

The Cannabis Page of the Voynich Manuscript

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Abstract

The late medieval Voynich Manuscript (VM) has so far resisted decryption and has been even considered a meaningless hoax or an unsolvable cipher. Here, we investigate the hypothesis that the VM is written in a natural language by establishing a relation between the Voynichese text and classical Persian. In the VM not the standard Arabic-derived Persian alphabet is used, but a different alphabet that has similarities to Pahlavi and Mandaic script. Based on a transcription table, we can directly translate text from the VM which is shown for two pages (f1r and f16r) that displays a cannabis plant. We obtain clear evidence for our hypothesis by the fact that a meaningful translation can be obtained for a continuous passage of VM text in a relatively easy and fully documented procedure. Although we do not attempt at a critical translation of the VM text here, we gain a first insight into the content of the VM, which may provide a basis for discussions of the provenance of the VM. The present attempt builds on earlier work of the author on the Pahlavi hypothesis, but revises some of the claims made in the previous paper [7].

Changes compared to the first version: Sect. 2.3, 1.) is now expanded to contain a translation of all of the first page of the VM and moved to the appendix A and the corresponding pointers have been changed. In Sect. 3.1.2 a superfluous *of* is removed. In Fig. 2 the small image for Karoshti *zain* is inserted.

1 Introduction

The Voynich Manuscript¹ (VM) is written on more than 200 vellum pages which date to the early 15th century (University of Arizona, 2011). Its history before the discovery by the bookseller Voynich in 1912 is largely unknown. Apart from a few cautious attempts, such as Refs. [2, 7], so far little progress has been achieved in deciphering the VM. There is not even an agreement, whether the VM has any meaningful content at all [11].

In a previous study [7], we have linked the VM to a Middle Iranian language, Pahlavi, which did exist around the time of the composition of the VM and still exists today. However, already in the 15th century, Pahlavi had ceased to be actively used outside the religious context of Zoroastrianism. We may thus conclude that either the VM was composed from Zoroastrian sacred literature (but may consist in parts of texts that are not conserved elsewhere) or other hypotheses should be taken into consideration. In the latter case and assuming that the Pahlavi hypothesis is “in the right ballpark”, a natural candidate would be classical New Persian. Persian was the dominant language in large parts of the Middle East including regions where Pahlavi was in use, such that a Persian influence is clearly possible. The Pahlavi hypothesis must be abandoned, because, as we will see, the VM vocabulary is surprising similar to the classical New Persian vocabulary that has changed only mildly for about a millennium. We should note, however, that, just as Pahlavi contains many heterograms, i.e. Aramaic loanwords that were pronounced as their Middle Persian counterparts, also classical New Persian contains many Arabic loanwords that have similar roots as the Pahlavi heterograms.

¹MS 408 in the Beinecke Rare Book & Manuscript Library at Yale University



Figure 1: Page f16r of the Voynich manuscript. For a magnified view of the text, see Figs. 7 – 9.

We will show that the VM is written in New Persian, although with an unusual alphabet. Voynichese letters are clearly different from the Arabic-derived standard Persian alphabet, while they can be related in part to the Pahlavi script and in part to the Mandaic alphabet which we will make evident here based on the identifiability of a meaningful Persian text from one of the VM pages. The Pahlavi hypothesis was thus successful only in so far as it turned out to be possible to use largely the same transliteration table (Tables 1 and 2, for changes compared to [7] see Sect. 2) in order to identify a word from the VM using a standard Persian dictionary [8, 13].

After we present the transliteration table, we propose a putative translation of the VM page f16r which features a picture that without reasonable doubt can be identified as cannabis, see Fig. 1. We find that the author of the VM does not dwell on the botanical or pharmaceutical properties, but mainly advises the reader to abstain from the use of the plant. In combination with the circumstantial evidence from a few other pages, the VM can be seen as an example of *wisdom literature*, although not as a particularly impressive one. The text largely appears to be, roughly speaking, a “rant” against any less wise fellows, rather than a sensible argument to convince feeble believers. We can speculate that the text has some gnostic influences (see Section 2.3). In the Persian-influenced regions as well as in Europe, the ideas of the Gnosis survived as an undercurrent in various mixtures with Christianity, Mandaeism, Zoroastrianism, Yazidism and Manichaeism. During centuries of suppression and persecution many of their scriptures were lost, such that the VM eventually could help to disentangle the complex interplay of these religions. A strong Islamic influence can be ruled out, because in this case it would be ununderstandable why the text was not written in the widely-used standard (Arabic) Persian alphabet. Instead, the similarity of the Voynichese alphabet with Pahlavi and Mandaic scripts can be taken to suggest a Zoroastrian or Mandaic background.

2 The Voynichese alphabet

Comparing the Voynichese (V) and Pahlavi and Mandaic scripts, we find that many V characters are rotated versions of letters from the other two scripts, see Table 1. This may be due to the different writing direction

of the two scripts. A similar effect that was observed also in the earlier sinistrodextral Brahmi script [3], in which also some of the letters appear as upside-down adoptions from its likely predecessor Aramaic (right to left). Pahlavi, Mandaic as well as standard Persian (P) scripts derive ultimately also from the Aramaic alphabet. They have retained the dextrosinistral direction, while the VM is written in the opposite direction.















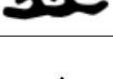
















#	Voynich	Pahlavi	P/M	Mandaic	transcription
<i>o</i>		n.a.	→	◦	ā, ō, ū, [a]
<i>B</i>			→	𐤁	b, [w]
<i>P</i>			(→)	𐤂	p, f, [b]
<i>t</i>			←	𐤃	t, d
<i>d</i>			←	𐤄	d, [z,j]
<i>r</i>			←	𐤅	r, l
<i>cc</i>			←	𐤆	s [ī, see Tab. 2]
<i>š</i>			←	𐤇	š
<i>c</i>			→	𐤈	ç, short vowel
<i>K</i>			(↔)	𐤉	k, q
<i>g</i>			→	𐤊	q, k, g
<i>M</i>			(↔)	𐤋	m [cmp. Tab. 2]
<i>8</i>			(→)	𐤌	n
<i>w</i>			(←)	𐤍	w
<i>a</i>			←	n.a.	h, a, kh
<i>y</i>			←	𐤎	y, i

Table 1: Voynich characters with the corresponding Pahlavi and Mandaic letters. The first column shows the V notation used here as a mnemonic code. The middle column gives a tentative pointer to the origin of the letter shape (either Pahlavi or Mandaic). See Notes below for comments. See also Fig. 2.

2.1 Comments on Table 1.

The letters are given in the order of the Persian alphabet for the main reading of each V letter. Frequently occurring deviations from the main transliteration are given in [brackets]. Strokes belonging to neighbouring characters were removed from the Voynich letters.

o One of the main differences to the Pahlavi hypothesis [7] is the identification of the letter V *o* with P \bar{a} , which is in most cases observed, or, more clearly, a Persian 'alef is always represented by V *o* even it pronounced as a short vowel *a* or as a vowel different from *a*.

B As shown for V *K*, see Fig. 2a,b), there may be subtypes of the letter. It seems that sometimes the middle stroke leaves from the tip of the left stroke and sometimes it intersects the left stroke below the tip. However, we could not find enough evidence for the systematic use of these variants.

P This letters occurs often at the beginning of paragraphs, see Sect. 3. Again there may be subtypes of the letter that could distinguish between P *p* and P *f*.

t The visual similarity to Pahlavi *t* is only superficial as the strokes are different in both cases. The change of stroke order may be, however, due to convenience of writing after the letter was rotated. The letter has also similarities to some forms of Pahlavi *m*, see [4].

d The inverted breve diacritic that distinguishes this letter from V \check{s} is similar to the decoration that is used to discriminate Pahlavi *d* from *g* and *y* that are otherwise indistinguishable [9, Table II, p. xiii].

r Is very similar in shape with V *w*. We use as a criterion whether the lower end is parallel to the baseline (*w*) or whether it meets there diagonally (*r*). A kink is also evidence for the letter being a V *r*. In many cases both *r* and *w* need to be considered.

cc Denotes more often an \bar{i} than an *s*, see Table 2.

\check{s} This letter is most clearly related to its Pahlavi original. It should nevertheless be noted that the Pahlavi letters (Psalter Pahlavi) shown in Table 1 are more than 500 years older than the Voynich text, such that the similarity may be simply a coincidence.

c This character is seen to reduce the ambiguity of abjad writing system by indicating the presence of a vowel, whereas pure abjad scripts write only consonants. V *c* is also used to represent a the *ayin* (c) or the Mandaic *ušenna* symbol.

K See Fig. 2a,b).

g This letter occurs only in final position. See also Section 2.3, 2.

M This letter has two forms, see the discussion on letter V *m* below Table 2.

δ Represents the *n* sound. The symbol is chosen because of the similarity to the V letter shape. It is interesting that the Mandaic letter has a similar shape as the (inverted) Eastern Arabic number $\mathbf{\Lambda}$ (δ), while Voynich δ is similar to the modern shape of the this figure.

w Neither Pahlavi nor Mandaic has a clear counterpart for this letter which is serves mainly the consonantic use of the letter *waw*.

a The Voynich shape is also similar to the shape of the final form of the modern Persian letter *he*.

y As in the VM, in Persian (but also in Aramaic) many words or grammatical appendages have an ending in *y*.











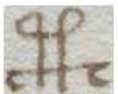







#	Voynich	Components	Transliteration
<i>aið</i>			<i>hā, ha, ah, a'</i>
<i>aið</i>			<i>hā', ha', a''</i>
<i>šB</i>			<i>šB, sB</i>
<i>šP</i>			<i>šP, šP, [šB]</i>
<i>šK</i>			<i>šK</i>
<i>šM</i>			<i>šM</i>
<i>m</i>		 (Pahlavi)	<i>m</i>
<i>cc</i>			<i>ī</i>
<i>co</i>			<i>ā, ah, a</i>

Table 2: Main ligatures and letter combinations from the VM. The first column refers to the uses the same V code as the first column in Table 1. The V ligatures are copied from f37r, the components in the second column are from Table 1. Strokes belonging to neighbouring characters were removed.

2.2 Comments on Table 2.

There is a similarity between the V ligatures and Avestan ligatures [1] which usually occur only for combinations *h* and *a* and of *š* with a following letter. In Avestan, however, *š* joins with *a*, *ce*, and *te*, while V *š* combines with other letters. It will be further interesting to compare the V ligatures with inscription of the much older Pahlavi coins [4, p. 89].

aið As in Persian, the combination like *ha* and *ah* are often interchangeable, such that it would be futile to aim at more specificity on the sequence of implied letters. There is, however, a correspondence between the stroke (including the final *ð*) and the number of elements from $\{a, h, \varsigma\}$ with *ā* having two counts. There are also examples with a total of four strokes. Interestingly, the final up-stroke (*ð*) does not seem to have a literal meaning, which is in contrast to medieval Latin script where such sweeps can

represent an abbreviation. A similar combination occurs also with a final V *r* instead of the ∂ , which then reads $\bar{a}r$ etc.

and This ligature often represent the Persian plural ending.


šB, šP, šK, šM: Ligatures involving the letter V *š* (“table”) represent the succession of two consonants often in the beginning of a word, which does not exclude the occurrence of a short vowel between the two letters.

m One of the unsolved question (see below) is the occurrence of two different letter, V *M* (see Table 1) and V *m* for the *m* sound. While V *m* is quite clearly a rotated version of the Pahlavi character *mem*, the letter V *M* may have developed from Mandaic *m*. It is interesting that V *m* occurs only at initial position and is always joined to an *o* shape. Also *M* stands often in the beginning of a word, but (see e.g. the ligature *šM*) not exclusively. A hypothesis is the this ligature (similar to Pahlavi *vav-mem* that is affixed to ordinal numbers) denotes numbers, this is, however not the case on the cannabis page f16v. Another hypothesis relates V *M* to P *m* and V *m* to P \bar{m} .

cc The ligature \underline{cc} appears to be indistinguishable from the letter *cc* that is used for P *s*. Combinations of V *cc* and V \underline{cc} with V *c* can lead to an accumulation of several *c* shapes which introduce a high level of ambiguity.

co This may not actually be a ligature, but merely a script-style concatenation of V *c* and V *o*. Instead of being restricted to the implied transliteration to P $\bar{c}a$ (or the unlikely combination of a P short vowel and P \bar{a} without an \bar{c} in between), it appears to denote similar combinations of P *h*, P *a* and P \bar{c} as the first ligature in Table 2, but within the word rather than at the end of it.



Figure 2: (a, b) Two versions of letter V *K* that appear to be represented in a contrastive setting on top of each other on page f66r. (c, d) In addition to Tables 1 and 2, a number of other letters occur in the VM (see e.g. f57v for more examples). The example c) corresponds possibly to P *j*, and the letter d) may be a P *z* (similar to Karoshti , *zain*, again rotated). Neither of the last two letters is present on f16r.

2.3 Examples

Before we present a translation of a full page, we will consider briefly a few examples from other parts of the VM that provide additional evidence for the VM being written in Persian. The examples will also give some preliminary insight into the nature of the content of the VM.

1. We have translated also the first page of the VM after the first version was finished. It is presented in Appendix A, which comprises the second half of this paper. See also Fig. 3 for the first two words *humble grass* of the VM.

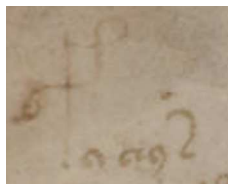


Figure 3: The first two words of the VM. For details see Sect. 2.3, 1.

- Page f65r contains only three words and a plant picture that has been identified as *Lady's Mantle* (*Alchemilla*), but the describing text points rather to a flowering eggplant. The Voynich characters (see Fig. 4) are *oMarg Nag atag*, for which we find quite unambiguously in Ref. [13]: *amhaq* (*of a dead white (like chalk)*), *nahq* (*parsley chiefly from fenny grounds*), and *hadaq* (*the brinjal or egg-plant*). It is not clear why *parsley* is mentioned here, perhaps the unusually lobed leaves hint at a species of egg-plant that is named in association with parsley. Since the three words all end in V *g* or P *q* they provide evidence for the reading of this rather infrequent letter in the VM.

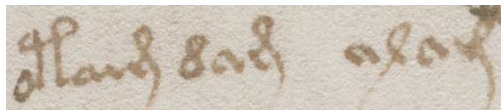


Figure 4: The text of VM f65r. The generous down-strokes (cut off in the figure) may indicate that not more text was planned here. For details see Section 2.3, 2.

- The famous Rosetta page (Ros) of the VM has been interpreted in various ways. Just as a hint that a spiritual landscape rather than a geographical one is displayed, we translate the three pairs of words in the center of the middle circle on the right: (1) *oKairy oBataið*, (2) *oBššy Bary*, (3) *orand šy*, see Fig. 5. Ignoring the leading V *o* at the beginning of each of the pairs, we can transcribe this into (1) *qary* (*pursuing*) or *kahr* (*advancing*) or *qahrī* (*vindicating*) and *abad* (*eternity*), (2) *bašn* (*body*) and *bariç* (*innocent*) or *bār* (*burden*), and (3) *rahā* (*liberation*) or (incl. leading *o*) *orāh* (*mind*) and *shaiç* (*wishing*). Inside the left upper panel on this page, we find only one word: *oBššarar*, which contains again *bašn* (*body*) and *alal* (*becoming decayed*). Even the T-O map in the upper right corner shows (again disregarding leading V *o* as “bullet points”) *bāl* (*heart, mind, soul*), *pāçī* (*humility*) and *rad* (*intelligent*) rather than any reference to the known continents. Thus, even with some uncertainty of the translation, these statements cannot be seen as geographical information, but are clearly religious desiderata which may appear here as cornerstones of a theological or moral system represented on the fold-out page. To what extent this can be characterised as gnostic, remains to be discussed. Another fascinating speculation could arise, if it turns out the the VM is of Manichaean origin, namely, that the pictures are late copies from the lost *Arzang* (picture book) of Mani.

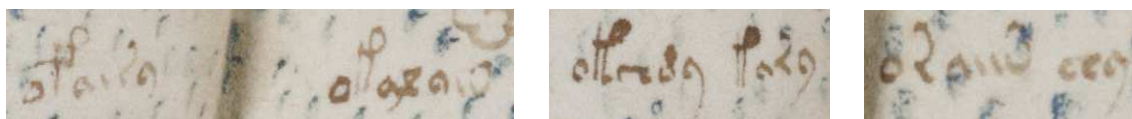


Figure 5: Text from the center of the middle disk on the right of the Rosetta page (Ros). The first two words appear bottom-to-top on left and the other two groups in one line on the right. See Sect. 2.3, 3 for details.

- f67r1 shows a star-shaped center with twelve tips and 24 small areas surrounding the star. Twelve of these areas show each one or two stars, the other twelve are interleaved and represent a set of words. By translation to Persian, they can be identifies as a list of twelve virtues, being described by the following adjectives: intelligent, splendid, simple minded, auspicious, blameless, modest, unbribable, prepared, inspiring, without wrath, good, penitent. The list has only partial overlap with the Aristotelian twelve virtues. The remaining text on this page seems similar in style to the example considered in Sect. 3.
- f85r2 contains a prayer, see Fig. 6, that can be translated as follows

o bīr shir manār
shanī
mānī dashn
mīnā ār war āhār
t mair
ār ār āk

O brother Sun, candelabrum,
salver of gold.
Thou art an auspicious gift.
Heaven, bring Thou our food.
Thou providest sustentation.
Bring Thou, bring Thou wheat.

6. For a discussion of the “colophon” on final page of the VM, see Ref. [7] Appendix C.

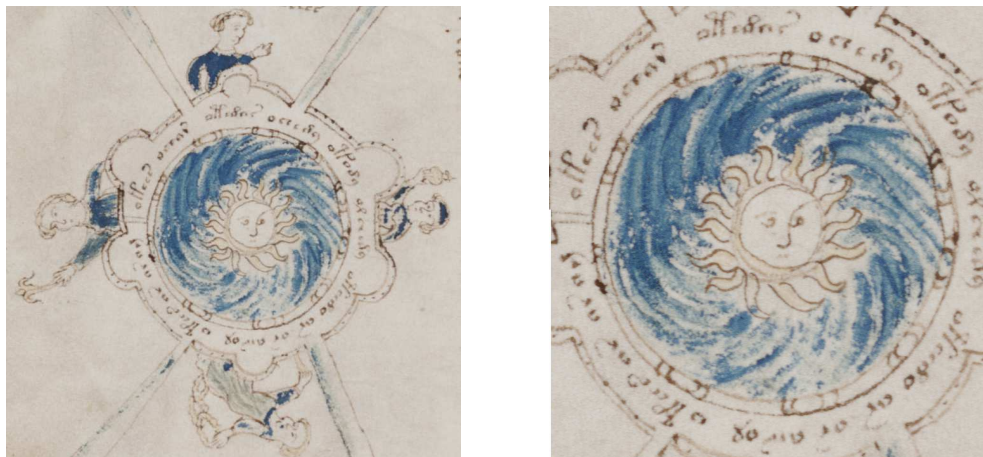


Figure 6: Center image of f85r2 in two levels of magnification. The image of the sun in the center is circumscribed by the text that is translated in Section 2.3, 5. The surrounding figures carry (east) a flask, (south) a chain, (west) a flower (?), and (north) a ring.

3 The Cannabis page (f16r)

The picture (Fig. 1) shows one of the few plants in the VM that can be identified unambiguously, see e.g. [12]. The expectation, however, that the text provides any information about its properties or uses, is soon betrayed by the “rant” the is accompanying the picture. The content of the text can be seen as reminiscent to Manichaeic or gnostic texts, but it is not the place here to attempt at a literary analysis.

Henning [6, p. 34] has argued that not *bang* or *mang* is the correct word for *hemp* in Pahlavi, but instead *šāhdānak* (*dānak* is translated as *(a small) grain* [8, 9, 13]). This view has been challenged, see e.g. [5]. We note that *bang* or *mang* are not mentioned in the VM Cannabis text², while *šahn* (*šan*) is used for *hemp* as also in the dictionaries [8, 9, 13], although it is not clear whether it is related to Pahlavi *šāh*.

We will first present a continuous translation of the text of f16r, see Fig. 1. The second subsection gives a word-by-word translation including alternatives for many of the words which are added in order to emphasise that the translation is by no means unique. Unless the text is translated using a correct methodology, it will certainly be possible not only to obtain a text of a different flavour³, but in many cases also a different partition into sentences or an essentially different content.

3.1 A putative translation

3.1.1 First paragraph (f16r)

Cannabis [is] vain. Stay away from the impudent crowing man. The pipe is a debasement. Jaundice [is] the overly happy face of the adherent. [He is] puffed up with pride. Security does not come [to him]. In the evening peace of mind does not come [to him, as] the serpent of nightly lust spoils him. [What is] concealed, will become public.

²The Pahlavi word *bang* translates as *henbane* [9]. It is the first word of f31r which shows *fleabane* according to Ref. [12].

³We should not expect a medieval text to comply with our current attitudes towards light drugs.

3.1.2 Second paragraph (f16r)

The debasement will be pointed to. Understanding does not help. Speaking obscenely even if astute is “gibberish”. The addicts make false promises. The meanness increases. Refrain from inquiring into the “gibberish” lies. [He] greedily eats like a pig. A receptacle boasting of being filled. Those without knowledge, get ready! Stay away from stupefied sadness!

3.1.3 Third paragraph (f16r)

The hempen rope is long. Speaking obscenely, he uncovers lamentable delusions of grandeur. Eternally [in the] fire you are! The herb is bringing ill luck. Smiling-faced [they are] desiring the deceit. Give him the pipe [he is] joyful and [has] a cheerful face, [but is] good for nothing, given up to destruction, being sick, [and] resembling grave diggers. His byname is pipe-bastard.

3.2 Details of the translation

The following tables present, paragraph by paragraph, all words from f16r together with their Persian and English counterparts. The Persian vocabulary can be inferred in most cases by looking up the Voynich letters in tables 1 and 2. While glottal stops, germination and vowel lengths (see notes below tables) are not precisely represented in the V script, the orthographic accuracy is quite impressive. Deviations from classical Persian orthography obey a regular pattern: Final V *t* corresponds often to P *d*. P *p* and P *f* are apparently not distinguished (see, however, notes to Table 1 and 1 in Section 3.2.1).

The English translation is mostly copied from the richer dictionary by Johnson [8] and the later dictionary by Steingass [13], both of which, in contrast to more recent dictionaries, include the vocabulary of classical Persian text such as the Shahnameh and are thus well suited for a text like the VM that is usually dated to the 15th century. Obviously, either is possible only because of the remarkable stability of the New Persian language throughout the last millennium.

The proposed translation is clearly far from being flawless. This is obvious already from number of alternatives that are added in the most ambiguous cases. For the translation of the text (last column), a choice was made based largely on context. Longer notes follow after each table. The tables are broken into single sentences if this is implied by larger inter-word spaces. The first column gives the line number ℓ within each paragraph of f16r.

The words for which no direct Persian counterpart was found are V *MyBy* and V *NyBy* which form perhaps a play of words, see the comments below.

Persian is a *pro-drop* language, i.e. pronouns may be omitted when they are inferable. We find that the author of the VM drops pronouns frequently, such that the style become very brief, almost *telegraphese*, to a level that a sentence can consist of a single word only.

3.2.1 First paragraph (f16r)

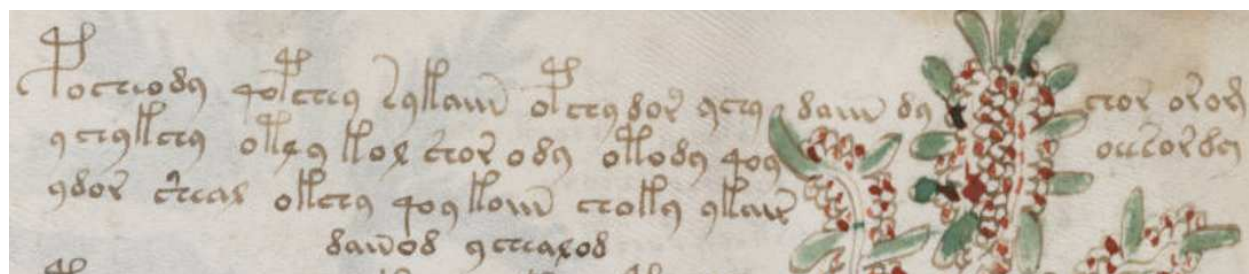


Figure 7: First paragraph of f16r.

ℓ	Voynich	Persian	English [8, 13]	notes	translation
1	P	f[ʌʃl]	section, chapter, article	(1)	—
	o		[sentence initial]		—
	šo8y	šan	amorous blandishments; hemp	(2)	Cannabis'
	moPšcy	maššūš	emptied, voided; idle, vain	only in [13]	vanity,
		mufaššl	wind-expelling	(3, 4)	
		ne + pushi	not + put on, wear	other verbs?	
	wyBauð	waib	fy upon, woe to (you, ac.)	plural	woes!
	oPšy	afšādan	to strain, squeeze, press; to speak obscenely, profanely, boorishly		The impudent
		afšār	speaking idly or obscenely	in compositions	
	8or	nar	male	connected to previous	man,
	yšy	yašš	glad, rejoicing	(5)	crowing,
	8auð	nāh	refrain from		abstain from!
	8y	nai, nay	pipe, tube, flute, fife; a reed, cane, pen; the windpipe, throat, gullet		The pipe [is]
		nai, ne	no, not, neither, nor		
	šor	šār	adulteration, debasement		a debasement
	orog	irāqat	spilling, shedding, pouring forth		
		urāq	jaundice		Jaundice
2	yšy	yašš	glad, rejoicing,		
	Bšy	bašš	of a cheerful, open countenance	connected to previous (6)	[is] the overly happy face
	oMty	ummatī	a follower of a religious creed	letter V <i>t</i> has unusual shape	of the adherent,
	Bot dor	bād-dār	windy; swollen; puffed up with pride; independent; worldly-minded; possessed of an evil spirit; destructive	(6)	[he is a] puffed-up-with-pride
	o8y	ānī	that which has an individual existence		person
	oMo8y	amānī	security; trust, charge, deposit	(7)	Security
		amām	before, prior to		
	moy	māy	any stinging or biting animal, as serpents, leeches, etc.; do not come	(8)	does not come [to him].
		ma'y	extending, stretching	(9)	
	occwor8y	ewār	evening	$\underline{cc} = \bar{i}$	In the evening
		aswārī	a mode of warfare with hatchets and maces	$\underline{cc} = s$	
3	y8or	nār	fire; hell; a mark made by burning; mind, intellect; counsel, advice		mind
		y nar	that man		
	dcat	da'at	quiet, tranquillity; easy circumstances		tranquillity
		du'at	invocations, prayers		
		da't	a driving, a thrusting		
		da'd	name of a woman celebrated for beauty		

	oBšy	abašš	smiling-faced	[8]	[to the] smiling-faced
		ābiš	Abyssinia		
		abš	collecting		
		biš	give to him		
		bašš	of a cheerful, open countenance		
		baš	a bandage; a hoop of silver, iron, or brass to fasten boxes; a padlock; a watered field		
		buš	a horse's mane; a fringe, flounce; a lock, ringlet; incomplete		
	moy	māy	any stinging or biting animal, as serpents, leeches, etc.; do not come	connected to next? (8)	does not come
		maʿy	extending, stretching		
	Bonθ	bāh	lust; sperm; sexual intercourse		[as] the lust
		bāh	soup, broth, meat, victuals; be it so	for <i>pāh</i> or <i>bād</i> , resp.	
		bāhā	a kind of food		
		ba	good, excellent; elegant; better; safe, sound; quince		
		buh	owl		
	šoBy	šabī	nightly		nightly
		šāwidan	to become; to go	2. pers. present	
	yBair	yaba	injury, mischief; spoil, damage	(10)	spoils [him].
		bahār,	spring, beginning of summer; a blossom; orange-flower; a Buddhist temple; an idol; the harem of a prince; camomile, anthemis; name of an island; a species of odoriferous herb; bupthalmus, ox-eye; anything beautiful and splendid		
		buhār	idol		
		bahr	shining, excelling (in beauty, grace, virtue); excellence, preeminence; conquest; the imposition of a burden beyond the strength; astonishment, wonder		
		buhr	shortness of breath, asthma, breathing hard from overload; a city, town, or province; the middle of a valley, a channel		
4	8aıθo8	nihān	hid, concealed, occult; prudently, secretly; the mind, soul, interior		[What is] concealed,
	yščato8	išāʿat	publishing, divulging, diffusing, spreading about or abroad	compare Mark 4:22	becomes public.
		yaštan	to pray in a low murmuring tone as the fire-worshippers do at meal-time; to beg, supplicate; to celebrate		
		šaiṭān	Satan, the devil		

Notes

1. Many of the pages and in some parts of the VM also paragraphs, start with a letter *V P*. Whether or not it actually represents the indicated Persian word for chapter etc. cannot be decided here. Because it does not represent the first letter of a meaningful Persian word in most cases, we can conclude that initial *P* indeed functions as a paragraph marker. Although this was not further checked here, the letter *V P* may actually have two variants that differ in the curl of the left-ward stroke and which would naturally represent either *P p* or *P f*.
2. Considering also the trailing *V o*, a number of other translations of the first word (e.g. related to drinking: *āshānādan*) are possible. They are not considered here based on the evidence from the image on this page.
3. This is considered as an unlikely side effect of cannabis consumption.
4. The *-ing* forms in the English vocabulary are all verbal nouns.
5. The indication of long consonants (germination) by *shadda* is generally ignored in Voynichese.
6. An *alliterative or rhyming combination* [10, p. 68].
7. Initial *V o* often represent *P a* rather than *P ā*, while within words it is usually *P ā*. In some cases, leading *V o* is a word or sentence separator, analogous to a bullet point.
8. As it does not contain a labial, the *V* word *moy* poses a problem to our explanation of the occurrence of two letters (*V m* and *V M*) for the *m* sound. The word occurs twice in this page.
9. The *ayin* (◌) is sometimes represented by *V c* or *V ɪ* but more often ignored. This custom is akin to the sloppy use of ◌ in Arabic (loan) words in Persian.
10. The last letter has the shape of an *r*, but may actually be *ɪð* due to lack of space close to the plant drawing.

3.2.2 Second paragraph (f16r)

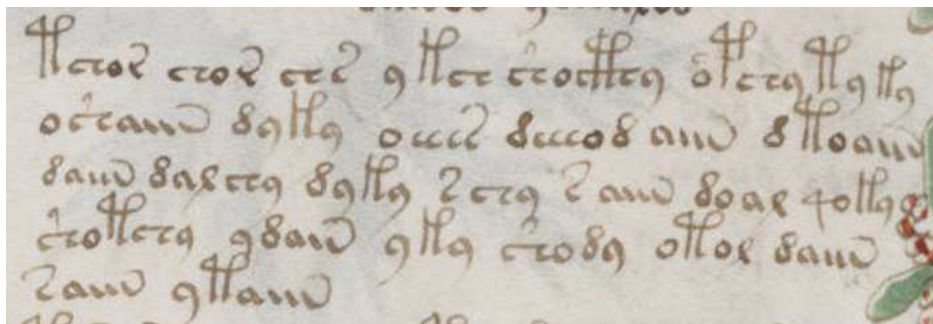


Figure 8: Second paragraph of f16r.

ℓ	Voynich	Persian	English [8, 13]	notes	translation
1	Mšor	mušār	signified, indicated		Indicated
		mašār	hive of bees		
	šor	šār	adulteration, debasement		the debasement.

	šw	šav, šū	be, exist; be thou; (in comp.) being, existing	<i>šav = šab</i>	
		šav	night		
	yBš	yābiš	comprehension, understanding, intellect, knowledge	V o absent	Understanding
		yab	pointed arrow		
		bašš	of a cheerful, open countenance		
	došMy	dušmat	worthless, good for nothing		does not help.
		duš	evil		
		do	two		
		šam	terror, flight, ... (see above)		
	oPšy	afšādan	to strain, squeeze, press; To speak obscenely, profanely, boorishly		Speaking obscenely
		paš	the mane of a horse; a fore-lock; a tuft hanging loose at the end of a turban, sash, or belt; ignoble; defective; like, resembling		
		piš	before	for <i>peš</i>	
		puš	owl		
		piši	a small, thin, copper coin		
		pašij	Circular (as a piece of money), fish-scale, etc.); abundant, ample; many; apparatus for a journey		
		pašijidan	to be armed; to prepare		
	My_By	may	wine (etc.)	(3)	“even if”
		mī	imperfect tense		
		maibid	and		
		mai-bih	a kind of medicine made of quince-juice		
		bī	without, in-, un- etc.		
2	odanθ	adhá	more or most subtle or astute		astute
	8y By	?			[is] “gibberish”.
		naib	striking on the canine-tooth; breeding a canine-tooth	(3)	
		nib	a particle sometimes added to words without altering the sense		
		niwe	writing, scripture, book	Pahlavi: <i>nibēg</i> [9]	
		ne bī	not without		
	occcw	asīr	bound; prisoner, captive, bondman	(1)	The addict
	8cc_co8	nisān	discord, opposition; a false promise, a lie; the time when a promise is broken		makes false promises.
		naisan	like, resembling		
	anθ	ha˘	greedy; covetousness, avarice, meanness, baseness; cowardice, timidity; take! give! grant!		[His] meanness
		hā	(the 3rd pers. sing, of the affixed pronoun) her, to, of, from, or by her; (referring to broken plurals) theirs, etc.; (interjection) lo! behold! take!		

	8Moanθ	namā ^c	growing, increasing; rising (water); rising (as the price of provisions); interests (of a capital)		increases.
		namā, numā	showing, pointing out; an index		
		na-mānad	may he (she, it) not remain, i.e. may he perish!	<i>na-manad</i> is also used	
3	8auθ	nāh	refrain from		Refrain from
	8atšy	nadš, nadaš	inquiring into, investigating; dividing, separating, carding (cotton)		inquiring into
	8yBy	?		(3)	“gibberish”
		naib	striking on the canine-tooth; breeding a canine-tooth		
		nib	a particle sometimes added to words without altering the sense		
		ne + bī	not without		
	wšy	wašy	painting, printing, staining, dyeing (cloth or stuff); lying, colouring a story with falsehoods; reporting to the king, informing against; the colour or painting of a garment; embroidery		lying.
	r	r	if	connected to next?	If
		ra ^{cc}	tranquillity, quiet, rest		
		rah	see thou, the mercy of God be upon him		
		rahh	wide and shallow (dish)		
		raha	liberation, escape; liberated		
		rahā ^c	wide; a large district		
		rihas	drawing near, approaching; consenting		
	auθ	ha ^c	greedy; covetousness, avarice, meanness, baseness; cowardice, timidity; take! give! grant!		[he is] greedy
		hā	(the 3rd pers. sing. of the affixed pronoun) her, to, of, from, or by her; (referring to broken plurals) theirs, etc.; (interjection) lo! behold! take! (particle of swearing) by		
	8oat	nā ^c it	one who eats ungracefully, who swallows one half of a mouthful, and lets the other drop on his plate, or throws it away; one who travels to a great distance		[he] eats like a pig.
	4oBy	nabīy, nabī	prophet	Pahlavi: <i>nabī</i>	
		nubīy, nubī	high grounds		
		nāb	pure, clear, limpid, genuine, unadulterated		
		ma’abī	pestiferous		

		ma'āb	returning; a place of return; a receptacle, repository, a place where anything centres, or in which it is contained		A receptable
4	doMšy	damiš	breathing, blowing; assault; boast; eruption, efflorescence; the marrow of a tree; the middle of anything		boasting of
		dām do	snare, trap, gin, or net; vanities and deceptions of the world, worldly illusions (metaphorical)		
		dāmi ^c	Shedding tears, tearful		
		dāmi ^c at	(wound or fracture in the skull) letting blood flow		
	y8aiθ	nah	being filled, replenished; being half-raw, ill-dressed (meat)	y?	being filled.
		īnah	In, this →īnha, those		
	yBy	y + bī	who without		Those without
		yab	pointed arrow		[or: the arrow of]
	do8y	dān	grain; (an affix denoting) what holds or contains anything; (imp. of dānistan) know thou; (in comp.) knowing, intelligent		knowledge
		dānī	approaching; near, within reach; low, rile		
	oMot	āmadan	to prepare, make ready, equip, expedite, despatch; to be prepared; to fill		prepare.
	8aiθ	nāh	refrain from		Refrain from
5	waiθ	wahh	grief, sadness	[8]	sadness
		wah	Strange! would to God! alas! have a care!	(2)	
		wāh, wah-an	(an interjection of admiration) O! wonderful! excellent! (also an interjection of pain) oh! alas!		
		wā-hā	meats, dishes		
	yMaiθ	āmāhidan	to swell, to be stupefied		stupefied.
		mahā			
		māh	moon, fish etc.		

1. The third V *c* is not connected, while the previous two are. An exact match would imply the V expression oc-c. In the present spelling the second vowel would be short.
2. While the VM is generally very clearly written, it is sometimes difficult to distinguish the letters V *r* and V *w*, i.e. alternatives such as *raviθ* or *raviθ* (see also line 3 in this paragraph) cannot immediately be ruled out.
3. For V *MyBy* no simple translation could be found. We assume that it forms together with V *8yBy* a wordplay which may be analogous to *pribble-prabble*, *claptrap* or *flubdub* in English. The part *8yBy* occurs in the next line in isolation, so we can assume that the second component contains the lexical unit (as in English *chitchat*). That *nibi* means *dialect* in Hebrew may be a mere coincidence. The translation by *even if* and *gibberish* is merely a (partially self-describing) placeholder.
4. It is not uncommon in Persian that *yam* is put for *am* after nouns ending in *a* or *o*.

3.2.3 Third paragraph (f16r)

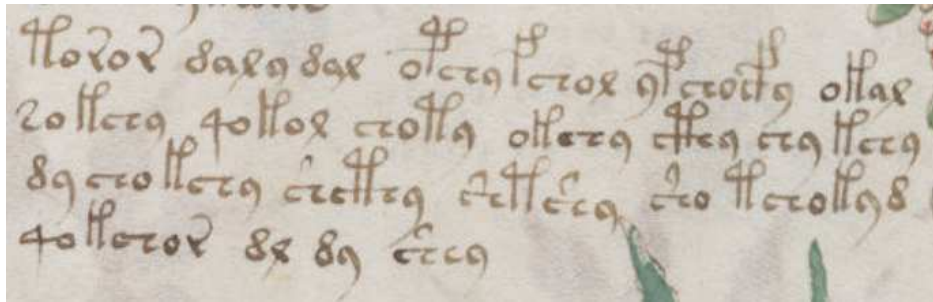


Figure 9: Third paragraph of f16r.

ℓ	Voynich	Persian	English [8, 13]	notes	translation
1	Moror	marār	a hempen rope	[13]	The hempen rope
		mirār	being drawn out; wrestling, striving to throw another on the ground; going along with, accompanying, times, turns	[8]	
	8aty 8at	natnat, natānit	tall, long		[is] long.
		nad	increase, abundance; bent; good guidance		
		nadd	fleeing, running away, scampering off; a perfume composed of musk, ambergris, and the wood of aloes; or simply of ambergris, aloeswood	in P. also <i>nad</i>	
		nidd	image, idol; like, resembling; an equal, peer, friend; an enemy, rival; scented with ambergris		
	oPšy	afšādan	to strain, squeeze, press; to speak obscenely, profanely, boorishly		Speaking obscenely,
		afšū	come	[8]	
		ifšāc	divulging, revealing, disclosing, publishing; publication		
		piši	a small, thin, copper coin.		
	Kšot	kušād	he opened, displayed, uncovered; he exhilarated; he seized; an opening, uncovering; disclosure, revelation; cheerfulness; expansion; a siege; the shooting of an arrow; a move at chess; open, wide		he uncovered
	yPšošKy	shakkī	doubtful; habitually complaining, querulous; lamentable; indisposed, slightly ailing.		lamentable delusions of grandeur.
		ibšāš	having luxuriant, entangled herbage (ground); putting forth its early grass	<i>aky</i> as a diminutive ending	

		ifsha ^c	being proud, arrogant, playing the great man [8]; divulging, revealing, disclosing, publishing; publication		
		yaf	ascending (a mountain); approaching twenty years of age (a youth)	(1)	
		yafa ^c	hill; tall, well-grown (youth).		
		šašak	a four-stringed instrument; name of a note in music; a bird resembling a partridge, but smaller; an animal resembling an ape		
	oBat	abad	eternity without end (opposed to azal, eternity without beginning), perpetuity; of one year's age or growth	puts forward in a year,	Eternal[ly]
		ābad	perpetuity; a wild untractable disposition; angry, affrighted, scared; the eye		
		ibat	being contracted; blushing; disgrace, shame, ignominy		
2	wo	wā	fire; distant; with; again (as prefix), woe!	unconnected to next	[in the] fire
	Bšy	bāši	you are (bāšīdan)		you are!
		baši ^c	stinking-breathed		
	4oBot	nabāt	plant, herb, vegetable; vegetation; fine sugar, white, candied, refined		The herb
	šoMy	ša ^c m	being unlucky; bringing ill luck; black moles or marks		brings ill luck.
		šamm	smelling		
	oBšy	abašš	smiling-faced	compare <i>bašš</i> above	Smiling-faced
		ābiš	Abyssinia		
		abš	collecting		
	šMy	šam	terror, flight; the tail; deceit, fraud, trick; distance; imp. of šamldan; (in comp.) terrified, astonished, fearing; disturbed, distracted		the deceit
	šy	šay ^c	wishing, willing, desiring	(2)	[he is] desiring.
	Bšy	biš	give to him	for <i>bi-dihaš</i>	Give to him
		bašš	of a cheerful, open countenance		
3	8y	nai, nay	pipe		the pipe [he is]
		nay, ne	no, not		
	šo	šā	joyful, glad; a fruit-tree	for šad [13]	joyful and
	Bšy	bašš	of a cheerful, open countenance		[has] a cheerful face,
		biš	give to him	for <i>bi-dihaš</i>	
	dšMy	dušmat	worthless, good for nothing		[but is] good for nothing.
		dišum	afternoon, evening prayer		
		duš	evil, bad, ugly		
	dMdy	damdamat	given up to destruction		[He is] given up to destruction.
	do	dā ^c	being sick; disease, sickness		[He is] is sick,

		do	two		
	MšoByn	mušābih	resembling		[and] resembles
4	4oBšor	nabšar	grave-digger		a grave digger.
	8t	naˁt	epithet, description; an adjective noun; praise, eulogium, encomium	see <i>nad</i> above	[His] byname [is]
	8y	nai, nay	pipe		the pipe
		nayˁ	ill-dressed, half-raw	(3)	[or: a half-baked]
		nay, ne	no, not, neither, nor		
	dcy	daˁiy	a spurious child, bastard; an adopted son; one about whose pedigree suspicion entertained	[8]	bastard.

1. In the VM text, a part of the *š* is missing in the *šK* ligature. This may be intentional as this construction occurs, although rarely, also in other pages of the VM.
2. There is no larger inter-word space here which may be due to the lack of space near the drawing.
3. The identical spelling of *8y* should imply the translation *pipe* as above. The possibly less likely translation was chosen here because the author may have attempted to use a more dramatic wording in finishing the “rant”.

4 Discussion

The present approach does answer a few questions that have been mentioned before in the literature.

- The VM can be read as a natural language. This high level of orthographic coincidence with Persian words provides substantial evidence for this hypothesis.
- Persian is a pro-drop language, i.e. sentence constructions are possible that are very short. The mannerism of the author may have contributed, however, to the fact that as a text the VM is still hard to read.
- The frequent occurrence of *y* endings in the VM is also common in Persian.
- The frequent occurrence of the final group $\bar{w}d$ can be explained by reference to the Persian plural ending. Obviously, this ending occurs also in other cases.

Remaining questions within the current approach include

- Why are there two letters (denoted here as *V m* and *V M*) representing for the *m* phoneme? Although *V m* tends to occur often in front of labials (*b*, *p*), this is not exclusively so, as seen already by two examples on f16r. Therefore the hypothesis that *V m* represents the P letter *n* if it is pronounced as *m* in front of labials (sometimes denoted by \bar{m} in Persian), is insufficient. It may be possible to study parallels to Avestan and various Indian languages, where more than one *m* sound exists, in order to disambiguate the two versions *m* and *M*.
- Why do certain letters occur in certain places only? E.g. letter *V g* occurs only in final position, while the “capitals” are frequently in front of a word. The inhomogeneity of letter position probabilities this may be a feature of the New Persian language and related to the use of initial, medial and final letter forms in (Arabic) Persian script. This may imply that additional transcription variants will turn up. E.g. a P *g* or P *gh* in a non-final position may be represented by a *V K*. An *M* in final position will probably appear as an *n*, i.e. *V š*, as it is also possible in standard Persian.

- Why the style of manuscript telegraphese? Where is more precisely the origin of the writer, what is her or his cultural or religious background?
- Why does the VM include illustration if it does not provide pharmaceutical, biological or medical information? The quality of the illustration is admittedly no match to the state-of-the-art science at the end of the byzantine era, so a scientific purpose is apriorily unlikely, but a Herbal in a folk-medicine context may be fine with pictures of this quality. It is of course possible that other pages provide more detail related to herbal medicine, while the authors dissented to disclose information on the positive effects of cannabis.

These questions are not meant to foreclose other important questions that have been asked by other VM researcher and which may turn out to be more relevant towards a actual translation of the manuscript. The main question to be asked is, why a plain Persian text should have escaped the attention of many researchers. We should return to this question when there is more evidence for the present approach.

As already initially stated, we did not attempt at an philologically acceptable translation of the even just a single page, but to provide evidence for a hypothesis that may be sufficient to stimulate more interest within the Iranian studies. At least we can say, that the proposed approach has the advantage over other solution attempts that it is easily falsifiable as anyone in command of classical Persian language will be able to judge whether (apart from a most likely substantial number of minor errors) the presented hypothesis is invalid. If this is not so, then we can be confident that a complete and critical translation of the VM will be soon available. Otherwise, the adventure will continue.

A Addendum: The first page of the VM (f1r)

A.1 Introduction

The quality of the translation achieved for the first page is not better than that of the Cannabis page. First, the first page a bit more difficult to read than at other pages, because the text has suffered some damage due to abrasions, soiling and later notes, e.g. it is not clear whether some part or how much of the text on the right hand side is missing. For example, in the fifth line of the last paragraph, a trace of a letter V *y* can be seen, and from the available copy it cannot be excluded that it is part of the text (rather than a later addition). There are also a number of irregular strokes by the scribe, which make the reading of some words difficult. For more details, see the tables below.

On the right hand side there are some obviously later writings, apparently in order to set up a code table. This decoding attempt does not seem to have been successful, but in the line above the Latin *o* is the Voynich letter δ (*n*) visible in line with the present transcription, confusingly V δ is appears also next to the Latin *a* in the first line of the list. For a short discussion of the “Chinese” character on this page, see Ref. [7].

A first glance at the page reveals a few words that occur twice or more often, e.g. V δ an ∂ , which we have identified as the formula of restraint already on the Cannabis page. Identical or similar words that are directly following each other may serve an intensification of expression.

In the last line of f1r, we see a series of words starting all with the letter V δ , i.e. an alliteration that it an effect that is generally used in Indo-European languages, although we will see that the effect may have been strained after towards the end of that phrase.

The last words of each paragraph are moved to the right as to fill the line. This feature occurs only here and on page f8r, although in many case sorter last lines are centred or moved due to the intervening pictures.

As an example, consider the first two words of this page (f1r), i.e. the phrase *Ka šyw*, see Fig. 3. The first word can be read as P *ka* (*like, as*) or *kah* (*grass*). The second word is clearly *shev*, but it has several meanings such as *declivity, foundation, humble, valley, rice-soup, bow* [8]. A translation as *humble grass* is interesting as it is reminiscent of the Essene *Gospel of Peace*, while the translation *as a foundation* may seem more appropriate for the beginning of the text. Other translations are possible, and this example shows the

some of the difficulties of the translation of the text. Other problems arise from ambiguous readings, e.g. if we read the V *w* as a V *r* (which is often hard to decide), the passage would translate as *like the lion*.

Among the problematic words in the page is P *šamya* which we translate as *heaven*. Although this is clearly implied by context, it should be noted that in spite of the otherwise impressive orthography of the VM text, this word should become *šMya* or *šMyaīd* when retranslated to V, but we have V *šMy* as *heaven*. It may be relevant here whether either of the words are plurals (*heavens*, compare Hebrew *shamayim*).

For many words, the tables below give alternative readings which follow in separate rows for each V keyword. The translations are separated by a slash (“/”) if the same P words have different readings and meanings. A few words have been identified as compound words, which also allows often for several alternatives.

The detailed comments for this page will be kept short here as this addendum is intended merely as additional evidence for the validity of the *Persian hypothesis* in the hope that it will reach the level of acceptability. We present evidence for the fact that the text can be translated via Persian vocabulary rather than presenting a proper translation at this stage. Any more appropriate transliterations from Voynichese or translations from Persian are very welcome, they will be serve as further evidence for this hypothesis.

Although it seems possible to produce a rough translation of the V text based on the Persian vocabulary, it is striking that there seem to be differences to proper Persian language at least in the form it is known today (or rather, in line with the used dictionaries, in the 19th century). This includes the infrequent use of compound verbs, the absence of sentences structure, and possibly letter frequencies that deviate from Persian (the latter point may be due to the Voynichese alphabet). One may be tempted to assume that the author of the VM text is not her- or himself a native speaker of Persian and presents a text based on an original in a different language. The importance of the Persian language during the time of the writing of the VM cannot be overestimated, such that it is plausible that the author could have aimed at making the text more widely available.

There are texts of similar style in the Zoroastrian literature, such as the counsels or the sayings of Adarbad Mahraspandan, although any direct parallels do not seem to occur on either of the considered pages. In addition to the quality of the language, this can neither be counted as clear evidence for a Zoroastrian background of the VM (as claimed in [7]), because *wisdom literature* of similar style exists also in other religions.

The text does not seem to be an introduction to a larger opus, which is not a problem as there is no indication anyway that the page f1r is indeed the first page of the original manuscript. It may not even be the first one among the conserved pages.

With just two translated pages, we cannot be sure whether the author of the VM does not eventually add remarks that are more specific to the botanical, pharmaceutical medical or cosmological pictures, but it is also possible that the intention was to add a higher, spiritual or moral meaning to what otherwise is just “despicable” plain nature.

We have use here mostly Johnson’s dictionary [8], which is a bit older, but more comprehensive than than that of Steingass [13]. Also, being older is an advantage here: During the Safavid period it has been attempted with some success to revert the Persian (literary) language to the classical style. In the 19th and 20th centuries, Persian has changed much more than in the the previous centuries, such that Ref. [8] is more likely to represent the language that is interesting here. Actually, the two dictionaries coincide in many entries and provide the additional advantage that many entries are flowery worded, which were used often in our translation. In addition, some of the Pahlavi translations [9] were checked. The comprehensive Dekhoda Dictionary (1931), which, according to Wikipedia, traces the historical development of Persian, has unfortunately not been consulted.

We will first give a slightly smoothed, but still rough translation, that includes every single word of this VM page (f1r), see tables below. Line numbers are approximate, due to differences in word order between Persian and English.

A.2 A putative translation of flr

A.2.1 First paragraph (flr)

(1) *The humble grass shames you. Obediently hold the law. You cry for help for the tribunal commanded (2) for being insolent. Verily, you are frightened out of your wits by the troops in fury. Crowds and crowds of abled ones. (3) Woe, the well ordered line (of troops) is driving forward. If you see this, you will. Don't start to count and to number the men, woe! (4) Refrain form the uneducated baldhead, the storyteller, the teaching of the "light bringer". Remember the time of the fathers. (5) Heaven shield those who are weak for debasement. The man of doubt guide right.*

A.2.2 Second paragraph (flr)

(1) *O man! Life is a legitimate gift. What a man! At any time they are railing against him. (2) He is ready to lower himself and is hiding. You are to go to a heavenly place! He is wishing no debasement. Becoming proud, refrain from. (3) Circumvent approaching trouble. Do not be proficient in augury.*

A.2.3 Third paragraph (flr)

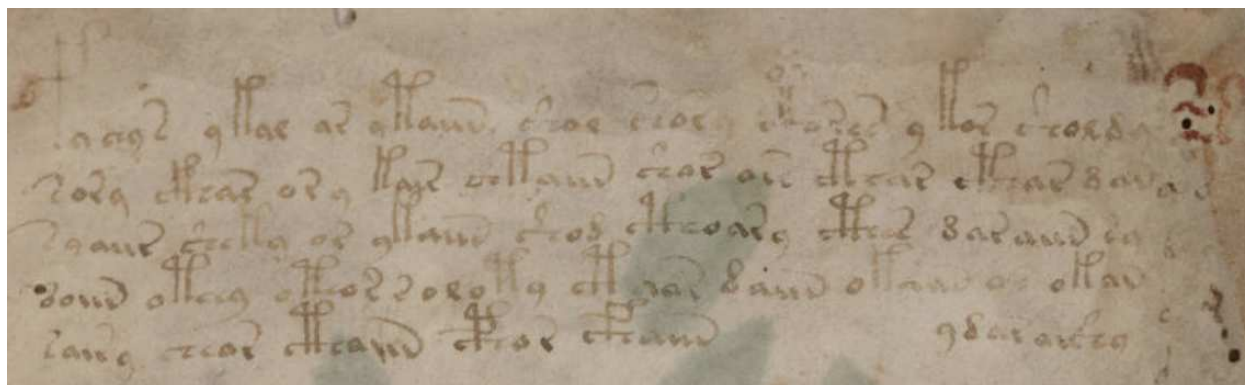
(1) *Detain appearing calamity. Blinding justice, judicial corruption, (2) woe, woe! O, the well-dressed wolf calling the attention of the learned man to anything bad, refrain from it! (3) God, emaciate the satiety of the princes. Leave false testimony and deceit. Refrain from unlawful action ... (4) perversion etc. of law. Refrain from the haters who hate you. They remember not heaven's guardian. (5) Bad company brings satiety, a debasement that makes sick. Leave the bad sheep, they intensify the burden. (6) Cheerful be your doings. Let alone the evil hating man. To the one (7) being concerned about collecting the nations: Call with a loud voice, not with a weak, gentle voice! Heaven is not heaven, (8) let alone he gave us lips with a loud voice. Men not resembling a man are like (9) scattered without a leader. Evil countries arm themselves and advance to rejoice at the distress of another who is not going with the head erect. (10) Ostentation is debasement, wishing not. Refrain from being filled with satiety.*

A.2.4 Last paragraph (flr)

(1) *When the mediator interferes he should make sure that his judgement is legally sound. Mean bastards wishing (2) weakening men. Smelling of being filled with wine is wicked when a man is accustomed to this. The weak man experiences (3) God rejecting his praying. Stay away from taverns. Refrain from oppressing and rejoicing at the distress of another. The man who rejoices the distress of another (4) shall be forced to take refuge furthest removed into the desert. Refrain from the loather. Hidden is the gate. This Governor's providence is good guidance. (5) An agreeable smell is approaching. Mayest you live for ever in heaven. Collect many many, an increasing number of (6) joyful sheep in the prime of age, smelling an agreeable smell.*

A.3 Details of the translation

A.3.1 First paragraph (flr)



ℓ	V	P	E	notes	translation
1.1	Ka	ka	as, like	[13]	
		kah	grass, straw		Grass
	šyr	šer	a lion, tiger	last = <i>r</i>	
		šev	declivity; base, foundation; below, under; humble, low; a valley; rice-soup; a bow	last = <i>w</i>	humble
	yBat	bat / but	mark, score / idol, image, God		
		yabāt	waste, desolate, uncultivated		
		ibat	being contracted; blushing; disgrace, shame, ignominy	P starts with <i>a</i>	shame
	ar	ar	if; bring thou, to be able, bringing		bring you.
		har	all, each, every		
	oMañð	amaha	enjoin		
		a'mā	is it not?; verily, truly, indeed		
		imma ^c , amma ^c	weak in mind, fickle, changeable, one who is at the beck and call of any body; obedient, yielding, compliant; who comes to table uninvited		Obediently
	dot	dād	law, justice; age; give; he gave		the law
	dory	dāri	thou hast or holdest;		hold.
		dār	tree		
	šM?rcw	šumār / šumārā	number, computations / you, to you	letter after ligature is unreadable, could be V <i>o</i> , last letter also ambiguous	You
		+ ^c av	clamour, noise; cry for help		cry for help
	y Bor	ib'ār	digging a well for anyone	space after V <i>y</i> ; V <i>r</i> or V <i>w</i> ?	
		bār	burden, tribunal [etc.]		for the tribunal

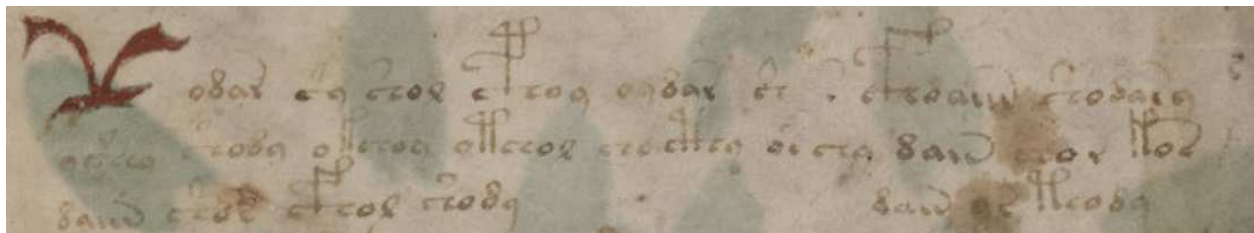
		ba'r	digging (a well, ditch, or corn-vault); hiding, concealing; laying up in a magazine, or a store of merit; doing good secretly	with P a	
		bār dādan	grant an audience	with following	
	dotny	dādan	give, command [etc.]	followed by "Chinese" character	commanded
1.2	wory	wār	a time, turn, or portion of time; a load, burden; quantity, proportion, measure; custom, mode, manner, rule, law, regulation; much; repeated, reiterated; love	the burden of	
		wārī	like, as		for
		war	an ordeal [etc.]		
	šBar	šabar	being insolent, petulant, ungrateful to the supreme being, returning no thanks for prosperity; a gift; goods, riches; an oblation : the sacrifice of the mass; an offering made by one Christian to another; solid bodies; powers, virtues; the Gospel		being insolent.
		šabr / šibr	measuring with the span / span as a unit		
	ory	ārī	yes, verywell, indeed, truly; no		Verily,
		ār	if; bring thou		
	Bar	bāhir	superior, excellent		
		ba'al	being astonished, frightened out of one's wits		[you are] frightened out of your wits
	dManūθ	da'm	troup [pl.]	first could be V š, but accent is visible and there is no ligature	[by the] troops (?)
		dam / dama	blood / wind and snow		
		šamma	nature, habit		
		šamā / šumā	a pastile; naked / ye; you		
	dar	dār / dar	tree / in		in
	air	āhr	dread, fury		fury.
		hal	perhaps		
		har	each, all, every; any		

	šMar	šumār, šumur	number, numeration, reckoning, computation; an equal number; thereabouts; ten millions; a troop, crowd, multitude; like, resembling; friendship, love; an incurable wound; (in comp.) numbering, counting, numerous		Crowds and
	šMar		[see above]	repeated	crowds
	ṣaḍ[aʔṣ]	na	[added to words denotes fitness] [8]	last part ignored as later addition	militant.
1.3	wy		woe		Woe,
	aur	hār	a row, rank, line, string; a string of pearls; a necklace; a wreath, chaplet; a pearl; any thing well arranged; the neck; ...; astonished, stupefied; unfortunate, distressed; foolish; silent		the well ordered line [of troupes?]
	dcBy	dāʔb	driving, thrusting; copulating; playing, jesting.		driving [forward],
	or	ār	if; bring thou		if
	yBauḍ	yaba	injury, mischief; spoil, damage		
		ībā	considering, understanding, perceiving, turning the mind to	first is P a	perceiving
	doṣ	dānistān	know (imp.); knowing, intelligent (in comp.); grain; container		know.
	šMoary	šumārī	counting; a rosary; you (pl.)	see below	Counting
	šMcr	šamʔi	waxen; of, belonging to, a candle or taper; a dealer in wax; blackish green	V w or V r?	
		šumur	numbering		and number
	ṣaranḍ	nar	male [pl.]		the men,
		nara, narra	male; penis; trunk of a tree; a wave; wards of a key; a hermaphrodite; a beggar; rough, rude; filthy, sordid; ugly, abominable		
	wy	wai / wī	a part, quantity; a fold; woe! ah! alas! / boot, origin; without		woe!
1.4	ṣouḍ	nāh	abstinent, adverse, refraining from	first next to lacuna	Refrain from.
	oMccy	ummīy	not knowing how to read or write, uneducated, illiterate	mī prefix?	The uneducated
	oMcor	āmār	numeration, calculation; inquisition, investigation; minute search; dropsy		
		amʔar	one whose hair or nails are dropping off; (a place) bare of grass or other herbage; thin-plumagedl falling (hair); hairless (boot); (a hoof) whose hair is long and overhanging		baldhead,

		im ^{ar}	being destitute of travelling-provisions, poor; feeding ground quite bare; stripping of possessions; being thin (hairs or plumage); being nearly destitute of herbage	parallel to previous	
	r_o_t	rād	liberal, munificent [lavish]; bold, intelligent; eloquent; a story-teller; a wall; a granary	spaces	the storyteller,
	oMy	am	whether?, nay, rather; yea	word separation not clear; compare “oMccy” above	
		amm	intending, purposing, desiring, tending towards; taking the lead in the exercise of prayer; striking on the crown of the head, wounding in the head so as to touch the brain; teaching, giving a good example; becoming a mother		the teaching of
		āmī	handmaidens		
		mai / mi	wine / [continuation form of verbs]		
		ummiy	illiterate		
	šMaor	šama ^c	wax, a wax-candle, taper; any candle	compare <i>šMoary</i> in previous line	
		+ ar	bringing, a bringer (in comp.)		the light bringer,
		šamma	odour, perfume; nature, habit; custom, mode, rite; a little; an atom, particle, the smallest quantity (of perfume); a pinch of snuff		
		šumārī	counting; a rosary		
	8auθ	nāh	abstinent, adverse, refraining from	V a is not well written, could be V o	refrain from.
	oBa ^u θ	abh, abah	recollecting, remembering, recalling to mind a thing forgotten		
		ābā [’]	fathers, ancestors		Fathers
	o8	ān, an	that	V 8 is unambiguous	
		ān / an	time; a short time; an hour; moment, instant, second / a mother		time
	oBa ^θ	iba [’]	refusing to eat, though not satiated		
		abā [’]	being infected with the plague [etc.]		
		abh, abah	recollecting, remembering, recalling to mind a thing forgotten		remember.
1.5	wary	wih ^r + y	change		

		wahl / wahal / wahil + y	applying one's mind to anything, though wishing to do another; conjecturing, supposing; afraid, timid, frightened / being weak, timid, terrified; committing an error, making a slip; forgetting, blundering; fear, terror; mistake; forgetfulness / languid; weak, timid, frightened; trembling		Being weak for
		wa'ir	rugged, rough, uneven		
	šcar	šahr	land, country, city; learned		
		šār	adulteration, debasement		debasement
		šāhir	one holding a drawn sword; renowned		
		šī'ār	sign, mark; habit, custom; death; sleeping together in one undergarment		
	šMaṇḍ	šam + hā	terror, flight, flee! + her, from, by her	or pl.	
		šamyā	heaven		heaven
	šPar	spar	shield; tread, trample		shield.
		šapar, šappar	good, excellent		
	šKaṇḍ	šakā', šakāt,	complaining; complaint		
		šaqa', šaqa	being miserable, unhappy; misery, straits; insolence; miserable, unfortunate;		
		šak(k) + hā	doubts; adhering to		Doubt
	yṣar	y + nar	male	separated by wide break	man
		yanhūr	uncertain	no <i>ū</i> here	
	ady	hady	guiding right		guide right.

A.3.2 Second paragraph (f1r)

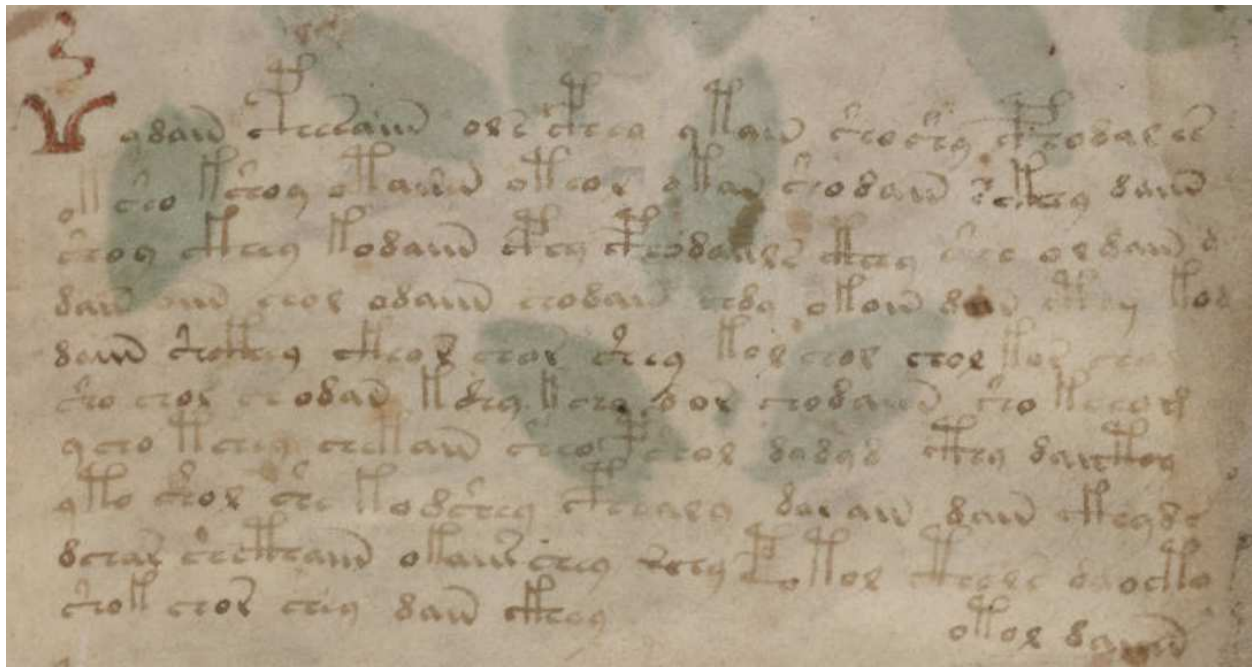


<i>l</i>	V	P	E	notes	
2.1	oṣar	o + nāl/ nar/nār	groan, complain, lament (imp)/male, manly/evil// fire; hell; a mark made by burning; mind, intellect; counsel, advice;	paragraph starts with a “Chinese” character [7]	O man,
	dy	dī	yester		
		zay	life, sustenance	V <i>d</i> has an unusual shape	life (?)

	dot	dād	law; age; tooth; alms, charity; he gave; a gift		[is] a gift
	šPoy	šafā	anything lawful; lawful, legitimate		legitimate.
	oy8ar	āy nar	what (a) man?; aww, man!	second letter is not clear	What a man!
	d??r	dar	in	one or two letters missing due to abrasion	
		dār	house, wood, fire,		
		dāhir	ever, at any time, never		At any time
		dahr	the end, fortune, extremities	other readings possible	
	šKoanθ	šukoha	beauty, gracefulness, ornament, elegance		
		šikāh	railing against		[they are] railing against [him].
	do8ary	dān + ory	Knowledge + bringer	2. p. pl.?	
		daun	being low, vile, contemptible, or weak		
		dun	base, mean, despicable; below, under, short of, inferior to; near; above; behind; after		
2.2	ydcy	yadiy	possessing; possessive, possessory; ready, manual, handy, nimble-handed; large [etc.]		[He is] ready [to]
	do8y	dānī	approaching, near, within reach		
		dāni ^c	covetous; voracious, hungry; lowering one's self; without judgment, silly, stupid		lower himself
		dān	know you!		
	oB8oy	abištan	to hide, conceal, to cover		[and] hiding.
	oM8ot	imšā'	ordering one to walk or go		You are to go
	šo8My	šašum	sixth		
		šā	joyful, glad; a place		
		šamyā	heaven	final P h?	[to] a heavenly place.
	ow	aw / u	whether, or, unless, except / he	aww: Alas!	He [is]
		aww	alas!		
		āv	water	V r unlikely here	
	šy	šay	wishing; something, nothing	space before š?	wishing
	8aiθ	na	no, not		no
	šor	šur / šār / šaur / šōr	shoe / city, adulteration, debasement / publishing, divulging; exhibiting /salt; mixed, confounded; full, satisfied	a small space before V r	debasement.

	Bor	bār	burden	V r or V w	
		ba'r	digging (a well, ditch, or corn-vault); hiding, concealing; laying up in a magazine, or a store of merit; doing good secretly	with P a	
		ba'w	becoming proud, vain-glorious; boasting, bragging; raising, exalting one's self	with P a	Becoming proud,
2.3	ṣaṇḍ	nāh	abstinent, adverse, refraining from		refrain from.
	dow	da'w	lurking, circumventing	with P a	Circumvent
		dāv	wheel; expense; abuse [etc.]	two last letters partially lost	
		dunūc	being impatient	if second letter is V n	
	šKot	šakāt	complaining; complaint		
		šuqqat	inconvenience, trouble	without P a	trouble
	doṣy	dānīdan	to know	know thou (imp.)	
		dānī	approaching, near, within reach [etc.]		approaching.
	ṣaṇḍ	nay	no, not	large space before this word	Not
	or	ar	if; bring thou, to be able, bringing	V o or V a?	be proficient [in]
	Mcoṣy	ma'anī	significations, sense, sublime spiritual matters		augury.

A.3.3 Third paragraph (flr)



<i>ℓ</i>	V	P	E	notes	
3.1	y8aiθ	īnā'	detaining, delaying, deferring, retarding	starts with P <i>a</i>	Detain
	šPcwanθ	šafawiy	labial		
		šafawat	lips		
		šafw	being near setting (the sun); rising (the new moon); appearing, being conspicuous (a person's figure)	+ pl. ending	appearing
		šafawāni	two sides or extremities	without P <i>ni</i>	
	otw	atw	an inveterate distemper, calamity, death; right way, straight path; a gift		calamity.
	šPcy	šaf'	making even; interceding, advocating; increasing, adding one thing to another; aiding any one in injuring another; an even number, a pair; creatures (in pairs, male and female)		
	yMaiθ	amaha	enjoin		
		a'mā'	paternal uncles; errors; meannesses, submissions; blind; ignorant; uncultivated (deserts); tall		
		i'mā	making blind; discovering one to be blind; arriving at the hottest part of the day	starts with P <i>a</i>	Blinding
	dody	dād	he gave; gift; justice, equity [etc.]		justice,
	šPo8atcr	šafāh	lips	comp.	
		šufa'a	intercessors		
		šafā	any thing lawful; lawful, legitimate		judicial
		+ natr / natar	drawing (a bow) with vigour; snatching, pulling roughly, carrying off; tearing (cloth with nails or teeth); pressing the glans penis after pissing; piercing, stabbing with vehemence; harsh or passionate speech; importunity, teasing; severity, rigour, violence, force; weakness, debility, languor, indolence in labour / corruption, perdition, loss, ruin	same spelling, so V <i>c</i> may indicate the latter	corruption
3.2	oBdo	badā	o wicked one! woe upon!	or: "oMdo" or "– cco"	Woe,
	Bdoy	badā	o wicked one! woe upon!	Compare: P <i>bad-bad</i> (<i>very badly; with great difficulty</i>)	woe!
		badā'	coming in the mind, appearing; beginning		
		badā'i'	new, strange things; rarities; marvels;		
	oMariθ	muharra', muharra	well-dressed or boiled		O, the well-dressed
		amhār	foals, colts; marrying a woman to someone		
	oMcot	māhid	who spreads out; name of God		

		am'at	a wolf, mother, maiden		wolf
		māt	he died, he is dead; conquered, subjected, reduced to the last extremity (especially at chess), check-mated; astonished, amazed, perplexed		
		mād' / mād	tender, young / mother		
	oBaθ	ba / bi / bih / buh	to; for; in; on; with; by / according to / good, excellent; elegant; better; safe, sound; a quince/ buh, an owl		
		abh, abah	calling one's attention; suspecting; attending to, recollecting, remembering; recalling to mind a thing forgotten		calling the attention
	do8auθ	dānā	learned; a learned man; a name of god	possibly <i>do8auθ</i>	[of] a learned man
		dānā'ī	learning, knowledge, wisdom		
	wšBšy	wašb / wišb	any thing bad / a crowd	looks more like <i>wšcBy</i> ; V <i>w</i> or V <i>r</i> ?	[to] anything bad,
	8auθ	nāh	abstinent, adverse, refraining from		refrain from it!
3.3	šoy	šāy	God; to become, suit, agree; to be worthy; to be useful and necessary		God,
	šBcy	šab'	satiety, fullness		the satiety of
	Bo8auθ	bān	a prince, lord, chief, or governor; an arrow; an iron rocket used in war; a roof; (for a cry; affixed to a noun, it signifies a keeper or a guardian		the princes
		bāna	he excelled		
	šPy	šafiy	labial	odd horizontal stroke before V <i>y</i>	
		šufiy, šify	small remains of life; extremities, edge, sides, borders		
		šaf	night; alum		
		šaff / šiff	emaciating, making lean (grief or care); the latter end of a day /gaining; increasing; diminishing; gain, profit, advantage; overplus, redundancy; decrease, detriment; wind; transparent, thin, flimsy (cloth); moving one's self, being moved		emaciate (you).
	šPo8antr	šafa	any thing lawful; lawful, legitimate	very similar to first line!	
		nahtarat	invention of a lie against		False testimony
	šMcy	šamyā	heaven	again, V <i>c</i> is connected to the ligature	

		šam	terror, flight; the tail; deceit, fraud, trick; distance; terrified, astonished, fearing; disturbed, distracted [etc.]	see below for a different spelling	deceit
	do	dā'	leave, let alone	or <i>dco</i> ?	let alone
	ot 8aiθ	ut + na	and + no, not, neither		
		ād	strength, power, vigour; victory		
		add	an unlawful action [etc.]		an unlawful action
		aṭinnā'	buzzing of flies		
	8[a]??			letters missing at end of line?	??
3.4	8aiθ	nahḥ	stimulating, urging onward	repeated?	perversion (of law)
	onθ	ah	to the end of it, etc.; ah, alas		etc.
	dot	dād	law; age; tooth; alms, charity; gave		of law (?),
	o8aiθ	nāh	abstinent, adverse, refraining from		refrain from.
	šo8aiθ	šāni'	hater		Haters
	š8y	šana	a salver of gold, silver, brass, or copper; name of a herb, of whose fibres ropes are made; the spear at the top of an ensign-staff or banner, a demi-lance, or javelin		
		šan	amorous blandishments; hemp		
		šann	pouring out gently; pouring (water into wine); sending forth (marauding parties) in all directions; an old, dried up, small leathern bottle		
		šan'	hating; becoming clear of		hate you,
		šana'	paying one (his) due; acknowledging; acquitting one's self, getting clear of; drawing forth		
	oBaiθ	abh, abah	calling one's attention, suspecting, attending to, recollecting, remembering		remembering
	8aiθ	na	no, not, neither	could be <i>8ar</i>	not
	šMy	šamyā	heaven		heaven's
		šam	terror, flight; the tail; deceit, fraud, trick; distance; terrified, astonished, fearing; disturbed, distracted [etc.]		
	Bo8	bān	a prince, lord, chief, or governor; an arrow; an iron rocket used in war; a roof; (for a cry; affixed to a noun, it signifies a keeper or a guardian	a word could be missing after this	guardian,
3.5	8aiθ	nāh	abstinent, adverse, refraining from		refrain from.
	dšMcy	dišum	afternoon, evening prayer	V M could be V B	
		duš + ma ^c	evil, bad; ugly + with, together with, in the company of		Bad company
		duš + bayy	evil, bad; ugly + imitating, mimicking; a mean, wretched, abject man		
	šBor	šabar	flame		

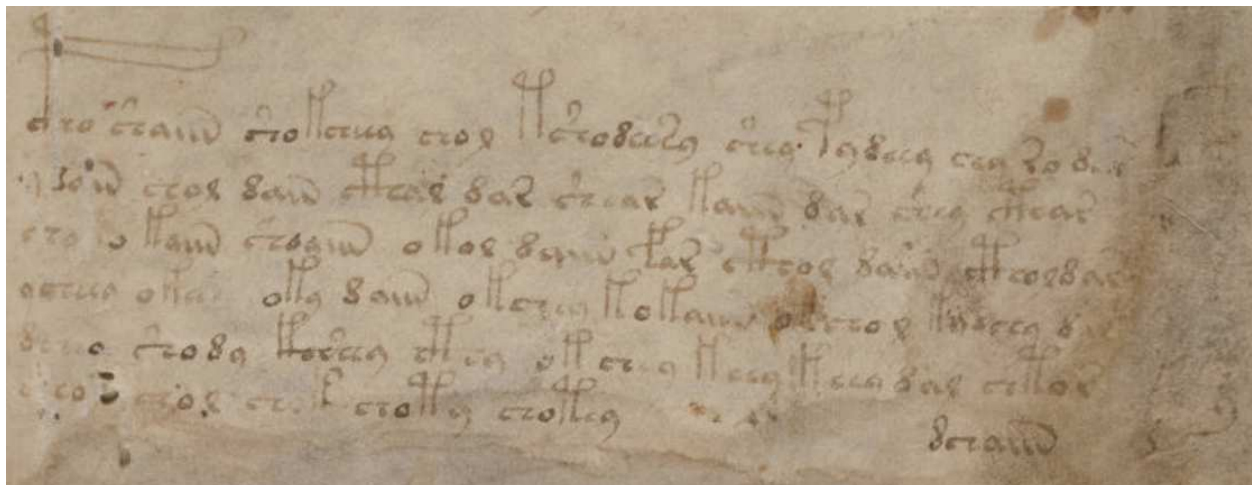
		šab ār	night + bringer		
		šab ^c + ār	fulness, satiety + bringer		brings satiety.
	šor	šār	adulteration, debasement [etc.]; a town; high road		debasement
	dcy	da'iy	a spurious child, bastard; an adopted son; one about whose pedigree suspicion is entertained		
		dayyi'	sick, indisposed		[makes] sick.
	Bot_šot	bād + šād	bad, wicked, naughty; evil, calamity; wickedness; [etc.] + cheerful, exulting; glad, happy; much; full; wine; light, a ray, gleam	small space in between	Bad
		bādšāhat	kingdom, government	V a missing	
	šot	šāt	sheep		sheep
		šād	cheerful, exulting; glad, happy; much; full; wine; light, a ray, gleam		
	Bor	bar	on [etc.] / height, top, body	V Bar?	
		bār	burden		the burden
		ba'r	digging (a well, ditch, or corn-vault); hiding, concealing; laying up in a magazine, or a store of merit; doing good secretly	with P a	
	šat	šadd, šad	running; ascending (the sun); strengthening, confirming, corroborating; intensifying, emphasizing, pitching of the voice	not well readable	intensifying,
3.6	do	dā'	leave, let alone	or "dco"	let alone.
	šot	šāt	sheep		
		šād	cheerful, exulting; glad, happy; much; full; wine; light, a ray, gleam		Cheerful
	šo8aθ	ša'n	doing, minding, or looking after (one's business); doing a service, rendering a benefit [etc.]		[be your] doings.
		šāni'	hater	one stroke less than above	
	Bdy	badī'	wonderful, surprising, marvellous, astonishing, strange, rare; a thing invented, an invention		
		bad	bad, wicked, naughty; evil, calamity; wickedness [etc.]		The evil
	Bšo	ba + šā	to [etc.] + joyful, glad; a place	last letter: V o, t or y?	
		bašā'	the operation of meat, or any thing which disagrees with the stomach or the mind		
		bašī ^c	stinking-breathed; offensive		
	šor	nār	fire		
		nar	male		man
	šo8anθ	šāni'	hater		hateing,

		šān	a bee-hive; virgin honey; a large loaf of fine flower, such as they give in presents on new-year's-day; a mandate; science; an enigma; a shoemaker's last; fear; respect, regard; natural disposition, habit; a white indian dress; a whetstone; they		
	do	dā'	leave, let alone		let alone.
	Bccag	ba yak	to one, with one	P one word	To one
		bī āk	without + calamity, misfortune; vice, defect, blemish	if it is V o, not V a	
3.7	yšo	šā	joyful, glad; a place		
		īšā	they		
		iš'a'	taking thought for, minding, attending to, being concerned about; sympathizing with; sending forth predatory bands in all directions	starts with P a	being concerned about
	Mšcy	mašy, mašī	walking, going; driving; being directed in one's march, finding one's way; being rich in cattle		
		maš'	collecting, acquiring, gaining; seizing, drawing away, carrying off [etc.]		collecting
	šcBa1θ	šībā	a viper; known, manifest, clear; gold		
		š'b	collecting together; propagating; people, nation [etc.]		nations:
	dcoPdot	du'a'	calling, naming, praying [etc.]		
		faddād	loudvoiced		Call with a loud voice,
	šo8a8	nīnān	fish [pl.]	possibly V y instead of V o or V a	
		nānimaš / nānamiš	a thing unseen, out of sight; deviation from the road	not impossible: $n \rightarrow m$	
		nānam- šīdan	to meet with continual disappointments, to fail in the attainment of one's desire		
		nā + na'im	not + groaning, breathing hard; lamenting; twanging (a bow-string); roaring (a lion); bleating (a deer); a weak, gentle voice.	$n \rightarrow m$	not a weak, gentle voice.
	šMy	šamyā	heaven	not sure	Heaven
		sham	terror, flight; tail; deceit, fraud, trick; distance [etc.]		
	8aišMy	na'š	lifting-up, bier		
		nahš	biting		
		na + šamyā	not heaven	not sure	[is] not heaven
		na + sham	no + terror, flight; tail; deceit, fraud, trick; distance [etc.]		
3.8	yMo	imā'	making up a hundred	starts with P a	

		i'mā	we, us, our	starts with P a	us
	dot	dād	law; age; tooth; alms, charity; he gave; a gift;		he gave
	do	dā'	being sick		
		dā	groundwork for a building		
		dā'	leave, let alone		let alone
	Bo8dcy	bandī	bound, chained, imprisoned; a prisoner; a muhammadan captive		
		banda	bound, fastened, fixe chained; included, contained, shut up; servant, slave, bondman, domestic;		
		bā	with		
		nadiy	congregation, council, assembly; one who calls with a loud voice, who halloos; liberal, munificent		with a loud voice
	šPoaty	šafahat	lip		lip of
	8araiθ	nar	man [pl.]		men
	8aiθ	na	no, not, neither		not
		nah	being filled, replenished; being half-raw, ill-dressed (meat)		
	šBy8r	šabina	nocturnal; stale; of last night; a bat; grapes; turpentine	end of line may be corrupted	
		šabih + nar	alike, equal, like, resembling; an imitation; a model + nar		resembling a man
3.9	8šar	našar	scattered, men scattered without a leader		scattered without a leader.
	dšManiθ	duš + mahā'	evil, bad, ugly + crookedness; defect, blemish		evil
	oBaur	abhā'	extensive countries		countries
		ba-har	at, by, to, or in every or each		
		wabh / wabah	intelligence, prudence; magnificence, greatness, pomp, pride / considering attentively, perceiving, understanding, minding, regarding, attending to		
	šcy	šai'	wishing, willing, desiring; a thing, something, somewhat; object, matter, affair; an article		
		šayidan	to arm or equip one's self		arm themselves
	2šy	zaš / zuš	what is the matter?; dew	First could be rare letter V 2, but V r is also likely	
		raš / riš	uneven; cubit / beard; wound		
	P_o	pā	foot	unusual connector: could be V š	↓
	Mot	mād	mother; like		

		peš āmad	advance, coming into the presence; elevation, advancement; access, admittance; occurrence	with previous	advance
		pas āmad	follow	with previous	
	šMotr	šamā / šumā	a pastile; naked / ye; you + tar	last could be V w	
		šamāt / šimāt	rejoicing at the distress of another / persons deceived by vain hopes, disappointed in their expectation		rejoicing at the distress of another.
	8aošM?	na + ašm / na + ašmat	not + being pained / not + going with the head erect	letters missing?	Not going with the head erect
3.10	doB	dāb	magnificence, pomp, ostentation; manifestation	above in a different spelling	ostentation
	šor	šār	adulteration, debasement [etc.]; a town; high road		is debasement,
	šcy	šai'	wishing, willing, desiring; a thing, something, somewhat; object, matter, affair; an article		wishing
		šayidan	to arm or equip one's self		
	8aiθ	na	no, not, neither		not.
		nah	being filled, replenished; being half-raw, ill-dressed (meat)	to next?	
	šBcy	šab'	satiety, fullness		satiety
	oMot	āmādan	to prepare, make ready, equip, expedite, despatch; to be prepared; to fill	after long horizontal space	filled,
		imāt	high, unequal places		
	8anθ	nāh	abstinent, adverse, refraining from		refrain from.

A.3.4 Last paragraph (flr)



<i>ℓ</i>	V	P	E	notes	
4.1	šPo	šā	glad; a place;	V P as <i>paragraph?</i>	
		šāā	he went before; he grieved; women		
		šafa	anything lawful, lawful, legitimate		Legally
		sahfā'	the small remains (of life)		
	dauð	dā'	being sick		
		dah	ten; displeasure; annoyance, trouble; curses, imprecations; commanding what is right, and forbidding what is wrong		
		dahā'	being subtle, penetrating; ingenuity, shrewdness, soundness of judgment, sagacity		sound judgement
	doBšccy	du-bāšī	interpreter (bašidan: to be; to stand, stay, stop, tarry, remain, dwell; to trample, tread; to spurn)		mediator
		do + baši	leave standing		
	šot	šād	cheerful, exulting; glad, happy; much; full; wine; light, a ray, gleam		
		šādd	one who fastens, makes secure, or closes up; a comptroller, director, governor		makes secure
	Mdo8ccwy	madānīs	squalid, sordid	V wy?	
		mudānāt	coming between two things, bringing near	V wy?	coming between.
	dcy	da'iy	a spurious child, bastard; an adopted son; one about whose pedigree suspicion is entertained		The bastards
		dayi'	sick, indisposed		
	Py8ccy	penih	meanness		
		pāyini	inferiority, meanness		mean
	šy ro	šay' + rā	wishing + [accusative]	combined or single?? cf. <i>lā shay</i> (<i>nothing</i>)	wishing "to"
	8ar	nar / nār	male, manly / fire, hell; mind	second letter ambiguous	the men
4.2	y8aið	yan	ripe; maturity		
		yana'	a species of cornelian stone		
		ī'nā'	detaining, delaying; deferring, retarding, playing a slow, irresolute part		
		īnā'	fatiguing, weakening		weakening.
	šot	šād	cheerful, exulting; glad, happy; much; full; wine; light, a ray, gleam happy, joyful		Wine
		šādd	one who fastens, makes secure, or closes up; a comptroller, director, governor		
	8aið	nah	being filled, replenished; being half-raw, ill-dressed (meat)		being filled

	šMat	šammat	one odour; one smell at		of one smell
	šar	nar / nār	male, manly / fire, hell; mind		man
	dcar	da'ar	being depraved; being wicked, impure, whoring; smoking, though not blazing (wood); emitting no fire (a flint)		wicked
		dahr	befalling, happening to; time, a year, age, thousand years, eternity; the end, last; extremity; fortune; adverse fortune; victory, superiority; God; will; danger; custom, habit, mode, manner; care, solicitude; the world; atheism		
	Bauθ	bah'	being accustomed		being accustomed.
		ba	for; in; on; with; by; according to; it is sometimes pleonastic: good, excellent; better; safe, sound; elegant; quince		
		bahh	rising in dignity, being by the monarch; promoted		
		bah	well done ! bravo ! excellent !		
	šar	nar	male, manly		The man
	dca	da'k	beating; rubbing; appeasing		
		du'ak	weak		weak,
	šMar	šamal	being exposed to the north wind; being universal, common to all; experiencing (good or evil); the shoulder; a small quantity (of rain, men, or fruits); the north wind		experiencing
4.3	šo?	šā	joyful, glad	last letter may be missing (<i>y</i> ?)	God
	o Bauθ	abā'	refusing, rejecting, abominating; including one to dislike and refuse; aversion, disgust; disobedience, stubbornness		rejecting
		abhā'	extensive countries, emptying [etc.]		
		bā'	a fathom; nobility, rank, order		
		bahh	rising in dignity, being by the monarch; promoted		
		bāḥ	lust; sperm; coitus		
		ba'ḥ	considering, attending to		
	doauθ	dāhā	caverns, mountain-hollows		
		du'ā'	calling, calling to; naming. invoking, praying (god); imploring a blessing; imprecating; driving, urging forward; inflicting any thing disagreeable; leaving milk in the udder; invitation, invocation, prayer. salutation, congratulation, benediction; imprecation		praying.
		dā'	leave, let alone		
	o Bot	bāt	a place of repose, an inn	space after V o	Taverns,

		bād	wind		
	ṣauḍ	nāh	abstinent, adverse, refraining from		refrain from.
		nah'	being filled, replenished; being half-raw, ill-dressed (meat)		
	Kar	kar	deaf		
		karr	repeating		
		kahr	advancing, oppressing		Oppressing
	šMot	šamāt / šimāt	rejoicing at the distress of another / persons deceived by vain hopes, disappointed in their expectation		rejoicing at the distress of another,
	ṣauḍ	nāh	abstinent, adverse, refraining from	last letter ambiguous	refrain from.
		nah'	being filled, replenished; being half-raw, ill-dressed (meat)		
	šMotṣar	šamāt + nar	[see above] + nar		The man who is rejoicing at the distress of another
4.4	yščcy	yaštan	to pray		
		ishyā'	forcing (any one) to take refuge		be forced to take refuge
	oBar	burdan	fruit, produce, profit; carry, bear, take, endure	last letter unreadable	
		abar	upon, above; according to; the bosom		
		abarr	more or most just, juster, justest; more or most exemplary in duty to parents; furthest removed into the desert		furthest removed into the desert.
	oBy	abīy	refuser, rejecter, loather [etc.]		The loather,
	ṣauḍ	nāh	abstinent, adverse, refraining from		refrain from.
	oBšcy	ābishtan	to hide, to cover		Hidden
		bašij	equal; death, destruction		
	BoBanḍ	bāb	a gate; a door; the chapter of a book; an affair, business, point, matter; reason, manner, mode, kind, species, method, sort; the extreme terms in numbers, or the extreme boundaries in limits, confines, or marches, (in grammar) conjugation	pl.	[is] the gate.
		bābā	a father; a grandfather; the head of an order of monks called calendars		
	oMšot	amšāt	combs	V B or V M?	
		im	[when prefixed to some words it signifies: <i>this</i>] [8]		This
		amm	intending, purposing, desiring, tending towards; taking the lead in the exercise of prayer; striking on the crown of the head, wounding in the head so as to touch the brain; teaching, giving a good example; becoming a mother		

		šād	cheerful, exulting; glad, happy; much; full; wine; light, a ray, gleam		
		šādd	one who fastens, makes secure, or closes up; a comptroller, director, governor		governor[ʔs]
	B[y]8šy	banš	being remiss	second letter unclear	
		bīnish	vision, sight; providence		providence
	8at	nad	increase, good guidance		[is] good guidance.
		natʔ	being exalted, eminent, superior, prominent; appearing, getting out, being produced; growing up, being marriageable (a girl); swelling (as a wound or sore)		
4.5	8šʔo	našāʔ	growing, increasing; growing up, being educated; creating; rising, being high	third letter unreadable (<i>r</i> or <i>w</i> ?)	
		našwa	drunkenness		
		našā	an agreeable smell, Frankincense [various spellings]		An agreeable smell
	do8y	dānī	approaching, near, within reach	[13]	[is] near.
		dān	knowing		
	Bodcy	bādī	be thou, mayest you live for ever	second and third letter ambiguous (corrections)	Mayest you live for ever
		bidīy	heretical		
	šMy	shamya	heaven		[in] heaven.
		sham	terror, flight; the tail; deceit, fraud, trick; distance; terrified, astonished, fearing; disturbed, distracted [etc.]		
	oBšcy	bašij	equal; death, destruction		
		bašīʔ	stinking-breathed; offensive		
		abš	collecting	V <i>cy</i> ?	Collect
	Bccy	basi	abundance, plenty		many
	Bccy	basi	abundance, plenty		many,
	8at	nad	increase, good guidance		an increasing
	šMor	šumar	computation, multitude, number, troop, crowd, like, resembling; friendship, love; an incurable wound	alliteration from here	number
4.6	šo[r]	šāriʔ	any one going into water; (fishes) swimming out of deep into shallow water, and raising their heads; one who makes manifest; one entering upon business; a beginner; learned both theoretically and practically, a teacher, tutor; situated upon the highway (a house); a highway, a straight road; near, adjacent	reading of corrupt V <i>r</i> is just a guess	
		šā	happy, joyful		joyful

	šot	šad	happy, joyful	repeated or similar	
		šāt	sheep		sheep
	šoB	šab	night, darkness; hard, difficult		
		šābb	a young man, (a sheep or ox) in the prime of age		in the prime of age,
	šoMy	šām	supper, being unlucky		
	šoMcy	šāmm	smelling, smeller		smelling
		ša'mīy	a Syrian, Syriac		
	8šanθ	nashā	an agreeable smell	after long break	an agreeable smell.
		nashā'	growing, increasing; growing up, being educated; creating; rising, being high		

References

- [1] Avestan. *Chapter 10.7, The Unicode Standard, Version 10.0*. Unicode, Inc., Mountain View, CA, 2017.
- [2] Stephen Bax. A proposed partial decoding of the Voynich script, 2014.
- [3] Georg Bühler. *On the Origin of the Indian Brahma Alphabet*. K. J. Trübner, 1898.
- [4] Carl Faulmann. *Das Buch der Schrift enthaltend die Schriftzeichen und Alphabete aller Zeiten und aller Völker des Erdkreises*. Verlag der Kaiserlich-königlichen Hof- und Staatsdruckerei, Wien, 2nd edition, 1880.
- [5] G. Gnoli and 'A.-A. Sa'īdī Sīrjānī. Entry: Bang. *Encyclopedia Iranica*, III(7):689–691, 1988.
- [6] W. B. Henning. *Zoroaster: Politician or Witch-Doctor*. Oxford University Press, London: Geoffrey Cumberlege, 1951.
- [7] J. Michael Herrmann. The Voynich Manuscript is written in natural language: The Pahlavi hypothesis. *arXiv preprint arXiv:1709.01634*, 2017.
- [8] Francis Johnson. *A dictionary of Persian, Arabic, and English*. W^M. H. Allen and Co., London, 1852.
- [9] D. N. MacKenzie. *A concise Pahlavi dictionary*. Oxford University Press, London, 1986.
- [10] V. S. Rastorgueva. *A short sketch of the grammar of Persian*. Indiana University, Bloomington, Mouton & Co., The Hague, The Netherlands, 1964. Edited by Herbert H. Paper, translated by Steven P. Hill.
- [11] S. Reddy and K. Knight. What we know about the Voynich manuscript. In *Proc. of the 5th ACL-HLT Workshop on Language Technology for Cultural Heritage, Social Sciences, and Humanities*, pages 78–86, Madison, WI, 2011. Omnipress, Inc.
- [12] E. Sherwood and E. Sherwood. The Voynich botanical plants, 2008, accessed on 5/9/2017. http://edithsherwood.com/voynich_botanical_plants.
- [13] F. Steingass. *A comprehensive Persian-English dictionary*. Routledge & Kegan Paul, London, 5th edition, 1963.