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Eye diseases in the Ebers Papyrus

Part 3: Eb 387–417

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1 Introduction

The Ebers Papyrus is an important medical papyrus from a West Theban necropolis (el-Assasif) dating from the period of the 17th to early 18th Dynasty. Written in hieratic script, the papyrus contains 877 individual texts consisting of medical prescriptions, instructional texts, and magic spells for a variety of medical problems. The so-called "Eye Book" (Eb 336–431) contains 96 prescriptions for the treatment of various eye diseases and eye injuries.[2]

The first two parts of this work described the eye diseases in Eb 336–386. In this third part, we will continue with Eb 387–417. The names of the diseases were translated[3] and

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2 For more information about the papyrus, see L. Popko (online), metadata, <https://sae.saw-leipzig.de/de/documents/papyrus-ebers>, with literature overview (last accessed 08.12.2023).

3 Dictionaries and translations used:

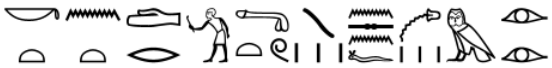
- A. Erman and H. Grapow, *Wörterbuch der ägyptischen Sprache*, Vol. I–VII, (Berlin, 1897–1961; unchanged reprint; Berlin, 1971), hereinafter referred to as "Wb" for short;
- R. Hannig, *Die Sprache der Pharaonen: Großes Handwörterbuch Ägyptisch – Deutsch, Marburger Edition* (KAW 64; 4th revised edn; Mainz, 2006), hereinafter referred to as "Hannig" for short.
- B. Ebbell, *Alt-ägyptische Bezeichnungen für Krankheiten und Symptome* (Oslo, 1938), hereinafter referred to as "Ebbell" for short.
- B. Ebbell, "Die ägyptischen Krankheitsnamen", *ZÄS* 59 (1924), 55–59, hereinafter referred to as "Ebbell, *ZÄS*" for short.
- B. Lalanne and G. Métra, *Le texte médical du Papyrus Ebers: Transcription hiéroglyphique, translittération, traduction, glossaire et index* (Langues et cultures anciennes 28; Brussels, 2017), hereinafter referred to as "Lalanne and Métra" for short.
- L. Popko, "Papyrus Ebers: Übersetzung und Kommentar", in *Science in Ancient Egypt* (Leipzig, online) <https://sae.saw-leipzig.de/de/documents/papyrus-ebers> (last accessed 08.12.2023), hereinafter referred to as "Popko (online)" for short.
- W. Westendorf, "Handbuch der Altägyptischen Medizin", Vols 1 and 2, in H. Altenmüller et al. (eds), *Handbuch der Orientalistik, Erste Abteilung: Der Nahe und Mittlere Osten* (Boston, Cologne and Leiden, 1999), hereinafter referred to as "Westendorf" for short.

subjected to a modern ophthalmologic interpretation. Frequent diagnoses were preferred to rare ones, and the environmental and living conditions in ancient Egypt were taken into account. Since some eye diseases and symptoms appear twice or more in the Eye Book, occasional repetition was unavoidable. Many prescriptions are simply titled "Something else" without specifying the condition being treated. I interpret them as alternative treatments for the last mentioned condition. All statements must be considered hypotheses.

2 Eye diseases (Eb 387–417)

As in previous parts of this work, the text occasionally refers to images in the online "Atlas of Ophthalmology" (https://www.atlasophthalmology.net).[4]

Eb 387 (61,3–4)

Text:	
Transcription:	*k.t n(j).t dr mt.w n(j)<.w> znf m jr.tj*
Translation:	Something else to remove the blood vessels in both eyes

This remedy is probably intended to eliminate inflammatorily dilated blood vessels.[5] Dilated vessels occur in all inflammatory conditions of the eye (AoO 4194). If the iris is inflamed (iritis), they are particularly pronounced around the edge of the cornea (AoO 7938). In my opinion, the same condition is described elsewhere as "blood in/on the eyes" (*znf m/ḥr jr.tj*).[6]

Cosmetic treatment is also possible, although not very likely. As we age, the fine veins of the conjunctiva become more visible and tortuous, and the eyeball no longer appears as brightly white and clear as it did in youth. Women (and probably men) of high status who were concerned about beauty may have found this cosmetically disturbing.

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4 Such references consist of the abbreviation "AoO" and an image number. To access an image on <https://www.atlasophthalmology.net>, select "Search" from the green menu bar, enter the image number in the search field ("Search phrase"). and click the "Search" button.

5 The anatomical word *mt.w* can mean hollow vessels or solid strands such as muscle strands, tendons, and ligaments (Hannig, 395, [14196, 14198]; Wb II, 167.9–13). The expression *mt.w nj.w znf* leaves no doubt that blood vessels are meant here.

6 For example, in Eb 348 (57,6–8) and Eb 384 (60,13–16).

Eb 388 (61,4–6)

Text:	
Transcription:	*jrr.wt m ꜣbd ḫmt.nw n(j) pr.t nfry.t-r ꜣbd jfd.nw n(j) pr.t*
Translation:	Something that can be made (only) from the third to the fourth month of the Peret season

The translation is abridged from the original wording.

The ancient Egyptian year had three seasons of four months each. Peret (from the end of October to the end of February) was the season of seed germination (*pr.t,* "the coming forth"), i.e., the growth phase of crops, which in Egypt falls in winter. Obviously, the physician was expected to know what eye disease this prescription was intended to treat.

It is reasonable to assume that this remedy contains a specific herbal ingredient that is only available during this limited period of time.[7] The remedy consists of everyday minerals and *ḫt-ꜥwꜣ* which some have translated as "rotten wood" or "petrified wood" (from *ꜥwꜣ*, "to rot, to ferment").[8] However, this is far from certain. The word could just as plausibly be derived from the verb *ꜥwꜣj* for "to harvest" or "to plunder, to rob".[9] If so, *ḫt-ꜥwꜣ(.j)* literally means "harvested/robbed wood", possibly green shoots that can be collected in the late Peret season. The dictionary by R. Hannig (2006) suggests that *ḫt-ꜥwꜣ* could be *Aloe vera*.[10] The original home of *Aloe* (there are over 500 species) is probably the Arabian Peninsula, as the genus name comes from Arabic. Fittingly, *Aloe vera* blooms from January to February.[11] Thus, we can (purely speculatively) shortlist *Aloe* blossoms. Personally, I think that the word for this officinal ingredient should be read in a different way, namely *ḫt-ꜥ wꜣ(.w)*, which makes it a "medicinal herb from afar".[12] Perhaps it was only available in the late Peret season, when caravans of merchants from Asia arrived in Egypt (which does not exclude the *Aloe*). On the other hand, the ingredient appears in several other prescriptions without any seasonal restriction.[13]

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7 Westendorf (p. 26) held a different opinion: Accordingly, seasonal remedies were intended to cure seasonal diseases. At least for Eb 393 (this work, page 7) this is not true, because this remedy was aimed at the common diagnosis of visual impairment.

8 Hannig, 671 (24480); Lalanne and Métra, 127; Popko (online), Eb 388; Westendorf, 618; Wb III, 340.8.

9 Hannig, 144 (4914), 145 (4927); Wb I, 171.3, 171.18.

10 Hannig, 671 (24480).

11 U. Eggli (ed.), *Sukkulenten-Lexikon: Einkeimblättrige Pflanzen (Monocotyledonen)* (Stuttgart, 2001), 189.

12 *ḫt-ꜥ* : Hannig, 671 (24475); *wꜣ.w* : Hannig, 182 (49732); Wb I, 245.15; 246.2.

13 For example, Eb 336 (55,20–56,6), Eb 348 (57,6–8), Eb 355 (57,15–17), Eb 369 (59,10–13), Eb 374 (59,18–20), and others.

Eb 389 (61,6–8)

Text:	
Transcription:	*k.t <nj.t> sdm jrr.t m šmw pr.t ꜣḫ.t*
Translation:	Something else [for] making up [the eyes], which can be made during the Shemu, Peret and Akhet seasons

All three seasons are mentioned: Shemu is the season of harvest (dry season, late February to late June), Peret is the season of germination of the seeds (late October to late February), and Akhet is the season of Nile flooding and sowing (late June to late October). Thus, this eye make-up can be made all year round; the ingredients galena and goose fat are not tied to a specific season.

The word *sdm* that is determined with D4 (eye) is most frequently translated as "to make up the eyes" and "eye make-up".[14] However, in a medical context it can also mean "to anoint".[15] Therefore, *sdm* should not be understood as eye make-up in the narrow (decorative) sense, but more generally as the application of a paste to the eyelids (be it a medical remedy, ointment, protective paint, or cosmetic khol). For the sake of simplicity, I will stick with "eye make-up". In general, eye make-up had a medical background, but the cosmetic side effect was valued and also ritually practiced.[16]

The eye disease to be treated with this eye make-up remains unclear. It is possible that the two medical prescriptions with a seasonal reference, Eb 388 and Eb 389, are to be understood as alternative prescriptions for the removal of blood vessels in both eyes (Eb 387, see page 2).

The next prescription Eb 390 (61,8–9) with the simple title "Something else" contains, judging by the ingredients (galena, malachite, lapis lazuli, ochre, and honey), another instruction for the preparation of eye make-up.

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14 For the translation as "another eye make-up", it would have to be *ky sdm*.

15 Hannig, 855 (31627); Wb IV, 370.4–8.

16 J. Illes, *Ancient Egyptian Eye Makeup*, <https://www.hashmisurma.com/images/ancient_egyptian_eye_makeup.pdf> (last accessed 08.01.2024); S. El-Kantiry, *Ancient Egyptian Cosmetics*, <https://studylib.net/doc/7413929/ancient-egyptians-cosmetics> (last accessed 08.01.2024).

Eb 391 (61,9–11)

Text:	
Transcription:	*k.t n(j).t dr ḫnt m tp m sdm*
Translation:	Something else to remove secretion from the head using eye make-up

This is close to the traditional translation.[17] Alternatively, the characters *m* and *tp* could be combined to the compound preposition *m-tp* ("before, on top of, in addition to"[18]). The heading would then imply that the mixture is to be applied as eye make-up over something else, or that it can be used both as a remedy and as eye make-up.

Unlike in Eb 367, the exact source of *ḫnt* ("secretion"[19]) is not specified here.[20] The literal translation of the disease *ḫnt(.j)* is "the anterior" (neuter).[21] It may have been the popular name for a common cold often associated with acute sinusitis and watery eyes.[22] It cannot be ruled out that the ancient Egyptians also knew of the allergic form of rhinitis (*rhinitis allergica*), in which the eye symptoms are even more pronounced.

Eb 392 (61,12–14)

Text:	
Transcription:	*k.t pḫr.t n(j).t jr.t ḫpr.t(j) (j)ḫ.wt nb.(w)t ḏw.wt r=s*
Translation:	Another remedy for the eye when it is infested by all sorts of bad things

I deliberately chose the verb "infested" to do justice to the prepositional phrase *r=s,* which

17 Lalanne and Métra, 127 ("*mal-khent qui est dans la tête*"); Popko (online), Eb 391; Westendorf, 619.

18 Hannig, 330 (11896).

19 Hannig, 654 (23811); Wb III, 308.2.

20 Two other recipes for *ḫnt m tp* are described in Eb 298 and Eb 299 (Lalanne and Métra, 109; Popko [online], Eb 298, Eb 299; Westendorf, 602–603). In Eb 367 (59,3–6) it is "secretion in the eyes" (*ḫnt m jr.tj*), in Eb 418 (63,2–3) it is "secretion from the nose" (*ḫnt m fnḏ*).

21 Hannig, 652 [23749]; Wb III, 302.1–4.

22 Cold viruses may have been more dangerous thousands of years ago than today (U. Greber, <https://www.imls.uzh.ch/static/CMS_publications/greber/literatur/pdf18/647.pdf>, p. 1, [text in German, last accessed 08.01.2024]).

suggests a directional process. The "bad things"[23] here could refer primarily to disease processes that spread from the area around the eye to the eye itself. However, it seems more likely to me that the ancient Egyptian doctors already suspected that certain eye diseases are infectious in nature and can be transmitted from person to person or by flies.[24]

Eb 393 (61,14–16)

Text:	
Transcription:	*k.t <nj.t> s.rwḏ mꜣꜣ jrr.t m ꜣbd tpj n(j) pr.t nfry.t-r ꜣbd sn.nw n(j) pr.t*
Translation:	Something else [for] strengthening the eyesight that can be prepared (only) from the first to the second month of the Peret season

The translation is abridged from the original wording.

The medical indication for this remedy is visual impairment (as so often in the Eye Book; a narrower definition of the diagnosis is not possible). However, this remedy can only be made in the first and second months of the Peret season, which roughly correspond to November and December. The formula consists of equal parts of "male" galena,[25] galena, and an ingredient called *snn*. The latter has been interpreted as a resin or balsam.[26] It is likely that *snn* came from a plant the resin or oil of which could be collected during the winter months. One possibility is the so-called Balsam of Mecca .[27]

The next prescriptions, Eb 394 (61,16–17) and Eb 395 (61,17–18), are simply titled "Something else".

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23 The "bad things" also appear in the magic spell in Eb 385 (60,16–22) (Traunmüller, *Eye diseases, Part 2*, 15).

24 Cf. Westendorf, 21, 457–458.

25 Sexual differentiation of medicinal ingredients was not uncommon, but the significance of this is not known (Westendorf, 515 note 57; Popko [omline], Eb 359 note 1).

26 Hannig, 779 (28617); Wb IV, 166.13; Lalanne and Métra, 127; Popko (online), Eb 393; Westendorf, 619.

27 Cf. Hannig, 779 [28617]). The Balsam of Mecca is the precious and fragrant mixture of essential oils and resin of *Commiphora opobalsamum* (a shrub, formerly called *Commiphora gileadensis*), which is native to the coasts of the Red Sea and was later also cultivated in Egypt (K. Gauckler, "Die kostbarsten Drogen der Alten Welt: Weihrauch, Myrrhe, Balsam", in *Abh. Naturhist. Ges. Nuernberg* 35, 1970, 154–155). In East Africa, the plant grows during the short rainy season from October to December. In ancient times Balsam of Mecca was used to cure various ailments.

Eb 396 (61,18–19)

Text:	
Transcription:	*k.t n(j).t wbꜣ mꜣꜣ*
Translation:	Something else for “opening” the eyesight

This is another of a total of 15 prescriptions for “opening”, strengthening, or treating the eyesight.[28] Virtually every eye disease is accompanied by visual impairment.

The treatment instructions are somewhat peculiar: A shard of pottery from a new *hnw* vessel[29] was to be incensed over grain mucilage and then applied to the eyes (*r jr.tj*) very often (*ḥr ꜥšꜣ zp 2*, “twice as often”).

Eb 397 (61,19–20)

Text:	
Transcription:	*k.t <nj.t> sdm n(j) wbꜣ mꜣꜣ*
Translation:	Something else [for] making up [the eyes] for “opening” the eyesight

It is another vision improvement/restoration formula specifically designed for use as an eye make-up.

Eb 398 (61,20–21)

Text:	
Transcription:	*k.t n(j).t wbꜣ mꜣꜣ*
Translation:	Something else for “opening” the eyesight

This remedy even contains 4 parts of khol (*msdm.t,* a black paste composed mainly of galena). This and the simple instructions “*mjt.t*” (“the same”) lead us to believe that it was

[28] Nine prescriptions with *wbꜣ mꜣꜣ, s.rwḏ mꜣꜣ,* or *srwḫ mꜣꜣ* in the title, and six alternative prescriptions.

[29] The *hnw* vessel was used as a measure of capacity (0.48 liters).

also intended to be used as eye make-up. Furthermore, the instruction "*mjt.t*" proves that the order of the prescriptions is not random.

Eb 399 (61,21–62,2)

Text:	
Transcription:	*k.t n(j).t wbꜣ mꜣꜣ*
Translation:	Something else for "opening" the eyesight

Another vision-improving remedy, this time to be given in the eyes (*m jr.tj*).

Eb 400 (62,2–3) and Eb 401 (62,3–4)

Text:	
Transcription:	*ky sdm*
Translation:	Another eye make-up

The medical indication for these two eye make-up prescriptions with the same title (but different formulas) was probably "opening of the eyesight" (as above in Eb 399). However, it is also possible that even the eye make-up formulas for purely cosmetic or ritual purposes were the province of the physicians, as were prescriptions for skin rejuvenation formulas and deodorants.[30]

Eb 402 (62,4–5)

Text:	
Transcription:	*k.t n(j).t dr s.ḥḏ.w ḫpr(.w) m jr.tj*
Translation:	Something else to eliminate the corneal scars that have developed in the eye

[30] For example, Eb 708, 709, 715–717 (Popko [online]); Edwin Smith Papyrus 21,5–22,10 (L. Popko, *Papyrus Edwin Smith*, <https://sae.saw-leipzig.de/de/dokumente/papyrus-edwin-smith>, last accessed 08.01.2024).

As noted in my comments on Eb 347 (57,5–6) and Eb 360 (58,6–15),[31] the disease is clearly identified with corneal scarring. (There is no other externally visible eye disease that would fit the term "the whitened"). Corneal scars are the result of chronic inflammation, injury, or chemical burns. In the most severe case, the entire cornea has become white and opaque, and blood vessels have grown in (AoO 297). The Eye Book contains a total of eight prescriptions for corneal scarring.[32]

The next prescriptions, Eb 403 (62,5–6), Eb 404 (62,6), Eb 405 (62,6–7), and Eb 406 (62,7), have the simple title "Something else" and are probably also remedies for corneal scarring.

Eb 407 (62,7–8)

Text:	
Transcription:	*k.t n(j).t dr nḥ3.wt*
Translation:	Something else to eliminate *nḥ3.wt*

The term *nḥ3.wt* (plural) describes an unclear eye disease. I have already discussed this in my comments on Eb 350 (57,10–11) and Eb 383 (60,12–13), where the disease explicitly affects both eyes.[33] I agree with other authors[34] that the literal translation is "the uneven ones, the rough ones" (from the verb *nḥ3*, "to be uneven, to be rough"), and that this refers to the glassy papules (lymph follicles) on the conjunctivae in stage 2 trachoma (AoO 4908, 4569).

The second possible translation as "the terrible ones, the wild ones" (according to the second meaning of the verb *nḥ3*) would indicate a very painful eye disease. However, painful conditions, such as acute glaucoma, trigeminal neuralgia or *herpes zoster* (shingles) with ocular involvement, usually occur unilaterally. Perhaps the ambiguous

31 Traunmüller, *Eye diseases, Part 1*, 10; *Part 2*, 4.

32 Four prescriptions with this medical indication in the title, and four alternative prescriptions. In reality, corneal scars are irreversible and can only be cured by laser ablation (in mild cases) or corneal transplantation.

33 Traunmüller, *Eye diseases, Part 1*, 11–12; *Part 2*, 14. Translations by other authors: same as *wḥ3.wt* (Ebbell, 26; Hannig, 223 [8051], 445 [16043]; Westendorf, 611 note 92, 621); something rough, not smooth (Lalanne and Métra, 119 and note 48); *nḥ3.t* affliction (Popko [online], Eb 350, Eb 407); eye disease (Wb II, 290.19).

34 Hannig, 445 (16043); Popko (online), Eb 407; Westendorf, 621.

verb *nḥ*ꜣ was used as a pun to describe trachoma,[35] since this eye infection causes unevenness/roughness (of the eyelids) in its early stages, and has "terrible" consequences in its later stages (AoO 4909).

Eb 408 (62,9–10)

Text:	
Transcription:	*k.t n(j).t dr šsm.w dšr(.w) m jr.tj*
Translation:	Something else to remove red inflammation in both eyes

A passage in the Edwin Smith Papyrus explains the word *šsm(.w)*: "As for 'his two eyes are *šsm*': it means that the color of his two eyes is red, like the color of the *šꜣs* flower" (Sm 7, 19–20 [gloss A]).[36]

It is surprising that the symptom "red inflammation[37] in both eyes" only appears once in the Eye Book, although it is a symptom of many eye diseases such as infections (AoO 3014), injuries, chemical burns, chronic immunologic inflammation, glaucoma, etc. In my opinion, this is because severe redness of the eyeball due to inflammatory dilation of the blood vessels was usually circumscribed as "blood in/on the eyes" (*znf m/ḥr jr.tj*).[38] Perhaps this was the more popular expression.

Eb 409 (62,10–12)

Text:	
Transcription:	*k.t n(j).t dr ꜣdy.t m jr.t*

[35] Assuming that the two meanings of the verb *nḥ*ꜣ were actually pronounced in the same way.

[36] L. Popko, *Papyrus Edwin Smith*, Case #19, <https://sae.saw-leipzig.de/de/dokumente/papyrus-edwin-smith>, last accessed 08.01.2024; Westendorf, 725.

[37] Actually, *šsm.w dšr(.w)* is a pleonasm because according to the Edwin Smith Papyrus, *šsm.w* (also: šsm.wt) means "redness" (see also Hannig, 905 [33582]). Translations of *šsm.w dšr(.w)* by other authors: ptosis or similar (Ebbell, 54–56), red inflammation (Popko [online], Eb 408; Westendorf, 621); in Lalanne and Métra (p. 129) *šsm.w* remains untranslated.

[38] Eb 336 (55,20–56,6; *znf m jr.t* as an accompanying symptom of *wḫd.w*), Eb 348 (57,6–8), Eb 352 (57,12), Eb 384 (60,13–16). Cf. Traunmüller, *Eye diseases, Part 1*, 4–5, 10–11, 13–14; *Part 2*, 14–15. See also Eb 387 (page 3), where the goal of treatment is the "elimination of the blood vessels in the eyes". Actual blood on the surface of the eye or under the conjunctiva is a self-limiting problem. Blood inside the eyeball cannot be detected without modern optical aids.

Translation:	Something else to remove decay from the eye

The eye disease written *ȝdy.t* here and *ȝd.t* elsewhere[39] is probably derived from the verb *ȝd,* classified with hieroglyph Aa2 (pustule? round package of mummy bandages?), which means "to decay, to putrefy" [40]. A related verb classified with hieroglyph I3 (crocodile) means "to rage, to be angry, to be aggressive".[41] The *ȝd.t/ȝdy.t* disease occurs three times in the Eye Book; in two cases it was written with Aa2, in the remaining case it was written with both, Aa2 and I3.[42]

In Part 2 of this work, I interpreted *ȝd.t/ȝdy.t* as a severe infection (AoO 546) or an invasive tumor[43] (AoO 8558).[44] Both diseases have tissue breakdown and aggressive progression in common. Of course, the ancient Egyptians could not yet recognize their different pathophysiological basis.

The next four prescriptions, Eb 410 (62,12–13), Eb 411 (62,13–14), Eb 412 (62,14–15), and Eb 413 (62,15–17), again have the simple title "Something else", so they are probably intended for *ȝd.t/ȝdy.t* as well.

Eb 414 (62,17–18)

Text:	
Transcription:	*k.t n(j).t wbȝ mȝȝ*
Translation:	Something else for "opening" the eyesight

It is one of the many prescriptions that promise successful treatment of severe vision loss (of unknown cause).

39 Eb 365 (59,1–2) and Eb 369 (59,10–13). Cf. Traunmüller, *Eye diseases, Part 2*, 6–7, 9.

40 Hannig, 18 (601); Wb I, 24.24.

41 Hannig, 18 (585, 591); Wb I, 24.15.

42 Eb 369 (59.10–13). Cf. Traunmüller, *Eye diseases, Part 2*, 9.

43 Some malignant tumors do not appear as solid growths, but rather as ulcerated tissue decay (e.g., basal cell carcinoma).

44 Translations by other authors: eye disease (Hannig, 18 [606]; Wb I, 24.25); *pterygium* (Ebbell, 6; Hannig, 18 [606]); *ȝdy.t* formation (Lalanne and Métra, 129); raging in the eye (Popko [online], Eb 409; Westendorf, 621).

Eb 415 (62,18–22)

Text:	
Transcription:	*k.t n(j).t dr ḥ3t.j kk.w ḥ3<r>.w s.t-ᶜ ḫpr.t(j) m jr.tj*
Translation:	Something else to eliminate blurriness, darkness, and a squint when the influence appears in both eyes

The heading lists three symptoms that affect both eyes:

The symptom *ḥ3t.j* is already known to us from Eb 339 (56,11–15) as "blurred/cloudy vision". Cloudy vision, aptly indicated by the weather-related classifier N4 (sky with falling rain or dew), occurs with any kind of opacity of the eye (opacity of the cornea, anterior chamber humor, lens, or vitreous body).[45]

What is new here is the symptom *kk.w* ("darkness"[46]), which can be interpreted as a paraphrase for blindness. However, other expressions were used more frequently for blindness and loss of vision (*šp.t, k3mn, wb3 m33*). Therefore, I suggest that *kk.w* is an abbreviation for "visual impairment <u>in the dark</u>", i.e., night blindness. Night blindness is a result of vitamin A deficiency,[47] which was certainly widespread among the lower classes.[48] It is important to note that night blindness may be accompanied by blurred vision (*ḥ3t.j*) even during the day, because advanced vitamin A deficiency leads to bilateral degeneration of the cornea (*xerophthalmia;* AoO 8280). Earlier translators postulated that the ancient Egyptian word for night blindness is *š3(r).w* (see Eb 351 [57,11–12]).[49] I myself have interpreted *š3(r).w* instead as epithelial defects of the cornea,[50] so that in my work, night blindness is still "free" for *kk.w*.

The third symptom, here spelled *ḥ3.w,* also appears for the first time in the Eye Book. It

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45 Traunmüller, *Eye diseases, Part 1*, 6. Translations by other authors: watery eyes/*lippitudo* (Ebbel, 32; Hannig, 543 [19675]); blepharitis (Ebbell, 33; Hannig, 543 [19675]); blur (Hannig, 543 [19675]; Popko [online], Eb 339, Eb 415; Westendorf, 610, 622); leukoma (Hannig, 543 [19675]); impaired vision (Lalanne and Métra, 117, 129); eye disease of humans and cattle (Wb III, 35.13–14).

46 Hannig, 960 (35494, 35501); Lalanne and Métra, 129; Popko online, Eb 415; Westendorf, 622.

47 Vitamin A is needed to form the visual pigment in the cells of the retina. A deficiency manifests itself primarily in the so-called rods, which enable adaptation to darkness.

48 From preserved supply documents, we know that grain products (bread, beer), onions and little meat or fish formed the basis of the diet of working men (W. Helck, "Arbeiterversorgung", in M. Fierro et al. (eds), *Wirtschaftsgeschichte des alten Ägypten im 3. und 2. Jahrtausend vor Chr*, [HdO 5, Leiden, 1974], 231–234). However, significant amounts of vitamin A are found only in milk, eggs and liver. Red and yellow fruits and vegetables, which contain a precursor of vitamin A (carotene), were also scarce in ancient Egypt, especially for the lower classes.

49 Ebbel, 48; Hannig, 869 (32185); Popko (online), Eb 351; Westendorf, 612.

50 Traunmüller, *Eye diseases, Part 1*, 12–13.

was said to be a defective spelling of *ḥ3r.w* (also: *ḥ3rr.w*).[51] Depending on the author, the symptom was translated as "weak-sightedness" or "squint" (*strabismus*).[52] If the reduced visual acuity of an otherwise healthy eye is not caused by a refractive anomaly (nearsightedness, farsightedness, astigmatism), one must consider *amblyopia* (from the Greek ἀμβλύς, "blunt", and ὄψις, "to see"; colloquially called "lazy eye"). *Amblyopia* occurs in early childhood as a permanently inchoate interaction between the retina and the visual center in the brain. It is often the result of congenital strabismus, as the brain suppresses the visual input from one eye to avoid double vision. In certain forms of strabismus, children try to compensate for the double vision by tilting and turning their heads until, over time, it becomes a permanent wry neck (ocular *torticollis;* AoO 5141). This is reminiscent of two Egyptian text passages that associate *ḥ3r(.w)* with a disease of the neck.[53] Because of all this, I advocate that *ḥ3(r).w* should be interpreted as strabismus (squint) with or without amblyopia in one eye.

The word *st-ᶜ* ("influence, access, activity"[54]) in the subordinate clause indicates that the ancient Egyptians thought of diseases as being caused by gods, demons, or the dead.[55] The question is whether this remedy helps a combination of blurred vision, night blindness, and strabismus in the same person, or whether the same remedy works for these three different eye problems. But perhaps it is an even more versatile remedy, and the second part of the heading should be read as a parataxis: *s.t-ᶜ ḫpr.t m jr.tj* ("… and [other] symptom(s) that have developed in both eyes").[56]

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51 Ebbell, 32. The *ḥ3rw/ḥ3rr.w* disease also appears in the spell of Eb 385 (60,16–61,1) and in Eb 856e (103,8–11).

52 Translations by other authors: weak-sightedness (Ebbell, 31–32; Hannig, 542 [19637, 19638]; Lalanne and Métra, 129; Popko [online], Eb 415; Westendorf, 622); squint (Hannig, 542 [19638]). The translation as "weak-sightedness" is based on a Coptic word (Ebbell, 32). But if the correct name of the disease is *ḥ3.w,* as spelled in Eb 415, no etymological derivation is possible, because  is a root that forms many different words. The conjecture of Erman and Grapow (Wb III, 18.12) that *ḥ3.w* was a misspelling for *ḥ3t.j* is obsolete, since both *ḥ3.w* and *ḥ3t.j* are mentioned in the heading of Eb 415.

53 Eb 856e (103,8): "If he suffers from his neck and his two eyes have *h3r(.w)* [...]" (Lalanne and Métra, 211; Westendorf, 698). Gynecological Papyrus Kahun I (1,1): "Healing [for a woman whose eyes are] sick, and she cannot see and suffers from her neck [...]" (L. Popko, *Gynäkologischer Papyrus Kahun,* <https://sae.saw-leipzig.de/de/documents/gynaecological-papyrus-kahun>, last accessed 08.01.2024).

54 Hannig, 702 (25565, 25566).

55 Westendorf, 329, 360–398.

56 Similar translations in Westendorf, 622 and Popko (online), Eb 415.

Eb 416 (62,22–63,1)

Text:	
Transcription:	*k.t n(j).t dr qnj.t*
Translation:	Something else to eliminate *qnj.t*

Some scholars considered *qnj.t* to be an alternative spelling of *qn.t*.[57] We are already familiar with *qn.t* (see Eb 354 [57,14–15]).[58] Like most scholars, I derived this disease name from the verb *qn* ("to be greasy"[59]) and interpreted it as *pinguecula* or *pterygium.*[60]

However, the disease *qnj.t,* as clearly spelled here in Eb 416, seems to be a separate condition and should be derived from the verb *qnj* ("to injure"[61]).[62] The root *qn* is also found in the words for "to be strong, to beat up", and "power, evil, harm (done by someone), violence".[63] This suggests that *qnj.t* may be a blunt ocular trauma caused by a blow to the eye, as opposed to the *tḫn* injury[64] which is presumably caused by pointed objects. Blunt ocular trauma can have serious consequences, such as intraocular hemorrhage (AoO 2816), iris rupture, lens dislocation, or partial retinal detachment.

Another possible origin of the disease name *qnj.t* () is *qnj.t* written , a golden yellow mineral pigment (arsenic sulfide) that was used in embalming and wall painting.[65] Yellow discoloration of the sclera of both eyes is an early symptom of jaundice which is even noticeable before the skin turns yellow (AoO 7707).[66] Jaundice can have many

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57 Lalanne and Métra, 129; Ebbel, 56. Ebbell argued that *qn.t* and qnj.t are spelling variants analogous to *ꜣd.t* and *ꜣdy.t.* However, *qn.t* and *qnj.t* can be derived from two different verbs, whereas *ꜣdy.t* is a participle of *ꜣd*.

58 Traunmüller, *Eye diseases, Part 1*, 14–15.

59 Hannig, 926 (34293–34297); Wb V, 40.8–12, 41.19–20.

60 Both, *pinguecula* and *pterygium* are circumscribed, yellowish-white proliferations of the bulbar conjunctiva, which visually resemble an accumulation of fat. The interpretation of *qn.t* as *pinguecula* can also be found in Westendorf, 612.

61 Hannig, 929 (34409); Wb V, 52.7.

62 Translations by other authors: damage/injury to the eye (Ebbell, 56; Hannig, 929 [34410]; Westendorf, 622); eye disease (Wb V, 52.8); corneal ulcer? (Ebbell, 56; Hannig, 929 [34410]); fat accumulation (= same as *qn.t*; Lalanne and Métra, 129); *qnj.t* suffering (Popko [online], Eb 416).

63 Hannig, 926 (34300), 927 (34320, 34332, 34352, 34360); Wb V, 42.4, 48.2–8, 48.14. The verb *qnj,* if classified with hieroglyph D32, has additional meanings such as "to embrace" and "to gather sheaves of grain" (Hannig, 928 [34384, 34386, 34400]; Wb V, 50.11–16, 52.4), but these do not indicate eye disease.

64 Eb 337 (56,6–10) and Eb 381 (60,8–10). Cf. Traunmüller, *Eye diseases, Part 1*, 5–6, *Part 2*, 13.

65 Hannig, 929 (34412); Wb V, 52.10–15.

66 *qnj-ḥr* "one with yellow face" (Hannig, 929 [46554]).

causes. In ancient Egypt, the primary causes were probably viral infection (hepatitis A), obstruction of the bile ducts by adult stages of the parasite *Schistosoma mansoni* (hepatobiliary *schistosomiasis*), liver-damaging toxins (including alcohol), or a malignant tumor of the liver or pancreas.

The next prescription, Eb 417 (63,1–2), is titled “Something else”, so it is probably also intended for the treatment of *qnj.t.*

To be continued in Part 4.

Abbreviations

Abh. Naturhist. Ges. Nuernberg: Abhandlungen der Naturhistorischen Gesellschaft Nuernberg; AoO: Altals of Ophthalmology; Wb: Adolf Erman/Hermann Grapow, Wörterbuch der ägyptischen Sprache, Vols. I–VII (Berlin, 1897–1961), unchanged reprint 1971.