The authors think that it is more than a little unfair that Wilbour has a library and a professorship named after him as well as a papyrus and that he is generally regarded as one of the gods or at least patriarchs of early Egyptology, while Edwin Smith only has a papyrus and is remembered, if at all, in very mixed or somewhat negative terms. The full recognition of Edwin Smith's contribution to the study of the papyrus that bears his name, and of his contribution to the progress of Egyptology, is necessary if he is to be restored to his rightful place in the annals of Egyptian philology. As W. H. Auden wrote in his elegy "In Memory of W. B. Yeats,"

> Time that is intolerant
> Of the brave and innocent …
> Worships language and forgives
> Everyone by whom it lives.

Let that be his epitaph, and let this new edition of his papyrus and the long overdue publication of his own manuscript be a tribute to his memory.[49]

48. K. Muller, "Samuel Birch, the Discreet Pioneer Egyptologist," *The Egyptological Seminar News* 3 (1998) 3–4.

49. These lines are part of the original 1939 version but omitted in 1966 and later editions of Auden's shorter collected works: http://www.norton.com/college/english/nap/In_Memory_of_W_Yeats_Auden.htm#poem.

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