

# Making Dry Eyes Ancient History: Egypt, Mesopotamia, India, China, Greece and Rome

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Photo by Stan Trampe

## Author's Bio

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Dry eyes are not a new condition, but one might think that the case. A literature search for “dry eye” rarely reveals anything before 1970. One must be an ocular archeologist to discover how the ancients treated “irritated” eyes, dried by the harsh conditions of the desert sun and sand.

## **EGYPT:**

In 1872, Georg Ebers, a German Egyptologist and novelist, discovered a collection of Egyptian medicinal recipes later called the Ebers Papyrus. The papyrus also contains ancient ophthalmic treatments. Ebers selected the important chapters on ocular diseases, translated them and added explanatory remarks. Written between 1553 and 1550 BC (1,000 years before Hippocrates), this is the oldest book on medicine (perhaps the medical textbook of ancient Egypt). It is similar to the Greek manuscripts about folk medicine that can be found among the collection of Galen and Oribasius, as well as among the manuscripts of Dioscorides. According to Ebers Papyrus, “The water within,” i.e., tear fluid and mucous secretion, is treated with incense, myrrh, and lead salt.”<sup>6,9</sup>

## **EGYPTIAN EYE MAKE-UP:**



Liz Taylor as Cleopatra<sup>16</sup>

The ancient Egyptian's eye make-up was not just stunning, it was functional. It helped alleviate irritation from the sun's glare off the desert sand and even prevented eye infections.

Among the eye medications commonly mentioned in the Ebers Papyrus is the “eye paste.” According to those documents, eye paste has been found in the Nile Valley for more than 4,000 years. The custom to put black paste on the brows and lid margins was done to make the eyes appear larger and brighter, while also protecting the health of the eyes. Antimony, imported from the East, was used as eye paste. The best kind was called msd'mt, a

precious substance. This custom to put paste on the lid margins has survived thousands of years, even through changes in religion and language.<sup>6</sup>

In 1580-1584 AD, Prosper Alpinus, an Italian physician, botanist and author of *De Medicina Aegyptorum* (1591), claimed that no Egyptian woman could be seen without her little box of eye make-up. One kind consists of soot (from incense and oil) and the other one of fine powder of antimony. Every book describing a voyage to Egypt mentions the ancient custom of coloring the lid margins black with antimony (Arabic: *Kohl*), which is still utilized today, for the beauty and the health of the eyes. This eye pasting custom was practiced throughout Egypt and the entire Orient. In ancient times Greek and Roman women also used it.<sup>6</sup>

French scientists report that Egyptian eye make-up may have helped prevent and treat eye disease via its infection-fighting properties.<sup>1</sup> The dark eye paste also offered protection from the scorching sun glaring off the desert sands.<sup>2</sup> Ancient Egyptian doctors recommended the use of eye make-up to reflect the rays of the sun and to keep insects away.<sup>3</sup> The soot in kohl helped in reducing the damaging effects of sun glare on their eyes.<sup>4</sup>

Another kind of eye paste consists of naturally occurring antimony sulfide ( $Sb_2S_3$ ) and is not native to Egypt. It had to be imported from southern Arabia. In the Ebers Papyrus, antimony sulfide is mentioned 50 times and nearly with all eye diseases.<sup>6</sup>

In addition to antimony, Pliny the Elder (23-79 AD), a soldier, lawyer, writer and researcher of the natural world, notes in *Naturae Historia* XXXIII that silver and brimstone powder in these pastes produced an opaque mixture called “stimmi” and “stibi.” Their power lies in constricting and cooling, especially the area around the eyes.<sup>6</sup>

Georg Ebers believed that the most common *msdmt* (the full term “mesdemet” means “black eye paint;” ancient languages frequently omitted vowels) was lead acetate, whereas the true one is considered stibium.

Besides kohl, other medicinal eye make-ups included uetu, hetem and pompholus. The second most used ocular medication, according to the Ebers Papyrus, was uetu, a copper-green, verdigris (acetic acid copper oxide) patina paste. Hetem, which today in Egypt “eye make-up,” is thought to be the origin of the make-up components kadmia, galmei, and zinc oxide. This eye medication has survived thousands of years. Pompholous was one medication the ancient Greeks valued highly, which was composed of blister, zinc ash, zinc oxide. The ancient Egyptians and, later, the Greeks, also used lapis lazuli against eye diseases.<sup>6</sup>

Ancient Egyptians put together their medicinal pastes and ointments using the oils of native plants (nuts, fruits, etc.). One type of valued oil was pressed from the fruit of *Balanites Aegyptiaca*. Also, ink, coal from the pits of dates, pinecones and soot were component(s) of eye ointments. The Egyptian ointment for the palpebral margin has been passed on to our times.<sup>6</sup> Such natural ointments utilizing naturally occurring ingredients can be found among homeopathic remedies; for

instance,. Similasan makes homeopathic eye drops and ointments which contain only 100 percent natural active ingredients.

#### *ANCIENT MEDICINAL OILS:*

Castor seeds have been found in Egyptian tombs dating back to 4000 B.C. It was applied to eyes (presumably, the bulbar conjunctiva) to whiten them. Castor seeds, or *ricinus communis*, are indigenous to India (4000-2000 BC). They were later adopted for medicinal use in ancient China, Persia, Africa, Greece, Rome, and eventually in Europe and the Americas in the 17<sup>th</sup> century.<sup>5</sup>

According to Galen of Pergamon, a prominent Roman physician, surgeon and philosopher, “Another medication [castor oil and antimony] is used to open up the face, to be put onto the eye after sleep.” Those remedies to strengthen (or to restore health and vigor to) the eyes are still used by thousands of patients in the present time, and were also known to the ancient Greeks (Galen XII, 738).<sup>6</sup>

#### *TREATING MEIBOMIAN GLAND DYSFUNCTION:*

Today, we know Meibomian gland dysfunction (MGD) to be an etiology for dry eye syndrome. Ancient Egyptians had a treatment for calcifications in the Meibomian glands (stone in the eye). The experienced physician could occasionally express a hard white and partially transparent granule out of a Meibomian gland by an incision in the conjunctiva. The medications of the Egyptians against stones in the eye included antimony, red lead, fuller’s earth and sodium hydroxide.<sup>6</sup>

#### **INDIA:**

Old-fashioned homeopathic remedies, such as warm compresses and castor oil, have offered relief for some and may provide relief to others in the future.

In India, compresses, eyewashes and castor oil have been utilized to treat diseases of the wind, known as Xerokollyria. Their records prescribed both cold and warm compresses; “other compresses use also pap, goat’s milk cooked with the roots and leaves of the castor oil plant.”<sup>6</sup>

Besides the castor oil roots, nuts and sprouts, medicines they utilized to wash the eyes “in the case of ocular disease caused by the wind”<sup>6</sup> contained combinations of the following natural ingredients: solanine, licorice, cinnamon, sesame seeds, lavandula, cardamom, aloe wood, ginger, milk (cow, goat or sheep), water and rock salt. Black pepper, long pepper, myrobalans, iron sulfate, ocimum and honey may be added, boiled with water and “used to wash the eyes in those ocular diseases which are produced by mucous.”<sup>6</sup>

Indian researchers made compresses by grinding myrobalans and placing them in pure linen to be moistened with milk or water. “This produces a medication for all eye diseases.”<sup>6</sup> Gold, pepper, chalk and butter, boiled over a low fire with pepper and chalk over a low fire would be used to “form an ointment or a paste for the lids” to treat the disease<sup>6</sup>

In modern times, castor oil is still used. In 2002, Goto E, et al., published a study, *Low-concentration homogenized castor oil eye drops for noninflamed obstructive meibomian gland dysfunction*, in which they developed low-concentration homogenized castor oil eye drops. The drops were used for the treatment of patients with noninflamed obstructive meibomian gland dysfunction (MGD), a major cause of lipid-deficiency dry eye, and in the study the authors assessed the safety, stability, and efficacy of the eye drops. The study’s authors concluded that castor oil eye drops are effective and safe in the treatment of MGD as they appeared to improve tear stability via lipid spreading, ease meibum expression, prevent tear evaporation and offer a lubricating effect.<sup>12</sup>

### **CHINA: CHINESE DYNASTIES: BEFORE 2700 BC:**

#### **ACUPUNCTURE:**

In China, acupuncture has been used for centuries for all ailments of the body, including eye maladies such as dry eye syndrome. This ancient technique is currently utilized as an alternative form of relief for some dry eye sufferers.

Acupuncture only recently appeared in Western literature regarding potential applications in ocular surface disease. Studies suggest it can help improve the signs and symptoms of dry eye. Studies also suggest that acupuncture provides a cholinergic anti-inflammatory effect by enhancing vagus nerve activity.<sup>7</sup>

In 2010, the Korea Institute of Oriental Medicine sponsored a clinical trial, *Acupuncture for Dry Eye: a Multicenter Randomized Controlled Trial with Active Comparison Intervention (Artificial Tear Drop) Using a Mixed Method Approach*, to assess whether acupuncture is more effective than artificial tears as a treatment for dry eye<sup>13</sup>. Results of this study have yet to be posted. However, previous studies report favorable subjective and objective results for acupuncture as a dry eye remedy.

The first record of acupuncture was compiled in Mainland China between 300 BC and 100 BC. Relatively recent archeological findings suggest that acupuncture has emerged from at least 5,000 years of empirical study and observation of the dynamics of *qi*, or “Vital Air.”<sup>8</sup>

Earliest written records of acupuncture in the Western world date back to an article in a 1671 French medical journal. Recent interest in acupuncture surged in the United States after 1972 following a trip to China by President Nixon and Secretary of State Kissinger to establish political ties with Mao Zedong and the new mainland China.<sup>8</sup>

#### **TRADITIONAL CHINESE MEDICINE (TCM):**

In 1957, the “Law of 57” declared that all physicians in China must learn Traditional Chinese Medicine (TCM) acupuncture and herbal medicine. Knowledge of the medicinal use of Chinese herbs had accumulated over thousands of years.<sup>8</sup>

According to TCM, with the pathogenic factor of ocular dryness, the affected organ is the lung with the common effects being dryness, itching and redness. Dryness and summer heat are other *yang* (“heat”) pathologies. TCM states that dryness occurs when the blood and fluids are diminished and fail to nourish the eyes. This is often due to the effect of wind, cold, and/or fire.<sup>8</sup>

Eye diseases can be treated according to pattern discriminations. For the Chinese, dry eyes are considered a symptom of liver and kidney deficiencies.<sup>8</sup>

DEFICIENCY

TREATMENT

Liver <i>Yin</i> deficiency	nourish liver <i>Yin</i> and blood
Liver <i>Yin</i> deficiency with heat	nourish liver <i>Yin</i> and blood
Liver Blood Deficiency	nourish liver blood, nourish kidney and liver <i>Yin</i>
Kidney <i>Yin</i> Deficiency	nourish kidney and liver <i>Yin</i>
Kidney <i>Yin</i> Deficiency with heat	nourish kidney and liver <i>Yin</i> , clear heat, moisten dryness

**MESOPOTAMIA:** ANCIENT BABYLONIA (669-625 BC):

In 1849, well-known British archeologist Austen Henry Layard excavated ruins of the ancient Assyrian capital of Nineveh and found numerous clay tablets from the library of King Ashurbanipal (669-625 BC). Many of these tablets dealt with medicine, detailing a medical system founded on spiritualism and botanical medications.<sup>9</sup>

Treatment combined prayer and topically applied plant-derived chemicals. In one ancient tablet, a treatment for dry eye survives: “If a man’s eyes are affected with dryness, he shall rub an onion, drink it in beer, and apply oil to his eyes. Thou shalt disembowel a yellow frog, mix its gall in curd, and apply to eyes.”<sup>9</sup>

## **GRECO-ROMAN:**

Aulus Cornelius Celsus, a Roman encyclopedist who lived from 25 B.C. to 50 AD, wrote *De Medicina*, a primary source on [diet](#), [pharmacy](#), [surgery](#) and related fields, the oldest medical manuscript among the Greco-Roman authors. In his systematic dealing with ophthalmology, he accurately describes chronically dry eye syndrome as a type of dry inflammation of the eyes, which the Greeks termed xerophthalmia. In this condition, the eyes neither swell nor run, but are nonetheless red and heavy and painful at night and the lids are stuck together by very troublesome rheum.<sup>6, 10</sup>

## **GREECE: ANCIENT GREECE: 753 BC – 509 BC**

The ancient Greeks soothed irritated eyes with water and unctuous medicinal compounds in eye baths. When an eye bath was unsuccessful, bloodletting was often employed. Bloodletting, practiced first by barbers (represented by the red stripes on the barber's pole) and then physicians, is one of medicine's oldest practices. Ancient bloodletting involved the use of a lancet or a sharp piece of wood and a receptacle for the blood. Some patients were fortunate enough to be treated with leeches instead of crude instruments. Bloodletting was utilized to balance the four humors: yellow bile, black bile, phlegm and blood.

Bloodletting dominates Greek discussions regarding the treatment of major diseases in general, and eye disease specifically. Whereas the ancient Egyptians primarily utilized topical treatments for eye disorders, the Greeks treated nearly every serious ocular disease with bloodletting. "Bloodletting heals inflammations of the neck and the eyes."<sup>6</sup> Scarring the veins, reducing diet, i.e., fasting, rest, darkness and minimizing the time eyes should be held open or closed were also recommended treatments.<sup>6</sup>

The School of Hippocrates was based on the principles of humoral pathology. Medications were recommended that would divert the eye inflammations into other organs. For example, "in epiphora (a common sign of keratoconjunctivitis sicca, non-Sjorgrens-type), the disease has to be diverted into the pharynx."<sup>6</sup> Galen remarks that Hippocrates probably meant a permanent epiphora (Rhyas) for which sneezing and irritating the pharynx proved helpful. Even in more modern times (the time of Hippocrates), a nose ointment prepared utilizing the oils pressed from native nuts, fruits and plants was used for epiphora. According to Hippocrates, "The eyes tear, but the lids are not swollen, it is not painful and the patient sees well; in that case, one must deviate the disease downward, e.g., by a medication put into the nose."<sup>6</sup>

## THE OPHTHALMOLOGY OF PAULUS OF AEGINA (ANCIENT GREECE):

According to Paulus of Aegina, a 7th-century [Byzantine Greek physician](#) best known for writing the [medical encyclopedia](#) *Medical Compendium in Seven Books*, with regard to ocular inflammations, eye irritation consists of tearing, burning and redness. If ocular irritation is due to an external cause, e.g., the sun, dust, smoke or the oil (derived from nuts and seeds) of ointments, then the irritation should disappear immediately once the exciting factor is withdrawn.<sup>6</sup> If, however, the eye inflammation, i.e., ophthalmia, is a more severe irritation which is not due to unknown internal factors lasting three, four

or five days, it is cured by protecting the eye from external irritating substances by fasting, drinking water, taking walks and purging.<sup>6</sup>

In ancient Greece, thickening of the lid with dry catarrh (inflammatory disorder of the mucous membranes, especially the nasal passages), referred to as xerophthalmia, meant a hardening and immobility of the eye combined with pain and redness without secretion. Today, we know xerophthalmia to be the drying of the eye surfaces.<sup>11</sup> Dryness of the eye was known as an itching condition without secretion. At this time, it was treated with baths, ointments and a healthy lifestyle. Strong medications could be used for both so that tearing would be produced.<sup>6</sup> A treatment with compresses of sponges soaked in hot water was a commonly recommended treatment at the time, along with using an egg with rosewater or goose fat at bedtime.<sup>6</sup>

### **ROME:** ANCIENT ROME: 31 BC - 312 AD

Collyrium, interpreted to mean eyewash, is a concept and name which is more than 2,000 years old and found in Hippocratic books. Collyriums were the vehicles of administration for eye salves, pastes or ointments prior to eye cups and droppers. The term collyrium was used by the Romans to denote a number of medications molded together in gum to form a solid cake, a small piece of which was dissolved in water or oil and applied to powders and ointments. Among the compound eye medications delivered using collyriums, some were ointments (plasta) while others were called xerocollyria (dry collyrium or eye salve) and hygrocollyria (liquid collyrium).<sup>6</sup>



## AN ATTIC BLACK-FIGURED EYE-CUP: CIRCA 520-500 BC <sup>15</sup>

Today its use is generally confined to watery solutions used for instillation into the eye. <sup>14</sup>

### *MAKING DRY EYES A THING OF THE PAST:*

In supporting of importance of ocular nutrition, Hippocrates is often quoted, "Let food be thy medicine" (around 550 BC). When new remedies initially fail to offer relief, dry eye sufferers may find comfort in the wisdom of ancient healers. The concepts of rest, proper hygiene, keeping one's mind and body active, relying on nature for one's food and medicine, moderation, and balance are remedies of the past with the potential to make dry eyes a thing of the past.

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