Sāmānu as a Human Disease

Susanne Beck[1]

Abstract

The ancient Near Eastern demon Sāmānu is described as a human disease in Mesopotamian documents. There exist numerous magical and medicinal textual sources, which are very descriptive of his nature. Described as a skin disease, Sāmānu is always associated in the cuneiform tablets with specific parts of the human body. The tablets identify symptoms and prognosis. This article offers a deeper insight into the medical-magical sources describing the demon as a human disease, and suggests possible identifications of this disease in modern medicine.

Introduction

The demon Sāmānu (sa-ma-na$_2$, sa-ma-na, nim-nim/*sa-ma-nu-um*) is attested as a disease of human, animals (sheep, cattle, and donkeys), and plants (barley), as pest (Sumerian ur-me-me) in the ancient Near East. He also manifests as occurrence in rivers. This article deals with Sāmānu as a human disease. There exist abundant textual sources, both magical and medicinal, referring to this disease-demon. The cuneiform tablets provide information about the typical location of the ailment on the human body, the symptoms, and its prognosis.

Textual Attestations

The Mesopotamian sources originate in lexical lists, diagnostic and therapeutic texts, as well as incantations. They date from the Ur-III-period through to the Hellenistic period. The 33rd tablet of the Diagnostic Handbook – the tablet dates to the Hellenistic period – states:

> DIŠ GIG GAR-*šu*$_2$ SA$_5$ *e-em* MU$_2$-*iḫ*$^?$ *u* D[U-*a*]*k sa-ma-nu* [MU.NI]
> "If the (medical) finding of the disease is red, hot (and) swollen, and discharges: Sāmānu is [its name]."

> DIŠ GIG GAR-*šu*$_2$ SA$_5$ LU$_2$ KUM$_2$.KUM$_2$-*im u i-t*[*a-na*]*r*$^?$-*ru*$_3$$^?$ *sa-ma-nu* [MU.NI]
> "If the (medical) finding of the disease is red, the patient (lit. man) is continually feverish and it consistently re[tur]ns: Sāmānu is [its name]."

> DIŠ GIG GAR-*šu*$_2$ *da-an* TAB [...]-*ma ina* IGI-*ka la i-na-aš* UŠ$_2$ ŠUB KI.MIN *sa-ma-nu* [MU.NI]
> "If the (medical) finding of the disease is hard, fever [...] and you observe it, it does not recede from you (and) rejects (?) blood, ditto: Sāmānu is [its name]."[2]

Moreover, several recipes contain short descriptions of the ailment, too. The Neo-Babylonian tablet W 21033 R:14'–15' and R:19' (BAM 409) reads:

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[1] Curator of the Egyptian Collection, Institute of Ancient Near East Studies (IANES), Department of Egyptolgy, Eberhard Karls University, Tübingen, Germany.

[2] W 23292 R:23–25 & BM 121082 R:3'–5', Egbert von Weiher, *URUK: Spätbabylonische Texte aus dem Planquadrat U* 18, IV, AUWE 12 (1993): 81–88, 179–180; CT 51 pl. 51.148; Nils P. Heeßel, *Babylonisch-assyrische Diagnostik* (AOAT 43, Münster, 2000), 354, 360, 368.

> DIŠ NA *sa-ma-nu lu-u*$_2$ SA$_5$ *lu-u*$_2$ GE$_6$ *lu-u*$_2$ SIG$_7$ *lu-u*$_2$ [BABBAR] *lu-u*$_2$ *ṣi-tu lu-u*$_2$ *mi-ḫi-iṣ* ^{giš}DALA$_2$ *it-tab-*[*ši*] [...] *šum-ma* UŠ$_2$ *u* LUGUD ŠUB^{meš} [...]
> "If Sāmānu occurs either red or black or yellowish green or [white] or (as) an abscess (?) or prick of a thorn (at) a patient (lit. man) [...] if blood and pus consistently extravasate [...]."[3]

As in passages of the 33rd tablet of the Diagnostic Handbook, Sāmānu is also described as a swelling, which could be either red, black, yellow or white, with a sanguineous to purulent discharge. Furthermore, the recipe explains how the disease is passed on. The ailment is apparently transmitted by a prick of a thorn. Similarly, the Neo-Assyrian lexical list K. 207 + Sm. 24 + Rm. 2,24 (= CT 19, 3) + K. 264 mentions Sāmānu beside the stings of scorpions and the pricks of other plants:

214 [...]	[*zi*]-*iq-tu*	[sti]ng
215 [...]	[KIMIN]	[ditto]
216 [...]	[*sa*]-*ma-nu*	[Sā]mānu
217 [te]	[*sa*]-*ḫa-lu*	[to pri]ck
218 [te.te]	[*si-ḫi-i*]*l-tu*	[pri]ck
219 [ĝiš.IGI.DU$_3$.te.te]	[KIMIN *ṣil-l*]*i-e*	[ditto of a thor]n
220 [gi.te.te]	[KIMIN *qa$_2$*]-*ni-e*	[ditto of a re]ed
221 [ĝiš.ra.aḫ]	[KIMIN *i-ṣ*]*i-im*	[ditto of a tree/]wood[4]

In another therapeutic text, BAM 494 (K. 6684 + BM 134589), the suffering is similarly characterized:

> DIŠ NA SAG.ˀDU-*su*ˀ *sa-ma-nu* DAB-*it i-raš-ši-šum-ma i-na-saḫ i-na-aḫ* [EGIR]-*nu* GAL-*bi*
> "Case: Sāmānu seizes the patient's (lit. man's) head, he turns red and it recedes, abates (and) afterwards increases (again) [...]."[5]

Moreover, the text mentions where Sāmānu might appear: on the head. The same statement is made in the following recipe.[6] Contrary to the therapeutic and diagnostic texts, the incantations reveal a lot more about Sāmānu, accurately describing the location of the ailment as well as the affected persons. In the conjuration HS 1555 + 1587 R:10–12, V:13 (TMH 6, 6), dating to the Ur-III-period, it is said:

> u$_3$-ku$_5$-e ḫa-aš$_2$-gal-na ˀbaˀ-ni-na ˀkiˀ-sikil-e ga-na ba-ni-na ĝuruš-e sa-na ba-ni-na
> "The poor caught (him) at his thigh. The girl caught (him) at her breast (lit. milk). The man caught (him) at his tendon."[7]

A similar statement is made on the tablet 6 NT 145 (YOS 11, 73) of the same period:

> [MU]NUS.sikil gaba šu$_2$-ba [ĝu]ruš gu$_2$-na šu$_2$-ba

[3] Franz Köcher, "Ein Text medizinischen Inhalts aus dem neubabylonischen Grab 405", in *Uruk, die Gräber*, ed. Rainer M. Boehmer, Friedhelm Pedde, and Beate Salje (AUWE 10, Mainz 1995), 205, 209, 215.
[4] L. 214–218, see MSL 9, 97.
[5] R:I35', see BAM 494, pl. 93.
[6] K. 6684 + BM 134589 R:I38' [...] DIŠ NA SAG.DU-*su sa-ma-nu* DAB-*it* [...] "[...] If Sāmānu seizes a patient's (lit. man's) head [...]", see BAM 494, pl. 93.
[7] Johannes J.A. van Dijk and Markham J. Geller, *Ur III Incantations from the Frau Professor Hilprecht-Collection, Jena* (Wiesbaden, 2003), TMH 6, 26–31, 117 (pl. 9 no. 10), 134 (pl. 26), 149 (pl. 41); Irving L. Finkel, "A Study in Scarlet: Incantations against Samana" *CM* 10 (1998): 78–81 (text no. 3). The verbal stem is a= a$_5$ (AK).

"The [gi]rl is affected (at) her breast, the [ma]n is affected at his nape."[8]

In the Neo-Assyrian Incantation STT 178 (S.U. 51/128+) & duplicates, the same persons are mentioned as possible victims of attack:

ᵹuruš ḫaš$_2$-a-na-ta ba-ni-i[n ...] // *eṭ-lu* [*ina*] *šap-ri-šu$_2$ i*[*ṣ-bat*]
ki-sikil GIŠ.GABA-na-ke$_4$ // *ʾar$_2$*-[*da-ta*] *ina ši-ti-iq ʾir-ti-ša$_2$ i*[*ṣ-bat*]
lu$_2$-tur ga-naĝ-e sa gu$_2$-bi ba-[...] // *šer$_2$-ru e-niq ši-iz-bi ina la*[*-ba-nu iṣ-bat*]
"The man's thigh is sei[zed] (by him). The girl's breastbone is sei[zed] (by him). The infant's nape's [tendon is seized] (by him)."[9]

Infants are named in addition here as a potential victim. In the conjuration ArOr 17, 213 (AO 11276) R:11–15, which dates from the Ur-III-period, the same is said:

dumu-ga-ke$_4$ niĝ$_2$-guru$_5$-na ba-ni-de$_6$-a-gen$_7$ ki-sikil-le gaba BIR.BIR-a-na ba-ni-de$_6$-a-gen$_7$ ᵹuruš-e za$_3$ šu$_2$-šu$_2$-a-na ba-ni-de$_6$-a-gen$_7$ nu-geg-e nam-nu-ge$_{17}$-ga-na ba-ni-[x]-a-de$_6$-a-gen$_7$ nu-bar-re nam-nu-ba-ra-na ba-ni-de$_6$-a-gen$_7$
"as the infant suffered from him of his cutting off (?), as the girl suffered from him at her breast dropping (?), as the man suffered from him at his covered (?) shoulder, as the qadištu suffered from him in her position, as the kulmašītu suffered from him in her position."[10]

Besides toddlers, the qadištu and kulmašītu are also listed. Both name priestly offices whose functions are not clear, but who were active as wet nurses.[11] In all of the attestations, the girl (ki-sikil) is affected on her breast, while infants are not spared either.[12] Apparently Sāmānu was perceived to be transmitted by breastfeeding:

[8] R:I8–I9, similar in R:II2–3, see YOS 11, pl. LXXI no. 73, Finkel "Samana", 76–78, 99–100. Šu-ub here for šub. For Sāmānu's attack at the nape, see also Barbara Böck, *The Healing Goddess Gula, towards an Understanding of Ancient Babylonian Medicine* (Leiden, Boston, 2014), 153. In her opinion, the attack at the nape reflects Sāmānu's inherent canine qualities, for dogs usually direct their bite to the nape, cf. 154–155.

[9] Composite text, 15–17 (line counting is based on S.U. 51/128+), see for S.U. 51/128+: STT 178; for K. 2402+9219: Finkel, "Samana", 105 (fig. 8b), for K. 13922: Finkel "Samana", 103 (fig. 7).

[10] See Jean Nougayrol, "Conjuration ancienne contre samana", *ArOr* 17/2 (1949): 213–226, pl. III–IV, Finkel, "Samana", 72–76, 98. According to Graham Cunningham, "*Deliver me from Evil*": *Mesopotamian Incantations 2500–1500 B.C.* (StPohl SM 17, Rome, 1997), 68–69, in this incantation, as well as in 6 NT 145 (see above), no special disease is characterized, but both texts deal with general depictions of an ailment.

[11] As stated above, the functions of the priestly offices of the nu-ge$_{17}$ and the nu-bar are not clear. It is sometimes suggested that they were temple prostitutes. In any cases, they were employed as wet nurses. For a general overview of temple prostitution, see Marten Stol, *Vrouwen van Babylon, Prinsessen, Priesteressen, Prostituees in de Bakermat van de Cultuur* (Utrecht 2012), 263–272, Gwendolyn Leick, *Sex and Eroticism in Mesopotamian Literature* (London, New York 1994), 147–156, and, especially on the nu-ge$_{17}$ and nu-bar, see Johannes Renger, "Untersuchungen zum Priestertum in der altbabylonischen Zeit, 1. Teil", *ZA* 58 (1967): 179–187, Daniel Arnaud, "La prostitution sacrée, un mythe historiographique?", *RHR* 183 (1973): 111–115, Marten Stol, *Zwangerschap en geboorte bij de Babyloniërs en in de Bijbel* (Mededelingen en verhandleingen van het vooraziatische-egyptisch genootschap "Ex Oriente Lux" 23, Leiden, 1983), 56–57, 86, 88–89, Wilfred G. Lambert, "Prostitution", in *Außenseiter und Randgruppen, Beiträge zu einer Sozialgeschichte des Alten Orients*, ed. Volkert Haas (Xenia 32, Konstanz, 1992), 140, 141, Volkert Haas, *Babylonischer Liebesgarten, Erotik und Sexualität im Alten Orient* (München, 1999), 56–57, 60–62, Stol, *Vrouwen*, 264–265, 373–377, Böck, *Healing Goddess*, 32.

[12] In HS 1555 + 1587, the girl is affected at her milk. In all the other attestations, the girl is caught at her breast and it is probable to assume that the scribe forgot to write the -ba for ga-<ba> "breast". For infants, cf. W 21033 (BAM 409) R:20' DIŠ ^{lu2}TUR *sa-ma-nu* DAB-*su* [...] "If Sāmānu seizes a child [...].", Köcher, "Grab 405", 206, 209, 215.

DIŠ ^{lu2}TUR *a-šu-u$_2$ u sa-ma-ni* DAB-*su ana tu-ʾlaʾ-a eš-ša$_2$ tu-na-kar-šu-ma u* EN$_2$ ŠUB-*di*^{l}(RU)-*šum-ma* TI
"If Ašû or Sāmānu seize a child (then) you hand him over to another breast and you recite an incantation over him and he is going to recover."[13]

It is not clear whether it is meant that the ailment was caused by an infection of the breast, or whether it was transmitted by the milk. Moreover, prognoses are specified in the texts. In KUB IV, 49 (Bo 4832), it is said:

DIŠ LU$_2$ *sa-ma-nam* ʿGIGʾ *a-na* TI.LA [...] TI.LA
"If a patient (lit.: man) falls sick with Sāmānu, in order to cure (him) [...] he will recover."[14]

The aforementioned cuneiform tablet K. 6684 + BM 134589 (BAM 494) shares this same phrasing:

[...] TI
"[...] he will recover."[15]

BM 92690 and 46228 also read similarly.[16] The demon Sāmānu is almost always listed in an identical order of other ailments in lexical lists and incantations.[17] Ordinarily he is combined together with *Šaššaṭu* (5×), *Šanadu/Šanudu* (5×), *Ašu*-skin disease (4×), the red *Girgiššu*-boil (4×), *Sikattu*-pustule (3×), *Maškadu* (3×) and *Amurriqānu*-jaundice (3×). These illnesses are attested 5 to 3 times alongside Sāmānu.[18] All the other diseases are only occasionally

[13] BM 92690 R:38 & BM 46228 R:38, see René Labat, *Traité akkadien de diagnostics et pronostics médicaux*, vol. I–II (Paris, Leiden, 1951), I: 222–223, II: pl. LIX, LXIII.
[14] Bo 4832 III4, KUB IV, 49.
[15] K. 6684 + BM 134589 R:I41', BAM 494 (pl. 93).
[16] In each case in line R:38, see above. In BM 46228, the sign KUR "he will persist", is used in opposition to TI (*balāṭu*), Labat, *Traité akkadien*, II: pl. LIX, LXIII.
[17] The analysis involves Erim ḫuš = *anantu* (MSL 17, 19), K. 2473 & K. 9689 (CT 23, pl. 3.), IM. 15289 (Antoine Cavigneaux, "Magica mariana", *RA* 88 (1994): 155–161.), Practical Vocabulary of Assur (Oliver R. Gurney, and Benno Landsberger, "Practical Vocabulary of Assur", *AfO* 18 (1957–1958): 334), R.S: 17.155 20 (Jean Nougayrol, "II. La bibliothèque du lettré", *Ugaritica* 5 (1968): 29), S.U. 51/102 + (STT 136), SMUI 1913.14.1465 & "duplicates" (Albrecht Goetze, "An Incantation against Diseases", *JCS* 9, (1955): 8–18), VAT 10392 R:25 & duplicates (KAR 233 = BAM 338), Zipa$_3$-incantation K. 156 + & duplicates (Rykle Borger, "Die erste Teiltafel der zi-pà-Beschwörungen (ASKT 11)", *AOAT* 1 (1969): 1–22), K. 6057 + (Böck, *Healing Goddess*, 112–113), ka$_2$-gal = *abullu* B (MSL 13, 236) and MMA 86.11.121 (Leo Oppenheim, and Louis F. Hartman, "The Domestic Animals of Ancient Mesopotamia According to the XIIIth Tablet of the Series ḪAR.ra = *ḫubullû*", *JNES* 4 (1945), 152–177).
[18] *Šaššaṭu* is identified with a kind of epilepsy (Goetze, "Incantation", 13.16), a joint disease (Thomas Kämmerer, "Die erste Pockendiagnose stammt aus Babylonien", *UF* 27 (1995): 154, 164–165) or tetanus (JoAnn Scurlock and Burton R. Andersen, *Diagnoses in Assyrian and Babylonian Medicine. Ancient Sources, Translations, and Modern Medical Analyses* (Urbana, Chicago, 2005), 66–68, 666–667). *Šanadu/šanudû/šannadu* classifies a disease or pain in the belly (Goetze, "Incantation", 12.6, Kämmerer, "Pockendiagnose", 154), cf. Nathan Wasserman, "Between Magic and Medicine – Apropos of an Old Babylonian Therapeutic Text against Kurārum Disease", *CM* 36, (2007): 51. *Ašu*-skin disease describes an ailment which involves headache and fever and which could be fatal, see Scurlock and Andersen, *Diagnoses*, 224–226, Martha Hausperger, *Die mesopotamische Medizin aus ärztlicher Sicht,* Schriften zur Medizingeschichte 12, Baden-Baden, 2012, 79–87, especially 82–84, Böck, *Healing Goddess*, 59. Goetze, "Incantation", 11–12.3, and Kämmerer, "Pockendiagnose", 154, 161–162, identify this sickness with vertigo. The red *girgiššu*-boil could be a scarlet skin rash (Kämmerer, "Pockendiagnose", 154, 158–159) or an erysipelas (Scurlock and Andersen, *Diagnoses*, 235). *S/šikkatu* is identified with obstipation (Goetze, "Incantation" 1955, 11.1, Kämmerer, "Pockendiagnose", 154, 164), different skin lesions or orf, genital warts or abscesses (Scurlock and Andersen, *Diagnoses*, 235–236). *Maškadu* is sciatica according to Scurlock and Andersen, *Diagnoses*, 257–

mentioned. *Rapādu*, *epqennu*, *ṣennītu*, *ṣadānu*, *išātu*, *šu'u* and *miqtu* are named with Sāmānu twice.[19] The ailments *garābu*, *ṣiriptu*, *sagbānu*, *simmu*, *aḫḫazu*, *ziqtu*, *di'u*, *šimmatu*, *šimmat šīri*, *kissatu*, *šadânu* are only cited once.[20] It is interesting to note that skin diseases (*epqennu, girgiššu, sikkatu, ṣennītu, išātu, garābu, sagbānu, simmu, ṣiriptu, ziqtu*) as well as skin alterations (*amurriqānu, aḫḫāzu*) apparently form a focus. Amazingly, Sāmānu is listed together with ailments that present together with dizziness, numbness or the like. Several of the diseases cannot be identified at all. Nevertheless, as they occur in connection with other alterations of the skin, it is possible that they also indicate a similar remarkable dermal alteration.

In light of the aforementioned symptoms, Sāmānu may be a disease of the skin or a skin infection. Furthermore, Sāmānu, as an ailment, is known to be related to the healing goddess Gula:

> *sa-ma-nu* [ŠU] ˹d˺*gu-la*
> "Sāmānu, Gula's [hand]"[21]

Gula is usually associated with skin lesions, skin alterations, and skin diseases.[22]

258, 667, and *amurriqānu*, a kind of jaundice or liver cancer (Scurlock and Andersen, *Diagnoses*, 138–140, Hausperger, *Medizin*, 252–257). Cf. also these lemmata in CAD and AHw.

[19] *Rapādu* specifies a syndrome accompanied by disorientation, trauma, and fever (Scurlock and Andersen, *Diagnoses*, 350–351) or listeriosis (CAD R, 147). *Epqennu* is a kind of skin alteration (Goetze, "Incantation", 13.20, Kämmerer, "Pockendiagnose", 154, 158, Scurlock and Andersen, *Diagnoses*, 232). *Ṣennītu* is a skin disease, too (CAD Ṣ, 127, Goetze, "Incantation", 12.9, Kämmerer, "Pockendiagnose", 154, 160, Scurlock and Andersen, *Diagnoses*, 229). *Ṣadānu* is vertigo (CAD Ṣ, 171–172). *Išātu* is identified with an abscess, inflammation, fever or an exanthema (CAD I-J,233.4, Goetze, "Incantation", 11.2, Kämmerer, "Pockendiagnose", 154, 162, Wasserman, "Magic", 51, Scurlock and Andersen, *Diagnoses*, 239). Š*u'u* is unidentified (CAD Š.3, 417), and *miqtu* may be disease generally (CAD M.2, 103–104), an onset (Goetze, "Incantation", 12.5, Kämmerer, "Pockendiagnose", 154, 162, Scurlock and Andersen, *Diagnoses*, 216) or a skin lesion like bruises (Scurlock and Andersen, *Diagnoses*, 216).

[20] *Garābu* possibly specifies leprosy (CAD G, 46, Scurlock and Andersen, *Diagnoses*, 231–232). *Ṣiriptu* could be a burn (CAD Ṣ, 207) or perhaps scarlet fever (Scurlock and Andersen, *Diagnoses*, 219). *Sagbānu* is generally an illness (CAD S, 22), or more specifically, athlete's foot with superinfection (Scurlock and Andersen, *Diagnoses*, 227) or shedding of skin scales (Kämmerer, "Pockendiagnose", 154, 160). *Simmu* is either a general term for a skin lesion (Scurlock and Andersen, *Diagnoses*, 209) or carbuncle, skin eruption (CAD S, 276). *Aḫḫāzu* names a kind of jaundice (CAD A.1, 185, Haussperger, *Medizin*, 257–260, Scurlock and Andersen, *Diagnoses*, 33–34, 138). *Ziqtu* is a kind of pock, pimple or milia (CAD Z, 132.3, Kämmerer, "Pockendiagnose", 154, 161, Scurlock and Andersen, *Diagnoses*, 228). *Di'u* classifies a severe illness with headache, such as typhus (CAD D, 165–166, Scurlock and Andersen, *Diagnoses*, 59–60). *Šimmatu* and *šimmat šīri* are numbness or paralysis (CAD Š.3, 7–8, Scurlock and Andersen, *Diagnoses*, 289–290). *Kissatu* as well as *šadânu* are both unidentified diseases (CAD K, 428–429, CAD Š.1, 38).

[21] W 23292 V:103, von Weiher, *Uruk*, 180. Cf. ND 4366 + 4358 R:40 [...] ˹*sa*˺*-ma-nu* ŠU ^{d}ME.ME "[...] Sāmānu, Gula's hand.", James V. Kinnier Wilson, "Two Medical Texts from Nimrud", *Iraq* 18 (1956): pl. XXIV.

[22] Böck, *Healing Goddess*, 54–55.

Data Sheet of Sāmānu

Taking into consideration all the aforementioned sources, the following data, then, may be collected on Sāmānu as a human disease.

Cause and Communication:
- thorn prick
- breastfeeding

Location:
- non age-specific and sex-specific
- head, nape, shoulder, breast (woman), thigh

Symptoms:
- swelling: hard, hot, red, black, yellowish-green, white
- sanguineous, purulent discharge
- fever

Prognosis:
- curable

The sources do not specify where Sāmānu did *not* occur, but the fact that he is frequently described as occurring in the abovementioned areas is indicative of the ailment's usual localization at these points.

Analysis of Potential Identifications

Since Sāmānu is an ancient Near Eastern disease-demon, the ailment or ailments he embodies should be typical of that region.[23] This lead us to ask what disease or, more probable, what type of diseases he might represent from a present-day perspective. One possibility is a form of leishmaniasis[24] which commonly occurs today in tropical and subtropical climates, especially in dry territories, such as the Middle East, Africa, the Mediterranean region, central Asia to southeastern Europe. Leishmaniasis is a protozoan infection which may be caused by varying leishmania species. The disease is transmitted by the bite of the sand fly (*Phlebotomus* spp.). Besides human beings, farm animals, rodents, and dogs (as well as canids more generally) are all potential hosts, while the pathogens *L. donovai* and *L. tropica* use only humans as reservoirs. Sand flies prefer wet places abundant in organic material, such as clefts in rocks, trunks or burrows, for their breeding sites. Though they are capable of flight, sand

[23] The following identifications are based on suggestions by Professor Stefan Schubert, Infection and Tropical Medicine, University Hospital Leipzig, Germany, and Privatdozent Pietro Nenoff, dermatologist specialized in tropical dermatology, Doctor's Office for Microbiology, Mölbis, Germany. To them, and to Dr. Claudia Kreyssig who established the contact, I give my warmest thanks.

[24] Leishmaniasis is differentiated by leishmaniasis of the Old World and leishmaniasis of the New World. Here, only leishmaniasis of the Old World is of interest; this is why it alone is described. For leishmaniasis of the New World see among others Stephen Tyring, Omar Lupi, and Ulrich R. Hengge (eds.), *Tropical Dermatology* (Edinburgh, 2006), 41–45, Christian G. Meyer, *Tropenmedizin, Infektionskrankheiten*, (Landsberg, 2007 (2nd ed.)), 224–232, Gundel Harms-Zwingenberger, "Leishmaniosen", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrations-medizin*, ed. Thomas Löscher (Stuttgart, New York, 2010 (4th ed.)), 600–615.

flies prefer not to do so, and are unable to ascend highly. They fly, for the most part, at nightfall. In subtropical areas, such as in Iraq, they exist as vectors only during the summer and spring time. The female sand fly alone sucks blood. During their short life span of two weeks, they look for hosts two to three times. By biting an affected person, the insect infects itself. In sand flies, as well as in other hosts, the leishmania species pass through flagellated and non-flagellated stages (promastigote/amastigote). In addition to the bites of sand flies, it is possible to become infected by blood transfusion and contaminated surgical instruments. The leishmania species are also able to pass through the placental barrier and may be transmitted by the birth process, even if this is very rare. Infection does not necessarily lead to the onset of disease. Leishmaniasis has no preferences as to age and sex. The most recent infections account for cutaneous leishmaniasis.[25] Depending on species and the patient's condition, different kind of leishmaniasis may develop: visceral leishmaniasis, mucocutaneous l., cutaneous l., diffuse cutaneous l., and lupoid leishmaniasis. Visceral leishmaniasis affects the whole body bit by bit and runs a chronic course, including weight loss, coughing, diarrhea, fever and color changes to the skin (kala-azar). Inadequate therapy may lead to death, which makes it to an improbable candidate for Sāmānu.[26] Mucocutaneous leishmaniasis runs a similar course to cutaneous leishmaniasis (see below) but leads to elaborate destruction of the mucosal tissue. The illness is limited to Eastern Africa in the Old World, and is therefore also rather unlikely as a candidate for Sāmānu.[27] Diffuse cutaneous leishmaniasis and the lupoid l. are also excluded as suspects as they run a chronic course and do not resolve spontaneously. Furthermore, the diffuse cutaneous leishmaniasis is caused by *L. aethiopica* which is only attested in Ethiopia, Sudan, and Kenya.[28] For the identification of the disease-demon Sāmānu, cutaneous leishmaniasis is of special interest. This illness is also known as Aleppo boil, Delhi boil, oriental sore, and tropical sore. The infection occurs frequently on the head (non-hairy area), especially on the face, but may also occur anywhere on the body uncovered by clothes, excluding the hands and soles of the feet. In other words, anywhere a sand fly may bite. Two different forms are distinguishable: the rural form, caused by *L. major*, and the urban form, caused by *L. tropica*. Besides these pathogens, *L. infantum* may also cause cutaneous leishmaniasis, depending on the patient's immune response. The incubation period for both forms is two weeks to three months, in rare cases up to one year. A red papule appears at the inoculation point and develops a nodule which starts to ulcerate within the next two to six weeks. The center of the lesion is covered by a reddish-yellow to

[25] Gustav Niebauer and Harald G. Bardach, *Urlaubsdermatosen einschließlich tropischer Dermatosen bei Touristen* (Stuttgart, New York, 1982), 56, Dieter Stürchler, *Endemic Areas of Tropical Infections, Updated and Completely Revised 2nd Edition* (Toronto, Lewiston (N.Y.), Bern, Stuttgart, 1988), 148, Tyring, Lupi and Hengge, *Tropical Dermatology*, 41–42, Meyer, *Tropenmedizin*, 224–226, Harms-Zwingenberger, "Leishmaniosen", 600–602.

[26] Also known as kala-azar, black fever or Dumdum fever, see Friedrich A. Bahmer, *Tropische Hautkrankheiten: Epidemologie, Immunologie, Diagnostik und Therapie*, (Beiträge zur Dermatologie 10, Erlangen, 1984), 56, René Chatelain, "Protozoen", in *Dermatologie und Venerologie*, ed. Otto Braun-Falco et al. (Heidelberg, 2005(5th ed.)), 287–288, Tyring, Lupi and Hengge, *Tropical Dermatology*, 45, Meyer, *Tropenmedizin*, 224–226, Harms-Zwingenberger, "Leishmaniosen", 605–606.

[27] See Stürcher, *Endemic Areas*, 148, Chatelain, "Protozoen", 285–286, Meyer, *Tropenmedizin*, 228, especially 230, Harms-Zwingenberger, "Leishmaniosen", 605–606, especially 609–610.

[28] See Bahmer, *Tropische Hautkrankheiten*, 56–57, Stürchler, *Endemic Areas*, 148, Chatelain, "Protozoen", 285, Tyring, Lupi and Hengge, *Tropical Dermatology*, 42–43, Meyer, *Tropenmedizin*, 225, Harms-Zwingenberger, "Leishmaniosen", 606.

black scab, but may be wart-like, too. The lesion may be singular or multiple. The wound has raised borders and may form an abscess. The rural form is characterized by a rather humid, exudative ulcerating lesion whereas the urban form is dry and resolves spontaneously after approximately 18 months. The rural form also heals completely, but earlier. Generally, cutaneous leishmaniasis heals with scarring. Recovery comes with an immunity against the specific pathogen.[29] The symptomatology, i.e. the swelling (covered with a reddish-yellow to black scab), discharging, age and sex non-specificity, and the course of the disease, especially its spontaneous resolution (conforming with support of the positive prognosis "curable"), is indicative of an identification with Sāmānu.[30]

Another candidate might be pyodermas, or skin abscesses, which are caused by staphylococci and streptococci. Pyodermas are classified as ecthyma and impetigo contagiosa. The former is an unlikely possibility as it occurs mainly on the lower leg and is incurable without appropriate systemic antibiotic treatment.[31] More probable are forms of impetigo contagiosa. This illness occurs worldwide. The disease is transmitted by pathogens which are naturally located in the nasopharyngeal space of every human, through smear infection of micro-lesions of the skin. It usually occurs on the face, but may also appear on practically every limb. It is largely restricted to children, but adults may be affected, too. Impetigo contagiosa is categorized further by bullous and nonbullous forms.[32] Nonbullous impetigo begins with maculae which evolve into small (approximately pin-point), bulging, water-clear blisters whose margins are reddened and attributable to inflammation. Its first phase is not often noticed as the blisters' skin is rather thin and quickly bursts. After the blisters are burst, an increased exudation can be observed. This dries off to a honey-yellow scab on a reddened surface.[33] Bullous impetigo consists of big, intact blisters which are initially water-clear before they blur from milk-like gray to cream-like purulent coloration. If the blisters burst, a reddened, eroded surface becomes visible which, by contrast with nonbullous impetigo, does

[29] Bahmer, *Tropische Hautkrankheiten*, 57, Karl F. Schaller (ed.), *Colour Atlas of Tropical Dermatology and Verenology* (Berlin et al., 1994), 107–109 (with figures), Peter Fritsch, "Infektionskranheiten der Haut", in *Dermatologie, Venerologie, Grundlagen, Klinik, Atlas* (Berlin, Heidelberg, New York, 2004 (2nd ed.)), 355, Chatelain, "Protozoen", 284–285 (with figures), Tyring, Lupi and Hengge, *Tropical Dermatology*, 43–44 (with figures), Meyer, *Tropenmedizin*, 225, 228 (with figures), Harms-Zwingenberger, "Leishmaniosen", 608 (with figures).

[30] A fever alone is not typical, and sometimes the lesions are secondarily infected with bacteria. Moreover, transmission may take place through the placental barrier; to what extent transmission by breastfeeding may occur, nothing is said in the specialized literature.

[31] Cf. Fritsch, "Infektionskrankheiten", 251, Dietrich Abeck, "Staphylokokken und Streptokokken", *Braun-Falco's Dermatologie, Venerologie und Allergologie*, vol. I, ed. Gerd Plewig et al. (Berlin, Heidelberg, 2012 (6th ed.)), 147 (with figures).

[32] The literature gives differing information as to whether the infection is caused by *Staphylococcus aureus* (Abeck, "Staphylokokken", 145) or whether the nonbullous form is caused by streptococci and the bullous form by *Staphylococcus aureus* (Fritsch, "Infektionskrankheiten", 250), or whether the nonbullous impetigo is an infection by *Stapylococcus aureus* with a rare multiple infection by streptococci, and the bullous form a result exclusively of an infection by *S. aureus* (Tyring, Lupi and Hengge, *Tropical Dermatology*, 242). Cf. also Markus Fischer, "Importierte Dermatosen", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 2010 (4th ed.)), 69.

[33] Fritsch, "Infektionskrankheiten", 250 (with figures), Abeck, "Staphylokokken", 145 (with figures), Tyring, Lupi and Hengge, *Tropical Dermatology*, 242, 243 (with figures), Fischer, "Importierte Dermatosen", 69–70 (with figures), Wilfried Schmeller and Christoph Bendick, "Tropische Dermatologie", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 2010 (4th ed.)), 179 (with figures).

not form a scab.[34] The ailment involves intense itching in part, which may spread the infection to neighboring skin areas. If the infection runs a severe course, fever and nausea may occur as accompanying symptoms. The blisters usually heal, without scarring.[35] The symptomatology, i.e. the reddish-white to yellow appearance of the blisters and the skin, the potential exudation, as well as the fever, fit very well with Sāmānu. Furthermore, Sāmānu affected infants and toddlers, even if adults could be infected, too.

Sāmānu may additionally be identified with skin abscesses. Skin abscesses are characterized as either furuncles (boils) or carbuncles. Both are inflammations of the skin, including the hair follicle. The infection is transmitted by the smear infection of staphylococci, which originate from within the patient's body and may also be transferred from human to human or by contaminated clothes. The abscesses frequently occur on the head or nape, but may be located on other limbs, too. Often they are the result of poor hygiene, where persons who have a weakened immune system due to metabolic disorders or immunodeficiency may also be affected. The infection is attested worldwide.[36] Where furuncles occur, the follicular channel is contaminated with bacteria which start cloning until an inflammatory alteration develops. Based on this change, leukocytes travel to the inflammation, which causes the follicle's abscess. The necrosis spreads in the cutaneous and subcutaneous tissues until a central melting with liquefaction develops. The pustule is initially reddened, hard and extremely tender. Bit by bit, its coloration changes to yellowish-brown, a result of the tissue's necrosis. Some neighboring follicles may be affected, too. After the pus, including the clot, has discharged, the tenderness reduces and the former abscess heals with scarring. Fever may occur in addition.[37] A carbuncle is, in a manner of speaking, several furuncles which lie close to each other and result in a conglomeration. They affect one's general state of health: exhaustion, fever, shivering, up to toxemia, may occur. Prognoses should be made with caution, even in the case of sufficient treatment.[38] The hard, reddened, yellowish-brown swelling, the fever, and the persons affected match well the description of Sāmānu, where the furuncle should be considered as a match, rather than the carbuncle, because of the latter's dismal prognosis.[39]

Diverse approaches exist which identify the disease-demon Sāmānu with various illnesses, such as mycetoma, smallpox, cellulitis, miliaria rubra or tick bites.[40] Quite a number of these

[34] Fritsch, "Infektionskrankheiten", 257–258 (with figures), Abeck, "Staphylokokken", 145–146 (with figures), Tyring, Lupi and Hengge, *Tropical Dermatology*, 242, Schmeller and Bendick, "Tropische Dermatologie", 179.

[35] Wolf D. Germer, Hartmut Lode and Helmut Stickl (eds.), *Infektions- und Tropenkrankheiten, AIDS, Schutzimpfungen* (Berlin et al., 1987 (3rd ed.)), 110–112, Fritsch, "Infektionskrankheiten", 250, 258, Abeck, "Staphylokokken", 146, Tyring, Lupi and Hengge, *Tropical Dermatology*, 243, Fischer, "Importierte Dermatosen", 70, Schmeller and Bendick, "Tropische Dermatologie", 179.

[36] Schaller, *Colour Atlas*, 43, Fritsch, "Infektionskrankheiten", 262, Abeck, "Staphylokokken", 158.

[37] Germer, Lode and Stickl, *Infektions- und Tropenkrankheiten,* 110–112, Schaller, *Colour Atlas*, 43 (with figures), Fritsch, "Infektionskrankheiten", 261–262, Abeck, "Staphylokokken", 158–159, 160 (with figures), Tyring, Lupi and Hengge, *Tropical Dermatology*, 244.

[38] Fritsch, "Infektionskrankheiten", 261–262, Abeck, "Staphylokokken", 160 (with figures).

[39] Scurlock and Andersen, *Diagnoses*, 63–64, argue in favor of a similar identification; they prefer the carbuncle which, because of its dismal prognosis, is rather unlikely.

[40] Mycetoma: James V. Kinnier Wilson, "The Sāmānu Disease in Babylonian Medicine", *JNES* 53 (1994): 111–115; smallpox: Kämmerer, "Pockendiagnose", 129–168; cellulitis: Scurlock and Andersen, *Diagnoses*, 62–64, 227, 664; miliaria rubra: René Labat, "Geschwulst, Geschwür, Hautkrankheiten", *RlA* 3 (1857–1971): 233; tick bites: MSL 2, 113–115.

suggestions are problematic, either because of their symptoms or the rather dismal prognosis for the patient.

Mycetoma describes an infection of the skin and deeper tissue layers. It is caused by different fungi (eumycetoma) and bacteria (actinomycosis, formerly actinomycetoma).[41] Today it is widely distributed in tropical to subtropical regions, such as Africa, Latin America, and less often in the Middle East. Frequently the mycetoma is located on the foot, which is why it is also called Madura foot, but it may occur all over the body, commonly on the limbs, and shoulders and nape, but seldom on the head. The infection is transmitted by thorn pricks or the like, as dead plant matter remains under the skin. The incubation period is not clear. It stretches from several weeks to years. At first, a painless, hard and moveable nodule develops at the inoculation site, which increases bit by bit and discharges a sanguineous secretion. This secretion contains granules specific to the pathogens. During the further course of the disease, cavities develop in the tissue, as well as fistulae. The possibility of spontaneous recovery exists, but the recidivism rate is extremely high. Depending on the pathogens, the ailment may spread to surrounding tissues, such as the muscles and bones. Eumycetoma is characterized by a well-defined lesion, whereas the actinomycosis's lesion is rather diffuse in the tissues. Essentially, the bacterial infection is faster acting and more drastic. Therapy is difficult. Smaller lesions may be surgically removed. Otherwise, depending on the specific pathogen, antibiotics or antimycotics are administered systemically. It is frequently impossible to cure a mycetoma, especially the actinomycosis; one may only stop the progress of the disease. In unfavorable cases, localization of the mycetoma on the head or thoracic region may prove fatal.[42] James V. Kinnier Wilson was able to show that Sāmānu's description mirrors that of mycetoma in part: the granules of the fungi in the secretion (see above), depending on its species, are described as white, yellow, red or black, and inoculation occurs through the pricks of plant remains or thorns.[43] He argues that eumycetoma is mostly present as an infection which progresses with less speed than actinomycosis, and which occurs only as a swelling on the skin.[44] The specialized literature does not provide information about the percentage distribution of eymycetoma and actinomycosis.[45] Kinnier Wilson's final argument is based on a medical text in which Sāmānu occurs on both the hands and feet, where mycetoma is mostly to be found. In this cuneiform tablet, the disease's name, sa-ad-nim, is used, and not Sāmānu.[46] The word sa-ad-nim is equated with Sāmānu in the lexical list Ḫḫ XIII:594, but it is equated with *Rapādu*, too.[47] Frequently sa-ad-nim is used for *Šaššaṭu*, with the result that there exists no positive attestation for the location of Sāmānu on

[41] For the various pathogens see, among others, Dodé Grigoriu, Jean Delacrétaz, and Dante Borelli, *Lehrbuch der medizinischen Mykologie* (Bern, 1984), 433, Schaller, *Colour Atlas*, 92, Meyer, *Tropenmedizin*, 353.

[42] Bahmer, *Tropische Hautkrankheiten*, 21–25, Grigoriu, Delacrétaz, and Borelli, *Mykologie*, 433–442, Schaller, *Colour Atlas*, 92–93, Fritsch, "Infektionskrankheiten", 322–323, Hans C. Korting, "Mykosen", in *Dermatologie und Venerologie*, ed. Otto Braun-Falco, (Heidelberg, 2005 (5th ed.)), 201–202, Meyer, *Tropenmedizin*, 353–355, (in each case with figures).

[43] Kinnier Wilson, "Sāmānu", 112, 113. Cf. the compilation of symptoms etc.

[44] Kinnier Wilson, "Sāmānu", 113.

[45] See footnote L.

[46] CBS 332 (= UMBS I, 122) R:I16–18 & 151/c + 170/c + 431/c + 1404/c+1412/c (= KUB 30, 1 = CDLI no. P445110) R:22–23, see UMBS 1.2, pl. CXXVIII, KUB 30, pl. 1.1, Adam Falkenstein, "Sumerische Beschwörungen aus Boğazköy", *ZA N.F.* 11, 45 (1939): 8–41, Kinnier Wilson, "Sāmānu", 114–115.

[47] MSL 8.1, 12.57–58.

the hands and feet, the typical site of mycetoma.[48] Sāmānu thus cannot be identified with mycetoma because of his symptomatology, location on the body, and his positive prognosis.[49]
Smallpox is a viral infection of two classes: smallpox (*variola major*) and alastrim (*variola minor*), where the former mostly runs a fatal course. After the infection, the virus spreads in the body, whence a sudden fever is caught. The patient suffers, in addition, from a general weakness, headache, and pain in the limbs, vomiting, and shivering, if the infection was caused by *variola major*. After two to three days, the fever abates and an exanthema occurs. This develops from maculae over papules to blisters and afterwards pustules which dry out and crust over. The different stages last always from one to two days and run a parallel course across the entire body. The rash spreads centrifugally across the body, i.e. the exanthema is located on the head, including the hairy parts, and the exterior limbs, including the palms of the hand and soles of the feet. The trunk, armpits, and the inner parts of the thighs are less affected, if at all. The lesions cure with scarring.[50] Thomas R. Kämmerer tried to identify Sāmānu with smallpox, for the disease's coloration (white, red, and black) describes the smallpox's varying occurrence (see above). He argues that the danger of the illness is highlighted by the Sumerian incantation AO 11276 (see above), where Sāmānu encompasses a distinct symptom of smallpox, making it necessary to devote to the demon an entire conjuration, as "gegen eine *minder bedrohliche Hautrötung* wäre eine solche Beschwörung wohl kaum notwendig gewesen."[51] The attack on special persons, such as the qadištu and kulmašītu, emphasizes the disease's importance. Moreover, he states that, due to the smallpox's distinctive symptoms, it became a name for the ailment itself. He excepts plague because it does not attack goats and sheep.[52] Against this identification, Thomas Kämmerer tried to trace a diagnosis of smallpox based on a listing of different ailments within one incantation. This is a little bit problematic, as the terms named classify varying diseases or "occurrences" of the skin, and ought to be analyzed separately. Only then would it be possible to determine their meaning.[53] A match is found in the fever, which is a symptom typical of smallpox, as well as Sāmānu. However, the following arguments speak against the identification as smallpox: admittedly the exanthema's occurrence passes through specific stages, but the most evident coloration is always red for smallpox.[54] Sāmānu is usually located on the area of the head, nape, shoulders, breast, and upper leg. However, the smallpox rash seldom occurs on the trunk and thighs, where Sāmānu definitely occurs. Any identification with smallpox is thus very improbable.
Cellulitis is distinguished as both erysipelas and phlegmon.[55] These are bacterial infections. Erysipelas, also known as ignis sacer, holy fire and St. Anthony's fire, is usually caused by

[48] For *rapādu* see CAD R, 147, and for *šaššaṭtu* see CAD Š.2, 175. Sāmānu, Rapādu and Šaššaṭu are often named together in lexical lists and incantations (see above).
[49] Scurlock and Andersen, *Diagnoses*, 692.176, also comment critically on Kinnier Wilson's identification.
[50] Fritsch, "Infektionskrankheiten", 280, Regina Fölster-Holst, "Andere Viren", in *Dermatologie und Venerologie*, ed. Otto Braun-Falco et al. (Heidelberg, 2005 (5th ed.)), 74–75, Tyring, Lupi and Hengge, *Tropical Dermatology*, 145–158 (with figures), especially 152 (table 13.6).
[51] Italics original, see Kämmerer, "Pockendiagnose", 159.
[52] Kämmerer, "Pockendiagnose", 156, 159–160. Sāmānu seems to attack only sheep. There exist no attestations for seizure of goats.
[53] Scurlock and Andersen, *Diagnoses*, 692.176, are also critical.
[54] Cf. the figures by Tyring, Lupi and Hennge, *Tropical Dermatology*, 149, 152–155, 156.
[55] Not to be confused with cellulite (orange peel skin).

Streptococcus pyogenes, but may also result from an infection by other pathogens. The ailment is neither age- nor sex-specific, but persons with skin injuries resulting from ulcers, wounds or dermatoses are especially at risk. The bacteria infiltrate the skin through tiny lesions, or where the skin exhibits abnormal barriers. The lower extremities are mostly affected. The arms and head are very rarely the site of an infection. Erysipelas is not to be located directly at the portal of entry. After the infection, a red swelling develops. It is hot, hard, and asymmetrical to flame-like, but sharply demarcated from neighboring areas of the skin. The derma is taut and glossy. Severe infection may result in blisters, and in partial bleeding of the skin. Accompanying symptoms are a high temperature, shivering, nausea, as well as lymphangitis and lymphadenitis. The disease is self-limiting. After several weeks the occurrence abates. The recidivism rate is extremely high untreated, even if the accompanying effects are no longer distinct.[56] Phlegmon runs a similar course to erysipelas, but is more severe. The infection is caused by *Staphylococcus aureus* and/or streptococci. They infiltrate traumata, such as stab or surgical wounds. Phlegmon is marked by a diffuse inflammation of the subcutaneous tissue. The point is hot, reddened, and painful, but in contrast to erysipelas, its consistency is dough-like. Observable are the typical signs of an inflammation: redness, heat, pain, and dysfunction. Bit by bit, the affected tissue develops necrosis. Partial breaches of deeper body areas are possible. The accompanying fever is severe, and the general state of health is affected. Prognoses should be given carefully, and depend on age, general condition, and localization of the phlegmon.[57] JoAnn Scurlock and Burton A. Andersen suggest identifying Sāmānu with cellulitis.[58] The symptoms of erysipelas and phlegmon match relatively well with Sāmānu and his redness, heat, and fever. Additionally the phrase:

> "[...] he turns red and it recedes, abates (and) afterwards increases (again) [...]."[59]

could be interpreted as recidivism of an erysipelas. Against this identification is the common localization of the illness, which affects up to 90% of the legs, especially the lower thigh.[60] Sāmānu is not typically attested there. Arguments against phlegmon are the poor prognosis and the substantial wound as a necessary condition for infection, and not just a "prick of thorn" (see above). Furthermore, the consistency of the inflammation is described as dough-like, and not hard, leaving erysipelas possible only with certain reservations and phlegmon as rather unlikely.

Miliaria rubra, which is also known as heat rash, sweat rash, and prickly rash, is characterized by an exanthema with redness, papules, and blisters. The alteration of the skin is frequently described as prickly to stinging. It is a common disease in the hot and humid tropics, and affects persons who are not adapted to this climate. Usually those areas of the skin which are covered with clothes are affected such as the nape and breastbone, the areas around the collar bone, the crooks of the arm and hollows of the knee, wrists or the waist. The rash abates

[56] Germer, Lode and Stickl, *Infektions- und Tropenkrankheiten*, 108–109, Fritsch, "Infektionskrankheiten", 251–253 (with figures), Abeck, "Staphylokokken", 149–152 (with figures).
[57] Fritsch, "Infektionskrankheiten", 253–254, Abeck, "Staphylokokken", 152–153 (with figures).
[58] Scurlock and Andersen, *Diagnoses*, 62–64, 227.
[59] See above.
[60] The distribution is approximately 90% on the lower thigh, approx. 5% on the upper limbs, and approx. 2,5% on the heads, Abeck, "Staphylokokken", 149.

within two to three days with scaling. The ailment has a high recidivism rate.[61] René Labat noncommittally connected Sāmānu with Miliaria rubra.[62] The symptoms fit Sāmānu's description only to a limited extent. Only the redness and, in part, the localization on the body correspond. Since miliaria rubra is common mostly to the hot, humid tropics, and Mesopotamia does not class as such, and since only persons not adapted to this climate are affected, the disease is rather an improbable candidate.[63]

Benno Landsberger suggests identifying the demon with a disease caused by tick bites. He argues that, in VAT 8257 (= KAR 44), Sāmānu is listed alongside with scorpion stings and snake bites, supporting the identification with an insect.[64] He admits that there are no such ticks in the Near East as may cause diseases dangerous to humans.[65] JoAnn Scurlock and Burton A. Andersen reject this identification on the basis that tick bites are spotty and do not fit Sāmānu's description. They do not go into Landsberger's assumption that the ailment is a transmitted disease.[66] Ticks can spread various kinds of borrelia, rickettsia, parasites and *Francisella tularensis*, as well as viral infections which manifest as encephalitis or hemorrhagic fever.[67] *Borrelia* species transmitted by ticks are widespread in parts of Europe, the USA, and Asia.[68] The term rickettsia describes different diseases which are caused mainly by *Rickettsia* spp., but may also be caused by *Orienta* sp., *Bartonella* spp., and *Ehrlichia* spp.. Only the Rocky-Mountain spotted fever, Japanese spotted fever, Flinders Island fever, Boutonneuse fever, Q fever, and ehrlichioses are transmitted by ticks. A form of Boutonneuse fever is common in the Mediterranean region. The rash which develops breaks out on the entire body, including the hands and feet, but excluding the head. It is thus rather an unlikely candidate, given the aforementioned symptoms. The Q fever is to be found worldwide but does not accompany an exanthema.[69] Tularemia is caused by the bacterium *Francisella*

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[61] Wolfram Höfler, "Tropische Klimaprobleme", in *Tropenmedizin in Klinik und Praxis*, ed. Werner Lang and Thomas Löscher (Stuttgart, New York, 2000 (3rd ed.), 587–588, Schmeller and Bendick, "Tropische Dermatologie", 193. Miliaria is classified by its localization in the epidermis and its appearance: Miliaria crystalline (non-itchy, clear blisters which easily burst), Miliaria rubra and M. profunda (pinpoint red nodules; secondary blebbing is possible), Schmeller and Bendick, "Tropische Dermatologie", 193.

[62] He describes Sāmānu as "red spots" on the head and remarks in brackets "Hitzeblattern" (heat rash), Labat, "Geschwulst", 233.

[63] Cf. Scurlock and Andersen, *Diagnoses*, 692.176, who argue against this identification, too.

[64] ZU_2 MUŠ TI.LA GIR_2.TAB TI.LA *u* SAG.NIM.NIM TI.LA $^{BAD\ NA}$ *sa-ma-nu* ^{GIG} "'(to) cure snake bites', '(to) cure scorpion stings' and '(to) cure Sāmānu' if Sāmānu seizes a patient (lit. man)". See, among others, Heinrich Zimmern, "Zu den 'Keilschrifttexten aus Assur religiösen Inhalts'", *ZA* 30 (1915–1916): 204–229, Markham J. Geller, "Incipits and Rubrics", in *Wisdom, Gods and Literature, Studies in Assyriology in Honour of W. G. Lambert*, ed. Andrew R. George and Irving L. Finkel (Winona Lake (Indiana), 2000), 225–226, 242, 245, 248, 253.

[65] MSL 2, 113–115.

[66] Scurlock and Andersen, *Diagnoses*, 693.181.

[67] Willibald Pschyrembel (ed.), *Pschyrembel, Klinisches Wörterbuch 2011* (Berlin, New York, 2011 (262nd ed.)), 2257 (tick).

[68] See Jürgen Knobloch, "Borelliosen", in *Tropenmedizin in Klinik und Praxis*, ed. Werner Lang and Thomas Löscher (Stuttgart, New York, 2000 (3rd ed.), 297–300, especially 298, table. 23.1, Jürgen Knobloch, "Rückfallfieber", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 2010 (4th ed.), 499–503, table. 42.1.

[69] See Boris Velimirovic and Wolf Sixl, "Rickettsiosen, Ehrlichiosen und Bartonellosen", in *Tropenmedizin in Klinik und Praxis*, ed. Werner Lang and Thomas Löscher (Stuttgart, New York, 2000 (3rd ed.)), 315–326, especially 318–320, 321–322, 322–323, Jürgen Knobloch and Thomas Löscher, "Ricketsiosen", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchrad (Stuttgart, New York, 2010 (4th ed.)), 513–525, especially 518–521, 523–525; Thomas Löscher, "Bartonellosen, Ehrlichiosen und Anaplasmose", in *Tropenmedizin in Klinik und Praxis mit Reise- und*

tularensis and is accompanied by a high temperature, shivering, and headache. It is common only to the USA, Central, North, and East Europe, as well as Japan and Canada.[70] Babesiosis is a parasitic infection which is caused by the pathogen of the genus *Babesia* spp.. It is attested only in Europe and the USA.[71] The type of viral infections which may be caused by ticks either carry dismal prognoses or are unaccompanied by a rash and are relatively unlikely candidates.[72] Moreover, Landsberger does not discuss the distinction that existed between Sāmānu as a human disease (sa-ma-na/sa-ma-na$_2$) and the pest Sāmānu (ur-me-me) in Sumerian. This distinction is lost in Akkadian, where both are referred to as *sāmānu*. Thus, a transfer from Sāmānu as a human disease to Sāmānu as pest is somewhat problematic, especially as no specific diseases can be determined.

Conclusion

In summary, several ailments exist which match the appearance of Sāmānu as a human disease. According to our present state of knowledge, mycetoma, smallpox, miliaria rubra, phlegmon and tick-borne disease can probably be excluded, as their symptoms and/or prognosis only partially match the characteristics of Sāmānu. In some cases, geographical localizations disqualify a match, too. By contrast, cutaneous leishmaniasis and pyodermas, such as impetigo contagiosa or furuncles, are rather likely. Erysipelas may also be taken into consideration with some limitations.

Migrationsmedizin, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 2010 (4th ed.), 530–532.

[70] Stefan Schmiedel, "Pest und Tularämie", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 2010 (4th ed.)), 480–482, Pschyrembel, *Pschyrembel*, 2123.

[71] Stephan Erhardt, "Babesiose", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 2010 (4th ed.)), 597–599, Pschyrembel, *Pschyrembel*, 215.

[72] See Gerhard Dobler and Jürgen Knobloch, "Arbovirus-Infektionen", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 2010 (4th ed.)) , 244–276, especially table 23.2 for vectors and distribution. For hemorrhagic fever in general, see Stephan Günther, Gerd-Dieter Burchard and Jonas Schmidt-Chanasit, "Virale hämorrhagische Fieber", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 42010 (4th ed.)), 277–303, especially for Crimean-Congo hemorrhagic fever (CCHF), 293–294, which is common in Asia and can be transmitted by ticks among others. It causes excessive hemorrhages of the (mucous) skin. The symptoms do not fit with Sāmānu (see above). For viral infections of the central nervous system, see Erich Schmutzhard and Thomas Löscher, "Virale ZNS-Infektionen", in *Tropenmedizin in Klinik und Praxis mit Reise- und Migrationsmedizin*, ed. Thomas Löscher and Gerd-Dieter Burchard (Stuttgart, New York, 2010 (4th ed.)), 304–323, which are not accompanied by exanthemas.