Asthma in Antiquity: The Ebers Papyrus

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The question of how long asthma has been known as a human illness leads to a fascinating trail. Unlike those diseases whose telltale pathologic lesions remained imprinted on centuries-old residue of bone, calcified tissues, and preserved organs or are depicted in art and artifacts, the historical tracking of asthma rests on less firm evidence. As in the case of most pathophysiologic disorders, clues can only be sought in the description of symptoms as revealed in folklore and writings of antiquity's perceptive observers. Thus, for the early story of asthma, medical historians turn to the records, translations, and interpretations of classical scholars.

It is likely that the contents of extant fragmentary documents evolved with varying shades of changes in original meanings and descriptions. Influences of ideas and theories which pervaded the more than two millennia of their transmission could hardly have been avoided. Each translation to a new language chanced some degree of deviation or difference in identity or representation of a term from an earlier culture and era. Nonetheless, it is remarkable to be able to view asthma in historical perspective in terms of current day allergic phenomena and bronchopulmonary physiology.

The first sighting of asthma in the nomenclature of western medicine is dated to the *Corpus Hippocraticum* initiated by Hippocrates (460–375 B.C.) (Fig. 1). However, rather than implying a disease entity, the Greek "asthma" was used as a term of reference for panting as a symptom.[1] In the later transition of Greek to Roman medicine, Cornelius Celsus (fl. 25–50 A.D.) (Fig. 2) modified Hippocratic concepts in his *De Medicina*, introducing a classification of troubled breathing.[2] Moderate difficulty without choking was called dyspnea. Next in severity, asthma defined the patient unable to breathe without making a noise and gasping. When the patient also required an outstretched neck to breathe, the condition was known as orthopnea.

To Aretaeus the Cappadocian (circa 81-138 A.D.) (Fig. 3) belongs the credit for the first accurate description of asthma, its prodromal expression and symptoms of an acute attack.[3] Galen (circa 130–200 A.D.) (Fig. 4), in several places throughout his voluminous work, also dealt with asthma,[4a] characterizing it as an accelerated, shallow, and brief respiration.[4b] In further developing this definition, which would be used for several subsequent centuries, Galen elected to incorporate what he indicated to be Hippocrates' meaning[4c] of asthma: respiratory difficulty only when not accompanied by fever. Then two centuries later Caelius Aurelianus (fl. 400), the last of the medical writers of the Roman Western Empire, provided a more focused description of asthma. In *De Morbis Acutis and Chronicus*, a thorough exposition of classical medical knowledge, he described asthma as a delineated disease, distinctly differentiated from pneumonia and the symptom of orthopnea.[5]

Meanwhile, during the centuries that passed between Hippocrates and Galen, the Babylonian Talmud was in the process of being written. Here too in the recorded deliberations of this 2nd century B.C. to 3rd century

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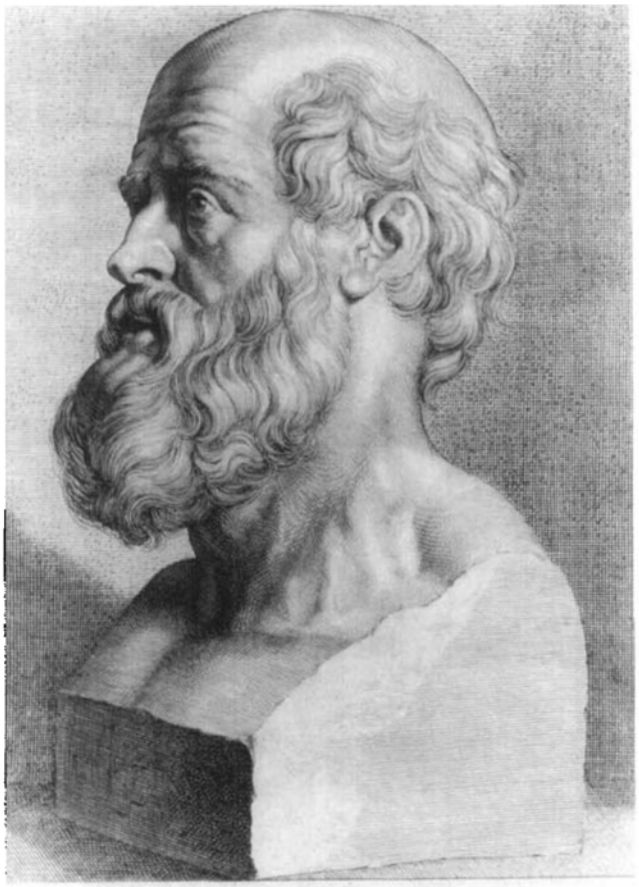


Figure 1. Hippocrates (460–375 B.C.); considered the "Father of Medicine"; founder of the Greek School of Medicine; responsible for the earliest medical writings known as the Corpus Hippocraticum (Hippocratic Collection).

A.D. Hebrew document are found (translated) references to "asthma."

From *Shabbath* 140a.[6]

> GEMARA . . . "Our Mishnah is [the opinion of] an individual. For it was taught: Hiltith[a] may be dissolved neither in warm nor in cold water; R. Jose said: In warm water it is forbidden; in cold it is permitted.

[a] *Arabic, term for modern day asafetida (U.S.P; currently listed in the N.F. VII). Oleo-gum-resin recovered from the rhizome and roots of Ferula Assa-foetida (and other Ferula species), plants originally native to western Afghanistan and eastern Persia. Introduced into European medicine by Arabian physicians. Used in the East from the earliest times as a carminative in the treatment of colic. Following absorption from the gastrointestinal tract, elimination of its volatile oil through the lungs was believed to be useful as a stimulating expectorant in bronchitis, whooping cough, and asthma.—ed.*

Figure 2. Aulus Aurelius Cornelius Celsus (25 B.C.–50 A.D.); author of the best account of Roman medicine; the first important medical historian.

> What is it made for? [As a remedy] for asthma.[b] R. Aha b. Joseph suffered with asthma. He went to Mar Ukba, [who] advised him, 'Go and drink three [gold *denar*] weights of hiltith on three days.' He went and drank it on Thursday and Friday. The following morning he went and asked [about it] in the Beth Hamidrash.[c]

[b] *Literally, "heaviness of heart."*

[c] *"To ask whether he might take it on Sabbath.*

Figure 3. *Aretaeus the Cappadocian (circa 81-138 A.D.); second only to Hippocrates among Greco-Roman physicians responsible for original descriptions of diseases.*

Figure 4. *Cladius Galen (130–200 A.D.); most voluminous of medical authors of the classical Greco-Roman era. His writings were based on original work in anatomy, physiology, pathology, materia medica, and therapeutics; considered the founder of experimental physiology.*

From *Bekoroth* 44b[7]

ONE WHO IS SUBJECT TO ASTHMATIC SPELLS. What is this?[d] —Nala.[e] A Tanna taught: The spirit of *ben nefalim*[f] *comes upon him.*

If the criterion of identification by name is set aside in favor of inference by description, it then becomes possible to date the first recordings of asthma to even an earlier era. Interwoven in this unfolding search is the fascination of folklore and mythology—a story beginning with the setting of ancient China and a classic document of its time, the *Nei Ching* and its author Huang Ti (2698–2598 B.C.).[8]

Only the exact origin of the *Nei Ching* is disputed, not its place in medical annals as the oldest canon of internal medicine. Chinese tradition ascribes the genesis of its documentation to the third of China's mythological emperors—Huang Ti, the "Yellow Emperor" (Fig. 5). Although there is evidence that the book, as composed in its present form, belongs to the last period of the Chou dynasty (1111–256 B.C.), certain portions are recognized to be of an earlier origin. Somewhere then within the 26 centuries B.C. the relevance of a recorded discussion between Huang Ti and his minister Ch'i Po is evident. The following excerpts are taken from *Su Wen*[8] (Plain Questions), the first of the two books comprising the Yellow Emperor's Canon.

The Yellow Emperor said: "Man is afflicted when he cannot rest and when his breathing has a sound (is noisy)—or when he cannot rest and his breathing is without any sound. He may rise and rest (his habits of life may be) as of old and his breathing noisy; he may have his rest and his exercise and his breathing is troubled (wheezing, panting): or he may not get any rest and be unable to walk about and his breathing is troubled. There are those who do not get a rest and those who rest and yet have troubled breathing. . . ."[9]

The Emperor asked: "When a child in arms has a 'wind within' and fever, when its breathing is troubled and it wheezes while resting its shoulders, what is then the condition of the pulse?"

Ch'i Po answered: "When there is troubled breath-

[d] *"What is the spirit which is believed to cause this ailment?"*
[e] *"A spirit of stupidity brought about by a demon"*
[f] *"The name of a demon which causes nervous prostration."*

Figure 5. Huang-Ti, the Yellow Emperor (2698–2598 B.C.).

ing and wheezing while resting the shoulders, the pulse is large and full. . . ."[10]

Turning to another ancient civilization in the Middle East, the history of asthma gains a new distinction. If, as believed in Egypt of antiquity, texts of medical lore were of divine origin, then surely asthma was known to the gods; a revelation that emerges from an archaeologic link to Thoth, special deity of medicine.

Thoth, usually depicted in human form with the head of an ibis (Fig. 6), was recognized as the inventor of all the arts and sciences, magic, soothsaying, and the skills of writing and drawing, and endowed with all knowledge and infinite powers. Following earthly achievements and ascent to dwell among the deities, he served the role of herald, clerk, scribe, and physician to the gods. His name Thoth derived from the concept of his incorporation into Hermes, the Greek messenger of the gods (Gr., *Hermes Trismegistus*, "thrice great").

In addition to being worshipped as the moon god, Thoth's possession and application of the divine secrets of healing made him the Egyptian physicians' patron, the god-source of medical knowledge to whom prayers for guidance were directed. Illustrative of this unquestioned belief was the dual role of the magician-physician Imhotep (fl. 3000 B.C.) (Fig. 7) who served as a priest in the temple worship of Thoth and after death was raised to the rank of a medical deity. Imhotep is also remembered historically as the astronomer and architect recognized for the design of the step-pyramid.

Figure 6. Thoth, Egyptian moon god; worshipped as the patron of medicine and healing, science and the arts, knowledge, and invention; depicted on a commemorative postage stamp issued by Egypt in 1925.

According to the Christian writer of the second century A.D., Clemens of Alexandria, Thoth's knowledge was transmitted in earthly form within 42 sacred books known as the "Hermetic Collection." Of the collection's six books devoted to medicine, partial crystallization was read into the uncovering of an ancient papyrus document in 1862. With discovery of the Papyrus Ebers, an important and illuminating chapter was inserted into the saga of Egyptology and medical history.

George M(oritz) Ebers (1837–1898) (Fig. 8) was born in Berlin and studied law at the University of Göttingen and archaeology and hieroglyphics at Berlin (Ph.D., 1862). In 1865 he joined the faculty at Jena, then in 1870 returned to Berlin as Associate Professor and 5 years later became Professor of Egyptology. His dedication to archaeologic field work and scholarly exploration of hieroglyphics included travel through Egypt. These experiences provided him with a wealth of first hand material and familiarity with an inviting setting to develop the successful parallel career of author. In

Figure 7. *Imhotep (fl. 3000 B.C.), Egyptian physician-magician, astronomer, architect and temple priest of Thoth; raised to a medical deity. Depicted on a commemorative postage stamp issued by Egypt in 1928.*

later life he suffered a disabling stroke which precluded further activity in Egyptian field work. However, he compensated for residual physical limitations by increased productivity in writing. His series of novels and published record of travels were well received and did much to create public interest in the ancient Middle East.

While travelling in Egypt in 1873, Ebers found and purchased the ancient papyrus which had been discovered 11 years earlier at the site of the ancient city of Thebes. Examination of its hieratic script dated its writing to about 1550 B.C., but as a compilation of medical texts many of the recorded prescriptions were dated back to 3000–2500 B.C. Apparently it was prepared as a reference manual for physicians undertaking healing through remedies, operations, and spells. Identifying a reference to Thoth in the introduction, Ebers believed the papyrus to be the fourth of the lost sacred books of the Hermetic Collection. After 2 years of study, in 1875 he published a facsimile edition with an introduction, vocabulary, and partial translation (Fig. 9).[11]

In a later enlarged English translation, Ebbell[12] identified various symptoms and disorders for which there were almost 1000 prescriptions and recipes. Among those which Ebbell could interpret as specific diseases were erysipelas, hepatitis, bubonic plague, bilharziasis, hookworm, alopecia (spotted baldness), dandruff, gonorrhea, scurvy, epilepsy, trachoma, cataracts, hemorrhoids, and asthma (Fig. 10).

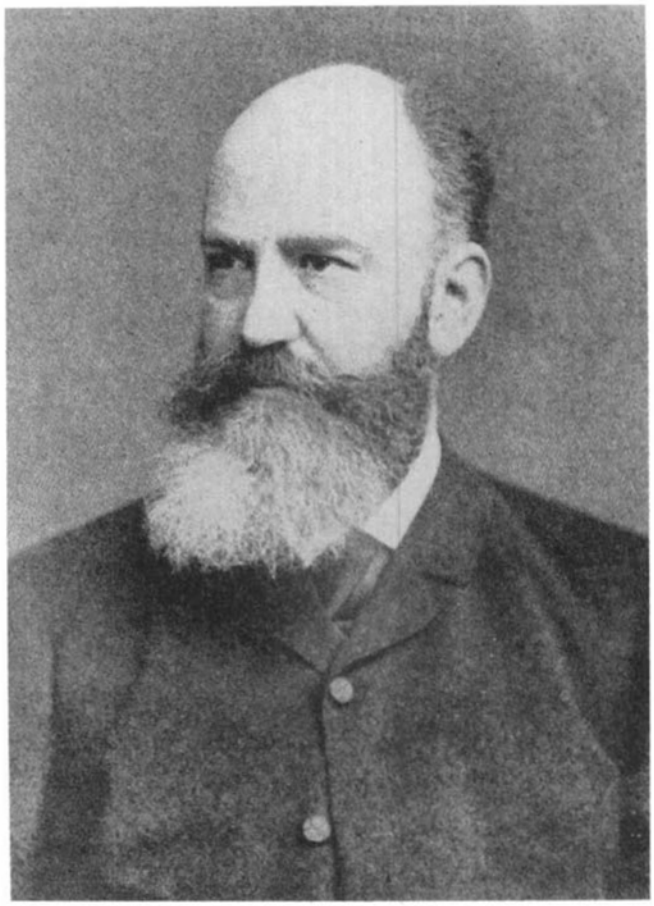


Figure 8. *George M. Ebers, Ph.D. (1837–1898), German archaeologist/Egyptologist and novelist.*

In a study of the medical skills of ancient Egypt, Estes[13] identified the sources and natures of the papyrus' items of *materia media*, of which many are not immediately recognizable in current day western countries and cultures. Additionally pertinent to an understanding of the anti-asthma remedies[14] (Fig. 10) are Estes' interpretation and clarification of possible purposes served by components of the recipes in light of the SWNW's (title given to Egyptian lay physicians and healing priests) concepts of diseases and their causes.

Vital to life and health were air and water carried in the blood and distributed to various organs by different ducts—the metu. Disease would develop in an organ to which there was an overflow of blood. For treatment of disorders of the metu, in particular to the lungs, there were the following:

frankincense[g]—aromatic gum resin (used in incense) from African and Asian trees of *Borinella* species.

[g] *Ingredients found in 10–20% of recipes for all respiratory conditions.*

PAPYROS EBERS

DAS HERMETISCHE BUCH

DIE ARZENEIMITTEL DER ALTEN ÄGYPTER

IN

HIERATISCHER SCHRIFT.

GEORG EBERS.

MIT HIEROGLYPHISCH-LATEINISCHEM GLOSSAR

LUDWIG STERN.

ERSTER BAND

EINLEITUNG UND TEXT, TAFEL I–LXIX.

LEIPZIG,

VERLAG VON WILHELM ENGELMANN.

Figure 9. *Title page of facsimile and German translation of medical papyrus discovered in 1862 at site of ancient Egyptian city of Thebes. Dated to 1550 B.C. and written in hieratic script, it became known as the "Papyrus Ebers," named after the German archaeologist who obtained the original finding in 1873. Ebers brought the Papyrus to the University of Leipsig and prepared the material for publication in 1875.*

yellow ochre—source of iron oxide.
grapes.

The SWNW might also have had regulation of metu blood volume in mind when prescribing beer (made from barley, wheat, or dates; 6.2–8.1% alcohol) for its diuretic effects; also northern salt, an antidiuretic.

Another considered cause of disease was the ill effect of w*h*dw—foul odors of decomposition and putrefaction—when absorbed by blood and reaching vulnerable organs in high blood levels through the metu. Since w*h*dw arose from intestinal contents, those agents with laxative properties could have been used for their purgative effects. The fragrant odor of frankincense[g] was used to counteract w*h*dw.

sycamore fruit—fig.[g]
sebesten[g]—plum-like fruit of *Cordia myxa* or the persea tree.
juniper fruit[g]—berries of *Juniperus* species.
northern salt.
colocynth[g]—dried fruit of *Citrullus colocynthis* plant.
dates[g]—from date palm tree.

For metaphysical considerations:

animal dung—to repel evil spirits responsible for the illness.
sebesten[g]—religious associations.
decayed flesh—meat of ox, goat, sheep, and fish of *Silurus* species (catfishes) for ascribed magical properties.
wine—associated with benevolence of the deity Osiris.

For use as vehicles and diluents:

beer, wine (also for their intoxicating-sedative properties).
goose grease.

Nonspecific beneficial effects in asthma; used nonselectively in various diseases:

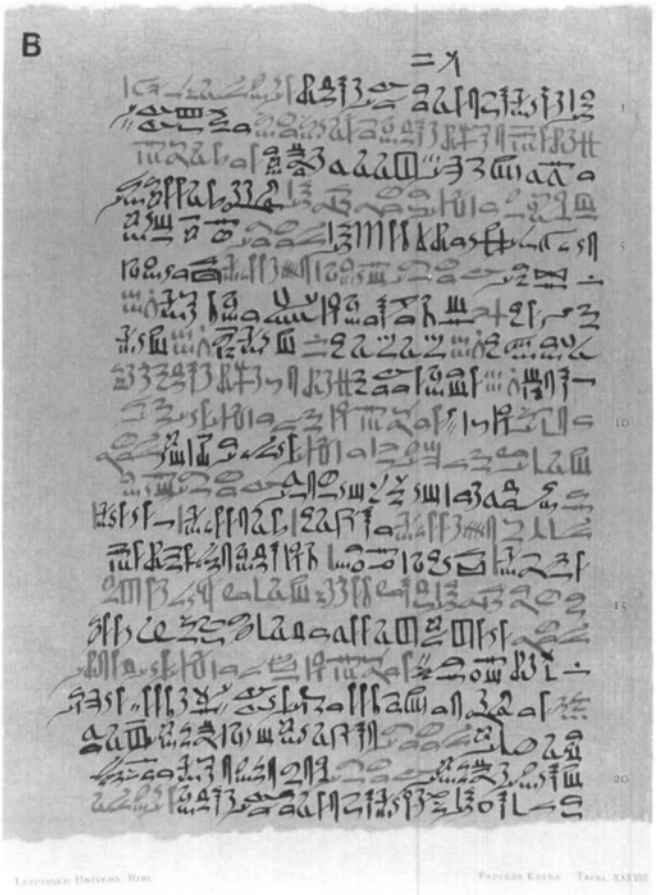
balanites oil—aromatic extract of kernels of the hegelig thorn tree, *Balanites aegyptica.*
juniper fruit.[g]
cumin[g]—aromatic seeds of fruit of the umbelliferous plant *Cuminum cyminum*, native to Egypt and Syria.
yellow ochre.
northern salt.
colocynth.[g]
onion.
dates.[g]
celery.
honey.

The Papyrus also may have recognized the "hay fever" patient, for a remedy was offered for those suffering from "nasal catarrh with conjunctivitis" (Fig. 10).

Returning to the question that introduced this commentary—how long has asthma been known as a human illness—perhaps one answer can be found in archaeology's contributions. Whether interpretation of troubled and noisy breathing in the Yellow Emperor's 26th century B.C. *Canon of Internal Medicine* or Thoth's recipes in the 16th century B.C. Papyrus Ebers, asthma (and perhaps even allergy) was recognized in some form as early as the earliest historically identifiable medical record.

ACKNOWLEDGMENTS

To Arthur Anderson, Curator, Cardinal Spellman Philatelic Museum for photographs of Egyptian commemorative postage stamps; to the University of Hong Kong Library for the photograph of Huang-Ti, the Yellow Emperor; to Lucinda Keister and Jan Lazarus of the History of Medicine Division, National Library of Medicine for photographs of the other portraits and sections of the Papyrus Ebers that comprise the figures; and to Peggy Pearlstein of the Hebraic Section, Library of Congress for identifying and providing copies of the Babylonian Talmud passages referring to "asthma"—my thanks for much appreciated and valued assistance.



C Another: frankincense ½ ro, fresh *šwt* 4 ro, *ḏꜣrt* 1 ro, wine 8 ro, are boiled and eaten in 1 day.

Another: northern salt 2 ro, sory 2 ro, yellow ochre 2 ro, wine 2 ro, *ḏšrt*-beer 5 ro, are strained and taken for 4 days.

Another: dung of crocodile 5 ro, *šbꜣ* of dates 5 ro, sweet beer 5 ro, are ground, mixed together and eaten in 1 day.

Another: fresh *twr* 2 ro, fresh bread 4 ro, colocynth 4 ro, *pḥt* of ass 4 ro, celery 4 ro, fruit of juniperus 2 ro, cumin ½ ro, figs 2 ro, grapes 2 ro, wine 2½ ro, *ḏšrt*-beer 25 ro, are strained and taken for 4 days.

Another: honey 1 ro, *ḏšrt*-beer 8 ro, wine 5 ro, are strained and taken in 1 day.

D The beginning of remedies to eradicate **asthma:** ? 1 ro, things in *wḏꜥjt* 2 ro, *ḥmwt* 2 ro, dung of *idw*-bird 2 ro, balanites-oil ¼ ro, sweet beer 5 ro, are mixed together, boiled, strained and taken for 4 days.

Another: figs 4 ro, sebesten 4 ro, grapes 4 ro, sycamore-fruit 4 ro, frankincense ½ ro, cumin ½ ro, fruit of juniperus 2 ro, wine 2½ ro, goose-grease 4 ro, sweet beer 5 ro, are ground, mixed together, strained and taken for 4 days.

Another: *ʿmꜣw* 5 ro, fresh bread 2½ ro, yellow ochre 1 ro, fruit of juniperus 4 ro, oil 5 ro, northern salt 8 ro, are mixed together, strained and taken for 4 days.

Another: frankincense ½ ro, fresh *šwt* 4 ro, *ḏꜣrt* 1 ro, wine 5 ro, are boiled, strained and taken for 4 days.

Another: colocynth 4 ro, onion 4 ro, *ḥmwt* 4 ro, *tjꜣ* 4 ro, decayed flesh 5 ro, goose-fat 4 ro, *ḏšrt*-beer 2 ro, are boiled, strained and taken for 4 days.

E If[3]) thou examinest a man for illness in his cardia, who secretes much, and thou findest it localized in his front, both his eyes are drooping, and his nose runs, then thou shalt say of him: it is (due to) putrefaction of his phlegm, his phlegm not having descended to his sacral region. Thou shalt prepare for him: *ỉnš*-cake of wheat, very much *šʿm*, a *dbḥ*-vessel (filled) with onion is added to it, and it is *šjꜣrt* with beer, fat ox-beef is eaten by the man and swallowed with beer *nt ḥꜣw ỉḥt*, until his eyes are opened, and his catarrh which descends[4]) as phlegm, goes away.

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* Bendix Ebbell, a Norwegian physician, was born near Oslo in 1865. He was initially educated in theology and, after studying medicine and receiving his M.D. degree, served as a medical missionary in Madagascar from 1893 to 1912. Returning to Norway, he served as a community physician in two small towns and in 1917 was appointed head of the Rogaland County Medical Services. His work included publications on beriberi, rickets, and thyroid disorders. A recipient of government grants for studies on ancient Egyptian medicine, he translated the medical sections olf the Papyrus Ebers into English. His meritorious work was recognized by election to the Norwegian Academy of Sciences in 1937.