

First Page of Voynich Manuscript

The Unheard Story

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Acknowledgements

“This paper is dedicated to my parents”

I would like to thank my family who teach me language of life

Who supported me in every circumstances

Who grew me up

From a sprout to the tree

The parents who I am always grateful

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Abstract

The Voynich manuscript is an old illustrated book, hand-written in an unknown writing system. Even though it is studied by many, the book still closed its secrets. The drawings suggest that the manuscript is an herbal book and it may contain valuable information thus decoding it may increase human knowledge. This study has presented, a decipherment for Voynich manuscript and examines if it conveys any meanings. It states that, Voynich is written in codes and in fact there are hidden text with meanings in a natural language. The final results demonstrated the existence of words in sentence structure. Furthermore, it gives an insight into the first lines, which is a description of an itinerary like story; the mysterious book speaks of a person named Homer Jattari who passes a long distance from Pars to Parete, in search of amazing attars. The finding will prove the book to be a code and not a hoax.

Keywords: Voynich manuscript, Pattern, Code, Language

First Page of Voynich Manuscript

The Unheard Story

Voynich manuscript or Beinecke MS 408, is a mysterious book with amazing drawings. Writings are in strange letters and meanings have been unknown for human minds, hidden for decades. It was rediscovered at 1912 in Italy by Wilfrid Voynich, whom it's given the name from (Blumberg, 2016). There are many pages containing: plant drawings, figures of stars, and the baths filled with green liquids. It looks like a wonderland in many aspects. When people see these pages, they feel a gravity. The interesting drawings and a strange script which turns the mind to ask "What are the alien looking lines talking about?"

To answer this question there is a long way. Even after many years straining for decipherment, we don't see much progress. People opinions are so different; Some believe its work of aliens, the others say it is written in an extinct language. A group states that it is a hoax, the others consistently say the book is coded, and so on. Like a person searching in darkness, we can only guess. Of course by considering the manuscript to be a codex, there will be hope to find the answer.

There is a code in the manuscript but at first glance, it may not be recognizable. In the followings, I will show what the codes are, and how to decode it. I would give the substitutes for the alphabets along with brief discussion on words and sentences. After that we will finally see the hidden meanings behind the mysterious Voynich.

The Code

While looking at pages, there are repeating parts which appear both within words and in sentence structure. One can distinguish patterns easily; some sequences aligned in a row, the patterns are frequently used and in different forms: abc ab ab, dabc abc abc, abz abcd pcd, etc.

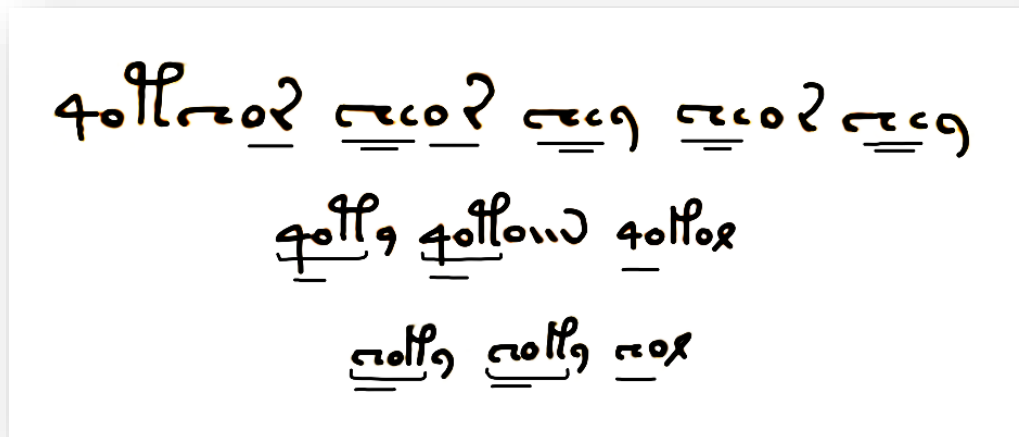


Figure 1 - Three sequences from Voynich manuscript


We rarely see that in a natural language, in talking and for the way we want to describe objects. “What should we do?” Merging is not assumed to make meanings, deleting. however, would change the case; There would be new structures of words and sentences. So the text is hidden in many patterns and it has to be mined before any translation.

How to find the hidden writing?

In order to figure out the actual text, one has to consider different patterns for each sequence, the patterns which are in two major groups:

1. **The patterns of omission.** They are in two forms including *alternative* and *inverse* patterns.

“Alternative” refers to patterns with same ends or beginnings. This occurs in two, three or more neighbor words. “Inverse” are those with the following pattern: **AB CD PZ CD AB**

2. **The Twin Joining patterns.** They are sequences which pursue the rule of **AB BC**  **ABC**

In this kind, only one of the repeated letters will be deleted and it seems the two letters are joining as one.

Alphabets

For decoding there is a need of an alphabet set to transcript the signs. One way to find the best results is to choose alphabets with morphological similarities. By examining each line and seeing whether it will be words relevant to pictures, we can find the clues. As the number of relevant words increase we find which alphabets are suitable. In examination of lines from herbal pages the word *pat*¹ ‘leaf’ from Sanskrit and *Rivas*² ‘Rhubarb’ from Farsi were the key ones. At the end, alphabets happened to be from Brahmi descendant scripts, Greek, and Latin, which had great similarity to Voynich signs. Existence of signs from Greek and Latin may suggest that letters were invented by the people who wrote it .

¹ *patram*

² ریواس

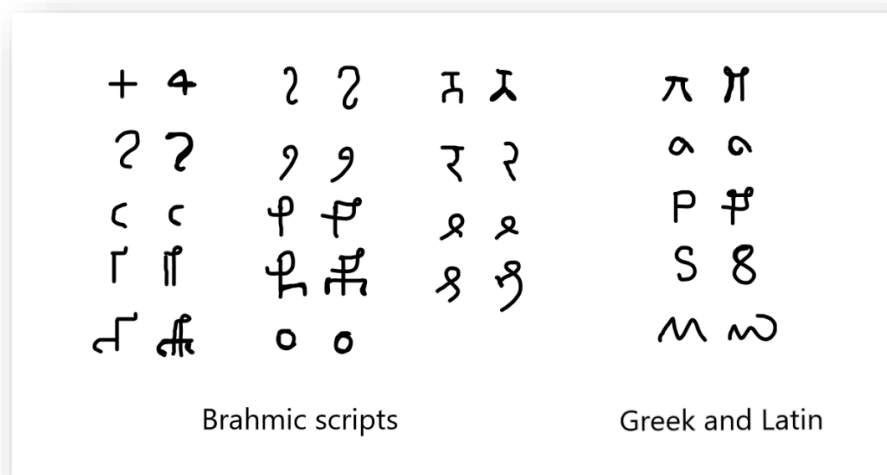


Figure 2 - Similarity of Voynich signs to letters in Brahmic scripts, Greek, and Latin

Voynich alphabets are varied in shape and can be sorted into three kinds³:

- Vowels: *a*, *y*, *o*

α-α \ 9

- Consonants: *p*, *t*, *s*, *j*, *h*, *d*, *r*, *k*, *g*, *m*, *ri*, *v*⁴, ...

κ-φ ε-α-β δ α ? ο ρ 4 φ ω π 9

- Mixed: *pa*, *ga*, *ria*. These letters consist of a consonant and a vowel

κ-κ φ φ κ κ

³ To see Persian substitutes for each sign, look at table three

⁴ The letter *v* can be used both as consonant and a vowel like it is used in Persian and Arabic.

Samples of Page one

A) decoding for a sequence from page one (Paragraph four, lines 1-2), is given below. The process includes four main steps:

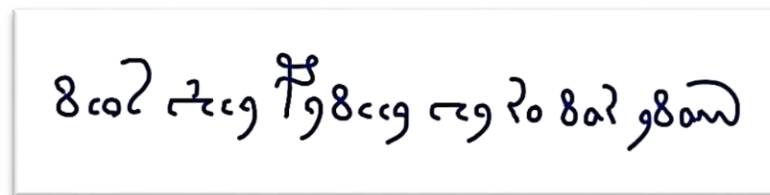


Figure 3- Sequence from Paragraph four, lines 1-2

Step 1. Transcribing the signs: S.t.d.h, J.t.v, P.v.s.t.t.v, A.v, R.d, S.a.r, V.s.a.m

Step 2. Finding patterns and omitting/joining letters: abc zbc pc

S.t.d.h, J.t.v, P.v.s.t.t.v, A.v, R.d, S.a.r, V.s.a.m → S.t.d.h, J, P.v.s.t, A, R.d, S.a.r, V.s.a.m

Step 3. Changing letters into Farsi script: سنده ج پوست آرد سروس

Step 4. Checking alphabet substitutes and phonological process: سنده پوست آرد سروس

Repeating patterns may happen in each stage. Even after deletions new patterns can be seen. So step two would be longer in paragraphs and requires more effort. Paragraph one and two are given as an example, these examples were used as samples for understanding the meanings.

B) The steps for first two paragraphs:

Paragraph 1

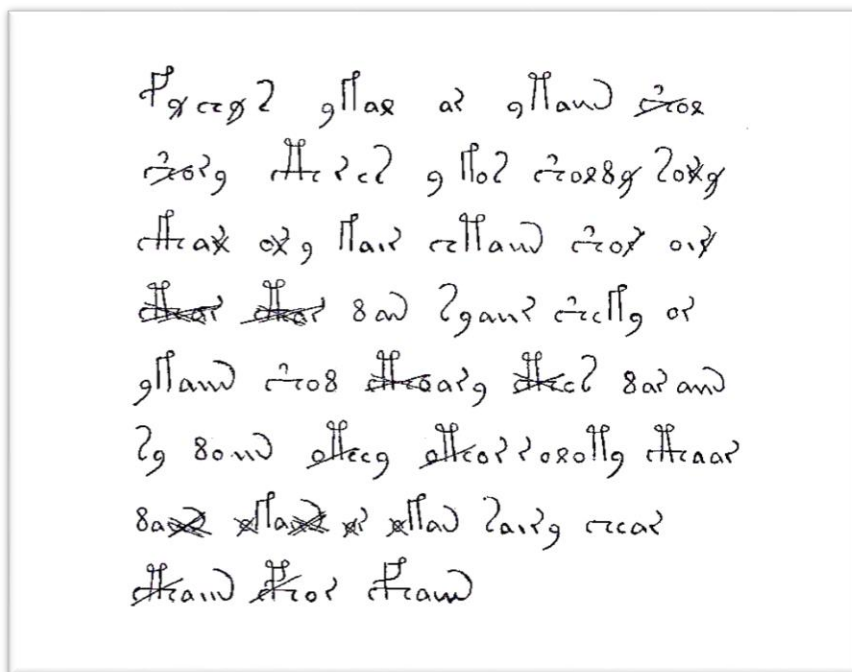


Figure 4 - In the way of omissions - First paragraph

Step 1

g.v.a.v.h, v.ri.a.t, a.r, v.p.a.m j.d.t, j.d.r.v, pa.r.t.h, v, ri.d.h, j.d.t.s.v, h.d.r.v, ria.a.r, d.r v,
ri.a.y.r ,a.p.a.m, j.d.r, d.y.r, pa.a.r, pa.a.r, s.a.m , h.v.m.r, j.t.ri.v, d.r, v.ri.a.m, j.d.s, pa.d.a.r.v,
pa.d.h, s.a.r, a.m, h.v, s.d.m, d.p.t.t.v, d.p.t.d.r.d.t.d.p.v, pa.a.a.r, s.a.m, d.ri.a.m, d.r, d.ri.a.m,
h.a.y.r.v, a.t.a.r, pa.a.m ,pa.d.r, ga.a.m.

Step 2

1. g.y.a.y.h, v.ri.a.t, a.r, v.p.a.m ,j.d.t, j.d.r.v, pa.r.t.h, v, ri.d.h, j.d.t.s.y, h.d.r.y, ria.a.r,
d.r. v, ri.a.y.r ,a.p.a.m, j.d.r, d.y.r, pa.a.r, pa.a.r, s.a.m , h.v.m.r, j.t.ri.v, d.r, v.ri.a.m,

j.d.s, pa.d.a.r.v, pa.d.h, s.a.r, a.m, h.v, s.d.m, d.p.t.t.v, d.p.t.d.r.d.t.d.p.v, pa.a.a.r,
s.a.m, d.ri.a.m, d.r, d.ri.a.m, h.a.y.r.v, a.t.a.r, pa.a.m, pa.d.r, ga.a.m.

2. g.a.h, v.ri.a.t, a.r, v.p.a.m, t, r.v, pa.r.t.h, v, ri.d.h, j.d.t.s, h.d, ria.a, d.v, ri.a.y.r, a.p.a.m,
j.d, d.y, s.a.m, h.v.m.r, j.t.ri.v, d.r, v.ri.a.m, j.d.s, a.r.v, h, s.a.r, a.m, h.v, s.d.m, t,
d.r.d.t.d.p, pa.a.r, s, ri,r, ri.a.m, h.a.y.r.v, a.t.a.r, a.m, d.r, ga.a.m.

3. g.a.h, v.ri.a.t, a.r, v.p.a.m, t, r.v, pa.r.t.h, v, ri.d.h, j.d.t.s, h.d, ria.a, d.v, ri.a.y.r, a.p.a.m,
j.d, d.y, s.a.m, h.v.m.r, j.t.ri.v, d.r, v.ri.a.m, j.d.s, a.r.v, h, s.a.r, a.m, h.v, s.d.m, t,
d.r.d.t.d.p, pa.a.r, s, a.m, h.a.y.r.v, a.t.a.r, a.m, d.r, ga.a.m.

Step 3

- گاه وریات ار ویم ت رو پارتیه و ریده جدتس هد ریا دو ریایر آپم جد دی سم هومر جتزیو در وریم جدس ارو ه سار
ام هو سدم ت دردتدپ پار سم هیرو اتر ام در گام.

Step 4

- گاه وراط ار ویم ت رو پارتیه و رده جدتس حد را دریایر آپم جدای شم هومر جتزیو در وری ام جد اس وحش محو
شدم ت پارسم حیر و عطر مدر گام.

While observing the step three, importance of words in relevant meanings is clear. Here *darya* 'sea' and *ab* 'water' are the guiding words. In addition, propositions *ra*, *ta*, *dar* can help in determining the correct substitutes.

Paragraph 2

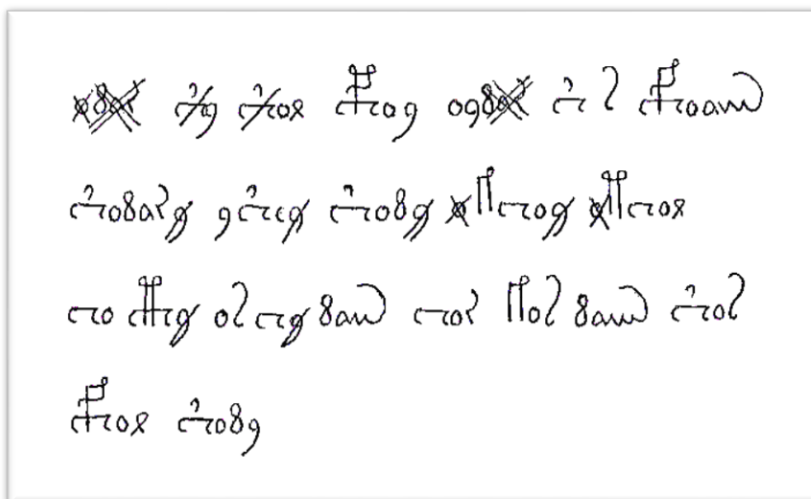


Figure 5 - In the way of omissions - Second paragraph

Step 1

d.s.a.r, j.v, j.d.t, pa.d.v, d.v.s.a.r, j(h), ga.d.a.m, j.d.s.a.r.v, v.j.t.v, j.d.s.v, d.ri.a.d.v, d.p.a.d.t,
a.d, pa.v, d.h.a.v, s.a.m, a.d.r, ri.d.h, s.a.m, j.d.h, ga,d,t, j.d.s.v

Step 2

1. d.s.a.r, j.v, j.d.t, pa.d.v, d.v.s.a.r, j(h), ga.d.a.m, j.d.s.a.r.v, v.j.t.v, j.d.s.v, d.ri.a.d.v,
d.p.a.d.t, a.d, pa.v, d.h.a.v, s.a.m, a.d.r, ri.d.h, s.a.m, j.d.h, ga, d,t, j.d.s.v
2. v, d,t, pa.d.v, v, j(h), ga.d.a.m, j.d.s.a.r, v.j.t, j.d.s, ri.a.d, p.a.d.t, a.d, pa, d.h.a, s.a.m,
a.d.r, ri.d.h, s.a.m, j.d.h, ga, d,t, j.d.s.v
3. v, d,t, pa.d, j(h), ga.d.a.m, j.d.s.a.r, v.j.t, j.d.s, ri.a.d, p.a.d.t, a.d, pa, d.h.a, s.a.m, a.d.r,
ri.d.h, s.a.m, j.d.h, ga, d,t, j.d.s.v

Step 3

- و دت پاد جه قدم جدسار و جت جدس ریاد پادت ادپا ده شم ادر ریده شم جده قدت جد شو

-و تپاچه قدم جدسار و جت س ری اد پادت ادپادشم ادر ریده قدت شو

Step 4

-و تپاچه قدم جدسار و جت صرید پادتشم ادر ریده قدت شو.

Here the words *adarideh* ‘torn, cut’ and *ghadat* ‘cut, pieces’ are in the relevant meanings.

gam ‘step, stage’ in last paragraph and *ghadam* with same definition will indicate that we are in the right path.

Results**Words and Sentences**

Words. In general, the words had three basic forms of noun, verb, and proposition (see Table 4). There a phonological process which change *v* to *b* has occurred, some Sanskrit words *pada* ‘foot’, and also Arabic words and their derivatives in Persian could be seen.

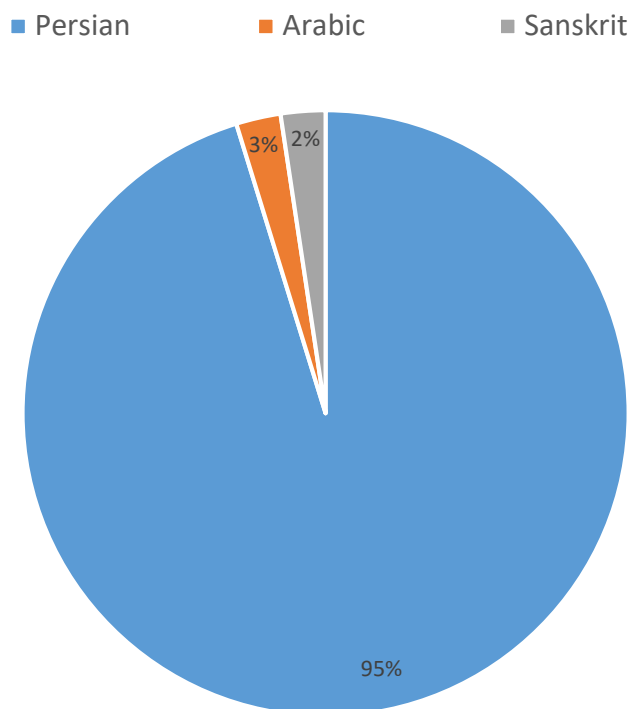


Figure 6- Percentage of words from different languages in first two paragraphs

Sentences. In sentences, verbs were in first and third person singular. The grammar was *rhetorical*. In this way, the components of speech are shifted at the discretion of the author and for greater impact (Shirzadeh Taleghanki, 2013). The epic of Shahnameh is a literature work resplendent with rhetorical methods (Zulfaghari, 2012). By comparing examples from page one with Shahnameh and spoken Farsi phrases, it was a better understanding of the sentence structure:

- **Voynich:** *darya abam ra joday sham*: Noun +Noun +suffix +Proposition+Noun +Verb+
suffix: *darya* ‘sea’, *ab* ‘water’, *am* ‘of mine’ suffix indicating possession, *ra* a

proposition, *joday* ‘separated’, *sham*⁵ ‘to become’ verb in 1sg. The meaning: I will be separated from sea water of mine

دریا آبم را جدای شم

Shahnameh:

Faramarz ra deh: Noun+ Proposition+Verb

فرامرز را ده کلاه و نگین کسی کو بخواهد ز لشکر گزین

Kuh ra pay bashad: Noun+Proposition+Noun+Verb+suffix

اگر گرددی آب دریا روان وگر کوه را پای باشد دوان

Colloquial: *khastegi ro shekast bedam*: Noun+ Proposition+ Compound Verb+ suffix

خستگی رو شکست بدم

- **Voynich:** *Mahv shodam*: Noun +Verb +Suffix, *Mahv* ‘vanished’, *shod* ‘to become’ from infinitive ‘shodan’, *am* the suffix for Verbs in 1sg. The meaning: I vanished.

محو شدم

Colloquial: *Mahv shodand*: Noun+Verb+Suffix

کلمات محو شدند

- **Voynich:** *Setade pust arad sورشam*: Adjective + Noun +Verb+ Noun+ Suffix, *Setade* ‘taken’, *pust* ‘skin’, *arad* verb in 3sg and from infinitive *Avardan*⁶, *sورش* ‘angel, messenger, cry’, *am* ‘of mine’ the suffix indicating possession. The meaning: My messenger comes with a skin which was taken.

ستده پوست آرد سورشام

⁵ Colloquial form of *Shav +am*, infinitive of verb in present tense + suffix

⁶ آوردن

Shahnameh:*Beshod mubad:* Verb+Noun

بشد موید و برگرفت ز گرد

Azad mard: Adjective+Noun

ببردش بر شاه آزاد مرد

Beginning lines

After the omissions (see Table 1 & 2), and by writing words from phonetics to Farsi script, there was identifiable sentences. From the meanings (see table 4) It was understandable that first lines were telling an itinerary like story:

گاه وراط ار ویم ت رو پارتیه و رده جد تس. حد را دریا آبم را جدای شم. هومر جتری و در وری ام جد اس وحش. محو
شدم تا پارسم را حیرو عطر. مدر گام

The time/song I pass through the lands to go to Parete⁷ and there are giant rocks. I will be separated from border, sea water of mine. Homer of Jattar and in desert there are big animals. I vanished from my Persia for wonder and attar⁸. The cloddy step.

تپاچه قدم جدشار وجدت صرید پادتشم ادیده قدت شو.

Steps with throbbing sound, filled with effort⁹, I found a frozen sheep and its foot also became torn pieces.

⁷ Part also is an old name for Parthia or Parthian people. Considering the radio carbon results, the name is indicating a comune in Italy called Parete.

⁸ or for wonderful attar, if we take it as an adjective phrase by mimicking arabic.

⁹ by comparing 'جدشار' with the word 'سرشار'

Discussion

The final purpose was to find the meanings of the manuscript and deleting patterns lead to enormous words and sentences. The propositions, verbs and nouns all had been placed in a correct way which were conveying the message to the mind. But there were some exceptions, in paragraph one for sequence *ta rav*, although proposition and verb have been in right place, the suffix *am* was deleted, the correct form should be *ta ravam*, in sequence *mahv shodam ta parsam ra heyr o atar* also the second verb was not written. For that, we can consider a process named *hazf ba gharineh*¹⁰ ‘*ellipses*’ which the verb will be deleted whenever mentioned in sentences before or when it is understandable from the whole concept, but the process is doubtful. Especially for a text appeared from many times of deletion. It could be simply just an error of the writer.

In this examination, the letters *b*, *l*, *n* was not given, because more experiments have to be done for certainty of their existence. Letters *l*, *n*, and *b* were not present in the samples so the transcription was not affected.

Decoding from Voynich manuscript invoke many questions, the results show words from Persian with Sanskrit and Arabic derivatives. Although the meanings are obvious but still is that possible? Other researchers could find clues in these languages. An analysis had mentioned the similarity of Voynich to Sanskrit and that it might originate from Asia (Jaskiewicz, 2011). The other research gave possibility of the writings to be in abjad (Bax, 2014) which the explanation of the star name *tharus* seemed correct as the alphabetical order in current study brings the word ‘*sdaro*’¹¹. In contrast, for the existence of word *OROR*, the sequence was a pattern which would be deleted.

¹⁰ حذف با قرینه

¹¹ May indicate setare ‘star’ or saro ‘tharo’

In other studies, the similarity of letters to Pahlavi, an old Persian language, have been suggested (Hermann, 2017). However, phonology of letters was different from the alphabets in this examination.

A questionable part of result is the presence of Persian words and grammar with Sanskrit and Arabic derivatives. What can cause this multilingual sentences?

Perhaps it's not really multilingual, today's Farsi has words from both groups of Indo European and Arabic. Many Persian dialects has sealed their ancient forms including Sanskrit terms and specific grammars, other facts that may bring this to mind is some phonological process which changed *v* to *b*. The same process, known as *ebdal*¹², can be seen in today's Persian dialects. As an example, In Mazani dialect the words *baresh* 'raining' and *barf* 'snow' turn into *varesh* and *varf*. The time is also important, If the book was written somewhere around 15th to 16th century (Clemens & Harkness), it is not unpredictable to see these properties. In addition to same roots of Persian and Sanskrit, at Moghul empire the literature of two languages had combined (Truschke, 2012). On the other hand, Arabic was a language Persians would read and write, an example in that times is a poet known as Jami who had works in Arabic. One question that remains; drawings resemble European style while writings are in a far language. If we think about the beginning lines stating the journey of Homer to Italy, it is probable that book was illustrated or written there. The future works have to consider the hidden text and may shed more light to the mystery.

¹² ابدال

Conclusion

A decipherment was essential to understand what Voynich lines speak of. After recognizing the repeating patterns, deleting them and also with a correct alphabet set, the true writing has emerged. The results pointed that words and sentence structure had indisputable relevance to Persian and the first lines of the book was describing a journey from Pars to Parete. It will be concluded that not only the book is not a hoax, but also there is a natural language behind.

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Tables

Table 1

First Paragraph

Sequence	Deleted letters	Pattern	Result	Farsi Alphabet
Ga.v.a.v.h	<i>V</i>	a<u>b</u>c<u>b</u>d	Ga.a.h	گاه
J.d.t, J.d.r.v	<i>J,D</i>	ab ac	T, R.v	ت رو
J.d.t.s.v, H.d.r.v	<i>V</i>	ac bc	J.d.t.s, H.d.r	جنتس ه در
J.d.r, D.y.r, Pa.a.r, Pa.a.r	<i>R,Pa,A</i>	ac bc <u>pc</u> <u>pc</u>	J.d, D.y	جد دی
Pa.d.a.r.v, Pa.d.h	<i>Pa,D</i>	ab ac	A.r.v, H	ارو ه
D.p. t.t.v , D.p.t.d. r.r.d.t.d.d.p.v	<i>D,P,T,V</i>	abc apc	T, D.r.d.t.d.p	ت دردتدپ
D.ri.a.m, D.r, D.ri.a.m	<i>D,Ri,A.M</i>	<u>abc</u> ad <u>abc</u>	R	ر
Pa.a.m, Pa.d.r	<i>Pa</i>	ab ac	A.m, D.r	ام در

Note: Comma = Space between two words, Period = Alphabet separating.

Table 2

Second Paragraph

Sequence	Deleted letters	Pattern	Result	Farsi alphabet
J.v, J.d.t	J	ab ac	V, d.t	و دت
J.d.s.a.r.v, V.j.t.v, j.d.s.v, d.ri.a.d.v	V	ac bc pc ze	J.d.s.a.r, V.j.t, J.d.s, D.ri.a.d	جدسار و جت جدس د ریاد
D.ri.a.d, D.p.a.d.t	D	ab ac	Ri.a.d, P.a.d.t	ریاد پادت
A.d.pa.v, D.h.a.v	V	ac bc	A.d.pa, D.h.a	اد پا دها

Note: Comma = Space between two words, Period = Alphabet separating.

Table 3

Farsi Substitutes

Letter	Substitute
<i>a</i>	آ, ا, ع
<i>y</i>	ی
<i>o</i>	و, ؤ
<i>p</i>	پ
<i>t</i>	ط, ت
<i>s</i>	ث, س, ص
<i>j</i>	ج
<i>h</i>	ه, ح
<i>d</i>	د
<i>r</i>	ر
<i>k</i>	ک
<i>g</i>	گ, ق
<i>m</i>	م

Letter	Substitute
<i>ri</i>	ری
<i>pa</i>	پا
<i>ga</i>	گا, قا
<i>ria</i>	ریا

Table 4

Definition of Voynich Words

Word	Type	Meaning
آپ (آب)	N	Water
ادریده (دریده)	N	Torn, Cut
ار (اگر)	P	If
اس (است)	V.3sg	To Be
پادت (پا پادا)	N	Foot; Sanskrit Noun
پارته	N	<i>Parete</i> ; a comune in Italy
پارس	N	<i>Persia</i>
ت (تا)	P	To
تپ	N	Throbbing Sound
تس (اس, است)	V.3sg	To Be
شار	N	Flow

Word	Type	Meaning
جد	N	Big, Effort
حد	N	Border, Amount
حیر	N	Wonder
در	P	In, At
دریا	N	Sea
ر (را)	P	-, For
رده (رداه, ردی)	N	Rocks
رو	V. infinitive	To go
ریا (را)	P	-, For
شم (یش هم)	V.1sg, Mix	To Become, of that also
شو (شد)	V.3sg	To Become
صريد (صريده)	N	frozen sheep
عطر	N	Attar

Word	Type	Meaning
قَدَت (قَدَد)	N	Pieces, Cut
قَدَم	N	Step, Stage
گام	N	Step, Stage
گاه	N	The Time, Song
مَحَو	N	Vanished, faded
مَدَر	N	Clod
وِیَم (پیمودن, پیی ام)	V.1sg	To Pass a Distance
وَجَدَت	V.1sg	To Find; Arabic verb
وَرِی (بریه, بری)	N	Desert

Note: N= Noun, P= Proposition, V=Verb, 1sg= First person singular, 3sg= Third person singular