1 Introduction: Eye Disease in Mesopotamia (Mark J. Geller)

Eye disease is common to all systems of ancient medicine and its prominence among medical remedies may simply be explained by the prevalence and visibility of eye ailments in all ancient societies. This means that eye disease can offer useful comparative data for both diagnosis and pharmaceutical remedies, and even a cursory survey will show that certain types of medications were widely used throughout the Mediterranean and Near East. What is unusual about the Mesopotamian recipes in the present collection – drawn from the Nineveh Medical Encyclopaedia from the Royal Library of Ashurbanipal¹ as well as from duplicate and parallel texts from other sites – is the large number of incantations which accompany the medical recipes, and these provide clues to theories of eye disease and its treatment. Moreover, there is some similar medical data in the Syriac Book of Medicines and Babylonian Talmud, in Aramaic, which appear to betray some degree of awareness of the Akkadian treatments, and this provides important clues to the reception of Akkadian medicine into Late Antiquity.

1.1 Diagnosis of symptoms

Modern medicine distinguishes between signs and symptoms, the one referring to how the patient describes his or her own perceptions or pain, and the other referring to the observations by the physician based on examination and tests. Both types of notations appear in Babylonian medical and diagnostic texts, although usually restricted to external examination of the body without benefit of aids or instruments, which is why retrospective diagnoses are scarcely reliable.²

The usual pattern for all of Akkadian medicine is for symptoms to be introduced by the standard formulaic logograms DIŠ NA, understood to stand for *šumma amēlu*, 'if a man'.³ Although this same formulaic notation also appears in the Diagnostic Hand-

¹ For a description of the Nineveh Medical Encyclopaedia, see Panayotov 2018a.

² Attia 2015: 4. See Fincke 2009: 99–101, in which she offers an abbreviated scheme for the sequence of symptoms within IGI, as well as (for comparison) the incipits of a single LB tablet dealing with eye disease (BM 54641 + 54826). Her categories of symptoms include: bloodshot eyes, foreign bodies in the eye, dysfunction of lachrymal glands, eyelids, internal eye pathologies, and 'shadow', as well as general categories of vision and eyesight.

³ The identification of the logogram DIŠ for *šumma* 'if' is likely to be correct and can be argued on the basis of older medical texts from the Old Babylonian period (c. 1700 BCE), which begin with the word *šumma* spelled out syllabically. However, Akk. *šumma* has other logograms in divination texts, such as BAD, and the DIŠ could be used to denote a separate entry, as in accountancy, rather than the word 'if'.

book,4 it does not appear that the symptoms described in the therapeutic corpus were simply copied or drawn from the symptoms noted in the Diagnostic Handbook. The first encountered (and most common notation of eye disease) is a straightforward statement that the patient's eye is 'sick' (marsu); while this may appear to be generic, this sparse symptom designation (like all others) nevertheless called for specific kinds of treatments, suggesting a nosology not indicated by the text but obvious to the practitioner.

Treating the prescriptions and their associated symptoms in sequence within IGI, we turn now to a symptom with both a primary and secondary description,8 in which the eyes are 'sick' ($mar s \bar{a}$) and 'inflamed' ($han t \bar{a}$), with the latter term usually describing feverish conditions. The symptom is distinctive enough to warrant its own specific treatment, although the exact nature of the pathological condition is not adequately indicated (which is true of most of the symptom notations).

The next stage of symptoms is another two-clause description, beginning with the general condition of eyes being 'sick' (mars \bar{a}) and also 'closed' ($katm\bar{a}$), ¹⁰ or additionally, that the patient cannot open his eyes for a period of time, lit. 'he cannot open (them) for many days'.11 This recipe also includes a tertiary description, that his head is hot (with *ummu*-fever) and his eyes contain a film (*sillu*), which could indicate a variety of pathologies. The 'closing' of the eyes can be an indication of swelling, which, combined with fever and a filmy eye, provided the essential symptoms of this pathology.

In fact, there are some remarkable similarities between Hippocratic texts dealing with prognosis and Akk. diagnostic texts, if one assumes that DIŠ is not read as *šumma* or 'if', but rather as a new entry.

⁴ For the Diagnostic Handbook, see Labat 1951, Heeßel 2000, Scurlock 2014, and the unpublished dissertation of E. Schmidtchen, Freie Universität Berlin, 2018, now in press.

⁵ See the discussion below. The eye-symptoms in the Diagnostic Handbook are in the first instance associated with a condition of the temples of the head, as a secondary symptom affecting the eyes, while symptoms of the eyes as primary ailment usually describe the colour or condition of the eyes (e.g. crossed, uncoordinated, dilated, etc.). These are quite different from symptoms in the therapeutic corpus, although there are some common features, such as whether the eyes contain blood.

⁶ IGI 110' and 12', šumma amēlu īnāšu marṣā, 'if a man's eyes are sick.'

⁷ See IGI 1: 10-13, which involve daubing the eyes with a selection of minerals (including copper) and plant substances, and these treatments are not duplicated elsewhere for more specific symptoms.

⁸ This distinction between symptom notations which consist of a single clause or those which have a follow-up secondary notation is known from the Hippocratic Corpus, as noted in Langholf 1990 and discussed in Akk. recipes by Geller 2001/2002: 66.

⁹ IGI 1: 14': šumma amēlu īnāšu marṣāma u hanṭa, 'if a man's eyes are sick and burn.' This term hanṭu for feverish is unusual in this context, since the more usual terms are either ummu ('heat') or şētu ('sunfever'), while the term huntu is more typical of private Neo-Assyrian letters between the king and his court physicians (see Parpola 1993: 336 and the discussion by Panayotov in his introduction above).

¹⁰ Lit. 'covered', cf. IGI 1: 21' šumma amēlu īnāšu marsāma u katmā, 'if a man's eyes are sick and closed.' 11 IGI 1: 23' šumma amēlu īnāšu marşāma ūmē ma'dūti lā ipetti ina ummi qaqqadīšu īnāšu şilla malâ, 'if a man's eyes are sick and then he cannot open (them) for many days, while having *ummu*-fever of his head (and) his eyes are filled up with a film.'

The text now returns to a single-clause description, moving away from the general category of the eyes being 'sick', but providing the single symptoms of the eyes being 'sick' $(mar s \bar{a})$ specifically from 'dryness' $(t \bar{a} b \bar{\imath} l u)$, '2 for which rather elaborate treatments are recommended, applied through daubing or bandaging the eyes. The single-clause pattern continues for the next two prescriptions, again relying upon the general description of the eyes being 'sick' $(mar s \bar{a})$, 13 but each with distinctive recipes, involving daubing and bandaging the eyes. These *marsā*-prescriptions may serve as sub-headings for a new sequence of recipes, indicating a type of division between recipes of different categories.

The pattern introduced by the next three sets of prescriptions involves blood in the eyes. The first of these is a compound symptom with two separate if-clauses (*šumma*), the first describing the eyes as 'filled' (malâ) with blood, preventing the patient from sleeping, while the second clause describes the middle of the eye as 'red', with the eyes again being 'closed' (katmā), as above (IGI 1: 21'). 14 The follow-up prescription with this theme is a single-clause entry that the eyes are 'suffused' (lit. 'blocked < šanā'u) with blood, which differs from eyes being filled with blood.¹⁵ The interesting feature of this set of prescriptions is the use of Dreckapotheke (bat guano, lizard droppings, etc.). The third prescription in this series returns to the simple condition of the eyes being 'filled' (malâ) with blood, while offering no less than four different remedies for this condition.¹⁶

We cannot be certain about the specific symptoms which follow, since the introductory clauses are damaged, except that the very next prescription returns to the default incipit, 'if the man's eyes are sick' (marsā). This may, in fact, introduce a new type of symptom, as indicated by the succeeding prescription, 'if a man's eyes are found to have a deposit of blood' (šikna ša dāmi), 18 and at this point the text introduces no less than three incantations and accompanying medical rituals, and these form a block of text which concludes the recipes which precede it. This division makes sense in the light of what comes next, namely a prescription with an elaborate array of symptoms arranged over five descriptive clauses, beginning with the eyes being sick $(mar s \bar{a})$. In this case,

¹² IGI 1: 26' šumma amēlu īnāšu tābīla marṣā, 'if a man's eyes suffer from dryness.'

¹³ IGI 1: 32', 34' šumma amēlu īnāšu marṣā, 'if a man's eyes are sick.'

¹⁴ IGI 1: 36'-37' šumma amēlu īnāšu dāma malâma urra u mūša lā isallalma šumma libbi īnīšu sām īnāšu katmā, 'if a man's eyes are full of blood and he cannot sleep day and night, if the inner part of his eyes is red, (and) his eyes are closed.'

¹⁵ IGI 1: 40' šumma amēlu īnāšu dāma šunnu', 'if a man's eyes are suffused with blood.'

¹⁶ IGI 1: 45' šumma amēlu īnāšu dāma malâ, 'if a man's eyes are full of blood.'

¹⁷ IGI 1: 57', 59' šumma amēlu īnāšu marṣā, 'if a man's eyes are sick.'

¹⁸ IGI 1: 61' šumma amēlu īnāšu šikna ša dāmi šaknā (var. inaṭṭal), 'if a man's eyes have a blood deposit (var. but he is still able to see).'

¹⁹ IGI 1: 79'-80' šumma amēlu īnāšu marşāma dāma malâ baluhhī dāma ultatanni'ā dāmu dimātu ina libbi īnīšu ittaṣâ ṣillu lamassat īnīšu unakkap ašītu ana ṣilli itūr digal ikabbitūšu, 'if a man's eyes are sick and then full of blood. They (= the eyes) are suffused with baluhhu-granules and blood, blood (and) tears

blood and tears emerge from the eyes, with a film (sillu) covering the eye's pupil; this medical condition also has four alternative recipes, followed by thirteen incantations and corresponding medical rituals, emphasising the seriousness of the problem, and bringing the reader to the end of the tablet.

The second tablet of IGI is thematically quite different, lacking the general observation that the eye is 'sick', which was a key *Leitmotif* of Tablet 1. What is of primary concern to Tablet 2 is the appearance of eye pathologies, with *murdinnu*-'brambles' appearing in the eye (1), 20 or giddagiddû-fibers (12), 21 which are not known from elsewhere, or a flesh-like lesion (or perhaps growth) in the eye (16).²² None of these can be identified with modern diagnoses. The next symptom follows thematically with a description of hair (perhaps an eyelash) growing out of the eye causing blurred vision (17).23 A group of subsequent prescriptions share variations of the same symptom of the eye being 'full' of moving tissue, perhaps indicating some type of tumour (19),24 with variations being that the tissue (or flesh) keeps moving (illak, 22), 25 or that the diseased eye is full of tissue and blood (25). The final symptom is that the eye is full of $q\bar{u}q\bar{a}nu$ -worms (27). These worms are usually associated with the digestive tract, but this description is likely to be metaphoric for observable patterns of eye lesions, similar to the presence of 'brambles' in the eye mentioned above.

The prescriptions adopt a new direction (54'), featuring the patient's own report of his or her vision, with some part of the eyes (perhaps the pupils) being characterised as progressively becoming 'dark' (*iteneṭṭâ*), with a secondary remark that this condition is likely to persist and that the eyes will be 'cloudy' $(ipp\hat{a})$, referring to the patient's vision rather than to the eye itself.²⁸ The subsequent sequence of eye symptoms reflect what the patient relates, that the eyes feel 'inflamed' (56')²⁹ or 'pressed' (suhhutā, 63'),³⁰ or his

come out from within his eyes. A film pushes away the pupil of his eyes. The blurred vision has turned into a film, and (the eyes) make seeing burdensome for him.'

²⁰ IGI 2: 1 šumma amēlu īnāšu murdinnī malā, 'if a man's eyes are full of murdinnu-brambles.'

²¹ IGI 2: 12 šumma amēlu īnāšu giddagiddâ ukallā, 'if a man's eyes contain giddagiddû fibers.'

²² IGI 2: 16 šumma amēlu ina īnīšu lipištu, 'if there is a fleshy substance in a man's eyes.'

²³ IGI 2: 17 šumma amēlu ina īnīšu šārtu asāt u īnāšu ašā, 'if a hair protrudes from a man's eyes, and his vision is blurred.'

²⁴ IGI 2: 19 šumma amēlu īnāšu šīra ālika malā, 'if a man's eyes are full of loose flesh.'

²⁵ IGI 2: 22 šumma amēlu īnāšu šīra ālika malâma u illak, 'if a man's eyes are full of loose flesh and it moves.'

²⁶ IGI 2: 25 šumma amēlu īnāšu šīra u dāma malâ, 'if his eyes are full of flesh and blood.'

²⁷ IGI 2: 27 šumma amēlu īnāšu qūqānī malā, 'if a man's eyes are full qūqānu-'worms.'

²⁸ IGI 2: 54' *šumma ina īni* [...] *īteneţtâ amēlu šū šipiršu ilabbirma īnāšu ippâ*, 'if in the eye [his pupils(?)] keep darkening, the effect on that man will be long-lasting and his eyes will be cloudy.'

²⁹ IGI 2: 56' *šumma amēlu īnāšū nuppuhā*, 'if a man's eyes are inflamed.'

³⁰ IGI 2: 63' *šumma amēlu īnāšu ṣuhhutā*, 'if a man's eyes are under pressure.'

vision is 'dimmed' ($barr\bar{a}$, 58')³¹ or 'dark' ($arp\bar{a}$, 61').³² The next symptoms portray what can be seen by the physician, that the eyes are 'closed' $(katm\bar{a})$, ³³ probably reflecting external swelling which blocks the vision. The next two symptoms which can be identified refer to yellowness in the eye (amurriqānu), which might be jaundice, and this also reflects an external observation from the practitioner.³⁴

A thematic change can now be seen in the prescription incipits, which return to the general theme of Tablet 1 in describing the eyes as being 'sick' (marsā, IGI 2: 117', 121', 124'), but in this case more details are provided by secondary symptoms within additional clauses. It is difficult to gauge the precise meaning of 'sick', whether this might refer specifically to pain or discomfort, or simply that the eye was in an abnormal state. The first secondary clauses provide more precise information, stipulating that the eyes in this condition would not open over several days and would be affected by a 'film' (*sillu*), and that the patient's head would be hot;³⁵ it is difficult to know whether these symptoms occur concurrently or would have been alternative symptoms for 'sick' eyes. The second set of symptoms for 'sick' eyes is also quite specific, that a 'membrane' (šišītu) covers the pupil, tears flow, and a 'film' (şillu) fills the eyes;36 the distinction between an ophthalmic 'membrane' and a 'film' cannot be precisely determined. The third symptom of sick eyes provides additional information, since the membrane covering the eye is described as a white spot (pūsu, IGI 2: 124'), which causes the patient's vision to be 'difficult' (*kabit*, lit. 'heavy'),³⁷ again adopting a subjective report from the patient.

After a long gap with either no symptoms or only fragments of *šumma*-clauses, we encounter more objective descriptions of eyes, such as the eyes being 'rotten' ($madir\bar{a}$, a term with Aramaic cognates referring to eggs), 38 and a series of prescriptions referring to the eyes being 'thickened' (šamhā) by the presence of a film (sillu), with the right and

³¹ IGI 2: 58' šumma amēlu īnāšu barrā dimta ukallā, 'if a man's eyes are dim and contain tears.'

³² IGI 2: 61' šumma amēlu īnāšu arpā, if a man's eyes grew dark.'

³³ Lit. 'covered', cf. IGI 2: 76' šumma amēlu īnāšu katmā, 'if the man's eyes are closed.'

³⁴ IGI 2: 115'-16' šumma amēlu īnāšu amurriqāna malâ, 'if a man's eyes are full of yellowness (jaundice).'

³⁵ IGI 2: 117' šumma amēlu īnāšu marsāma ūmē ma'dūti lā ipetti ina ummi qaqqadīšu īnāšu silla malâ, 'if a man's eyes are sick and he cannot open (them) for many days, with his head being feverish, (and) his eyes are filled with a film.'

³⁶ IGI 2: 121' šumma amēlu īnāšu marṣāma šišītu muhha lamassat īnīšu armat dimta illak īnāšu șilla malâma, 'if a man's eyes are sick, and a membrane covers the surface of the pupil of his eyes, tears flow, (and) his eyes are filled with a film.' See also IGI 2: 139'.

³⁷ IGI 2: 124' šumma amēlu īnāšu marṣāma šišītu muhha lamassat īnīšu armat digalšu kabiti, 'if a man's eyes are sick, and [a membrane covers the surface of the pupil of his eyes], (and) his vision is "heavy".' Similar expressions occur in IGI 1: 80' (digal ikabbitūšu), IGI 2: 126' (digalšu kabit), and IGI 2: 137' (kabit), all indicating difficulty in seeing.

³⁸ IGI 2: 196' šumma amēlu īnāšu madirā, 'if a man's eyes are rotten.'

left eye being treated individually.³⁹ This brings us towards the end of IGI Tablet 2, returning once again to the standard symptom that the patient's eyes are 'sick' ($mars\bar{a}$) but adding a second description of being 'shiny' (namrā), 40 followed by a variation of an earlier symptom, that the pupil of the eye or the eye itself is 'filled' by a film (sillu) and inflammation (sirihtu), indicating observations made by the practitioner. 41 The end of the tablet is fragmentary and no further symptoms can be recovered.

Tablet 3 of IGI features another type of symptom which attempts to establish causal factors which also serve as diagnoses. The initial short recipe provides a general description of the eyes as 'troubled', meaning 'blurred' (dalhā, IGI 3: 1), reflecting a patient's report on lack of clarity of vision.⁴² The second prescription combines a subjective description of the symptoms with a putative diagnosis: while the patient continually sees a 'flash of light' (bursu), his eyes are affected by a condition labelled as the 'Hand of a Ghost'. 43 It seems likely the eyes are affected by a Hand-of-the-Ghost medical syndrome rather than assuming an actual ghost as the disease vector. 44 The prescription itself is entirely pharmaceutical with no magical or ritual components to counter the activity of ghosts. More detailed information appears in the following recipe (IGI 3: 9) in a series of primary and secondary clauses, affirming that the patient has been 'seized' by the 'Hand of a Ghost'; it is important to note that the *primary* symptom is that the patient has been

³⁹ IGI 2: 199'-202' šumma amēlu īnāšu şilluma šamhā, 'if a man's eyes have grown bulky with a film.' The verb šamāhu usually means to be 'lush' or 'luxuriant' in a positive sense (also 'prosperous'), which would hardly apply to a diseased or filmy eye, but one synonym list (Malku-šarru 4: 209) gives the term kubburu 'thick' as a synonym for šamhu, which could apply to a condition of the eyes.

⁴⁰ IGI 2: 204' šumma amēlu īnāšu marṣā namrā, 'if a man's eyes are sick and shiny.' This incipit could possibly mark another subdivision of prescriptions.

⁴¹ IGI 2: 207' šumma amēlu lamassāt īnāšu silla malâ, 'if the man's eves pupils [are full] of a film,' and IGI 2: 209' šumma īnu amēlu sillu sirihta mali, 'if a man's eye is full of a film (and) has inflammation.'

⁴² IGI 3: 1 šumma amēlu īnāšu dalhā, a similar symptom of eye disease occurs in BAM 522 6', šumma amēlu īnīšu dāma tiri dalhā, 'if blood oozed from a man's eyes (and) they are 'troubled' (i.e. "blurred"),' providing a physical explanation for the meaning of dalhu.

⁴³ IGI 3: 2 enūma īnāšu burṣa iddanaggalā šugidimmakku, 'when his eyes repeatedly see a flash of light, Hand of a Ghost.'

⁴⁴ The term ŠU.GIDIM.MA ('hand of a ghost') is given in logographic form suggesting that the phrase might represent a disease label rather than the actual presence of a ghost. If a ghost was personally involved in causing the patient's illness, somewhere within the IGI texts one would expect to find an incantation or ritual against ghosts; this does not appear to be the case. A similar problem occurs in prescription incipits in BAM 520 (IGI Tablet 4?) 19' and 25', šumma amēlu mukīl rēš lemutti işbassu, 'if a Supporter-of-evil seized a man', which looks at first like the personal involvement of a *mukīl-rēš-lemutti*demon, also known from incantation literature (see Farber 1974); in this latter case, the demonic name is given syllabically, not as the usual logogram SAG.HUL.HA.ZA. However, there is no other symptom mentioned other than the 'supporter-of-evil', suggesting that this term served as a label for some kind of medical syndrome which required no further elaboration, without any associated incantations aimed at countering a personal demonic attack (see BAM 520 11', No. IV.8 (p. 147).

attacked by this condition, with the eye symptoms themselves only occurring in the secondary clauses. These affirm that this Hand-of-the-Ghost pathology manifests itself in front of the patient's eyes (*ina pāni īnīšu*) like a lamp, a distant lightning-flash, or like a 'goat' (probably referring to the goat-star Lyra).⁴⁵ There is no clear suggestion of a ghost personally presenting itself to the patient, but a pathology which causes the patient to see light in various intensities, presumably at night.⁴⁶ This type of disease attribution occurs elsewhere in IGI Tablet 3, in unfortunately broken contexts, in which one finds references to the Hand of Šulpaea (IGI 3: 62') and Hand of Ištar (IGI 3: 63' and 66'); the hands of these gods are rarely found in other therapeutic texts, but are more typical of the Diagnostic Handbook and occasional Šumma ālu omens.⁴⁷ These particular attributions to the hands of these gods may also have been impersonal, since Šulpaea's name is glossed with a remark identifying this god with the destructive storm god Adad,⁴⁸ indicating an environmental influence on the symptoms. In any case, the atypical nature of these attributions suggests that they represent citations from another genre, most likely being the Diagnostic Handbook.⁴⁹

The next legible incipit in Tablet 3 also provides a diagnostic remark, that the patient is blinded by 'sun-heat' (a type of fever, $s\bar{e}tu$); a more detailed description of how sunheat affects the eyes is not given, except that the eye is 'inflamed' (hamit). The following prescription follows suit with a simple symptom that the patient's eyesight ($digil\ \bar{m}i\bar{s}u$) is diminished, without specifying a cause, but the complex nature of the prescription itself suggests some kind of topical cause for poor vision. More details are to found

⁴⁵ IGI 3: 9 šumma amēla ŠU.GIDIM.MA işbassuma ina pāni īnīšu kīma nūri lū kīma berqi rūqi ... lū kīma enzi ištanakkan amēlu šū šugidimmakku işbassu, 'if "Hand of the Ghost" afflicts a man and appears in front of man's eyes like a lamp-light, like distant lightning ..., or like a goat, Hand of the Ghost has seized him.'

⁴⁶ Marten Stol (personal communication) refers to a general pattern in Nineveh tablets of initial treatments reflecting $as\hat{u}tu$ while subsequent treatments respond to $\bar{a}sip\bar{u}tu$ or 'supernatural' clauses (as in the Diagnostic Handbook). The point is that attributing symptoms to a 'supernatural' clause (like ghosts) may reflect what the patient sees or thinks but does not alter the pathology of the symptoms, which are essentially the same as those attributed to natural causes.

⁴⁷ The 'hands' of various deities also occur in the Diagnostic Handbook entry for eyes, see Section VI of the Edition. Regarding the interpretation of such phrases within medical texts, see the discussion in Geller 2015a: 201–203, which disagrees with Heeßel 2007, and Böck 2014: 47, as well as with a recent opinion expressed in Heeßel 2018.

⁴⁸ See IGI 3: 62', with a gloss *Adad rāhiş*, 'Adad causing flooding'.

⁴⁹ Citations from the Diagnostic Handbook within therapeutic recipes are known (see Stol 1991). Since the Diagnostic Handbook belonged to the bailiwick of the exorcist ($\bar{a}\check{s}ip\bar{u}tu$), such personal attributions of disease to the activities of gods are not out of place within that particular genre, although such references might be relics from prototype symptom-lists from the Old Babylonian period (see George 2013: 85–89).

⁵⁰ IGI 3: 49' *šumma amēlu īnāšu lā inaṭṭalā amēlu šū ṣēta hamiṭ*, 'if a man's eyes cannot see: that man is inflamed with sun heat.'

⁵¹ IGI 3: 51' šumma amēlu digil īnīšu maṭi, 'if a man's eyesight is diminished.'

in the next available symptom (unfortunately damaged), which refers to something remiss with the 'hole' or 'perforations' (or perhaps simply 'cavity') of the eye(lids), resulting (in a secondary clause) in the patient being unable to sleep (presumably because of eye pain), and a third general observation that the eyes are abnormal (lit. 'heavy', ikabbitā) in regard to their anatomical structures (minâtē). 52 A similar description (iii 70') refers to the 'perforations' (or cavity) of the eye(lids) as 'elongated' or 'taut' ($\check{s}add\bar{u}$), resulting in the patient not being able to rise from bed, 53 which indicates a far more extensive pathology than an ophthalmic problem. It is also possible that these symptoms are not primarily caused by an eye disorder per se but rather reflect a condition in which the patient feels like his eye sockets are stretched or drawn tight, perhaps because of severe headaches which deprive the patient of sleep or cause extreme lethargy.

The next recipes in sequence refer to day and night blindness respectively,54 which have two exceptional features. First, the prescription which follows from the symptomincipit is not actually a medical recipe but consists of a medical procedure and incantation, without the usual labels of DÙ.DÙ.BI or KÌD.KÌD.BI and ÉN. However, the present reconstruction of IGI Tablet 3 assumes that the incantation and medical application elements are afterwards repeated with their appropriate labels (ÉN and DÙ.DÙ.BI, see IGI 3: 85'-90'). Second, it may not be coincidental that this particular prescription, unique in both form and content, has a parallel in in the Babylonian Talmud (Gittin 69a); the Talmud text is not similar in all respects, but it is similar enough to warrant comparison. Whereas the Akkadian prescription calls for children to be assembled to recite something (now lost), the Talmud has children beating potsherds behind the patient and reciting the phrase, 'be off, dog, depart, rooster!' In the Akkadian text, both the mašmaššuexorcist and patient lift up seven loaves of bread and respectively recite the same phrase in dialogue form, 'accept (the bread)', addressing each other as one with a 'shining eye' or one with a 'staring eye' (i.e. sighted and blind). By contrast, the Talmud passage has seven pieces of meat (rather than loaves of bread) which are to be deposited at the patient's doorstep, to be consumed at the local garbage dump with an appropriate recitation for the night blindness to be removed. Nevertheless, IGI 3: 87'-88' gives an alternative ritual with seven lobes of animal lung to be eaten by the patient at his doorstep, which rounds out the comparison. This is not the only eye-disease prescription with a Nachleben: IGI 2: 105'-106' contains a fragmentary reference to piercing the eye of a

⁵² IGI 3: 68' šumma amēlu šīli īnīšu ...-ma lā iṣallal eli minâtēšina ikabbitā, 'if the perforations of a man's eyes and he cannot sleep, the (eyes) are 'heavy' in regard to their components.'

⁵³ IGI 3: 70' šumma amēlu šīlī īnīšu šaddūma mayyāla lā inašši, 'if perforations of a man's eye(lids) are lengthened, and he cannot 'lift his bed' (get out of bed).'

⁵⁴ IGI 3: 73'-74' šumma amēlu ūma kalāma lā immar mūša kalāma immar sîn-lurmâ šumma amēlu ūma kalāma immar mūša kalāma lā immar sîn-lurmâ, 'if a man cannot see during the whole day, (but) sees during the night: (it is) a day blindness. If a man sees during the whole day, (but) cannot see during the night: (it is) a night blindness.' Also, IGI 3: 75' and 81' *šumma amēlu īnāšu sillurmâ*, 'if a man's eyes (have) a day/night blindness.'

raven with a needle to see which plant the mother raven brings to heal its young, which has an almost exact parallel in the Syriac Book of Medicines, already noted by R. Campbell Thompson.⁵⁵ The Syriac Book of Medicines reads as follows:

sb prwg' dsnwnyt' 6 w^cqwr ^cynwhy w'swr bh 't' wšbwq lh bwnh tlt' ywmyn w'tyn 'mh whzyn lh d'ytwhy smy' w'zl' wmytyn hd mn ^cqr' wsym' ^cl ^cynwhy wmtpthn

Take the chick of a swallow and pull out its eyes and bind a sign on it and leave it for three days. When its mother comes and sees it that it is blind, she goes and brings a certain root and places it on its eyes and they open.

As Thompson long ago noted, this matches up well with IGI 2: 105'-106':

- ... īnīšunu ina şillî tutakkap ... šammī ša āribu ana şehrīšu ilgâ
- ... you prick their eyes with a needle ... the plants which the raven took to its young.

The legendary healing knowledge of the mother bird may have circulated widely, since Celsus also remarks that the blood of a pigeon, dove, or swallow is an ideal medicament, because the vision of these birds, when injured from without, returns after an interval to its original state, most speedily in the case of a swallow. This also has given rise to the fable that old birds restore vision by a herb, when it returns spontaneously (Loeb Celsus, translation Spencer 1989: II 227).

The end of IGI Tablet 3 is fragmentary and no further symptoms can be recovered. BAM 520 may possibly represent IGI Tablet 4, but in any case, this tablet preserves some unusual symptom notations. In the first example (BAM 520 i 13'–14'), if the patient sees flashes of light, he should simply recite an incantation-like phrase and he will immediately recover: 'I belong to Enlil and Ninlil, I belong to Ištar and Nanaya.' Since there is no additional recipe with this inscription, it appears to belong either to folklore or magic. A second prescription (ibid. 19'–24') is aimed at a patient seized by a 'supporter-of-evil'-demon, which is a symptom in itself; no additional information was required. In this instance, the prescription calls for a 'man or woman' (an unusual combination in prescriptions) to go up to the roof and perform some type of flour ritual. Another prescription immediately follows this one (ibid. 25'–27'), which also gives the 'supporter-of-evil' (demon) as the primary symptom, but a second clause is added which gives further symptoms, that the patient suffers from fever, groans loudly, and sweats profusely; this combination of symptoms is not repeated in other tablets of IGI.

Another key source for eye symptoms can be found in texts comprising the medical series UGU, which appears to be a separate compendium of medical recipes (beginning with the head) which parallels other medical treatises devoted to specific anatomically-

⁵⁵ See Thompson 1924: 32, Budge 1913: 662, Gottheil 1899: 193, 202.

⁵⁶ Cf. Akk. sinuntu, 'swallow'.

based diseases. The relevant symptoms (from BAM 480, see p. 151) describe a collection of eye-symptoms drawn from individual IGI recipes, such as that the eyes 'blink' (isapparā) and present blurred and clouded vision and dimness (birratu, ipītu, išītu), excessive tears, as well as the metaphoric 'brambles' and worms mentioned in other IGI recipes. The pattern appears to be that the text of UGU assembles a large number of separate recipes designed to treat a variety of head and eye ailments, all collected within a conglomerate single symptom notation. The eye symptoms in this text, however, are all secondary, following upon primary clauses describing fever in the cranium (or brain) and temples, etc., and the eye symptoms in UGU tend to be general, such as the eyes being inflamed or giving off excessive tears. It seems clear that UGU is not intended specifically for ophthalmic conditions, but in these instances for perceived diseases affecting the head in general.

The final crucial source for eye disease symptoms is the Diagnostic Handbook itself (see Section VI), and the descriptions of eye disease in this compendium follows the same pattern as noted with other pathologies, namely that symptom descriptions show a different character and vocabulary than those usually found in the therapeutic corpus (see Geller 2005: 11, 19). The differences are striking. In the Diagnostic Handbook, much more attention is paid to individual eyes, whether on the right or left, as presenting the primary symptoms, with those referring to both eyes being secondary. The Diagnostic Handbook usually focuses upon colour as a major criterion of disease, in this case describing the eye as 'dark' (tarkat), 57 'dark-red' (du''umu) 58, 'black' (salmu), 59 giving off a yellowish secretion (kalû),60 or full of red silt (qadūtu).61 Other eye descriptions are unique to the Diagnostic Handbook, such as the eyes 'moving in circles' (ilawwi), squinting (kapsat), 62 or sunken (maqtā). 63 Some symptoms are standard, such as the eyes being 'full of blood' (dāma malâ), 64 or giving off tears (dimāti ittanaddâ), 65 or even that the eyes are simply 'sick' (marṣā), but in this latter case, an additional secondary symptom explains the general sense, e.g. that the eye is held fast $(kal\hat{a}t)$ and cannot be raised $(l\bar{a}$ inašši). 66 In at least one instance, the eyes are described as 'staring' (balsā), 67 which is

⁵⁷ See VI Diagnostic Medical Omens ...: 11ff.'

⁵⁸ See VI Diagnostic Medical Omens ...: 129ff.'

⁵⁹ See VI Diagnostic Medical Omens ...: 124ff.'

⁶⁰ See VI Diagnostic Medical Omens ...: 7ff.'

⁶¹ See VI Diagnostic Medical Omens ...: 71ff.'

⁶² See VI Diagnostic Medical Omens ...: 54ff.'

⁶³ See VI Diagnostic Medical Omens ...: 93ff.'

⁶⁴ See VI Diagnostic Medical Omens ...: 71ff.'.

⁶⁵ See VI Diagnostic Medical Omens ...: 84ff.', along with ibakkâ, 'cry'.

⁶⁶ See VI Diagnostic Medical Omens ...: 59'.

⁶⁷ See VI Diagnostic Medical Omens ...: 89f.'

the same term appearing in a baroque medical ritual for day or night blindness, in which the ritual actor is described as 'staring of eyes' (*balsā*), probably no coincidence.⁶⁸

In general, one can easily notice that descriptions of eye-disease symptoms in the Diagnostic Handbook are much richer and more detailed than in the therapeutic texts, employing a very different choice of technical terms than in recipes, and this supports an earlier observation that the Diagnostic Handbook and therapeutic texts originated in very different scholarly ateliers.

1.2 Comparative material

Eye disease in the sole Hippocratic treatise devoted to ophthalmology, *On Sight*, provides some useful comparative data. One ailment is 'eyelids thicker than normal' (Loeb Hippocrates IX.5), or scabby and itchy eyelids (ibid. 6), which might resemble the IGI symptoms of pustules on the eyelids (IGI 2: 108'ff.). Other conditions appearing in this short treatise are night blindness (*nyctalopia*, Loeb Hippocrates IX 385.7), poor vision (ibid. 8), and references to the pupils of the eye being 'blue' or 'aquamarine' (ibid. 379.1), which might indicate a kind of film covering the eyes, similar to Akk. *şillu*. It is not possible to diagnose cataract, trachoma, papilloma, or even conjunctivitis, based upon the symptoms described in *On Sight* (pace Craik 2015: 260).

In contrast to the rather poor quality of the Hippocratic data, the Roman writer Celsus has much more detailed information to offer on the topic of ophthalmology, and because of the cosmopolitan nature of Rome in the first century, it is not impossible that some of Celsus' observations come from wider afield, both in areas of diagnosis and therapy. For instance, Celsus reports on conditions such as dimness of vision associated with pain in the head and bloodshot eyes (Loeb Celsus I 139 = II 8.18), or with a disease which he refers to by its Greek name *kephalaia* (ibid. 363 = IV.2.2).⁶⁹ Of particular interest to us is Book VI of Celsus, which offers a rich variety of treatments (mostly salves and ointments) against eye ailments, many of which can be identified in IGI. It is clear from Celsus, however, that these remedies were not inherited from earlier Hippocratic medicine (ibid. VI.6.E).

According to Hippocrates, the oldest authority, the treatment of the eyes includes bloodletting, medicaments, the bath and wine, but gave little explanation of the proper times and reasons for these remedies, things of the highest importance in the art of medicine (Loeb Celsus, II 189).

⁶⁸ It is possible that this medical ritual (see below) originated in *āšipūtu* rather than in classic *asûtu*.

⁶⁹ The symptoms of the acute disease *kephaliaia* are all known from recipes as 'hot shivering' (*horror calidus*), paralysis, blurred vision, an altered mental state (*mentis alienatio*), vomiting, nosebleed, and with the body becoming cold and weak.

The primary disease-symptom is *lippitudo* (Gr. ophthalmia), characterised by excessive tears and mucous and swelling of the eyelids, which can take a variety of forms, such as pain and dryness, ulcerations, sleeplessness, as well as ruptures and inflammation (Loeb Celsus VI.6.B–E).⁷⁰ The symptoms described by Celsus resemble those in Akkadian eye-disease prescriptions.

Dioscorides offers significant comparative data on ophthalmic disease, both in terms of identifying ailments and the use of eye ointments as a treatment. As John Riddle points out, in the first two books alone, Dioscorides named twenty-eight different ophthalmological actions, e.g. diseases of the eyes, swollen eyes, pain of the eyes, itchy eyes, crossed eyes (our strabismus), scabs on the eyes, hardening of the eyes, fungus growth on eyelids,⁷¹ wet humours of eyes (emphysema?), misting over of the eyes, sharpening of the eyesight, black eye, and corrosion of the eyelids (Riddle 1985: 49). Many of the descriptions of eye conditions in this list are reminiscent of IGI symptoms affecting the eyes, such as darkening or filmy eyes, but there is no mention in this list of bloodshot eyes or jaundice.

Parallels to the symptoms in IGI can also be found in the Syriac Book of Medicine,⁷² which preserve the following symptoms of the eye. 73 Nos. 1–8 refer to diseases of the head.

No. 9. lk'b' d'yn', 'for eye-disease.'⁷⁴ This statement corresponds to the frequent Akkadian symptom, 'if a man's eyes are sick' (šumma amēlu īnāšu marṣā).

No. 10. *ltmr'* d^c'ylyn l^cyn', 'for eyelashes which enter the eyes.' Cf. IGI 2: 98', ana ... kappi inīšu šūsi, 'to remove his eyelash'.

⁷⁰ Inflammation of the eye was distinguished by Methodists from inflammation of the liver or womb, which required different choices of remedies. Eye inflammation was treated by Methodists with poppyjuice, which was also favoured by Celsus, although oil as an eye treatment was considered as troublesome (see Tecusan 2004: 699).

⁷¹ Perhaps similar to *kurāru*-pustules on the eyelids in IGI 2: 108.

⁷² R. Campbell Thompson attempted to relate the Syriac Book of Medicine to Akkadian medicine in the notes to his translations of Akkadian medical texts (see Thompson 1924 and 1926 on eye disease texts), but he did not see general structural similarities in the third part of Budge's monumental 1913 study, which has no parallels with Galenic medicine (as in earlier sections of the S. B. M.).

⁷³ The list of prescription incipits from the Syriac Book of Medicine are known from two late (19th century) manuscripts published in Budge 1913 and Gottheil 1899. Fortunately, the section which Gottheil edited covers diseases of the eyes, and hence its relevance for the present study. We follow Gottheil's numbering of the prescriptions. I am grateful to Stefanie Rudolf for corrected readings.

⁷⁴ Syriac k'b 'grief, pain, disease' is roughly equivalent to Akk. murşu also on the pattern of k'b krs' for a digestive disease and k'b t'l' for 'baldness'; Syriac k'b also corresponds to Akk. marşu, 'suffering, sore, sick'.

No. 11. *l'yn' d'yr' wl' dmk'*, 'for an eye which is awake (or: watches) and does not sleep.' Cf. IGI 1: 36', if a man's eyes are full of blood and 'he cannot sleep day and night' (*urra u mūša lā iṣallalma*), as well as IGI 3: 68', *lā iṣallal*, 'he (or his eye) does not sleep'.

No. 12. *l'yn' d'yt bhyn bsr'*, 'for eyes which have flesh in them.' Cf. IGI 2: 16, *ina īnīšu lipištu*, if there is 'a fleshy substance in (a man's) eyes,' as well as a similar symptom (ibid. 19), *īnāšu šīra ālika malâ*, 'if a man's 'eyes are full of loose flesh.'

No. 13. *lmn' ds^cr' dy^cyn b^cyn'*, 'for whatever of hair growing in the eyes.' A similar symptom is found in IGI 2: 17, *ina īnīšu šārtu aṣât*, if 'a hair protrudes from (a man's) eyes.'

No. 14. *l*^c*yn*' *dnplyn tlpyhyn*, 'for eyes the eyelashes of which fall out.'

No. 15. l'yn' dntnţrn mn tlg' wqryrwt', 'for eyes which refrain from snow and cold.'75

No. 16. l'yn' dp'š bhyn hl', 'for eyes in which dust remains behind.'76

No. 17. lk'b 'yn' ybyš' l'yn' dkybn w'kln, 'for dry eye-disease for eyes which are sick and hurt.'77

No. 18. l^cyn' d'kln, for eyes which hurt.⁷⁸

No. 19. *l'yn' dṭly' dkyb' wl' pṭḥn*, 'for eyes of children which are sick and do not open'. In a non-pedriatic symptom in IGI 2: 117', a patient's eyes are ill and *ma'dūti lā ipetti*, 'he cannot open them for many days.'⁷⁹

No. 20. l'yn' swmqt', 'for red eyes.' See IGI 1: 37', 'if the interior of a man's eyes are red' (šumma libbi īnīšu sām).

No. 21. *lmḥwt' w'šydwt' d^cyn'*, 'for a blow⁸⁰ and giving off (fluid)⁸¹ of the eyes.'

⁷⁵ Although 'snow' and frost do not appear in IGI as symptoms, the pair of terms *šuruppû* and *hurbāšu* for 'chills' and 'shivers' are commonplace in medical and magical texts, with the former word cognate to *šurīpu*, 'ice'.

⁷⁶ This refers to a topos in eye-disease texts, in which specks of dust from the street, or algae, or a kernel of barley remains in the eye and needs to be washed out by tears; see IGI 1: 187'–189'.

⁷⁷ Syr. 'kl is a calque on Akk. akālu, 'to consume', but in medical contexts 'to be in pain'. Budge (1913: 660) translates this entry as, 'for the pain of eyes which are dry; for eyes which are weak and are being eaten away'; Budge separates the symptoms of dry eyes and 'weak' and painful eyes into two separate prescriptions, which appear as a single entry in Gottheil 1899: 191, 199.

⁷⁸ Budge translates, 'For eyes which have gangrene,' but cf. CAD U/W 64, 'outbreak (of disease)'.

⁷⁹ In a non-canonical LB eye-disease tablet (Fincke 2009: 93), a pediatric eye-disease clause is inserted into a collection of prescriptions meant for adults.

⁸⁰ The eye being 'struck' (*mahiş*) or damaged occurs in eye symptoms of the Diagnostic Handbook (see Section VI Diagnostic Medical Omens ...: 55', and 57'.

⁸¹ Syr. my' ' $\dot{s}ydwt$ ' refers to an eye complaint (see S.B.M. 75:9). The term (< ' $\dot{s}d$, to 'pour') in a medical context is a calque on Akk. $nad\hat{u}$, which refers in medical texts to an organ 'throwing off' liquids (blood, pus, tears, etc.). The usual expression in eye prescriptions is that the eyes throw off tears ($dimta\ ittanadd\hat{a}$), see BAM 521 5'.

No. 22 l'yn' ddm^cn, 'for eyes which produce tears,' see IGI 1: 79', dimātu ina libbi īnīšu ittaṣâ, 'tears come out from the middle of his eyes'.

No. 23. lzwq' d^cyn', 'for inflammation of the eyes.'82

No. 24. *lnqwš'* d^cyn', 'for pulsating (lit. knocking) of the eyes.'

No. 25. lk'b' rwrb' d'yn', 'for acute (lit. amplified) diseases of the eye.'

No. 26. l'wbyn' wlrwh' d'yn', 'for swelling and wind of the eye,' cf. BAM 518 6', if a man's eyes are 'swollen and affected by wind' (nuppuhāma šāra legâ).83

No. 27. lyrqn' d^cyn', 'for yellowness (jaundice) of the eye,' for which see IGI 2: 115'-16', 'if a man's eyes are 'full of yellowness' (or jaundice, amurriqāna malâ).'

No. 28. lhšwkn' d'yn', for darkening of the eyes, 84 which is similar to the symptom IGI 2: 61', 'if a man's eyes are 'dark' or 'cloudy' (arpā).'85

No. 29. l'mtn' d'yn', for obscurity of the eyes, 86 which corresponds to the condition in IGI 2: 54', *šumma ina īni* [...] *īteneṭṭâ*, 'if in the eye (the pupils[?]) become progressively darkened.'

No. 30. lmn dmhyl nwhrh, 'for one who is weak in regard to light (scil. vision).'

No. 31. lmn dl' hz' blly', 'for one who does not see at night,' corresponding to IGI 3: 75' and 81', šumma amēlu īnāšu sillurmā, 'if a man's eyes have day (or) night blindness (sillurmū).'

No. 32. *l'yn' dnhtyn ^clyhyn my' hly' w'wkm'*, 'for eyes into which a bright⁸⁷ or black liquid⁸⁸ descends.'

⁸² The meaning of Syr. *zwq*' is uncertain but it could be cognate to Akk. *zīqu*, 'blast' (of wind), since the idea of wind blowing foreign objects into the eye is a motif of IGI. See the incantation incipit in IGI 1: 163', ina šamê šāru izīqamma ina īn amēli simmē ištakan, 'Incantation: The wind blew in the sky and thus caused lesions in a man's eve.'

⁸³ An incantation (IGI 1: 174') effectively explains this as, šāru ša īn amēli uddupu ina īnīšu littasi, 'may the wind which has inflated the man's eye depart from his eye(s)!'

⁸⁴ This may be a hapax (Budge 1913: 557:18).

⁸⁵ This condition might be caused by a 'film' (sillu) which frequently covers the eyes in IGI prescriptions (see IGI 2: 117', 121', 139', etc.).

⁸⁶ The two terms ħšwkn' and 'mṭn' are synonyms ('darkening') for limited vision, but the latter term would correspond to a film obscuring vision.

⁸⁷ Although Aramaic hly denotes 'sweet', Akk. helû for 'bright' (referring to the colour of urine) is more appropriate in this context, see CAD H 169 (courtesy M. Stol).

⁸⁸ This may be a calque on Akk. *adamatu*, 'black blood', which can emanate from the mouth or lungs, see CAD A/1, 94.

No. 33. *lḥwr' d'yn*', 'for whiteness⁸⁹ in the eyes,' probably referring to a white spot in the eye, corresponding to IGI 2: 124', *ana pūṣi ša muhhi lamassat īnīšu nasāhi*, 'in order to remove the white (spot) from the surface of the pupil of his eyes.'

A further study of the Syriac Book of Medicine in relation to earlier Babylonian medicine is an obvious desideratum, but even this preliminary survey of symptoms suffices to show how similar these medical genres can be.

1.3 Materia Medica

Medical recipes appear to be largely adapted to the particular medical problem they are designed to address, which means that *materia medica* ought in theory to be specific to each condition being treated. On the other hand, it is also clear that certain standard drugs appear frequently in recipes and in a fixed sequence, and this is sometimes reflected as well in drug lists.⁹⁰

The first question is what were the typical drugs used in eye treatments? The usual recipe ingredients were either simplicia (a single drug for a single disease), or compound recipes with a combination of minerals and plants, as well as other organic ingredients (often Dreckapotheke); some of these were ordinary kitchen-like substances, others more exotic requiring complicated procedures for extraction. The *simplicia* can either be quite common medical ingredients, such as 'white plant' (IGI 1: 34', 44'), flour (IGI 2: 52'), crumbled bread (IGI 2: 67'), alum (IGI 1: 35'), 91 fox-grape (IGI 2: 63', 86'), pomegranate peel (IGI 2: 115'), or even bat guano (IGI 1: 44', IGI 2: 92', 141' probably a Deckname). More exotic *simplicia* include a kind of paste $(d\bar{a}m\bar{a}tu)$, 2, antimony mixed with sheep bone-marrow (IGI 2: 70', also IGI 3: 46'), or copper patina (or dust)⁹³ pulverised in gazelle fat (IGI 2: 147'). Other exotic *simplicia* are based upon animal organs, e.g. turtle gall bladder pounded in oil and copper (IGI 2: 71'), blood from a pig's belly (IGI 1: 48'), black snake fat (IGI 3: 68'), or a lizard's head similarly pounded in either oil (IGI 2: 73') or coals (IGI 2: 74'). Other animal organs include lamb ribs (IGI 2: 75') and mixture of cow and pigeon brains (IGI 2: 77'-78'), or eagle brains in mother's milk (IGI 2: 205'). IGI Tablet 3 (IGI 3: 37'-40') contains a series of simplicia to treat what is probably a Hand-of-the-

⁸⁹ cf. Akk. $p\bar{u}$ şu, see CAD P 539–40, but as a symptom this differs from the description of the eye, $p\bar{u}$ şini, 'white of the eye' (ibid. 541).

⁹⁰ See Geller 2005: 2–3. This particular aspect of therapy has not yet been fully researched, partly because the list Irianna remains unpublished.

⁹¹ a frequent ingredient in mouth-disease remedies

⁹² See the note to IGI 1: 42'. This paste, represented by the logogram ŠIM.BI.SIG₇.SIG₇, is not generally well attested outside of lexical lists.

⁹³ Akk. *šuhtu*, also found as a simplicium in IGI 1: 16', IGI 2: 147', § V.1 (BAM 480) 44 and 60. Often *šuhtu* is a substance in which ingredients are mixed, e.g. IGI 2: 103'-104', 154'.

Ghost ailment, and each alternative recipe is based upon a single mineral ingredient: a 'red stone', 'discharge'-stone, 94 a black-coloured glass, as well as pulverised lapis, sardonyx, galena, and obsidium-stones.

Ordinary ingredients found in IGI 1: 10'-11' include 'horned' alkali (salicornia), sprouted grain, and $kas\hat{u}$ -sap to use in bandages for the eyes, while the eyes are then daubed with two mineral substances, ashar and tuškû, mixed in fat and ghee. Substances like $kas\hat{u}$ occur fairly regularly in eye recipes, often together with $sahl\hat{u}$, but these two drugs are quite standard in all kinds of medical prescriptions and may not have played a distinctive role in treating eye ailments. Other drugs include *kammu*, thought to be a fungus but was an important tanning agent.

One of the unusual features of eye recipes is the relatively frequent presence of metal-based ingredients, especially copper and lead, as well as minerals such as kohl or antimony. This may not be coincidental, considering the fact that lead played a major role in eye-treatments in Roman medicine. Among such ingredients is *šuhtu* or copper dust / patina (IGI 1: 12'-16'; 2: 51', 61'-64', 71', 95', 101'-104', 147', 154', 157'-158'; 3: 53', BAM 439 6', BAM 480 44, 56, 60, 67), or a lead-spoon-salve (IGI 2: 166'; 3: 31', 54', 93', 105', BAM 480 71).

Ophthalmic materia medica rarely employ certain common drugs in eye recipes in comparison with other medical genres, such as kidney and rectal disease; examples of popular drugs are tarmuš, imhur-līm and imhur-ešrā, which hardly occur in IGI. Similarly, the frequent use of ostrich shell in internal medicine is so far lacking, although replaced by a single reference to raven egg (pel āribi, see IGI 2: 79'). Occasionally unique drugs appear in eye prescriptions, such as mirqu-powder (IGI 3: 41'), which might be a type of glass or mineral (CAD M/2, 108). Eye disease recipes did not attract the widespread use of Dreckapotheke in comparison with treatments for other ailments, although one single manuscript (Ms. NK = BAM 518: 4') defies this pattern by recommending the use of the 'bowl of a human skull' (kalli gulgul amēli). Otherwise, the few sporadic references to ox or sheep dung (kabūt alpi / Šeriš / immeri) or gazelle droppings (piqan ṣabīti) are atypical, with two of these references appearing in the same line of text (IGI 3: 72'). Of particular interest, however, is the use of the term *muhhu*, which in some instances clearly indicates the 'brain' of certain animals (muhhu ša summati zikari, 'brain of a male pidgeon', IGI 2: 77'; muhhu ša rīmti, 'brain of a wild cow', IGI 2: 77'; muhhu ša erî, 'brain of an eagle', IGI 2: 205'), but in another case muhhu is bone marrow (muhhu ša eșemti kurīti immeri, 'marrow of a short sheep's bone', IGI 3: 46'). It seems clear from

⁹⁴ This is probably a calculus or bladder stone which was re-used as a medical ingredient (see KADP 4 57, ed. Geller 2015b: 42, 44), also known from the Talmud (b. Gittin 69b). The calculus (mūṣu-stone) is recorded elsewhere in the drug list Irianna III 171 as medicinal (see MSL 10, 70: 32, cf. CAD P 107 s.v. pappaltu).

these references that Mesopotamian anatomy had no concept of the brain as a functioning sensory organ or associated it with cognition, a later discovery which remained disputed well into Late Antiquity.

1.4 Treatments

In contrast to internal diseases (e.g. $su\bar{a}lu$ or digestive diseases, urinary-tract and rectal disease, and gynaecology), which usually call for potions and ingested substances, eye-disease tends to rely upon externally applied treatments. The predominant ophthalmic therapeutic applications consist of bandages or poultices, and daubing the eyes with various substances, often mixed with fats, oils, ghee, or animal, which served as a medium for the drugs. Apart from daubing, drugs could be blown into the patient's eyes through a reed or copper tube (IGI 1: 56', etc.). The various means of treatments can be found in the synopses of prescriptions at the beginning of each edition of IGI tablets in the present volume.⁹⁵

1.5 Comparative material

Some, but by no means all, treatments find similar applications in the short Hippocratic Corpus, *On Sight*, a predominantly surgical manual which may have been composed by a non-Greek author, judging by its clumsy Greek (see Craik 2015). The Hippocratic text recommends purging the body, in addition to salves and poultices, with a reliance upon a copper substance identified as copper sulphate, ⁹⁶ all of which resemble treatments recommended in the IGI tablets (see Craik 2015: 259–261). Here is an example from the Hippocratic treatise *On Sight* (Loeb Hippocrates IX = Potter 2010: 383, 6):

Grind a lump of flower of copper against a whetstone, next rub off the eyelid with it, and then grind some scale of copper as fine as you can. Then add strained juice of unripe grapes, grind fine and pour what is left into a red copper vessel.

All of the elements in this recipe have equivalents (copper patina, 'fox-vine', and the use of a copper *tangussu*-kettle), which is hardly coincidental. Otherwise, there is only a brief reference to applying poultices and salves against pain and swelling (Loeb Hippocrates IX = Potter 2010: 385–86.9), and the treatise ends with an abrupt statement, that 'if there is no flux, it helps to apply ointments together with a dry medication.'

⁹⁵ These synopses were composed by S. Panayotov.

⁹⁶ See Loeb Hippocrates IX = Potter 2010: 383, translating 'flower of copper,' Gr. *anthos xalkou*.

Eye surgery is more difficult to identify among ancient sources, since the famous example of inserting a needle into the eye to remove a cataract is known only from Hammurapi's Law Code (Attinger 2008: 50), but is not prescribed in any known medical treatises for eye disease, and therefore subject to serious doubt. There is little in common with the methods advocated in the Hippocratic treatise *On Sight*, which recommends the use of cauterisation of blood vessels and scraping of the eyelids, in addition to general bloodletting and cutting of the scalp (see Craik 2015: 260).

The Latin medical compendium attributed to Celsus also offers much more in the way of comparative prescription data than does the Hippocratic treatise, with Celsus' rich descriptions of eye salves and treatments. Pharmacological treatments in Celsus are applied externally as compresses, to be spread either on linen or on wool,97 and of special interest are the salves (collyria),98 which Celsus notes come in many varieties and blends (Celsus VI.6.2). Unlike in Mesopotamia, these salves mentioned by Celsus are all associated with the names of Greek healers, such as Philo, Dionysius, Cleon, Attalus, Theodotus, and Euelpides, a famous oculist (Celsus VI.6.3-7).99 The recipes cannot be effectively compared with Akkadian ones because of difficulties in identifying the respective materia medica, but nevertheless some general similarities can be noted. Celsus' drug regime regularly contains a mixture of organic (often gums) and metallic substances (usually copper and tin but also zinc as well as antimony). Eye salves similarly tend to mix plant and mineral substances which may have been applied with a leadbased ointment or a lead spoon (*itqur abāri*).¹⁰⁰ Another parallel might be Celsus' recommended recipe of rubbing the eye with the liver of a goat for night blindness (Celsus VI.6.38), which may reflect the various uses of goat milk and goat kidney in IGI recipes. The salient fact is that Celsus' medical work has never been compared with Akkadian medicine, although these were both ancient systems of treatment which clearly had some approaches in common.

1.6 Medical incantations: etiology, not magic

Before discussing details of the IGI medical incantations, it is worth considering the general role and function of 'medical incantations' within medical therapy in general. As

⁹⁷ This is reminiscent of Akk. instructions that linen is to be used in the summer and wool in the winter, also known from the Babylonian Talmud (b. Gittin 69b).

⁹⁸ See Loeb Celsus = Spencer 1989: II 154, noting that collyrium was administered in the form of 'a glutinous paste which was rolled and formed into sticks shaped like vermicelli (collyra).' This shape explains the reason for identifying Akk. passu, 'gaming piece', with collyrium, since this might represent the form in which the salve was administered.

⁹⁹ Also mentioned are salves attributed to one Nileus, Philalethus (Celsus VI.6.10-12), Andrias (ibid. VI.6.15B) and to Hermon (ibid. VI.6.24).

¹⁰⁰ See Thompson 1924: 16, suggesting an association between this ingredient and collyrium.

has been previously noted (Geller 2007c), incantations within medical recipes differ considerably in form and contact from formal incantations in Sumerian and Akkadian, which usually have a defined structure. Standard exorcistic incantations traditionally refer to the interference of a demon, ghost, or witchcraft, creating a situation featured in a dialogue between gods conveying the best method of dealing magically with the problem at hand, with the understanding that the exorcist himself is involved in this process; he is the recipient of a divine magical or ritual remedy which can resolve the problem or neutralise the demonic forces. The magic then usually relies upon a formal adjuration of the demons while invoking the names of powerful deities, asserting that the demon or ghost depart from its victim. It is fair to point out that virtually none of these characteristic features of exorcistic incantations are to be found within 'medical incantations', such as those preserved in IGI. In fact, the main similarly between incantations within therapeutic medicine and exorcistic incantations is the label ÉN ('incantation'), which appears before and often after a 'medical incantation' (also as TU₆.ÉN), designating this part of the medical work as a non-recipe text with a purpose other than providing drugs and treatments. These labels alone are the principal shared features with exorcistic incantations, along with the fact that the recitations in both genres may be recited by the healer or patient.

In effect, it is technically incorrect to refer to these Akkadian medical incantations as 'magic', which is itself a problematic term and concept. There is no term for 'magic' in Mesopotamia, and even Greeks and Romans borrowed this term from the Persians; Fritz Graf defines magic 'as the art of the magos, magus' (Graf 1997: 20), which is uncanny in terms of Mesopotamian terminology. The closest one comes to this concept is mašmaššūtu or āšipūtu, the job description of the 'exorcist' (mašmaššu or āšipu), which is the same type of *Teufelskreis* which Graf attributes to the Greek and Latin terms. The term *šiptu* for 'incantation' or 'spell' (equivalent to the logogram ÉN) belongs to this same semantic field. The problem is that as time progressed, many concepts and ideas within scholastic circles developed and changed while at the same time adhering to traditional vocabulary and terminology, and instead of inventing neologisms, Babylonian scholars were content to give new meanings to conventional terms. A good example of this is the term šiknu, which was adapted to mean 'properties' of plants or stones rather than merely their appearance.¹⁰¹ The term *šiptu* within the context of medical therapy could have also adopted a more suitable connotation of 'etiology' rather than 'spell', since the ÉN passages within the prescriptions generally attempt to explain the origins or characteristics of a particular disease. This alteration in meaning may be reflected in a medical commentary from the noted Uruk scholar Anu-ikṣur, expounding a medical recipe for a stiff neck, with one cause of the symptoms being a ghost shouting into the

¹⁰¹ E.g. in texts dealing with the nature of plants and stones, etc. (e.g. Šammu šikinšu and Abnu šīkinšu). For the argument that Babylonians (like other non-Greek thinkers) lacked the term for and concept of 'nature', see Rochberg 2016.

patient's ear (SBTU 3, 100).¹⁰² The medical commentary remarks about this recipe, libbu-u ki-ma sah-le-e li-ig-ga-lu ki-ma MUN li-'u-up šá ina ÉN u tu-e, 'the (hermeneutic) meaning is: let it be roasted like $sahl\hat{u}$, let it be dried out like salt – as in an incantation or spell.'103 The idea is that the treatment is to be handled in the same fashion as ordinary materia medica (i.e. roasted and dried), although within an etiological 'incantation.'

Another important difference between exorcistic and medical incantations is the involvement of the practitioner himself within the process. The usual understanding of 'magic' is that the exorcist is intimately part of the transmission of a higher procedural knowledge, since he declares himself to be the exorcist of Ea and messenger of Marduk (see UH 3: 82–83). How different is the viewpoint in medical incantations: the $as\hat{u}$ -physician declares that the 'incantation is not mine, it is the incantation (of various healing gods, most often the healing goddess Gula and her consort Damu).'104 The asû casts himself as a technician rather than divine agent; in one incantation (in IGI 1: 100'), he modestly claims to be the one who 'checks Gula's words' (sāniq qabû ša Gula), but takes no responsibility for her commands. 105 The point is that the tendency of the $as\hat{u}$ -physician to distance himself from the incantation, even as an etiological text, is in contrast to the role of the exorcist within magical healing, who characterises himself as personally involved in the magical procedures.

1.7 IGI 'incantations'

The inference to be drawn from this evidence is that the amount of 'magic' within IGI prescriptions is virtually negligible. The only attempt so far to analyse medical incantations within IGI can be found in an unpublished doctoral thesis (Collins 1999: 91–95), while a brief note by Marten Stol (Stol 1989a: 165) limited the discussion to whether trachoma might be reflected in an Old Babylonian recension of an IGI incantation. Collins has argued that medical incantations within IGI either describe general eye symptoms or specifically portray a 'sty' in the eye. Of particular relevance are his remarks on IGI incantations featuring two sisters separated either by a mountain or a wall (IGI 1: 98'-

¹⁰² It is telling that while ghosts are mentioned as vectors of disease within therapeutic recipes (perhaps allegorically), these same therapeutic texts never appear to have anti-ghost incantations.

¹⁰³ see Frahm 2011: 97–98, although interpreting this line as referring to the patient, 'may he be parched like cress, may he wither up as if (affected) by salt' - (that is) what is (attested) in incantation(s) and spell(s).' The argument against this interpretation is that it is unlikely that the patient would be 'roasted' (galû).

¹⁰⁴ This is already a feature of OB incantations dealing specifically with diseases, as Goetze 1955: 11 [JCS 9], ši-ip-tum úl-ul ia-a-tum ši-pa-at dni-gi-ri-ma, etc. 'the incantation is not mine, it is an incantation of Ningirimma'....

¹⁰⁵ A similar phrase occurs in a parallel incantation in IGI 1: 134', but this time checking the words of Anu.

126'), metaphoric for the nose separating the two eyes; Collins infers from the metaphor that tearing or red eyes results from sisters crying because they cannot meet. Other details in these IGI incantations, that the eyes are invaded by foreign matter brought by the wind, such as chaff or dirt or algae, are explained by Collins as 'allergens', and that eye disease can be self-inflicted (Collins 1999: 94). None of this is very convincing, although innovative at the time when it was written.

Part of the incantation repertoire of asûtu consisted of incantations which had a long history and were known from Old Babylonian incantations. One of the most notable of these is the incantation against the *merhu* or a kernel of barley (or 'ergot', see Landsberger and Jacobsen 1955, with parallels in IGI 1: 194'-199'), explaining that the speck which enters the eyes and causes pain was part of some original design of creation. Once agriculture progressed through new technologies (irrigation, ploughing, etc.), the inevitable consequence was harm to humans caused by environmental factors, such as the kernel produced through harvesting grain. One key Leitmotif of the Old Babylonian merhu-incantation was the phrase, mannum lušpur ana mārāt Ani ša šamê, 'whom shall I send to the Daughters of Anu of Heaven?', a phrase which gets repeated in Middle Babylonian and later IGI incantations, as well as with other divine figures apart from Anum.¹⁰⁶ The precise identification of this puzzling nomenclature, used to introduce ritual acts, remains unresolved, since the celestial 'daughters of Anu' (often enumerated as 'seven and seven') remain anonymous, while at the same time this designation frequently refers to the notorious baby-strangling Lamaštu-demon.¹⁰⁷

Let us revisit the incantations referring to the eyes as 'sisters' (see IGI 1: 98'-126'). The key aspects of these texts need to be reconsidered, namely why the eyes should be called 'sisters', and why being separated by a mud-brick wall or mountain (the nose) should cause eye ailments. There is obviously more than one level of allegory here. It is clear that facial physiognomy is being cast in landscape imagery, with the eyes as two 'sides' (ahātu = banks or shores) of canals or river, separated by either a natural or manmade border; natural elements may impact on either one or both sides of the divided

¹⁰⁶ See Farber 1990: 301.

¹⁰⁷ For the celestial Daughter of Anu as a standard epithet for the demon Lamaštu, see Farber 2014: 290-291, 298-299, 362, and see also Farber's observation distinguishing the 'benevolent daughters from their obnoxious sister Lamaštu' (Farber 1990: 301 n. 12). But who are these 'benevolent daughters'? A general category of supernatural opponents, the 'daughters of Anu', also appears in Maqlû Tablet 3, in two diametrically opposed roles, the first being when two or three Daughters of Anu arrive to counteract the activities of witches (3: 31–38), while the second passage (3: 62–63) declares that 'my sorcerers are the Sages of the Apsû, my sorceresses are the Daughters of Anu of Heaven, they hex me, they keep hexing me ', (ēpišū'a apkallū ša apsî epišētū'a mārāt dAni ša šamê eppušūni īteneppušūni), see Abusch 2015: 72-75. According to this unusual declaration, the Daughters of Anu, like apkallu-sages, appear to be esteemed or at least respectable but nevertheless indulge in witchcraft. A new perspective on this question has recently been offered in Schwemer 2018: 176-183, showing how figurines of the patient were entrusted to Lamaštu (as Daughter of Anu) as part of an anti-witchcraft practice, hence employing one evil against another evil.

landscape. 108 The assumption is that just as the elements would affect individual properties on both sides of a boundary, so the eyes as independent organs could also suffer from the same medical condition. The allegory is reinforced by the statement in *Enūma* eliš identifying the source of the Tigris and Euphrates as the eyes of Tiamat.¹⁰⁹ The gender of 'sisters' is a result of the grammatical gender of 'eye' as a feminine noun; the underlying meaning is that the eyes are 'colleagues' (referring to the masculine equivalent ahu) in concert with each other when they move, although at the same time being entirely separate and independent entities; eye disease can affect either eye separately or both together.

At the same time, the eyes are also personified as sisters, with one eye not being able to cross over to the 'cheek' (*lētu*) of the other eye. On this personal level, the incantation then alludes to older incantations featuring the 'Daughters of Anu' bringing cold pure sea water to soothe fever or sore eyes; W. Farber refers to these daughters as a 'divine fire brigade' (see Farber 1990: 301–304). 110 Within IGI, however, an attempt is made to identify these 'daughters of Anu' (this time not heavenly) with the patient's eyes (IGI 1: 120'). Whomever is sent to these 'daughters' (in this case, the eyes) brings restorative waters in expensive exotic vessels made of onyx and lapis lazuli, which also casts the entire narrative into the realm of poetry and folklore.¹¹¹ This standard incantation motif works well as an allegory, as a way of depersonalising the magic, since the emphasis is on treating the feverish eyes with cool sea-water untouched by any unclean woman. This is far from the approach of incantations known from magical texts, which rely upon the power and authority of named gods.

IGI incantations describing the eyes as 'sisters' (or perhaps 'borders') share a Sumerian incipit (igi bar igi bar-bar igi bar-ra, etc.) with another etiological incantation (IGI 1: 89'-96'), describing the eyes as 'reddish' and 'crimson' (although 'angry' is a possible translation), as well as the eye being 'lazy', 'weak', or simply damaged. The incantation goes on to describe various pathologies of the eyes, such as being filled with blood or spotted, with appropriate allegorical comparisons (to the blood of slaughtered sheep, algae, or vinegar in a jar). The more interesting explanatory detail within the incantation, however, refers obliquely to the nose, which is described as a mud-brick wall upon which the patron god of wild beasts, Šakkan, seated himself, thereby preventing easy breathing ($l\bar{a}$ napāše). The double-metaphor is taken from the simple observation that a nose blocked by the grippe can feel like a mud-wall weighed down by a wild animal

¹⁰⁸ See IGI 1: 128'-129', which refers to winds afflicting the eyes collectively, in another parallel incantation.

¹⁰⁹ Cf. El. el. V 55: 100-101, ip-te-ma i-na IGI^{II}-šá pu-r[a-at-at] i-di-ig-lat 'He (Marduk) let flow (lit. opened) the Euphrates and Tigris from her (Tiamat's) eyes,' see Lambert 2013: 192–193.

¹¹⁰ IGI 1: 120', 'the two of them are the daughter(s) of Anu', referring to the IGI HUL or evil eye in this

¹¹¹ As suggested previously (Farber 1990: 305).

perched upon it, a condition which can also affect the eyes. The incantation adds a figurative dimension to the rather arid diagnoses of the prescriptions, often based on analogies from the natural world.

The igi-bar incipit appears yet again in another incantation within the same context (IGI 1: 111'-115'), but this time asking rhetorically why the eyes are suffering from being bloodshot and blurry and in pain. The answer to the question is drawn from the natural environment, that pollen, chaff, or dust is being blown into the eyes, providing yet another colourful allegory to expand the diagnoses of the prescriptions.

Etiological incantations take on various other forms. One of these concerns eye disease affecting the 'lad' (Sum. GURUŠ, Akk. etlu) and 'maiden' (Sum. KI.SIKIL, Akk. ardatu), who appear in magical contexts as innocent victims who have not yet reached puberty (UH 4: 132'-133', see Geller 2016: 156). The incantation itself takes the form of a medical procedure not found in any prescription or medical ritual. In a recipe-like mode, the practitioner (exorcist or physician) is instructed, that 'you' request the offshoot (libbu, lit. 'heart') of a date palm, which 'you' soften by chewing and applying it to the young patient's temples. According to the incantation, this should do the trick, since the incantation reports that the eye of either lad or girl should improve (iballut). The significant point is that this type of prediction – that the condition should recover – is not typical of magical incantations but is a signature feature of medical prescriptions. There is virtually no difference in this case between the incantation and prescription, except that the former is recited while the latter is not, but in any case, the ÉN passage hardly qualifies as a classically formulated magical spell.

However, not all IGI incantations are devoid of incantation characteristics. IGI 1: 163'-175' invokes the goddess Nammu under novel circumstances, which at first glance appear to be traditionally magical. The 'problem' is that the victim cries, suffering from lesions in the eye, and his troubles are noticed by Nammu, the primordial goddess of the Apsû (the subterranean source of all sweet waters); the pattern of a god or goddess noticing the patient's plight is typical of magical incantations, in which the younger god (Marduk) takes notice and reports the problem to his father Ea. 112 Nammu recommends a bandage of crushed kasû-plant (a standard example of materia magica)113 combined with reciting the 'incantation of the Apsû', a common magical trope. The incantation also ends in a frequently encountered magical doxology, that the cause of the patient's

¹¹² See Falkenstein 1931: 54–55. Variations on this theme occur within Udug-hul, with the usual pattern being that this divine dialogue is most commonly found in bilingual incantations (see Geller 2016: 20). There is a rather free parody of the Marduk-Ea dialogue within Lamaštu incantations, in which Marduk (under his magical cognomen of Asalluhi) sees Lamaštu and reports to his father Ea, 'My Father, I have seen the Daughter of Anu that she is gathering babies (*ušabbašu la'ûti*).' Ea replies in the usual fashion, 'Go, my son Marduk', then recommending an appropriate magical ritual against Lamaštu (Farber 2014: 178–179). This dialogue is one of the signatures of magical texts, but typically not rendered in its fullest form in Akkadian incantations.

¹¹³ The common recipe ingredient $kas\hat{u}$ has recently been identified as tamarind, see Eypper 2019.

'problem' should depart (littasi), in this case with the help of Nammu's touch. This structure looks convincingly magical, until one examines the fine print. First, there is no demon or ghost, since the cause of the patient's 'problem' is wind, which is responsible for infecting the diseased eye. Second, there is no invocation to Nammu or adjuration, but only a brief narrative explaining Nammu's involvement, and in fact the mythological association of Nammu with healing waters of the Apsû is allegorical for physical cleansing of a diseased eye. Finally, apart from external winds infecting his eye, the patient 'weeps bitterly by himself' (ina rāmānišu marṣiš ibakki), indicating that his own behaviour is partly responsible for his blurred vision.¹¹⁴ In effect, despite the veneer of standard motifs, there is little in the way of magic in this incantation.

The patient's own tears are invoked in the incantation which immediately follows (IGI 1: 187'–193'), for a specific reason. The text describes the eyes as porous vessels (šuharratu, known from magical rituals), which have attracted the unwanted presence of particles of chaff, pebbles, twigs, dust, or algae, reflecting an earlier theme identifying the causes of eye discomfort. On this occasion, however, the incantation calls upon the eyes to use their tear ducts to wash away the debris before Gula arrives with her scalpel and uses surgery on the eye, always best to be avoided. This threat of surgery (without anaesthesia or antiseptics) was enough to make the patient hope for a cure. The prospect of the healing goddess Gula arriving with her scalpel and medicaments was hardly to be welcomed, and this no doubt reflects the general absence of surgery within medical treatises.

The etiological incantations provide meta-information which cannot be acquired from the prescriptions themselves, nor from medical narratives or anecdotes which might have been known to local physicians or healers. A good example of extraneous but relevant data is found in IGI 1: 159'-162', which responds to the open question of whether eye disease was considered to be a result of ageing and consequently a progressive loss of eyesight. 115 This incantation is addressed to the 'lad' and 'maiden' suffering from eye disease (*īni eṭli marṣat īni ardati marṣat*), followed by the rhetorical question, 'who could heal (this)' (mannu uballit)? The most obvious frame of reference for this kind of question is the competition between exorcist (\bar{a} sipu / masmassu) and physician (as \hat{u}), with their respective methods and approaches. The answer to this question is somewhat ambivalent from our modern perspective, since the unspecified practitioner is told – in a standard 2.p.s. recipe form - that 'you' should chew a date palm shoot, twist it, and bind it on the temples and eyes of either the lad or maiden, to have the condition im-

¹¹⁴ The motif of the patient weeping occurs again in the incantation in IGI 1: 176'-179', with the two eyes weeping to the goddess Mami, their 'mother', complaining about their vision being affected by excess blood and wind.

¹¹⁵ An interest in the patient's age appears in Tablet 29 of the Diagnostic Handbook, which describes symptoms appearing in various stages of a patient's life (e.g. from birth through age fifty), see Heeßel 2000: 318-338 and Scurlock 2014, 216-222.

prove. Typically, this remedy is hardly medical or magical but something of a compromise between the two, and it was probably intentionally meant to represent a generic practice of healing which could have belonged to either sphere of *Heilkunde*.

It appears to be the case that some incantations are borrowed from another genre of medicine and somewhat arbitrarily inserted into eye-disease prescriptions. For instance, the incantation appearing in IGI 1: 65'-68' is gynaecological, taken from the standpoint of the 'seed' (probably the embryo) who calls out for its life to be saved. But the administering healer (midwife, exorcist, doctor?) judges that the woman cannot give birth and refrains from treatment. The 'invocation'-label (KA.INIM.MA) for this incantation associates it with eyes being full of blood (IGI.MIN-šú MÚD DIRI.MEŠ), which could tenuously be seen as related to menstrual bleeding, but the likelihood is that the incantation was intended to illustrate what happens when a condition is considered to be untreatable.

The etiological nature of medical incantations is apparent from other medical treatises, such as incantations against $b\bar{u}\bar{s}\bar{a}nu$ -disease, which affects the nose and mouth. The relevant incantations personify the disease as strong in its grasp ($d\bar{a}n \, sibissu$) like a lion which seizes the uvula (napšāru) and head (qaqqadu) or like a wolf which seizes the throat (nurzu) and gullet (lu'u), etc. We need to take special note of the refrain in this incantation, which tells us that the disease has set up its 'seat' among the relevant body's organs which the disease attacks: 'it (the disease) set its 'seat' (ittadi kussišu) in the windpipes (*ina imbub haśê*), between the teeth (*ina birīt šinnī*), or in the soft throat (ina nurzi narbati)' (Collins 1991: 90–91). The significant etiological point is that the text identifies the localised 'seat' of the disease, comparable to a statement in the Hippocratic treatise Internal Affections. This stipulates that while a few diseases have a 'seat' (keimena) in the body which can easily be seen, most diseases have a 'seat' internally which can only be detected by analysis of symptoms being hard, moist, hot or cold (see Jones 1998: 206–207, and Geller 2001/2002: 62). The fact that this form of disease theory in the Hippocratic treatise could apply equally well to both Greek and Babylonian medicine is worthy of note.

Finally, not all incantations are in Akkadian, but at least three incantations for sick eyes appear in Sumerian (IGI 1: 155'-158' and BAM 520, 29'-36'), which is also typical of other medical genres, but one wonders why this is the case. Apart from the fact that Sumerian was the traditional language of formal magic, this was hardly an idiom which would have been understood by a patient, or perhaps even by the physician, and the relevance to eye disease is not obvious. A good example is the short incantation of IGI 1: 155': i-gi ti-la a-ga ti-la, which is hardly 'correct' Sumerian but phonetic for igi til-a aga til-a, 'the front is healthy, the back is healthy' (contrasting /igi/ and /aga/); the association with the previous prescription is only based on the homonym of the term /igi/ for both 'front' and 'eye'. A better example of the genre of a Sumerian medical incantation occurs in BAM 520 (which may in fact be IGI Tablet 4), which retains the signature features of a magical incantation, including a not-so-subtle gibe at the $as\hat{u}$ -physician! Even in this case, however, the text appears to be a parody of Sumerian magic rather than a

genuine spell drawn from magical texts. For example, the incantation incipit states, ursag dasal-lú-hi igi-bi hé-pà sag-hul-ha-za hé-pà, 'May the hero Asalluhi adjure that eye, may he adjure the *mukīl-rēš-lemutti* (lit. 'Supporter-of-evil)-demon', which is based on a standard incantation phrase invoking Marduk as a hero (ur-sag dasal-lú-hi). 116 The problem occurs at the end of the phrase, igi-bi hé-pà ('may its eye be adjured'), since an eye cannot be adjured, but only evil demons, with heaven and earth or gods invoked as witnesses (zi an-na hé-pà, 'be adjured by heaven', etc.). 117 The phraseology of this medical incantation makes little sense as a spell, since the correct formula is zi - hé-pà, to be adjured by a benevolent power. The next clause is equally anomalous from a traditional standpoint, since it appears to be a corruption of the famous Marduk-Ea dialogue, in which Marduk approaches his father Ea in his temple and seeks advice. In the case of this incantation, the dialogue is muddled: ad-da-mu (var. dda-mu) dumu-sag dag-ke4 gù mu-un-na-an-dé-e, 'Damu, the first-born son of Nabû, speaks to him: 'my father', and he receives an answer, dumu-mu nam ba-si-in-tal/tar igi nu-un-bar-ra, 'My son, the fate has been decided, the (patient) cannot see'. That this is a poor imitation of the Marduk-Ea dialogue would have been obvious to any learned practitioner, since the divine consultation provides a negative result: the matter is decided and the patient will remain blind. Furthermore, the incantation ends with the remark that the 'physician as judge cannot decide this case', that is, he cannot work out the diagnosis (lúa-zu di-ku₅ inim-bi nu-mu-un-tar-ra), which hardly inspires confidence in the proficiency of the healer's knowledge.¹¹⁸ In any case, what appears at first glance to be a standard type of Sumerian magical incantation turns out to be something of a satirical version of a Sumerian spell, which offers little support to the common idea that Babylonian medicine was heavily influenced by magic. As in previous cases, there is little actual magic to be seen in these texts.

¹¹⁶ The first c. 45 lines of a spell (Udug-hul Tablet 10, see Geller 2016, 324–331) also makes the connection between Marduk and the Supporter-of-Evil demon. See ibid. 328 (UH 10: 20), ur-sag dasal-lú-hi saghul-ha-za dab-ba me-en // MIN MIN mukīl rēši lemutti kamû anāku, 'I am the hero Marduk who binds the 'Supporter-of-evil'-demon'; see also ibid. 330 (UH 10: 35), ur-sag ^dasal-lú-hi sag-hul-ha-za igi-bar-ra // qarradu dmarduk mukīl rēš lemutti ippalisma, 'the hero Marduk noticed the 'Supporter-of-evil'-demon.' The epithet is also applied to Ninurta, see Angim II 22 (= 81), dNinurta ur-sag me-en, 'you, Ninurta, are a hero', as well as in Lugale 96 (ur-sag dnin-urta), and it was Ninurta who made fateful decisions (Lugale 437), ^dnin-urta dumu ^den-líl-lá-ke₄ nam im-mi-ib-tar-re, 'Ninurta son of Enlil has decided the fate'; see van Dijk 1983 II 58 and 123).

¹¹⁷ Another idiomatic usage of this term would be mu pà-da, 'named' (lit. 'name being invoked').

¹¹⁸ Either the physician's knowledge of medicine or knowledge of Sumerian. An alternative interpretation could be that the human physician cannot do the job of the gods. A novel view of this incantation (Zomer 2018) argues that the healing god Damu (representing the $as\hat{u}$) forbids the exorcist-god Nabû (representing the āšipu) to interfere with the patient's treatment. Zomer understands Damu telling Nabû, 'don't impose yourself upon him (the patient)' (nam-ba-ši-in-ri), but this is unconvincing when compared to the variants. In any case, the unorthodox character of the incantation is clear.

1.8 Medical 'rituals' or magical application

As is often mentioned but not explained, therapeutic prescriptions comprise three different genres, characterised by an incipit which typically begins DIŠ NA ..., often followed by a passage beginning with ÉN, and finishing with a third extract beginning either DÙ.DÙ.BI or KÌD.KÌD.BI, usually translated as 'its ritual'. The present work prefers to translate this latter label as '(its) medical application', referring back to the original prescription, with the assumption that the DÙ.DÙ.BI passage adds additional therapeutic information but is not actually a 'ritual' in the formal sense. What is a (magical) ritual? These are usually characterised by fairly standard procedures which involve setting up a censer, a torch, a holy water-container, an altar, and a brazier, often accompanied by making figurines and serving up various grains, confection, and legumes as offerings. 119 Not a single one of these paraphernalia occurs in IGI texts. It is clear from the start that DÙ.DÙ.BI passages in IGI have a different function and typology.

One of the key features of DÙ.DÙ.BI within IGI is the making of knots from various bits of materia medica to be tied to the patient, accompanied by reciting an associated incantation (e.g. IGI 1: 69'). On the surface this appears to be a magical act without any obvious medical utility, since knots and bonds are often associated with magic.¹²⁰ On the other hand, the distinctive pattern appears to be that magic is utilised to untie the harmful knots or bonds of demons or witches, while, by way of contrast, medical prescriptions tend to engage in knotting and binding either the patient or the *materia medica* for protective or therapeutic usage. It appears, in fact, that the act of untying is magical while the act of tying is (medical) therapeutic. From a modern perspective, there may not be any great distinction between these two acts, but from the psychological viewpoint of an ancient patient, this difference may have been quite significant. Magic serves the purpose of releasing the patient from demonic or witchcraft-induced restraints, while medicine offers the prospect of binding healing substances to the patient's body, for either protective or healing purposes. This may be the reason why medical applications regularly refer to materia medica being bound seven times together, with incantations being recited at each binding (e.g. IGI 1: 97', 109', etc.).¹²¹

Just as medical incantations afford an opportunity for the practitioner to explain (either to himself or to the patient) the nature of the illness or procedures, the medical applications provide additional instructions for how substances are to be applied. A good example are eye prescriptions (IGI 1: 58', 60') which call for daubing the patient's eyes with *ashar*-stone in ghee. Some twelve lines later, the DÛ.DÛ.BI text reminds the

¹¹⁹ See, for example, Abusch and Schwemer 2011: 263–264.

¹²⁰ CAD K 437 goes so far as to define *kişru* as a 'knot' made for magical purposes.

¹²¹ Apart from spinning and twining red and white cords, making seven knots and applying these to the patient's eyes, occasionally exotic additional ingredients are also added, such as the knee of a sheep (IGI 1: 185').

practitioner that he needs to apply the ashar-stone to the interior of the patient's eye (ana libbi īnīšu tanaddi) rather than simply daub it, hence providing either additional or alternative information regarding the treatment. The third tablet of IGI employs a different type of medical application which involves leaving *materia medica* overnight on the roof and daubing the patient's eyes with it on the following morning (IGI 3: 27'-31').122 This appears to be an elaboration of the standard prescription formula, ina kakkabi tušbat, 'you leave (the ingredients) out under the stars', presumably so that the mixture could cool overnight.

This survey shows that the DÙ.DÙ.BI passages accompanying the prescriptions are not essentially magical, even if they involve procedures which are unrelated to the direct applications of recipe ingredients. The IGI prescriptions with accompanying 'incantations' and 'rituals' offer important insights into what could be labeled (somewhat inaccurately) as 'secular' medicine. This seeks to establish non-supernatural (i.e. divine or demonic or sorcery-induced) involvement in therapy, distinguishing between the disciplines of medicine and magic. However, these same texts could potentially be interpreted differently by various 'readers', so that an \bar{a} sipu may have applied these same prescriptions and incantations differently from an asû, offering alternative explanations to a patient for the efficacy of these remedies. This reminds us that the medical literature from Nineveh chiefly provides information regarding the discipline but not the practice of medicine.

¹²² The presumption is that the medical ingredients were listed in the preceding prescription.