**Voynich Manuscript**

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The **Voynich manuscript** is a mysterious, undeciphered [illustrated](http://en.wikipedia.org/wiki/Illustration) [book](http://en.wikipedia.org/wiki/Book). It is thought to have been written in the 15th or 16th century.[[1]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-0) The author, [script](http://en.wikipedia.org/wiki/Writing_system), and [language](http://en.wikipedia.org/wiki/Language) of the manuscript remain unknown.

Over its recorded existence, the Voynich manuscript has been the object of intense study by many professional and amateur [cryptographers](http://en.wikipedia.org/wiki/Cryptographer), including some top [American](http://en.wikipedia.org/wiki/United_States) and [British](http://en.wikipedia.org/wiki/United_Kingdom) [codebreakers](http://en.wikipedia.org/wiki/Cryptanalysis) of [World War II](http://en.wikipedia.org/wiki/World_War_II) fame (all of whom failed to decrypt a single word). This string of failures has turned the Voynich manuscript into a famous subject of [historical cryptology](http://en.wikipedia.org/wiki/History_of_cryptography), but it has also given weight to the theory that the book is simply an elaborate [hoax](http://en.wikipedia.org/wiki/Hoax) — a meaningless sequence of arbitrary symbols.

The book is named after the [Polish-American](http://en.wikipedia.org/wiki/Polish-American) book-dealer [Wilfrid M. Voynich](http://en.wikipedia.org/wiki/Wilfrid_M._Voynich), who acquired it in 1912. As of 2005, the Voynich manuscript is item MS 408 in the [Beinecke Rare Book and Manuscript Library](http://en.wikipedia.org/wiki/Beinecke_Rare_Book_and_Manuscript_Library) of [Yale University](http://en.wikipedia.org/wiki/Yale_University). The first [facsimile](http://en.wikipedia.org/wiki/Facsimile) edition was published in 2005.[[2]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-1)

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## Content

## By current estimates, the book originally had 272 pages in 17 [quires](http://en.wikipedia.org/wiki/Paper_quire) of 16 pages each.[[3]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-2) About 240 [vellum](http://en.wikipedia.org/wiki/Vellum_parchment) pages remain today, and gaps in the page numbering (which seems to be later than the text) indicate that several pages were already missing by the time that Voynich acquired it. A [quill pen](http://en.wikipedia.org/wiki/Quill) was used for the text and figure outlines, and colored paint was applied (somewhat crudely) to the figures, possibly at a later date. There is strong evidence that at one point in time the pages of the book were rearranged into a different order.[[4]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-Pelling-3)

The text was clearly written from left to right, with a slightly ragged right margin. Longer sections are broken into paragraphs, sometimes with "[bullets](http://en.wikipedia.org/wiki/Bullet_%28typography%29)" on the left margin. There is no obvious [punctuation](http://en.wikipedia.org/wiki/Punctuation). The [*ductus*](http://en.wiktionary.org/wiki/ductus) (the speed, care, and [cursiveness](http://en.wikipedia.org/wiki/Cursive) with which the letters are written) flows smoothly, suggesting that the [scribe](http://en.wikipedia.org/wiki/Scribe) understood what he was writing when it was written; the manuscript does not give the impression that each character had to be calculated before being inked onto the page.

The text consists of over 170,000 discrete [glyphs](http://en.wikipedia.org/wiki/Glyph), usually separated from each other by narrow gaps. Most of the glyphs are written with one or two simple pen strokes. While there is some dispute as to whether certain glyphs are distinct or not, an [alphabet](http://en.wikipedia.org/wiki/Alphabet) with 20–30 glyphs would account for virtually all of the text; the exceptions are a few dozen rarer characters that occur only once or twice each.

Wider gaps divide the text into about 35,000 "words" of varying length. These seem to follow [phonetic](http://en.wikipedia.org/wiki/Phonetic) or [orthographic](http://en.wikipedia.org/wiki/Orthography) laws of some sort; *e.g.* certain characters must appear in each word (like the [vowels](http://en.wikipedia.org/wiki/Vowels) in English), some characters never follow others, some may be doubled but others may not.

[Statistical analysis](http://en.wikipedia.org/wiki/Statistics) of the text reveals patterns similar to those of natural languages. For instance, the word frequencies follow [Zipf's law](http://en.wikipedia.org/wiki/Zipf%27s_law), and the [word entropy](http://en.wikipedia.org/wiki/Information_entropy) (about 10 bits per word) is similar to that of [English](http://en.wikipedia.org/wiki/English_language) or [Latin](http://en.wikipedia.org/wiki/Latin) texts.[[5]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-Landini-4) Some words occur only in certain sections, or in only a few pages; others occur throughout the manuscript. There are very few repetitions among the thousand or so "labels" attached to the illustrations. In the *herbal* section, the first word on each page occurs only on that page, and may be the name of the plant.

On the other hand, the Voynich manuscript's "language" is quite unlike [European languages](http://en.wikipedia.org/wiki/European_languages) in several aspects. Firstly, there are practically no words comprising more than ten glyphs, yet there are also few one- or two-letter words. The distribution of letters within the word is also rather peculiar: some characters only occur at the beginning of a word, some only at the end, and some always in the middle section – an arrangement found in [Semitic alphabets](http://en.wikipedia.org/wiki/Semitic_alphabets) but not in the [Latin](http://en.wikipedia.org/wiki/Latin_alphabet) or [Cyrillic alphabets](http://en.wikipedia.org/wiki/Cyrillic_alphabet) (with the exception of the [Greek](http://en.wikipedia.org/wiki/Greek_alphabet) letters [Beta](http://en.wikipedia.org/wiki/Beta_%28letter%29) and [Sigma](http://en.wikipedia.org/wiki/Sigma)).

The text seems to be more repetitive than typical European languages; there are instances where the same common word appears up to three times in a row. Words that differ only by one letter also repeat with unusual frequency.

There are only a few words in the manuscript written in a seemingly Latin script. In the last page, there are four lines of writing which are written in (rather distorted) Latin letters, except for two words in the main script. The lettering resembles European [alphabets](http://en.wikipedia.org/wiki/Alphabet) of the 15th century, but the words do not seem to make sense in any language.[[6]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-5) Also, a series of diagrams in the "astronomical" section has the names of ten of the months (from March to December) written in Latin script, with spelling suggestive of the [medieval](http://en.wikipedia.org/wiki/Medieval) languages of [France](http://en.wikipedia.org/wiki/France) or the [Iberian Peninsula](http://en.wikipedia.org/wiki/Iberian_Peninsula).[[7]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-6) However, it is not known whether these bits of Latin script were part of the original text, or were added at a later time.

##  The "biological" section of the manuscript has dense text and illustrations showing nude women bathing.

##  The "herbal" section of the manuscript contains illustrations of plants.

##  A detail from the "biological" section of the manuscript.

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### Illustrations

The [illustrations](http://en.wikipedia.org/wiki/Illustration) of the [manuscript](http://en.wikipedia.org/wiki/Manuscript) shed little light on its contents, but imply that the book consists of six "sections", with different styles and subject matter. Except for the last section, which contains only text, almost every page contains at least one [illustration](http://en.wikipedia.org/wiki/Illustration). The sections, and their conventional names, are:

* ***Herbal*** — each page displays one plant (sometimes two), and a few paragraphs of text—a format typical of [European](http://en.wikipedia.org/wiki/Europe) [herbals](http://en.wikipedia.org/wiki/Herbal) of the time. Some parts of these drawings are larger and cleaner copies of sketches seen in the *pharmaceutical* section (below). None of the plants depicted are unambiguously identifiable.[[*citation needed*](http://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed)]
* ***Astronomical*** — contains circular [diagrams](http://en.wikipedia.org/wiki/Diagram), some of them with [suns](http://en.wikipedia.org/wiki/Star_system), [moons](http://en.wikipedia.org/wiki/Natural_satellite), and [stars](http://en.wikipedia.org/wiki/Stars), suggestive of [astronomy](http://en.wikipedia.org/wiki/Astronomy) or [astrology](http://en.wikipedia.org/wiki/Astrology). One series of 12 diagrams depicts conventional symbols for the [zodiacal](http://en.wikipedia.org/wiki/Zodiac) [constellations](http://en.wikipedia.org/wiki/Constellation) (two fish for [Pisces](http://en.wikipedia.org/wiki/Pisces_%28constellation%29), a bull for [Taurus](http://en.wikipedia.org/wiki/Taurus_%28constellation%29), a hunter with [crossbow](http://en.wikipedia.org/wiki/Crossbow) for [Sagittarius](http://en.wikipedia.org/wiki/Sagittarius_%28constellation%29), etc.). Most of the females are depicted at least partially naked. Each is also holding what appears to be a labeled star, or is shown with the star attached by what could be a tether or cord of some kind to either arm (as a child might have a balloon tied to his or her wrist today). The last two pages of this section ([Aquarius](http://en.wikipedia.org/wiki/Aquarius_%28constellation%29) and [Capricornus](http://en.wikipedia.org/wiki/Capricornus), roughly January and February) were lost, while [Aries](http://en.wikipedia.org/wiki/Aries_%28constellation%29) and Taurus are split into four paired diagrams with 15 stars each. Some of these diagrams are on fold-out pages.
* ***Biological*** — a dense continuous text interspersed with figures, mostly showing small nude women bathing in pools or tubs connected by an elaborate network of pipes, some of them clearly shaped like body [organs](http://en.wikipedia.org/wiki/Organ_%28anatomy%29). Some of the women wear crowns.
* ***Cosmological*** — more circular diagrams, but of an obscure nature. This section also has fold-outs; one of them spans six pages and contains some sort of [map](http://en.wikipedia.org/wiki/Map) or diagram, with nine "islands" connected by "[causeways](http://en.wikipedia.org/wiki/Causeway)", castles, and possibly a [volcano](http://en.wikipedia.org/wiki/Volcano).
* ***Pharmaceutical*** — many labeled drawings of isolated plant parts ([roots](http://en.wikipedia.org/wiki/Root), [leaves](http://en.wikipedia.org/wiki/Leaves), etc.); objects resembling [apothecary](http://en.wikipedia.org/wiki/Apothecary) jars drawn along the margins; and a few text paragraphs.
* ***Recipes*** — many short paragraphs, each marked with a flower-like (or star-like) "bullet".

## History

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## [Wilfrid Voynich](http://en.wikipedia.org/wiki/Wilfrid_Voynich)

The history of the manuscript is still full of gaps, especially in its earliest part.[[8]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-7) Since the manuscript's alphabet does not resemble any known script, and the text is still undeciphered, the only useful evidence as to the book's age and origin are the illustrations — especially the dress and hairstyles of the human figures, and a couple of castles that are seen in the diagrams. They are all characteristically European, and based on that evidence most experts assign the book to dates between 1450 and 1520. This estimate is supported by other secondary clues.

The earliest confirmed owner of the manuscript was Georg Baresch, an obscure [alchemist](http://en.wikipedia.org/wiki/Alchemy) who lived in [Prague](http://en.wikipedia.org/wiki/Prague) in the early 17th century. Baresch apparently was just as puzzled as we are today about this "[Sphynx](http://en.wikipedia.org/wiki/Sphinx%22%20%5Co%20%22Sphinx)" that had been "taking up space uselessly in his library" for many years.[[9]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-8) On learning that [Athanasius Kircher](http://en.wikipedia.org/wiki/Athanasius_Kircher), a [Jesuit](http://en.wikipedia.org/wiki/Society_of_Jesus) scholar from the [Collegio Romano](http://en.wikipedia.org/wiki/Collegio_Romano), had published a [Coptic](http://en.wikipedia.org/wiki/Coptic_language) ([Ethiopian](http://en.wikipedia.org/wiki/Ethiopian)) dictionary and "deciphered" the [Egyptian hieroglyphs](http://en.wikipedia.org/wiki/Egyptian_hieroglyph), he sent a sample copy of the script to Kircher in [Rome](http://en.wikipedia.org/wiki/Rome) (twice), asking for clues. His 1639 letter to Kircher, which was recently located by [Rene Zandbergen](http://en.wikipedia.org/w/index.php?title=Rene_Zandbergen&action=edit&redlink=1), is the earliest mention of the manuscript that has been found so far.

It is not known whether Kircher answered the request, but apparently he was interested enough to try to acquire the book, which Baresch apparently refused to yield. Upon Baresch's death the manuscript passed to his friend [Jan Marek Marci](http://en.wikipedia.org/wiki/Jan_Marek_Marci) (Johannes Marcus Marci), then rector of [Charles University](http://en.wikipedia.org/wiki/Charles_University) in Prague; who promptly sent the book to Kircher, his longtime friend and correspondent. Marci's cover letter (1666) is still attached to the manuscript.

There are no records of the book for the next 200 years, but in all likelihood it was kept, with the rest of Kircher's correspondence, in the library of the [Collegio Romano](http://en.wikipedia.org/wiki/Collegio_Romano) (now the [Pontifical Gregorian University](http://en.wikipedia.org/wiki/Pontifical_Gregorian_University)). It probably remained there until the troops of [Victor Emmanuel II of Italy](http://en.wikipedia.org/wiki/Victor_Emmanuel_II_of_Italy) captured the city in 1870 and annexed the [Papal States](http://en.wikipedia.org/wiki/Papal_States). The new Italian government decided to confiscate many properties of the Church, including the library of the Collegio. According to investigations by [Xavier Ceccaldi](http://en.wikipedia.org/w/index.php?title=Xavier_Ceccaldi&action=edit&redlink=1) and others, just before this happened many books of the University's library were hastily transferred to the personal libraries of its faculty, which were exempt from confiscation. Kircher's correspondence was among those books—and so apparently was the Voynich manuscript, as it still bears the [ex libris](http://en.wikipedia.org/wiki/Bookplate) of [Petrus Beckx](http://en.wikipedia.org/wiki/Pieter_Beckx), head of the Jesuit order and the University's Rector at the time.

Beckx's "private" library was moved to the [Villa Mondragone, Frascati](http://en.wikipedia.org/wiki/Frascati), a large country palace near [Rome](http://en.wikipedia.org/wiki/Rome) that had been bought by the [Society of Jesus](http://en.wikipedia.org/wiki/Society_of_Jesus) in 1866 and housed the headquarters of the Jesuits' [Ghislieri College](http://en.wikipedia.org/wiki/Ghislieri_College).

Around 1912 the Collegio Romano was apparently short of money and decided to sell (very discreetly) some of its holdings. Wilfrid Voynich acquired 30 manuscripts, among them the manuscript that now bears his name. In 1930, after his death, the manuscript was inherited by his widow [Ethel Lilian Voynich](http://en.wikipedia.org/wiki/Ethel_Lilian_Voynich) (known as the author of the novel [*The Gadfly*](http://en.wikipedia.org/wiki/The_Gadfly) and daughter of famous mathematician [George Boole](http://en.wikipedia.org/wiki/George_Boole)). She died in 1960 and left the manuscript to her close friend, Miss [Anne Nill](http://en.wikipedia.org/w/index.php?title=Anne_Nill&action=edit&redlink=1). In 1961, Anne Nill sold the book to another antique book dealer [Hans P. Kraus](http://en.wikipedia.org/wiki/Hans_P._Kraus). Unable to find a buyer, Kraus donated the manuscript to Yale University in 1969.

## Theories about authorship

Many names have been proposed as possible authors of the Voynich manuscript.

Marci's 1665 cover letter to Kircher says that, according to his late friend [Raphael Mnishovsky](http://en.wikipedia.org/wiki/Raphael_Sobiehrd-Mnishovsky), the book had once been bought by [Rudolf II, Holy Roman Emperor](http://en.wikipedia.org/wiki/Rudolf_II%2C_Holy_Roman_Emperor) and King of [Bohemia](http://en.wikipedia.org/wiki/Bohemia) (1552–1612) for 600 [ducats](http://en.wikipedia.org/wiki/Ducat) — around [$](http://en.wikipedia.org/wiki/American_dollar)30,800 as of 2005. According to the letter, Rudolf believed the author to be the [Franciscan](http://en.wikipedia.org/wiki/Franciscan) friar and [polymath](http://en.wikipedia.org/wiki/Polymath) [Roger Bacon](http://en.wikipedia.org/wiki/Roger_Bacon) (1214–1294).

Even though Marci said that he was "suspending his judgment" about this claim, it was taken quite seriously by Voynich, who did his best to confirm it. His conviction strongly influenced most deciphering attempts for the next 80 years. However, scholars who have looked at the Voynich manuscript and are familiar with Bacon's works have flatly denied that possibility[*[citation needed](http://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed%22%20%5Co%20%22Wikipedia%3ACitation%20needed)*]. Mnishovsky died in 1644, and the deal must have occurred before Rudolf's abdication in 1611 — at least 55 years before Marci's letter.

## The assumption that Roger Bacon was the author led Voynich to conclude that the person who sold the manuscript to Rudolf could only be [John Dee](http://en.wikipedia.org/wiki/John_Dee_%28mathematician%29), a mathematician and astrologer at the court of [Queen Elizabeth I](http://en.wikipedia.org/wiki/Queen_Elizabeth_I), known to have owned a large collection of Bacon's manuscripts. This theory is also conveyed by Voynich manuscript scholar [Gordon Rugg](http://en.wikipedia.org/wiki/Gordon_Rugg). Dee and his [*scrier*](http://en.wikipedia.org/wiki/Scrying) ([mediumic assistant](http://en.wikipedia.org/wiki/Spirit_medium%22%20%5Co%20%22Spirit%20medium)) [Edward Kelley](http://en.wikipedia.org/wiki/Edward_Kelley) lived in Bohemia for several years where they had hoped to sell their services to the Emperor. However, Dee's meticulously kept diaries do not mention that sale, and make it seem quite unlikely. If the Voynich manuscript author is not Bacon, the connection to Dee may just disappear. It is possible that Dee himself may have written it and spread the rumour that it was originally a work of Bacon's in the hopes of later selling it. The assumption that Roger Bacon was the author led Voynich to conclude that the person who sold the manuscript to Rudolf could only be [John Dee](http://en.wikipedia.org/wiki/John_Dee_%28mathematician%29), a mathematician and astrologer at the court of [Queen Elizabeth I](http://en.wikipedia.org/wiki/Queen_Elizabeth_I), known to have owned a large collection of Bacon's manuscripts. This theory is also conveyed by Voynich manuscript scholar [Gordon Rugg](http://en.wikipedia.org/wiki/Gordon_Rugg). Dee and his [*scrier*](http://en.wikipedia.org/wiki/Scrying) ([mediumic assistant](http://en.wikipedia.org/wiki/Spirit_medium%22%20%5Co%20%22Spirit%20medium)) [Edward Kelley](http://en.wikipedia.org/wiki/Edward_Kelley) lived in Bohemia for several years where they had hoped to sell their services to the Emperor. However, Dee's meticulously kept diaries do not mention that sale, and make it seem quite unlikely. If the Voynich manuscript author is not Bacon, the connection to Dee may just disappear. It is possible that Dee himself may have written it and spread the rumour that it was originally a work of Bacon's in the hopes of later selling it.

Dee's companion in Prague, [Edward Kelley](http://en.wikipedia.org/wiki/Edward_Kelley), was a self-styled alchemist who claimed to be able to turn [copper](http://en.wikipedia.org/wiki/Copper) into [gold](http://en.wikipedia.org/wiki/Gold) by means of a secret powder which he had dug out of a [Bishop](http://en.wikipedia.org/wiki/Bishop)'s tomb in [Wales](http://en.wikipedia.org/wiki/Wales). As Dee's *scrier*, he claimed to be able to invoke [angels](http://en.wikipedia.org/wiki/Angel) through a [shewstone](http://en.wikipedia.org/wiki/Shewstone), and had long conversations with them—which Dee dutifully noted down. The angel's language was called [Enochian](http://en.wikipedia.org/wiki/Enochian), after [Enoch](http://en.wikipedia.org/wiki/Enoch_%28ancestor_of_Noah%29), the Biblical father of [Methuselah](http://en.wikipedia.org/wiki/Methuselah); according to legend, he had been taken on a tour of Heaven by angels, and later written a [book](http://en.wikipedia.org/wiki/Book_of_Enoch) about what he saw there. Several people (see below) have suggested that, just as Kelley may have invented Enochian to dupe Dee[*[citation needed](http://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed%22%20%5Co%20%22Wikipedia%3ACitation%20needed)*], he could have fabricated the Voynich manuscript to swindle the Emperor (who was already paying Kelley for his supposed alchemical expertise).

### Fabrication by Voynich

Others suspected Voynich of having fabricated the manuscript himself. As an antique book dealer, he probably had the necessary knowledge and means; and a "lost book" by Roger Bacon would have been worth a fortune. However, by expert internal dating of the manuscript, and the recent discovery of Baresch's letter to Kircher, many consider that possibility to have been eliminated.[[10]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-9) Still, internal dating is often highly speculative and depends on many assumptions which may, themselves, be lacking in hard factual support. There has also been debate over what date the internal evidence suggests, with some scholars perceiving a more modern date. Further, Baresch's letter (and Marci's as well) only establish the existence of *a* manuscript; not that the Voynich manuscript is *the same one* spoken of there. In fact, their letters might even be taken as the motivation for Voynich to fabricate the manuscript (assuming he was aware of them), rather than as proofs authenticating it. But if a fabrication, the question arises as to why neither Voynich nor his widow ever attempted to sell it. To fabricate a document for profit but never attempt to sell it would be highly unusual. Fame rather than fortune might be speculated as a motive, but that would not explain why Voynich's widow never attempted to sell the manuscript after his death. All things considered, most who have studied the history of the manuscript do not believe that Voynich fabricated the document.

### Other theories

A [photostatic](http://en.wikipedia.org/wiki/Photostat) reproduction of the first page of the Voynich manuscript, taken by Voynich sometime before 1921, showed some faint writing that had been erased. With the help of chemicals, the text could be read as the name 'Jacobj `a Tepenece'. This is taken to be Jakub Horčický of Tepenec, who was also known by his Latin name: [Jacobus Sinapius](http://en.wikipedia.org/wiki/Jacobus_Sinapius) (1575–1622). He was a specialist in [herbal medicine](http://en.wikipedia.org/wiki/Herbal_medicine), [Rudolph II](http://en.wikipedia.org/wiki/Rudolph_II)'s personal physician, and curator of his botanical gardens. Voynich, and many other people after him, concluded from this "signature" that Jacobus owned the Voynich manuscript before Baresch, and saw in that a confirmation of Mnishovsky's story. Others have suggested that Jacobus himself could be the author.

However, that writing does not match Jacobus's signature, as found in a document located by Jan Hurych in 2003.[[11]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-10) It is possible that the writing on page *f1r* was added by a later owner or librarian, and is only this person's guess as to the book's author. (In the Jesuit history books that were available to Kircher, Jesuit-educated Jacobus is the only alchemist or doctor from Rudolf's court who deserves a full-page entry, while, for example, [Tycho Brahe](http://en.wikipedia.org/wiki/Tycho_Brahe) is barely mentioned.) Moreover, the chemicals applied by Voynich have so degraded the vellum that hardly a trace of the signature can be seen today; thus there is also the suspicion that the signature was fabricated by Voynich in order to strengthen the Roger Bacon theory.

[Jan Marci](http://en.wikipedia.org/wiki/Jan_Marek_Marci) met Kircher when he led a delegation from Charles University to Rome in 1638; and over the next 27 years, the two scholars exchanged many letters on a variety of scientific subjects. Marci's trip was part of a continuing struggle by the [secularist](http://en.wikipedia.org/wiki/Secularism) side of the University to maintain their independence from the Jesuits, who ran the rival [Clementinum](http://en.wikipedia.org/wiki/Clementinum) college in Prague. In spite of those efforts, the two universities were merged in 1654, under Jesuit control. It has therefore been speculated that political animosity against the Jesuits led Marci to fabricate Baresch's letters, and later the Voynich manuscript, in an attempt to expose and discredit their "star" Kircher.

Marci's personality and knowledge appear to have been adequate for this task; and Kircher was an easy target. Indeed, Baresch's letter bears some resemblance to a hoax that orientalist [Andreas Mueller](http://en.wikipedia.org/w/index.php?title=Andreas_Mueller&action=edit&redlink=1) once played on Kircher. Mueller concocted an unintelligible manuscript and sent it to Kircher with a note explaining that it had come from Egypt. He asked Kircher for a translation, and Kircher, reportedly, produced one at once.

It is worth noting that the only proofs of Georg Baresch's existence are three letters sent to Kircher: one by Baresch (1639), and two by Marci (about a year later). It is also curious that the correspondence between Marci and Kircher ends in 1665, precisely with the Voynich manuscript "cover letter". However, Marci's secret grudge against the Jesuits is pure conjecture: a faithful Catholic, he himself had studied to become a Jesuit, and shortly before his death in 1667 he was granted honorary membership in their Order.

[Raphael Mnishovsky](http://en.wikipedia.org/wiki/Raphael_Sobiehrd-Mnishovsky) (Zdeněk The prince of Lobkovice Rafael Mníškovský), the friend of Marci who was the reputed source of Bacon's story, was himself a [cryptographer](http://en.wikipedia.org/wiki/Cryptographer) (among many other things), and apparently invented a [cipher](http://en.wikipedia.org/wiki/Cipher) which he claimed was uncrackable (ca. 1618). This has led to the theory that he produced the Voynich manuscript as a practical demonstration of his cipher— and made poor Baresch his unwitting "guinea pig" (a test subject). After Kircher published his book on Coptic, Mnishovsky (so the theory goes) may have thought that stumping him would be a much better trophy than stumping Baresch, and convinced the alchemist to ask the Jesuit's help. He would have invented the Roger Bacon story to motivate Baresch. Indeed, the disclaimer in the Voynich manuscript cover letter could mean that Marci suspected a lie. However, there is no definite evidence for this theory.

Dr [Leonell C. Strong](http://en.wikipedia.org/w/index.php?title=Leonell_C._Strong&action=edit&redlink=1), a cancer research scientist and amateur cryptographer, tried to decipher the Voynich manuscript. Strong said that the solution to the Voynich manuscript was a "peculiar double system of arithmetical progressions of a multiple alphabet". Strong claimed that the [plaintext](http://en.wikipedia.org/wiki/Plaintext) revealed the Voynich manuscript to be written by the 16th century English author [Anthony Ascham](http://en.wikipedia.org/w/index.php?title=Anthony_Ascham_%28author%29&action=edit&redlink=1), whose works include *A Little Herbal*, published in 1550. Although the Voynich manuscript does contain sections resembling a herbal, the main argument against this theory is that it is unknown where Anthony would have obtained such literary and cryptographic knowledge.

[Nick Pelling](http://en.wikipedia.org/wiki/Nick_Pelling) has developed a theory in his book that the Voynich manuscript was written by [Antonio Averlino](http://en.wikipedia.org/wiki/Antonio_Averlino) (also known as "Filarete"), an Italian renaissance architect.[[4]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-Pelling-3) According to Pelling's theory, Averlino tried to reach [Istanbul](http://en.wikipedia.org/wiki/Istanbul) around 1465, and enciphered in the Voynich manuscript some of his own works about various engineering topics to be able to export his knowledge to the [Ottoman](http://en.wikipedia.org/wiki/Ottoman_Empire) Turks past Venetian border guards. The theory is based mainly on circumstantial evidence.

Pelling examines several characteristics of the cipher text and suggests means of encryption Averlino might have employed, but does not claim to have deciphered the contents. If Pelling is right, then the manuscript is enciphered with an extremely convoluted cascade of methods, including "fake" artifacts (odd characteristics of the cipher text which hint to an enciphering method which was actually *not* used.) He claims most of the marginalia are also fake, and were deliberately introduced to mislead code-breakers.

[Renaissance Magazine](http://en.wikipedia.org/wiki/Renaissance_Magazine) published a theory (issue #53, March 2007) by [H.R. SantaColoma](http://en.wikipedia.org/w/index.php?title=H.R._SantaColoma&action=edit&redlink=1) which points out the similarity of several objects in the Voynich manuscript to early [microscopes](http://en.wikipedia.org/wiki/Microscopes). [Cornelius Drebbel](http://en.wikipedia.org/wiki/Cornelius_Drebbel) is closely associated with the very earliest developments in microscopy. This led the author to notice similarities between the artistic style of Drebbel and various illustrations in the Voynich. In addition, Drebbel became the head alchemist to [Rudolf II](http://en.wikipedia.org/wiki/Rudolf_II) at about the time the Voynich is known to have been in Rudolf's court. The theory concludes that the Voynich may be Drebbel's notebook of observations and alchemy experiments, which he left in [Prague](http://en.wikipedia.org/wiki/Prague) after the coup of 1611.

### Multiple authors

[Prescott Currier](http://en.wikipedia.org/w/index.php?title=Prescott_Currier&action=edit&redlink=1), a [US Navy](http://en.wikipedia.org/wiki/US_Navy) cryptographer who worked with the manuscript in the 1970s, observed that the pages of the "herbal" section could be separated into two sets, *A* and *B*, with distinctive statistical properties and apparently different handwritings. He concluded that the Voynich manuscript was the work of two or more [authors](http://en.wikipedia.org/wiki/Author) who used different [dialects](http://en.wikipedia.org/wiki/Dialect) or [spelling](http://en.wikipedia.org/wiki/Spelling) conventions, but who shared the same script. However, recent studies have questioned this conclusion. A handwriting expert who examined the book saw only one hand in the whole manuscript[*[citation needed](http://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed%22%20%5Co%20%22Wikipedia%3ACitation%20needed)*]. Also, when all sections are examined, one sees a more gradual transition, with herbal *A* and herbal *B* at opposite ends. Thus, Currier's observations could simply be the result of the herbal sections being written by one author over a long period of time.

## Theories about contents and purpose

##  This three-page foldout from the manuscript includes a chart that appears astronomical.

The overall impression given by the surviving leaves of the manuscript suggests that it was meant to serve as a [pharmacopoeia](http://en.wikipedia.org/wiki/Pharmacopoeia) or to address topics in medieval or early modern [medicine](http://en.wikipedia.org/wiki/Medicine). However, the puzzling details of illustrations have fueled many theories about the book's origins, the contents of its text, and the purpose for which it was intended.

The first section of the book is almost certainly [herbal](http://en.wikipedia.org/wiki/Herbal), but attempts to identify the plants, either with actual specimens or with the stylized drawings of contemporary herbals, have largely failed. Only a couple of plants (including a [wild pansy](http://en.wikipedia.org/wiki/Viola_tricolor) and the [maidenhair fern](http://en.wikipedia.org/wiki/Maidenhair_fern)) can be identified with some certainty. Those "herbal" pictures that match "pharmacological" sketches appear to be "clean copies" of these, except that missing parts were completed with improbable-looking details. In fact, many of the plants seem to be composite: the roots of one species have been fastened to the leaves of another, with flowers from a third.

Brumbaugh believed that one illustration depicted a New World [sunflower](http://en.wikipedia.org/wiki/Helianthus_annuus), which would help date the manuscript and open up intriguing possibilities for its origin. However, the resemblance is slight, especially when compared to the original wild species; and, since the scale of the drawing is not known, the plant could be many other members of the [same family](http://en.wikipedia.org/wiki/Asteraceae) — which includes the common [daisy](http://en.wikipedia.org/wiki/Daisy), [chamomile](http://en.wikipedia.org/wiki/German_chamomile), and many other species from all over the world.

The basins and tubes in the "biological" section may seem to indicate a connection to [alchemy](http://en.wikipedia.org/wiki/Alchemy), which would also be relevant if the book contained instructions on the preparation of medical compounds. However, alchemical books of the period share a common pictorial language, where processes and materials are represented by specific images (such as eagle, toad, man in tomb, couple in bed) or [standard textual symbols](http://en.wikipedia.org/wiki/Alchemical_symbol) (such as circle with cross); and none of these could be convincingly identified in the Voynich manuscript.

[Sergio Toresella](http://en.wikipedia.org/w/index.php?title=Sergio_Toresella&action=edit&redlink=1), an expert on ancient herbals, pointed out that the Voynich manuscript could be an [*alchemical herbal*](http://en.wikipedia.org/w/index.php?title=Alchemical_herbal&action=edit&redlink=1)—which actually had nothing to do with alchemy, but was a bogus herbal with invented pictures, that a [quack](http://en.wikipedia.org/wiki/Quackery) doctor would carry around just to impress his clients. Apparently there was a small [cottage industry](http://en.wikipedia.org/wiki/Cottage_industry) of such books somewhere in northern Italy, just at the right epoch. However, those books are quite different from the Voynich manuscript in style and format; and they were all written in plain language.

Astrological considerations frequently played a prominent role in herb gathering, blood-letting and other medical procedures common during the likeliest dates of the manuscript (see, for instance, [Nicholas Culpeper](http://en.wikipedia.org/wiki/Nicholas_Culpeper)'s books). However, apart from the obvious Zodiac symbols, and one diagram possibly showing the classical planets, no one has been able to interpret the illustrations within known astrological traditions (European or otherwise).

A circular drawing in the "astronomical" section depicts an irregularly shaped object with four curved arms, which some have interpreted as a picture of a [galaxy](http://en.wikipedia.org/wiki/Galaxy) that could only be obtained with a [telescope](http://en.wikipedia.org/wiki/Telescope). Other drawings were interpreted as [cells](http://en.wikipedia.org/wiki/Cell_%28biology%29) seen through a [microscope](http://en.wikipedia.org/wiki/Microscope). This would suggest an early modern, rather than a medieval, date for the manuscript's origin. However, the resemblance is rather questionable: on close inspection, the central part of the "galaxy" looks rather like a pool of water. Some of the images also look quite like sea urchins.

## Theories about the language

Many theories have been advanced as to the nature of the Voynich manuscript "language". Here is a partial list:

### [[edit](http://en.wikipedia.org/w/index.php?title=Voynich_manuscript&action=edit&section=10)] Ciphers

According to the "letter-based cipher" theory, the Voynich manuscript contains a meaningful text in some European language, that was intentionally rendered obscure by mapping it to the Voynich manuscript "alphabet" through a [cipher](http://en.wikipedia.org/wiki/Cipher) of some sort—an [algorithm](http://en.wikipedia.org/wiki/Algorithm) that operated on individual letters.

This has been the working hypothesis for most deciphering attempts in the twentieth century, including an informal team of [NSA](http://en.wikipedia.org/wiki/NSA) [cryptographers](http://en.wikipedia.org/wiki/Cryptographer) led by [William F. Friedman](http://en.wikipedia.org/wiki/William_F._Friedman) in the early 1950s. Simple [substitution ciphers](http://en.wikipedia.org/wiki/Substitution_cipher) can be excluded, because they are very easy to crack; so deciphering efforts have generally focused on [polyalphabetic ciphers](http://en.wikipedia.org/wiki/Polyalphabetic_cipher), invented by [Alberti](http://en.wikipedia.org/wiki/Leone_Battista_Alberti) in the 1460s. This class includes the popular [Vigenère cipher](http://en.wikipedia.org/wiki/Vigen%C3%A8re_cipher), which could have been strengthened by the use of nulls and/or equivalent symbols, letter rearrangement, false word breaks and so on. Some people assumed that vowels had been deleted before encryption. There have been several claims of deciphering along these lines, but none has been widely accepted — chiefly because the proposed deciphering algorithms depended on so many guesses by the user that they could extract a meaningful text from any random string of symbols.

The main argument for this theory is that the use of a strange alphabet by a European author can hardly be explained except as an attempt to hide information. Indeed, Roger Bacon knew about ciphers, and the estimated date for the manuscript roughly coincides with the birth of [cryptography](http://en.wikipedia.org/wiki/Cryptography) as a systematic discipline. Against this theory is the observation that a polyalphabetic cipher would normally destroy the "natural" statistical features that are seen in the Voynich manuscript, such as [Zipf's law](http://en.wikipedia.org/wiki/Zipf%27s_law). Also, although polyalphabetic ciphers were invented about 1467, variants only became popular in the 16th century, somewhat too late for the estimated date of the Voynich manuscript.

According to the "codebook cipher" theory, the Voynich manuscript "words" would actually be [codes](http://en.wikipedia.org/wiki/Code_%28cryptography%29) to be looked up in a "dictionary" or [codebook](http://en.wikipedia.org/wiki/Codebook). The main evidence for this theory is that the internal structure and length distribution of those words are similar to those of [Roman numerals](http://en.wikipedia.org/wiki/Roman_numeral)—which, at the time, would be a natural choice for the codes. However, book-based ciphers are viable only for short messages, because they are very cumbersome to write and to read.

### [[edit](http://en.wikipedia.org/w/index.php?title=Voynich_manuscript&action=edit&section=11)] Micrography

Following its 1912 rediscovery, one of the earliest efforts to unlock the book's secrets (and the first of many premature claims of decipherment) was made in 1921 by William Newbold of the [University of Pennsylvania](http://en.wikipedia.org/wiki/University_of_Pennsylvania). His singular hypothesis held that the visible text is meaningless itself, but that each apparent "letter" is in fact constructed of a series of tiny markings only discernible under [magnification](http://en.wikipedia.org/wiki/Magnification). These markings were supposed to be based on [ancient Greek](http://en.wikipedia.org/wiki/Ancient_Greece) [shorthand](http://en.wikipedia.org/wiki/Shorthand), forming a second level of script that held the real content of the writing. Newbold claimed to have used this knowledge to work out entire paragraphs proving the authorship of Bacon and recording his use of a [compound microscope](http://en.wikipedia.org/wiki/Compound_microscope) four hundred years before [Leeuwenhoek](http://en.wikipedia.org/wiki/Leeuwenhoek). However, John Manly of the [University of Chicago](http://en.wikipedia.org/wiki/University_of_Chicago) pointed out serious flaws in this theory. Each shorthand character was assumed to have multiple interpretations, with no reliable way to determine which was intended for any given case. Newbold's method also required rearranging letters at will until intelligible [Latin](http://en.wikipedia.org/wiki/Latin_language) was produced. These factors alone ensure the system enough flexibility that nearly anything at all could be "read" in the [microscopic](http://en.wikipedia.org/wiki/Microscopic) markings, which in any case are[[*citation needed*](http://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed)] themselves illusory. Although there is a tradition of [Hebrew](http://en.wikipedia.org/wiki/Hebrew_language) [micrography](http://en.wikipedia.org/wiki/Micrography),[[*clarification needed*](http://en.wikipedia.org/wiki/Wikipedia%3APlease_clarify)][[*citation needed*](http://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed)] it is nowhere near as compact or complex as the shapes Newbold made out. Upon close study, these turn out to be mere artifacts of the way ink cracks as it dries on rough vellum, and an example of [pareidolia](http://en.wikipedia.org/wiki/Pareidolia). Thanks to Manly's thorough refutation, the micrography theory is now disregarded.

### [[edit](http://en.wikipedia.org/w/index.php?title=Voynich_manuscript&action=edit&section=12)] Steganography

This theory holds that the text of the Voynich manuscript is mostly meaningless, but contains meaningful information hidden in inconspicuous details—e.g. the second letter of every word, or the number of letters in each line. This technique, called [steganography](http://en.wikipedia.org/wiki/Steganography), is very old, and was described by [Johannes Trithemius](http://en.wikipedia.org/wiki/Johannes_Trithemius) in 1499. Some people[*[who?](http://en.wikipedia.org/wiki/Wikipedia%3AAvoid_weasel_words%22%20%5Co%20%22Wikipedia%3AAvoid%20weasel%20words)*] suggested that the plain text was to be extracted by a [Cardan grille](http://en.wikipedia.org/wiki/Cardan_grille) of some sort. This theory is hard to prove or disprove, since [stegotexts](http://en.wikipedia.org/wiki/Stegotext) can be arbitrarily hard to crack. An argument against it is that using a cipher-looking cover text defeats the main purpose of steganography, which is to hide the very *existence* of the secret message.

Some people have suggested that the meaningful text could be encoded in the length or shape of certain pen strokes. There are indeed examples of steganography from about that time that use letter shape ([italic](http://en.wikipedia.org/wiki/Emphasis_%28typography%29) vs. upright) to hide information. However, when examined at high magnification, the Voynich manuscript pen strokes seem quite natural, and substantially affected by the uneven surface of the vellum.

### [[edit](http://en.wikipedia.org/w/index.php?title=Voynich_manuscript&action=edit&section=13)] Exotic natural language

The linguist [Jacques Guy](http://en.wikipedia.org/wiki/Jacques_Guy) once suggested that the Voynich manuscript text could be some exotic natural language, written [in the plain](http://en.wikipedia.org/wiki/Plaintext) with an invented alphabet. The word structure is indeed similar to that of many language families of East and Central Asia, mainly [Sino-Tibetan](http://en.wikipedia.org/wiki/Sino-Tibetan_languages) ([Chinese](http://en.wikipedia.org/wiki/Chinese_language), [Tibetan](http://en.wikipedia.org/wiki/Tibetan_language), and [Burmese](http://en.wikipedia.org/wiki/Burmese_language)), [Austroasiatic](http://en.wikipedia.org/wiki/Austroasiatic_languages) ([Vietnamese](http://en.wikipedia.org/wiki/Vietnamese_language), [Khmer](http://en.wikipedia.org/wiki/Khmer_language), etc.) and possibly [Tai](http://en.wikipedia.org/wiki/Tai_languages) ([Thai](http://en.wikipedia.org/wiki/Thai_language), [Lao](http://en.wikipedia.org/wiki/Lao_language), etc.). In many of these languages, the "[words](http://en.wikipedia.org/wiki/Word_%28linguistics%29)" have only one [syllable](http://en.wikipedia.org/wiki/Syllable); and syllables have a rather rich structure, including [tonal patterns](http://en.wikipedia.org/wiki/Tonal_language).

This theory has some historical plausibility. While those languages generally had native scripts, these were notoriously difficult for Western visitors; which motivated the invention of several [phonetic](http://en.wikipedia.org/wiki/Phonetic) scripts, mostly with [Latin letters](http://en.wikipedia.org/wiki/Romanization) but sometimes with invented alphabets. Although the known examples are much later than the Voynich manuscript, history records hundreds of explorers and missionaries who could have done it—even before [Marco Polo](http://en.wikipedia.org/wiki/Marco_Polo)'s thirteenth century voyage, but especially after [Vasco da Gama](http://en.wikipedia.org/wiki/Vasco_da_Gama) sailed the sea route to the Orient in 1499. The Voynich manuscript author could also be a native of East Asia who lived in Europe, or who was educated at a European mission.

The main argument for this theory is that it is consistent with all statistical properties of the Voynich manuscript text which have been tested so far, including doubled and tripled words (which have been found to occur in Chinese and Vietnamese texts at roughly the same frequency as in the Voynich manuscript). It also explains the apparent lack of numerals and Western syntactic features (such as [articles](http://en.wikipedia.org/wiki/Article_%28grammar%29) and [copulas](http://en.wikipedia.org/wiki/Copula_%28linguistics%29)), and the general inscrutability of the illustrations. Another possible hint is two large red symbols on the first page, which have been compared to a Chinese-style book title, inverted and badly copied. Also, the apparent division of the year into 360 degrees (rather than 365 days), in groups of 15 and starting with Pisces, are features of the [Chinese agricultural calendar](http://en.wikipedia.org/wiki/Chinese_calendar) (*jie qi*). The main argument against the theory is the fact that no one (including scholars at the [Chinese Academy of Sciences](http://en.wikipedia.org/wiki/Chinese_Academy_of_Sciences) in [Beijing](http://en.wikipedia.org/wiki/Beijing)) could find any clear examples of Asian symbolism or Asian science in the illustrations.

In late 2003, [Zbigniew Banasik](http://en.wikipedia.org/w/index.php?title=Zbigniew_Banasik&action=edit&redlink=1) of Poland proposed that the manuscript is plaintext written in the [Manchu language](http://en.wikipedia.org/wiki/Manchu_language) and gave a proposed incomplete translation of the first page of the manuscript.[[12]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-11)

Jim Child, a linguist of Indo-European languages, has proposed that the manuscript is written in an early German language. [[13]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-12)

### [[edit](http://en.wikipedia.org/w/index.php?title=Voynich_manuscript&action=edit&section=14)] Glossolalia

In their book, Kennedy and Churchill hint to the possibility that the Voynich manuscript may be a case of [glossolalia](http://en.wikipedia.org/wiki/Glossolalia), [channeling](http://en.wikipedia.org/wiki/Channeling) or [outsider art](http://en.wikipedia.org/wiki/Outsider_art).[[14]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-13)

If this is true, then the author felt compelled to write large amounts of text in a manner which somehow resembles [stream of consciousness](http://en.wikipedia.org/wiki/Stream_of_consciousness_writing), either due to voices heard, or due to his own urge. While in glossolalia this often takes place in an invented language (usually made up of fragments of the author's own language), invented scripts for this purpose are rare. Kennedy and Churchill use [Hildegard von Bingen](http://en.wikipedia.org/wiki/Hildegard_von_Bingen)'s works to point out similarities between the illustrations she drew when she was suffering from severe bouts of [migraine](http://en.wikipedia.org/wiki/Migraine), which can induce a trance-like state prone to glossolalia, and the Voynich manuscript. Prominent features found in both are abundant "streams of stars", and the repetitive nature of the "nymphs" in the biological section.

The theory is virtually impossible to prove or disprove, short of deciphering the text; Kennedy and Churchill are themselves not convinced of the hypothesis, but consider it plausible. One of the drawbacks of this theory is that it fails to explain the deliberate structure of the manuscript and the carefully crafted astrological and botanical sections.

### [[edit](http://en.wikipedia.org/w/index.php?title=Voynich_manuscript&action=edit&section=15)] Constructed language

The peculiar internal structure of Voynich manuscript "words" has led [William F. Friedman](http://en.wikipedia.org/wiki/William_F._Friedman) and [John Tiltman](http://en.wikipedia.org/wiki/John_Tiltman) to arrive independently at the conjecture that the text could be a [constructed language](http://en.wikipedia.org/wiki/Constructed_language) in the plain—specifically, a *philosophical* or [*a priori* language](http://en.wikipedia.org/wiki/A_priori_%28languages%29). In languages of this class, the vocabulary is organized according to a [category system](http://en.wikipedia.org/w/index.php?title=Category_system&action=edit&redlink=1), so that the general meaning of a word can be deduced from its sequence of letters. For example, in the modern constructed language [Ro](http://en.wikipedia.org/wiki/Ro_%28language%29), *bofo-* is the category of colors, and any word beginning with those letters would name a color: so *red* is *bofoc*, and *yellow* is *bofof*. (This is an extreme version of the [book classification scheme](http://en.wikipedia.org/wiki/Library_of_Congress_Classification) used by many libraries — in which, say, *P* stands for *language and literature*, *PA* for [Greek](http://en.wikipedia.org/wiki/Greek_language) and [Latin](http://en.wikipedia.org/wiki/Latin), *PC* for [Romance languages](http://en.wikipedia.org/wiki/Romance_languages), etc.)

This concept is quite old, as attested by [John Wilkins](http://en.wikipedia.org/wiki/John_Wilkins)'s [*Philosophical Language*](http://en.wikipedia.org/wiki/An_Essay_towards_a_Real_Character_and_a_Philosophical_Language) (1668), but still postdates the generally accepted origin of the VM by two centuries. In most known examples, categories are subdivided by adding [suffixes](http://en.wikipedia.org/wiki/Suffix); as a consequence, a text in a particular subject would have many words with similar prefixes — for example, all plant names would begin with the similar letters, and likewise for all diseases, etc. This feature could then explain the repetitious nature of the Voynich text. However, no one has been able yet to assign a plausible meaning to any prefix or suffix in the Voynich manuscript.

In his book *Solution of the Voynich Manuscript: A liturgical Manual for the Endura Rite of the Cathari Heresy, the Cult of Isis* (1987), [Leo Levitov](http://en.wikipedia.org/wiki/Leo_Levitov) declared the manuscript a [plaintext](http://en.wikipedia.org/wiki/Plaintext) transcription of a "polyglot oral tongue".[[15]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-14) This he defined as "a literary language which would be understandable to people who did not understand Latin and to whom this language could be read." His proposed decryption has three Voynich letters making a syllable, to produce a series of syllables that form a mixture of [Middle Dutch](http://en.wikipedia.org/wiki/Middle_Dutch) with many borrowed [Old French](http://en.wikipedia.org/wiki/Old_French) and [Old High German](http://en.wikipedia.org/wiki/Old_High_German) words.

According to Levitov, the rite of Endura was none other than the assisted suicide ritual for people already believed to be near death, famously associated with the [Cathar](http://en.wikipedia.org/wiki/Cathar) faith (although the reality of this ritual is also in question). He explains that the chimerical plants are not meant to represent any species of flora, but are secret symbols of the faith. The women in the basins with elaborate plumbing represent the suicide ritual itself, which he believed involved venesection: the cutting of a vein to allow the blood to drain into a warm bath. The constellations with no celestial analogue are representative of the stars in Isis' mantle.

This theory is questioned on several grounds. First, the Cathar faith is widely understood to have been a Christian [gnosticism](http://en.wikipedia.org/wiki/Gnosticism), and not in any way associated with [Isis](http://en.wikipedia.org/wiki/Isis). Second, this theory places the book's origins in the twelfth or thirteenth century, which is several centuries earlier than most experts believe based on internal evidence. Third, the Endura ritual involved fasting, not venesection. Levitov offered no evidence beyond his translation for this theory.

### [[edit](http://en.wikipedia.org/w/index.php?title=Voynich_manuscript&action=edit&section=16)] Hoax

The bizarre features of the Voynich manuscript text (such as the doubled and tripled words), the suspicious contents of its illustrations (such as the chimeric plants) and its lack of historical reference support the idea that the manuscript is really a [hoax](http://en.wikipedia.org/wiki/Hoax). In other words, if no one is able to extract meaning from the book, perhaps this is because the document contains no meaningful content in the first place.

The argument for authenticity, on the other hand, is that the manuscript appears too sophisticated to be a hoax. While hoaxes of the period tended to be quite crude, the Voynich manuscript exhibits many subtle characteristics which only show up after careful statistical analysis. These fine touches require much more work than would have been necessary for a simple forgery, and some of the complexities are only visible with modern tools (like the prose's obedience to [Zipf's law](http://en.wikipedia.org/wiki/Zipf%27s_law)). The question then arises: why would the author employ such a complex and laborious forging algorithm in the creation of a simplistic hoax, if no one in the expected audience (that is, the creator's contemporaries) could tell the difference?

Various hoax theories have been proposed over time:

In 2003, computer scientist [Gordon Rugg](http://en.wikipedia.org/wiki/Gordon_Rugg) showed that text with characteristics similar to the Voynich manuscript could have been produced using a table of word prefixes, stems, and suffixes, which would have been selected and combined by means of a perforated paper overlay.[[16]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-15)[[17]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-16) The latter device, known as a [Cardan grille](http://en.wikipedia.org/wiki/Cardan_grille), was invented around 1550 as an encryption tool, slightly after the estimated creation date of the Voynich manuscript. Some maintain that the similarity between the pseudo-texts generated in Gordon Rugg's experiments and the Voynich manuscript is superficial, and the grille method could be used to emulate any language to a certain degree.[[18]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-17)

In April 2007, a study by Austrian researcher Andreas Schinner published in *Cryptologia* supported the hoax hypothesis.[[19]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-18) Schinner showed that the statistical properties of the manuscript's text were more consistent with meaningless gibberish produced using a quasi-[stochastic](http://en.wikipedia.org/wiki/Stochastic) method such as the one described by Rugg, than with Latin and medieval German texts. However, this comparison is valid only for plain text in European languages, or text enciphered with a simple [substitution cipher](http://en.wikipedia.org/wiki/Substitution_cipher), while analysis suggests a much more complex enciphering method and/or non-European origin of the underlying text of the Voynich manuscript (*see* "Letter-based cipher" and "Exotic natural language" above).

In late 2007, Claude Martin claimed that the Voynich manuscript is a hoax based on a convoluted anagramming algorithm for numbers. For example, the sequence 345678 would be retranscribed into 643875. While such a method would produce text somewhat similar to that of the Voynich manuscript, it's hard to explain why such a difficult and time-consuming procedure would be used for a hoax. In Martin's own words:

"...the ciphering method that we have just analyzed does not seem in accordance with those used in the Middle Ages, at the time of Trithème [*sic*], Vigenère, Cardan or Roger Bacon."[[20]](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_note-19)

However, Martin does not explain how he arrived at this conclusion.

## [[edit](http://en.wikipedia.org/w/index.php?title=Voynich_manuscript&action=edit&section=17)] See also

* [Artificial script](http://en.wikipedia.org/wiki/Artificial_script)
* [Asemic writing](http://en.wikipedia.org/wiki/Asemic_writing)
* [Book of Soyga](http://en.wikipedia.org/wiki/Book_of_Soyga)
* [Codex Seraphinianus](http://en.wikipedia.org/wiki/Codex_Seraphinianus)
* [European Voynich Alphabet](http://en.wikipedia.org/wiki/European_Voynich_Alphabet)
* [False document](http://en.wikipedia.org/wiki/False_document)
* [False writing system](http://en.wikipedia.org/wiki/False_writing_system)
* [Fictional language](http://en.wikipedia.org/wiki/Fictional_language)
* [Rohonc Codex](http://en.wikipedia.org/wiki/Rohonc_Codex)

## Notes

1. [**^**](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_ref-0) [Dennis Stallings](http://www.mystae.com/restricted/streams/scripts/voynich.html) estimates 1480–1520, while [Terence McKenna](http://www.amaranthpublishing.com/voynich.htm) states it dates to "at least 1586".
2. [**^**](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_ref-1) *Le Code Voynich*, the whole manuscript published with a short presentation in [French](http://en.wikipedia.org/wiki/French_language), ed. Jean-Claude Gawsewitch, (2005) [ISBN 2-35013-022-3](http://en.wikipedia.org/wiki/Special%3ABookSources/2350130223).
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4. ^ [***a***](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_ref-Pelling_3-0) [***b***](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_ref-Pelling_3-1) Pelling, Nicholas John. "The Curse of the Voynich: The Secret History of the World's Most Mysterious Manuscript". Compelling Press, 2006. [ISBN 0-9553160-0-6](http://en.wikipedia.org/wiki/Special%3ABookSources/0955316006)
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8. [**^**](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_ref-7) [Voynich MS - Long tour: Known history of the manuscript](http://www.voynich.nu/history.html)
9. [**^**](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_ref-8) [Letter, Georg Baresch to Athanasius Kircher, 1639](http://www.voynich.nu/letters.html) Archives of the Pontificia Università Gregoriana in Rome, shelfmark APUG 557, fol. 353
10. [**^**](http://en.wikipedia.org/wiki/Voynich_Manuscript#cite_ref-9) ["Origin of the manuscript"](http://www.voynich.nu/origin.html). Voynich MS. <http://www.voynich.nu/origin.html>. Retrieved on 2006-11-07.
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## External links

### Source material — the manuscript itself

* [Download the complete Voynich Manuscript in pdf](http://awesta.sibirjak.ru/files/Voynich.pdf) *Note: Copyright status unclear!*
* [Yale University Beinecke Rare Book and Manuscript Library gallery of high resolution digital scans of the Voynich manuscript](http://beinecke.library.yale.edu/dl_crosscollex/callnumSRCHXC.asp?callnum=MS_408)
	+ [Resources for downloading and using the high resolution scans of the Voynich manuscript](http://www.geocities.com/ctesibos/voynich/hiq/)

### General research

* [Archives of the Journal of Voynich Studies](http://www.geocities.com/rfamperes/) a more formal research forum
* [Elements and substructures in the Voynich manuscript](http://www.voynichcentral.com/users/synina/)
* [Dr Vladimir Sazonov's Voynich manuscript analysis site](http://voynich.naobum.de/)
* [Jorge Stolfi's Voynich Manuscript stuff](http://www.dcc.unicamp.br/~stolfi/voynich/)
	+ [Bibliography of Voynich manuscript related works](http://www.ic.unicamp.br/~stolfi/voynich/mirror/reeds/bib.html)
* [Voynich Central](http://voynichcentral.com/) resources, gallery and personal research websites
* [Voynich Manuscript Mailing List](http://voynich.net/)
	+ [The Voynich Archives - A searchable history of the mailing list](http://voynich.ms/) (currently featuring mails only up to autumn 2006)
* [Voynich.nu: The Voynich Manuscript](http://www.voynich.nu/index.html) Comprehensive information and analysis

### [Individual topics

* [Connections between the Voynich Manuscript](http://www.necfiles.org/voynich.htm) and the [Necronomicon](http://en.wikipedia.org/wiki/Necronomicon)
* [Interactive timeline of events surrounding the Voynich manuscript](http://www.as.ap.krakow.pl/jvs/timeline/) **(Polish)**
* [List of owners of the Voynich Manuscript](http://nabataea.net/vhistory.html)
* [*Nature* news article: World's most mysterious book may be a hoax](http://www.nature.com/nsu/031215/031215-5.html) A summary of Gordon Rugg's paper directed towards a more general audience
* [*Scientific American*: The Mystery of the Voynich Manuscript](http://www.sciam.com/article.cfm?chanID=sa006&colID=1&articleID=0000E3AA-70E1-10CF-AD1983414B7F0000)
* [Voynich New Atlantis Theory](http://www.santa-coloma.net/voynich_drebbel/voynich.html) Explores a possible connection between the Voynich manuscript and [The New Atlantis](http://en.wikipedia.org/wiki/The_New_Atlantis).