

Around 1912 ...

- Antiquarian Voynich acquires 30 manuscripts
- Among them *enciphered* manuscript
- Estimated 13th century



Figure: Wilfrid M. Voynich



Voynich's Finding

- 18cm × 25cm book
- ≈ 240 vellum pages
- Colored drawings
- “Large” portions of text



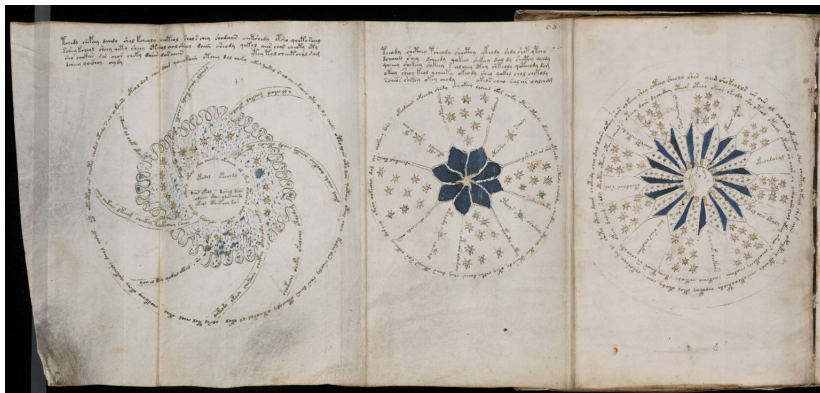
Plants

- Around 126 drawings of plants
- Text flowing around



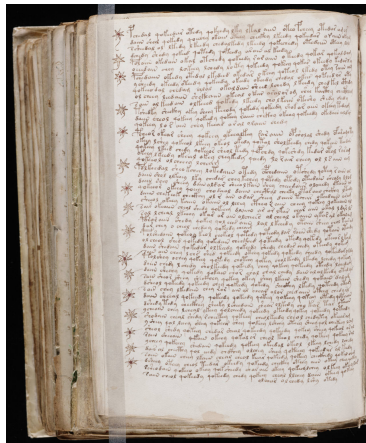
Stars

- Diagrams and “star-charts”
- Up to 6 pages



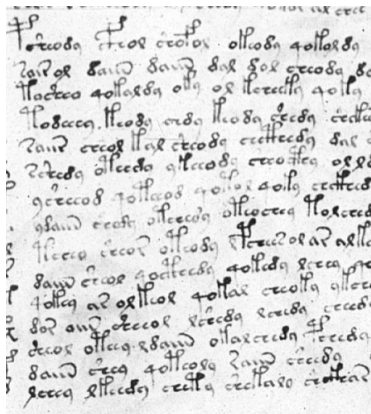
Text

- ≈ 170.000 characters of unknown script



Attempts to Solve the Manuscript

- Voynich provides everybody interested with reproductions
- Many theories of the authorship
 - ▶ Roger Bacon
 - ▶ John Dee
 - ▶ Leonardo da Vinci
 - ▶ Edward Kelly . . .



Micrography

- Tiny markings in the text
- Additional Substitution and Permutation



William Romaine Newbold

- Lecturer in Philosophy at University of Pennsylvania
- Recieves 3 pages from Voynich in 1919
- “Solves” it with the micrography theory
- Author: Roger Bacon (1214–1294)
- Plaintext contains descriptions about
 - ▶ Microscope
 - ▶ Galaxies
 - ▶ etc.
- But ...



Figure: William R. Newbold



William Romaine Newbold

- Lecturer in Philosophy at University of Pennsylvania
- Recieves 3 pages from Voynich in 1919
- “Solves” it with the micrography theory
- Author: Roger Bacon (1214–1294)
- Plaintext contains descriptions about
 - ▶ Microscope
 - ▶ Galaxies
 - ▶ etc.

● But ...



Figure: William R. Newbold



William Romaine Newbold

- Lecturer in Philosophy at University of Pennsylvania
- Recieves 3 pages from Voynich in 1919
- “Solves” it with the micrography theory
- Author: Roger Bacon (1214–1294)
- Plaintext contains descriptions about
 - ▶ Microscope
 - ▶ Galaxies
 - ▶ etc.
- But . . .



Figure: William R. Newbold



Another Look at the Text

- Written from the left to the right
- ≈ 170.000 glyphs
- ≈ 35.000 words of varying length
- 20 – 30 distinct glyphs
- ≈ 12 rare characters



a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	x	y	z
ⱱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ	Ɱ
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	X	Y	Z
ⱱ				Ɱ	Ɱ		Ɱ	Ɱ		Ɱ				Ɱ	Ɱ			Ɱ	Ɱ				Ɱ	Ɱ

More Properties

- ≈ 10 -bit entropy/word
 - ▶ English/Old-German/Latin
- Letter frequencies “similar” to european languages
- No words > 10 glyphs
- Only few 1 – 2 glyph words



More Properties

- ≈ 10 -bit entropy/word
 - ▶ English/Old-German/Latin
- Letter frequencies “similar” to european languages
- No words > 10 glyphs
- Only few 1 – 2 glyph words



Signal Intelligence Agency

- Simple monoalphabetic ciphers can be excluded
- First digitalization (on punch cards)
- War over ...



Figure: William Friedman



Signal Intelligence Agency

- Simple monoalphabetic ciphers can be excluded
- First digitalization (on punch cards)
- War over ...



Figure: William Friedman



Polyalphabetic Cipher

- Known since 14th century
- Cipher discs
- Usually destroys the statistical properties to some extent



Polyalphabetic Cipher

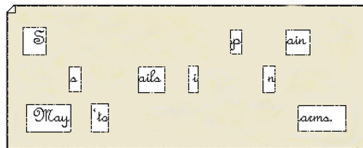
- Known since 14th century
- Cipher discs
- Usually destroys the statistical properties to some extent



Steganography

- Cardan Grille
- Attributed to Girolamo Cardano (1501-1576)
- Arbitrarily hard to find solution

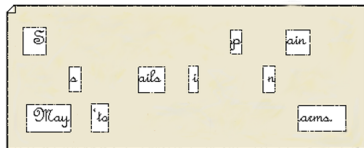
Sir John regards you well and speaks again that
 all as rightly 'wails him is yours now and ever.
 May he 'tone for past d'lays with many chaems.



Steganography

- Cardan Grille
- Attributed to Girolamo Cardano (1501-1576)
- Arbitrarily hard to find solution

Sir John regards you well and speaks again that
 all as rightly 'wails him is yours now and ever.
 May he 'tone for past d'lays with many chaems.



Exotic Natural or Constructed Language

- Jacques Guy:

- ▶ Thai
- ▶ Khmer ...
- ▶ Persian example:

Forest	جنگل	Jangal
Plant	گياه	Giah
Star	ستاره	Setare

- Invented Languages

- ▶ Lingua Ignota (12th century)
- ▶ Ro
- ▶ Codebook



Exotic Natural or Constructed Language

- Jacques Guy:

- ▶ Thai
- ▶ Khmer ...
- ▶ Persian example:

Forest	جنگل	Jangal
Plant	گياه	Giah
Star	ستاره	Setare

- Invented Languages

- ▶ Lingua Ignota (12th century)
- ▶ Ro
- ▶ Codebook



Hoax

- Fabrication by Voynich
- Earlier Fabrication



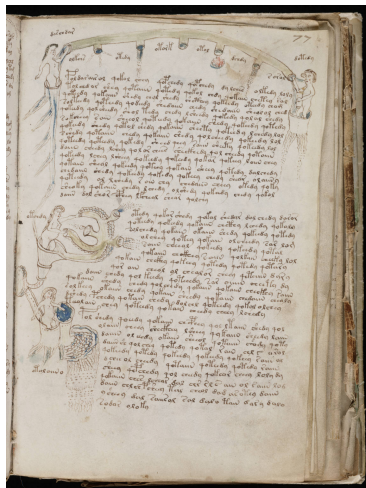
Hoax

- Fabrication by Voynich
- Earlier Fabrication



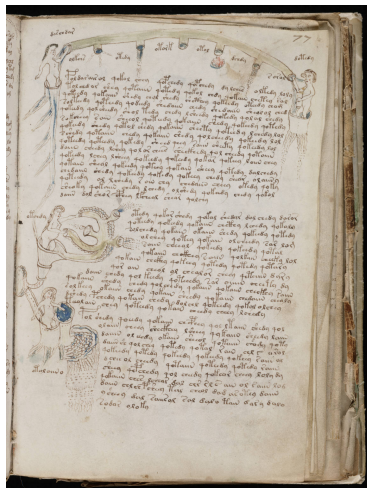
Facts

- C14 dating (done 2009) between 1404 and 1438
- Hoax possible but “not very plausible”
 - ▶ Vellum at this size was very expensive
- Beinecke Rare Book and Manuscript Library at Yale University



Facts

- C14 dating (done 2009) between 1404 and 1438
- Hoax possible but “not very plausible”
 - ▶ Vellum at this size was very expensive
- Beinecke Rare Book and Manuscript Library at Yale University



Conclusion

- Author and content remain unknown (> 600 years)
- Only certain is the date
- Tons of material and “bogus”
 - ▶ “On Alien-Writing”
 - ▶ Esoteric books with “solutions” etc.
- Romanesque Castle



Conclusion

- Author and content remain unknown (> 600 years)
- Only certain is the date
- Tons of material and “bogus”
 - ▶ “On Alien-Writing”
 - ▶ Esoteric books with “solutions” etc.
- Romanesque Castle



Conclusion

- Author and content remain unknown (> 600 years)
- Only certain is the date
- Tons of material and “bogus”
 - ▶ “On Alien-Writing”
 - ▶ Esoteric books with “solutions” etc.
- Romanesque Castle

