Le Journal Médecines

2020 n°36



Atelier Médecine Mésopotamienne 65^e Rencontre Assyriologique Internationale, Paris Journée du 9 juillet 2019 Seconde Partie

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Healing substances and therapies in Mesopotamian women's health care texts: properties, effects and cultural meanings

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Introduction: how to approach ancient illness concepts and healing practices?

Several studies by medical historians and anthropologists suggest that both in folk traditions as well as in specialists' healings systems of the past there existed intimate relationships, between concepts of the body and disease processes on the one hand, and therapeutic practices and healing substances on the other.¹ Recent research on Mesopotamian medical texts highlights that knowledge and conceptions about the body, disease and healing processes are encoded prominently via (conceptual) metaphors, serving as an important device in healing spells.² On the one hand, metaphors – by drawing on processes in other domains of experience – help to describe and explain processes in the healthy and sick body, while at the same time providing models or guides for choosing therapeutic interventions.³ On the other hand, Mesopotamian healing spells – typically recited over the remedy before application to the patient's body – were performative instruments of healing. Spells were believed to have an immediate effect on the applied therapeutic agents, which together served as mediators that could bring about a change in the patient's condition. The metaphors invoked in healing spells are often expressed in a way that underlines the anticipated change in the patient's state by referring to parallel situations in other domains of experience. In short, medical metaphors serve important epistemological functions as instruments to develop and express concepts or models about the body and disease, and to select therapeutic strategies and remedies in accordance with these concepts.

As a second approach to tracing medical knowledge via therapeutic practices, text-based studies on ancient recipes and anthropological research on medical practices point out that knowledge about illness and healing is also enshrined in medical recipes, in particular in the prescribed ingredients and in their forms of preparation and administration. As shall be shown here, this approach to tracing emic conceptions of illness and healing through prescriptions and *materia medica* has great potential for the study of Mesopotamian therapeutic texts and ancient healers' understandings of treated conditions, bodily processes and healing strategies.

Among the various fields of study for the history of medical prescriptions, the rich literature of Chinese medical texts throws light on centuries of developments and evolving traditions that are still alive in present TCM practices. Scholars such as Elisabeth Hsu (2018; 2020) engage with Chinese medical formulae through a combination of textual scholarship and approaches from medical anthropology and the anthropology of the body, offering conclusions that are highly stimulating for a student of cuneiform medical texts. Hsu argues that culturally acknowledged properties of prescribed healing plants in Chinese medical formulae reflect the characteristic *Gestalt* or physiognomy of the treated problem, which she calls "*Gestalt* of disease", thus allowing an approach of "reverse diagnosing", or "working backward from the prescription to the complaint". Hsu emphasizes that a scholar of ancient medical manuscripts

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¹ See e.g. the recent collection of essays on humoral medicine in cross-cultural perspective in Horden and Hsu 2013; Gehrke 2014 for Tibetan medicine; King 1998 and Totelin 2009, esp. Chapter 5 on Hippocratic treatments for women; Zimmermann 1993 for Ayurvedic medicine; Kuriyama 1995 for bloodletting in comparative perspective.

² See e.g. Böck 2014; Johnson 2017; Panayotov 2017; Steinert 2013; 2017.

³ For metaphors in the medical sphere, see e.g. van Rijn-van Tongeren 1997; Martin 1987; Nerlich 2011; Pritzker 2003; Ning Yu 2008; Horstmanshoff, King and Zittel 2012. These studies show that metaphors highlight certain aspects, while hiding others, and that metaphors of the female body in the past and present often served certain ideologies by corroborating views of women (and their bodies) as inferior to men.

should pay attention to medical techniques as a kind of "skilled practice", reflecting concrete knowledge grounded in the direct engagement with the world, which includes knowledge about the interactions between human bodies, healing substances and the (natural and cultural) environment. Starting from the insight that both the biological and the cultural are always implicated in the interactions between human bodies and *materia medica* in medical knowledge and healing practice, Hsu draws both on modern research on the pharmaceutical properties of healing plants applied in Chinese medicine and on the distinctive and culturally meaningful *Gestalt* evoked by material qualities of *materia medica* in manuscripts of medical prescriptions from the Song period.

But recent studies of ancient Egyptian medical remedies and illness concepts also develop approaches of considerable comparative potential for Assyriologists working on Mesopotamian medical texts. Especially Tanja Pommerening (2017) has highlighted the intimate interrelations between illness concepts and medical treatments.⁴ In particular, she speaks of Egyptian healing procedures as "medical (re)-enactments", meaning that certain properties of healing substances and applied procedures physically enact or mimic characteristics of the treated ailment or anticipate the outcome of the therapy, similar to a "signature". As Pommerening points out, elucidating the concepts underlying these "reenactments" allows glimpses of an emic and often culture-specific understanding of medical treatments and disease conditions.⁵

Pommerening's (2017) example in Papyrus Ebers 63, of a treatment for intestinal worms using pomegranate root, can serve as entry point to the concept of "medical re-enactment". This remedy is remarkable because not only are there very similar prescriptions already in Old Babylonian medical texts suggesting cross-cultural transfers of knowledge between Mesopotamia and Egypt in the first half of the second millennium BCE (Pommerening and Steinert 2019). What is likewise striking is that ancient healers apparently knew of the efficacy of pomegranate against tapeworm or roundworms, which has been confirmed by modern studies. The prescription reads as follows:

Papyrus Ebers XIX.19-22 (= Eb 63), ca. 1550 BCE (Pommerening 2017, 519):

Another (remedy for "killing" the *hf*³.*t*-worm):

Root of the pomegranate tree, to be crushed (*hbq*) in 1/64 *Oipe* (= 300 ml) of beer; to be left overnight in a *hin*-vessel with 1/32 1/64 *Oipe* (= 900 ml) of water. You should rise early (the next morning) to strain it through cloth. To be drunk by the man.

The notion of "medical re-enactment" is implied in the choice of the root of the tree (not the bark which is even more potent, according to modern pharmaceutical knowledge), which resembles the appearance of intestinal worms. Also, the process of preparation of the remedy forms an enactment: especially the forceful crushing, leaving overnight in a vessel with water, and letting the patient drink the decoction. Thus, the pomegranate root enacts and imitates the appearance of the intestinal worms; the crushing of the root enacts the intended "killing" of the worm; the extraction of the root in water in a vessel stands for the eliminated worms in the patient's belly; finally, the appearance and ingestion of the remedy mirrors the intended result or effect of the treatment: the worms expelled from the patient's intestines (Pommerening 2017, 526).⁶

⁴ Rune Nyord (2017; 2020) also elucidates interrelations and resonances between illness and concepts and medical treatments in Egyptian healing texts, drawing on approaches of conceptual metaphor theory and phenomenology. ⁵ Medical treatments have been shown to carry cultural meanings, which can affect the effect of prescribed drugs or remedies (Moerman and Jonas 2002). These meanings are linked, for example, to sensory qualities of therapeutic agents (such as taste, colour, shape) standing in relation to their function in the healing process, see e.g. Ngubane 1977 on the symbolic meanings of colours in healing.

⁶ For examples of medical re-enactment in Egyptian remedies for women's health matters, see also Pommerening (forthcoming), and the discussion below.

The approaches just outlined can enrich our understanding of Mesopotamian prescriptions, because they offer an alternative to viewing ancient recipes and drug use either as based purely on knowledge of pharmaceutical efficacy (i.e. "scientific knowledge" based on a physical concept of therapy) or purely on symbolic connections between drugs and the body (based on an "esoteric concept" of therapy) – which, in my view, is not satisfactory.⁷ Rather, uses of materia medica in Mesopotamian therapeutic texts often appear to be based on a more holistic or integrated understanding of therapeutic processes, of the *materia medica* as mediators of these processes, and of their efficacy. Thus, in what follows I will try to show that Mesopotamian remedies draw on multiple relations or "resonances": between significant properties of materia medica, the distinctive logics of their perceived effects unfolding through specific treatment regimes, and the perceived nature and properties of the treated condition(s). Therefore, I will analyse exemplary cases of recommended substances and therapeutic procedures found in Mesopotamian gynaecological texts, as "(re)-enactments" of the patient's condition as well as of the expected effects of treatment. Furthermore, I would like to highlight following Laurence Totelin's (2007; 2009, 197-224) investigations of ingredients with sexual or fertility connotations in Hippocratic gynaecological prescriptions, that therapeutic practices, the choice of specific drug ingredients and treatment forms in Mesopotamian gynaecological texts are linked in similar, yet culturally distinct ways to underlying concepts of the (female) body and its reproductive functions.

The proposed approach may be helpful in elucidating aspects of Mesopotamian healing practices and knowledge of healing substances, by proposing context-dependent and emic concepts motivating the use of specific ingredients, and by teasing out links to the nature of the treated ailment. How far can such an approach take us? Needless to say, our knowledge of the identity of the majority of healing plants and other substances recommended in Mesopotamian medical texts is still very poor, and therefore questions of efficacy of ancient remedies in terms of pharmaceutical properties are still difficult to assess and evaluate in many cases. Another tricky issue is our frequent uncertainty about whether recommended substances that appear bizarre or unexpected from our modern viewpoint (e.g. certain animals or body parts/substances such as bones) are to be taken at face value or whether they are instances of alias names for a medicinal plant, some cases of which we know from drug handbooks or medical commentaries.⁸ All these problems of interpretation are considerable and should constantly be kept in mind. Similar problematic issues concern our limited understanding of the diseases (in modern biomedical terms) that are indicated in Mesopotamian healers' descriptions of symptoms and diseases names, which are often vague or reflect a culture-specific understanding and classification of ailments and health problems.

However, all these difficulties and our distance from the Mesopotamians and their practices, shouldn't make us exclude the possibility that a modern interpreter might be able to

⁸ On this issue see, e.g. Böck 2011; Rumor 2017.

⁷ Cf. Scheyhing 2011, dividing Mesopotamian therapeutic procedures into three categories, depending on whether they apply a "physikalisches therapeutisches Konzept" (these are internal or external drug-based treatments or surgical procedures), an "esoterisches therapeutisches Konzept" (characterized by procedures with symbolic or metonymic aspects, such as the use of amulet stones or objects standing in analogy to the treated ailment), and procedures based on a "magisches therapeutisches Konzept" (characterized by additional use of incantations, recited over remedies or addressed at disease agents, or prayers). Although this approach shows that therapeutic approaches that healers applied in Mesopotamian texts stand in a relation to the type of ailment treated, the neat division of therapeutic concepts into "physical", "symbolic/esoteric" and "magical" collapses, when the three approaches are applied together in one healing procedure, as is often the case in the texts. For example, is a treatment such as a potion with medically active ingredients automatically "magical" rather than "physical" only because a spell was recited over it? The application of etic categories may be useful from an analytical point of view, but it does not mean that these categories correspond to Mesopotamian healers' views of their healing practices (rather, any type of treatment applied in healing texts can be referred to as "remedy" (*bultu*) or "procedure" (DÙ.DÙ.BI/KÌD.KÌD.BI)).

recognize some conditions described in ancient texts, or make sense of significant features of the described health problems (e.g. bleeding or infertility), based on emic perceptions reflected in ancient descriptions. Neither should it be excluded that the ancients had some empirically valid knowledge and insights into the efficacy of healing substances and plants in the treatment of specific health problems, even if it is true that a part of the treatments recommended in ancient texts look overtly bizarre, or may have been of limited pharmaceutical effect, or were based to some extent on symbolic connotations, analogical reasoning or belief.⁹ Although questions of efficacy from a biomedical perspective are difficult to answer for most Mesopotamian medical recipes and pharmaceutical substances, it is possible, however, to start investigating questions of drug use and their grounding in emic concepts of efficacy and meaningfulness of *materia medica*, by applying interpretative and contextual approaches such as the concept of medical re-enactment. The following analysis of exemplary remedies for women's ailments in first millennium BCE medical cuneiform texts investigates properties of used ingredients highlighted in ancient sources (or confirmed by modern biomedicine), as well as forms of preparation and application. Analysis will show that they often stand in relations to the nature of the treated medical problem and to underlying understandings of the female body and its physiology.

Case study 1: Treatments for abnormal bleeding

One of the central topics of Mesopotamian gynaecological remedies is abnormal bleeding, in particular haemorrhage during pregnancy and delivery, which is often described as unstoppable (i.e. acute).¹⁰ Several cuneiform tablets from first millennium BCE Assyria and Babylonia contain prescriptions for this problem. The most prominent type of treatment for gynaecological bleeding in these texts are tampons or suppositories inserted into the vagina. The recipes apply a variety of different (plant, mineral, or animal) substances, some of which have astringent or haemostatic properties (e.g. alum). At the same time, some ingredients provide signature elements alluding to the haemorrhage, such as yellow-reddish *kalgukku*-mineral or red-coloured wool, into which ingredients were often wrapped and then inserted.¹¹

In most of the preserved texts concerned with female bleeding, the diagnostic passages or purpose statements preceding the prescriptions are very brief, usually stating simply: "If a woman's blood flows (constantly) and cannot be stopped, in order to stop it" (*šumma sinništu damūša ītanallakū/illakū lā ipparrasū ana parāsi*), followed by the recipe. The end of the prescriptions is often marked by the prognostic phrase "her blood will stop" (*damūša iparrasū*

⁹ Pommerening 2006 investigated remedies from Egyptian medical papyri focusing on examples with identified ingredients and exact quantities, comparing them with modern pharmaceutical uses and recommended dosages. The selected remedies, drug uses and dosages corresponded quite well with today's pharmaceutical standards, thus implying that they could have been potentially effective for the indicated complaints. Another example for fruitful historical research into past knowledge of medicinal plants is found in Hsu 2010b; 2018 who elucidates the use of *Artemisia annua* as an antimalarial drug in Chinese medical recipe texts, drawing on biomedical research into the antimalarial efficacy of Artemisin contained in plant materials of *Artemisia annua* and on a close reading of medical procedures and modes of preparation described in the early and classical Chinese literature of medical remedies.

¹⁰ For discussion of treatments to stop gynaecological haemorrhage and other abnormal discharges, see e.g. Scurlock 1991; Böck 2013; Steinert 2012, 2013, for female blood and genital bleeding in Mesopotamian texts, see also Steinert forthcoming b.

¹¹ For *kalgukku*, which is usually interpreted as a reddish mineral such as ochre, see lately Thavapalan 2020, 197, 342-6, who suggests, based on the evidence of the glass recipes, that *kalgukku* was a lead-based mineral pigment and colourant, ranging from primarily yellow to red in hue (lead-yellow). The use of lead-rich minerals is also attested in Egyptian medicine as well as in ancient cosmetics, see e.g. Walter et al. 2003; Weser 2005; Jacob 2011, 56-63. For *kalgukku* in recipes to staunch bleeding, see Steinert 2012, 76-77.

or similar).¹² However, a Late Babylonian text from Uruk (SpTU 4, No. 153, ca. 4th-3rd cent. BCE) which belonged to the archive of a family of exorcists and descendants of Ekur-zakir (Clancier 2009, 53, 59-61, 396), is unusual in this regard. It contains several commentary-like details explaining the envisaged effects of applied ingredients, thus providing hints for the motivation behind the use of particular substances. Thus, the text speaks of different "mixtures" (*maššītu*) applied in the form of tampons or vaginal suppositories, which contain ingredients that are supposed to have the effect of "damming up" (*pehû*) the flow and "soaking/softening" (*lubbuku*), the latter of which may refer to the effect of absorbing the haemorrhage in this context:¹³

SpTU 4, No. 153 obv. 1-4 (von Weiher 1993, 89-91):

1) DIŠ MUNUS MÚD.MEŠ-šú DU.MEŠ-ma la ip-par-ra-su ana pa-ra-si ^{na4}gab-ú ^{im}KAL.G[UG ...]

2) šá lu-ub-bu-ku SUM-ši EGIR šá lu-ub-bu-ku u ÚŠ-e SUM-su EGIR maš-šit an-n[it šá na4gab-ú?]

3) u ^{im}KAL.GUG SUM-su ^{na4}gab-ú tu-qal-la ^{im}KAL.GUG lib-bu-u[?] [...]

4) DÙ-uš Ú.MEŠ an-nu-tu ma-la iq-bak-ka 1.TA.ÀM ina-aš-ši ki-i ru-țib-ti i-b[a-lu? ...]

If a woman's blood flows constantly and cannot be stopped, in order to stop it: you administer to her (lit. "give her") **alum**, *kalgukku*-mineral, [*a suppository*²] for 'soaking'; thereafter you give her (a suppository) for 'soaking' and 'damming up' (the flow); thereafter you give her (again) thi[s] *suppository* (*maššītu*) [of alum²] and *kalgukku*-mineral: You roast alum (and) *kalgukku* – this means: [...], you make [*a suppository*²]. These drugs, as much as one has told you (to be appropriate), she applies one at a time/separately, until² the wetness² has [*dried*² ...].

The verb $peh\hat{u}$ "to dam up, to bar, to block, to make watertight", which is used with reference to doors, rivers, waterways, body openings and containers, is reminiscent of imagery encountered in spells recited over remedies used to staunch bleeding, which were often written down together with the prescriptions, for which they were used. These incantations compare the haemorrhage with a red river flood, and equate the body suffering from bleeding with a wet meadow bordering a leaky dike, and with a fermenting vessel whose stopper (inserted into the hole at the bottom of the vessel) does not function properly, resulting in leaking:

BAM 237 ii 1'-2' // SpTU 4, No. 129 vi (i') 17'-22' (von Weiher 1993: 32-40; Schuster-Brandis 2008, 325): "[Oh ...! Blood] continually drips and flows from the young man's nose and from the young woman's vagina, His (i.e. their) blood and tears continually drip and flow,

Li[ke] [a (waterlogged) meadow] whose dike is not holding back (the water),

[Like] a fermenting vessel whose stopper does not stop (the outflow),

Like a waterskin whose strap is not strong, whose drawstring is not trustworthy."¹⁴

The insertion of tampons containing haemostatic or astringent materials (such as alum) into the vagina as a prominent therapeutic strategy in the context of gynaecological bleeding can be seen as corresponding with the metaphors comparing the female body to a leaking vessel or to a wet meadow with a defective dike. The suppositories thus enact the goals of sealing a leaking body opening, to as well as containing and stopping the body fluids.¹⁵ The choice of alum

¹² In some of the diagnostic passages, the singular of $d\bar{a}mu$ "blood" is used instead; the mostly logographic spellings of *parāsu* "to stop" (e.g., TAR-*su*, TAR-*is*) are not consistent and could imply different grammatical forms, cf. K. 263+10934 obv. 1, 3, 10 (Steinert 2012, 65).

¹³ Cf. CAD P, 315-318 s.v. *pehü*; CAD L, 7-8 s.v. *labāku*. In instructions for the preparation of remedies, *labāku* mostly refers to steeping ingredients or macerating them in a liquid, to soften or moisten them, before further steps in preparation; cf. Goltz 1972, 43; Herrero 1984, 43, 68). But in the present text, the verb in the D-stem refers to the intended effect of the treatment. In other comparable texts, the phrase *ana lubbuki* refers to relaxing or making stiff muscles supple, or to lubricating body parts (e.g., the anus), but these meaning do not fit the specific context of stopping haemorrhage in SpTU 4, No. 153; cf. Herrero 1984, 41 "pour assouplir/soulager".
¹⁴ For discussion of this incantation, see also Steinert 2013; 2017: 318-20; forthcoming b. For the imagery, see

¹⁴ For discussion of this incantation, see also Steinert 2013; 2017: 318-20; forthcoming b. For the imagery, see also BAM 235 obv. 10-13 // BAM 236 rev. 1'-4'.

¹⁵ The application of potions in addition to tampons indicates that Mesopotamian practitioners saw the mouth as well as the vagina as suitable routes to treat haemorrhage issuing from the vagina, which may imply that they

 $(gab\hat{u})$ and yellow-reddish *kalgukku*-mineral in SpTU 4, No. 153 obv. 1-4 speaks to the relevance of both pharmaceutical and external properties (colour) in Mesopotamian understandings of efficacy.

One may speculate whether Mesopotamian healers, similar to Hippocratic medicine, linked abnormal gynaecological bleeding also with an excess of moisture in the patient's body, which they tried to regulate with remedies deemed appropriate to this end. Interestingly, the prescriptions against bleeding in SpTU 4, No. 153 speak not only of damming up and absorbing, but also recommend drugs that "dry up" the wetness ($ab\bar{a}lu$ G/D, cf. obv. 4 above and obv. 14 below) and "cool down" (ŠED₇ = $kas\hat{u}$ G/D, obv. 9, 14; ana takṣâti "for cooling", obv. 7 below) the patient, so that "the blood will be held back" ($d\bar{a}m\bar{u}$ ikkall \hat{u} , obv. 9). The latter notion of a "cooling" effect associated with stopping a haemorrhage is remarkable, given the occasional characterization of menstrual blood as hot in ancient Greek medicine:¹⁶

SpTU 4, No. 153 obv. 7-9 (von Weiher 1993, 89-91):

7) **^úIN₆.ÚŠ sim[?]-bar[?] ana tak-ṣa-a-tú šá MUNUS.PEŠ4 E-ú** MUNUS šá[?](text: šú) Ù.TU-ma MÚD.MEŠ la ippar-ra-su SUM-s[u (...)]

8) šá MUNUS.PEŠ4 šá 3 4 ITI.MEŠ-šú u MÚD i-ta-nam-ma-ru SUM-su : ina u4-mu ŠE BAD(gamri/gimirti?)-šú SUM-su ina u4-m[u] [[a? ŠE NU?]]

9) SUM-su ina ŠÅ UZU-šú ŠED7-ú u MÚD ik-kal-lu-u : Ú.MEŠ šá ú-lab-bak-[ku? ...]

Maštakal-soapwort (and) *simbirru-plant(?)* are prescribed for cooling a pregnant woman. You can administer (it) to a woman (lit. "give her") who? has given birth and (whose) blood cannot be stopped. [(...)] You administer (it also) to a pregnant woman who is in her third or fourth month and keeps discovering blood: you administer (it) on an auspicious (*magru*) day, all (day) long(?), (but) you [do not(?)] administer (it) on an un[favourable (?, $l\bar{a} magru$)] day, (so that) she will cool down in her flesh and the blood will be held back. (These are) drugs that absorb? (lit. 'soak', 'soften') [...].

The effects of cooling the patient's body, absorbing and holding back the undesired loss of vital body fluids in the context of pregnancy and childbirth are ascribed here to the ingredients *maštakal*, a purifying plant *par excellence* probably referring to soapwort, and the *simbirru*-plant, an unidentified medicinal plant, which, like *maštakal* occurs several times in prescriptions for stopping gynaecological haemorrhage.¹⁷ Since the identification of *simbirru* is uncertain, and since soapwort is not known as astringent or haemostatic in modern pharmaceutics, it is difficult to evaluate their use in the present context. The ascription of a cooling effect and absorbing properties to *maštakal* and *simbirru* is only encountered in this Late Babylonian text, but the regularity of their use shows that Mesopotamian healers used *materia medica* intentionally, based on culturally specific logics and traditions.

There are also remedies in SpTU 4, No. 153 that can be read as re-enactments using signature ingredients that present a link to the intention of "drying" an excessive wetness implied by the haemorrhage. The following examples are instructive:

SpTU 4, No. 153 obv. 10-11, 14-15 (von Weiher 1993, 89-91):

10) PAP?-nu? ZÍD ^{šim}GIG u EREN.BAD šá EGIR maš-šit i-și ta-ta-nam-mar ana? ÚŠ ...

11) ^{šim}GIG *ú-lab-bak* EREN.BAD *ub-bal* ILLU IN₆.ÚŠ GÌR.PAD.DU UDU.NÍTA *ina* DÈ *tur-ár* ŠIKA NUNUZ GA.[NU₁₁^{mušen}]

conceived of an internal bodily connection between the mouth/digestive tract and the reproductive organs; cf. Pommerening (forthcoming) for parallels in Egyptian understandings of women's bodies.

¹⁶ See King 1998: 32-33, 90; Totelin 2009, 197. For menstrual blood or bleeding after birth as a "hot" body state in Mesoamerican folk medical traditions, cf. also Messer 2013, 156-157.

¹⁷ For *maštakal*, see Pappi 2010; for its use against bleeding, see Steinert 2012, 79-80. For *simbirru/sibbirru*-plant in gynaecological remedies, see Steinert, in preparation. CAD S, 230 presents text references that point to *simbirru* as being an aromatic (once, it appears to refer to a tree rather than an herb) used against evil witchcraft. In plant lists, it is equated or associated with *šibburratu*, a medicinal plant and aromatic and probably a cognate of the Syriac word meaning "rue" (CAD Š/2, 376-377).

Another one(?): Powder of *kanaktu*-aromatic and *šupuhru*-cedar, which, after a *mixture/suppository* of (aromatic) woods(?), you will always find (to be good) for damming up. ... *Kanaktu*-aromatic will *absorb*, *šupuhru*-cedar will dry (out). You (can also) roast resin of *maštakal* (and) sheep bone on coals.

14) $[d]^{ug}$ ÚTUL NE *u* ŠIKA SÁHAR šá KA UDUN *ma-'-diš* DU₁₀.GA *ú-lab-bak ú-kaṣ-ṣa u ub-[bal' ...]* A new(?) pot (*diqāru eššu*) or a **porous potsherd** (*haşbu šaharru*) from the opening of an oven (*utūnu*) is very good (as well): it absorbs(?), cools and dri[es out(?) ...].

15) IGI UDU.NÍTA SI UDU.NÍTA šá ina DÈ iq-lu-ú ma-'-diš DU₁₀.GA di-iq-me-en-na-šú-nu [x x] šú[?] x[...] A ram's eye (and) ram's horn, which have been roasted on embers, are very good (as well). Their ashes ... [...].

Going through the ingredients of these prescriptions and their ascribed effects, some of the substances stand out as conspicuous, displaying contrasting properties with regard to the treated problem. Thus, the use of dry ingredients (such as powder of *šupuhru*-cedar) and the use of roasted materials (ram bone, horn or eye) devoid of moisture, signal the aim of the treatment (absorbing and drying out, or balancing excessive moisture). Another ingredient "enacting" the aims of treatment (absorbing, drying and cooling) is found in the potsherd from the opening of an oven, since the oven and the potsherd both stand for an object (container/vessel) that gets hot and cold again, in a way signalling the intended cooling of the patient's "hot" body state. Roasting of the drugs could likewise be understood as an action embodying the patient's hot state. The choice of a porous clay vessel or sherd for absorbing/cooling may further involve cultural knowledge of the cooling effects of the such vessels on their liquid contents.

Case study 2: Some implications of treatments for postpartum conditions and infertility

Another aspect worth highlighting is that the type of treatment chosen for a specific medical problem can offer implications on the level of underlying body and illness concepts. Thus, we can see a general coherence between the preference for potions and vaginal suppositories in Mesopotamian treatments for women's conditions on one hand, and body and illness concepts prevalent in Mesopotamian medicine on the other. In gynaecological texts, the application of vaginal treatments is based on an understanding of the womb as the central organ connected to female health and affected in gynaecological conditions (Steinert 2017). The combination of suppositories with potions points to a broader understanding of internal ailments as being treatable by administering medicine via the two main orifices leading to the inside of the body, i.e. via the mouth/vagina in women (i.e. from above and from below).¹⁸

But external treatments applied in women's health care texts are likewise interesting with regard to re-enactments of or allusions to underlying ideas about the body and disease processes treated with them. External remedies often consist of salves (*napšaltu*), with which the patient is anointed (*pašāšu*) or massaged/rubbed (*muššu'u*). Also popular are recipes for baths or lotions (*narmaktu*, *marhaṣu*) and recipes for poultices or bandages (*naṣmattu*, *lubku*), in which the ingredients are smeared on a piece of cloth or leather and applied as a bandage (*ṣamādu*):

BAM 240 rev. 59'-63' (8th-7th cent. BCE; from Assur):

59') DIŠ MUNUS MIN-ma KÚM li-'-ba u ter-ku ina UZU.MEŠ-šá u SA.MEŠ-šá [GÁL.MEŠ] qer-bé-nu 60') LUGUD ú-kal ana šup-šú-hi ina! A GAZI^{sar} ina A ^{giš}bu-uț-na-nu RA.MEŠ

If a woman ditto (gives birth) and subsequently there are fever, li'bu-disease and dark spots on her flesh and her muscles, she has pus internally. To calm (down the fever): you bathe (her) repeatedly with juice of tamarind ($kas\hat{u}$) (and) $butn\bar{a}nu$ (lit. 'terebinth-like plant') juice/infusion (lit. water).

61') A.GAR.GAR ša IGI MU.AN.NA ina NINDU ÚŠ-ir RA-si ... You enclose (heat) dung pellets (*piqannu*) from the springtime in an oven, you bathe her (with it).

¹⁸ For similar notions about an internal route or channel connecting the mouth and vagina/womb in ancient Egyptian remedies for women, which correspond to the regimes of orally and vaginally applied treatments, see also Pommerening (forthcoming).

You knead one litre of the powder of $\underline{s}u\underline{s}u$ -tree (liquorice?), one litre of powder of sesame bran, one litre of malt flour, one litre of powder of $\underline{k}u\underline{k}ru$ -aromatic, one litre of $\underline{b}ur\overline{a}\underline{s}u$ -juniper with juice of tamarind ($\underline{k}asu$), you smear (the mixture) on (a piece of) cloth, you let (it) cool down (and) make a bandage with a thin (cloth?).¹⁹

These examples of washes and bandages used in the context of postpartum conditions are applied to treat symptoms of infection (implied by the terms *ummu* (KÚM) "fever" and *li 'bu*-disease, and *šarku* (LUGUD) "pus"), showing that these treatments were intended to cool down fever (possibly alluded to by the action of cooling down the remedy before application in line 63'), to treat related symptoms visible on the skin (described as *terku* "dark or bruise-coloured spot(s)"), and probably also to cleanse the body from the outside.²⁰

Of particular interest in the extract from BAM 240 is line 61', because of the conspicuous ingredient "dung pellets from the springtime" (*piqannu*(A.GAR.GAR) *ša rēš šatti*(MU.AN.NA)), which had to be heated in an oven und used in a wash. To be sure, the use of animal (probably sheep) dung in the present context looks like a bizarre substance to a modern observer.²¹ But the ingredient may particularly hint at the notion that pathogenic body substances (in our case, pus inside the womb) held as the cause for the symptoms could be countered by choosing a substance with similar properties such as excrement (i.e. applying "dirt" against "dirt") and by evoking or re-enacting the characteristics of the treated ailment through the recipe.²² In our example, the dung heated in an oven would allude to the patient's feverish body containing a pathogenic substance.

However, on second thought, the particular choice of animal dung collected in the spring may also allude to an agricultural analogy prominently found in Mesopotamian texts, which links the female body and its reproductive processes with fields und agricultural production, namely the use of dung as fertiliser.²³ Thus, the remedy in BAM 240 rev. 61' may have been understood and intended not only as a cleansing, but also as a fertilising, regenerating treatment for the female body after birth, which could not only counter pathogens, but also prepare the female body/womb for future conception.²⁴

This bring us to a third topic of interest, namely treatments to enable conception and enhance female fertility. The spectrum of therapies for enabling fertility or treating infertility in Mesopotamian medical texts is actually very broad. Tampons/suppositories and enemas were applied into the vagina; potions and other substances were ingested orally; external remedies included washes/baths, ointments, bandages and amulets.²⁵ The following extract is taken from a section of BAM 244, a tablet which, like BAM 240, stems from the "House of the incantation priest" at Assur, but which focuses on treatments for conception and fertility. The selected

²⁵ For discussion of examples, see e.g. Böck 2013; Steinert 2017.

^{62&#}x27;) 1 SÌLA ZÍD ^{giš}šu-še 1 SÌLA ZÍD DUH.ŠE.GIŠ.Ì 1 SÌLA ZÍD MUNU₆ 1 SÌLA ZÍD ^{giš}GÚR.GÚR 1 SÌLA ^{šim}LI 63') ina A GAZI^{sar} SILA₁₁-aš ina TÚG SUR-ri **tu-kàş-şa** ina ruq-qí LÁ-id

¹⁹ Cf. Scurlock 2014, 612, 616; Bácskay 2018, 110-112, for previous editions and a few diverging readings.

²⁰ Cf. Scurlock and Andersen 2005, 282 with 12.125 for an interpretation of the symptoms as child-bed fever; and Stol 2007; Bácskay 2018 for discussion of fever-related conditions in Mesopotamian medicine.

²¹ This expression is not known as an alias name for a plant; usually, the term for excrement in alias plant names is $z\hat{u}$ ($\check{S}E_{10}$). For these reasons, I understand *piqannu* literally in the example under discussion, although a metaphorical drug designation is not excluded.

²² For the idea of "dirt" against "dirt", see von Staden 1992 who discusses the gender-specific nature of similar gynaecological treatments involving excrement in Hippocratic medicine. In Mesopotamia, however, the prescription of *Dreckapotheke* or excrement is not restricted to the treatment of women.

²³ For the female reproductive body as an agricultural landscape including imagery of fields, canals and meadows that are embedded in notions of fecundity, conception, pregnancy and birth, cf. Stol 2000; Steinert 2017; Couto-Ferreira 2017, 2018.

²⁴ Cf. Totelin 2009, 212-14 for a parallel interpretation of "dung" treatments in Hippocratic gynaecology. Dung pellets from the spring time may allude to the fertilisation of fields after the harvest (in spring) to prepare them for the next agricultural season.

section (obv. 10-30) consists of a complex treatment over several days combining repeated baths in a liquid (prepared from an extract of garden plants, reeds and aromatic woods mixed with beer) and anointing (obv. 10-20), followed, after three days, by the preparation of a poultice. The section is preceded in obv. 8 by a statement indicating the purpose of the treatment:

BAM 244 obv. 8, 10, 21-30 (8th-7th cent. BCE):

To enable an infertile woman to get pregnant ([MUNUS] la a-lit-ta < ana > šu-[ri]-im-m[a ...]): ... The procedure for it (KÍD.KÍD.BI):

When her (three) days are completed, [*you prepare*] a poultice [...], ...: pea flour, lentil flour, *kiššēnu* (vegetable)flour, powder of *barīrātu*-plant, [flour of ...], powder of *nīnû*-plant (mint?), powder of *azupīru*-plant (saffron?), powder of *kasû*-plant (tamarind), powder of [...], powder of *nikiptu*-plant, powder of *kanaktu*-plant, cedar powder, [...]-flour, powder of *asu*-plant (myrtle), powder of *sumlalû*-plant, powder of *ballukku*-plant, in sum 21 (sorts of) flours/powders [...] – you take (them) one by one, you mix (them) together, [you bring them to boil(?)] in a little metal pot like (one) used by a physician (*asû*), moistening (the mixture) with half a litre of oil, you soak (*tuşabbâma*) her hips, her thighs and [her] lo[ins] (with it), by [applying (this) as a bandage[?]]. You keep repeating (this treatment) for her, and she will get well.²⁶

The passage illustrates several interesting aspects of Mesopotamian treatments for infertility. One aspect is the prominent use of cleansing and aromatic plants (some of which are also used for perfumes, such as cedar, myrtle, *kanaktu*, *ballukku*), suggesting the underlying idea that bodily impurities were seen as a cause of infertility, hindering conception. This would also be underlined by the combination of the poultice or bandage with repeated baths. Furthermore, the verb *tuşabbâma* "you soak (her hips, thighs and loins)" in obv. 30 (from *şabû/şapû* "to irrigate; to moisten, to soak") describes the therapeutic action, namely that the medical substances were to be absorbed via the skin to reach the area inside the body that was the focus of the therapy (the womb). The use of the verb "to soak; to irrigate" may not be accidental in this context, but may allude to metaphors and imagery found in Mesopotamian incantations and other texts comparing the female body with a fertile field or meadow "irrigated" by the male semen. In extension of this metaphor, it may be surmised that the treatment of "soaking" was meant to prepare the patient's body for conception like a field by suppling moisture.²⁷

Previous discussions have pointed out that Mesopotamian medical texts attributed infertility or inability to conceive to different physical causes (beside personalizing aetiologies such as divine wrath or witchcraft), including deformation or closure of the womb/reproductive organs, or a "systemic" disorder caused by the kidneys (Steinert 2017, 305-307, 315). Remedies employing tampons that are inserted into the vagina (lit. "womb") were often intended to "open up" (*petû*) the woman's womb, so that she would be able to "receive" (*mahāru*) the male semen and get pregnant. Signature ingredients employed in such remedies can be shown to enact the opening of the womb by alluding to metaphors associated with the organ of reproduction. For example, "fatty material from the opening of a vat (*dannu*)" is mixed with aromatics, almonds,

²⁶ 21) [G]IM U₄.MEŠ-šá im-ta-lu-ú na-aş-ma-a[t-tu[?] ...] / ... / 23) ZÍD ŠE.BAR SIG₅ KU <ŠE>.NÁ.<A> ZÍD ZÍZ.ÀM ZÍD in-ni-ni [...] / 24) ZÍD GÚ.GAL ZÍD GÚ.TUR ZÍD kiš-še-ni ZÍD ba-ri-ra-te [ZÍD ...] / 25) ZÍD ^úKUR.RA ZÍD ^úHUR.SAG ZÍD GAZI^{sar} ZÍD ^{šim}[mx x] / 26) ZÍD ^{šim} dMAŠ ZÍD ^{šim}GIG ZÍD ^{giš}[e]-re-ni Z[ÍD ...] / 27) [Z]ÍD ^{šim}GÍR ZÍD ^{šim}GAM.MA ZÍD [^{šim}]BAL ŠU.NIGIN 21 Z[ÍD.HI.A ...] / 28) [1].TA.ÀM TI-gé DIŠ-niš HI.HI ina ŠEN.TUR GIN⁷ ŠU A.Z[U ŠEG₆-šal[?]] / 29) 1/2 SÌLA Ì.GIŠ tal-tap-pat ina [MURUB4]-šá pe-ni-šá u ra-pa[l-ti-šá] / 30) [t]u-şa-ab-ba-ma [KÉŠ[?]] GUR.GUR-ši-ma ina-[eš]. For photo and transliteration, see also Cuneiform Digital Library Initiative (CDLI, https://cdli.ucla.edu/P285330). Cf. Böck 2010, 109 for a German translation of the passage.

²⁷ For metaphors and imagery in Mesopotamian medical and literary texts linked with the female reproductive body, see further Couto-Ferreira 2017; Steinert 2017.

"stinking" sesame, and pieces of bread into an acorn-shape suppository in a remedy "for opening up and getting pregnant" ($\dot{s}\dot{a}$ BAD u PEŠ₄) known from two Late Babylonian tablets.²⁸

Another recipe from "House of the incantation priest" at Assur uses ingredients that may function as signature elements signalling or enacting the intended effect of the treatment. BAM 240, a collection of prescriptions focusing mostly on health problems of pregnant and postpartum women, also contains a section (rev. 69'-74') concerned with a woman's (in)ability to conceive, linked to the observation that her womb (*qerbītu*) receives (*mahāru*) the male semen (*rihûtu*) but cannot retain (*kalû*) it inside, both of which appear to be seen as preconditions for successful conception.²⁹ The associated prescription is fragmentary, but some crucial elements are preserved:

BAM 240 rev. 71'-74' (8th-7th cent. BCE):

DIŠ MUNUS [ina ŠÀ] TUKU-at ka-la-a la i-le-'e-e ana MUNUS nu-uh-hi GÌR.PAD.DA GÍ[D.DA] ³⁰
^{munus} ÁŠ.GÀR GÌŠ NU ZU ki-la-la-[an] [te-țe4-en [?]] [NÍG [?]].ÀR.RA ina A ta-mah-ha-a[s]
GÌR.PAD.DU GÍD.DA šú-nu-ti ina ŠÀ-b[i ŠUB [?]] [x x] []
ina GAL ₄ LA-šá GAR-an tu-u $[l^2$ -la-ad ²]

If a woman has received (the semen) in (her) belly, (but) cannot retain it (inside), in order to calm/allay the woman: [you grind?] both of the 'lo[ng]' bone(s) (i.e. thigh bones) of a virgin she-goat, you sti[r] mundugroats into water; [you throw?] these 'long' bones into (it) [.....], you insert (this) into her vagina, (and) she(?) will be able to b[ear[?]...].³¹

The state of preservation of the remedy leaves open how exactly the ingredients were prepared, before they were inserted into the patient's vagina, but it seems likely that one would first need to grind up the bones, before they could be applied.³² One may suppose that they were added to and mixed with the *mundu*-groats-and-water-mixture, which may have resulted in a solid dough or pill(s), which could be inserted or wrapped up in a tampon before insertion. The purpose statement in line 71' *ana sinništi nuhhi* "to calm down the woman" is interesting, since it focuses on the patient's psychological state, although it is not entirely clear whether the implied agitation of the patient was seen as the cause or consequence of her inability to conceive. In line 74', we may have a fragmentary positive prognosis *tul*[*lad*] "she will (be able to) bear".

Because of the lacuna in lines 73'-74', it is unclear whether other ingredients had to be added. But the two preserved ingredients, consisting of the thigh bones of a virgin goat and *mundu*-groats mixed with water, are highly remarkable in light of the treated problem. The use

²⁸ BM 42313 rev. 33-36 // BM 42333+ obv. 5-11, see Finkel 2000, 171f. Text 17; Böck 2013, 32; Steinert 2017, 307.

²⁹ It may be of interest to note similar ideas in the Hippocratic treatise *Diseases of Women I*, Chapters 10-13 (Potter 2018). Chapter 10 discusses causes for a woman's inability to conceive connected to the observation that the patient discharges the semen after intercourse. If the semen is discharged immediately, then the mouth of the uterus is either not straight (folded over) or too tightly closed, so that it cannot take up the semen. In this case, treatments to straighten and open the uterus are recommended. If the semen is discharged on the second or third day after intercourse, the author believes that the uterus is too full of moisture and the seed gets washed away; therefore, it has to be dried with proper treatments. If, however, the semen is discharged on the sixth or seventh day and is already decomposing, then not only the uterus but the woman's whole body are regarded as too moist and require treatment. Opening and straightening the uterus involved e.g. the application of dilating objects/suppositories, fumigations, fomentations. Drying was achieved through drying fomentations, cleansing agents, emetics, exercise and adjustments of the patient's diet (consumption of drying foods and avoidance moistening foods).

³⁰ Böck (2013, 30 n. 10) reads DIŠ MUNUS [NUMUN ŠÀ] TUKU-*at* with the same meaning. The beginning of the line is now worn off. There does not seem to be enough room at the end of the line for the restoration [UDU NÍTA *u*] suggested by Böck (*ibid.*), which would mean that bones of a male and a female animal were used.

³¹ For this recipe see also Böck 2010, 109; Scurlock 2014, 616. The use of the 3^{rd} person fem. prefix *tu*- in line 74' is somewhat exceptional in this text; all other syllabically spelled verb forms which speak of the patient use the *i*-prefix instead. The restoration is thus provisional.

³² It is also thinkable that the bones may have been roasted or dried before grinding. In this case, one could restore $[tur-\acute{a}r]$ in line 72'.

of animal bones is conspicuous; but in my view, it is unlikely that "long bones of a virgin shegoat" refers to an alias drug name here, because the text explicitly requests to use "both" thigh bones (from the right and left hind leg). The choice of bones may, however, be significant and meaningful, because in ancient views of embryology and physiology male semen is often regarded as supplying the basis for the white or hard body substances of the foetus, especially for the bones. Thus, a birth incantation known from Old Babylonian sources (YOS 11, No. 86: 1-2 //) tells us that the baby's bone is created from the "fluids of intercourse", referring primarily to semen as procreative fluid.³³ The term *esemtu ahītu* "separate bone" is further used as a synonym for the foetus/offspring in a birth incantation from the Neo-Assyrian period (BAM 248 ii 54-55; Scurlock 2014, 597, 601). Linking the remedy in BAM 240 to the concepts associated with this body substance, the bones and their application would have signalled or enacted the implicit aim of the treatment, i.e. that the patient's womb would be able to retain the semen and to bring about a foetus/"bone". The mundu-groats may have matched the ingredient bone in colour, and may have added further connotations that we are currently unable to grasp (such as the idea of providing nourishment to the woman or envisaged foetus). It may be worthwhile pointing out that cereals such as barley are linked to notions of fertility, for example in ancient Greek culture and medicine (cf. Totelin 2009, 199-211).

Case study 3: Pharmaceutical and material properties of materia medica in relation to treated complaint

In the last section of this survey, I would like to highlight that the study of identified medical ingredients in Mesopotamian medical recipes may provide insights into how knowledge of both pharmaceutical properties *and* material properties of drugs was employed by Mesopotamian healers in order to bring about an effect in the patient's body or to influence a specific condition. One may view the following examples as re-enactments based on analogical reasoning; however, we also find the idea of a transfer of properties from the drug to the patient's body. The exploited properties or potentials of healing plants such as the date palm also throw light on aspects of cultural meaning systems.

In Mesopotamian prescriptions and rituals for women, one important aspect linked to the use of date palm is its importance as an abundantly fruit-bearing tree motivating its role in medical and ritual texts to boost women's fertility and child-bearing capacities.³⁴ This association links up with comparable uses in later folk-medical traditions as well as with modern scientific insights about plants like date palm as producers of female sex hormones which play a crucial role in regulating female reproductive processes.³⁵

Most medical remedies for women from the first millennium BCE prescribe the fruits, for a range of female health problems.³⁶ At least one recipe on a Late-Babylonian tablet from Sippar (BM 79061 obv. 5-8), employs dates in a compound formula to enhance fertility ("to enable a woman (who is) not pregnant to get pregnant", MUNUS *la e-ri-tu*₄ *a-na šu-ri-'-[i]*), taken orally together with other plants and aromatics including *tarmuš*-plant and *tūru*-aromatic.³⁷ But the (re)productive capacities of the date palm were also transferred to patients

³⁶ For a study of date palm in Mesopotamian remedies for women, see Steinert forthcoming a.

³⁷ For an edition of the text, see Steinert in preparation.

³³ See the recent discussion in Steinert 2017, 307-310 with further literature. For parallels from Egypt and beyond, see also Pommerening forthcoming.

³⁴ The date palm's fruit-bearing capacities are also praised in the *Dialogue between Date Palm and Tamarisk*, see Streck 2004.

³⁵ With regard to uses in women's health care, it is noteworthy that in different ethnomedical traditions past and present, dates and their oestrogen-containing seeds and pollen are known not only as an aphrodisiac used for enhancing fertility, but also as a contraceptive; they are further used to treat genital sores, cancer (e.g. of the uterus or vagina) and venereal diseases, see e.g. Duke 2008, 327-28; Riddle 1992, 33, 51-53, 85. Butenandt and Jacobi discovered that pomegranate and date palm contain sex hormones in 1933.

through ritual means. In a passage from the Late Babylonian ritual text SpTU 5, No. 248, intended for a woman who has difficulty to bring babies to term (*sinništu lā mušēširtu*), physical contact between the patient and the date palm was intended to bring about a transfer of properties from the tree to the woman:³⁸

SpTU 5, No. 248 obv. 33-34, 37-38 (ca. 4th cent. BCE):

ana ^{giš}KIRI₆ ur-rad-m[a] ^{giš}GIŠIMMAR i-haș-și-in-ma ^{giš}GIŠIMMAR ma-hi-rat kal šá-a-ri mu-uh-ra-an-ni-ma ár-nu šèr-tú gíl-lat hi-ți-ti ...

a-šar ha[r-p]u up-ul tu-šab-šú a-šar up-ul tu-šab-šú har-pu iş-şi [nap-ş]a in!(text: zum)-bi tu-šar-šú iş-şi la na-šu-ú tu-šar-šú in-bi

She goes down to a garden an[d] *embraces* a date palm and (says): "Oh date palm, who withstands (or: receives) all winds: receive from me the guilt, wrongdoing, sin, misdeed! ...

Where there is an early (harvest), you let there be (also) a late (harvest); where there is a late (harvest), you let there be (also) an early (harvest).

You let (even) the [dama]ged tree get fruit!?(text: flies), you let (even) the non-bearing tree get fruit!"

The patient, in her address to the tree, praises its power of regeneration and ability to bear fruit abundantly over a longer period of time (enabling an early and a late harvest). She also asks the tree to receive the sins and wrongdoings that are upon her, which were probably seen as causal to her incapacity to perform her reproductive roles. In this connection, it is also significant that in incantations, the date palm is enumerated with tamarisk and soapwort as a cleansing plant that has the power to release from evil. Parts of the tree (such as the "palm heart" = young offshoots, and fronds) played a role in cathartic rituals, in the context of symbolic actions signalling the removal of evil and the patient's regeneration (Maul 1994, 62-66, 82; Streck 2004, 272-73; Couto-Ferreira 2013, 110-111).

A final example for the sympathetic use of date palm stems from a text from Nineveh with treatments for hair loss in women, duplicated on an Assur extract tablet on diseases of the head:³⁹

BAM 499 ii 7'-9', var. BAM 3 ii 24-26 (cf. Worthington 2006, 21-22, 29): KA.INIM.MA SÍG SAG.DU MUNUS *i-šah-hu-uh*

KÌD.KÌD.BI *mu-šá-ți-šá* TI-qí ku-niš-tú ta-șa-par **ur-țe-e ÉŠ** ^{giš}GIŠIMMAR šá ^{tu15}SI.SÁ NU.NU zap-pi ANŠE.KUR.RA BABBAR 7 u 7 KA.KEŠDA KÉŠ ina SÍG-šá KÉŠ ÉN 7-šú ŠID-nu

Wording (of an incantation if) a woman's hair falls out.

The procedure for it: You take **combings from her (var. his) hair**, you strand (it) into a skein of hair, **you twine** (it with) fibres from a rope (made from) a date palm (from the side) facing north (with) bristles from a white stallion, you knot seven and seven knots, you bind (it) into her (var. his) hair, you recite the incantation seven times.

Here, it is probably no coincidence that a prescription for restoring hair loss uses rope fibres from a date palm which are bound into the patient's hair. Thus, date palm fibres were an important source for making ropes of great strength and can easily be imagined as resembling hair. It was apparently hoped that the positive properties of the palm fibres could be transferred to the patient's hair by bringing both into physical contact. While we tend to see such treatments based on analogical reasoning as purely "magical" or symbolic and contrast them with prescriptions that look purely medical at first sight, Mesopotamian healers apparently did not draw such distinctions. On the contrary, as we have seen in several text examples discussed above, the same principles of analogy, transfer of desirable (including pharmaceutical)

³⁸ For translations and discussions, see von Weiher 1998, 58-65; Scurlock 2002; Foster 2005, 980; Couto-Ferreira 2013.

³⁹ For possible connections of these texts with the treatise CRANIUM dealing with conditions of the area of the head (or skull), cf. Steinert et al. 2018, 220-221. BAM 3 is an excerpt tablet with extracts running parallel to Nineveh texts belonging to the CRANIUM treatise.

properties and their "enactment" often appear to underlie the application and choice of medical plants in the prescriptions.⁴⁰

Conclusions

The present discussion of treatments for Mesopotamian women's health problems argues that the remedies found in them are based on a culturally shaped understanding of the body, on knowledge about the nature of the treated ailment and on clear ideas about the desired effects of the prescribed remedies, although these underlying ideas often remain implicit. The uses of plants and substances investigated here appear to be based on what has been called "common sense" knowledge shaped by the cultural interactions with plants and substances as much as by specialists' lore about pharmaceutical properties.⁴¹ In my reading of the Mesopotamian remedies, in particular ingredients or elements that struck me as a modern reader as conspicuous and unusual often pointed to culturally based notions of the body, in our case the female reproductive body, that informed and motivated their use in a specific context.

Throughout the selected text examples, we were able to trace interconnections between procedures and properties of medical ingredients one the one hand, and the characteristics of the treated problems or aims of therapies on the other. Thus, some ingredients were apparently chosen because of their perceived contrasting or similar properties in comparison with the treated problem. Furthermore, some of the procedures of remedy preparation could be understood as "medical re-enactments", showing that this approach developed in response to Egyptian medical recipes can be applied with much insight also to Mesopotamian materials. Lastly, Mesopotamian medical practices showed some commonalities with medical practices and concepts found in neighbouring traditions (such as Hippocratic medicine), which may point to similar patterns of thought and reasoning about the body, but also to comparable experiences and conceptions about the interactions between medical substances and the body.

Let us recall the concepts linked to women's bodies and their dysfunctions that have been elucidated in recent research and were underlined in the present survey of prescriptions. Throughout the paper, I have pointed to elements in the prescriptions and therapies that appear to resonate with body concepts highlighted in healing spells for women's disorders, showing aspects of congruence or correspondence. In the discussion of remedies for abnormal bleeding, we saw that the effects ascribed to drugs and treatments in SpTU 4, No. 153 ("staunching/sealing", "drying", "absorbing") corresponded with the imagery of leakage and overabundant wetness encountered in the spells recited for the same purpose, which revolve around the metaphorical understanding of the womb as a container and as an agricultural landscape (especially a wet meadow). We found that the local application of suppositories containing haemostatic drugs and certain signature ingredients (e.g. dry ingredients) prepared in specific ways (e.g. desiccating, roasting) enacted the aims of drying, containing and stopping the flow.

The examples of remedies for postpartum infection/fever underlined the intention of cooling and cleansing (e.g. through baths), but we also encountered the striking use of animal dung heated in an oven, which we compared to the notion of "dirt" against "dirt" in Greco-

⁴⁰ We may compare the roles of healing substances and material objects in Mesopotamian prescriptions and rituals with Dario Novellino's (2009, 760) concept of "tool-signs", as "any natural or man-made object, word, sound, gesture, or bodily movement that is perceived to be an essential vehicle of cross-ontological communication and action on the material world, and whose technical effectiveness is always embedded in social processes. Tool-signs have a wide range of attributes since they are believed to condense the relation between subject and form, vision and hearing, smell and other sensory experiences." The use of such tool-signs in rituals or magic relies, similar to the use of *materia medica* in healing, on cultural knowledge about the properties of the involved materials, on inferences drawn from the environment, as well as on experimentation and creativity.

⁴¹ For the notion "common sense" in connection with the use of and interaction with plants and drugs in different cultural contexts, as a form of "skilled practice" at the interface of practice and knowledge, see Hsu 2010a.

Roman dung treatments. Thus, the signature ingredient and its preparation were seen as enacting the patient's condition (having the *Gestalt* of a pathogenic substance in a hot body container). Secondly, we speculated whether such a treatment may have alluded to an agricultural analogy seeing the female body as a field, and thus may have implied something like a regenerative and fertilizing treatment.

In connection with therapies for fertility and conception we noticed a strong focus on cleansing and aromatic plants in Mesopotamian texts, suggesting that the treated problem, in particular infertility, was linked to notions of bodily impurities, which were sometimes attributed to the effects of witchcraft or the patient's wrongdoings seen as responsible for her reproductive incapacity and impairment. One treatment appeared to enact the notion of "irrigating" and moistening the patient's body/womb in analogy to agricultural practices, corresponding to the prominent metaphors of fields, meadows and agricultural production linked with the female body and its reproductive processes in Mesopotamia. Such notions of a "body technologic" (Steinert 2017) resonate in external, and often cleansing, treatments such as baths and poultices aimed at preparing the womb for conception. Other therapies, however, indicated that a physical problem or defect (such as a deformation or blockage of the patient's womb/reproductive organs) was seen as the cause of the problem, as they aimed at opening her womb like a vessel. In one prescription, in which the patient's womb was found to be unable to retain the male semen, the conspicuous ingredient bone that was applied to the vagina enacted the aim of the therapy by alluding to semen transformed into bone, and thus to the foetus to be.

In conclusion, the views of the female body and the processes characterising and affecting it which we encountered in Mesopotamian prescriptions are multi-faceted and context-specific. On the other hand, the treatments for the gender-specific conditions and ailments discussed here were based on a few recurring principles and notions, foregrounding the regulation or balancing of bodily states along the opposites of hot–cold, wet–dry, as well as the notion of cleansing and removing of pathogenic substances and impurities. The importance of the qualities hot–cold, wet–dry in Mesopotamian prescriptions forms a fascinating continuity to Greco-Roman medicine and other premodern medical systems working with a central idea of bodily balance (also called "humoral medicines"), which merits further investigation.

The leading metaphors and notions that guide the interpretation of bodily processes and medical interventions in Mesopotamian gynaecology appear to focus on regulating and assisting the female body in case of irregularities and disorders, often linked to its reproductive functions or to conditions that are specific to the female body. However, the basic body metaphors (vessels and agricultural landscapes, canals, crafts and technologies) also served to conceptualize other types of conditions such as intestinal/digestive ailments in Mesopotamian medical texts, which are not restricted to women.⁴² Some prescriptions for women, such as the example of the treatment for hair loss discussed above, were also included in other medical treatises, where they are used for male patients (or patients or either sex). Moreover, a few recipes for pregnant women with digestive problems found in BAM 240 are also encountered in a slightly varying version in the treatise STOMACH, for the treatment of the same complaint.⁴³ This overlap of basic body metaphors and treatments indicates in my view that Mesopotamian medical specialists did not regard the female body as entirely different from the male (in contrast to Greco-Roman medical authors). It appears to me that in Mesopotamia, the female body was seen as standing in a kind of parallelism to the male body, although the Mesopotamian texts also recognised women's anatomical differences, their gender-specific

⁴² See Steinert 2013; Johnson 2017; Steinert and Vacín 2018.

⁴³ See e.g. BAM 240 obv. 26' and 28', which contains a slight variant to the remedy for intestinal bloating due to wind in the body found in BAM 575 ii 54-55 (= STOMACH (Suālu) Tablet 2). In BAM 240, the remedy is recommended for a pregnant woman, in BAM 575, it is prescribed for a male (or generalized) patient.

roles in reproduction and the existence of gender-specific complaints necessitating context-specific treatments.⁴⁴

In other words, the central body metaphors and analogies drawn from the environment that were applied flexibly and in context-dependent ways to the observed physiological processes and changes allowed Mesopotamian healers to interpret and influence both male and the female bodies. Likewise, the crucial notion in Mesopotamian therapy – regulating the body and removing abnormalities and impairments – was applied to both male and female bodies alike, both of which were prone to suffer from many similar conditions, some of which could be compared to each other (including haemorrhage or discharge of fluids from the genital organs).⁴⁵ However, what may have been regarded as a specific characteristic of the female reproductive body in Mesopotamia is possibly its function as a productive body and locus of creation.

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⁴⁵ For discussion, see further Steinert forthcoming b.

⁴⁴ Cf. Heeßel 2006 for the male body as the normative body in Mesopotamian medicine, and the subordinate position of the female body in the medical compendia.

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