# On the Cryptogams in the lexical and related texts 

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## 1. Introducing ú munzer

As this note believes, Miguel Civil, writing in $R A$ 54, 1960, 67f., on "Prescriptions médicales sumériennes," came close to the meaning of the first of the terms which will be discussed in this account. If we adopt Civil's later finding as given in JCS 20, 1966, 122f., that munzer is the reading of the ideogram Ú KI. 'NANNA, then the text involved, a proverb cited from Gordon's collection and numbered $S P 3.131$, may be set down as follows with the original translation:
an-na-dùg-ga mun hé-eb-gu $u_{7}$-e
nu-un-na-dùg-ga munzer (Ú KI. ${ }^{\text {TNANNA) }}$ ) hé-eb-gu $\boldsymbol{u}_{7}$-e
"Si c'est (trop) doux pour lui, qu'il mange du sel,
Si ce n'est pas (assez) doux pour lui, qu'il mange du 'manna'".
For this rendering Civil drew on the lexical equivalent of Ú KI. ${ }^{d}$ NANNA $=s u-p a-l u$ and $a-s u u-s i-i m-t u ́$ as given in DAB 275, which, if not wholly for sound reasons Thompson identified as "manna." Gordon's proverb, one should add, is now to be found in the new edition of Bendt Alster. ${ }^{1}$ The second line is there translated, "If it is too sweet for him let him eat 'bitter plants'", but this translation fails to recognise that a specific plant is involved and it is not supported in the commentary.

But even Civil, as it would seem, became dissatisfied with "manna", and a new proposal was suggested in a paper communicated to the Reiner Festschrift. This was "Feeding Dumuzi's sheep," an edition of a short poem from Nippur, in which a series of repeated couplets list the various plants and grasses which might be grazed by sheep. Included in the list is ú munzer, line 24, and following the accumulated evidence that munzer (1) grows near water courses, (2) is sweet, and (3) was an excellent fodder for cows - this in the light of the several examples of áb ú munzer given in the texts - Civil suggested that munzer could be licorice, Glycirrhiza glabra. Reference for this suggestion was made to the Flora of Iraq, ed. E. Guest (Baghdad, 1966) 3, 445ff., and although the proposal recognised (p. 46) that the Sum. šuš(u), Akk. šūšu, is "generally, and with good reasons," accepted as licorice, it was nevertheless thought that šuš( $\mathbf{u}$ ) could be the ordinary, and more recent, designation of licorice, and ú munzer "the older term with a literary survival."

## 2. On ú pinzer and ú munzer

At this point in the discussion I bring forward the term ú pinzer, a plant already known to be related in some way to the previous ú munzer. The closeness of the relationship is immediately seen from the following lexical entries:
(1) ú munzer (Ú KI. 'NANNA)
ú pe-zé-er
(2) ú munzer (Ú KI. ${ }^{\text {d NANNA }}$ )
ú ${ }^{\text {d }}$ Nanna
ú pi-in-sì̀ ${ }^{\text {ir }}$ (var. pi-in-zé-er),
where (1) comes from the Nippur forerunner to Hh XVII (see MSL 10, 120, 13-14), and (2) from the

[^0]left-hand column of the Ras Shamra recension (see MSL 10,108, 31-33). The beginning of much variety in the writing of pinzer will already be apparent.

I have, however, to engage in meanings, so that selected items from other texts may next be given, some additional terms being included which we later discuss. Much of this material was first presented by Thompson in his Dictionary of Assyrian Botany (London, 1949), but the Uruanna texts from Assur are more completely given in Köcher's Keilschrifttexte zur assyrisch-babylonischen Drogen- und Pflanzenkunde (Berlin, 1955). I set down the following from the stated sources:
(3) ú ${ }^{\dagger}$ sag-kul-lá/las ${ }^{\dagger 3}$
ú munzer (Ú KI. ${ }^{\text {d }}$ NANNA)
ú munzer (Ú KI. ${ }^{\text {d }}$ NANNA)
(4) Ú pi-zer

Ú MIN SIG ${ }_{7}{ }^{6}$
Ú MIN muttalliku (DÚ.DÚ)
Ú MIN muttaprišu (DAL.DAL)

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šam-mu qa-qa-da-nu qaq-qa-da-ni-tú \(q a-q a-d a-n i{ }^{7}(?)^{4}\) su-pa-lu a-ṣu-ṣi-im-tú
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(Hh XVII, 43-45, MSL 10, 84)
Ú ṣa-ṣu-un-tứ
Ú šá-mi qaqqad (SAG.DU)-a-nu
Ú pi-zer
Ú da-a-a-e
(Uruanna II, KADP 11, i, 12-15)
(5) Ú nam-ta-è

Ú KI. ${ }^{\text {d }}$ NANNA
Ú kili? (NIGIN)
Ú tuh-lu-lu var. tulit ${ }^{\text {ti-lu }}-1 u-1 u$
U an $\mathrm{nu}_{11} \mathrm{dab} / \mathrm{dab}_{5}{ }^{8}$
Ú nim-ta-è
Ú su-pa-lu

Ú su-pa-lu
Ú su-pa-lu
Ú su-pa-lu
Ú su-pa-lu
Ú su-p[a-lu]
U su-pa-lu
Ú su-pa-lu
Ú $[s a-s u--u] n-t u$
(Uruanna, nishu edition, K 4184, CT 14, 46, rev. 1-7, with KADP 28, ii, 18-20)

Additionally, K 4345 and 14087 in respectively CT 14,28 and 38 , supply further entries regarding ṣaṣuntu and pinzir in damaged contexts. ${ }^{9}$

With such knowledge as I may think to have, I would now take the reader into the labyrinth of these texts, suitably through the gateway of table (4), where the adjectives muttalliku and muttaprišu are applied strikingly to Ú pi(n)zer (supposedly a direct borrowing from Sumerian into Akkadian). The
${ }^{3}$ Probable but uncertain reading discussed further below in the note on qaqqadānu in Section 4.
${ }^{4}$ Uncertain restoration, but suggested by the context of the previous lines.
${ }^{5}$ A line repeated in KADP 11, ii, 62.
${ }^{6}$ Unless *SAG should be read in the light of the right-hand entry.
${ }^{7}$ The text of KADP 28, ii, 18.
${ }^{8}$ Uncertain reading: the sign dab derives from the variant text of CT 37, 27, ii 27.
${ }^{9}$ These include in particular from the association of K 4345, 5-6, and K 14087, 2-3, the lines:
[z]ú-šur : Ú pe-en-[zir]
Ú e zi zu : Ú pe-en-[zir] (signs kindly collated by I.L. Finkel)
For the reading [z]ú-šur cf. Hh XIV, 335 ( $M S L$ 8/2, 36) and in Section 7, below. For Ú e zi zu, if not Ú *pi-zi-*ir (?), cf. perhaps Stol, Fs. Borger, p. 344.
second of these terms must surely mean "flying"; it is equated in the right-hand column with the rare term dayā'e, which, if a little surprisingly, could relate to the Hebrew dā'āh, "to fly." That there is no doubt about the reading is shown by the explanation Ú pi-zir DAL.DAL : pi-in-zi-ir mut-tap-ri-šú, which is provided by the Uruanna commentary of CT 41, 45 (BM 76487, line 13). Interpretation has hitherto related this flying aspect of Ú pinzer to insects - thus to spiders as in CAD D 27 with its original reference to Landsberger's Fauna, or to cantharides with JoAnn Scurlock writing in NABU 1995, No. 110. But sensible though these ideas are, I believe they are mistaken.

The clue for this account is Civil's first proposal that munzer was "manna", for the idea that is here proposed is that munzer and, when qualified, pinzer, means "manna lichen." For manna in general the extensive study of R.A. Donkin, Manna, an historical Geography, ${ }^{10}$ comes effectively in support. Manna lichen is botanically known as Lecanora esculenta. It is extremely light in weight, "has a slightly sweet taste" (p. 52), and is chiefly found on open soil and exposed limestone rocks. The lichen is in fact insecurely attached to both soil and rock, and windblown fragments "may be carried for considerable distances through the atmosphere." Donkin specifically states that aerial falls have been reported "from a number of places in western and west-central Asia," with a notable concentration around the headwaters of the Tigris and Euphrates (p.49). Here, accordingly, lies a suitable explanation for the muttaprišu of the texts, although in this case Civil's observation that munzer "grows near water courses" would need alteration to "is found near water courses," this aspect of the matter being possibly due to the drop in temperature over water of the rising air currents. As to the necessity of finding a plant that could be eaten by Dumuzi's sheep, Donkin refers on p. 53 to "the use of L. esculenta as food by man and beast (chiefly sheep)." The observation might almost have been made with Sumerologists in mind. ${ }^{11}$

Elsewhere ${ }^{12}$ one reads that "manna lichens are found in the steppes, deserts and mountains of the arid regions of southeastern Europe, Southwest Asia, and North Africa. Crustaceous clumps, measuring $1-5 \mathrm{~cm}$. in diameter, ... the lichens lie freely on the soil and are easily carried long distances by the wind." From this statement pinzer muttalliku could now mean "wind-blown lichen(s)," - alāku as "to blow (of wind)" is well established from many texts, - and the geographical details are of relevance also in another connection. Donkin in his account accepts that the food of the Israelites described in Exodus xvi accords far more realistically with a fall of manna lichen than with a supposed "fall" of tree manna from the branches of Tamarix mannifera or the like, a still prevailing explanation. For a history of such ideas Stol refers me especially to Paul Maiberger, Das Manna: eine literarische, etymologische und naturkundliche Untersuchung, AAT 6/1 and 2 (Wiesbaden, 1983).

At this point I bring forward another proverb from Sumer's collections, No. 14, 43 as thus given in Alster's edition. It reads:
ú dam-mu na-ma-ab-íl-i-[lá?]
pe-en-zé-er-mu ugun la-ba-ak-e
As newly interpreted this is thought to mean:
"Does my wife usual[ly] bring (home) the firewood for me?
"She wouldn't even wrap up the lichen for me!"
In the first of these lines the verb íl with its object ú, not a compound verb, recalls the ú-íl, or "fuel gatherer," of the Ur III texts, while examples of ugun - ak, suitably "to bundle or wrap up (clothing, or

[^1]the like)," perhaps also the divine emblems (or, me) as in the Ewe and Wheat Debate, line $98,{ }^{13}$ are collected in PSD A/3, 107b. Our main point, however, concerns pinzer which is now seen to mean "tree lichen," and although morphologically distinct, would relate closely to munzer as "manna lichen." To interpret the matter further, one could think that it is the extreme lightness of the lichen that makes for the amusement of the passage. It is strange that so unkind a thought should be so semantically important.

## 3. supālu and aṣușimtu

I turn now to Akkadian and to some experimental new philology which it is hoped may be of interest.

Both supālu and (a)ṣusimtu - there are many forms - correspond, as we have seen, to Ú KI. ${ }^{d}$ NANNA or munzer in the lexical texts. That they concern lichen is not established, but for asusimtu, which I take first, the word itself is part of the evidence. Regarded by CAD as a foreign word, the form may appear to be less strange if separated into two words. An etymology of asi ișum-(ma), or perhaps așiat iṣum, "it grows on trees," may accordingly be proposed; the latter element would analyse as the common noun is(s)u' "tree," with the loc.-adv. ending -um discussed in GAG § 66. The term would thus derive from early Akkadian or the OB period, but its original meaning would have become lost with the metathesis of the internal vowels. Lichens are edible, so that it would suit the proposal that the dried plant was often ground and drunk with beer, - it is so found in the Vademecum text of BAM 1, i, 49, and in Biggs' Šaziga texts, $68,5^{\prime}$. Further examples of the medical use are discussed in Section 8.

By contrast, the plant supālu has no obvious etymology, - or, as one should say, supālu (2) has no obvious etymology. That two homonyms are involved, supālu (1), a tree, and supālu (2), a plant, was explained by Civil in his paper for the Reiner Festsclrift, p. 46, and though not recognised by the dictionaries is certainly correct. To discuss it here, supālu, the tree, relates to the Sum. giš za-ba-lam or za-ba-lum, ${ }^{14}$ which as a juniper, the current understanding, has been thought to be $J$. oxycedrus. If I may add to the case here, many references in the Mari texts reveal that an oil for the king, šaman supāli, was obtained from the tree, which, if no doubt in a cruder form, could well have been the Oleum cadinum of modern times. ${ }^{15}$ Unlike many oils, the oil in question comes today by destructive distillation from the wood and branches of the tree, ${ }^{16}$ so that the situation in ARM 18, 14, where the king requires of his correspondent, the well-known Mukannišum, that he send him quickly 5 qa of supālu-oil, - "but this time clear out the wood bits!" (GIš.HÁ-šu a-nu-um-ma-nu-um-ma zu-ke-e-em-ma), is part of the evidence.

But supālu, the plant, is our central concern, and some thoughts concerning it are presented here. It occurs, firstly, in the parallel lines of the summa ālu text, CT $39,9,16-18 ;{ }^{17}$ they concern unwelcome plant growth in a field, and may be set down as follows:
šumma Ú sa-as-su i-te-bi eqlu šuāti ì ÌDUB-šú imatṭí (LÁ-ṭi)
šumma Ú à-na-mé-ru i-te-bi eqlu šuāti ì İDUB-šú imatṭi
šumma Ú su-pa-lu i-te-bi eqlu šuāti ì DUB-šú imatti
In this passage much depends on the meaning of $i-t e-b i$, read $i-t e-p i$, perf. $1 / 1$ of wap $\hat{u}(?)$, in CAD S 391 , and translated "if $s$ (upālu) grows wild (in a field)." AHw 50, under anameru, has "stelt auf" from tebî,

[^2]but since in the omen texts the verbs are often contrasted, this could improve to: "If sassu, rye grass or manna lichen increase (in a field), the yield of that field will decrease." ${ }^{18}$

In passing, it may be said that the new identification of anameru as "rye grass" recognises that (1), after CT 37 31, 43, it was a "sheep plant," šá-mi sseni (UDU. $\mathrm{U}_{8} . \mathrm{HI} . \mathrm{A}$ ); that (2), as mentioned in the Flora ${ }^{19}$ rye grass is the name given to several species of Lolium in Iraq all of which are grazed by sheep; and that (3) anâmeru could suitably derive from a supposed an(a) immeri (šaknu?) as a plant "assigned (by the gods) for sheep."

Beyond this, there are still some lexical items to be explained before our dénouement of supālu may be deemed complete. Of two principal matters a first note may be offered on the strange term tuhlulu which may be seen above in its context in Section 2, list (5). The word was given in AHw 1367 as "ein Wacholder," but this was an unfortunate survival from the confusion of the two supälus which has just been mentioned. CAD under supālu, S 391, write the term as tuh-LU.LU which I confess not to understand. What is here proposed is that tullulu is a loanword from the Sum. duh-làl, "honeycomb," or perhaps rather one should postulate an original saām tuhlulu, "honeycomb plant," - with the vowel change of $a$ to $u$ being due to Assyrian vowel harmony. The sweetness and texture of the manna lichen would thus be indicated, recalling the wafer-like texture of the manna in the Exodus story, and if correctly so understood would lend support to the identification. An entry ú duh-làl = Ú MIN (i.e., imhurlimm(u) is now found in CTN IV 192, iii, 52 , which, to note it here, could be a designation of the melon in early periods. ${ }^{20}$ In particular, if the imhur-līm(u) as a class may now be seen as plants which, at their creation, "received a thousand (seeds)," it is well possible that the wild sweet melon was indeed an ancient fruit in Mesopotamia. ${ }^{21}$

The second term which we discuss is from the first entry of list (5), Ú nam-ta-è : Ú su-pa-lu (I leave aside as uncertain the left-hand entries of lines 6 and 7). The problem is nam-ta-è which, despite appearances, will hardly be a Sumerian tense, an interpretation which would not be likely in a lexical text. Regarded, however, as an opposing phrase to the Akk. ana šīmti alāku, "to go to one's fate," "to die at the appointed time," the phrase ú nam-ta-è, supposedly said of a plant which "escapes from its fate" or "outlives its time," could refer, however read, to the longevity of the lichens. Given the nutriments which it needs - on this see further in Section 4 - a lichen "can live almost indefinitely, enduring extremes of cold and heat. ${ }^{\prime 22}$

I include in the uncertainty the phrase Ú kili? (NIGIN) of line 3, because, although apparently to be explained by BM 76487,8 , of CT 41,45 , reading:

$$
\text { [Ú NIGIN : Ú] } s[u-p] a-\left[l u: \text { Ú] KI-tim }{ }^{\text {killili }} \text { NIGIN : er-se-tứ, }{ }^{23}\right.
$$

it is ki and not kili that should be written for "earth," and the commentator's solution is not convincing.

[^3]A final thought for this account is that why it should have been the Moon-god that sent the asserted falls of manna lichen could be answered by supposing that, with the lowering of temperatures, many such falls occur at night. It was so in the time of Moses, as recorded in Exodus xvi.

## 4. Enlarging the picture: from the lichens to algae

I have now, I trust not too mistakenly, to declare something of the higher ambitions of this paper. The Swedish naturalist, Carl Linnaeus (1707-1778), would, I think, have been surprised to know that the plant families which he described in the last division of his Species plantarum, 1753, had already found their way into the lists of the Babylonians and Assyrians, and in some part also of the Sumerians, and that in the series šammu šikin-šu they had even their own adumbrationes. The last division of the scheme brought together the lichens, algae, fungi, ferns and mosses, and this group in the Species Linnaeus classed together as Cryptogamia. The previous, twenty-third, division comprised the Polygamia, that is, plants whose sexual elements are found in the same flower (the hermaphrodites), or in adjacent male and female flowers, or in such flowers when borne on separate plants, - and no doubt under one heading or another the nikiptu zikar u sinniš would have belonged here. The Cryptogamia, on the other hand, were seen as a group without stamens and pistils, thus without flowers in the proper sense. The name Linnaeus gave to them means "reproducing in secret," or "in a state of secret marriage," which means that the process of reproduction with these plants is either obscured or concealed. With some ramifications, and a few digressions, it is the ancient Cryptogams which form the subject of this study.

I pursue the matter here with a term which the scribes themselves placed high in their own lists, the šammu, or šāmi, qaqqadānu: these terms may be seen in context in lists (3) and (4) of Section 2. The Sumerian equivalent for the first entry, given as ú sag-kul-la, presents the difficulty that in the preserved texts the element kul precedes sag although surely belongs after it. Parallel forms would be the giš gurusuš beside giš sag-gurus-uš of Hh III 489ff. and 491a; the giš-ná with giš-sag-ná of Hh IV 146 and 166; and, further afield, the é-da-na with é-sag-danna, the latter translated "chief road station," in Steinkeller, ZA 91 (2001) 63, note 170.

Thus far the dictionaries give "mit großem, dickem Kopf" (AHw 899), and "(1) with large head, (2) important, influential" (CAD Q 99) for qaqqadānu, with a second adjective qaqqadānu then also applying to an onion or the like "with a large bulb." ${ }^{24}$ None of this, however, will suit the context of our texts. What may rather be the sense may be argued firstly from a text of Sjöberg's which he edited in JCS 24 (1912), 101 fff . The first line of this work reads:
a-du $\mathrm{l}_{10}$-ga ur-ra ú-kul ur-bar-ra-kam
It was translated: "He is a good seed of a dog, a descendant of a wolf," but, with slight improvements, I would prefer: "He is a species of dog, of the genus of wolf" Here the opposition of "species" (a-du ${ }_{10^{-}}$ ga), ${ }^{25}$ and "genus" (ú-kul) leads to the proposal that ú-kul-la in line 4 of the OB forerunner to Hb XVII (see MSL 10, 117) refers collectively to a "genus of plants," and the later ú-kul-la = iš-bab-tu in Hh XVII 39 , to the "genus of grasses," the Gramineae. It is thought accordingly that the gloss in KADP 32a, iv, $8^{\prime}$, which reads, [ú]-kul ${ }^{\text {nu-mun }}: i \check{s}$-bab-tu, is not correct. The required text is [ú]-kul-*la.

From this position we return to ú sag-kul-la and šammu qaqqadānu which I would now interpret as "the original genus of plants," "the first of the plant families." Suggestively, the word "first" in the latter phrase means first to appear, or first in order of time - the element sag as Akk. mahrû could appropriately have such a meaning - and encouragement for the idea comes unexpectedly from a

[^4]literary source. This is Enki and Ninhursanga, a Four Act Comedy (as I would like to call it) on the loves of Enki. ${ }^{26}$ In lines 217 ff . of this text the first of the eight plants produced by the union of Enki and Uttu - with some interference (!) from Ninhursanga - was the ú-giš, literally "tree plant," "plante non attestée par ailleurs" (Attinger, ZA 74 (1984), 43). However, nothing will suit better than tree lichen, so universally to be seen on the moist bark of trees - also occasionally on firewood - and well qualified from its simple structure to have been the first of Enki's plants.

For a reason that will appear presently, but also to explain why a lichen's structure, called technically its thallus, may be described as "simple," a brief sketch of the lichen is attempted here. Biologically, there is both a fungal and an alga element in the structure of the lichen. Botanists in fact speak of a symbiosis between the two elements, for what appears to occur is that the fungus element obtains water and mineral substances from the host on which it grows, thereby feeding the algae, while the latter, for its part, draws on the $\mathrm{C}, \mathrm{H}, \mathrm{N}, \mathrm{O}$ and S of the immediately surrounding air ${ }^{27}$ to make the protein which feeds the fungus. A factor here is that a fungus, unlike other plants, cannot photosynthesize the moisture, $\mathrm{H}_{2} \mathrm{O}$, and carbon dioxide, $\mathrm{CO}_{2}$, of its environment to assist its own nourishment and growth; its carbons derive mainly from the decaying vegetable matter on which it grows. It is this deficiency, being seen as dominant, which has led to the lichens' current classification with the fungi, actually with the group of fungi which are known as Ascomycetes, so named from the Greek mukēs, "fungus," and askos, a "sac" or "cell" (wherein asexually the spores are produced).

This matter is deemed important because the Sum. umun ${ }_{12}=$ alap $\hat{u}$, and less specifically perhaps umun $_{5}=$ hammu, are known words for the fresh water algae, and it is not, I think, fortuitous that in KADP 11, ii, 65 ff ., as well as in the longer text of K 4412 in CT 14, 21, ii, 7ff., the alapû section immediately follows the Ú pizir = şasuntu (etc.) section as discussed above. An algae-like component in the lichens is not difficult to recognise, so that the association of the plants in the two sections is of further support in their identification.

Little, perhaps, need follow here on alapû, Ass. elapû, as algae, being so accepted by the dictionaries and further discussed in Section 6. Two points, however, could be made. Our word is nicely defined by the a-la-pa-a šá pān mê, noticeably without a determinative, found in BAM 494, i, 42' and 45 ', but it probably means "alap̂̂u (freshly gathered) from the surface of water" since it is hard to think that the plant's general location was not altogether known. Secondly, the alapû was above all a šämu nāri (as in KADP 11, ii, 66), a "plant of the canals," and I have learned that a major alga in the canals of Iraq at the present time is the Cladophora [evidently from the Gk. klados, "branch," and phoreîn, "to bear or carry"]. This information comes from an account of the flora of a canal north of Baghdad, chosen in the search for Bulinus snails as part of a control project for Bilharzia (or now, Schistosomiasis). It was there said of the Cladophora: "This branching filamentous alga exists practically throughout the canal. In certain sections [of the canal] it forms a thick blanket covering the bed, ... its growth being so thick during the month of October that it makes quantitive study of the molluscan fauna impossible. ${ }^{28}$

A line from KADP 28, ii, 31, seen also in K 4412, CT 14, 24, ii, 13, may complete this account. Read as

## ha-am-mu šá mit-ra-te : e-la-pu-u ša nāri

it again associates hammu and alapû with canals or related waterways, the exact meaning of mitrāte, if

[^5]not to be read berāte as "watering places(?)" or the like, ${ }^{29}$ being still uncertain. But the detail may be noticed that neither alapû (again) or now hammu is given the determinative for "plants," suggestively, one could think, because they were not deemed to be plants. Without roots in the earth, without seeds, fruit or leaves, they did not qualify as šammū.

## 5. An essay on the fungus in ancient Mesopotamia

"To my lord speak: thus Yaqim-Addu, your servant.
"One of Ṣūra-Hammu's men has come to see me in Zuruban, and has handed over to me a reedbox of truffles with an (accompanying) letter (1 GI qú-up-pa-am ša kam-a-tim ù 1 tup-pa-am) which Șūra-Hammu had told him to bring me. Accordingly, the box of truffles and the letter which they brought me I am now sending on to (the king), my lord, under their (original) seals."
This neat text from Mari concerning an (unopened) box of truffles, no doubt a gift to the king from ȘūraHammu with an accompanying request(!), may suitably open this account of the mycology of ancient Mesopotamia. The text was published by C.-F. Jean in ARM 2 (1950), No. 104, and was one of the texts discussed by him in his earlier paper, "kam-a-tum, "truffes"(?)," RA 42 (1949), 89-92. For additional references see further in Section 8, note 68.

In comparison with the lichens the fungi are not well represented in Uruanna. The three words of main concern are found in CT $14,27, \mathrm{~K} 4162$, rev. $9-11$, where they are written as $k a-m u-n u$, $[r] i-p i$-tú and $[k] a$ - $u$. The same terms are found also in the strange miniature tablet of BAM 329,
whose five lines, in an idealized arrangement, may be set down as
uzu-DIR
uzu-DIR-kur-ra ge 6
ri-pi-tu
ka-a-' $\boldsymbol{u}$
ka-mu-nu-u

Some notes on these lines may include the point that uzu.DIR as "Schwamm" was advanced by Landsberger in his Fauna (1934), p. 111. The term ripītu, if thus to be read, is listed as ripītu B, "(a fungus?)," in CAD R 366, and was incorporated, if not too happily, with the single ripītu, "etwa "Verbrauch"," in AHw 987. There remains, however, the possibility that the word is a by-form of the Ass. piri'tu, "sprout," "shoot," etc., cf. CDA 275; one would then need to normalize the form as ripi'tu. Truffles may indeed be dark or of a shade of black, which meets the new designation of $\mathbf{g e}_{6}=$ șalmu in line 2. The plural ka-mu-nu-u in the third line would summarise the differentiated terms as "ffungi."

To complete the arguments it may be said that there is a missing word in the list of names, the word "mushroom." Probably, in fact, no such word ever existed, and while more will be said on the matter at the close of the Section, the best general statement is that many or most forms of fungus were anciently subsumed under the single term of kamūnu. On this basis the information given in BAM 329 may be set down more exactly. Suitably the initial terms contrasted the fungus species which break through the soil, the ripi'tu, with those which grow underground, the $k a^{\prime} \mathbf{\prime}$ (also kam'u). The truffle, Arab. kam'a( $h$ ), is of the latter kind, its subterranean presence in any place being only betrayed by cracks above it in the soil. A familiar text describes the Martu Amorites as lú uzu-DIR kur-da mu-un-ba-al-la, men "who dig up truffles from underground(?)", ${ }^{30}$ while today they "are dug up by the people and sold

[^6]abundantly in the markets at certain times of the year. ${ }^{י 31}$
I turn inevitably to kamūnu (2), a term without cognates in the Semitic languages, without a parent verb, easily confusable with "cumin," kamūnu (1), but of which much is known. It finds its most obvious expression in Tablet XIII of the long omen series, šumma ālu, ${ }^{32}$ beginning šumma kamūnu "If a fungus." In this Tablet the omens derive from the many localities where such a fungus may be seen - in the streets or the broad processional street of a city, in house or palace, in front of, or within, or behind a house. The full catalogue of places may be found in the recent edition of Sally Freedman, ${ }^{33}$ reviewed in AfO $48 / 49$ by N.P. Heeßel to whom the reference is due. In line 22 the stated omen derives from a fungus "seen on the damp-course of a man's house" (ina a-sur-re-e bīt amēli), where the carbons that a fungus needs would have been readily available in the crumbling bitumen of the walls. Such walls in general were a common place for fungus growth. The dictionaries supply many references to the mould called katarru which was there found, although one can but speculate on its source of food. Decayingvegetable matter within the brick, or carbons emitted over time from fires or smoking lamps, could be considered.

A specific fungus of which we know was associated with the tamarisk. This is the kamūn bīni or kamūnu ša būni, and it is incorrectly listed in both AHw 434 and CAD B 241, 9, with kamūnu (1), "cumin." However, only after those entries were written did the essential text and information come to light. The reference here is to Hunger's Spätbabylonische Texte aus Uruk (SbTU) 1, No. 52, lines 11-12, where a medical commentary describes the plant as kamūnu (UZU.DIR) ša išid bīni a-șu-[u], "a fungus which grows at the roots of the tamarisk." Thus explained, the fungus is here proposed as that which is today known as Cynomorium, it is described in Guest's Flora, IV/1, 422, as "parasitic on the roots of various desert shrubs such as Tamarix, Nitraria, Salsola, etc.," and an illustration of it is given in pl. 74. Michael Streck in $Z A 94$ (2004), 185f., has proposed that the kamūn bīni were "tamarisk galls", but these, for my part, were the tamarisk "seeds" of the medical texts: Martin Levey in The medical formulary or Aqräbādhin of Al-Kindi (Madison, Wisconsin, 1966), p. 253, writes of the Persian jazmāzak: "seed of tamarisk, i.e. the tamarisk gallnut". ${ }^{34}$

Two moulds may be mentioned, both related to liquids. In the omen of CT 40, 4, 94 (see also CAD K 133), one reads: šumma ina bīt amēli ina libbi karpat tāā̄āti (DUG A.GEŠTIN.NA) ka-mu-nu innammer, "If in a man's house a fungus is seen on the pot of vinegar." As Thompson explained (DAB, p. 72) this growth must be the "mother of vinegar" (as it is strangely called), "a gelatinous substance which collects when vinegar is kept in open vessels." In French also it is "mère de vinaigre," and it forms in the vessel when the alcohol of the vinegar converts by fermentation into acetic acid. The second mould of our interest is of a different kind, - and indeed, would not have been recognised or valued for what it is. It would have been present in the sikkatu or "froth(?)" of the fermenting beer vats, elsewhere in the šuršummu or "lees of beer," and in some part of every draught of beer if this was as cloudy as one may suspect it was. It is brewer's yeast.

We now move into the fields where a common blight on grain, the samānu or "red disease," was

[^7]probably a fungus. ${ }^{35}$ Similarly, from the activities of the Claviceps purpurea, a merhu or "ergot" will often have formed on the awns of rye or other grasses. ${ }^{36}$ From their study, "An Old Babylonian charm against merlu," published by Landsberger and Jacobsen in JNES 17, pp. 14-21 and 56ff., some lines on the ergot [from the "other grasses"] may be recalled here. In the shorter of two versions the text begins:
er-ṣé-tum-mi
er-ṣe-tum ú-li-id lu-ha-ma
lu-hu-mu-ú ú-li-id i-ši-na
i-š̌i-nu-um ú-li-id šu-bu-ul-tam
šu-bu-ul-tum ú-li-id me-er-ha
"Harken, O earth:
The earth bore the tilth,
The tilth bore the stalk,
The stalk bore the ear,
The ear bore the ergot...,"
and the narrative then tells how the ergot entered "into flesh," and specifically now into the eyes of the patient, causing infection and distress. The condition of concern the writers took to be stye, but endemic in the Middle East is the serious eye infection of trachoma which might better diagnose the case. In the common type of trachoma follicles form on the eye and spread thereafter to the upper lid. They would have been the "ergot grains" of the text.

A text of another kind, brought to my attention by Worthington, is "An apotropaion against fungus" published by Richard Caplice in JNES 33 (1974), pp. 345-349. In its general type the text is "a namburbi ritual and prayer to Shamash," but, as here further understood, its main concern is with a hostile and delusional situation in which a conceived evil from hidden fungus is seriously affecting the mental health of the patient. In line with this interpretation the text of rev. 7-8, as now newly restored, will read:
ina lumun (HUL) ka-mu-ni-e $\{a$ ippallasūu (N[U IGI.BAR.MEŠ]) ki-ni-iš(?)]
ina šapal (KI.TA) abni ( $\mathrm{NA}_{4}$ ) nap-โi( $\left(\mathrm{or}, \mathbf{-}^{*} l u\right)$-su-ma pal-ha-ku],
"From the evil influence of (hostile) "fungi" - they cannot [actually? be seen],
But under stone(s) they may be se[en, - I have become afraid]."
Here the restoration of palhāku, "I am (or, have become) afraid," accords with the ina lumun formulae of the namburbi texts (see thus with Caplice on p. 349), and an obsessional fear may then be seen as the primary medical condition which the text is seeking to oppose. One is reminded of the closely parallel situation required by Maqlû III, 140: hasabtu šá sūqāti am-me-ni tug-dan-na-ri-en-ni, "O potsherd of the streets, why are you ever hostile to me?"

The final term of this study may be introduced by an unedited text. The piece concerned is 79-78, 137 from the Kuyunjik collection, and I gave a copy of it in JCS 42 (1990), p. 90, describing it (p. 88) as part of a possible address by Gilgamesh as he ruminates in Tablet VIII on the death of his friend, Enkidu. The four lines $5^{\prime}-8$ ' will concern us here. In the style most befitting to literary texts they may be set down as follows:
[ú-qat-ti-i(?) nap-ş]at-ka ku-ru ni-is-sa-tú i-dir-tú
[ $\dot{u} i t-t a-\grave{S}] i(?)$ libba-ka māmītu ${ }^{2}$ Ú ni-bi-i’ ka-mu-ni
[uš-tab-ši(?) ar-ra]-tum ${ }^{b}$ lemuttumm ${ }^{c}$ egirrî la damqut ina libbi-ka
[ $\dot{\text { ù iq-bi-i(?) ilu na-k]ir-ka ina la šim-ti-šú i-mat-ma }}$

$$
{ }^{a} \text { ÉRIM } \quad{ }^{b} \text { or, er-re]-tum } \quad{ }^{c} \text { HUL-tum } \quad{ }^{d} \text { INIM.GAR NU ŠA }_{6} \text {.GA }
$$

[^8]"[Was it] stress, grief or depression that [brought] your [li]fe [to an end]?
[Did] a māmītu-addiction(?) ${ }^{37}$ [arouse] your appetite with a (sudden) spate of "mushrooms"?
[Was] an evil [cur]se or malicious slander [made effective] within you?
[Or said a deity oppo]sed to you: "He shall die before his time?""
It will be seen in the above text that there has been much initial restoration: suggestions only are made. But the bearing of the passage for this paper is the phrase ni-bi-i' ka-mu-ni at the end of the second line. The translation offered is based (1) on the evidence of KADP $22 \mathrm{ii}, 18$ and $28 \mathrm{ii}, 38$,
\[

$$
\begin{array}{ll}
\text { Ú } n i-b i-i ’ \text { erșeti (KI) } & \text { Ú ka-mu-nu } \\
\text { Ú } n i-b i-<i ’>e r-s ̣ i-t i m ~ & \text { Ú ka-mu-u'-u }
\end{array}
$$
\]

where $n i b^{\prime} u$ is associated with the known fungus terminology; (2) on the supposition that, as opposed to $t e b \hat{u}$, "to rise up," nabā'u means "to rise up suddenly, or extensively" much as the Arab. naba'a; and (3) on the observation, perhaps widely known in any case, that mushrooms in the field appear often "in large numbers on warm days after rain. ${ }^{, 38}$ Accordingly, a suddenly appearing growth of fungus as much as "wild growth" with CAD, could be the required meaning of nibi' kamūni. Stol in the Fs. Borger, p. 350, has other references.

I leave the matter with two thoughts. The first is that, from the above text, the poisonous nature of some forms of kamūnu was clearly recognised if not always respected. The second is that, although the current editor of Gilgamesh could find no place for the text in Tablet VIII, my response would be that if the lines do not concern Enkidu, who do they concern?

## 6. In search of the ferns

The "wing plants," or Pteridophyta, have a special place amongst the Cryptogams. Although not lacking in beauty they lack flowers, fruit and seed, and in one respect as a group they are quite unique. In a strange departure from the botanical norm, they reproduce themselves in opposing forms in two associated generations, the lowly gametophytes, or "spouse plants," of one generation producing sex-cells for the sporophytes of the next. All in fact begins with the spores found in the sporangia of the plants which are located in different places in the various species. They are very minute.

As far as is known, no word for "fern" has yet been found in the cuneiform texts. They are well represented in the country today; Townsend and Guest in their Flora II, 53-80, list some sixteen species of ferns, although only a simple scheme is to be expected from the hand of the early scribes. In fact three names are here discussed; the first of them is hammu as already mentioned in Section 4.

It should be explained that a unique pairing system is detectable in the opposed columns of Uruanna. When two names in the same language are set down against each other they do not have to be synonyms. ${ }^{39}$ Thus the equating in the stated texts of hammu and alap $\hat{i}$ does not require that they both be algae, and indeed hammu, with CAD H 69, could well have been "an aquatic plant." In this case a possible claimant in modern terms would be a small floating fern named by Linnaeus as Salvinia natans, - the latter (trivial) name from the Latin natāre, "to float" or "swim." As described in the Flora (II, 63), the fern "covers immense surfaces of still water in the southern marshes of Iraq, partially blocking the

[^9]waterways and causing some drag on boats passing along them." The phrase hammu ša eleppi of DAB 7 and the dictionaries, if thus referring to an aquatic plant that might adhere to the side of boats, could assist the proposal made; only a plant without roots could attach itself to boats.

The second term which we discuss is the hat ṭu rē $\hat{e}$, or "shepherd's stick," - in this account not "shepherd's staff." The term has been associated in argument with Ú azallû based particularly on the evidence of Hh XVII, 106:

$$
\text { Ú a-zal-la } \quad \text { MIN (= hat-tu re- } \grave{\prime} \text {-i-i), }
$$

but this paper is not convinced that a true synonym is thus expressed and azallî (which had seeds and leaves) ${ }^{40}$ is not considered here. With an acknowledgment to CAD H 156, and in the light of a near cognate in Aramaic, Landsberger in his Date Palm, p. 52, note 183, saw the term as a "horsetail" or Equisetum (the better translation would have been "horse bristle"). This plant has no fronds of any kind and is not typical of the ferns in general, but it does in its fertile generation possess spores and sporangia and it is indeed a cryptogam. A basic text for consideration is provided by CT 37, 32, iv 20-22:

```
U' 「ša``-mu atru?(DIRI)}\mp@subsup{}{}{41
Ú [šáá-mu ēdu (DILI)
Ú esemti amēlūti (GİR.PAD.DU LÚ.ULx.LU)
```

```
Ú hatt!u re``̂
Ú KIMIN
Ú *KIMIN (text: DILI)
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and adding these lines to the evidence the identification would seem correct. The argument will be that of the two kinds of sticks, or stems, in the plants, (1) the Ú DilI or "single" variety would be the fertile and spore-producing sticks which usually have no branches; (2) the ú diri "of more excessive growth" would be the infertile but stronger sticks, being taller, with many branches and living longer than the gametophyte stems which die soon after releasing their spores; and (3) the jointed stems of either would compare well with the stated likeness to human bones. It may be recalled here that Köcher in his "Medizinischer Text aus Grab $405^{" 42}$ noted that Ú eṣemti amēlūti could serve as a Deckname for haṭtu $r \bar{e} \hat{\imath}$, so that the former was perhaps also(?) a by-name for the "shepherds' sticks." They are some $1 / 2 \mathrm{~cm}$. thick, have a "high silica content in the outer sheath" (Flora II, 55), and would be well suitable, it is supposed, for the guiding (sic) of errant sheep.

The third term in this enquiry is Ú kurkanû, Sum. Ú kur-gi-rin-na, which, since Thompson's "turmeric" has not won acceptance, ${ }^{43}$ is available to be reconsidered. The essential evidence is that kurkanû, although not exclusively, was a mountain plant, there being many examples in the texts of a kurkanû ša šadê. In a new proposal for the commentary, BRM $432,16 f$., cited also in the appropriate lexical sections of CAD K 560 and S 347, a suitably emended text explains that Ú kur-ka-nu-ú bani? (Dím) su-la-tum $\{g u l-l u-u b\}$ Ú kur-ka-nu-í ša šá-di-i, "the kurkanû plant, having been created in a mountain cleft (suhātum for šahātum), is (called accordingly) the 'mountain kurkanû'." In Uruanna it is called šām Ebih si-kur māti, ${ }^{44}$ or with the commentary of BM 76487, 10, in CT 4145 , (šām?) E-bi-ih si-ik-ku-ur ma-a-tu, "a plant of Mt. Ebih, the boundary(-mountain) of Assyria." Two Kassite and one Qutean name equated with kurkanû as found in KADP 11 ii, 6-8, appear to connect the plant with mountains still further east, including probably the Zagros.

As thus defined one claimant in modern terms could be the Maidenhair fern, called also the Venus' hair fern, Adiantum capillus-Veneris. In their account in Flora II, 63ff., Townsend and Guest call it "our native Maidenhair," and describe its habitat as "very damp, shady places: moist clefts in ravines, near springs in caves ... on damp well walls." This well meets the requirement of the BRM 4 reference as

[^10]given above, and the distribution details for the plant are also appropriate. Included in the list of places as given on p. 65 are the Jebel Hamrin and the neighbouring Jebel Makhul, the point being that both, as now agreed, comprised the Mt. Ebih of Sumerian and later times. ${ }^{45}$ Another claimant, however, could be the Lip fern, Cheilanthes fragrans, which is found in very much the same localities as the Maidenhair, including again the Jebel Hamrin (Flora II, p. 69). In both cases the phytogeography extends eastwards to include Iran, and indeed, Afghanistan.

It may be significant that despite many occurrences in the medical texts there is no mention of seeds. A misfortune is that, in the šammu šikin-šu text of BAM 379 ii, $9-10$, the plant-name compared with Ú kurkanû is too damaged to restore with certainty. Remaining problems include the etymology of kurkanû, discussed in the last instance by Landsberger in his kurkû study of WO 3, 260, note 56, and the apparent involvement of Ú sapalgīnu and a Syriac cognate which bear disputedly on Ú kurkanû. ${ }^{46}$

## 7. A note on the šām mūni eqli

The relevance for this study of a "field" caterpillar or larva, mūni eqli, will not be immediately obvious. The text which we shall consider derives from the Insect section of Uruanna III, and previous literature and references include Landsberger, Fauna 43 S A, 4-5, with the discussions of pp. 128 and 135f.; MSL $8 / 265$, lines $359-360$; DAB 278; and Scurlock, $N A B U$ 1995, No. 110. The relevant text is now available in Köcher's KADP 12, iv, 71' - 72', and reads as follows:
šām(Ú) mu-ni eqli (A.ŠÀ)
Ú da-a-a-e
Ú pi-zer
Ú MIN

The lines will at once recall the earlier discussions on daya $\bar{e} \bar{e}$ and pinzer, but the different context and the mūni eqli radically change the information given. Of additional relevance is the zú-šur = ú pe-en-[zir] of my note 9 above and the mentioned MSL $8 / 236,335$, where the Sum. šur as tamû, "to spin," led originally to the idea of "spider." However, caterpillars, as witness the silk worms, are great spinners also, and a change of insect would solve much. ${ }^{47}$ As far as I know, there is only one way that the proposed manna lichen and larvae could come together in a lexical text, and that is to suppose that the first was the food of the second in the larval or grub stage of the well-known cycle. In fact, for the lepidoptera in general the range of such foods is quite extraordinary. It includes wild flowers and grasses, nettles and pine needles, fruit trees and bramble, old honeycomb and heather, - the foods for the most part being species specific. ${ }^{48}$ That manna lichen serves, or may have done, as the food for the larvae of a specific moth stands well beyond my personal knowledge, but such ignorance is fully remedied by the

[^11]Biblical account of Exodus xvi. In that chapter the tōlé 'āh and rimmāh of verses 20 and 24 were surely the larvae of some desert moth feeding in large numbers on the manna lichen shortly after the initial fall. Thus taken, Ú dayā’e, regarded as a plural and possibly a West Semitic term, would be explaining the šām mūni eqli of the Uruanna text as a "plant(-food) of 'field' larvae."

It may be added that, on the explanation suggested, it was probably the sucrose in the manna lichen which attracted the moths, - a suggestion I am able to make in the light of a strange event. Some years ago there was a mild infestation of moths in a little used room in my home flat. Larvae were in abundance, whose source of food, as it soon appeared, was a half-opened box of Turkish delight.

## 8. Some medical associations

In an ageing textbook which I often consult, Nelson's Medical Botany, ${ }^{49}$ one reads on p. 473: "If the fungi are excluded, the cryptogams provide few species of any value for curative medicine."

Here one cannot doubt that the exclusion of the fungi relates specifically to the year of 1929 when Fleming first noticed that the growth of bacteria in a culture of Staphylococcus was being inhibited by a mould of Penicillium notatum. Otherwise, in its different world, Nelson's statement has still a certain truth for Mesopotamian medicine, but nevertheless its physicians found many uses for the cryptogams which are broadly summarised here. The opportunity is also taken to discuss some diagnostic or other matters where these are relevant.

Thus, firstly, one may note that the Sum. ú giš-Nanna, or "Nanna's lichen," of $R A 54$ (1960), 61, line 63 , occurs in the oldest prescription of which we currently know; it is the term which evoked the discussion of the opening paragraph of this paper. Equally, to mention it here, the first occurrences of sur ${ }_{11}$-šum-ma kaš, the Akk. šuršummu or "lees of beer," are found also in this text (lines 36 and 65); for the most recent notices of this term see Attia and Buisson, $J M C$ 2003(1), 5, 61, etc., and p. 23. A single example of Ú munzer is found with Ú ṣaṣumtu and Ú murdudû for a head condition in BAM $480 \mathrm{iv}, 21$ (a reference I owe to Martin Worthington); but the disappearing munzer seems to have been replaced on at least one occasion by Ú pinzer muttalliku. This occurs in BAM $580 \mathrm{v}, 12$, in a prescription which intriguingly begins with Ú di-šum Ú qaqqad (SAG.DU)-a-n[u]. References for Ú pinzer alone have been collected by Scurlock, $N A B U$ 1995, 110, and to these could be added BAM 1 i, 57, where U pi-zer is prescribed alone for himiṭ seeti. In line 49 Ú sasumtu was similarly so prescribed, and in the longer text of BAM 145 with 146 , rev. 29'-42', this was one of nine ingredients to be taken for himit ṣèti. It was this text, with its evident symptoms of anxiety, lassitude, low grade fever, coughing, diarrhoea (ri-du-ut ir-ri), expectoration of sputum and dyspnoea, which led to the proposed diagnosis of pulmonary tuberculosis with secondary tuberculosis of the intestines as given in my "Diseases of Babylon" paper in JRSM 89 (1996), 136. An edition of the text is available in Köcher's "Text aus Grab 405" paper, although his conclusion (p. 214) that the text describes not one condition but "eine Vielzahl von schweren Erkrankungen, die mit starkem Fieber, Gliederschmerzen sowie Magen- und Darmbeschwerden einhergehen" is not here followed. ${ }^{50}$

We continue with (a)şusimtu, the commonest of the named plants in our small collection. In BAM 3 ii, 49, sa-ṣu-un-tú is one of fourteen ingredients in a cold compress for the head, probably in fact

[^12]for a severe headache or migraine described as qaqqad-su i-šag-gúm, "his head roars (in pain)." ${ }^{51}$ In col. iii, 38, of the same text sasuntu was prescribed in an oil-based salve for an uncertain condition of the head. It served as a fumigant for a Hand-of-ghost disease in BAM 469, obv. 47, with duplicates and for jaundice in BAM $578 \mathrm{iii}, 17$, and iv, 31 , the terms for this being respectively amurriqānu and alhāzu. In Biggs' Šaziga texts, at $68,5^{\prime}$, Ú a-şu-su-um-tú was to be drunk in beer for impotence; in the comparable text of Hunger, SbTU I, No. 10, $8^{\prime}$, Ú sca-şu-un-du, with voiced dental, was so prescribed. In the broken passage of BAM $550 \mathrm{i}, 4^{\prime}$, there is a reference to habbūr (HENBUR) Ú $a$-șu-șu-um-[ti?], perhaps meaning a young or fresh shoot of the plant. A further use for $a-s s_{-s i s i-i m-t u ~ i s ~ f o u n d ~ i n ~ t h e ~ c h i l d b i r t h ~ t e x t s ~ a t ~ B A M ~}^{\text {a }}$ $240,23^{\prime}$. It there serves in a prophylactic vaginal lotion evidently to protect the as yet unborn child against šibiṭ šäri, a disease which was undoubtedly serious. Based on Köcher's text in BAM VI, p. xxxi, and less closely on CAD Š/2 389, one may newly read, 「šumma murṣul [ana lib]bi-ší īpus (Dím) bubu'ta ( $\mathrm{U}_{4}$.Bú.BÚ.UL) pa-gar-šú umtalli (DIRIG) ši-bit ťāāri šum-šu (MU.NI), "If the disease worked (especially) on the abdomen (of the child), ${ }^{52}$ and his dead body was covered with spots, šibit šārí is its name." That disease is here thought to have been typhoid. ${ }^{53}$

Additionally (a)sussimtu had its place in the several long lists of plants where it occurs solely as an ingredient in a larger concept. Three texts may be of interest. The first is BAM 173, a single column non-canonical text where Ú ssa-șu-um-tu, line 22, is one of $60(?)$ plants - in analysis perhaps 30 leaved plants and 30 other - serving as a panacea for "all diseases," line 25 . The second list derives from BAM 124 iii, 44-59 with No. 125, where as an ingredient of hot poultices for foot conditions ssasum/ntu occurs as the 34 th item in a great list of 46 powders, summarised as a si-ku rabû na-as-[mat]-ti a-[s]últi, or in BAM 125, 23, $\bar{s} s$ šipūti (MAš.mAš-ti) asûti. ${ }^{54}$ Thirdly, if rather differently, (a)şușumtu is found as the 22nd item in a list of 27 plants for ašû, - or 29 if one includes the following ašû muttaprišu (maš.TAB.BA DAL.DAL). ${ }^{55}$ Recently identified as "chickenpox", ${ }^{56}$ there was perhaps a dual aspect to the condition (accepting maš-tab-ba = tū 'amu, "twin"), and from the new evidence of Sa-gig 33, 1-6, ${ }^{57}$ one reads in line 5:

## [p]a-nu-šú u innā-šú nuppuhā di-gil-šú ma-ṭí zumur-šú bir-di ma-lu,

"his face and eyes are swollen, his ability to see diminished and his body is covered with pocks...".

These symptoms recall specifically the pustules and facial oedema of smallpox, a disease also where, "as the lesions desiccate, the face is often converted into one large area of scabbing so that mouth and eyes

[^13]are opened with difficulty." ${ }^{\text {, }} 8$ Of much importance here, both historically and geographically, is the point that the Persian physician Abu-Bakr Muhammad al-Razi, better known as Rhazes (A.D. 865-925), is regarded as having written the first known account of the disease in his "Treatise on the Small-Pox and Measles." ${ }^{59}$ Indeed, it is not impossible that ašû muttaprišu, the "flying, or disappearing(?), ašû," was measles. The spots in this disease first fade and then disappear completely, generally by the eighth day.

By comparison, little will be said here on the use in medicine of ú supālu. With the amalgamation in both dictionaries of supālu (1) and supālu (2), the documentation of this term is not presently satisfactory. Moreover, the associations in such texts as Ú supālu (ZA.BA.LAM) salh-lé-e, UGU 1, i, $57{ }^{, 60}$, and Ú lišān kalbi Ú supālu (ZA.BA.LAM), in AMT 153,13 , suggest that the ideogram ZA.BA.LAM is not necessarily a writing of supālu (1), the tree. It could be a rebus writing of supālu (2), the plant. However, the texts of BAM 380 , rev. 17-21 (less 20), with 381 iii, $9-14$ (less 13), may confidently be assigned to supālu as "manna lichen" in that the compound Ú su-pa-la(sic) zíd ŠE.SA.A ${ }^{61}$ of BAM 380 , rev. 17, may then be taken, quite literally, as "manna lichen (mixed with) roasted barley flour" and interpreted in the light of Donkin's section on "Lichen bread," op. cit., pp. 52-54. The medical conditions involved included $\check{s} \bar{e} \bar{p} \overline{\text { e }}$ nuppuhātu (mú.mú) or "swollen feet" (lines 21 and 14) and šēpē kab-ba-ra-tú or "thickened feet" (lines 18 and 10). As explained to the writer by Dr Ranam Al-Ghazi the first of these may have a wide range of causes; the second arises when continued pressure over a period of time causes an accumulation of keratin to form in the skin.

Of the acquatic plants in the collection one reference to alapû, or "algae", was given in BAM 494 i, $42^{\prime}$ and $45^{\prime}$; but it occurs also in the same text at col iv, 3, where alapû - and again without a determinative - was to be applied [with oil(?)] to the head in the second operation of a five-part procedure. This procedure involved, as here suggested, the removal "with a gold ring" of the crusts forming out of the pustules in the last stage of the smallpox cycle (ina an-șa-ab-ti hurāṣu pān simmi (GIG) ta-kaş). As will be noted the text does not specifically mention crusts, but the verb kâsu of itself means "to remove skin", ${ }^{62}$ and as Köcher explains in his catalogue entry the BAM 494 prescriptions are centrally concerned with different aspects of the ašû-disease, discussed above. For hammu, a single example which may be cited is BAM 66, rev. 16'. The plant in that text, given as ú la-am-ma šá mê and perhaps "(freshly taken) from the water," was to be dried and applied regularly with oil for himit seett.

The ferns, or thus supposedly, are more prominent in the medical texts. For šammu ēdu, or ú DILI, considered here to be the branchless, gametophyte stems of Equisetum plants, several uses will be clear from CAD E 38, and selected items only are presented below. In BAM 471 ii , 15 , the šammu édu partakes with many others in a nap-šal-ti qāt etemmi, "a poultice for the Hand-of-ghost diseases." Associated with this is the essemti amē̄luti at the end of the line, possibly in fact misplaced since the pairing of ingredients in the prescription is very marked. Some part of the plant found a place in neck amulets, - to appease the wrath of Sîn in STT 95 i, 41, and of Gula, ibid., i, 67; against the epileptic attacks of antašubba and lugal-ùr-ra in KAR 186, rev. 33; and against the alû or stroke-demon in KAR 186, obv. $48 .{ }^{63}$ The root of the plant is mentioned in rev. 24, and the "spores" (zēru), were also used.

[^14]The latter deserve comment. After Townsend and Guest in their Flora II, 56, even the sporangia of the main species are but $5-20 \mathrm{~mm}$. long, so that the twofold entry šāmu édu zēr šàmi édi (Ú DLI NUMUN Ú DILI) of the Shelf-list, KADP 36, iii, 16, may indicate that, in the jars, the sporangia remained attached to their stems until required for use. As to that use, in BAM 396 iii, $28^{\prime}$, and as introduced at col. ii, line $25^{\prime}$, the spores were the last of many ingredients to be drunk regularly for stones in the bladder or urinary tract. In BAM 194 iii, 19, and its duplicate 195, rev. 15', zēr šāmi ēdi was the last to be mentioned of 24 ingredients, doubtless for a poultice and following a prescription which concerns the heel (eqbu) as seen in 194 ii , 6 . In the Vademecum at BAM 380, rev. 39 with 381 iii, 34, the spores were prescribed alone for šalputtu, a condition which relates to childbirth. It may possibly have been the striae gravidarum seen often in late pregnancy and long visible thereafter. ${ }^{64}$

Of further interest is the text of UGU 2, 166'-168', now available in the welcome edition of Attia and Buisson, $J M C$ 2003(1). In this prescription frontal headache associated with a Hand-of-ghost seizure is treated by rubbing temples, face and neck with five or six stated minerals and šammu ēdu. Here Thompson's "Asa foetida" spoils the sequence, whereas, as stated briefly in Section 6, there is a "ligh silica content in the outer sheath of all species of Equisetum," thus adding a final mineral to the group. They were probably, in the treatment, used one after the other. An example of the use of the male stems occurs in BAM 578 iii, 21, where (the sap of) GIŠ GIDRI DIRI - the Akkadian transcription is uncertain - was to be drunk in beer for jaundice. Although simple in itself, the therapy overall was quite elaborate, involving many changes of medicine - as it would seem - over a long period.

I turn next to kurkanû, and indeed, possibly to kurkānu. The OB accusative of kur-ka-nam is ambiguous, and at least one example of Ú kur-ka-nu would be BAM $3 \mathrm{ii}, 49$, - not corrected by Köcher in his introductory notes. In any event the uses of kurkanû are as mixed as for the lichens and Equisetum. In BAM $3 \mathrm{ii}, 49$, it shares a place in the treatment of severe head pain with şasuntu, as discussed above with note 51 . In BAM $430 \mathrm{v}^{\prime}, 15$, and its duplicate $431 \mathrm{v}, 9$, - in both cases there written as kur -ka-na-ú - it forms part of a maš-qit DÚR GIG, thus in a lotion for anal discomfort of some kind. In STT 96, 17, where found as Ú KUR.G[I.R]IN.NA, the fern (as supposedly) is part of a liquid medicine for tu-ga-nu, a term from the context having some connection with internal medicine and occurring also in line 195 of the List of Diseases in MSL 9, 96. In yet another use it formed part of a fumigation recipe for ear pain in BAM 506, obv. 3 ', with a near duplicate in 3 , iv, 32 , and (partly restored) in a recipe for an ear tampon in line 40 of the new Sippar Library text. ${ }^{65}$

In the same text at col. iv, line 33, 2 šiqil Ú kur-ka-nam were to be used as part of a complicated procedure for a respiratory infection. In line with this is the text of BAM $431 \mathrm{v}^{\prime}, 34^{\prime}$ and $37^{\prime}$, where kurkanû is found as a medicine for the lungs, and in both instances it is associated with Ú ha-šá-nu which is elsewhere defined as a šāmi hašê (Ú MUR.MEŠ) or "medicine for the lungs." ${ }^{\text {" }}$ Equally in BAM 430 v', 15 ' and $431 \mathrm{v}^{\prime}, 9$, kurkanû is paired with šāmi hašê. This strong association with the lungs may in fact have a bearing on the identification, in that Townsend and Guest, op. cit., 65 , write that "an infusion of the fronds of Maidenhair is still used as a popular cough cure in Europe." They also cite authority for its historical use as "a chest medicine."

[^15]Additional texts include firstly BAM 416, rev. 8', where Ú kur-ka-nam was one of ten ingredients to be applied in a base of (powdered) bitumen and isqūqu-flour to remove an ulcerous or similar condition of the skin, ana i-ba-ri hul-lu-qí.

In CT 23, 8, 43, Ú kur-ka-nam and imhur-ešrā are prescribed as fumigants for sagallu. Two definitions of sagallu are known. In CT 23, 1, 1 , the text is:
šumma šer'anū (SA.MEŠ) UZU ÚR-šú íštēniš itanakkalū-*šú $[t e b] a ̂$ ([ZI]-a) ù italluka (DU.MEŠ) la i-le-'í sagallu (SA.GAL) šum-šu (MU.*NI),
"If his leg tendons are altogether painful for him and he cannot stand up or walk about, sagallu is its name."
Similarly in BAM 130, 19-21, one reads:
šumma amēlu šrr'ān ÚR-šú ka-la-šu-ma tab-ku tebâ (ZI-a) a-tál-lu-ka la i-le-'i sa-gal-lum iṣbat (DAB) $-s[u]$,
"If a man's leg tendons are all without strength and he cannot stand up or walk about, sagallu has seized him."

From the above, and with the association in KAR 44, rev. 9, of rimûtu, a "looseness" of the limbs and probably ataxia, the most likely claimant for sagallu would be paraplegia.

A further text is BAM 124, cols. iii and iv, a combined asû and āšipu approach to foot ailments for which the sỉku rabû of 46 powders discussed above was a central component. At the end of this text the instruction of the kikitth was that 12 named stones were to be strung onto a hip belt, the last stone, an išqillatu, being followed by the phrase tašakkak(È) Ú kur-ka-nam. The association is challenging; the Maidenhair is too delicate a plant to be of any service in "binding." But, as we have seen, the ferns do not grow in earth; they grow in the cracks and crevices of well-watered rocks. ${ }^{67}$ And its root, not of conventional type, is in fact a rhizome, that is, a short, fleshy root-stock which sends up new stalks each season from different points. Thus "you will string (the stones) onto (the root-stock of) a kurkānu-fern" is the translation that may be offered. They were probably so strung in separate groups.

A comparable text, and thus finally, is BAM 354 iii, $5-8$, with the additional sources given in BAM IV, p. xiv. Stone amulets are again of concern, a relevant phrase being e-ma tarakkasu (KEŠDA) Ú kur-ka-nam tála-pap ina qabli-šú tarakkas, "wherever (on the string) you bind (them) on, you will (first) wrap (the stones) onto (the rhizome of) a kurkānu-fern, then bind on to his hip."

There remain for this account the fungi, an infrequent and lonely group in the medical texts. Both kamūnu and kam'u/ka'u (if UZU DIR KUR.RA is thus to be read) occur in the Shelf-list at KADP 36 iv, 8 9, - Stol draws my attention to Limet's edition of this in Oikumene 5 (1986), pp. 77-83 - and they are found as ingredients for a suppository in AMT 57, 3,10'. A kamūnu alone might serve as an amulet (see BAM 311, 72', or KAR 186, rev. 22), but the kamūn bīni was more in evidence. In UGU 1 ii, 4, as seen in Worthington's edition in $J M C$ 2005(1), it has a place in a long prescription for an eye salve, possibly for secondary conjunctivitis following filariasis (cf. the gu-qa-na of i, 2), since, with P.H. Manson-Bahr, Synopsis of Tropical Medicine (London, 1952), 214, "(filarial) worms in the eye cause conjunctivitis, photophobia and irritation." As already suggested in DAB 72, ka-mun GIŠ br $[-n]$ may confidently be restored in AMT 85:1 vi, 11, a šammu u šiptu text to allay fear and distress attributed to witchcraft. In BAM 494 iii, 6 , išid GIŠ bi-ni, "root of tamarisk," is probably followed, in a damaged context, by kamūn GI[š] b[i-mi], while in BAM 311, 86 ', the otherwise unique $k a-m u n$ GIŠ ŠENNUR is doubtless an error for $k a-m u n$ GIŠ $b i-{ }^{*} n i$.

[^16]As for the truffles ${ }^{68}$ there is an amulet connection in BAM 311, = KAR 186, obv. 29. After BAM $1 \mathrm{i}, 33$, and with the duplicate of $R A 13,38,21$, they were to be taken in beer or wine for martu (ZÉ) which, although often "bile," is likely in the present instance to refer to stomach acids following R.D. Biggs in his article on "Medizin" in RIA 7 (1987-90), p. 628. And in Köcher's "Medizinischer Text aus Grab 405 " the truffle of rev. 1 was one of 12 plants to be bound on in a poultice for šadânu.

We may pause for a last time to discuss this text. A partial duplicate is now available in Heeßel's Diagnostik, pp. 354f., and as here newly understood the text and a translation may be set down as follows:
šumma simmu šikin-šú ki-ma abni (eras.?) da-an qer-bé-nu-um-ma 「i-rab-bi` qer-be-nu-um-ma it-ta-na-lak na-šu šá tebâ (ZI-a) itazzuzzi (GUB.GUB-zi) lā i-le-'e-i šá-da-nu šum-šu (MU.NE/NI),
"If a simmu (lump) is as hard as stone, if within himself he would grow up, if within himself he would walk about, but he has always to be lifted $u^{69}$ for he cannot get up or stand up (by himself), šadânu (stone) is its name."
By way of comment it may first be said that Köcher's identification (p. 212) of šadânu as "Beulenpest" (bubonic plague) is undoubtedly correct for one of its meanings. For a simmu, in the sense of a swollen gland, that may be seated in the patient's neck, armpit or groin and with the possibility of death "on the third day," there can be no other interpretation. However, in the present text the simmu is regarded as an enlarged thyroid gland or goitre, with the case in general being that of a young person suffering from cretinism. Of the unfortunate cretins it has been said that "their low intelligence is shown by their learning to sit, creep, stand and walk at a late age or not at all, ${ }^{" 70}$ which in this respect accords well with the particulars of the text. From Ancient Egypt the old paper of C.G. Seligman, "A cretinous skull of the Eighteenth Dynasty", ${ }^{71}$ is still cited in medical histories.

I draw a line under the above notes at this point. Based on limited reading they make no claim to be complete but may hope to be representative of the terms discussed.

## 9. Epilogue

Two points may be raised in this final Section of the study. Firstly, lest it be deemed an omission, it is held that the still lingering opinion that KA a-ab-ba or imbû tâmti( $m$ ) means "sea-weed" or "sea algae" is not, in fact, correct. Several texts attest the point that imbû tâmtim was a mineral, ${ }^{72}$ and if we may then read the phrase in question as zú (a)-ab-ba, or literally, "sea teeth," the way is open to follow Landsberger, Date Palm, p. 41f., and the note in CAD I/J 109 (perhaps also written by Landsberger) in seeing "(white) coral" or "coral limestone" as the meaning of imbî tâmtim. In fact, imbû in that phrase must grammatically be a plural construct, and the following reading and translation of KADP $36 \mathrm{v}, 11-14$, reflects this. I suggest:

[^17]biṣṣūr (GAL4.LA) tâmtim<br>ereb (BURU5) tâmtim<br>imbû (ZÚ) tâmtim<br>$s[a] m-m u t^{5}$

"cowrie shells ${ }^{73}$<br>"molluscs" ${ }^{74}$<br>"white coral pieces"<br>"red coral pieces"

In the last of these lines the term sammūt is considered to be an apocopated form of $s \bar{a} m \bar{u} t u$, the masc. plur. of sāmu, "red," whence the beautiful red and orange corals from the warm offshore waters of the Emirates and Oman would be thus described. But the whole matter of imbû begins undoubtedly with palm trees, and, with the important support of KADP 47,4 , the information of $\mathrm{Hh} 111,363$ is of much relevance. It reads:
giš zú-gíri (var. -kiri ${ }_{6}$ ) gišimbar : im-bu-u
Here zú-gír(i), lit. "knife teeth," must be the modern "incisor teeth," for this is exactly the shape of young maturing dates, or, as I have myself seen, of the diminutive, stunted dates of an occasional October flowering. Even the stones of the mature fruit have the long thin shape of an incisor tooth with its tapering root. ${ }^{76}$

My second point is of another kind, and while it is not in the nature of epilogues to be concerned with beginnings, I turn in the last breath of this paper to the opening lines of the Shelf-list, KADP 36. In these lines our "tree lichen," Ú ṣa-ṣu-um-tú, is found as the fifth item of the list, the fifth overall of some 220 entries. It is possible, of course, that the matter is of no consequence: the plant had to be placed somewhere so why not where it is. Nevertheless, the following argument may not perhaps be thought too extravagant.

The first plants in the list are Ú si-hu, ár-ga-nu and barirätu, the well-known and probably sweetly-smelling triad of the pharmaceutical and magical texts. In his DAB, pp. 360ff., Thompson identified sīhu from the Syriac šīhā and Arabic ssilh ${ }^{77}$ as Artemisia Judaica and A. herba-alba, with $A$. fragrans and $A$. absinthium being additionally mentioned. The dictionaries question the identification, to my mind over-cautiously. From Zohary's "Geobotanical outline map of the Middle East" ${ }^{18}$ one learns that the steppes of the Artemisietea herbae-albae mesopotamica ${ }^{79}$ cover a vast area, - the whole of northern Iraq, the Syrian Desert, and the two delineated smaller areas of south-east Turkey. If one should include the Artemisia steppes of the Negev and of central Iran - photographs of both of these are given in Figs. 158 and 159 - it may be believed that the family at the present time is astronomical in its numbers. It cannot fail to have been represented in the ancient pharmacopoeia.

Since the following argānu and barirātu plants are closely linked with the initial sihu - not impossibly as plant associates for which Zohary gives many names - it is the fourth plant on the list, Ú

[^18]ár-ma-nu, which must be next addressed. The term armannu, also armannû, "Armenian," is basically of concern. Thus the Sum. GIŠ hašhur-kur-ra = ár-man-nu may confidently be interpreted through the Syriac hazzūrā armínāyā, "Armenian apple" or "apricot." The dictionaries express uncertainty, but no better fruit could accompany the "ripe figs" in the Incantation for the Tooth-worm, and the country's apricots are familiar still in world markets. Equally, the lapat armannu may without difficulty be interpreted as "Armenian turnip." It is still a turnip, and citing the Russian botanist N.I. Vavilov, Chakravarty, p. 79, gives "Asia Minor" as a specific Near Eastern centre for the Asiatic turnip, Brassica campestris. Thirdly, therefore, the Ú ( $\bar{s} \bar{a} m u$ ?) $\operatorname{arman}(n) u$ is suitably the "Armenian plant," and this in fact will have been the Artemisia fragrans, since, as seen again on Zohary's map, a large area from Lake Van in the south to the province of Erzurum in the north-west is styled as that of the Artemisetea fragrantis armeniaca, with the order as a whole, after the discussion of Vol. II, 482ff., being called the Artemisietalia fragrantis armenoturcica.

If, accordingly, we may regard the opening lines of the Shelf-list as a kind of botanical prolegomenon in special recognition of the Artemisia and its dominance in Assyria, ${ }^{80}$ the way is open to see the following ssasumtu as the first plant of the main series, its honoured place as šāmu qaqqadānu, "the first of the plant families," being still remembered and upheld.

It is hoped, in conclusion, that, despite its errors and omissions, this account may have recruited interest in a fascinating man-made division of God's plants, and to have illuminated for ancient times a corner of it not sufficiently explored.

[^19]
[^0]:    *The writer is much indebted to Marten Stol, Irving Finkel and Martin Worthington, who have given generously of their time to read a previous draft of this paper, and from whose comments and wide knowledge it has greatly benefited. The editors he thanks immeasurably for their kindness and encouragement.
    ${ }^{1}$ Proverbs of Ancient Sumer: The World's Earliest Proverb Collections (Bethesda, 1997), I, 102.
    ${ }^{2}$ In full, "Feeding Dumuzi's sheep: the lexicon as a source of literary inspiration" in F. Rochberg-Halton (ed.), Language, Literature and History: philological and historical studies presented to Erica Reiner (New Haven, 1987).

[^1]:    ${ }^{10}$ Edited by J. Schmithüsen, and published as Biogeographica 17, by W. Junk bv (The Hague, 1980).
    ${ }^{11}$ Necessarily their number includes Yitschak Sefati, whose Love Songs in Sumerian Literature (Ramat Gan, 1998) presents as No. 17 a new edition of Civil's text under the title "The Shepherd's Prayer."
    ${ }_{12}$ Namely, in the English translation of The Great Soviet Encyclopedia, 3rd. edit. (New York, 1977), Vol. 15, p. 429.

[^2]:    ${ }^{13}$ Edited by Alster and Vanstiphout, "Lahar and Ashnan," ASJ 9 (1987), 1-43.
    ${ }^{14}$ Cf. originally R.C. Thompson, DAB 268 ff ., who first recognised, if in part incorrectly, the twofold nature of supālu.
    ${ }^{15}$ Cf. initially J. Bottéro, Textes économiques et administratifs, ARM 7 (1957), p. 179, also Attia and Buisson, JMC 2003(1), 19: Ú supālu given as "cade."
    ${ }^{16}$ As thus explained in Townsend and Guest, Flora of Iraq II (1966), 91, and Chakravarty, Plant Wealth of Iraq (1976), p. 313.
    ${ }^{17}$ Part of Tablet LIX after C.J. Gadd's analysis in CT 39, p. 5.

[^3]:    ${ }^{18}$ So taken, it is supposed that some quantity of the plants mentioned would have been present in the fields in the normal condition.
    ${ }^{19}$ E.g., N.L. Bor, Flora of Iraq IX (1968), 90-99, and Chakravarty, 329-333.
    ${ }^{20}$ Thus far only a term for the wild bitter melon has been proposed, for which see Stol's Cucurbitaceae paper, Bul. Sum. Agr. 3 (1987), 85, under irrû or errû.
    ${ }^{21}$ Cf. further in Stol's paper, p. 85, where, however, after Chakravarty, Monograph on the Cucurbitaceae of Iraq (Baghdad, 1966), 86-87, Cucumis melo, the musk melon, Arab. bataikh, should be named as the sweet wild melon of Iraq. However, the water melon will best suit the evidence of BAM 379, i, 32; SbTU 106, 9; CTN IV 195-6, ii, 30; and STT 93 rev. 62, which read: šammu šikin-šú kīma Ú UKUŠ.<KUL>.LÁ (STT 93: kīma「Ú UKUŠ? (erased) [NU]MUN.MEŠ šá 「UKUŠ.MEŠ7) șīt(È)-su ru-uš-šat šammu šuāti Ú imhur-l̄̄nn(u) šum-šu, "The plant whose appearance is like the cucumber family (STT 93: like the cucumber species) but its juice(?) is red, imhur-/̄TM(u) is its name." This melon is the Arab. raggi.
    ${ }^{22}$ Quoted from the article "Lichen" in Harmsworth's Universal Encyclopedia, ed. J.A. Hammerton (London, 1920s), Vol. 6, p. 4851.
    ${ }^{23}$ So given also in CAD E 309 and S 390.

[^4]:    ${ }^{24}$ See additionally M. Stol, "Garlic, Onion, Leek," Bul. Sum. Agr. 3 (1987), pp. 57 and 62.
    ${ }^{25}$ Interpreted as "good seed," by Sjöberg, op. cit., 109. As suggested in my Uruanna paper in JNES 64 (2005), "species" in the botanical world was similarly numun $=z e \bar{r} u$, "seed."

[^5]:    ${ }^{26}$ In this analysis the second Act would end at approximately line 138 where the text is currently broken, thus giving a suitable average of some 70 lines to the four sections of the text.
    ${ }^{27}$ From the known evidence S , that is, sulphur, is almost invariably present, if mainly in small quantities.
    ${ }^{28}$ Hanna Zakaria, "Further study on the ecology of the intermediate host of Schistosoma haematobium, Bulinus truncatus Baylis," Bulletin of Endemic Diseases I (Baghdad, 1955), p. 133.

[^6]:    ${ }^{29}$ With Landsberger, Fauna 139 and note 1; AHw 122, under bērtu with a cross reference to mitirtur, CAD H 69 under hammu B, but cf. A/1 336 (alapû, lexical section) and M/2 144f.
    ${ }^{30}$ Text from SEM 68, iv 26. For kur-da as possibly "from underground," one may note that truffles have no particular association with mountains, and that some instances of šá šadê in medical texts, as those defining Ú maš/ltakal in KADP 2, i, 5-8, may possibly refer to tubers or the like, and not to a place of origin in mountainous regions.

[^7]:    ${ }^{31}$ From Evan Guest, Notes on Plants and Plant products with their colloquial names in Iraq, Bulletin 27, Department of Agriculture, Iraq, 1933.
    ${ }^{32}$ A major source is CT 38, pls. 18f., in the copies of C.J. Gadd.
    ${ }^{33}$ If a City is set on a Height: The Akkadian omen series šumma ālu ina mēlê šakin, I: Tablets 1-21 (Philadelphia, 1998).
    ${ }^{34}$ An additional point is that some aspect of dyeing appears to be concerned (cf. Streck, p. 286), in that two references in Uruanna associate kamūn bīni with aban gabê, "alum", a mordant. The Cynomorium is not a dye, but could perhaps itself appear to be dyed in that strikingly "The whole plant is reddish-brown to purplish-black," D.J. Mabberley in V.H. Heywood (ed.), Flowering Plants of the World (Oxford, 1978), p. 175.

[^8]:    ${ }^{35}$ First introduced by J. Nougayrol, ArOr 17/2 (1949), 213ff., samana/sāmānu as a "rust" affecting cereals was accepted in this sense by Landsberger, MSL 2 114, developed by CAD S 112, and incorporated by Finkel in his "A study in scarlet: incantations against Samana," Fs. Borger (Groningen, 1998), 71-106. For the modern diseases affecting grains in Iraq, see Chakravarty, p. 291.
    ${ }^{36}$ See further in the modern description of N.L. Bor, Flora of Iraq IX, Gramineae (1968), pp. 258ff. and 262.

[^9]:    ${ }^{37}$ Interpreting the difficult māmītu, as a medical term, in line with the proposal in my "psychiatry" paper, $A S 16$, 295.
    ${ }^{38}$ E. Launert, Edible and medicinal plants of Britain and Northern Europe (London, 1981), 250.
    ${ }^{39}$ Examples, in part already discussed, include:

    | Ú su-pa-lu | : GIŠ e-re-nu | "prickly juniper : cedar" |
    | :--- | :--- | :--- |
    | Ú su-pa-lu | : [Ú sa-su-u]n-tu | "manna lichen : tree lichen" |
    | Ú im-hu-ur-li-mu | : Ú ir-ru-u | "sweet melon : bitter melon" |

    A reference for the first pair will be found in CAD S 390.

[^10]:    ${ }^{40}$ For references see CAD A/2 525, 4'.
    ${ }^{41}$ Replacing the previous šāmu sāmu $\left(\mathrm{SA}_{5}\right)$ since red is not the colour of an equisetum or any part of it.
    ${ }^{42}$ In R.M. Boehmer, F. Pedde and B. Salje, eds., Uruk: die Gräber (Mainz, 1995), p. 204.
    ${ }^{43}$ Based unfortunately on the misconception that it was a "colouring plant."
    ${ }^{44}$ For references see AHw 1042 and CAD S 258, e).

[^11]:    ${ }^{45}$ As thus J.N. Postgate, Early Mesopotamia (London, 1992), p. 9: "From early times the whole range, including the section called Jebel Makhul, south-west of Assur..., was known by the name of Mount Ebih." For the earlier reference which describes Mt. Ebih as a sikkūr māti a fitting comment is what is written of the Jebel Hamrin on p. 8: "... a natural barrier... (which) separates the alluvium from the northern plains."
    ${ }^{46}$ For the essential references see Meissner, $M V A G 9 / 3$ (1904), 29 with note 2; CAD S 157; AHw 1025; DAB 161; Löw, Flora der Juden III, 339. A further, and potentially important, reference is E.I. Gordon's "The meaning of the ideogram ${ }^{\text {KKASKAL.KUR }}=$ "underground water-course" and its significance for Bronze Age historical geography," JCS 21 (1967), 70-88. The reason for this is that, in the nishu recension of Uruanna, and following the šām Ebih sikur māti entry discussed above, is the parallel phrase šām Balih (KASKAL.KUR) si-kur 「māti , cf. DAB 157, CAD K 560, a). Taken quite simply as a statement of fact, the evidence suggests that the (partially) underground river Balih in the Urfa-Harran district of modern Turkey, and lying aforetime on a northern boundary of Assyria, was a prominent habitat of the kurkānu-fern. Cf. also note 67 below.
    ${ }^{47}$ Unsolved problems include the meaning of zú-šur (as thus to be read after MSL $8 / 2,36$, line 335 and the etymology of ú pe/inzir which is not immediately obvious in view of the variants that are given for line 334 (2).
    ${ }^{48}$ Summarised from B. Olof-Landin, Insekter i Färg, English edition by N.D. Riley, Insects in Colour (Stockholm and Poole, 1953/1963), Nos. 110-193.

[^12]:    ${ }^{49}$ In further detail, A. Nelson, Medical Botany: a hand-book for medical men and all who are concerned in the use of plants (Edinburgh, 1951).
    ${ }^{50}$ See also N.P. Heeßel, Babylonisch-assyrische Diagnostik, AOAT 43 (Münster, 2000), pp. 186f., and the relevant new entries of Sa-gig 31 on pp. 342-344, with commentary, 347-352. Symptoms there given include variability of temperature (lines 1 and 12), early haemoptysis (lines 3 and 9), and profuse intermittent sweating (lines 19 and 37, but absent, line 12), with observation of the condition in the original cases extending at least to the 52 nd day (line $\left.44^{\prime}\right)$. It is submitted that this further evidence still accords well with "tuberculosis."

[^13]:    ${ }^{51}$ Were there perhaps three categories of pain in the vocabulary of our times, akālu "to ache", sasaû "to cry out" and šagāmu "to roar"? In any event tinnitus is probably not the meaning here since this condition is extensively treated in the ear texts.
    ${ }^{52}$ For examples of ana ... epēšu in the medical texts used of parts of the body see CAD E 195f. under 3', and AHw 224 1, i).
    ${ }_{53}$ For this diagnosis cf. further in my "Gleanings" paper, JNES 27 (1968), 244f., and especially the note that the Iraq Government's Bulletin of Health and vital Statistics "shows typhoid as a prominent cause of infant deaths in the country even during the first year." For pagru as (1) a body without limbs in anomalous births, or (2) a still-born child, or (3) the dead body (of a young child), see E. Leichty, The Omen Series šumma izbu (New York, 1970), 36, note to line 51, and M. Stol, Birth in Babylonia and the Bible (Groningen, 2000), 161.
    ${ }^{54}$ A similar text which names 12 plants to be powdered for head poulticing was published by Labat in RA 53 (1959), 2f., lines 10-13. It is now duplicated in the Sippar text published by Heeßel and Al-Rawi, Iraq 65 (2003), p. 225, lines 24-29.
    ${ }^{55}$ See line $34^{\prime}$ of BAM 426 ii, $13^{\prime}-41^{\prime}$. The entry also occurs as the 9 th item in the shorter list of BAM $1 \mathrm{i}, 62$ - ii, 6.
    ${ }^{56}$ See Jeanette Fincke, Augenleiden nach keilschriftlichen Quellen, (Würzburg 2000), 100-102, with references; also JMC 2003(1), p. 16, note to line 131'.
    ${ }^{57}$ Published by von Weiher in SbTU IV, 81, and by Heeßel in AOAT 43, pp. 353 and 359.

[^14]:    ${ }^{58}$ Sir John Conybeare and W.N. Mann, eds., Textbook of Medicine, 12th edit. (Edinburgh and London, 1957), p. 43.
    ${ }^{59}$ Information from R.H. Major, Classic Descriptions of Disease, 3rd edit. (Springfield, Illinois, 1945), pp. 196-198, and Cyril Elgood, A Medical History of Persia and the Eastern Caliphate (Cambridge, 1951), 196-203, esp. pp. 202f.
    ${ }^{60} \mathrm{On}$ which see further in Worthington's edition in $J M C$ 2005(1).
    ${ }^{61}$ For the choice of reading in regard to ŠE SA.A see CAD L 97.
    ${ }^{62}$ Cf. dictionaries, except that in CAD K 271, the reference in question is wrongly included under a supposed kâṣu B.
    ${ }^{63}$ The alû demon has been studied by M.J. Geller, Forerunners to Udug-hul: Sumerian exorcistic incantations,

[^15]:    Freiburger altorientalische Studien 12 (Stuttgart, 1985) 80-92, and M. Stol, Epilepsy in Babylonia (Groningen, 1993), 41-42. For the demon's connection with stroke see Reynolds and Kinnier Wilson, "Stroke in Babylonia," Archi ves of Neurology 61 (2004), p. 600.
    ${ }^{64}$ One argument for the proposal derives from the incomplete KADP 22 ii, 2: šumma sinništu liptam šalputat? (TAG TAG.TAG-át) šerru ina lib-bi-[šá $\mathrm{x} \times(\mathrm{x})$ ], "If a woman('s abdomen) is marked with liptu, the child [ . . ] in/from her womb." For previous discussion see M. Stol, Birth in Babylonia and the Bible (Groningen, 2000), pp. 54f.
    ${ }^{65}$ Published by N.P. Heeßel and Farouk Al-Rawi, "Tablets from the Sippar Library XII: a medical therapeutic text", Iraq 85 (2003), 221-239.
    ${ }^{66}$ Namely, in the Vademecum entry of BAM 1 ii, 22.

[^16]:    ${ }^{67}$ Similarly, in his chapter on "The hydrophytic vegetation," M. Zohary, Geobotanical Foundations of the Middle East (Stuttgart and Amsterdam, 1973), 2, 601, writes of the Adiantium, "The plants of this class grow on moist rocks or in damp caves."

[^17]:    ${ }^{68}$ Non-medical references, as usefully given to me by Marten Stol, include his review of Maurice Birot's ARM XIV in BiOr 35 (1978), 220, texts 35 and 36, with the authorities cited; Birot's later ARMT XXVII, No. 54, lines 6, 17 and 21, with the following note a); Birot's note in Syria 50 (1973), 3, concerning ka-ma-a-tim ša-ma-am e-ša-am as "truffes fraîchement achetées," re-interpreted by Dominique Charpin, NABU 1989/3, No. 58, as "des truffes lors de la récente pluie" [my own choice would be for "new(ly gathered) plant(s), šam(m)am eš(š)am]; Ran Zadok, NABU 1997/3, No. 88.
    ${ }^{69}$ Translating largely ad sensum. It would be possible as a corrected text to read na-<ši áš>-šu šá $\ldots$, but equally našu (var. ÍL-šú) šá could be regarded as a conflation - for further examples see JSS 13 (1968), 93-103 ("Desonance" in Akkadian) - to avoid the inelegance of four /š/ elements coming together.
    ${ }^{70}$ Quoted from I.G. Cobb, The Glands of Destiny (a study of the personality), (London, 1936), p. 34.
    ${ }^{71}$ Published in Man 12 (1912), pp. 17-18.
    ${ }^{72}$ Cf. BAM 363, rev. 11' (zú a-ab-ba being the last mentioned of " 130 stones", line $12^{\prime}$ ); 471 iii, 21'; Biggs, šÀ.ZI.GA, p. 53, obv. 15.

[^18]:    ${ }^{73}$ Cf. A.L. Oppenheim, "Mesopotamian Conchology", Or. NS 32 (1963), 407-412, the new biṣsūr tâmti being doubtless an abbreviation of bișṣūr atāni tâmti. H. Limet, Oikumene 5 (1986), 81, reads sal-la a-ab-ba supposedly for $\left(\mathrm{na}_{4}\right)$ sal.la $=$ muštashiptu, citing CAD, s. v. (M/2 287).
    ${ }^{74}$ Or bivalves, the two ligatured "wings" of such shells being well appropriate to the term "sea locust," the literal meaning. The previous understanding of "shrimp" for ereb tâmtim is unsatisfactory, because zoological terms are not included in the Shelf-list, and against the rendering of Zím BURU ${ }_{5}$ A.AB.BA as "powdered shrimp (shell)" given in CAD E 290, it is probably impossible to powder the tough chitinous carapax of a shrimp.
    ${ }^{75}$ Limet, op. cit, line 14, reads ú mud, not further explained, at this point.
    ${ }^{76}$ Accordingly, imbû as here proposed does not mean "palm fibre." The Akk. for this was rather urṭ̂̂ and sû, the latter, after Hh III 369, being a loanword from zú, "fibre," and not related to zú, "tooth." In line 363b, if read as giš zú-gir(not -peš) gišimbar = im-bu-u, zú-gir would be another variant on the basic zú-gír of line 363.
    ${ }_{78}$ Thus correcting Thompson's "šiyāh" which is wrongly vocalized.
    ${ }^{78}$ As given in Vol. II, map 7, of the Geological Foundations (publication details in note 67).
    ${ }^{79}$ Zohary's own terminology, further discussed in his chap. XIV, pp. 473-490.

[^19]:    ${ }^{80}$ Sic, since outside of Hh III and XVII all the plant lists from their likely origin in Assur are considered to be Assyrian, whence also the Ass. šāmu, "plant," rather than šammu, has been often used in this study.

