Ancient Egyptian Medicine: A Systematic Review

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Abstract

Our present day knowledge in the area of medicine in Ancient Egypt has been severally sourced from medical papyri several of which have been deduced and analyzed by different scholars. For educational purposes it is always imperative to consult different literature or sources in the teaching of ancient Egypt and medicine in particular. To avoid subjectivity the author has found the need to re-engage the efforts made by several scholars in adducing evidences from medical papyri. In the quest to re-engage the efforts of earlier writers and commentaries on the medical papyri, we are afforded the opportunity to be informed about the need to ask further questions to enable us to construct or reconstruct both past and modern views on ancient Egyptian medical knowledge. It is this vocation the author sought to pursue in the interim, through a preliminary review, to highlight, comment and reinvigorate in the reader or researcher the need for a continuous engagement of some pertinent documentary sources on Ancient Egyptian medical knowledge for educational and research purposes. The study is based on qualitative review of published literature. The selection of those articles as sources was based on the focus of the review, in order to purposively select and comment on articles that were published based either on information from a medical papyrus or focused on medical specialization among the ancient Egyptians as well as ancient Egyptian knowledge on diseases and medicine. It was found that the Egyptians developed relatively sophisticated medical practices covering significant medical fields such as herbal medicine, gynecology and obstetrics, anatomy and physiology, mummification and even the preliminary form of surgery. These practices, perhaps, were developed as remedies for the prevailing diseases and the accidents that might have occurred during the construction of their giant pyramids. It must be stated that they were not without flaws. Also, the key issues raised from these literatures are but a few among the Egyptian medical corpus across the academic and publishing world. It should therefore afford researchers, students and readers the opportunity to continue the educational dialogue on the medical practices of the Ancient Egyptians.

Keywords: *Ancient Egyptian Medicine, Herbal Medicine, medical profession, mummification, surgery, Diseases.*

Introduction

In an attempt to trace the origins of Ancient Egyptian medical practices for educational purposes, there have been various significant publications on the subject under review. Egyptian medical papyri, which comprises information recorded on the various aspects of ancient Egyptian medicine, remains the most relevant source of information for these publications. Salient among the various medical papyri are the Edwin Smith Surgical Papyrus, the Ebers Papyrus on ophthalmology, diseases of the digestive system, the head, the skin and specific diseases. Others include Kahun gynecological papyrus, the Berlin medical Papyrus, the London medical Papyrus, and the Hearst medical Papyrus (it resumes many of the recipes found in the Ebers papyrus). Herbal medicine, gynecology and obstetrics, mummification and even surgery are the primary medical themes captured in these documents. Very essential arguments have been raised to prove that ancient Egyptians Civilization had developed a complex and specialized medical profession earlier on in its history and that Ancient Egypt (as a cradle of civilization) was not exclusively characterized by the construction of giant pyramids but as an epitome of medical knowledge which had a profound impact on Greek medicine and subsequently spread worldwide. It is therefore pertinent to do an analytical review of some striking issues raised in a number of relevant publications pertaining to the medical knowledge of ancient Egypt.

Methodology

This article is a systematic review of some pertinent literature on ancient Egyptian medicine for educational purposes. All documents used are based on secondary sources. They include works of N. H. Abeolsoud's herbal medicine in Ancient Egypt (2010), J. F. Nunn's "Ancient Egyptian Medicine" (1996), J. F. Nunn and Tapp E's Tropical Diseases in Ancient Egypt (2000), and G. Rawlison *et. al.* "The History of Herodotus" (1861). The others include Robert Ritner's "Innovations and adaptations in Egypt" (2000), Ahmed Shafik and Waseem R. Elseesy's "Medicine in Ancient Egypt" (2003) as well as the work of Richard Sullivan on "The Identitiy and Work of Ancient Egyptian Surgeon" (1996).

Oumeish Youseff Oumeish's work on the "Philosophical, Cultural and the Historical Aspects of Complementary, Alternative, Unconventional and Integrative Medicine in the Old World" (2012) was useful. Of equal importance is the article of B. V. Subbarayappa on "The Roots of Ancient Medicine: An Historical Outline" (2001). Of prime importance is the work of Abelle Vinel and Jacques Pialoux on Ancient Egyptian Medicine and Traditional Chinese Medicine.

These secondary sources have been analyzed to bring to light relevant information for educational purposes; to further enlighten the student of history of science and medicine as well as for the appreciation of some level of continuity and change in both old-time and newer medicine.

Discussions

The review that follows has paid attention to the works of Aboelsoud N. H, "Herbal medicine in Ancient Egypt", Sullivan Richard, "The Identity and Work of the Ancient Egyptian surgeon", Nunn John F., Ancient Egyptian Medicine, and Rawlison G., The History of Herodotus in "The Identity and Work of the Ancient Egyptian surgeon". The others include Richard Sullivan and Ritner Robert's "Innovations and Adaptations in Egypt".

In the article entitled, "The Philosophical, Cultural, and Historical Aspect of Complementary, Alternative, Unconventional and Integrative Medicine in the Old World", Oumeish identified that the old Egyptian medicine was the oldest and dates back to 4 500 BC. According to him, the Egyptians were the first to perform surgery on the human body. To him, the Egyptians were experts in embalming, using of aromatics and herds to preserve flesh for thousands of years and also the using of infusions to extract oils from aromatic plants.[1]

Also, B. V. Subbarayappa in his article, "The roots of ancient medicine", further argues that the Egyptian medicine had two dimensions. The first one was theurgic and the other was the actual practices of the physician. In the first dimension the priest-magicians were largely involved in the in offering magical cures and charms in temples. In the second dimension, ordinary priests employed some natural curative measures, mostly plants. It was also believed that there were thirty-six gods of the atmosphere and thirty-six demons, and conceptually the human body was divided into many parts. If a part of the body was affected, that particular demon had to be invoked for his cure.[2]

N. H. Aboelsoud identified Herbal medicine as one of the major complimentary medicine modalities that originated in Ancient Egypt. To him, much of Egyptian medicine relied on experimentation and observation augmented by magic. He further suggested that they made extensive use of herbs and spices

[1] Oumeish Youssef Oumeish, "The Philosopical, Cultural, and Historical Aspects of Complementary, Alternative, Unconventional, and Integrative Medicine in the Old World," *Arch Dematol* 134 (1998).

[2] B. V. Subbarayappa, "The roots of ancient medicine: an historical outline," *Journal of Bioscience* 26(2) (2001), 135-143.

(both indigenous and imported) such as garlic, onion, frankincense, mandrake and other food such as honey, fresh meat and breast milk for medicinal purposes.[3] For instance, fresh garlic cloves were peeled, mashed and macerated in a mixture of vinegar and water. This was gargled and used to rinse the mouth or taken internally to treat sore throat and toothache. Again it was also mixed with olive oil, also effective for bronchial and lung complaints including colds.

In as much as he provided a catalogue of medical prescription that was deemed to be effective, some of the prescriptions must be reconsidered due to the "trial and error" circumstances that prevailed at the time. For instance, when it comes to the treatment of opened wounds and cuts with fresh meat and animal dung, I beg to differ on the efficacy of such a prescription considering the severe health implications involved. This treatment may end up introducing bacteria and other infections into the body. A more fascinating point to note in this paper has to do with the Ancient Egyptian own sort of quality control test where the efficacy of medical prescriptions were determined by its ability to cure a reputable figure at the time. Some drugs were accepted based on the belief that they were made by the Sun god- Ra' who is said to have suffered from diseases in his old age. However, it can be deduced that the Ancient Egyptians laid the foundation for natural healings by the use of Natural herbs and magical incantations.

Further arguments raised by Sullivan Richard which suggests that there was a well-developed and hierarchical medical profession in Pharaonic Egypt, where even the earliest form of surgery was practiced. This conclusion was safely reached using both evidence from Palaeo archaeological specimens (paleo-pathological evidence) that demonstrate some forms of surgical procedures were carried out and the information on the likely names of the surgeon mentioned in Edwin Smith Surgical papyrus. Linguistic evidence manifested in the existence of various hieroglyphic and hieratic terminologies which were used in reference to the profession of the surgeon also confirms this proposition. From these Egyptian texts, the lay physician was known as the *"Swnw" or "Sinw"* whiles *"wpy"* which literally means the opener of the body probably referred to the Surgeon.[4]

Again, it has also been pointed out that anatomical knowledge was associated with skillful embalmers who had the opportunity of surgically removing delicate human parts that may decompose rapidly during the mummification

[3] Neveen H. Aboelsoud, "Herbal medicine in Ancient Egypt," *Journal of Medicinal Plants Research* 4 (2), 2010, 82-86.

[4] Richard Sullivan, "The Identity and Work of the Ancient Egyptian surgeon," *Journal of the Royal Society of Medicine* 89 (1996), 467-473.

process. According to B. V. Subbarayappa embalming of a dead body was an accomplished art.[5] However, it has also been noticed that anatomical knowledge was limited and based partly on the socio-cultural beliefs that forbade making incisions on the human body and partly on the fact that no systematic Egyptian work on anatomy has survived, making it difficult to believe that there was any serious study of anatomy at the beginning of the third millennium B.C. It is almost certain that no appropriate climate of enquiry existed at that time. However, the anatomical insight shown for certain parts of the body in some of the medical papyri, especially the Edwin Smith strongly supports the view that there had been quite detailed study of anatomy at an early date and a treatise on anatomy might exist. A closely related theme to the anatomical knowledge is human dissection and vivisection. According to J. F. Nunn, in his book, "Ancient Egyptian Medicine", there is no evidence to show that human dissection was undertaken in Egypt until Herophilus, the Greek physician from Chalcedon, worked at the Alexandrian medical school in the early Ptolemaic period.[6] His works have not survived but there is ample reference by Celsus, Galen and others to show that he enjoyed unrestricted access to human cadavers for dissection and even the possibilities of vivisection on condemned but living criminals. Perhaps, respect for the dead would have prevented this under the Egyptian Pharaohs and also in Greece itself. After Herophilus, human dissection ceased. It is significant to state that in spite of the socio-cultural ramifications placed on the Egyptian physician concerning dissection he might have had the opportunity to observe the human skeleton. The Egyptians are known to have identified and named some important bones such as the collar bones except the skull. Significantly, battle casualties and serious industrial injuries provided an opportunity for the Egyptians to gain further anatomical insights. Sections of the Edwin Smith Papyrus, suggest that such opportunities were not wasted.

These controversies have been extended over the issue of the existence of specializations especially surgery. Herodotus noted on his visit to Egypt during the 5th century BC Persian occupation that:

> *Medicine is practiced among them on a plan of separation; each physician treats a single disorder and no more…*[7]

[5] Subbarayappa, "The roots of ancient medicine", 135.

[6] John F. Nunn, *Ancient Egyptian Medicine* (London: British Museum Press, 1996).

[7] George Rawlinson, Henry Creswicke and John Gardner Wilkinson, *The history of Herodotus*, vol. 1 (Murray, 1861).

Indeed, this is a clear indication that the Ancient Egyptian medical practice was characterized by specialization. According to Sullivan, perhaps surgery was indeed a separate practice but was practiced in relative secrecy due to the prevailing social or religious taboos which forbade making incisions into the human body. Moreover, the discovery of tools supposed to be used for surgical procedures and the existence of adequate linguistic evidence of surgical terminologies.

Also according to B. V. Subarayappa each physician was expected to be a specialist in curing only one disease. For instance there were specialists like dentists, bonesetters, occultists, etc.[8] Abelle and Jacques further add that the treatments of diseases were according to fixed written percepts, transmitted by a great number of famous doctors. If when following the percepts of the sacred book, they do not succeed in saving the patient, they are declared innocent and exempted from all reproach but if they act contrary to the written percepts they may be accused and condemned to death.[9]

Another essential theme worth considering when examining Ancient Egyptian medicine has to do with the conservative nature of the Egyptian culture. This had a direct bearing on how the people perceived innovations and adaptations. Robert K Ritner, in the article captioned, "Innovations and Adaptations in Ancient Egypt", described Ancient Egypt as a quintessentially conservative culture dedicated to the preservation of traditional concepts and techniques scrupulously maintained through the centuries with little or no modification. To a large extent, the isolated geographical position (natural frontiers) of the land also enhanced this conservative notion of the Egyptian culture. During the Ptolemaic era, the Greek historian, Diodorus Siculus was said to have recorded legislative penalties prescribed for methodological innovation by state-supported physicians in the army.[10] These sanctions portray the high level of austerity the ancient Egyptians attached to their modus operandi and were not in the position to embrace any form of progress and change.

In Egypt, on theoretical level, "Progress" was neither desirable nor necessary. Situations, individuals, and techniques were said to be improved, but such improvement was almost invariably termed as "re-creation" of prior

[8] Subbarayappa, "The roots of ancient medicine," 135.

[9] Abelle Vinel and Jacques Pialoux, "Ancient Egyptian Medicine and Traditional Chinese Medicine," R.E.S.F Congress, Aix-en-Provence, 31 October 2005.

[10] Robert Ritner, "Innovations and Adaptations in Egypt," *Journal of Near Eastern Studies* 59, 2 (2000), 107-117.

favorable conditions. However, Ritner further argues that the Egyptian conservatism should not be misconstrued as resistance to new or different ideas but recognized instead as reluctance to discard completely society's much praised older conceptions. In view of this, it behooves us to discuss some of the cultural transmissions and transfers that took place in Ancient Egypt. For instance, the Egyptians were said to have established external contacts with the Levant since the Pre-dynastic era. Such contacts culminated in the incorporation of seven incantations in foreign languages transcribed into syllabic Egyptian script (London Medical Papyrus). Eventually these prescriptions became part and parcel of Egyptian legitimate remedies among several other examples. Additionally, medicines were dispatched with Egyptian doctors to heal the Hittite King's eyes, to dislodge a possessing demon, and to provide the king's vassals "with all sorts of prescriptions". As Ramses wrote:

> *They will bring to you all the very good remedies which are here in Egypt, and which I allowed in friendly fashion to go to you in order to help you.*

A further possible transmission is suggested by the common Egyptian recommendation that plant and mineral mixtures be exposed to the dewdrops overnight. Just like Medieval Europeans, the Egyptians believed that moist air was associated with plague, and nighttime exposure to this force must have been thought to strengthen the medicine. Interestingly, Mesopotamian medicine also advises night-time exposure of medicines, but while the Egyptians practice was common as 1550 B.C., Akkadian references are first attested only in the fourteenth century BC and precisely from trading colonies at the Hittite court. Whichever way the interest might have gone, it seems likely that a foreign practice has been adapted for local theory based on humid air and astrology. The Greeks are said to have borrowed the basic Ancient Egyptian medical knowledge of *wekhedu* (the notion of bodily waste) and the use of enemas was adopted by Greeks resident in Alexandria. Even the pre-Alexandrian Hippocratic corpus displays obvious Egyptian influence, with birth prognoses long recognized as adaptations from pregnancy tests in the Kahun, Berlin and the Carlsberg Papyri. Some Egyptian medical terminology was adopted quite literally into Greek, as is the case with the headache term "half-head" translated as hemikrania (modern "migraine"). Among the numerous significant contributions of ancient Egyptian medicine to classical medicine, the drug therapy is the most important. The symbol for prescription *"Rx"* is said to have been derived from the Egyptian eye of the Horus signifying

the same notion.[11] It has also been revealed that even the administration of drugs had been profoundly influenced by Egyptian medicine for it was only in Alexandrian medicine that Greeks first attempted to quantify specific ingredients in prescriptions. In addition, a vast number of drugs and vegetable substances that have been termed specifically "Egyptian" in the pharmacology of Greece and Rome substantiate their crucial contribution to classical medicine.

As indicated earlier on in this document, specialization is very essential in the practice of Egyptian medicine. This is portrayed in the work entitled, *Medicine in Ancient Egypt* by Ahmed Shafik and Waseem R. Elseesy. The paper seeks to outline the various fields of specialization in Egyptian medicine. The Ancient Egyptian medical physicians had to deal with a wide variety of diseases and complications ranging from those related to pregnancy and childbirth to injuries from accidents. Ahmed and Elseesy, in this work, quoted Warren R. Dawson: "There is no doubt that ancient Egyptians were a highly gifted people with a great capacity for practical achievement" to prove the dexterity displayed by Ancient Egyptians in their various grounds. This paper outlined gynecology and obstetrics, general surgery, circumcision as the principal aspects of Ancient Egyptian medicine. Under Gynecology and obstetrics, for instance, it was pointed out that fertility test was carried out by inserting a bulb of either garlic or onion into the *iuf, (vagina)* overnight, when the scent of either is detected in the mouth this meant that the woman is fertile and could bear children.[12] It has been argued that garlic and onion contain volatile oils that could pass through the respiratory tract and reach the mouth if there are no blockades in the human system. Nevertheless, the prescribed method for sex determination by monitoring the growth pattern of the mixture of wheat and barley grains and urine proved incorrect 16 out of 28 cases. This reveals some shortfalls in their medical practices. It also suggests that some of their practices were not based on practical scientific knowledge. Moreover, breast cancer was said to be diagnosed by examining the breast with the flat of the hand. When it feels like an unripe pear that indicates the presence of cancerous cells. However, for humanitarian reasons, the examiner was expected to tell the relative of the patient (not the patient herself) that her disease is a disease for which he cannot do anything about. Here again, we see that the Ancient Egyptian physicians did not go about their profession haphazardly, but were guided by a laid

[11] *Ibidem*.

[12] Ahmed Shafik and Waseem R. Elseesy, "Medicine in Ancient Egypt," in *Medicine across Cultures: History and Practice of Medicine in Non-Western Cultures*, ed. H. Selin (Springer Netherlands, 2003), 27-47.

down code of work ethics. They knew the health implications of telling the patient herself about a disease which they could not treat at the time. What was rather unfortunate is that it was obvious that the Ancient Egyptian physicians could diagnose breast cancer but were not in the capacity to treat it. Ahmed and Elseesy went further to point out that the expectant women were delivered while squatting on two large bricks or while seating on a chair from which the center of the seat had been removed. It was also stated emphatically that labor in this method was far less painful than the modern day lithotomy position. To Ahmed and Elseesyl, they established earliest specialized antenatal care hospital as far back as 4 000 years ago. *Mameze* (a separate room for antenatal care) Antenatal care was very essential to the Ancient Egyptians. Interestingly, one may want to know whether the profession of gynecology and obstetrics was solely dominated by females since the inclusion of men could be problematic even in modern times.

There is adequate evidence that suggests the diagnosis of ailments such as Cephalalgia (headaches), malaria, Guinea-worm, Brucellosis, schistosomiasis (bilharzias), leprosy, tetanus, malaria, strongyloides, tuberculosis, etc were treated in Ancient Egypt. The evidence of the occurrence of diseases in Ancient Egypt comes in three main categories: human remains (paleopathology), artistic representations and writings.[13] Various forms of cephalalgia, including one-sided headache, are mentioned in Egyptian papyri. However, more precise descriptions are missing hence there was no clear case of the diagnosis of migraine. They combined both magical and empirical practices for treatment of headaches since the origins of aches and pains, for instance, was attributed to peculiar pain-matter demons.

In the article captioned, "Tropical diseases in Ancient Egypt" by J. F. Nunn and E. Tapp, are outlined the various tropical diseases that prevailed during the Ancient Egyptian era. In the research, they used evidences from three main categories: human remains (paleopathology), artistic representations and writings (linguistics). Nunn and Tapp's research provided enough evidence to suggest that Guinea-worm was diagnosed and treated in Ancient Egypt. The most likely mention of Guinea-worm in medical papyri was in Ebers 875. Linguistic evidence comprising the use of terminologies such as *aat* (swelling), *deqer-ti* (to cling or to press) among others in Eber's papyrus suggests the diagnosis and treatment of Guinea-worm. However, Paleopathological evidence for guinea-worm in Ancient Egypt sparse. J. F. Nunn and E. Tapp identified Mummy 1770 as one of the first

[13] John F. Nunn and E. Tapp, "Tropical diseases in Ancient Egypt," *Transactions of The Royal Society of Tropical Medicine and Hygiene* 94(2000), 147-153.

mummies to be autopsied in Manchester. Radiographs of this mummy showed that the legs had been amputated and a dense nodule in the anterior abdominal wall. Following microradiographs, it was discovered that these were features of calcified guinea-worm. More recently, a gravid female worm was found in the leg of one of the mummies from the tomb of Parennefer.

In the course of the intellectual discourse, they further pointed out that the evidence on the existence of schistosomiasis was subjected to a series of debates which need to be analyzed critically in order to make some meaningful inferences. In respect to the existence of schistosomiasis, the authors appear to be in a dilemma. First and foremost, they set out to question the prevalence of Haematuria (a closely related disease) and eventually reached the conclusion that the Ancient Egyptians may well have recognized haematuria but the evidence is not completely convincing. Nevertheless, a series of interpretations of the word *aaa*, as the most likely Egyptian terminology for schistosomiasis. This notion was supported by the famous Egyptologists, Lefebrve in 1956. Ebers 62 remains the basis of the argument that identified "aaa" as schistosomiasis and it is the only passage that referred to "aaa" as a parasite.

> *Another remedy, useful as something prepared for the belly reeds (?Sedge), 1; shames-plant, 1; grind fine, cook with honey and eaten by a man in whose belly (there are) hereret-worms. It is the aaa which created them. Not killed by any (other) remedy.*

The identity of the *hereret*-worms remains unknown. However, it has been suggested that they are the adult parasitic worms of schistosomiasis. Contrastingly, many passages in the Egyptian papyri referred to the driving out of the *aaa* of a god and a dead man clearly implying a malign influence introduced by magic. Hence, it thus appears that the *aaa,* could not be a possible ancient Egyptian word for Schistosomiasis. Then it was put up that, "How then could the ancient Egyptians, with their enormous vocabulary, have failed to assign a word to describe what must have been of their commonest diseases?"[14] Thanks to pathological evidence, Ruffer,[15] in his "Notes on the presence of *Bilharzia Haematobia* in Egyptian mummies of the 20th Dynasty" made first the reference to the identification of Schistosomes in Egyptian mummies. This publication, according to Nunn and Tapp, remains the most convincing evidence of the presence of Bilharzia in ancient Egypt.

[14] *Ibidem*, 150.

[15] Marc Armand Ruffer, "Notes on the presence of *Bilharzia Haematobia* in Egyptian mummies of the 20th Dynasty," *British Medical Journal* 1(2557) (1910), 16.

Concerning Leprosy, it was pointed out that Moller-Christensen[16] and Sandison[17] were ignorant of any Pharaonic Egyptian mummy which exhibited the appearance of nodular leprosy.[18] Perhaps this was due to the negative stigma the Egyptian society attached to the disease hence mummification was denied to its victims. The ancient Egyptians considered leprosy to be infectious so they isolated its victims and kept them at the outskirts of the society. Nonetheless, a Coptic Christian burial at Bigha in Nubia (6th century AD) was strongly suggestive of leprosy.

Furthermore, it was also pointed out that the Plasmodium falciparum parasite was detected when Miller *et. al.*[19] applied the Parasite-F test to a series of naturally desiccated Egyptian mummies. Hence Miller safely concluded that they all suffered from malaria at the time of their deaths. However, Nunn and Tapp observed that the medical papyri (unlike the Hippocratic corpus) were silent on the characteristic recurrent fever of malaria.

Conclusion

Ancient Egyptian medicine has made very essential strides in the evolution of modern day medicine. They laid the basic foundation for the various fields of medicine we have today. As one of the earliest cradle of civilization they impacted greatly on other cultures such as the Greeks. There is adequate evidence from the Egyptian Medical papyri to prove that ancient Egyptian Civilization had developed a sophisticated and specialized medical profession earlier on in its history and that Ancient Egypt (as a cradle of civilization) was not exclusively characterized by the monumental pyramids but was also an epitome of medical knowledge which had a profound impact on Greek medicine and eventually spread worldwide. Subsequently, their homegrown medical practices and ideas became widespread and well improved in other cultures through interactions. They developed relatively sophisticated medical practices covering significant medical fields such as Herbal medicine, gynecology and obstetrics, anatomy and physiology,

[16] V. Moller-Christensen, "Evidence of leprosy in earlier people," in *Diseases in Antiquity*, eds. D. Brothwell and A. T. Sandison (Springfield: Charles C. Thomas, 1967).

[17] A. T. Sandison, "Diseases in ancient Egypt," in *Mummies, Disease, and Ancient Cultures*, eds. A. Cockburn and E. Cockburn (Cambridge: Cambridge University Press, 1980).

[18] *Ibidem*, 152.

[19] R. L. Miller, S. Ikram, G. J. Armelagos, R. Walker, W. B. Harer, C. J. Shiff, D. Baggett, M. Carrigan, S. M. Maret, "Diagnosis of Plasmodium falcipamm infections in mummies using the rapid manual Pura Sight TM-F test," *Transactions of the Royal Society of Tropical Medicine and Hygiene* 88, (1994), 31-32.

mummification and even the preliminary form of surgery. These practices, perhaps, were developed as remedies for the prevailing diseases and the accidents that might have occurred during the construction of their giant pyramids.

Limitation to the Study

There is a vast expanse of literature on the subject of medicine in Egypt. For the purposes of scope in education and time constraints, scholars and researchers pay attention to key areas that are considered most pertinent. It is this same challenge this article faces; the need to focus on what is most pertinent.

References:

1. Aboelsoud, Neveen H. "Herbal medicine in ancient Egypt." *Journal of Medicinal Plants Research* 4 (2), (2010), 82-86.
2. Miller, R. L.; Ikram, S.; Armelagos, G. J.; Walker, R.; Harer, W. B.; Shiff, C. J.; Baggett, D.; Carrigan, M.; Maret, S. M.. "Diagnosis of Plasmodium falcipamm infections in mummies using the rapid manual Pura Sight TM-F test." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 88, (1994), 31-32.
3. Moller-Christensen, V. "Evidence of leprosy in earlier people." In *Diseases in Antiquity*. Edited by D. Brothwell and A. T. Sandison. Springfield: Charles C. Thomas, 1967.
4. Nunn, John F. *Ancient Egyptian Medicine*. London: British Museum Press, 1996.
5. Nunn, John F., and E. Tapp. "Tropical diseases in Ancient Egypt." *Transactions of The Royal Society of Tropical Medicine and Hygiene*, 94(2000), 147-153.
6. Oumeish, Youssef Oumeish. "The Philosopical, Cultural, and Historical Aspects of Complementary, Alternative, Unconventional, and Integrative Medicine in the Old World." *Arch Dematol*, 134 (1998).
7. Rawlinson, George; Creswicke, Henry, and Wilkinson, John Gardner. *The history of Herodotus*. Vol. 1, 1861.
8. Ritner, Robert. "Innovations and Adaptations in Egypt." *Journal of Near Eastern Studies* 59, 2 (2000), 107-117.
9. Ruffer, Marc Armand. "Notes on the presence of *Bilharzia Haematobia* in Egyptian mummies of the 20th Dynasty." *British Medical Journal* 1(2557) (1910), 16.

10. Sandison, A. T. "Diseases in ancient Egypt." In *Mummies, Disease, and Ancient Cultures*. Edited by A. Cockburn and E. Cockburn. Cambridge: Cambridge University Press, 1980.
11. Shafik, Ahmed, and Elseesy, Waseem R.. "Medicine in ancient Egypt." In *Medicine Across Cultures: History and Practice of Medicine in Non-Western Cultures*. Edited by H. Selin. Springer Netherlands, 2003, 27-47.
12. Subbarayappa, B. V. "The roots of ancient medicine: an historical outline." *Journal of Bioscience* 26(2), (2001), 135-143.
13. Sullivan, Richard. "The Identity and Work of the Ancient Egyptian surgeon." *Journal of the Royal Society of Medicine* 89 (1996), 467-473.
14. Vinel, Abelle, and Pialoux Jacques. "Ancient Egyptian Medicine and Traditional Chinese Medicine." R.E.S.F Congress, Aix-en-Provence, 31 October 2005.