

Jan B. Hurych

Complete collection of author's VM studies. Pictures were digitized by author. The index of articles is in PDF bookmarks.

Copyright Jan B. Hurych. Copying of this material is not allowed except for personal use. Reprints, publishing or any other reproduction, be it in whole or in part, is allowed only with the exclusive permission of the author.



BOL-37-136



VOJNICH MANUSCRIPT (VM)

The content of the former website till 2016 is now compiled into the e-book **VM COMPLETE** (format PDF for PC or bookreaders) and is free for download at <http://hurontaria.baf.cz/BETA/vmcompletea.pdf> All in that book is the subject of copyright © Jan B. Hurych, webmaster



This frontpage of Czech VM research (this page) is at <http://hurontaria.baf.cz/CVM/>

Original VM scans made by Beinecke Library are at <http://beinecke.library.yale.edu/digitalibrary/voynich.html> the VM encyclopedia VM by René Zandbergen is at <http://www.voynich.nu/>

CZECH BOOKS by J.B. Hurych are all free to download here:

VM KOMPLET- the Czech version of the book VM COMPLETE above, at <http://hurontaria.baf.cz/BETA/vmkompleta.pdf>

ZÁHADNÝ RUKOPIS (Mysterious Manuscript) <http://hurontaria.baf.cz/ALFA/zahadny.zip> or

<http://hurontaria.baf.cz/BETA/zahadnya.pdf>

- author's first book about the VM the history and first questions.

RUKOPIS Z PRAHY (Prague Manuscript) <http://hurontaria.baf.cz/ALFA/rukopis0.zip> or <http://hurontaria.baf.cz/BETA/rukopis0a.pdf>

is a compilation of authors articles.

ĎÁBLŮV ADVOKÁT (Devil's Advocate) <http://hurontaria.baf.cz/ALFA/advokat.zip> or <http://hurontaria.baf.cz/BETA/advokata.pdf>

- serious doubts about the VM provenance.

WELCOME

This website is devoted to **Voynich Manuscript** (further abbreviated as the VM) which was four hundred years ago located in Bohemia. The VM is written *in unknown script and unknown language by unknown author* and the research is still going on, so far without solving a single sentence.

It is highly interesting that **the very first three** historically documented (meaning above any doubt) owners of the manuscript **were all Czechs** (Horczicky, Baresch and Marci) and the **first historical appearance** of the VM (as well as its relatively long stay there) was in Prague. Is it possible that the place of its origin is in Bohemia?

© Jan B. Hurych, Webmaster

THE LIST OF CONTENTS

(see also PDF bookmarks)

FRONT PAGE - this page

INTRO - introduction

HISTORY - the articles from Hurontaria, originally from 1999, lately edited and presented here

RESEARCH - international research in short form

FINDINGS - in contrast to previous provenience

DATA LINE - list of dates and personalities

ARTICLES - all articles.

DISCUSSIONS - some discussions.

FAQ - frequently asked questions

ICONS FOR FOLIA - overview of folios plus crossreferences

This site is credited **WITH FOLLOWING DISCOVERIES** :

- The discovery that the VM is encoded not enciphered (article A41).
- How to find the missing two hundred years in the VM existence (A40)
- The discovery of the logical explanation of Voynich's silence about the place he actually bought the VM from (A38)
- The discovery of **phonetizing of the VM** by using vocal reader (A37)
- The possibility the VM was not found at Mondragone (A38)

- The vulnerabilities of the existing provenance (A16)
 - The **discovery of one of Horczicky's signatures, certified by Melnik archive**, courtesy of K.Slajsna (Discussion B9 and B10)
 - The discovery that the "**signature**" in the VM is not written in Horczicky's hand comparing with H's signatures No.1 and No.3. (Discussion B12)
 - The discovery that the signature in the VM is likely to be **written by Mnishowsky's hand** (Article A19)
 - The discovery that **Mnishowsky's book is no textbook** but only a codebook (Article A22) To Mr. Vavruska Prague, goes credit for discovering that he cipher in Mnishowsky book is a **version of Ave Maria from Thrithemius**.
 - The re-discovery that Marci sent to Kircher **Baresch's notes together with the VM** (Article A23.)
 - The suggestion to use **Neural Networks** for solving the VM (Article A24.)
 - The letter frequency curve of the VM is **similar to the medieval Latin** (Article A26.)
 - The possibility it was **Moretus who discouraged Kircher** from studying the VM (Article A27.)
-



ABOUT THIS SITE.

The VM (the Voynich Manuscript) is still the most intriguing book on this Earth. There are several groups of the VM solvers in the world and EVA (European Voynich Alphabet) is probably the most famous Group. There is also a number of well known researchers all around the world, be it research historical, scriptural, linguistic or cryptological. The attempts of unification were intended to benefit the research, but as can be seen, most of the burden in those groups is still carried mainly by devoted individuals.

While the progress since the finding of the VM (1912) advanced substantially, we have to admit that in past 90 years we were not able to solve the single sentence in the VM. There are still prevailing some hypotheses which are not based on historical data and might have lead the whole research astray. More about cracking the VM is in section [2. Research](#)

On the other hand, the historical research achieved lately the real breakthrough, thanks to *René Zandbergen*, who personally visited some archives in Italy and Prague. It was he who discovered the name of the long sought VM owner (before Marci, see History) *Georgius Barsch* and further confirmed the connection between the VM and Prague.

As I already pointed out, this site is mainly intended for attracting more people to the VM, so you will not find here the copies of relevant pictures from other pages (which would be just useless duplication), but I included many net-links to various VM pages in the section [LINKS](#). The References and Links. Personally, I find the most complete page about the VM the one of *René Zandbergen* which is also updated regularly. I have found many of historical facts from there for which I am grateful to him. Several hypotheses listed in my articles in magazine Hurontaria, 1999 are of course my own. *Note*: Hurontaria does not exist any more, but the articles were revamped and are copied in full in this site in introductory section.

If you know about somebody who might be interested in the VM research, please direct him to this page. Our e-mail address is in the left column.

Note: this site is in a process of complete reshuffling and updating of the content, some information may be obsolete.

The most informed pages are:

- <http://www.voynich.nu/index.html> ... René Zandbergen,
- <http://www.voynich.net/> ... Jim Gillogly's VM-list (a conference)
- <http://www.dcc.unicamp.br/~stolfi/voynich/> ... Jorge Stolfi's site (the bottom section)

The addresses above may become obsolete with time, so pls use Stolfi's page above (the top section of his page contains links) as more extensive and updated list.



1. HISTORY.

The year is 1912. The American antique book dealer and collector, *Wilfrid M. Voynich*, discovered amongst the collection owned by Jesuit College in *villa Frascati* near Rome the manuscript which has been ever since called **The Most Mysterious Manuscript in the World**. Voynich judged it was from the late 13th century, on the evidence of the calligraphy, the drawings, the vellum, pigments and the hints in accompanying letter by Marci to Kircher (that is the suspicion that the possible author may be Roger Bacon). He bought it and realizing, that it is written in some indecipherable code, he made the copies available to anybody, who wanted to try to decipher it. That's why the manuscript is bearing his name, while the author - and especially the content - of the manuscript is still unknown, even today. In 1961, a New York collector, *Hans Kraus*, bought the manuscript and later donated it to Yale University (it was then valued for half a million of dollars, today it is simply priceless). The Voynich Manuscript is now at the *Beinecke Rare Book Library* of Yale, it's last resting place. Who cannot rest however are many code-breakers, who are attempting the apparently impossible task of deciphering its content.

As I already mentioned, there are two main mysteries connected with the manuscript:

- 1) who was the author (authors?), and
- 2) what language and script the manuscript is written in.

Obviously, there was a lot speculation about the both questions, based mostly on partial guesswork or code-cracking method and some "results" obtained. As early as 1921, professor *William Romaine Newbold* of the University of Pennsylvania claimed victory on both accounts. For a while, he was a real celebrity, but it was only few years after his death (1926) when his answers - the second one for sure - were disproved.

Who was the author *according to him*? Nobody else than *Roger Bacon*, the thirteen century English Franciscan friar. Among other things, the manuscript was supposed to indicate that Bacon build and used microscopes and telescopes 400 years before Galileo. Of course, there was somebody else who already mentioned Bacon in connection with manuscript long time before Newbold did. It was Czech rector of Charles University in Prague *Ioannes Marcus Marci*, who one time owned the VM (see later) whose letter was found with the manuscript. In 1976 Captain *Prescott Currier* gave the paper in which he showed that, judging from the handwriting, the Voynich Manuscript must have been written by at least two different people, and that the two texts differed markedly in the frequency distribution of their letters and combinations. That of course didn't make the search for author(s) any easier.

Prague.

As it was suggested in Marci's letter, the first *apparent* owner was an Englishman, *doctor John Dee*. Prague was then capital of Czech kingdom, as well as of Austrian Empire, being the seat of *Emperor Rudolph II* (1552-1612). John Dee, the mysterious - but otherwise very real - English scientist, astronomer, mathematician and yes, astrologer, actually lived in Prague between years 1582 and 1589. The manuscript was then - *it is claimed* - sold by him to Emperor himself. After the death of Emperor, the manuscript is believed to pass *somehow* into hands of *Jacobus Horczicky* (bestowed with the title "*de Tepenec*"), whose name is actually also written in the manuscript (it is difficult to be seen by naked eye: it was erased by somebody). Horczicky was expelled from Prague in 1618, but returned back in 1621 and died in nearby Castle Melnik in 1622. The manuscript then passed into hands of - for long time unidentified - alchemist *Georgius Barschius* (sometimes called Baresch). It was *René Zandbergen* who actually discovered the name and his letters in Italy, see later). Barschius in turn left it in his will to *Dr. Marci*, who in turn donated it to his friend, Jesuit *Athanasius Kircher* (1665 or 1666), residing in Italy. In his letter, found with the manuscript, Dr. Marci mentioned discussing the manuscript with another his friend, *Dr. Raphael Missowsky* who told him those rumors about Bacon, Dee and Rudolph. After Kircher became the owner of the VM, apparently nothing happened for 250 years when it was found by Voynich (who was then searching for some manuscripts in Italy).

Now we have already some interesting points here: the named persons really existed. Of some connections with the VM we cannot be too sure. It was also doubted if the letter or even the manuscript were genuine. They both could have been written any time later, using some old parchment and prepared ink, of course with the intent to look older. But if it was so, we may reasonably assume that it was hardly done by Mr. Voynich or his accomplices - considering some facts which were discovered only after Voynich's death and which confirm for instance that Baresch and Marci owner the VM all right. We can therefore start by assuming that the manuscript already existed at least in the seventeenth century or even earlier.

Marci's letter.

There are however some uncertainties in the data presented so far. Let's start with the mentioned letter. Marci had obviously three friends: the one was Kircher, another person whom he calls Dr. Raphael, was Dr. Missowsky, the tutor of

Czech language to Ferdinand III, king of Bohemia. The third one whom Marci called an "intimate" friend, is our mysterious Baresch who, Marci says, in his last will "bequeathed to him the manuscript" which Marci "as soon as it came to his possession" sent to Kircher (we know it was not so quick by some other discoveries :-).

Kircher knew Baresch too, since he once received the samples of the same manuscript from him (and once before by some intermediary). It was Barsch who in his letter asked Kircher for his opinion as an expert and his letter was found. In Marci's letter, Baresch is not named however, either because of concealment or because it wasn't necessary since Kircher knew who was Marci talking about. Marci also mentions Baresch sent some written attempts (beside the samples copied from the VM). They were either the additional scribbling in the manuscript or were destroyed (it was never explained and they were never found, neither was the first letter from Baresch). Thus we have in Marci's letter two parts - the part which was confirmed and is the most reliable information, his *first hand* information and the rest. The other information, which is only *second-hand* rather *third hand* (by Dr. Raphael who must have learned it from somebody else before he passed it on Marci), was never really confirmed, as much as many attempts were made. If we read Marci's letter carefully, however, we can see he clearly distanced himself from that part and let Kircher "to decide himself.

What is that "third hand" information in his letter? According to Marci, it was Dr. Raphael who told him the book once belonged to Emperor Rudolph II, who bought it for 600 ducats from the person whom he called the "bearer" - which does not necessarily mean the owner, but rather *intermediary*. The question is: how did Dr. Raphael know about it? He was only 6 years old when Dee supposedly sold the manuscript to Rudolph (that's why I call it "third-hand" information). This we assume happened in the year 1586, when Dee mentions in his diary he received 630 ducats (a large sum, even for Rudolph!), but of course *Dee did not mention WHY he got them, for WHAT nor from WHOM* and he did not even mention the manuscript or some sale! That apparently didn't bother some researchers to claim it as a sacrosanct fact that he was talking about the VM :-). This "confirmation" is of course even less accurate than the information by Dr. Missowsky :-). Why was Marci talking to him about the manuscript 11 years before he inherited it? The answer is simple: he knew about the VM from Baresch, who was his best friend and - per Marci - who spent many years trying to solve it.

Baresch.

As an owner, he should have known if Rudolph once possessed the VM and who sold it to him - or at least he should have heard some rumor about it and tell it to Marci. But no - the only information comes from Dr. Missowsky! Why didn't Baresch know the previous owner? Wouldn't you ask the seller who the previous owners were? Baresch should even know that Horczicky once owned it - if Horczicky's name was still visible there. Of course, if it was Baresch who erased it, then he got good reasons not to advertise it :-). Well, maybe he also inherited it. But then again, the previous donor would most likely mention something to him, at least in his last will. Marci claims that Baresch spent the rest of his life trying to solve the VM and didn't ask? Such lack of their curiosity simply does not fit the whole picture.

Another mystery: who erased signature of de Tepenez and why? It would have been a great proof of identification, if it really belonged to Rudolph II! One thing we know from Marci's letter however: Baresch tried to solve the puzzle, but failed. He then contacted Kircher for help, probably on recommendation from Marci, who knew Kircher personally and Kircher was also successful code-breaker. So why Baresch didn't leave the VM in his will directly to Kircher? Well, we know from Marci that Baresch never wanted to send the whole manuscript to Kircher. Instead, he wills it to Marci, who immediately sends it away to Kircher - why? Of course Marci was a scientist himself, he probably was helping Baresch with cracking the VM already before and maybe guessed there was no use in trying any more. I would venture a bet that even Kircher tried to solve the riddle and failed too. For what we know about him, he would hardly keep his discovery secret, he was a good showman. Unless there was something the Vatican wanted to suppress (like they did it with Galileo).

At the end of his letter Marci claims "*he* believed the author was Roger Bacon". Since there are three persons mentioned in previous sentence, it is hard to tell who did believe that: Emperor Rudolph II, Dee who sold him the manuscript or Dr. Raphael himself (most likely, since he was the one who told Marci that rumor). That of course weakens his information even more, but it really doesn't matter: it was only a hearsay and Marci clearly separates himself from it at the end of his letter.

Czech and Czech again.

Now back to Baresch. Why is he so important? Because he is *the last link* to the manuscript, last before Marci - if we are attempting the backward search. Also Marci knew his name but didn't tell in his letter: why such secrecy when Baresch was already dead? Actually who was *Dr. Marci*? He was born in Landskroun (Lanškroun, Kronland) in Bohemia (1595) and was of Czech nationality. So were, by the way, also *Missowsky* and *Horczicky* and most likely even *Baresch* (whose name sounds close to Czech name "Bareš", pronounced also *Baresch*). He studied in Jesuit college, however left it and graduated as a medicine doctor from Charles University, Prague, of which he later became the rector. He took one diplomatic trip to Italy (in 1639), which may explain his friendship with Kircher whom he met there. He also wrote several scientific books, mainly about medicine (apparently so advanced that Englishman Harvey even visited him in Prague for discussion) and physics. Now get this: he became the personal physician of Emperor Ferdinand III, which apparently explains his acquaintance with Dr. Missowsky, who was also in employ of Ferdinand III. That of course confirms he was passing to Kircher the info from Dr. Missowsky quite accurately, but didn't believe it himself.

Less is known about Dr. Missowsky. He might have been also a longtime acquaintance of Marci. He was by the way a lawyer, famous in Viennese Court, the same one who orchestrated the "treason case" against Wallenstein (while the first

was already murdered, dead and buried without being judged) and for that service he got his knighthood. Come to think of it, we can understand Marci didn't believe too much his information about the VM that Raphael overheard in the Court (at best, R. may be qualified as creative writer and besides, how did Missowsky know it was about the same manuscript?). That's why Marci didn't believe it was so valuable and disposed of it very quickly - it had no use for him - and at the same time apparently wanted to do favor to his friend Kircher, who once already got some copied excerpts and surely was interested in the whole book. Too bad that no Kircher's letters to Marci were ever found!

. Rather enigmatic person is Horczicky, the director of Rudolph's botanical gardens (and Rudolph's alchemist before that). He was in very good terms with Rudolph who raised him to nobility, apparently for curing him from serious illness. At the same year he got his title "de Tepenec" (earliest or rather later) he became also the owner of the VM manuscript - judging by this title written there. We do not know *when* or even *if* Rudolph bought the manuscript - we have only the word of Missowsky. The possibility that the book was donated to Tepenecz by Emperor Rudolph is of course only speculation first started by Voynich who had to find somehow the connection between Dee and Horczicky. Voynich was the first to discover his erased name in the VM and thus he had to fill the gap in the broken chain of owners. The year when the note about 630 ducats appears in Dee's diary is actually the year both Dee and Kelly were expelled from Bohemia (in June) - hardly the best opportunity to sell Rudolph II anything :-). But in September same year they were both back; not in Prague, but in Southern Bohemia, on invitation by very rich and powerful Czech count Rosenberg, who could as well be the one who once really bought the manuscript for himself. It is even possible that Horczicky got the possession of the manuscript already when Rosenberg died (1592) or later, after Rudolph's death (1611). Either way neither had any time to write the Horczicky name in the "dedication" - which is no dedication at all (see later). As we can see, the owner before H. is still eluding us and we may never know who he was *or if he even existed* - we cannot even prove that Dee had the VM neither that he sold it - and if he sold it, was it really to Rudolph? Too many unknowns, but that could be expected when we start believe some rumors :-).

Now how about *Athanasius Kircher*? Born into rather poor family in neighboring Germany, he became a Jesuit priest and might have been actually known to Marci via Jesuit connection even before Marci's trip to Italy. Kircher taught mathematics at the Collegio Romano, wrote several scientific books and spent the rest of his life in independent studies, under patronage of the Pope and other benefactors. He was known for his efforts to decode different kinds of hieroglyphs and was the author of "Polygraphia Nova", a book on cryptography. He died in Rome (1680). Now here comes another link to Emperor Ferdinand III: Kircher dedicated some of his books to him, for which he received a comfortable pension. It seems that Dr. Kircher knew very well how to get his patronage, but then again, he was a true celebrity on hieroglyphs and antiquities.

Rudolph II.

Now let's look closer at the times of Rudolph II. Choosing Prague as the capital of his empire, he made it also the virtual center of European science and art. It was well known fact that he had in his employ Johannes Kepler and Tycho de Brahe. He was also buying pieces of art or historical value in enormous quantities. There is no doubt he would buy something like the VM and even pay unheard sum of 600 ducats (or 630, if we take the number in Dee's diary). But it is doubtful that he would ever part with it voluntarily, unless of course he would learn it was a fraud. Then, as a joke, he could donate it to somebody, say for instance to Horczicky, whom he still owned lot of money :-).

What happened with the manuscript after Rudolph died is of course just another speculation. We do not know how Horczicky got it and we don't even know how he again lost it :-). He bequeathed all his possessions to Jesuits, all except the VM (else it would never get in Baresch hands), so he apparently didn't have it at that time of death any more. But he surely didn't sell it - it is highly unlikely he would sign it if he expected to sell it - or even worse: why to sell the gift by Rudolph himself if he was rich enough? He left Prague in 1618 being expelled by protestant Directorium (government) - as I discovered in *Historie ěeská by Skála ze Zhore, P.* (reprint, Praha, 1984) . It was purely for political reasons: he was the staunch Catholic and heytmán of Melník Castle. he persecuted protestants and conspiring with Emperor, could have been dangerous to Protestant government. The VM most likely remained in Prague during his exile and Skála also mentioned the houses of exiles were immediately looted. At the end of 30 years war (1648), Swedes ransacked Rudolph's and other treasures and moved them to Sweden - some of them being returned to Czechs as late as 1950. Well, the VM never was in Sweden, it was most likely hidden somewhere in Prague in order not to get in their hands or it was maybe stolen during those turmoil years, but that was long after Horczicky death. Then - 17 years after the end of war - another owner, Baresch who somehow got hold of it, dies and the rest we already know.

The previous owner.

Now how about mysterious owner before Horczicky? The connection with name of Roger Bacon, if it is true, would obviously suggest the VM came from England. Was it Dee himself? Interestingly enough, Dee was in Prague almost hundred years before Marci's letter and the mentioned 630 ducats might be only a coincidence, a sum paid to him for something else and by somebody else (coincidence between 630 and 600 ducats, quoted by Missowsky, is apparently nothing more than: only coincidence).

Yes, Rudolph might have already known that Dee had the manuscript - he could have got it with him when he was trying to get an employ in Prague. Nothing is mentioned in his diaries about that and we know Dee was otherwise quite open in his notes. In his interview with Rudolph he offered his help to Rudolph via his "an gels", but he admits Rudolph wasn't impressed. Neither he mentioned Bacon or even the VM for that matter.

However, elsewhere he did mention some mysterious manuscript Kelly had in his possession. That was of course the Glastonbury manuscript, discovered by Kelly in Glastonbury, which was supposed to help them to produce more of the mysterious "red powder", supposedly the main ingredient for the transmutation of lead into gold. Since it was Kelly's property and of vital importance, that manuscript was never sold and surely it wasn't the VM. When Dee left Bohemia, that manuscript stayed with Kelly, who was already employed by Rudolph for manufacturing gold and needed it to be able to find how to make that red powder - in which he didn't succeed anyway.

Considering the fact that Kelly was apparently nothing more than con artist and while he professed to show a lot of gold in his experiments a spread them more than generously, he never succeed to make some gold for Rudolph after he run out of that "red powder". Of course Rudolph thought he K. was just being obstinate and put him in prison, high in the Most castle. Attempting to escape by rope, Kelly fell down and later died from his injuries. And that brings to us another possibility: the manuscript was a fake and the author of the Glastonbury manuscript was Kelly himself (this nonsense appeared quite recently in American science magazine, see discussion. But was it the VM?)

There is a so called "proof" by Oxford's scholars for Dee's possession of the manuscript: there are Arabic numbers on pages in the upper right corner, allegedly written by him. This hypothesis was disproved by Rafal Prinkle (see his page in references). Dee stated in his diary he received 630 ducats in October 1586 and his son Arthur noted that his father, while in Bohemia, owned "*a booke...containing nothing butt Hieroglyphicks, which booke father bestowed much time upon: but I could not hear that Dee could make it out.*" So here you have it: it looks like a certain proof. But is it really? Prinkle correctly points out that there are also many pictures in the VM - some of them so explicit that they would surely remain in the memory of ten years' boy as well as nothing telling "hieroglyphics" :-).

Besides: what is supposed that 600 tolar to proof? Dee had many manuscripts - and he did that sell any of them to Rudolph. It certainly does not prove he had the VM and certainly not that the VM was written by Roger Bacon. True, Dee owned several of Roger Bacon's manuscripts, however there were as far as we know, all "readable". On the other hand, Dee had a right to save those manuscripts from English monasteries and he visited many of them. As far as I know, he never parted with them and rather cherished them.

Roger Bacon.

Last but not least, lets look at suggested author, Roger Bacon. The name was undoubtedly mentioned in public by Dee himself several times - he owned several Bacon's manuscripts and was greatly influenced by his teachings. It was Dee who introduced in England the work of Roger Bacon to his namesake, Sir Francis Bacon. Roger Bacon was the thirteenth century scholar, mathematician and professor in Oxford who later, probably due to bad health, joined the order of Friars Minor, better known as Franciscans. There he was persecuted by his superiors, who were opposed to his scientific work and experiments.

Here we should find the possible explanation why he wrote in cipher, in order to conceal the content of his writings. Unfortunately this does not hold to real scrutiny, the pages as we can see are already conspicuous at the very first sight by their pictures - not even talking about the *pictures of nude women* - and it would certainly increase the risk of accusation of disobedience, heresy or even worse, of witchcraft, even if his accusers wouldn't be able to read the text. *He would therefore have to hide the manuscript very well* and if so, why would he then have to use the cipher at all? It is hardly understandable why would such wise man foolishly risk this kind of danger - after all, he was once put in prison just for some novelty of his teachings. Besides, he was never trying to conceal his ideas and while he worked on several kind of codes, he would possibly use something less conspicuous; in his "Epistle on the Secret Works of Art and the Nullity of Magic" is a short discussion of cryptology, the subject Bacon apparently knew well. Of course, this is only a speculation, but so is the original hypothesis of his authorship. The other option is that somebody else wrote the VM before his time and he got possession of it. Ridiculous? yes, but just because the manuscript could have been found among Bacon's manuscripts does not necessary proves him to be the author.

The author.

So what do we really know about the manuscript author *for sure*? The honest answer is "practically nothing". We know very little about owners, too. The only documented owners are Marci, Baresch and Horczicky, but provided none of them is the author, where can they lead us? The most reliable document seems to be Marci's letter, but only where he quotes his first hand experience - the rest is a hearsay only. We have already shown many things in that hearsay that do not fit the facts.

The next lead is the "dedication" to Horczicky, which was later erased by somebody. Sure, it could have been planted there and deliberately erased, but there was no apparent reason for it - it is non-readable by naked eye and it probably even escaped the attention of Barsch and Marci as well (Voynich c claims was not visible before he used some chemicals and ultraviolet light). For that reason, it can be considered as genuine (dedication or rather signature, as we show later).

While Missowsky's information about Bacon was surely a rumor, the story about Rudolph sounds more reasonable. However, neither Missowsky nor Marci neither Baresch knew about Horczicky and that is really strange: if Horczicky owned the manuscript *after* Rudolph, how could it escape Missowsky's attention (they were almost contemporaries). Even more, how could he know from the rumor that the VM and manuscript owned by Rudolph were the same?

We can only guess that some previous owner existed and was the last owner before Rudolph (or owner before Horczicky, if Rudolph never had it), but not his name. Unfortunately it is the most important fact, since his name could lead us to the author and thus to the possible language and code used in the manuscript. It is rather unusual that while assuming the manuscript originated in thirteenth century, we have next information about it dated from 16th century only and nothing in between. But if we take away the rumor about Bacon, the origin of the VM could be dated anywhere later, even in Dee's or Horczicky's time.

On the other end, we may safely assume that the manuscript was laying the last three hundred years quietly in Italy, changing place only when the other collections he was located with also moved. But even that is hard to believe, if we consider the importance and mystery surrounding such document. Is it really possible that nobody tried to solve it, for almost three long centuries? Certainly at least Kircher tried, but we have no information about that. True, people usually do not brag about their failures, but still . . . Enough of guesswork, let's face the facts: not knowing the author, we are practically where we started and each code-breaking must certainly start from scratch: everything is possible and nothing could be taken for granted. Otherwise we would only repeat the mistake of Mr. Newbold who apparently took the rumor about Bacon's authorship seriously and designed his deciphering methods accordingly. But of course, it is easier to find something, if we know what we are looking for :-).

Italy.

The villa Frascati where the document was found by Voynich was built by Altemps family in around 1570. In 1582 Pope Gregory XIII issued from there the bull reforming the calendar. In 1620 the building was donated to Vatican library. In 1865 the villa became a Jesuit college which was finally closed in 1953. The question remains: after Kircher obtained the manuscript, did he bury it in his papers, gave it to Vatican library or even did something else? How did it appear in that villa? Was there before 1865 and why? Its sleeping history came alive again after Voynich discovered it. And he didn't explain too much about his discovery either - for nine years he didn't even reveal the place of discovery. Then he named Father Strickland to be the one who helped him. He apparently also concealed something about the chest the manuscript was found in - after all, he was the dealer with old manuscripts and had some competitors. From a piece of paper which was once attached to the Voynich manuscript, it is believed that the manuscript once formed part of the private library of **Petrus Beckx S.J.** (1795-1887), 22nd general of the Society of Jesus (Jesuits).

More than 30 manuscripts bought there by Voynich were described elsewhere and from these descriptions it would appear that Beckx removed a number of manuscripts from Vatican library of Collegio Romano in 1870 (in order to save them) and these were found in the chests mentioned by Voynich. The letters received by Kircher were there too, bound together with other material and this is now the collection of manuscripts called the *Carteggio Kircheriano*. There is also the volume which contains 35 of 36 *letters from Marci to Kircher*, and many other letters from Prague and Bohemia - apparently Kircher knew more people there. It also shows that somebody was interested in collecting all possible data about manuscript after all. Why and who? The letters received are also proof that Kircher did receive the VM as well manuscript, but the VM *was not* mentioned specifically in the first published catalogue of Kircher's museum. Why?

Recent discoveries.

From the recent discoveries (Dr. Zandbergen, G. Landini, "Some new information about the later history of the Voynich Manuscript") we learn that it was also reported that a letter sent from Prague to Voynich indicates that Marci at one time inherited the alchemical library of **George Barschius**. There is one letter from Baresch to Kircher in the *Carteggio Kircheriano* and he is also mentioned in one letter from Marci to Kircher (who calls him Georg Barschius). Marci also writes there - after his own visit to Kircher in 1640 - that he is forwarding Kircher some notes drawn up by Baresch (which were never found).

This confirms that our mysterious *owner is indeed Georg Barsch*. He apparently told Marci very little about the history of the manuscript and especially how he obtained it. It is my suspicion that the VM was stolen after Horczicky's death and Barsch later bought it from some thief. It could be actually him who erased Horczicky's name. The cooperation between Kircher and Marci now gets in different light. Could it be that Kircher heard about manuscript and asked Marci to get it for him? Unfortunately not a single letter from Kircher to Marci was found in Prague - partly because nobody was yet looking for them :-). If Kircher saved Marci's letters, the opposite must be true as well - Marci valued Kircher as his friend and colleague. He saved letters from Galileo and Harvey, why not Kircher's? According to Marci's letters found in Italy, Marci and Kircher had already some correspondence on deciphering Swedish military code letters during 30 year war. By the way, Marci got his title as a reward for his leading students militia against Swedes in the battle on Charles Bridge in Prague. Some time after they cooperated on solving the cipher of general Banner, Kircher also published his book on cryptology.

Now you may ask what happened with radiocarbon dating of VM. Well, nothing. According to experts, it would be possible to say if the manuscript is from 13th or 16th century, but there will be no way to distinguish 16th century from 19th century. So it may look promising, but still, no dating was done. Considering however several additional facts and Marci's letter, we may assume it is at least from the beginning of 17th century or older. Of course the age of vellum could tell us only when the poor animal died, while the ink could have been applied anytime later. But as we mentioned, the additional new information proves the manuscript is now at least 400 years old and at the same time clears Voynich from any wrongdoing.

To sum it up, Voynich manuscript poses so far more questions than answers. That's where its real value lies: it is the one of greatest challenges for today's code-brakers.



2. RESEARCH

Now let's discuss the real facts, that is what could be *really* seen in Voynich manuscript.

Note: All information was gathered from Internet, for instance from already mentioned pages but also other sources, too many to mention here. the real treasure is the VM-list conference, see [About this site](#).

Note: Some info here might be slightly obsolete.

The facts.

The manuscript has a size of 6 by 9 inches, with 204 pages and 28 others are presumably lost. The covers are of vellum and are separated. Beside the text, it contains also a lot of pictures (some in colors) and diagrams. There are also various scribbled comments, apparently written after the manuscript was completed and presumably by those, who were trying to decipher it:

- pagination and gathering (signature) numbers,
- several "key-like" sequences throughout the book,
- some old German writing (most probably added later),
- names of the months in the astronomical section (also probably added later)
- few instances of extraneous writing (different from the rest of the manuscript)
- text not in "Voynich script" in the last folio, reading something like "michiton oladabas..." suggesting a key to decryption...

The writing is smooth, almost beautiful and it was definitely written by skilled hand - that is skilled in writing, except for marginal comments, written later and by somebody else. For some time now, it was accepted that the manuscript was *written by two persons* (some say "at least two"), discovered by comparing the handwriting and different frequency of words. Of course, it could have been also two *copyists*, but hardly two "languages" - even if we consider two authors, they would rather have *two dialects* of the same language and we may assume the coding system would probably stay the same as well. Why? Well, for the starters, we don't know any one of those "languages" and usage of different words even with the same language would be quite natural if it was written by two persons writing in different styles. However it could have been the same author, older and writing about different subjects. It is also a known fact that handwriting of the person changes with age, physical disability and mental conditions - not mentioning the different pen or brush. After all, some handwriting experts agreed that all could have been written by one person only. Besides, if two different ciphers were used, there would be difference if same "language" was used.

Either way, nobody could so far explain *why* would the manuscript have to have two authors, at least not *both at the same time*. Usage of different words of course suggests two authors, but for different subjects, even for the same person, the vocabulary might weigh heavily to different words anyway. Such unusual combination of two authors in one book could be the indication that the second writer was a student (or colleague, see my comments later) and the first writer was probably his the master, just continuing in his steps or ideas. This is however not too important fact for the cracking the code anyway - it would only indicate the further increase of the level of difficulty which lays ahead.

Conclusion 1: The text has very few apparent corrections - in other words, it suggests the careful writer well proficient in using the script - or it could be a well done copy of some original. One thing is for sure: it is the only one in existence, since no other copies were found. The strange script used suggests that the underlying text was intended to be hidden from other readers and no other copies were made anyway. There were done the measurements of entropy and the text follows roughly the 1st. and 2nd. *Zipf's laws* of word frequencies - that suggests there could be a natural, real language behind the code. The 2nd. order entropy is too low for an European language using a simple substitution cipher - if it was written in European language, it could be via more complicated coding or even cipher. Others claim that Zipf's laws cannot tell us too much anyway.

Transcriptions.

In order to be able to handle the rather *iconic* - nowhere else known - fonts, it was devised the system for transcribing it into the Roman alphabet. Of course there is no way of telling which symbols should be ascribed to which letters; the transcription scheme chosen is essentially arbitrary, probably by graphical similarity only. Several systems were devised: by Tiltman, by FSG - First Study Group lead by William F. Friedman, by SSG (Second Study Group), by Capt. Prescott Currier, Mary D'Imperio (who by the way wrote the most comprehensive book about Voynich manuscript: *M. E. D'Imperio, The Voynich Manuscript: An Elegant Enigma*. Fort George G. Meade, Maryland. 1978), also the scheme by J. Guy (Froggy), and EVA (European Voynich Alphabet by Landini. *Froggy* has the capability to represent complicated ligatures and additional diacritical marks. In addition a few special characters were used together with the PC Voynich

editing tool 'VOYEDIT' (written by Jacques Guy). As a result, it is possible to represent the same Voynich text in a few different ways, which can be of course unified.

The *European Voynich Alphabet* (EVA) is a superset of FSG and Currier. It is also of analytical rather than synthetic nature. This allows representation of many special ligatures not covered by FSG or Currier, but relatively frequent in the manuscript. The latest transcription effort is described in the Web pages of *Gabriel Landini*. The total number of signs greatly exceed the number of letters in Latin alphabet which does not make the task any easier.

There is also on Internet the *European Voynich Manuscript Transcription* (EVMT), the first complete transcription of all text of the manuscript in EVA. It differs from previous transcriptions in that it does not start from scratch but that it incorporates all available transcriptions at the time. Furthermore it is intended to unify the transcription *rules* used.

Some of the symbols used in the Voynich manuscript are similar to symbols in other scripts or notations. In particular, the following similarities have been noticed: Alchemical Symbols, Early Arabic Numerals, Latin Shorthand Abbreviations, etc. Some researchers even tried to generate approximate *vowel/consonant* distribution, so that the human language recognition capabilities could be maximized. Different languages however have quite different distribution, e.g. German versus Hawaiian language.

Conclusion 2: Lot of work was done in this area. The whole manuscript was transcribed several times, last attempt is considered to be most workable at all. There will be now no more excuses for the researchers that they need proper transcription. But let's face it - the real cracking of VM didn't need to wait until then. Besides, some irregularities discovered during this stage may not be the most important of discoveries after all. The EVMT provides the researchers with quanta of data, however only the word frequency and letter frequency was investigated, confirming the fact that no language could be found so far.

The text.

Both Prescott Currier and Mary D'imperio (she used cluster analysis) confirmed that the text de facto contains two "languages", or shall we say "dialects", or even better: there is a different "usage" of different "words" (assuming that the spaces in the VM are really the separators of "words").

Cluster analysis algorithms (widely employed in the social and natural sciences) was conveniently used by computer programs. Those programs were proven in applications such as classifying collections of objects into subsets based on similarities and dissimilarities with respect to a list of scores or observations. Frankly speaking, I consider this to be interesting, but rather superfluous detour. True, there may be two languages, but it could be the same language with two different types of coding. After all two quite different languages would differ more than those in the VM. Or to say it bluntly: if you compare say the language of electro-technical book with the book on chemistry, the differences might be even greater than those in the VM.

But two different encodings by a single author look like a rather superfluous: why would anybody use two systems of encoding, for the book which was intended probably for himself only? On the other hand, should the difference be greater than the one in the VM it would fit nicely the *theory of two languages* rather than the *theory of two authors* (both using the same language and same script). However, it would have been of course easier for two authors two write two books, each in different language (or in same language but in different code). But why not start with simpler assumption: let's divide the manuscript along these "languages" and try to solve one part first!

As far as syntax is concerned, let me quote D'Imperio (with assigned ambiguous letters):

- The same "word" may be repeated 2, 3 or more times
- Many words differ by only one character and are found in each other's vicinity
- Certain symbols occur characteristically at the beginnings, middles or ends of words, and in certain preferred sequences
- Certain symbols are very rare
- There are very few doublets. Often these are "c" or "i" and rarely "y", "d" or "o".
- There are very few single-letter words, mostly "s" and "y".

Conclusion 3: While none of the above is a symptom of known languages, it makes perfect sense when we assume scientific languages or "lingos", full of abbreviations, formulas and whatnot. The words which differ say by one letter only could for instance use some magic formulas or chants. The other option is of course to consider the method of encoding: for instance, nobody paid too much attention to the meaning of spaces between words - it was assumed they do not carry any information. True, it was not proven otherwise, but it is so simple method that nobody would even suspect and it will put all our past solving in dust bin! If the space *is* a special "letter" then our considered "length" of words is of course a wishful dream. The same happens if the spaces were put in non-spaced text just arbitrarily. After all, the spaces between words are only convention; we could easily read the plain "text without spaces" without any difficulty (if we know the script and language, of course :-). For example:

wecouldeasilyreadthelaintextwithoutspaceswithoutanydifficulty.

Now how about this:

wecouldea silyr eadthep la i ntex tw i tho utspa cesw i thouta nyd iffic uly?

The language.

First identified by Capt. Prescott Currier, the two different "languages" used are popularly called 'A' and 'B'. The weak point is of course the term "language": the statistical tests would qualify it as "language", but they are not specific - it was admitted it could be just two dialects. Either way, until the manuscript is cracked, we have to wait for real proof. We already discussed the alternatives to this option and possible way to handle it: solve each part separately, in other words, split the text in two.

An important aspect is the fact that the pages written in language A also show different hands - now we really got mystery, unless of course the author used right hand for one part, left hand for the other one :-)) or those are simple two handwritings of the same person, but in different age or health state. On the other hand (pardon the pun), two different handwritings could also suggest two different languages - but how does all this help us to solve the mystery? The reason we didn't find the language of the VM is not that they are two, but that none language so far tested really fits.

The new trend is to consider the language of the manuscript (they even coined the name "Voynichese" - or is it for script only?) as some unidentified - most likely European, lately even Asian - language, living or dead, some even think it could be an artificial language. Very little attention was so far paid to the fact it could be just scientific "lingo", the mixture of natural language with various technical terms, abbreviations and maybe some Latin. No wonder it was ignored: scientific lingo was never too popular with true linguists. Still, even alchemy was at those days considered the science and true, it did have its "lingo".

Some researchers believe that we have to discover first the language of the VM; otherwise we cannot decode the script. The others believe we have to keep decoding the script, until we discover which language it is written in. More effective - but more difficult - is using both at the same time. In this equation $X \& Y \Rightarrow Z$, where X is the language and Y is the script, we know only the *result* Z. And even that is only in its meaningless form. In the case of artificial, i.e. really "unknown" language, we will never find the solution, of course. The idea of artificial language was supported by this: if we assume that real, un-encoded language is used, how comes that 1327 different word types have either (ee) or (eee) and 62 different word types have ? There is of course other explanation, but more about it later.

How about the case where there is no language - or only part of it - underneath the script? Impossible? And how about some letters being actually numerals? Better yet, what if the "words" are not important and it is only the meaning which counts? There is such a case: when it is written in *code*. Again, it would be for us very difficult to assign the meanings to individual group of letters, especially if the code is not repeated too often. Encoding every word is painful and was probably not used here - even today's military use codes only for some words, the rest being in plain text - because of such back-translating drudgery. So their text is the mixture of codes with plain text or better yet - they prefer to *encipher* the complete text.

Using rare or "unknown" language would in itself be similar to such encoding and without knowing such language it would be impossible to crack it. That is probably the main reason the manuscript was not cracked yet. In the Second World War, Americans fooled Japanese using Navajo language. It was an idea of Philip Johnston, who believed Navajo answered the military requirement for an unbreakable code because Navajo is "an unwritten language of extreme complexity". Its syntax and tonal qualities, not to mention dialects, make it unintelligible to anyone without extensive exposure and training. It has no alphabet or symbols, and is spoken only on the Navajo lands of the American Southwest. One estimate indicated that less than 30 non-Navajos, none of them Japanese, could understand the language at the outbreak of World War II. Then recruited Navajos could encode, transmit, and decode a three-line English message in 20 seconds. Machines of the time required 30 minutes to perform the same job. And it was so simple idea that Japanese cryptographers never cracked it!

Statistical tests however excluded the possibility that the manuscript text could be a series of random letters, that is truly random and nonsensical. Well, considering that author didn't have random number generator neither computer, we have to allow for some non-randomness, it still doesn't prove we deal with "sensible" language. But there are some other indications that the language of Voynich *is* natural language. Interestingly enough, there was an attempt to assign sounds to each symbol and the acoustic presentation then sounded like some natural language. This strengthened the suspicion that either the language is still unknown - but exists - or the known language was encoded by transposition or substitution (or by different scripting than we assumed, see later).

Conclusion 4: From the ease of the handwriting, it looks that either plain or already encoded or enciphered text was then copied by somebody, who understood the transcript well. There are almost no mistakes, which could have been plenty otherwise. It was for long time suspected - and experts are returning to this idea again and again - that manuscript was written in "open" language, but in special alphabet, that is only in special script. In that case the "plain text" before re-writing might have been pre-written in "open" language and possibly written in Roman alphabet. After a short-time experience, anybody could have rewritten it in other "alphabet" without many mistakes (if he understood the language, of course). That was surely the case if the *transcriber* was the author himself (or his student), but certainly not a plain untrained copyist not familiar with script. But what would be the point to let anybody on the script if you want to keep the text secret?

There are of course other *language & code* combinations, which were not pursued too extensively. For instance: the above assumption that the encoded writing is "almost" without mistakes. Well, there may be mistakes, but we do not see them - all we can see are the corrections if any. But it is a reasonable assumption that the more complicated the encoding, the

harder the task and more mistakes will be made; so it may confirm there was no further encoding.

There is still one explanation not seriously considered so far: the use of specially invented *shorthand*. Shorthand, being the mixture of code and cipher (code - where the signs represent pure letters, cipher - where special abbreviations or symbols are used for suffixes etc.) is also unintelligible to non-initiated. Apparently, due to the fact that very short "words" were mostly used, some sort of abbreviation or shorthand could be suspected anyway. For instance, Latin abbreviations were used during Middle Ages quite frequently. The important thing is that in zodiac sketches, the names of months are in Latin alphabet. Even if the month labels were written there later by somebody else, the sketches alone suggest that the author knew the astrology rather well.

Pictures.

Probably the most controversial part of the manuscript, the pictures in it also gave the "names" to individual sections. But if "the picture is worth thousand words", it is not so here. According to researchers, the plants there are not recognizable (at least on this planet excluding the controversial "sunflower") and the naked women are either witches, muses or - well, naked women. According to some, they are attached to some indecipherable "plumbing" pipes, which are supposed to have their secret meaning, too. We are addressing that problem in the section "3. Findings".

Our hopes that the pictures would help to decode the text so far failed and of course the opposite is true as well. On the other hand, the way they were carefully drawn, especially the plants, suggest the text is truly related to them. While the short "labels" located in the vicinity of each plant are apparently the plant names, what good is for us to have "unreadable" names of "unknown" plants?

The pictures are (as listed on WEB) in:

Herbal section - mostly unidentified and fantastic plants,

Astronomical section - zodiac symbols,

Biological section - some "anatomical" drawings and human figures,

Cosmological section - circles, stars and "celestial" spheres,

Pharmaceutical section - vases and parts of plants, and *Recipes section* (with many short paragraphs).

Some other symbolic is used as well, for instance Christian cross - one person depicted is holding a crucifix.

Conclusion 5: General opinion is that the pictures are representing real objects and people, and not some code - as it was suggested - since it would be rather elaborate way to provide very little information indeed. They might have been very important in connection with text, but how much helpful they could be in cracking of it is still to be seen. One thing is for sure: they are mysteries of their own. The question is - why? We are addressing that problem in the section "3. Findings".

Script.

So far the results indicate that Voynich manuscript does not contain any known script, that means *it is not written in any known alphabet*. Of course, some "characters" and "words" repeat themselves, like in ordinary language, but not necessarily in the same frequency, especially the longer words. What's more, words have shorter length, unlike in any so far tested living language. And the basic question: why the author used the unknown language and unknown script?

We do not know the answer, it could be *a known script* after all - but known where? However, should it be written in unknown script - it would be relatively easy to decode individual letters, *providing we know the language* of the plain text. But we do not know neither script nor the language (so far, anyway) and what's more: it could have been combined through substitution or transposition cipher or maybe both. For the time being, we do not even know if the "characters" in the manuscript represent real characters, or syllable (like Japanese *kanji* does), prefix/suffix signs, some mixture of all these, or just a coded text. (Explanation: *cipher* translates letters of words by some algorithm, *code* is using another word from the code-book as a substitute). Also unknown is the function of the "space separator" and it was always considered as a space between two "words". Some code-breakers were also pointing out the graphical similarities of VM script to Alchemical Symbols, Early Arabic Numerals, Latin Shorthand Abbreviations etc. Mike Clarke (see 5. References) discovered another interesting thing: by counting the pen strokes, he found that it could have been written by brush, like Arabs do - and of course from right to left (but the tilt of the VM suggests otherwise). There was also suggested that the text is an application of some "abbreviated" vocabulary. Why? Well, the "words" in the VM are too short (more about it in the section "3. Findings").

Conclusion 6: While the so-called "transcriptions" are based on graphic elements to which the Voynich text was broken, it is assumed that those elements are representing only single characters. If in reality they are not, we would have to start it all over.

Codes.

Obviously the main interest in Voynich manuscript is based on assumption that **it can be deciphered**, not only by solving the unknown script, but also by breaking the possible system of additional encoding. And since **so far we could not figure out the language**, we are trying to blame it on encipherment. All that is of course contrary to rule of *Occam's razor*,

advising us to start with simple assumptions first. Besides, use of unknown script (sort of a cipher) and unknown language (sort of code) would be sufficient enough for concealment (and still is :-).

The definition of "Cryptography" (Microsoft(R) Encarta(R) 96 Encyclopedia, ©) says:
"Cryptography, science of preparing communication intended to be intelligible only to the person possessing the key, or method of developing the hidden meaning by cryptoanalysis using apparently incoherent text. In its widest sense, cryptography includes the use of concealed messages, ciphers, and codes."

This brings out several questions:

1) *Was the text "intended" to be legible only to the person possessing the key?* Unless we prove that author used known language and known script, the answer is definitely YES. And how many people were possessing the key? Certainly only few, maybe only one.

2) *Could it be it was written in script which was already used by some people somewhere?* After thorough search, none such script was found, so answer is almost certainly NO, since it is not even closely similar to any known script.

3) *Did the language of VM actually exist, that is: was it a "living" language?* Here is the answer more complicated - we do not see the language so clearly as we can see the script :-). We may just hope the answer is YES - if not, then the manuscript cannot be cracked. After all, without converting the text into some *known* language we could hardly claim we found the true solution . . .

So we have to brake the mystery in two parts: the *plain text language* and the system of scripting. Well, the language usually goes together with one - or limited number of - scripts (even Japanese have only three alphabets :-). But again, it is more likely that the script was never used for normal public communication. In other words, we do not have here the case of French Egyptologist Jean François Champollion, solving the hieroglyphs with the help of Rosetta stone or the ingenuity of Czech orientalist Bedrich Hrozny, who cracked the mysterious writings of Hittites. Deciphering Voynich would be therefore even more difficult.

Now back to definitions. In the same above encyclopedia distinguishes between: **Codes** , in which words and phrases are represented by predetermined words, numbers, or symbols, are usually impossible to read without the key code book". **Ciphers** , the methods of transposing the letters of plain-text (non-encrypted) messages, or methods involving the substitution of other letters or symbols for the original letters of a message, and to various combinations of such methods, all according to prearranged systems."

So there you have it: *ciphers are depending heavily on the alphabet and language used*. The *codes* on the other hand, somehow bypass the requirement for particular language, because they deal mainly with *assigned meanings* of other words or groups of letters. Unfortunately, they are almost impossible to decode without any code-book, and that is even if we know the script! Let us see what David Kahn (see also References) had to say about Voynich manuscript. He noticed that pictorial part to the manuscript resembled herbal and the writing according to him *"looks like ordinary late-medieval handwriting, symbols resembling the letters of that period"* (which they are not, as he also points out). *"The writing flows smoothly, as if the scribe was copying the intelligible text; the symbols do not seem to have been printed one by one."* He also noticed that some letters (in one word - comment by j.h.) and even words repeat themselves. In short, the appearance of the manuscript is confusing to say at least. (David Kahn, "The Codebreakers", MacMillan, NY, 1976, pp.870-871.)

At first, the code-breakers considered that the language *was one of the known languages and the text is plain*, not enciphered - so it was only a question to crack the script. Unfortunately, any comparison with existing and even artificial script was so far dismissed as not working. Next step was the breaking of text into "letters" or should we rather say "symbols", in other words "the disassembling" of the script. Several alphabets were suggested, the most known is EVA.

The **second approach** considered that *the language exists (and is known) but the text is enciphered*. One can easily imagine the difficulties with converting of *unknown* characters (which were shifted or transposed) even into the known language, especially when the *code-breaker is not a linguist expert of that historical period*. Or the difficulties of the expert linguist who is not trained in code-breaking, for that matter. Not an easy task, believe me.

The **third approach**, probably the most doubtful, considers all three as unknown: *script, language and system of enciphering*. Well, not completely unknown language, it has to be similar to some existing language, so we may be able to compare the similarity, grammar, maybe some overlapping vocabulary etc. Unfortunately this is much more difficult task than the first two: something like one equation with three unknowns. Such work requires extensive efforts and there is still more ahead - so far only small part of existing languages was tried. Another difficulty lies in the fact that the cipher is not known beforehand so it has to be discovered during the process.

So how about codes, could it be those "words" are in reality just codes? Well, modern coding is usually via letters or numbers. It may or may not look uniform, the codes may have the same (military) or different number of characters or numerals (or both) grouped together. Decoding is the most difficult task for cryptographs and requires at least partial knowledge of the code-book. We are however tempted to believe that no sophisticated code-book was used for Voynich manuscript, because the obvious ease with which the groups of letters were written and striking smoothness with which they were written. Neither it is easy to believe that more sophisticated coding was used at that historical time. After all, it looks like the book was intended to *be read with some ease* (at least by author) and for that reason, the simplicity was a

must. Interestingly enough, there exists only one copy of Voynich manuscript, while medieval manuscripts used to be copied in multiples and very often. This confirms our suspicion that the secrecy was the main reason for encoding, but does not explain why such secrecy was needed (more about it in Section 3. Findings).

It was also suspected that some codes are hidden in the pictures, but so far no satisfactory system was discovered. After all, there was hardly any need for combining it with the other system of encoding - picture encoding is always rather clumsy and one cannot hide in pictures as much information as he can do using text.

There are also some plain text in the manuscript: the erased name of Jacobus of Tepenec, erased character tables, unreadable comments e.t.c. Those all seem to be "later" comments by VM owners and from what we know, they did not help with any solution either.

Conclusion 7: To tackle the problem, several approaches were undertaken, mainly based on some simplification (either using known language or script, plain or encoded). This analytic methods didn't help too much and created the feelings among the code-breakers that they probably missed the point.

Enciphering or Encoding?

Ciphers use the text in plain language and by substitution and/or transposition create new text. Such text is generally possible to decipher providing we know the language or part of the plain message, or at least its purpose (and we know that the language exists).

Codes, on the other hand, are some kind of "translations" of their own, using predetermined words (or numbers) as substitutions for other words or numbers and are *almost* impossible to read without the code book.

Cryptography of course is a science and therefore depends on several other sciences such as mathematics, statistics, linguistics and their advancement. And of course it can conveniently use computers to ease the drudgery of code-breaking.

In *transposition ciphers*, the plain message is usually written in rows of letters arranged in a rectangular block. The letters are then transposed in a prearranged order, but the arrangement of the letters also depends upon the size of the block used (for instance rows are transposed into columns, etc.) Still, there are fixed rules, for instance in using grid with cut-outs, the grid is always turned 90 degrees and if we know one opening we know its next position after rotation. Solution of such ciphers can be often done even without any key, by looking for probable words until the method of encipherment is discovered.

In *substitution ciphers*, each letter is replaced by another letter (or two, by using substitution alphabet or bigram). Such ciphers are recognized by the occurrence of normal letter frequencies for certain letters (they are just misplaced). We are also looking for doubles, common word prefixes and suffixes and frequent combinations of doublets (i.e. SS) or other combinations, such as TH, RE, etc.

Simple ciphers usually keep constant shift (say five positions to the left) while more sophisticated ciphers (polyalphabetic) use irregular shift, which results in each character, say "S", being converted every time into different one. In such case, the letter frequency analysis cannot be used directly. By checking the frequency we can establish if it is flat - then it is surely polyalphabetic cipher. It is then solved by finding the length of the keyword and try to solve so many substitution alphabets. Obviously the author of the text is using the key, which he keeps secret, but with the arrival of computers the deciphering is becoming rather easier - but so is the enciphering! Today, for instance many messages on Net are enciphered, for the reasons of security, but of course the receiver knows the method.

Codes on the contrary require two identical code books used by *both sender and receiver*. Today, some symbols, such as a five-letter groups, can even represent the whole sentences. Difficulty of having extensive code books is limiting their use and are mostly used in army or somewhere, where the code-books can be effectively guarded. There is a real danger that the code-book can be captured: recent unclassified material about cracking of German Enigma stress equally the value of capturing of code books (used on submarines) as well as ingenuity of Alan Turing, who cracked the cipher (Enigma was using both systems combined: cipher and code).

Conclusion 8: Historically, the secret codes and enciphering are as old as the need to conceal the content of the message. The Bible, a Greek Polybius Square, Caesarian cipher (or shift), all that was known and further developed by medieval scholars. It should not be surprising if some kind of encipherment or even encoding was used in Voynich manuscript. For all practical purposes however - that is for author to be able to use the manuscript directly *without* any need to rewrite it first - we may assume that the system of concealment was simple. The minimum requirements on human memory was probably another reason. Still, we cannot eliminate the possibility of encipherment, but it was at most simple substitution and definitely not any code-book. How much is this assumption correct is still to be seen.

Computers.

Computers are used extensively by the code-breakers of Voynich manuscript. We do not have here place to list or discuss all of them, so just as example:

BITRANS - a transliteration tool. Includes the translation rules for conversion between the different transcription alphabets: Currier's, FSG (First study group) Basic Frogguy (by Jacques Guy) and EVA (European Voynich Alphabet)
FQ - program to produce tables of word-adjacent frequencies
MONKEY - a programme to calculate the entropy of texts
VFQ - a program based on Sukhotin's algorithm to find vowels and consonants in a symbolic sequence
VMSVIEW - for inter-linear display and PCX output of the Currier, FSG, Frogguy and EVA transcription files
VTT (Voynich Transcription Tool)

We already mentioned the use of statistical tools by M. E. D'Imperio and others. G. K. Zipf described a number of common properties of natural languages including two "laws" of word frequencies.

The "rank-frequency" law - the tokens in a text are sorted by decreasing frequency and a rank number is assigned to each token. For tokens with the same frequency, the sub-sorting and ranking is arbitrary. The plot of $\log(\text{frequency})$ on (y axis) versus $\log(\text{rank})$ on (x axis) approximates a straight line of slope -1 (for high frequency tokens).

The "number-frequency" law - the plot of $\log(n)$ on (y axis) versus $\log(\text{number of tokens with frequency } n)$ on (x axis) approximates a straight line of slope -0.5, where n is the frequency of a token (this applies more to low frequency tokens).

Conclusion 9: If we consider that the space is truly a word separator and the script represents a non-ciphered text consistently, then the tests for Zipf's laws confirmed that the manuscript may be written in some natural language. The word and token length distributions are shorter than those in the English and Latin samples investigated. This may indicate by some an "abbreviated" script in which the characters may be letters as well as syllables, but such conclusion may be premature, until all other possible languages are tested as well. The other option is that our representation of script alphabet is not accurate (for instance, some characters look like they contain two already defined characters).

Fantasy.

There are of course even more fantastic ideas. For instance, it is known fact that John Dee corresponded from Europe with lord Cecil (Lord Burghley) and maybe even with Sir Francis Walsingham. Several records even suggest he was actually a spy for Queen Elizabeth, but nobody could ever prove it (that would also explain why Dee complained he was surrounded by Vatican spies :-). Especially Sir Francis Walsingham was surely interested in secret coding - let's not forget his success in breaking the secret code of Queen Mary of Scots, which then cost Mary her proud Scottish head. Dee was also a mathematician and code-breaker himself, apparently. It would be a real joke to sell Emperor Rudolph a manuscript, containing some new English code and thus testing the capabilities of Rudolph's code-breakers at the same time :-).

On the other hand, also in Rudolph's time, the old manuscripts were very good article for sale, worth they weight in gold: astrological almanacs, cookbooks for making gold, healing potions and elixirs, black or white magic recipes, etc. There must have been many forgeries around and there was nothing easier than to make one brand new one. The one which nobody could read and therefore cannot even proclaim as a forgery - all that was needed was to write some gibberish in more or less non-sensical script. Of course, it would have to have an appearance of something mysterious, but real. So one could add few more strange pictures and tell Rudolph that it contains the secret how to make gold. Not that we suspect good doctor Dee, but with Edward Kelly one could never be sure enough :-).

But it seems more likely that Voynich manuscript *does* hide some real text. It's non-randomness was already proved. That of course does not eliminate the possibility of fraud, but considering the pain it took to write it, it would be very difficult to write something "*without any meaning*" and at the same time *non-random*.

To sum it up, all above mentioned sections are overflowing with the work done so far. Without trying to diminish the valuable achievements of all researchers, we have to qualify it as "an important but only preparatory" stage. While computers were a big help in those preliminary stages, it would probably require some programs with artificial intelligence (i.e. with learning capacity) to assist the code-breakers and move the work closer to the "solving" stage. In our next section 3. Findings we will make few suggestions of our own.



3. FINDINGS.

Back to the drawing board.

In his previously mentioned book David Kahn quotes *J.M. Manly*, who thoroughly discredited Newbold's 'solution' : "...the attack has proceeded on false presumptions. We do not, in fact, know when the manuscript was written, or where, or what language lies at the basis of encipherment. When the correct hypotheses are applied, the cipher will perhaps reveal itself as simple and easy. . . "

After another 70 years which passed since this statement, we can still very much agree with it. Great progress was of course expected from the arrival of computers: sometimes it looks like they are supposed to replace even our basic thinking. Naturally they did not and will not. They can solve problems only the way we define it for them and so far we were not lucky with our definitions. The real mental work remains the human burden, after all. The main obstacle - claimed by some - is the fact we would have to run the excessive number of tests.

Even if we were able to run all those tests however, I do not think that would give us better clues. With such number, it is quite possible we would miss some of combinations or even discard them prematurely (just imagine, if we miss just one - but the right one!). Could that enormous waste of time possibly hit the target? It might - but only might - work. The results would grow exponentially and the evaluation of such gigantic amount of data would be even more confusing. There is a promising twist in using artificial intelligence such as neural networks, but that is still a distant music.

Accurate as this sounds however , it does not provide the hint how to do it "right". Apparently until we "hit" **the right language**, we have no hope to crack the code. But if the text is encoded, how can we hit the right language without trying all possible coding in all possible languages? Yet, we still do have a lot of leads, which were previously neglected - according to my knowledge, anyway. It is my opinion that no natural or artificial language can be *excluded* after we are only half way through its testing - just because some minor language discrepancies appear - after all, it was written at least three hundred years ago. Many languages *changed their spellings* since that time - just compare the Shakespearean texts with ours, and *the vocabulary differs* as well. Agreed, the lengths of words in the manuscript are in average too short for many languages - but it might really nothing to do with the language itself (see later). If the spaces were deliberately misplaced, omitted or even represent some other letter (not talking about excessive use of abbreviations), we have a quite new ball game in front of us. Or if we - God forbid! - have our alphabet mixed - single symbols with some that look more like composites, the "words" will naturally look "short".

There are also many hints related to script, coding, pictures, etc. They cannot be taken on individual basis however, but in some connection with other information. We could even try methods, which may somehow strengthen the probability of specific solutions. After all, this is the special case where almost nothing is known for sure and we may try to build several scenarios, one of which may eventually show how the individual pieces of mosaic fit together best.

I am here presenting one such scenario. While I am not claiming it is a breakthrough - there will be surely enough points which contradict themselves - it is however striking how many elements suddenly start to make more sense if considered in connection with historical comments. True, it may still express wishful thinking rather than hard facts, but as a brainstorming process, it may generate some new ideas or further justify the above process of cross examining and cross referencing.

Findings.

1) The author: Since we can verifiably trace the ownership only as far as to *Jacobus Horczicky de Tepenec* , whose signature together with word *Prag* (i.e. Prague in German language) appears in the manuscript (and was later erased). It is obvious that the "signature" was put there only after 1608, when Jacobus Horczicky received his title "de Tepenec", but by whom we do not know.

According Marci (in his famous letter to Kircher) he overheard from Dr. Missowsky that manuscript was bought by Emperor Rudolph II of Bohemia, but he admits it is a from second source, maybe only hearsay and he is clearly distancing himself from it (in a sense: "...it is up to you etc."). We have no record of such sale except for the coincidence between mysterious 630 ducats mentioned in Dee's diary - without naming source and manuscript at all - and the price of 600 ducats mentioned by Marci. To fill the gap between Rudolph and Horczicky, Voynich was speculating that Rudolph himself donated manuscript to Jacobus de Tepenec and the signature "Jacobi de Tepenec" was actually his dedication. Somehow it does not work: "Jacobi" is genitive (of Jacob), Rudolph should have used dative "Jacobo" (to Jacob). The genitive will suit more to theory that the name there is just a signature of the owner. Besides, while both were residing in Prague there was no need for him to add the location as well. For Horczicky, the reason actually was - when he was exiled, he might have hidden

the book with somebody and there the location would be important in the case the was be lost.

Dee's involvement is also only secondhand information and Bacon's authorship checks even worse. The more logical conclusion - that the manuscript may have been written *during Horczicky's lifetime* was ignored from the very beginning. The age analysis of the parchment was not done - but if it is found that the vellum dates from 16th century, it will clear the doubts. On the other hand, if it dates from 13th century, it would probably eliminate the future fake: who would have - beside Dee - access to such old stuff or even bother to look for it to manufacture the fake since they didn't have dating in that time yet? To sum it up, I don't believe that the dating of the VM would be so useless as some people suggest. Either way, it should have been done anyway!

Now how about Jacobus Horczicky? According to Czech sources (the book "*Kdo byl kdo*", published by Rovina, 1992), he was the son of poor parents and as a boy, he was working for Jesuits who discovered his talents and gave him higher education. First he was working as an apothecary in some monastery and later was selected to work in Rudolph's laboratories as an alchemist. According to same source above, he became extremely rich (probably by selling his Aqua Sinapius, healing elixir) and got his noble title "de Tepenec" for loaning money to Emperor. René Zandbergen however quotes more reliable source, the "knighting" document itself, with the reason that he "healed Rudolph from some terrible pain".

Rudolph II surrounded himself with famous scientists like *Tycho de Brahe* and *Kepler* who - while the value of their scientific discoveries is undeniable - were also involved in pseudo-sciences such as astrology. At those times the borders of sciences were simply not so strict - alchemists also ventured into chemistry and vice versa. Horczicky obviously was not only *alchemist* but also a good *botanist* (he was involved with herbs) and also *apothecary* skilled in *medicine* (he invented above Aqua Sinapia) and most likely in *astrology* as well - every alchemist was. He was maybe more universal scientist than we originally thought. After all, from all suggested authors it was he who he had the experience in all branches of science that are represented in the VM (Roger Bacon certainly didn't!)

Could it be the manuscript was written by Horczicky himself, for instance as his personal scientific notebook or workbook? After all, we are not only signing the books which we somehow acquire, but more importantly, the books *which we write ourselves*. Still, why all that secrecy when at the same time he would sign his name? My opinion is that it was somebody else who wrote the name, probably when the book was transferred from Horczicky's estate. Still, he could be author nevertheless, for reasons mentioned. The pictures of unknown plants in the VM could well be some mutants he grew as an experiment. He was the director of Royal gardens (or rather of the Jesuit gardens, both informations were quoted) - and it would be only natural for him to write such a workbook with pictures. The rest could have been a draft of some scientific book he was currently writing - the draft which was intended for his eyes only, at least for some time. The temporary concealment of the content of such draft from his competition would be quite logical.

Therefore, the language the manuscript he wrote could have been be highly scientific - or shall we say terminological - unlike the language of non-scientific manuscripts - and many scientific expressions would certainly be repeated rather often. Being myself a technical person, I remember I wrote many reports and notes in such "lingo", too many not to notice certain similarity, including the overall appearances of - rather unskilled - sketches. Of course, his name could have been written in the VM by somebody, who obtained the book later from him (his apprentice or friend).

Why Georg Barsch didn't mention de Tepenec's name to Marci, is another mystery. He probably didn't know it and could not spot the erased signature either (Marci certainly didn't spot it). Also, we do not know who erased de Tepenec's name - except we can almost positively say it was not himself :-). It could have been somebody before Barsch, considering the book might have been lost or stolen during 30 years war. It would be however easy for graphologist to compare the signature with handwriting of de Tepenec - if there are some documents written by him still in existence (apparently they are not - he wrote some pamphlet against protestants, but that one was most probably printed).

Which brings up another idea: could it be Marci, who wrote the manuscript himself and played a joke on Kircher? But it would be rather silly joke considering he was the rector of Prague University, nobleman a Kircher as his friend (but Kircher was already a victim of such joke by someone else). Moreover, recent discoveries found that Georg Barsch really owned the VM before Marci got it.

2) The pictures in the manuscript really look more like some illustrations in a workbook. They are not artistic, done by hand which - contrary to rather nice handwriting - had no talent for painting. They certainly look unlike some fancy and artistic pictures we can see in medieval manuscripts. And what's more: I do not think they contain any code. I believe they were strictly functional illustrations and they simply make no sense without the accompanying text (which is by the way carefully trying not to get into the pictures). And those strange plants never seen before - similar to ours but with strange differences? As I suggested before, they could some hybrid cross-bred plants he grew in the very same gardens he was the director of.

Only two explanations come in mind for pictures of naked women: they might be descriptions of some witchcraft or simply pictures of human, say gynecological, anatomy. True, there is hardly any accuracy there, but let's not forget how little was known about human body at that time! Harvey discovered the blood circulation much later - it was originally thought it went through brain! The first anatomical autopsy in Prague was done by Dr. Jessenius, the professor of Charles' University, in the year 1600. It was the first autopsy in Central Europe and probably still considered a kind of heresy. Again, the author of our manuscript - or maybe the second author (who probably got the manuscript from Horczicky) could have added his observations from that field into the very same manuscript.

It is also probable that the manuscript didn't leave Prague with Horczicky (1618) - considering Barsch was living in Prague, too - and stayed there all the time until Marci sent it to Italy (1666). Before Horczicky left Prague, he could have given it to his successor or student, together with *the secret how to read the script*, in order to carry on or just to finish the manuscript. That could explain the mysterious "second" author. The other possibility is that the book was originally written by Horczicky's tutor and apothecary Martin Schaffner while the former was still a student in Jesuit monastery. Schaffner was famous for his healing abilities and Horczicky learned a lot from him. Later, he might inherited the book from him and added his own observations.

In that connection, we should search the answer in the history itself. For instance, I have finally found the reason of the mysterious disappearance of Horczicky from Prague. According to already mentioned source, when Czech *protestant* nobility raised against catholic Emperor Ferdinand II (1618), Horczicky took the *catholic* side. He was imprisoned and later exchanged for above mentioned Dr. Jessenius, who was arrested while negotiating alliance between Czech protestant government and Hungary. After exchange of prisoners, Horczicky was expelled from Bohemia. Protestant army was however defeated in the battle of White Mountain near Prague (1620) and Bohemia was seized by Emperor Ferdinand II. Dr. Jessenius and 26 Czech representatives of protestant government (Directorium) were publicly executed (1621). Horczicky returned back the very same year, but died a year after, from injuries caused by falling from his horse. The 30 year war continued on larger scale till the year 1648, finally ending by the Peace of Westphalia.

3) Many pictures in the manuscript look strange: unknown plants, naked women, distorted anatomy - it all suggests that the textual content of manuscript could have been quite "explosive", considering the time it was written. That was probably another reason for concealment: the gynecology was most likely considered a forbidden science, maybe even of heretic nature. Also, the hybrid plants from de Tepenec's garden could have been considered as a dangerous meddling in God's business, too.

One can see of course the main objection we can raise: why would Horczicky, helped and educated by Jesuits (he was born as a poor boy, but they noticed he was gifted and paid for his education), engage in "forbidden" sciences? Again, we have to understand the spirit of his time: the Emperor Rudolph II (himself not too hot, but still devoted catholic) encouraged all kinds of the research bordering with "forbidden" sciences, namely transmutation of metals into gold and the alchemy in general - which was still considered by some to be a branch of black magic. Even Vatican was following closely all scientific discoveries - so closely that even Dee complained he was surrounded in Bohemia by their spies. And I doubt if it was an accident that many persons connected with manuscript were actually catholics, some of them even Jesuits.

4) The language of the VM. If there was the second author, it is apparent that he if he was on the secret, he was speaking the same language as the first author. De Tepenec was of Czech nationality. So was Marci and even Raphael Missowsky, who knew so much about it. Georgius Barsch was apparently Czech, too, but that is still to be proven. Has anybody tried to test the manuscript against Czech language? After all, the connection with Prague, then capital of Czech kingdom, is already firmly established. Could it be so much surprising the VM originated from there, too?

Czech language is basically the Slavic language, but centuries lasting effect of German influence left a deep and lasting mark on it, more in vocabulary than in grammar. Also Latin and Latinized names were used by Czechs (with university education) very often at that time.

As early as in fifteenth century, Czech script was reformed by the rector of Prague University *Johannes Huss*. Soft syllables, which were originally scripted by doubling or other letter combinations (English - *ch* - was for instance written as *cz*) were replaced with single *-c-* with sign above *-ě-* (i.e. *-c-* with \wedge , but reversed - if your computer does not have Czech fonts).

Also, the long vowels, originally written as doublets, were replaced with single letter with dash above, such as *-á-*. As ingenious as the manuscript's script was, to use similar signs would be an easy giveaway to foreigners (Czech language is using those signs and dashes quite consistently, that is more than other languages do). It is most likely that the author used the old system, which would explain high number of letter doublets.

German language was always resented by patriotic Czechs while Czech language was too difficult for Germans to learn it properly. Still, being subjugated to Austrians speaking German, more Czechs knew German language than vice versa. Czech language has plenty of German terms, but mostly Slavic grammar. Also, as was the habit at that time, many Czech words were Latinized by using Latin suffixes. Unfortunately, Slavic verbs have six different terminations for *conjugation* and ten different terminations for past tense and future tense. Slavic nouns and pronouns have seven terminations for *declinations*, each also slightly different. If de Tepenec was de facto an author, it would be quite natural for him to use Czech language as a tool for easy concealment of his works against German competition. Adding the unknown script, the encrypting would be just perfect.

All and all, the manuscript gives many indications that it was written in sixteenth (or beginning of seventeenth) century, which is the time of de Tepenec's life span. The script of that period was *German Gothic*, later version being called *schwabach* (which still exists) and was used at that time both for German *as well as* Czech texts (with additional Czech signs above some, of course). The similarity of German gothic script with the script of the VM was also already noticed by some researchers. It is apparent that the writer (or copyist) was skilled in both. It is obvious that second author (if any) was also "fluent" in both scripts. The numbering of pages for some time considered to be that of Dee, could as well be that of Horczicky - who lived in about the same time as there was nothing to reveal by those numbers (except maybe the young age of the manuscript, of course without intent :-)

The Czech - or other - language, being *natural* itself, was still not enough for concealment, so the brand new, *artificial*

script was invented as well. Those two methods of concealment would pretty well serve as in modern cryptograms: Czech language as a special *cipher* and new script as additional *encoding*. For that reason, we can very well doubt is some more means of encoding were used - they were simply not necessary.

4) **Abbreviations:** In average however, the words in the manuscript are too short for English or Latin - as well as for Czech language. It was already suggested that the author used some abbreviations - it was normal for Latin of that time already. However, he would still need some longer words - except if some *shorthand* was used.

There is also one other thing with shorthand - it is language dependable and of course, each shorthand combination of signs is like a cipher of its own. It would be *almost impossible* then for us to solve the VM without knowing its language and would be still *very difficult* even when knowing the language.

I also noticed, when studying *EVA* transcription (alphabet) that the signs considered there as "characters" are of two kinds: some are simple lines, the others look like they are composites - that is they contain as their part the characters from the first group, which makes it difficult to distinguish the text correctly. On the other hand, if we take the first group only, we just do not have enough letters for the whole alphabet (probably in any language). That may of course again suggest that some kind of shorthand may have been used after all. The other thing is the existence of *very complicated* letters (e.g. f, k, p, t in *EVA*), really not fitting among the rest of *very simple letters*. One have to wonder why would the author of the script make such deviation from the otherwise so beautifully simple characters?

Looking at the mentioned alphabet, I could recognize typical elements, which have similar basic properties with modern shorthand: they are quite legible, easily indistinguishable and relatively simple - actually so simple that they can be easily and smoothly fitted into words. But modern system of shorthand is using all kinds of signs for suffixes and prefixes and takes long time to learn. Again, considering the ease the manuscript was written by hand and minimum of mistakes or corrections, there must be some easy explanation how this "shorthand" might have worked - if indeed it was shorthand.

5) **The assumption about spaces:** spaces between "words" were assumed to be exactly that - the spaces. As fantastic as it may seem, they may just be other characters (probably only one and the same - while the remaining text could be written without spaces at all (and still could be easy to read). Or even better, the text being written without spaces which were then instead inserted in random, thus creating groups of characters somehow shorter than the real words in natural language. While it is hard to imagine why would the author resort to such trick, it is very easy to imagine that *nobody would consider it* - and nobody did, so far.

6) **The sixteenth century language** was of course quite different from today's version. I would estimate that one third of words was then either different than ours, disappeared with time or sounded same, but were written differently than we do it today. This may only add to our difficulties - as if we don't have enough of them! Other problem is comparing the scientific "lingo", which is full of "scientific" terms with the common language. No wonder that half words would be indecipherable, even by linguists!

CONCLUSION.

One thing is for sure: the real value of Voynich manuscript is that it was not cracked yet. Solve the mystery and it will be soon forgotten. In the meantime, it is a great challenge for our code-breakers as well as linguists. It is apparent that there are some areas worth deeper investigation. While the script and language of manuscript are still elusive, the search for more data - namely historical - and coordination of findings may eventually bring up new hypotheses, which - as strange as they may sound - could finally point to right direction.



4. TIME LINE

(The historical events related to the manuscript, some dates must be yet confirmed)

- 1214 Roger Bacon was born**
 1292 Bacon dies
 1492 Discovery of America
 1526 Ferdinand I Habsburg elected Czech king
 1525 Tadeus Hayek was born
 1527 John Dee born
 1535 William of Rosenberg was born
 1547 First resistance of Czech nobility, defeated
 1550 Aksaham's Herbal published
 1552 Rudolph II born (to Maxmillian II)
 1555 Edward Kelly was born
 1562 Maxmilian II (oldest son of Ferdinand I) crowned as a Czech king
 1564 Dee writes Monas Hieroglyphica, Galileo was born
 1565 Ferdinand I died
 1572 Ferdinand II born (nephew of Ferdinand I)
 1575 Horczicky was born 1576 Maxmilian II dies, Rudolph II (oldest son of Maximilian II) crowned as Czech king
 1579 John Dee's son Arthur was born
 1580 Missowsky born
 1580 Rabbi Loew of Prague creates Golem
 1582 Dee meets Kelly who claims he has Glastonbusy Manuscript
 1583 Both are leaving England for trip to Poland
1584 Both arriving in Prague, Dee's audience with Rudolph II.
1586 Dee notes in his diary he received 600 ducats
 1587 The book Historia von D. Johann Fausten published
 1588 Both at Trebon - Dee stays, Kelly leaves for court of Rudolph II in Prague
1589 Dee returns to England, Kelly stays in Prague, Horczicky starts his studies at Clementinum, Galileo got teaching post at University of Pisa, soon afterwards, till 1610 - teaching post at University of Padua
 1590 Georgius Barsch is born (approximately)
 1592 Rosenberg dies
 1595 Marci born
 1597 Edward Kelly dies (also seen 1598 elsewhere, maybe in Russia)
 1600 Thadeus Hayek dies, Bruno burnt at stake, first scientific autopsy in Prague (by Jesenius)
 1604 first public support of Copernicus by Galileo, but no proofs yet
 1608 John Dee died (in his diary is however + and 1609, probably his horoscope)
1608 Horczicky got his title de Tepenez
 1609 German Protestant Union established, Frederick Palatine as a head of Protestant Union, Galileo built first telescope (based only on verbal description of those used in Netherlands)
 1610 Galileo (in January) discovers four moons of Jupiter, in March he publishes his observations in *Siderius Nuncius*
 1611 Czech crown goes to Mathias, brother of Rudolph II
1612 Rudolph II died
 1614 Fama Fraternitatis - Rosicrucian Manifesto, first issue
 1616 Galileo got his first warning by Inquisition
 1617 Ferdinand II crowned Czech king
 1618 Czech resistance, Prague defenestration, the beginning of Thirty years' war
1618 (or 1619) Horczicky leaves Bohemia
 1619 Mathias died, Czech protestants elect Frederick Palatine as their king
 1620 Battle on White Mountain (near Prague), Ferdinand II defeated Czech protestants, Frederic Palatine runs away.
 1621 Horczicky returns to Bohemia
1622 Horczicky dies
 1633 Famous trial of Galileo, April 12, February . At second hearing Galileo confessed that he erred. Sentenced to death by fire. Due to his plea bargain the sentence was changed to life imprisonment. Later into house arrest
 1637 Ferdinand II dies, his son Ferdinand III becomes Czech king.
1637 The very first historical mentioning of VM (in letter from Baresch to Kircher)
1639 His second letter to Kircher
 1640 Marci visited Kircher in Italy
 1642 Robert Jones buys the box where,, in the secret compartment, was 1662 found the diary of John Dee, Galileo dies

1644 Missowsky died

1648 Peace of Westphalia, end of Thirty years' war

1654 Marci got his title (de Cronland)

1657 Ferdinand III died, Leopold I Czech king

1659 Dee's diaries were first published

1662 Marci named the rector of Prague University

1665 (or 1666) Barsch dies, Marci's famous letter to Kircher**1667 Marci died**

1672 Dee's diaries archived in Ashmolean Museum, Oxford

1680 Kircher died

1795 Pierre-Jean Beckx born

1850 Beckx becomes the general of Jesuit Order

1865 Vila Mondragone becomes property of Jesuits

1887 Beckx dies

1912 Voynich buys manuscript

1921 W.R. Newbold claims he solved VM

1961 Kraus buys manuscript

1969 Manuscript donated to Yale University



5. REFERENCES.

Note: * is obsolete

Photographic Copies Of Manuscript

Some fragments of doubtful quality are posted on various pages, but the high quality copies (in full color) can be downloaded from Yale University, here: * <http://inky.library.yale.edu/voy/voy2.html>

Internet Pages

The most interesting pages are listed here (some may be obsolete, please refer to update on "Introduction" page)

- <http://www.voynich.nu/index.html> René Zandbergen (a)
- * <http://hum.amu.edu.pl/~rafalp/> Rafal T. Prinke's pages
- * <http://web.bham.ac.uk/G.Landini/evmt/evmt.htm> Gabriel Landini's
- * <http://www.cl.cam.ac.uk/users/mrr/voynich/index.html> Voynich UK
- * <http://web.bham.ac.uk/G.Landini/evmt/evmt.htm> EVMT web site
- * <ftp://ftp.rand.org/pub/voynich/> Jim Gillogly's
- * <http://www.dcc.unicamp.br/~stolfi/voynich/> Jorge Stolfi's site
- * <http://www.research.att.com/~reeds/voynich.html> Jim Reeds

For more links, see Stolfi above

Books And Articles

- **D'Imperio, Mary E. :** The Voynich Manuscript - an elegant enigma, Aegean Park Press, 1978
 - **Kahn, David:** The Codebreakers. New York: Macmillan, 1967.
 - **Landini, Gabriel and René Zandbergen:** A Well-kept Secret of Mediaeval Science: the Voynich manuscript
 - **Manly, John M.:** The Most Mysterious Manuscript in the World: Did Roger Bacon Write It and Has the Key Been Found? in Harper's Monthly Magazine 143 (1921): pp. 186-97.
 - **Fell-Smith, Charlotte:** John Dee (1527-1608), London, Constable & Company Ltd., 1909
 - **Brumbaugh, Robert S.:** The Most Mysterious Manuscript - The Voynich "Roger Bacon" Cipher Manuscript, G. Southern Illinois University Press, 1978.
 - **Grossman, L.:** When words fail. The struggle to decipher the world's most difficult book, Lingua Franca, April 1999.
 - **Newbold, William Romaine:** The Cipher of Roger Bacon. Edited with foreword and notes by Roland Grubb Kent. Philadelphia: University of Pennsylvania Press, 1928.
 - **Ottův slovník naučný:** 35 Vols., Prague, 1900.
 - **Pelzel, Franz Martin:** Abbildungen Böhmischer und Mährischer Gelehrten und Künstler nebst kurzen Nachrichten von ihrem Leben und Wirken, Prague, 1773-1782
 - **Skála ze Zhooc, P.:** Historie ěeská, Praha, 1984.
 - **Vávra, Jos.:** Jacobus Horcicky de Tepenec, Vyroční zpráva Ceske reálky Prazske, 1895
 - **Tiltman, John:** The Voynich Manuscript, The Most Mysterious Manuscript in the World. NSA Technical Journal 12 (July 1967), pp.41- 85.
 - **Godwin, Joscelyn:** Athanasius Kircher: A Renaissance Man and the Quest for Lost Knowledge. London, Thames and Hudson, 1979
 - **Meric Casaubon:** "A True and Faithful Relation of What Passed for Many Years between Dr. John Dee and Some Spirits" (1659)
 - **Hurych Jan B.:** Voynich Manuscript, Hurontaria (English part A), No. 6, 7, 8, 9 - 1999, slightly obsolete, the updated version is this VM page.
<http://rhea.tci.uni-hannover.de/hurontaria/1999/C996a.htm>
<http://rhea.tci.uni-hannover.de/hurontaria/1999/C997a.htm>
<http://rhea.tci.uni-hannover.de/hurontaria/1999/C998a.htm>
<http://rhea.tci.uni-hannover.de/hurontaria/1999/C999a.htm>
-



SELECT THE ARTICLES:

Note: Articles marked with * were first published in the [Journal of Voynich studies](#)

- NEW:** [A41- THE CIPHER OR CODE - IS THE VM ENCODED?](#)
[A40. THE MISSING TWO HUNDRED YEARS IN THE VM EXISTENCE](#)
[A39. THE LINK ENDS AT BARESH.](#)
[A38. MONDRAGONE FOREVER?](#)
 *[A37. PHONETISATION OF THE VM - FIRST RESULTS.](#)
[A36. MNISHOWSKY ONCE MORE.](#)
[A35. THE RESEARCH OF THE VOYNICH MANUSCRIPT: The Strategies and the Results.](#)
[A34. THE SIGNATURES OF HORCZICKY \(and their comparison \)](#)
[A33. NUMBERS IN THE VM AND WHO NUMBERED THE PAGES?](#)
[A32. THE VM SEARCH AND RESEARCH.](#)
 *[A31. VOYNICH NOW AND THEN](#)
 *[A30. ATHANASIVS KIRCHER - THE VM IN ROME](#)
[A29. JUAN CARAMUEL DE LOBKOVIC](#)
 *[A28. VM PHILOSOPHY VERSUS VM POLITICS](#)
[A27. THEODORUS MORETUS OR THE MESSENGER TO ROME](#)
[A26. THE VM MANUSCRIPT LETTER FREQUENCY.](#)
[A25. THE SEARCH FOR NUMERICAL CODES IN THE VM.](#)
 *[A24. THE VM RESEARCH: THE NEW PHILOSOPHY AND NEW METHODS.](#)
[A23. THE LOST NOTES OF GEORGIUS BARESCH](#)
 *[A22. MORE ABOUT DR. RAPHAEL MNISHOWSKY](#)
[A21. MEDIEVAL MANUSCRIPT'S SECRETS LOCKED IN A LANGUAGE MYSTERY \(FROM INTERVIEW OF EUROPEAN WEEKLY WITH JAN HURYCH, SEE OUR OTHER SITE\)](#)
[A20. THE RESEARCH OF THE VOYNICH MANUSCRIPT: THE STRATEGIES AND THE RESULTS.](#)
[A19. THE MYSTERIOUS DR. RAPHAEL](#)
 *[A18. THE HANDWRITING ANALYSIS OF SOME POSSIBLE AUTHORS OF THE VM](#)
[A17. HOW MANY "HANDS" WROTE THE VM?](#)
[A15. HOW THE VM GOT TO PRAGUE](#)
 *[A16. THE VOYNICH MANUSCRIPT - DO WE REALLY HAVE ANY PROVENANCE? \(REVISION 1, SEP. 2008\)](#)
[A14. JULIUS CAESAR OF AUSTRIA](#)
[A13. SEARCH FOR HIDDEN NUMBERS IN THE VM](#)
[A12- KELLY: MURDER OR SUICIDE?](#)
[A11- THADEAS HAJEK DE HAJEK](#)
[A10- THE FURTHER INVESTIGATION OF THE FOLIO F1R](#)
[A9 - THE INVESTIGATION OF THE FOLIO F1R.](#)
[A8 - THE VM - IS IT REALLY A HOAX?](#)
[A7 - RAMON LULL](#)
[A6 - THE TRANSPOSITION CIPHER II.](#)
[A5 - THE TRANSPOSITION CIPHERS I.](#)
[A4 - THE COMMENTARY TO TEXTS OF R.FIRTH](#)
[A3 - THE CRYPTOGRAPHY, CIPHERS AND CODES, PART 2.](#)
[A2 - THE CRYPTOGRAPHY, CIPHERS AND CODES, PART 1.](#)
[A1 - GEORGIUS BARESH AND HIS LETTER TO KIRCHER](#)



[BACK TO ARTICLES](#)

A1. GEORGIUS BARESH AND HIS LETTER TO KIRCHER.

As we can see from the article by G. Landini and R. Zandbergen ("A Well-kept Secret of Mediaeval Science: the Voynich manuscript"), see <http://www.voynich.nu/extra/aes.html>, Johannes Marci inherited the private library of Georgius Baresh, who was later also identified as the VM owner mentioned in the famous letter from Marci to Kircher. Also, as stated on the same web page, *Museo Kircheriano* stores another Marci's letter, where he calls him *Georg Barsch* (apparently the variant of common Czech name "Bares" - in Czech fonts it is "Bareš"). And what's more, René Zandbergen even found there the letter from Baresh to Kircher (the Latin original and its English translation is at <http://www.voynich.nu/letters.html#gb39>)

From the letter alone, we may deduce several interesting points. We can assume that Baresh is just another Czech person on the scene of the VM (he is the number four, after Horczicky, Marci and Raphael). Considering that he was Marci's long time acquaintance, maybe even his friend, it is interesting that we do not have more information about Baresh himself, neither from Marci nor from the archives in Prague (the research is however in progress). He studied at Italian university *La Sapienza* and the abbreviation "M." before his signature may be that of "Master" or maybe "Magister".

Baresh knew Pater Moretus, who was a Jesuit, but he did not know personally Kircher - in spite of the fact that he studied in Rome (but he started in 1605 while Kircher arrived there in 1635). There is however slight possibility he was somehow connected to Charles University of Prague, where Marci was the rector. He was apparently a layman (*Sapienza* was not a Jesuit University) and in his letter to Kircher he was very polite, even humble, which can be partly explained by Kircher's fame, but mostly because he needed his help with solving the VM :-).

In his letter (1640, long after Marci's visit of Kircher in Italy in 1638) Marci mentioned that he is sending Kircher some comments written by Baresh and related to the VM. This not only confirms the existence of Baresh himself, but also his ownership of the VM. This letter and some others were also discovered by René Zandbergen during his visit in Italy.

We do not know the exact date of Baresh birth, it may be between 1580-1585 (according to Zandbergen) or cca 1590 (according to Prinke). He started his studies in Italy in 1605 (which makes both above estimates quite reasonable). He died 1665 or 1666 (Marci's numeral "5" in his famous letter could be also "6"), which would make Baresh either 80 or even 85 (rather high age for that time) or 75 (by Prinke, more likely). Unfortunately, beside minor details that he mentioned in his letter to Kircher, we do not know anything about his life and profession as such. Marci mentioned that he "was knowledgeable in alchemy", which does not mean he was actually an alchemist by profession - in his time, alchemists already performed as chemists and vice versa (in Bohemia, chemists were still colloquially called "magisters" as late as in the twentieth century). He wrote his first letter to Kircher in 1637 and sent it to him courtesy of Prague mathematician Pater Moretus. This letter is apparently lost and as we can see from the other letter (which is the subject of this study), Kircher never even answered it.

So Baresh sent the second letter (1639) and his mentioning of his first letter confirms he probably owned the VM much earlier than in 1637. That letter is also of value for another reason: in it, we can see his handwriting. There is a possibility that even some comments in the VM are in his own hand - in spite of the fact he didn't solve the manuscript he might already have a fraction of the code or some information about it. In his letter to Kircher Marci also confirms he inherited the VM with his library.

As we know, during the reign of Rudolph II, the city of Prague was the scientific capital of Europe, the home of many scientists, both catholic, protestant or of other religions. There also lived the rabbi Levi (or "Loew", who died 1609), the creator of famous robot "Golem" (incidentally, the word "robot" was invented later in 20th century by Czech writer Karel Čapek for his play "R.U.R."). In the 16th century, the sciences were already breaking the restrictions imposed on them by the Church, but often the disoriented scientists also took various pseudo-science for real science.

The medieval environment was still very influential, even after Rudolph's death. Astronomer Kepler discovered his famous laws in Prague - but at the same time he also wrote astrological horoscopes (the most famous one is the one he did for general Wallenstein). First autopsy in central Europe was performed in Prague (1600) by Dr. Jesenius, who was later politically involved in Czech uprising. (Note: He was captured by Emperor's soldiers and later exchanged for Horczicky who was imprisoned by Protestants. After the defeat of Czech side, he was publicly executed, his tongue being nailed to gallows while he was still alive.)

Even famous Galileo was wrong when he laughed at Kepler's theory that sea tides are caused by gravitational effect of the Moon. We can hardly blame Baresh for his expectations that the VM contained some secret recipe. This thirst for knowledge was so typical for his times and it opened the road for Enlightenment.

Why did Baresh passed the VM to Marci? Apparently they were trying to solve it together. Marci was famous physicist and mathematician, but he certainly didn't try to avoid alchemy - I have read somewhere that people thought he could actually transform the metals. Even famous Englishman Harvey visited him in Prague, apparently to discuss his discovery of blood circulation.

Marci's correspondence with Kircher, another scientist, can be also seen in different light - he knew Kircher well and apparently tried to get the VM for him even sooner (see in the famous letter Marci to Kircher: "... this gift, while delayed ..."). It is also possible that Kircher was already hooked on the idea after the first letter of Baresh. While he could not solve the VM from fragmental copies send by Baresh, he certainly understood the degree of fame he would gain by solving the VM. So Marci, when he finally inherited the VM, did not waste any time and sent it directly to Kircher. It would be interesting to read Kircher's answer, unfortunately no such letter was found so far. It is obvious that even Kircher did not solve the VM - as we know him, he would not keep quiet about that if he did. On the other hand, if he didn't succeed, there was nothing to brag about :-).

In one of his letters Marci answers Kircher questions about trustworthiness of Baresh himself. Here comes to mind the trick once played on Kircher by one of his opponents: he sent him faked, nonsensical message which Kircher actually "solved". The jester did not hesitate to make his joke public so there was a good reason for Kircher to be more careful.

From another letter we also learn interesting fact: Both Kircher and Marci once tried to solve the secret messages of Swedish general Banner (it was during Thirty year war). We simply cannot imagine that Marci would send such valuable manuscript to Kircher without preliminary investigation and attempts to crack it. One possibility however comes to mind: Marci may not really think too much about it and there are some hints in his famous letter, where he leaves it up to Kircher "to make his mind about it". However, he wanted to please Kircher, whom he highly valued. At that time, Kircher already published his famous book about cryptography, where he describes various methods of coding and decoding (1663).

It is not known how Baresh got hold of the VM - unfortunately for us, since that could lead us closer to the author. He certainly didn't tell Marci, not even at his deathbed :-). That much we may assume, since Marci otherwise wrote to Kircher probably everything he knew about it. And he bequeathed it to Marci, not to Kircher, otherwise Marci would also mention that in his letter. Did he want the solution to stay in Czech hands? Hardly - apparently nothing was said about it in his will and Marci would not disobey his last wish.

Comments to the above letter.

(I am using quotations from English translation of the letter by René Zandbergen, see the link above. The quotations are in Blue color, my comments are in black, j.h.)

• **"... certain religious person, I obtained from that person that he carry this letter with you ..."**

We do not know who that person was - certainly not Marci who was not "religious person" neither Pater Moretus, who was, but did only the first delivery and is not mentioned in connection with this one. This may be also interesting point, since Kircher's answer to the first or even this second letter is not known either. Could it be that he threw away the first letter, considering it a fake? Also, we have no record about conversation between Moretus and Kircher.

• **"...you had asked, among others, for help in finding additional material for the work you wished to publish ..."**

This of course had hidden agenda - it was mainly Baresh who wanted the help, as can be seen from the rest of the letter.

• **"... but also of the unheard-of ability in solving the riddles of that Sphinx of unknown writing systems"**

This - and the whole section - is only heaping the praise on Kircher. Baresh apparently played on Kircher's vanity.

• **"... and since such a Sphinx in the form of writing in unknown characters was uselessly taking up space in my library ..."**

We know from Marci's letter that Baresh was for years unsuccessfully trying to solve the VM, so the word "uselessly" is rather insincere. He could hardly worry about the space in his library - he needed the book badly and he never allowed the VM original to reach Kircher's hands. Here he just wanted to stress the "unimportance" of the VM for himself :-).

• **"... I sent this writing to Your Reverence a year and a half ago ... in fact I did not dare submit the book itself to such a long [[dangerous]] voyage ..."**

This is of course the plausible explanation, however Baresh should know that several samples (actually only copies) instead of the whole book would not do. Only the original would convince Kircher that the VM is not a fake or a jest.

• **"... if it is true that what I sent you the first time never reached Rome, as I conclude from the fact that after such a long time I have not heard of any reply about this ..."**

Here is an obvious controversy: P. Moretus returned to Prague and Baresh actually talked to him. So the samples were delivered and probably lost, archived or thrown away. In either case, the answer by Kircher was expected and didn't come. Since the first letter was not found (while the second - this one - was) it is most likely that the first letter disappeared with the samples. Here Baresh simply prefers to blame the unknown circumstances rather than Kircher which is of course smart enough.

- **" . . . Father Moretus told me that he [it?] arrived safely in Rome; . . ."**

This confirms our speculation that Kircher really got the samples.

- **"From the pictures of herbs . . . of various images, of stars and of other things which appear like chemical secrets, I conjecture that it is all of medical nature . . ."**

There appears to be certain misleading - so far the VM was suspected to be nothing like medical recipes (since they have to contain the amounts, volumes and weights of ingredients, none of which is apparent in the VM). The reason for such deception is obvious: Baresh suspected something else in the VM and he wanted to be sure Kircher will **not** get the whole idea :-). Therefore he sent only the samples - Kircher was not supposed to guess what it is **all** about. It would be interesting **which** samples Baresh actually sent. What did Baresh suspected to be hidden in the VM? Apparently the other "chemical secrets", that is transmutation of metals and of course the gold comes first to our mind.

- **" . . . it is quite probable that some good man, interested in the true medical science . . . went to the oriental regions, where he acquired some Egyptian treasures of medicine . . ."**

The "medical" content is here further reinforced and as René Zandbergen rightly comments: *"The reference to eastern (especially Egyptian) medicine is a rather obvious attempt to trick Kircher into becoming interested in this MS."* Baresh must have known that the script in the VM is nothing like Egyptian "hieroglyphs". On the other hand, at that time all "illegible" characters were called "hieroglyphics". Baresh also wanted to trick Kircher into believing that the VM is about something quite "innocent".

- **". . . This probability is increased by these exotic herbs. . . which escape from the knowledge of the people in the German country."**

It is peculiar that Baresh already noticed that. He must have done some research in that himself. He of course pretended that "other" countries may have such herbs, otherwise the *medical* usefulness of the VM would be quite limited :-).

- **" I will be obliged to you for this, not just for what the work contains, but also all else that will become possible."**

This is rather illogical statement - what else than the book "contains" could be there? Especially when he sent only the excerpts, only few samples? It only confirms for us that Baresh did have the hidden agenda. René Zandbergen adds that "The announced "lines of writing" (meaning samples, j.h.) are not included in this one-page letter, but may have been on separate pages." While they were never found, Baresh explicitly talked about them in his letter. It is most probable that Kircher kept the old ones as well as the new ones, as Baresh suspects (*"I add here some lines in the unknown writing, to remind you of what I had written and sent to you before, in similar characters."*)

- **"With this I recommend myself to Your Reverence and I wish you a happy, successful completion of this work not for all. May the Almighty Lord preserve you for the community of literates."**

"Not for all" is related to his another hint in the letter (*". . . the author would hardly have gone to such lengths just to hide things which are open to the public . . ."*) which contradicts with Baresh's unselfish wish that *" the good people may share what good information it has inside it"*. Could Kircher do it without seeing the whole book? Apparently he could not, but Baresh himself would finish the rest, since there is no promise he would later send the whole book. Or more likely, he would not share it with those "good people" at all :-).

The salutation at the end of the letter is also rather unusual - it does not sound too religious (his mentioning of God at the beginning of the letter is rather indirect, too) and not at all according to the contemporary custom. At conclusion, Baresh also reminded Kircher he studied at "La Sapienza" in Rome, apparently trying to get Kircher's sympathy.

Conclusion: The letter makes the impression that Baresh knew about the VM more than he really wanted to reveal. Then there is also his obsession to solve the VM - as an alchemist, he probably had in mind its usefulness - mainly for himself. We suspect he learnt something about its history, most likely at the time he got it. This secret he of course never revealed to Marci, not even at his death bed. Or maybe he did reveal it, but Marci considered it rather doubtful, as he gently hints in his famous letter to Kircher.

It is obvious that Baresh wanted Kircher to "start" the cracking while he himself would finish the rest - the most important part. How important it was is apparent from his deception - he pretends it only contains medical secrets. How much of this deception Kircher really suspected we may never know. The contradictory statements in the letter are quite obvious, but the manuscript may have been genuine, he thought. So if he did some work, he never shared his results with Baresh. Baresh of course played on the possibility that Kircher would look only after his own "glory" and would not search for the real secret hidden in the VM. They both overplayed their hands, but Baresh died and Kircher won, at the end. Finally, from Marci's letter mentioning John Dee, he had a clear picture, but his victory was short lived - he could not solve the VM either.

In his letter, Baresh also called the VM as a "Codex". True, many manuscripts were called "Codex" at that time, but this could have been also written on book covers that later disappeared. We wonder why? They would hardly bear the name of the author or reveal the secret, otherwise so well protected by unknown script. We may only assume that the book was stolen and sold to Baresh, with or without covers. Apparently at the same time, the name of Horczicky (which was inside) was erased. Who erased it, we do not know - maybe not even Baresh knew. On the other hand, he might have known (or was fed some lies by the thief), but he certainly did not mention it to Marci, who would otherwise gladly pass it onto Kircher.

While we know today that most of Kircher's research was of doubtful value, he was considered by Baresh and Marci as the

real expert in cryptography. Did he by any chance solve the VM? We doubt it - he would certainly publicize it, after all he was a born "showman". Or maybe he solved it but found it had doubtful value - but now we are only speculating. And what happened with those samples from Baresh? The answer is simple: having the original, he threw the copies away. Later, when he could not find the solution, he simply gave up the whole project. Strangely enough, we have no proof of somebody else trying to solve it after him, that is until Voynich discovered it. Kircher apparently did not pass the book further to anybody else.

Jan B. Hurych



A2 - THE CRYPTOGRAPHY, CIPHERS AND CODES. (Part 1., Overview)

Comment: We recently reached the conclusion that VM may be enciphered after all, so here are some notes about cryptography.

Cryptography in general.

Instead of theory, we refer our readers to pertinent literature. Here we only list the specifics for the VM.

Conclusion:

Historically, both ciphers and codes were invented to hide secret messages from being read by non-initiated persons. While ciphers accomplish this by the *transposition* of letters or their *substitution* by other letters and always via some algorithm, codes are simply using the list without any apparent rule. The original, simple systems were improved over time, but the main principles remain. Unfortunately, those methods have so far failed to solve the VM. As for the reasons why, there are several: maybe they were not applied properly or some principles were ignored. The main reason, however, is certainly the fact that the unknown language (here in the function of a "code") and the script (here in the role of a "cipher") complicate things to such extent that we also need some linguistic expertise. Of course there may be another reason, if there is no encipherment or encoding present :-).

VM: Cipher or Code?

First, we have to ask the following questions:

- 1) *Was the text intended to be read with the help of some "key"?* The answer is definitely "YES", because of the unknown alphabet (we need a key for that).
- 2) *Is it possible that the script did exist and was used in other documents?* Well - after four hundred years of search - it can be certainly be assumed that it did not. Otherwise, we would have already found it and probably even cracked the VM. It is highly improbable that we will ever find related documents.
- 3) *The language of the VM: was it used by a certain group of people, that is: was it a "natural" language?* The answer here is more complicated - if it was and the group became extinct, we do not know; we don't have any other records about it. On the other hand, it can also be a language that still exists, enciphered via an artificial script. One thing is for certain: if the *language* was an artificially invented language and we do not have its vocabulary, then the VM cannot be cracked.

Conclusion:

The cracking methods for the VM may be quite different from those used by today's cryptanalysts. They usually know the script or language, usually both. In the case of the VM, we don't have either, so the solution is much more difficult. One new method comes to mind: instead of starting with the alphabet, we can guess the "meaning" of words. It was already suggested by linguists that the VM is using "some grammar rules". The other possibility is of course the presence of a certain cipher (the use of codes was a priori eliminated as too complex - and probably much harder to crack, too :-).

The Solutions.

The ciphers are usually greatly dependent on the alphabet and the language used. The codes generally bypass that dependence, since they are basically only the textual icons (or tags) with rather independent meaning. What kind of methods for cracking the manuscript have been considered so far?

- 1) **We assume that the language is known (i.e. that it exists) and that the text is not enciphered** (only via an unknown script). Then it is "only" a case to find the right language plus doing some exercises in statistics, either via the letter frequency table or the statistics of words. This method is still highly dependent on the language used. It is assumed by cryptanalysts that a 500 letter long text is enough to crack the cipher-alphabet (if we know the language) and the VM satisfies this requirement generously. However, we have had no such luck so far.
- 2) **We assume a certain language already exists and try to solve the script.** Here we can also suspect more complicated methods, for instance the use of "silent" vowels, or that "letter" signs are actually signs for syllables, etc.
- 3) **We assume that the language is known, but the text is enciphered.** That only shifts the problem from language to a cipher :-). We can only imagine the problems for the cryptologist who is not a linguist and vice versa.
- 4) **We assume all three unknowns are present at the same time (language, script, cipher).** Such a problem has to first

be converted to case 1) or 3) anyway.

5) **The assumption of some coding being present** becomes a case closer to case 2), at least with similar difficulties.

Conclusion:

a) As a first approach, it is convenient not to consider cipher or code at all. That would make it easier - not only for us, but certainly for the author, too :-). The case of shorthand or abbreviations is generally without solution.

b) From the very beginning, the existence of cipher was suspected, but the triple combination (script, language, cipher) was probably the reason that even experienced military experts like Prescott Currier and John Manly didn't have more success than simple amateurs, not mentioning the unfortunate trials of Mr. Newbold.

Jan B. Hurych



A3 - THE CRYPTOGRAPHY, CIPHERS AND CODES. (Part 2., The Medieval Cryptography)

In this part, we are discussing the medieval cryptography, in the period estimated for writing the VM (between 12th and 17th century). Most of the information for this article was taken from the book by David Kahn, "The Code-breakers".

The true beginning.

In last discussion (D17), we mentioned the **transposition cipher**, written on the belt, which was wrapped around the rod, the text being written vertically across the turns. Originated by Greeks, maybe even Egyptians, it was also the sort of *steganography* (the art how to conceal the plain text). The Egyptians of course had hardly any need for encryption: the hieroglyphs were difficult enough and very few people knew how to read them.

As the alphabets simplified, more people became acquainted with them. Some areas had faster development and the first alphabet, Phoenician, was kind of a shorthand for certain sounds and didn't even use vowels (so it was already encrypted :-). The first "complete" alphabet with vowels was actually the Greek one and if you lived there around the year 600 B.C., all you had to do was to join some school to learn writing and reading.

The Indian Kama Sutra already mentions "secret script", while other countries used other means of secrecy, like writing on the shaved head of the messenger. During his trip his hairs grew fast enough to hide the message and the receiver had only to shave the head of the messenger. Unfortunately, if he didn't like the message, he could cut-off the head of the messenger as well :-). The truth is that in Europe, any other alphabet beside Latin or Greek was considered as "secret script" anyway.

The Iliad mentions the case of the messenger who was supposedly carrying the letter of recommendation while in reality it contained the sentence "Treat this messenger as you treated Glaucus." Needless to say, Glaucus was actually executed and so was the messenger :-). The Greek Polybius invented the substitution cipher: 5x5 square of coordinates, so letter "b" was written as "12", being the second letter in the first row. The real masters in military cryptography were of course Spartans.

Romans used different approach: Caesarian cipher simply substituted the real letter by the next in alphabetical sequence, i.e. "b" for "a", etc. Later, they shifted it four places instead, i.e. used "d" for "a", etc. It was actually Latin alphabet that made the reading itself a real cinch and thus forced the growth of *cryptography* (the science of enciphering), while the *cryptoanalysis* (the science of deciphering) was yet to be developed.

The first mentioning of ciphers was in Arabian book **Abú Ahmada** (855 A.D.), but the true scientific efforts were recorded in 1412 A.D. by another author. He devoted it the whole book of his 14 volume encyclopedia "Subh al a'sha". The book mentions seven methods of enciphering and even secret inks. The Arabs also already knew the frequency table, but refrained from deeper mathematical evaluation of it.

During the famous trial of Knights Templar (1307) the secret script was also mentioned among their other secrets. The Italian **Alberti** discovered (in 1467) the polyalphabetic cipher (similar to Caesar's except it used different alphabet for different letter). He was also the one who invented the cipher disc and the code in the form of number, thus enabling the numerical ordering of codes in the code book.

Forty years after Alberti, German **Johannes Trithemius** (Trithheim), the monk and alchemist, has written the book "Steganographia". He recommended to read for instance only every second letter, which of course could have been the dead giveaway. He was the one who invented his "tabula recta", the table of 25 shifted alphabets.

The Italian **Belaso** wrote a book "La Cifra" (1553), where he used the method of writing the key sentence under the plaintext, thus simplifying the encoding process. The code letter was then selected from Trithemian table. The Frenchman **Vigenère** wrote a book "Traité des Chiffres" (1585), describing the method where the only key necessary was one letter, the next one being than the first "solved" letter and so on (the autokey method). Still, the solution was simple: there was only 25 combinations for the secret letter :-). Still, it was not that easy: one had to solve at least five first letters of the message to get something which makes sense so we can confirm the solution.

Another Italian, **Giovanni Porta**, wrote the book "De Furtivis Literarum Notis" (1563), where he combined both kinds of ciphers (i.e. transposition and substitution) consequently. The real incubating place for cryptographers was of course Venetian Republic. **Giovanni Soro** was solving the secret messages there (1506) and he was so good that their enemies were forced continuously to improve their own systems. French King Henry IV (crowned 1589) was currently attacked by Catholic league supported by Spanish King Philip, whose messages were cracked by Frenchman **François Viéta**, better

known as "the father of algebra" (he invented the usage of letters for mathematical variables).

Well known is also the affair of Scottish Queen Mary, which cost her her beautiful head (1587). The messenger Gifford was betraying her and delivered her secret coded letters first to chief of police Walsingham and cryptoanalyst Phelippes who was solving the virtually still "hot". There was also suspicion that Dee or Kelly were in Walsingham's services during their tours around Europe. Dee currently complained being spied on by Vatican people.

The seventeenth century of course strived in secret messages, books and even pieces of art. Huguenots, King Louis XIV, Vatican and both courts of Habsburgs (Spanish and Austrian) were communicating with their spies via ciphers only and England, of course, was no different. **Francis Bacon**, the alleged author of Shakespearean plays, described in his book "The Advancement of Learning" the cipher so genial that it precedes the binary system of our computers by 400 years (see our previous discussions). Scottish mathematician **John Napier** (the discoverer of logarithms) was further developing its applications in his book "Rabdologiae".

Already mentioned **Dr. John Dee** not only owned some secret manuscripts, but he also developed the secret alphabet. And last but not least, let's mention **Roger Bacon** (1214-1294), who was supposedly the author of the VM (we will write more about him later). Considering that the cryptography was nothing new in his time, the VM could have been written by somebody else even then. And if we date the VM into 16th or 17th century, the VM could have been written at that time by simply anybody. Meaning "anybody" who was smart enough, that is kind of a genius . . .

Jan B. Hurych



A4 - THE COMMENTARY TO TEXTS OF R.FIRTH

I have found those texts referred on the page of Mr. Stolfi. The page of Mr. Firth does not exist any more, but you can still find those notes at <http://www.dcc.unicamp.br/~stolfi/voynich/mirror/firth/>. It is an interesting reading because of their original ideas - it is just too bad they were not yet followed further.

TEXT 12: CONCERNING THE SPACES IN THE VOYNICH TEXT

R. Firth	Our Commentary
R. Firth proposes the Prosodic Hypothesis. The spaces do not separate words or morphemes; they separate sound clusters, syllables or feet, according to rules similar to those of metrical prose.	<i>The Prosody</i> is the science of the construction of verses, i.e. . <i>versification and metronomy</i> (as well as accentuation). Sorry, I am not a linguist so do not expect any definition here; you can find however more info at: http://digilander.libero.it/troubadours/prosody/
R.F.: "We've been obsessed with symbols, characters, lines, words - in other words, the text as something to be read silently. The mediaeval world was not like that. Their communication was much more aurally oriented; to them texts were to be read aloud."	That is very interesting observation and works well with the idea that alchemists used some declamation with their procedures. In the case of pages with illustrations, they may contain even some charm or invocation used for preparation of some potion or medicine. After all, beside philosopher's stone, the main task was also to prepare "elixir vitae" (according to some literature t it is the solution of "philosopher's stone" in wine). All that of cause based on assumption the VM is alchemical manuscript. Come to think of it, the sequence "dáiin,dáiin, dáiin" could be the version of Latin "etcetera, etcetera, etcetera" (today's "etc.") which is used commonly within the speech, but of course seldom in written documents.
R.F. admits that the VM may be actually some kind of poem. Old poems after all didn't have short lines and the VM can easily have one paragraph as one stanza.	The text is no exactly in rhymes, at least not phonetically. We may as well assume that the VM can be a "songbook" - the invocations were often spoken as a chant.
R.F. made following suggestion: let's take some text in natural language and divide it in groups as per rules used in the VM. Would it have similar statistical features as the VM? He took a text in old Greek (The Epistle to Corinthians), <i>Ean tais glo:ssais to:n anthro:po:n kai to:n angelo:n, agape:n de me: ekho:, gegona khalkoi e:kho:n e: kymbalon alalazon</i> and transformed the text such way that the long vowels were written as long ones and and he broke the text so each group has a main stress at the end andsmall unstressed words are fused onto the following group. And the result? <i>Ean taisgloh ssaistohn anthroh pohn kaitohn angel ohnaga pehn demeh ekhoh gegon akhal koieh khohn ehkym balon alala zon</i> R.F., also states it would explain why some words in the VM are repeated and why each paragraph ends with short words - they couldn't be fused with following syllable - there was none.	No comments here, see below.

TEXT 13: ANOTHER TEST OF THE PROSODIC HYPOTHESIS.

R. Firth	Our Commentary
<p>R.F. also suggests the proper test how to prove the "words" in the VM are real words: if the groups (i.e. groups of characters that look like words) are not words, but can be derived from them, one should be able to predict how the single words would be transformed into groups and actually find those. All that under assumption that the "gallows" letters (the higher letters? j.h.) usually mark the stressed syllable.</p> <p>R.F. uses following rules:</p> <ol style="list-style-type: none"> 1. Every group tries to contain a stress or intonation 2. A break is always written after a long vowel, unless this is the beginning of the group 3. A break is written after a stressed vowel if the following syllable can be detached and fused with the next group. 4. An unstressed word will fuse with the following group 5. Group medial 'a' is usually written with 'a'; group final 'a' with '9' (apparently similar to Latin "et" and "-sque", j.h.) 	<p>Not being linguist, I cannot comment this method from that point of view. However, R.F. does not say if these rules appear also somewhere else - we can use them while writing the poem, but I haven't seen any book like that. Let's not forget this hypothesis is used to explain the low occurrence of long words in the VM.</p> <p>He also claims he took the rules from the VM - it is only logical that the results also agree with the VM rules. In our opinion, it only confirms the fact that the text of the VM <i>is encoded</i>, but if the coding was "prosodic" or other kind of cipher with similar rules is still to be seen. After all, why did the author of the VM encode only the text, but not the tags? That would be also a clear giveaway of the method.</p> <p>There is also the other hypothesis, partially related to prosody. Somebody already suggested that the VM could be the notes of some seance, the written record of garbled speech vocalized by some medium. The person recording it would then try to write accurately only the sounds, that is mainly phonetically. The good example is the prophesy of Pythia, usually broken in separate clusters of words. The overall meaning then depends on the way we connect them together. But who drew the pictures then, the medium or the person who recorded the text? Note: Considering that the writer was not so great painter, he surely had a well developed imagination - the plants look like they are not "from this world" :-).</p> <p>The remaining option is of course the deliberate shuffling of the text to prevent its "readability" - that could have been done by coding or it could have been just an attempt to make it look mysterious (in he case of the fraud).</p>
<p>R.F. chose the folio f82v (p. 104 as per Brumbaugh). The results are also in the Text 13. Most modifications were successful. For instance, first word taken from tag, olpaxct9, should transform into olpax/cta? and true enough, the text contains "4olpax ctax". R.F. also explains the very few failures, mostly by omitting the letter or by the possibility the author made a mistake. At the conclusion, R.F. is sorry he does know that many languages to carry on decoding.</p>	<p>R.F., proved that the tags were found in text, but modified by his some rules. We really do not know why would the author of the VM go to such extremes - certainly not to conceal the names used in tags - they were not even modified. It could have been done to convert the text into some chant or declamation.</p> <p>That of course does not eliminate the possibility that the text was not modified by prosody, but simply encoded, for instance by insertion of "nulls" while omitting the others using. He may not even used some undisclosed rules, in order to conceal the original meaning. For that purpose, it is more probable that the labels (tags) were already encoded as well.</p> <p>It is a pity that R.F. did not rewrite more of the VM that way. The reason may have been the fact - as R.F. admits - that without identifying the true VM language it would not bring us much closer to the solution anyway. On the other hand, it could help us to find such language.</p>

Jan B. Hurych



A5 - THE TRANSPOSITION CIPHERS

We recently calculated the **letter frequency** characteristics of the VM, using the transcript by EVA. In comparison with other languages the VM was closer to Latin than to any other language we tested. We concluded that it may lead to hypothesis that the original language of the VM was Latin after all. That language was - maybe prematurely - eliminated, which was based on **word frequency** characteristics of the VM; it was soon observed that the VM contains less of longer words than Latin and the longest words there simply don't exist at all. All that was of course based on the assumption that the spaces between "words" are exactly what they look like, i.e. "the pauses between words". However, we could not find anywhere the proof that such assumption is correct. It certainly is not the only assumption possible.

This "shortness of words" in the VM lead furthermore to the branching of the VM research:

1) One group started to look desperately for the language which would have similar characteristics as the VM. While no such language was found yet, the search is far from complete. On the other hand, it looks like further we search, the lower number of existing languages remains a the lower is the probability that we can find the right language in the nearest future.

2) The other researchers started to consider the possibility that the mentioned assumption (i.e. that the text was written in unknown script, but without further encoding or modification) may be too simple. We cannot name here all other possibilities; one of them is the theory of prosody (see our comments to the article by R. Firth, A14). He suggests the VM used some kind of poetical or phonetical "metrics" for creation of the spaces between words, probably considering even the accent and other specifics of the spoken word, contrary to text written "our" way. Another theories consider the use of abbreviations, shorthand or some kind of "scientific" language, including the artificial one. None of these theories yet tested widely nor successfully in detailed examination of the manuscript. Some are even accompanied by manipulations, similar to the efforts of an archeologist who was chipping off the Great Pyramid in Giza, just to make it fit to his numbers. Still, this category remains opened to some interesting suggestions. .

3) From the very beginning of the VM research, the existence of some cipher was also considered. The decryption was mainly undertaken by former military cryptologists; unfortunately, not knowing the method, language or the script of the VM, they could not crack it either. This is understandable, since they were used to military communications, where both language and the script was known, not talking about frequent military expressions or termes, often the clear giveaways of army intelligence. After the famous debacle of prof. Newbold, the new "solutions" appeared only sporadically and only as the "possibilities" rather than the "sure thing". In the rest of this article, we suggest the further return to this research and the looking for possible reserves.

4) There are still other possibilities, which may ignore the length of words or even words themselves - for instance the steganography is "hiding" the text within the text (e.g. famous Bacon's cipher, discussed in previous articles). As much as it does not look like feasible, let's not forget that in Bacon's time such methods were used quite commonly. The use of invisible ink - also known at that time - is obviously impossible to research for somebody who has only limited access to the original of the VM. :-). It could be done however when - and if - the VM owners decide to do radioactive or other dating of the VM.

5) Some disappointed researchers simply abandoned the path of solving the VM after the period of frustration. As much as it looks like some temporary stagnation - I don't want to call it a crisis - the reasons of their inactivity may be quite different. The historical research of the VM is however very fertile and surely will again raise the new interest in deciphering of the manuscript.

Why transposition cipher?

The main reason - at least for us - is the recently discovered statistical similarity between Latin and the VM. The objections may be many, but let's consider their real rather than virtual quality. For instance so called "shortness of words": we discovered that it is valid only in a certain band of word lengths. On the contrary, the "average length" of words is quite similar to Latin - see our Discussion B17 . For the VM it is 4,61, Latin 5,25 and English 4,96 ; all that for the languages of the same historical period. That could indicate that the VM may not be written in some "exotic" language, but in Latin, "enriched" by insertion of idle spaces (so called nulls) or the use of single characters for some affixes (those often common in technical terms). Take for instance somebody's suggestion, that the letter looking like "9" may actually

represent Latin "usque" and so on.

Another valid reason is that *transposition cipher actually does not change the frequency of letters* (of the original text). *Even monoalphabetic cipher does not*, of course the letters are now different. For those reasons, the Latin could still be the plain language of the VM. Since EVA assignment was only arbitrary - rather graphical association than true meaning - we already have one substitution cipher present (-). Since it is only logical to assume first that only simple cipher was used on top of it (see rule of Occam's razor), we will concentrate on that one, in spite of the fact that even more complicated ciphers were already known in the fourteenth century (see A14).

One more thing: Latin was the official language of the Middle Ages - and is still used today in some sciences, especially the vocabulary itself. No wonder it was our first candidate for the plain language of the VM, it is actually more surprising that it was discarded so soon.

We consider above reasons good enough to carry on further research in that direction. The true reason can be only found if it finally leads to the true solution of the VM. So we have here some sort of the "Catch 22", but then again, that applies to other researches as well :-).

How to do it.

We may first assume that the simple text of the VM was written in Latin and transposed some simple way, without any further substitutions. Of course, we will use the EVA transcript (written also in our, so called Latin alphabet) which has to be however converted according to our statistical table (see B18 or B19). We decided to publish some of those conversions so anybody can join us in such research.

The converted text of course does not have any apparent meaning and to find transposition cipher would not be easy. For instance, the text of only 20 letters may have $20!$ (20 factorial), i.e. $2,5 \times 10^{18}$ possibilities (even with keeping the same number of spaces between words as well as their locations!!!) Many contemporary ciphers do not bother with spaces anyway (except between five letter groups and that is only for easy checkup), but in the case of the VM the spaces will be apparently rather critical (see B16).

The third important condition for successful cracking of the VM is the knowledge of Latin. It is mainly for that reason we decided to publish those texts with the appeal to our readers to help us. I have found on Net some remark about medieval monks or old Venetian cryptographers spending quite some time with frequency tables of Latin, namely those of bi-graphs or tri-graphs (they are more accurate and therefore more helpful in cipher solution than single letter statistics). This part was not done for the VM and we doubt if it would be worth the effort.

Example of simple transposition cipher.

While transposition cipher was probably the first ever used (see scythe-style, A14), Francis Bacon has not specifically mentioned it in his *"The Advancement of Learning"*
 "... *Cyphars simple; Cyphars intermixt wifh Nulloes, or non-significant Characters; Cyphers of double Letters under one Character; Wheele-Cyphars; Kay-Cyphars; Cyphars of words; Others*",
 tj. " ".

We may only assume he considered them under "simple" or "others" :-). Following examples show one of them.

a) The cipher created by eliminating the spaces between words:
 THEORIGINALLANGUAGEOFTHEVMCOULDBELATIN

There is certainly no difficulty to find the meaning, except for the abbreviation "VM" :-).

b) More complicated is the same text with "erroneous" additional spaces:

THEORIG INALL AN GUEAG EOFT HEVM C OULD BEL A

Still no real secrecy here: just skip the spaces, join the text and read it.

d) True fun, I mean transposition, starts with reshuffling those new "words":

AN RIG C OULD A GUEAG THEO BEL HEVM INALL EOFT

Even here, such short text can be sliced by words and glued together without spaces, however the order of those words is unknown. We would have to create all combinations, that is $10!$ (i.e. 3628800). The computer can do it in several minutes, but considering one combination per line, it would take 72576 pages, more than William Shakespeare wrote in his whole life. And within those pages, only one line would be the real solution!!! we surely do not want to print the whole set, but rather save it as a computer file, which would be then cross-checked against the vocabulary. Before that, we have to brake each combination into all possible fractions i.e. say for 1- to 8- letter (word) groups, but the number of their combinations we didn't even dare to calculate :-).

The main criterion then is that ALL those fractions would have to be represented as full words in the vocabulary (in our example in English vocabulary). Still, that is not enough: some words contain the other word within, say "attachment", which leads to complications. There is some improvement in using intelligent programs, which will for instance start with the most commonly used words in the vocabulary. Unfortunately, even if the match is not found, we cannot discard the

combination - we do not know if the word in question is really the one "most commonly used" :-). Instead, we will find the combination where those words are present and try to crack them first.

It is obvious that the help of computer would not be too effective if is not combined with human brain. Even the writing of such program would take a long time and the time needed for the solution would be extremely long. Fortunately, we can use the methods of professional cryptographers, for instance the "brute force" method. The process of setting back the "slices" is ruled however by the content only, while continuously checked with the vocabulary already stored in our head :-).

In above example, we take first the longest words, since they give us most of the information while the number of combinations is greatly reduced.

OULD GUEAG THEO HEVM INALL EOFT

Third segment may contain "the" as definite article, but the letter "o" would not give us too much insight into the rest of the text. GUEAG may be the "lanGUAGe", so we are looking for the segment starting with "e". Fortunately, there is only one such segment, "EOFT" which gives us the clue how to continue. This however does not happen that often since in original texts seldom broken into large segments next to each other. Take for instance the case when the letter "e" itself would be one letter group, which would make the further search more difficult or when we have more groups starting with "e". Besides, the word "language" may be still the wrong guess.

Back to our solution: we already found the "guage", now we are looking for "lan". We can find only the second "l" in INALL to fit and, again fortunately, AN is present as the whole separate group. Having completed the "language", we can now carry on with "oft" in EOFT or "inal" in INALL, i.e. is in forward or backward direction. Again, the group HEVM will be difficult, if we do not know the meaning of the "vm" beforehand.

In reality, it will not be as easy as in our example which was chosen only for its simplicity. For instance, the "language" is rather long word, and truly helpful, but first we had to guess it and it was only our "luck" that we guessed the right word. Well, not entirely, we knew the solution already :-). In the case of the VM, we do not even know its language and what words would possibly be in the text. We do have a help however: we assume it is truly Latin text and let's not forget the pictures, they might be clues to the text as well.

Jan B. Hurych



A6 - THE TRANSPOSITION CIPHERS II

We mentioned last time that the VM could have been written in Latin and coded in transposition cipher. The letter frequency table is very similar to that of medieval Latin. Last time, we also discussed simple cipher created by irregular breaking of the "words", further addition of irregular spaces and we pointed out how to solve it with "brute force". So far we did not consider the cipher using some special algorithm or rule, as would be normally expected. Here we are discussing some other transposition ciphers, starting with the most simple ones. .

The Rail Cipher

is the special case of "columnar cipher" or the "matrix cipher". We take for instance the plaintext:

bonnie prince igor

and write it alternatively in the first and second row, see the table below:

b		n		i		p		i		c		i		o	
	o		n		e		r		n		e		g		r

Even in this simple case we already have several possibilities how to encipher the text: for instance we can write first the first and then the second row - in addition we also break enciphered text into groups of 4 letters, separated by false spaces (military ciphers usually use five-letter groups):

(a) BNIP ICIO ONER NEGR

Such cipher would still be rather obvious, so we can try writing it backwards instead:

(b) RGEN RENO OICI DINB

This is of course still considered as the single procedure, single stage cipher. We can of course take the first result and reverse the whole "words", e.g.:

NEGR ONER ICIO BNID

That would not be however single, but *double transposition* and we should call it some other way, say the "transmutation". Moreover, we seldom use only two rows of text. That would be surely the first combination tried by the person attempting to crack it - not because such simple cipher is the first suspected, but such trial may already reveal some other patterns or regularities.

The Solution of the Rail Cipher.

It is interesting that the solution method for both ciphers (a and b) is the same: first we guess the length of the row and then we alternate the letters of the first "row" with the second "row" and rewrite it in those "two rails" as

bonnie prince igor

and we actually get the immediate solution. In the case b) we get:

rogiecnirpeinnob

which, read backwards, is again the proper solution. In both cases, we will neglect the spaces and add the proper ones only after the solution is found.

Obviously, when we try to crack it, we do not know the number of columns, which makes the work more interesting :-). Moreover, with more groups, additional combination of rows and columns can occur. For instance, with 12 five-letter groups we can have combinations 20,20,20 or 30,30 letters or even one group of 60 letters (that is each group will have its

own rails - and it is not the same: the groups will be then intermixed as well). All that of course in the case if we keep the number of columns as a multiple of 10, which does not need to be the case (as it is not in our example). For more than two rows, we rather use the columnar cipher (see below), commonly used for longer text. The other complications may arise if the text is shorter than the width of the rails. There we use some idle "nulls" or "padding letters", but it may also help the "enemy" to decipher it :-).

The Columnar Cipher

is more complicated, so the simple method was developed for encoding: first line is always the key number, which is for better memorizing converted into an easily remembered "password". The password, say "inlaws", is then converted into number by the order of the used letters in our alphabet (a is the first letter, i.e. we assign to it number "1", next used letter in alphabet is i, we assign it "2", e.t.c. and the whole key number is then "243165". We usually choose the password where no letters are repeated (to avoid ambiguity) - if it cannot be avoided, then of two same letters, the one to the left will get the proper number and the one to the right will be one number higher. We will then write this key number into the first row of the columnar matrix and fill it with the plaintext, writing horizontally:

2	4	3	1	6	5
b	o	n	n	i	e
p	r	i	n	c	e
i	g	o	r	a	a

We also filled in two spaces at the end with "nulls", say letters "a". Now we will shuffle whole columns in order of the key numbers. Then we read the ciphertext vertically:

[nnr bpi nio org eea ica](#)

The spaces can be conveniently added, here we will simply create 5-letter groups (not obligatory) and complete the last group with two additional padding letters (say "c" and "b", alternatively)

[nnrbp inioo orgea icabc](#)

The Solution of the Columnar Cipher

is for somebody, who knows the key, very easy: he simply fills the matrix with the ciphertext, but in the order of columns as per key number. He will then get the plaintext which is then read horizontally. The last paddings ("b" and "c") are simply dropped from the solution - they simply do not fit the matrix. Similarly, the paddings "a" and "a" have no meaning, which can be easily recognized.

In the case that we do not have a key, even if we suspect the transposition cipher, we do not know number of columns, rows and the key either. With manual solution, we are facing the real nightmare. Fortunately, we can write computer program that will "reformat" the text into matrices with different number of rows (=m) and columns (=n). We can simply enter the text into our program and key in "m" and "n" numbers. The result is then checked visually for various transpositions of the row letters, while looking for meaning. Those transpositional combinations can be also generated by the program, but the real meaning of "words" is searched faster in the database in our head :-). With the VM, two more complications arise: we do not know the language nor the script, therefore we have to use the transcript.

(continues)

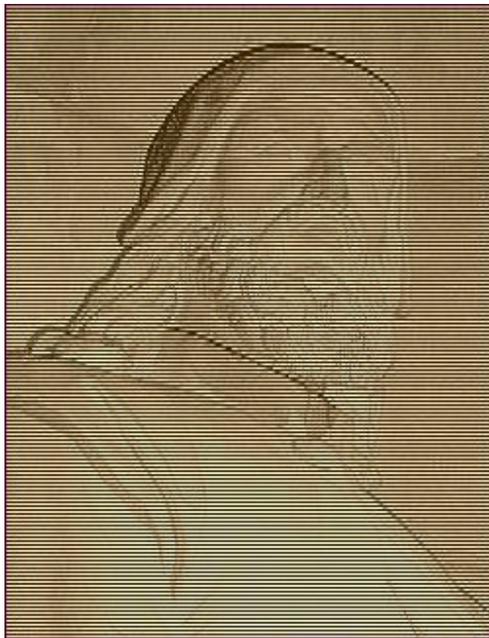
Jan B. Hurych



A7 - RAMON LULL

Now about something completely different - our writer Pablo Garcia wrote to us (see Discussion D21) that there is a possibility that Ramon Lull could be the author of the VM. Since many of us know very little about him, we devoted this article to Lull.

DOCTOR ILLUMINATUS,



Ramón Lull (sometimes even "Lull"), also Raymond Lully (but not Jean Babtist Lully :-) or in Latin: "Raymundus Lullus" , philosopher, poet and theolog, was born in *Palma de Majorca* (approx. between 1232 a 1236) and died in Tunis on 29th June 1315. He spent his childhood at court of Jacob of Aragon, then became a hermit and later enetered the order of St. Franciscus. He tried to convert Muslims to Christianity by promoting the study of Oriental languages, but also denounced the Arabic philosophy. He created the language school in Majorca and also lectured at Paris University - quite an honor, considering he didn't have a title yet (per *Martin Gardner*, see below). He wrote *Ars inventiva veritatis* (1289) and in 1291 left for Tunis, to preach again.

In 1295, he wrote *Dels cinc savis* and *Petitio Raymundi*, urging the Pope Boniface VIII to build missions in the land of Tartars. Sometimes between 1295 and 1296, already in Rome, he wrote his great encyclopedia, *Arbre de sciencia*. He returned to Tunis (1315), where he wrote *Liber de maiori fine intellectus, amoris et honoris* and in the same year he died, stoned by Saracens. According to one information, he died on the ship to Majorca, according to others, he died a year later in Majorca, where he is also buried.

He wrote about 300 books, their list is at:

<http://orbita.bib.ub.es/ramon/> Some of them are in Spanish, the others in Catalanian language and those are still considered very highly today. In his books, he criticized the Arabic "averronism" and tried to teach Arabs Christianity the way they would understand. He also discovered the "logical machine", where he entered the predicates in the form of geometrical bodies and figures and via certain gears he was able to reach certain solutions.

He called this ma chine *Ars Generalis Ultima* or *Ars magna (ars inveniendi veritatem)* since it was supposed to discover the secrets of nature. The system is described at:

<http://www.c3.hu/scca/butterfly/Kunzel/synopsis.html>.

His *Arte electionis* is on:

<http://www.math.uni-augsburg.de/stochastik/pukelsheim/2003e.html>

Augsburg edition of the same book is at:

<http://www.math.uni-augsburg.de/stochastik/llull/>.

His books were devote to explanation of this m machine and even *John Dee* was inspired by them in his work on mechanical automatons. He taught that theology and philosophy - while two different sciences, one is based on belief the other on reason - must nevertheless agree together. Contrary to that, Arabs - and even St. Augustin - were admitting that what's good for one may not be proper for the other.

Lull was of course a mystic and didn't make the difference between the "natural" a "supernatural" truth. he tried to prove the religion via reason - they both need each other. His followers also started the chairs for spreading g the teachings of this "Doctor Illuminatus" at universities in Barcelona and Valencia. The Church was aware of dangerous consequences of such teachings and while Raymond d was actually he martyr he was never proclaimed a saint. On the contrary, he was denounced by pope Gregorius XI in 1376 and was later joined by Paul IV. On the other hand, we know that Lull agreed with cruel persecution of Templars by king Philip of France.

The works of Lull were published in Mainz (1721 až 1742), while his books and poems in Catalan became the part of

Spanish culture. The Augsburg edition is at:
<http://www.math.uni-augsburg.de/stochastik/lull/welcome.html>

How does Lull fit in the VM time scale? Well, quite nicely:

1119 - *The order of Templars created in Jerusalem*
 1149 - *Cathars (sect of heretics) have their first bishop*
 1176 -- *Sultan Saladin attacked the territory of Assassins and signed the peace with them*
 1187 -- *Saracens overpowered Jerusalem*
 1190 -- *The order of Teutonic (German) Knights created in Acre*
 1208 -- *Albigensian crusade against Cathars*
 1214 till 1294 -- *Roger Bacon, English monk and scientist*
 1233 -- *Creation of Inquisition for suppression of catharism and other heresy*
 1232 till 1315 -- *Ramon Lull*
 1241 -- *Mongols invade Europe and introduce there black powder*
 1244 -- *Massacre of Cathars in Montsegur, France*
 1254 to 1324 (?) -- *Marco Polo*
 1256 -- *King Alfonso of Castile orders the translation of alchemical texts from Arabic. Apparently he himself wrote the Tesoro and something about philosopher stone.*
 1260 -- *Mongolian invasion is stopped..*
 1266 -- *Roger Bacon wrote Opus maius*
 1267 -- *Roger Bacon wrote Opus tertium*
 1272 -- *Provincial Chapter at Narbonne forbids Farnaciscas to practice alchemy*
 1273 -- *Dominicans are warning monks against the teaching of alchemy*
 1275 -- *Ramon Lull wrote Ars Magna*
 1265 -- *Dante Aligheiri was born*
 1275 -- *First masons appear in Frankfurt. Also Zohar, the second book of Caballa, written by Moses de Leon, in Spain.*
 1280 -- *Roger Bacon, the inventor of reading glasses, rediscovered black powder.*
 1291 -- *Hospitallers are moving to Cyprus.*
 1307 -- *Philip IV suppressed the order of Templars for black magic and sorcery. The Grand Master Jacques de Molay and others were put in prison.*
 1313 -- *The Templars abolished by Pope.*
 1314 -- *De Molay and other Templars burned alive in Paris.*

As we can see, some names around VM appear also in the list. We already mentioned John Dee and later in this article, also Athanasius Kircher. But how about Lull? Do we have reasons to consider him as well? I have found only one reference on Net, namely: <http://artedur.com/links/marzo2003/acea1.htm>
 I quote: 10 Marz '03 "El Manuscrito Voynich o Ramón Lull jugando a ser Dios". Mario Pérez- Ruíz. *Presentación del libro*. It is apparently the title of some lecture given in Argentina, but the text is missing.

Also, there is something at <http://www.meta-religion.com/> :

" Now according to the Alchemist Raymond Lull (1229-1315): In order to make gold we must first have gold and mercury. By Mercury, I understand that mineral spirit which is so refined and purified that it gilds the seed of gold and silvers the seed of silver ." Strange still: The Catholic Encyclopedia does not even mention that Lull was also an alchemist - but who wasn't, at that time? His books on alchemy are only few, however, but it was Dominicans, who succeeded in proclaiming Lull to be a heretic, which accusation was however later withdrawn. It is also interesting that both Roger Bacon and Raymond Lull were Franciscans.

Let us also try to compare the handwriting of Lull, see:

* <http://www.math.uni-augsburg.de/stochastik/lull/welcome.html>, click there on: *Artifitium electionis personarum* . It is slightly similar to the comment in the VM, starting "*michiton oladabas*", atd.", see: <http://www.ic.unicamp.br/~stolfi/EXPORT/projects/voynich/98-11-07-f116-redrawn/> That comment apparently could be the key to the cipher. It is written in Latin script and that could mean that the VM may be even older the Lull :-). The detailed comparison, however, shows no similarity at all.

I also found on Net the comment by Dan Scott:

* <http://www.voynich.net/Archive/msg00431.html>, who thinks the word "*labadas*" is Spanish (another hint leading to Lull?). The same page quotes *Newbold* who thought the comment is from Cabala while René Zandbergen sees the "Spanish version" as interesting possibility. Of course, we have to know if Lull was involved also in biology, apothecary arts and medicine. We already know he knew astronomy, astrology, automatons and apparently some magic.

Still, I "rediscovered" in my library the book by famous mathematician *Martin Gardner* (Science - Good, Bad and Bogus) with the article "*The Ars Magna of Ramon Lull*" who obviously studied the life and works of Lull in detail. Lull apparently wrote forty books about his system of "*Ars Magna*" and Gardner's book contains quite a detailed explanation. If you do not have the book, there is also Lull's text - see some links above - translated into English..

Similarly to other scientists, Lull was fascinated by permutations and combinations as well as some geometry. While I was student, similar idea occurred to me: I created the decision matrix, based on weights assigned for the action in question in

regard to expressions "I CAN, I MAY, I MUST". It didn't work too well, so I added the verbs I KNOW, I AM ABLE, I CAN HANDLE IT, I WILL MANAGE IT IN TIME" and subsequently gave it up. Lull, on the other hand, took his combinations quite seriously and applied it practically to all sciences existing in his time.

He also had his critics from the very beginning: *Francis Bacon* was one of them, also Rabelais and Swift. He was however valued high by others: for instance Giordano Bruno and Leibnitz (who was apparently excited by mathematical root of his system). Some even proclaimed that Lull was the father of modern logic and that he contributed to the unification of sciences, etc. The truth is probably somewhere in between. His interests were truly universal - he wrote for instance the book of proverbs, containing 6500 of them. He was also interested in mnemonics, psychology, military tactics, rhetorics and astronomy as well as astrology, which he applied to medicine. There is no wonder that one Spanish university bears his name, *La Universitat Ramon Llull*. Even Gardner has to admit that Lull was genius, but his works are not studied any more.

Lull was first who used schematic - not only geometrical figures and trees, but also a rotating circles with identified segments, which may give the similar idea to *Alberti* (1289) for his discovery of rotating cipher wheels. Of course, he didn't think that combination of the terms alone would find the solution to all our problems - he uses them as building blocks and believes that some of them are the axioms, leading to the rest. In that, he reminds us somehow *René Descartes* who, of course, went much further by renouncing the old scholastic and replaced it with critical reasoning.

The combinational technique of Lull is strictly mathematical - but what he deduced out of it is the different question. Still, even today some serious analytical scientists believe that the computer can "solve" all problems of the world :-). Leibnitz however later departed from Lull's idea - he apparently guessed there is something like today's symbolic logic. Our "logical maps" are, after all, certain expressions of all logic combinations. Some Lull's discoveries are used even today: various diagrams, rotating color wheels for painters, nomograms, etc. Last but not least, even the Think Tank, the hollow sphere with tags of different subjects pulled out by random is using similar idea (the new, computer version has random number generator). It is possible, that those associations enabled Lull to get deeper insight in different sciences. After all, even Darwin's "tree of life" is using the tree graph, invented by Lull while "parallel thinking" of Edward de Bono is enhancing the inspiration by combination of apparently unconnected ideas and variants.

Lull's research, which was not based on the formal education of his time but rather on his experimentation only is similar to Horzicky's research, especially by its richness of new ideas and combinations. And one more connection: Athanasius Kircher was Lull's dedicated follower. Well, maybe if he used his rotating diagrams, he could have found the solution of the VM already. Unfortunately, most likely only the wrong solution, as he did for hieroglyphs and so they had to wait for Champollion, after all. But let's not be mistaken: Kircher also designed the mechanical calculator - as well as Leibnitz did - and constructed the *Laterna Magica* with moving pictures, the principle of which is still used today in our movies.

Jan B. Hurych



A8 - IS THE VM JUST A HOAX?

Two articles recently appeared in the press and they both describe the recent discovery which - if you believe it - could overshadow the work of Champollion and Hrozny. At the same time, it may once for all close the 400 years' research into the VM. Why? Because the VM is supposedly a deliberate hoax, created for the purpose to pump-up money from the senile Emperor Rudolph II. Moreover, the VM does not contain any text at all. But can we really believe all that? It seems that both articles were using the same source, namely the researcher G. Rugg, so we will discuss them first.

REFERENCES:

<http://www.nature.com/nsu/031215/031215-5.html> - the article by John Whitfield about the discovery by Gordon Rugg that the VM is only a hoax.

* <http://www.post-gazette.com/pg/03355/253466.stm> - the same subject, but the article is by Michael Woods

* Gordon Rugg has also his own site at <http://www.keele.ac.uk/depts/cs/staff/g.rugg/voynich/index.html>

* The page <http://www.jura.ch/lcp/cours/dm/codage/stegano/cardan.html> - says more about the Cardan Grill (used in above by Gord Rugg - it is in French, but click the buttons and you will understand how it works)

THE ARTICLE BY MICHAEL WOODS

First, I would like to thank here Mr. Woods for quoting my suggestion ("One hypothesis suggests that it was the coded personal notebook of a medieval alchemist"). I wrote to him that next time he does not need to be so shy and use my name as well, since it was actually my hypothesis, but he didn't answer yet :-).

The article quotes Mr. Rugg, the expert in computer security, who claims he originally was looking in the VM for some ingenious code that could be used in modern cryptography. He found the code all right, but it was not ingenious and certainly not new - it was old Cardan Grill, that's all. That grill alone could not of course solve the VM, so he suggests that the VM is a hoax.

G. Ruff also claims that instead of taking many years, his code could generate the whole VM in three months and the pictures can be quickly inserted. Due to number and complexity of the pictures, his "quickly" apparently means more than month, provided that the plants did really exist. If, on the other hand, the author had to invent them, it could take longer. It is however not that important how long it took, since the price quoted greatly exceeded the cost of efforts involved.

One expert is quoted as praising the similarity between the author's "hoax" and the VM. Certainly, but so far it is nothing but similarity and rather superficial. To create the code that would simulate the "word frequency" in the VM is the easy task even for high school student. We would expect from author of that hypothesis *to code some text* (which actually has some sense) with Cardan Grill and *to show* it does have the patterns seen in the VM. The Grill would be then made available for public to show that the coded text can be actually converted back to original text. Otherwise we have to assume that there was also some additional cosmetics present. Starting with one meaningless text and getting another meaningless mess is of cause no proof at all. And so the hypothesis without proof is just another science fiction :-).

THE ARTICLE BY JOHN WHITFIELD

In this article, Mr. Rugg claims that *he already shown the hoax is possible* (as if we didn't know that already :-)) and challenges the others to present the proof that the VM really contains some hidden text. Apparently he does not know that such evidence is already available in abundance in the articles, books and lately on the Net. Of course, if he wants the proof - that is the complete solution of the VM - he asks for something we do not have yet and he very well knows it. It seems more likely that he wants to pass the burden of the proof to the other side - and he has pretty good reason for it, which he of course forgot to mention. To prove the VM is a hoax is simply said quite impossible - he would have to prove that the VM does not contain *any possible text, in a any known or unknown language* :-).

It is also apparent that some researchers, being tired by so many years of failures, would rather join him in claiming the VM is a hoax instead of admitting that their research was so far futile. Well, nothing would be far from truth: we have to distinguish between three different statements:

- 1) the VM cannot be solved by us, or
- 2) the VM has no solution, or
- 3) the VM is a hoax

The first statement is time related and maybe requires the infinite continuation of our efforts, while the second one is the categorical denial, based mainly on assumption (say if the VM was written in so called *trapdoor cipher*). The third statement is simply the escapism, which incidently may include any of the two versions above. On the other hand, it rather easy to disprove (since such hoax contains "nothing", nothing can be found and nothing can be proven :-).

One controversy can be seen already: "*Many people have believed that it is too complicated to be a hoax - that it would have taken some mad alchemist years to get such regularity,*" says Rugg. While being familiar with the research around the VM, I haven't heard yet such statement to be said in all seriousness. On the contrary, *Manly* thought that the coding is simpler than we think and while *Kahn* said he did not believe in the hoax (because of the VM complexity), he never mentioned that it would make the hoax too difficult to manufacture. What he meant was that no forger would go into such depth - there was no necessity for it.

Another expert quoted believes that we need to see more sections of hoax generated that way. True, it would be good for checking the similarity, but for the proof we need more specific and rather scientific approach. Mr. Rugg would have to prove that:

- 1) the VM was indeed done by his method *and only by his method*, and
- 2) the VM really *does not contain any text underneath*

He apparently cannot prove both points at the same time :-). We already shown the VM could have been generated by one transposition cipher (see section B16 here) and there could be surely quite a number of them.

And why would the author go into such cosmetics? If there is *nothing* underneath, *the real text* can never be found, but yet, no suspicion would be raised. If the solver finds underneath only non-sensical text, he could never be sure that it is just a hoax and would blame the failure on his cracking method only :-).

Mr. Rugg's guess that the hoaxer was *Kelly* was just inspired by another rumor: Dee's sale of the VM to Rudolph. True, Dee quotes in his diary 630 ducats (not 600! and mentions no manuscript), but he also described his interview with Rudolph quite different way: he called him a sinner and offered him the help of his angels. He simply asked for job and no such sale is mentioned anywhere else. Surely Dee would have no reason to omit it; he liked to mention all secret details - even the swapping of their wives with *Kelly* :-).

There is also no logic in Rugg's statement "*It seems that the Voynich resists deciphering attempts because its author knew enough about codes to make the text plausible yet hard to crack.*" Well, taking his word for it, what was there to decipher? In other place, he says: ". . . *the VM mainly resists deciphering because it is a hoax with no content.* Of course it does not work backwards ("the VM is a hoax because it resists deciphering") and until Mr. Rugg has a proof, his statement is just a wishfull thinking. The main question is: was the VM encoded to conceal the real text or just to conceal a hoax? We may never know.

Note:In the time of this publishing the article of Gordon Rugg was apparently published in the magazine "Cryptology". There is also his own page on Net, see the address in References.

Jan B. Hurych



A9 - THE INVESTIGATION OF THE FOLIO flr.

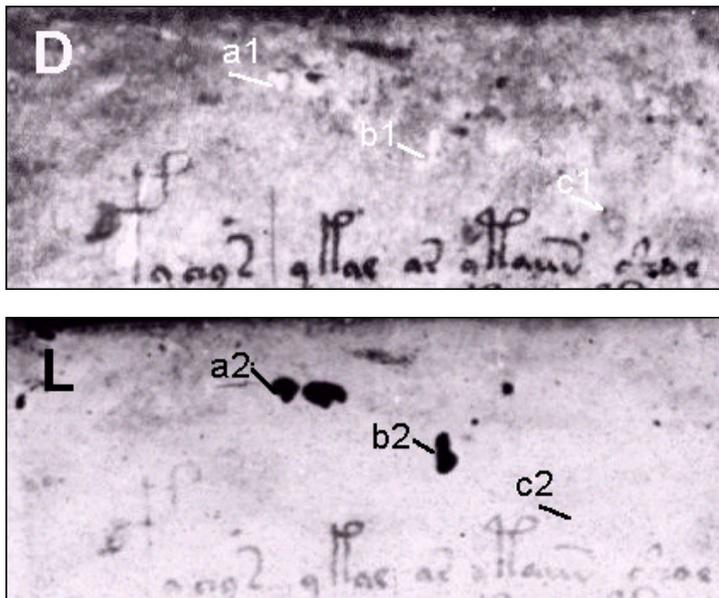
As we recently announced, we succeeded to obtain - thanks to Mr. Karel Šlajšna from Czech Republic - the original, verified signature of **Jacobus Horczicky de Tepenec**. We were congratulated by several of researches at the VM Conference, see <http://www.voynich.net/Arch/2004/03/threads.html> and some discussion from there is [here](#). Why all that noise? It was Mr. Voynich who already discovered that one folio, namely **flr** (the first in numerical order - the VM has no covers) contains the name of "de Tepenec".

He discovered it by chance when making copy under ultraviolet light, since that "signature" is otherwise not visible. It was apparently the method called "blueprint" (the result is a negative - that is the text is white on blue) or "ozalite", in brown color. I tried to get more info about blueprint on Net (Voynich talked about some chemical being used), unfortunately the name "blueprint" already became the synonym for "drawing, plan, sketch or else". The only thing I learned was that it was used till fifties of the last century. As far as I remember from my young years, the drawings had to be transparent and they were put in copying machine together with some sensitive paper to be copied on, in between two rollers. The rollers rotated, delivering the "sandwich" into the area where it was some light (fluorescent tube or maybe quartz?) with high content of ultraviolet light. The development was in the same machine, in ammonia vapors. Somewhere there must have been the source of high voltage too, since I could smell ozone.

Why did Voynich choose such aggressive chemicals at first place, while he could use rather safe photography, that I do not know. After the discovery however, it was of course the only way to see the "signature". If he used even more aggressive environment, some information may have been already destroyed then.

The first logical step was of course the comparison of our Horczicky's signature with the one in the VM, as well as with the additional notes in the VM (written mostly in Latin alphabet, not "voynichese"). Since we did not have opportunity to see the original folio, we investigated so called "DARK" copy from the page <http://www.geocities.com/ctesibos/voynich/image/flr.jpg> and also so called "LIGHT" copy from the page <http://voynich.no-ip.com/folios/> (obsolete), both being kindly posted on Net by their webmasters. The true signature of Horczicky can be seen on our page [here](#)

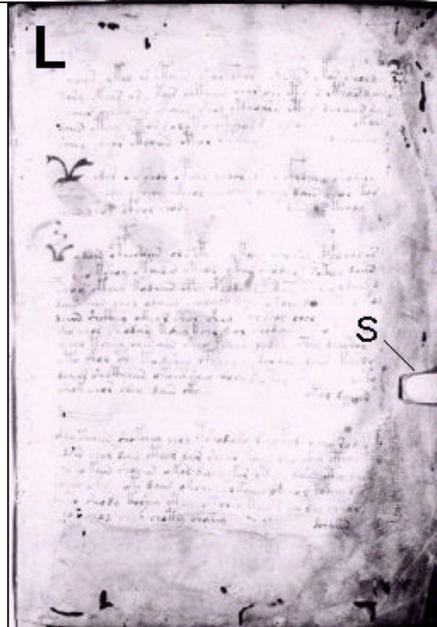
At the first glance, both copies are rather different, see the two sections bellow - the DARK one being marked as "D" and the LIGHT one as "L". Since we do not know when and how the copies were obtained, we only concentrated on their contents.



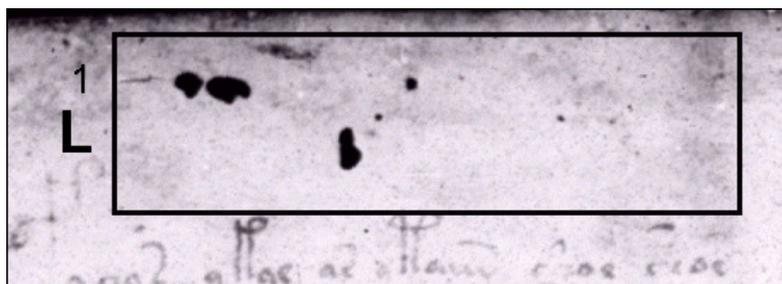
We can see that some spots look more like negative on one copy (a1) and positive on the other copy (a2), also smaller (b1) or bigger (b2), some can be seen (c1) and some not at all (c2). The L copy was easier to work with (on our graphic editor) since it has better resolution and is also larger. On the other hand, the D copy has some different spots and/or signs. It looks like the L is a plain photocopy while the D was done in different arrangement (the L has a clip "S", the D does not) and/or different lighting (maybe ultraviolet for D?)

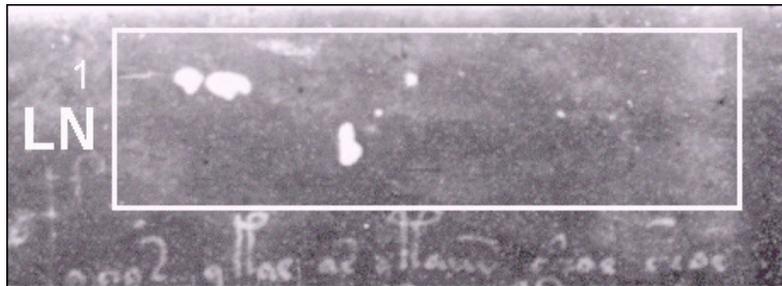
It is obvious we have to use both copies for our study and not only in positive forms but also their negatives, since they may show details not apparent on positive copies (as it was discovered already with the Turin shroud). The negatives and the modifications can be easily and quite accurately (digitally) obtained by our graphic editor (e.g. Paintshop, I-view or others). All modifications were always started from original copy and saved only after final result was reached, to avoid the loss of information by repeated storing (as it is for instance with JPG format). The

main operation however was using the change of *gamma factor*, which keeps optimal relation between the picture intensity and contrast, contrary to simple change of either of those. Also, while using the black/white copy, no color correction was present (some editors have automatic color correction). There are four areas (1,2,3,4) on both copies (D and L) with possible text underneath, see pictures below.

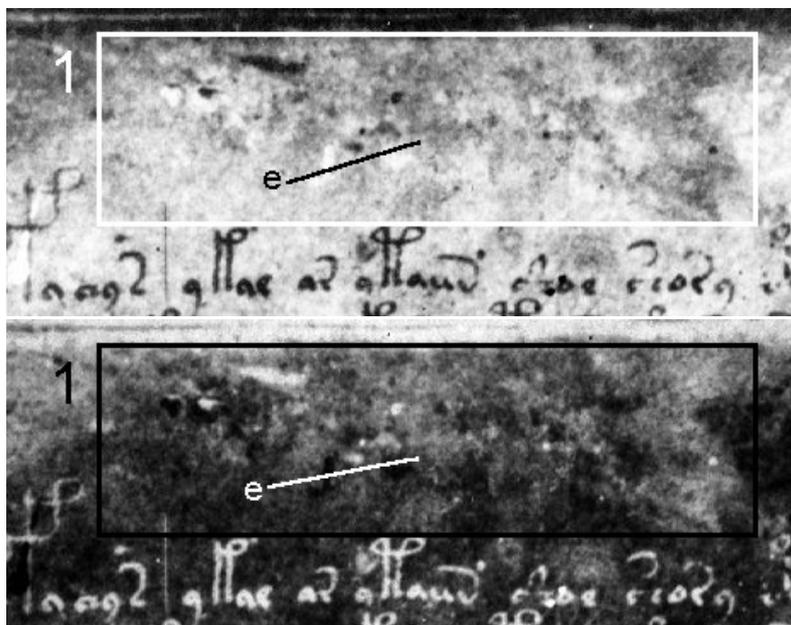


THE AREA 1.



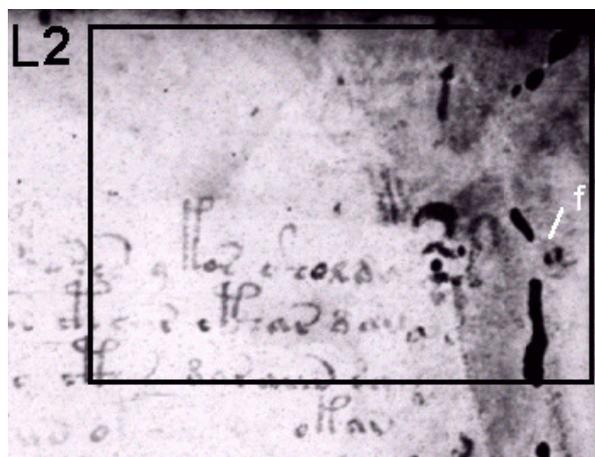


Above are the details of the copy L, area 1, but we could not get too much information neither from positive (1L) or negative (1LN), contrary to what we can see below on dark copy, even when we reached optimal gamma (here it was different for each picture).



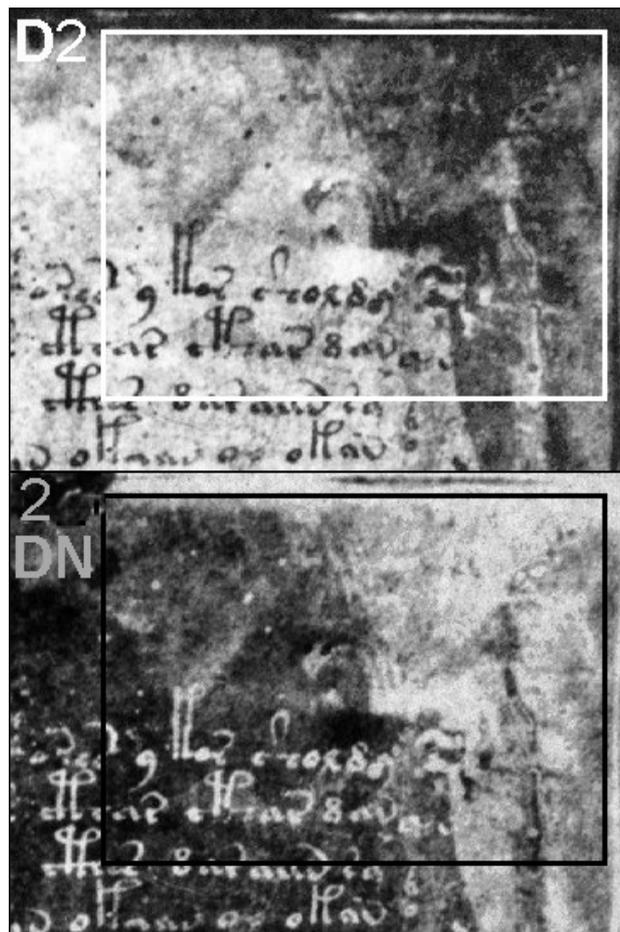
Above copies 1D and 1DN (negative) show some text in the area "e". We were however not able to say what text it was.

THE AREA 2.



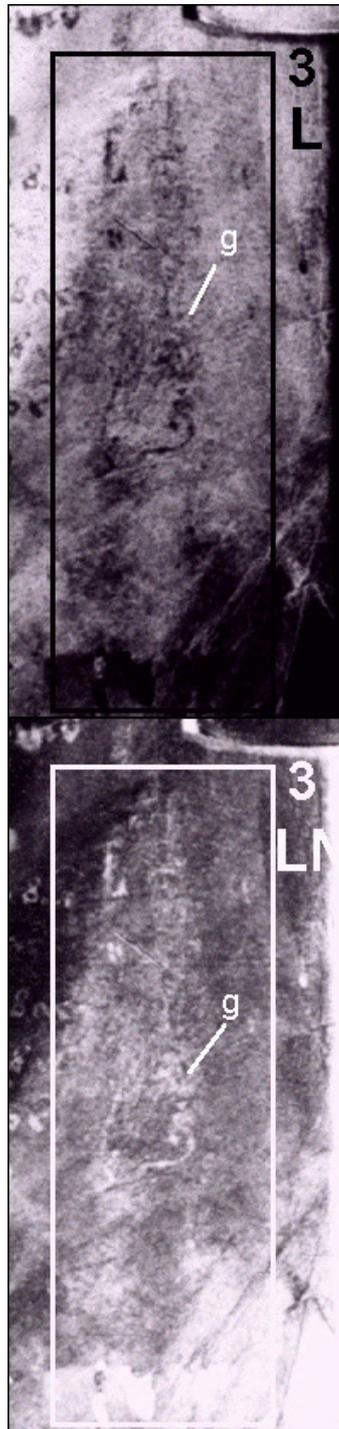


Above copy 2L shows in area "f" something like a letter "a" or "o". In spite of the fact it looks like "voynichese", it is higher than corresponding text line. Of course the edge of the folio is rather worn and obscure so it may as well be the letter from next folio. There is of course the possibility of other text - to the left of this "a" is something like large no. "2" and above it is no. "1". Could this be simple the numbering of two folios?

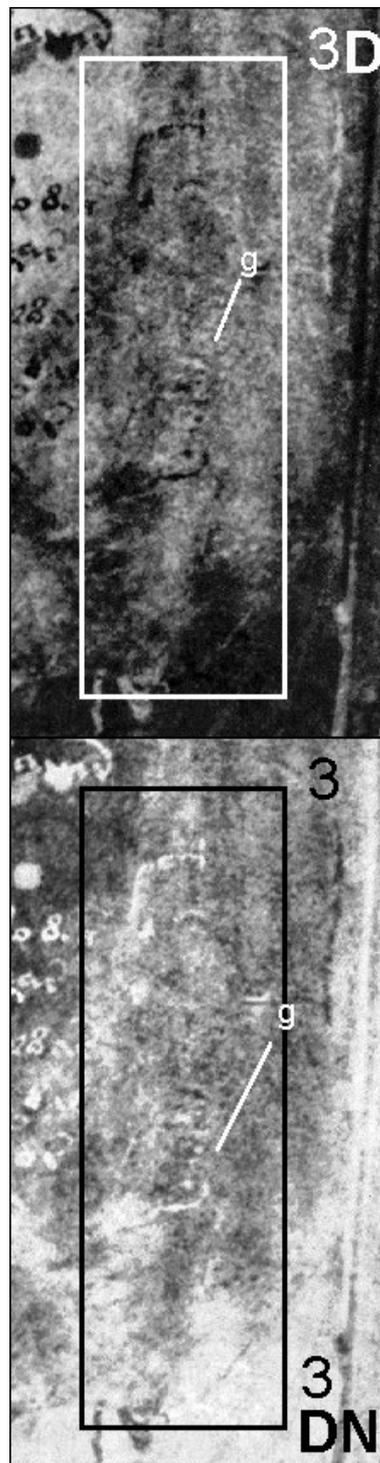


The copy 2D cannot provide any more information for our purposes.

THE AREA 3.



Above copy 3L shows the possibility of some text in area "g" written vertically, better seen on 3D below.



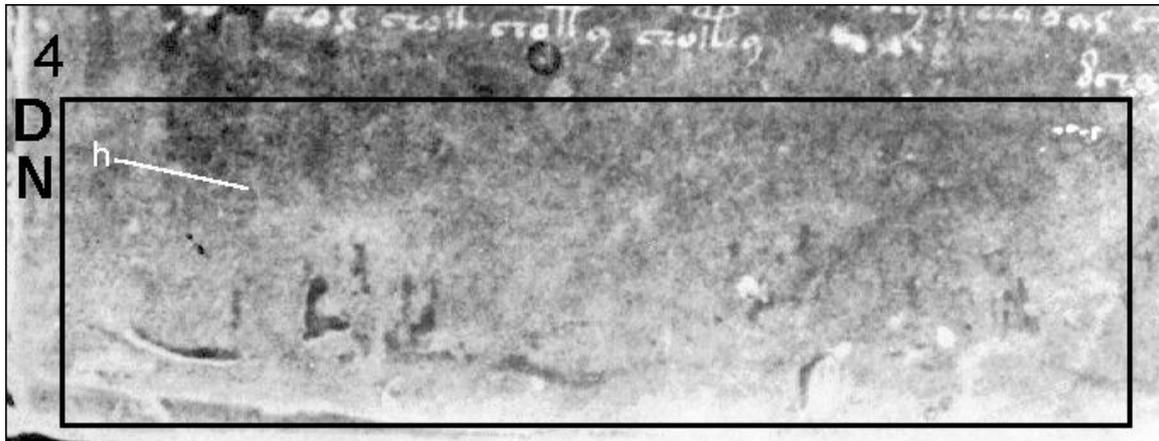
The copy 3D shows the text in area "g", but we could not identify what was it.

THE AREA 4.



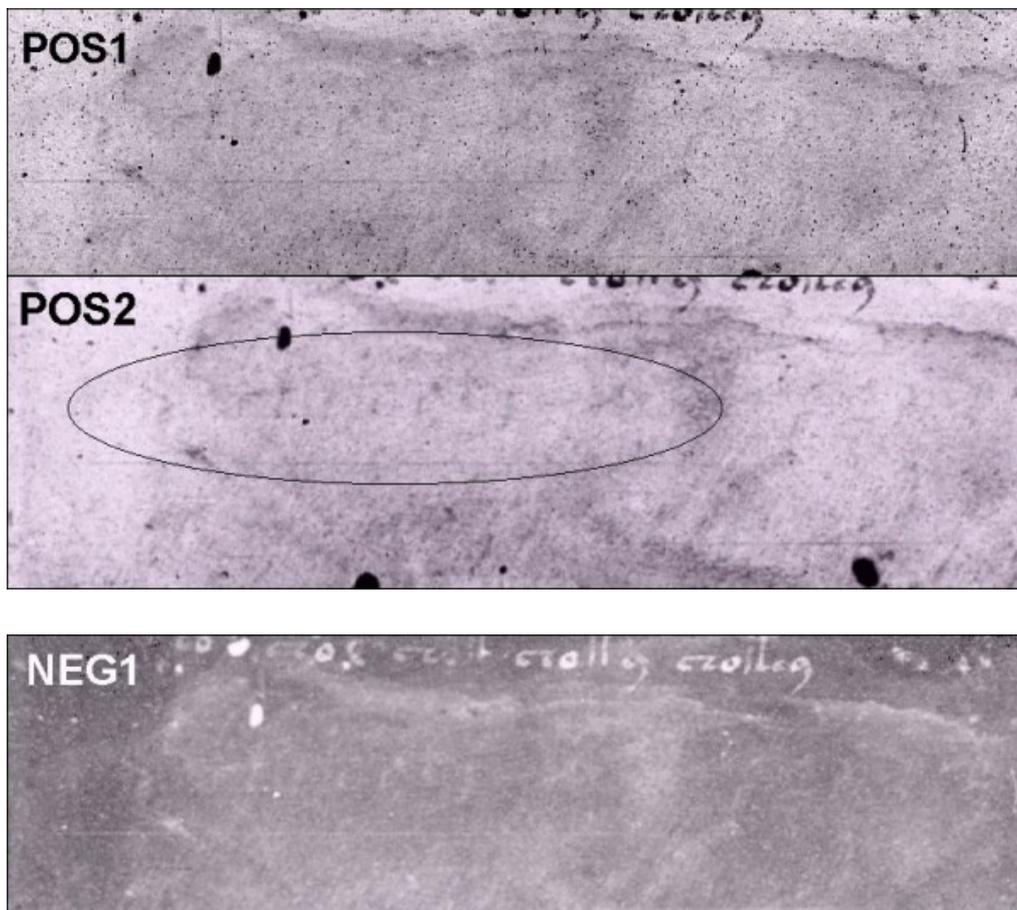
The both positive and negative - 4L and 4LN - shows clearly some text in area "h".

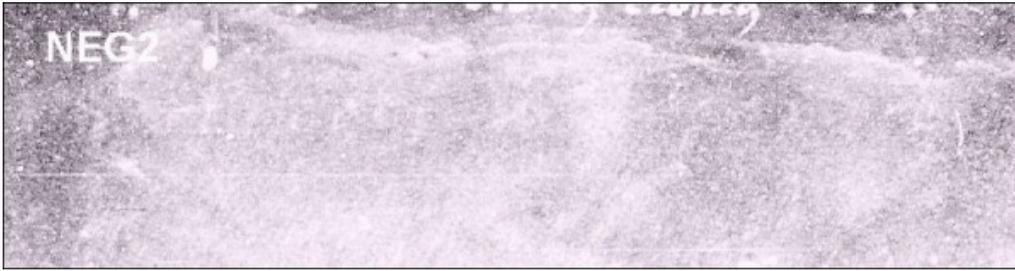




Above copies 4D and 4DN show same text there too, but not so clearly.

Since the area 4 seems to be of utmost interest, we tried to work more on the copy L (the original size with better resolution), namely by finding optimum gamma (you can find more about gamma at <http://www.cgsd.com/papers/gamma.html>). The *gamma factor* was originally used only for nonlinearity correction for computer monitors, namely the non-linear characteristic of the light intensity versus voltage, e.g for systems such as PC computers which do not have any correction in hardware. We applied the "gamma method" for different use here: by changing gamma we can stress the "weak" parts of the picture, thus enhancing the less visible details. As far as we know, this method was never used before for the VM. It is easy to see the text and recognize the shapes of some letters. We are of course not sure if we could see *the whole letters* since they were already erased, diluted or otherwise partially destroyed. Again, we used both positives and negatives for better comparison, each for several gammas. The best pictures are seen below.





What was actually written there? We have to refrain from clear answer to that question and leave it to reader alone. Even with our enhancements, the letters must be still mostly guessed. We do not see how to obtain better picture without using the original folio or photographs by Voynich (if they exist). We can only say that there are two lines, most likely used by person who wrote that name on them, to keep the text horizontal. There are three words on the first line, first one having approximate. 9 letters, mutually unconnected. The second word looks like "i" on some pictures (in Czech language it has the meaning of English "and", in Italian it is the definitive article - e.g. "i ragazzi" but neither explanation makes too much sense :-). It is more likely the part of the letter "z" (better seen in negative picture NEG1 and NEG2) written in gothic style, that is like the number "3" with bottom loop, but the whole letter cannot be clearly seen (in Czech "z" means Latin "de", i.e. English "from"). The third word is so bad, we could not see most of it and therefore didn't enhance it at all. There was also problematic to see anything definite on the second line.

In spite of the fact that in the whole the first line gives the impression that it says "Horczycky z Tepence" (written in Czech language), it was written quite differently than the signature of Jacobus (he wrote "Horczycky", with two "y" without the dash above second "y" as it is written in the VM - which is also the newer Czech version of writing it). Neither is the handwriting similar to Horczycky's signature nor to his form of the writing (his was connected - not broken - and more embellished, as it is with ceremonial signature expected).

It even does not look like signature at all, more likely it was written by somebody who was identifying it for some cataloguing, maybe by one of the owners (Horczycky not excluded :-). It is highly improbable that it could be merely some "dedication" by Rudolph (that hypothesis being made by Voynich to fit his "Bacon theory" :-). We could not make the text on the second line visible at all - so well it was removed, either chemically or mechanically, but the scratches and liquid marks are still visible. The question is why it had to be erased at all, but that would lead to speculations only.

There are many places in this folio, where we can see the manipulation and "corrections", namely in the area 4 - by already mentioned scratches, by some liquid and those two straight lines. It is apparent the name was not written by the VM author - his handwriting is more elegant and he did not take too much care to write exactly horizontally (see last paragraph of this folio, where the text is leaning down at the right side). On the other hand, the elliptic spots in the middle of the folio are actually the reversed picture of the plant on the other side, as the paint penetrated through (see **f1v** for comparison).

CONCLUSION: In spite of the fact we could not exactly identify the texts - we would need other ways to enhance the picture - it seems that the text in area 4 was not written by Horczycky.

On the other hand, *there is a suspicion that some texts were erased even before the VM text was written on this folio.* Is it possible that the folio was erased and written over by the author of the VM? Is it possible that *the text in area 4 was part of some former text?* Hardly, but it would require additional chemical analysis to be sure. However, it seems more likely that it was written later, as an identification of the owner (or maybe the author, but by somebody else?), due to peculiar location and the fact it carefully avoided the conflict with the text of the VM. Also the mechanical, visible damages caused to the folio were definitely caused by later owners. Voynich himself would not use such crude methods as scratching - he would certainly not try to erase the name that would link folio to the time period in question. The damage caused by chemicals could of course come also from the 20th century.

We later compared **the notes in the VM**, written "on the side" or elsewhere (mostly in Latin), but we did not find any similarity with Horczycky handwriting. Those are: **f66v** (bottom), **f86v3** (almost center), **f66r** (bottom) and **f17r** (top - the lit rectangles are apparently reflections from the protective plastic foil - but why they did not cover the whole folio, as it is usually done?). Also the text on **f116v** (top) does not compare with Horczycky's handwriting (both groups of texts were most likely written by the same hand). **One mystery though:** why did the author leave this page empty - there is no VM text, only one picture and some kind of "cryptographic key"? Of course, it is the last folio in line - was the VM left unfinished or was the key written deliberately on the last page to provide the hints for solution? It was apparently not written by author, judging by its coarse writing, contrary to elegant writing of the VM. By the way, the handwriting of Horczycky signature looks nice, too :-).

Jan B. Hurych



A10 - FURTHER INVESTIGATION OF THE FOLIO flr.

Our further investigation of folio **flr** based on new Beinecke series of scans follows here. Our thanks go to the **PEOPLE FROM BEINECKE WHO DID SUCH A GREAT JOB!!**

First, we used the copy of flr displayed with the help **MrSID Online Viewer by LizardTech, Inc**, which is actually add-on to Internet Explorer. We obtained the picture below - we used the negative for better discrimination. Not too much was visible there, even with higher magnification.



Then we discovered another viewer, which does not have the limitations caused probably by IExplorer - the name is **Geomatca FreeView** and can be downloaded http://www.pcigeomatics.com/product_ind/freeview.html

NOTE: We have got many comments about the difficulties to read the text in the pictures. One of them can be caused by colorblindness - pls try to copy the picture and modify the intensity of RGB colors. The other problem is the intensity and/or contrast setting of your monitor - again, pls copy the picture and try various adjustments of intensity or contrast by your graphic editor. The other option would be the adjustment of your monitor, but we do not recommend that one - it may be difficult to return exactly to your original settings. For comparison, we posted two pictures each, for different gamma.

The first picture shows the name "Tepeneç" quite clearly. Again, we used the negative, which was more revealing, so look for **white traces**.

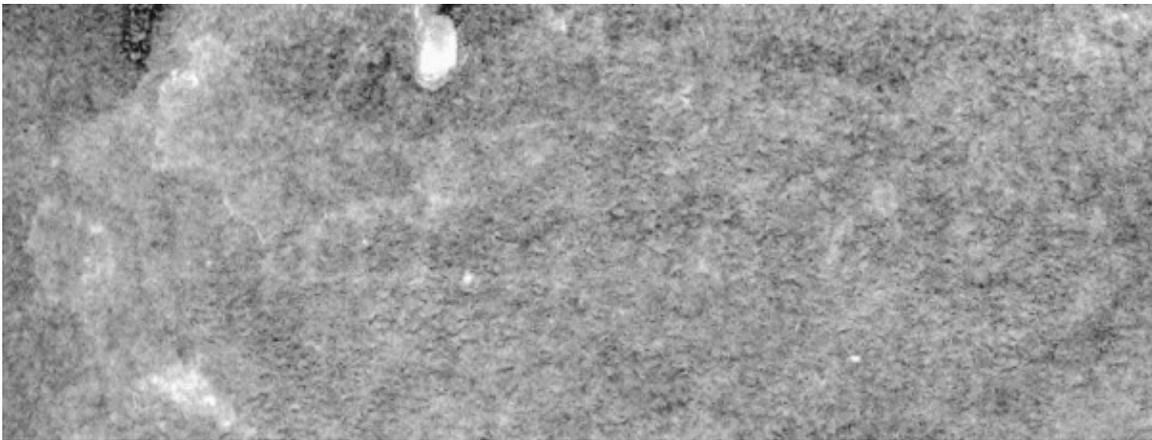
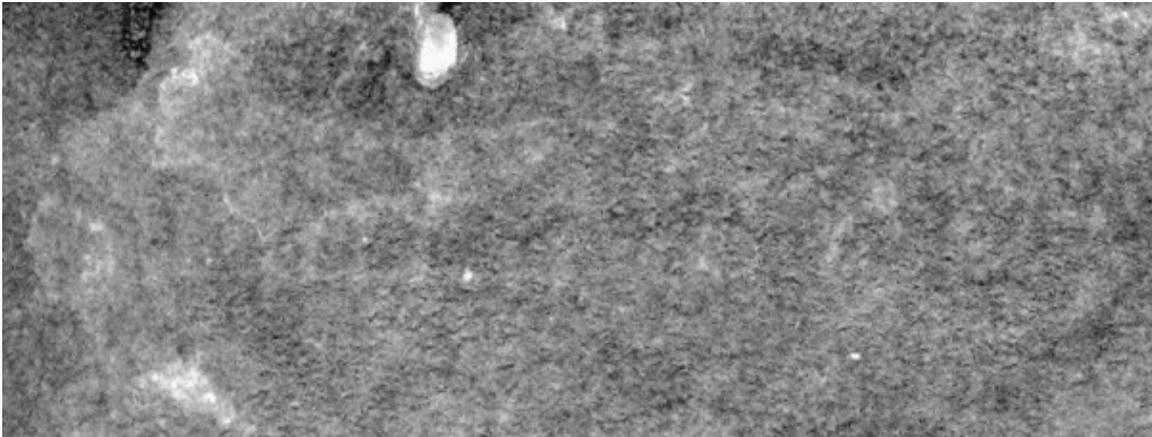




The other portion of the signature was however even more surprising - there we used first the positive - look for **dark traces**. While the last letters "iczky" are suspected, the letters at the beginning do not look like "Horc" or "Horcz" (as it was once written). So we had another mystery. . . Not for long, I have got letter form René Zandbergen that Voynich already discovered the script reads "Jacobj δ de Tepenecz" where " δ " is written as Greek letter delta (lower case) with the top bar, meaning Latin "de". It looks however like there is more then 6 letters in the first part, but we need still more work on it.



Of course, in the last picture, the colors can play trick on our eyes, so I converted it in grey scale (unfortunately some discrimination is lost) and again, this time from the negative, so look for **white traces** Still, one can read in it quite different things - contrary to the section with "Tepenec", which is quite clear . . .

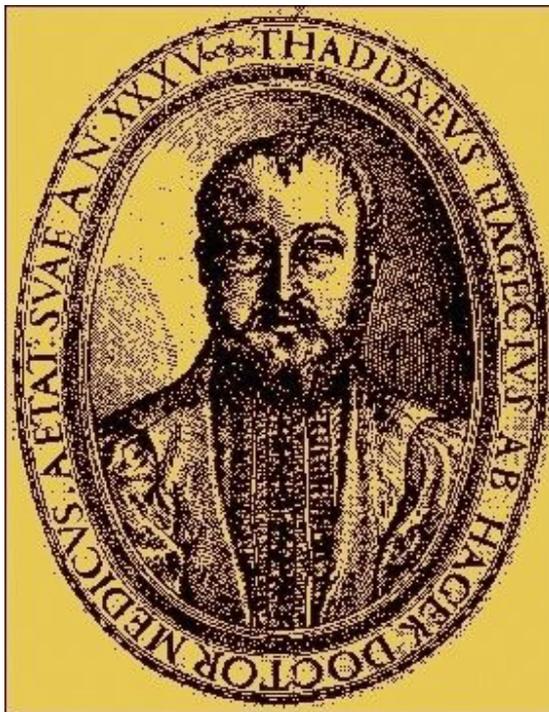


Jan B. Hurych



A11. TADEAS HAJEK Z HAJKU

in Czech: Tadeáš Hájek z Hájku, *in Latin:* Thaddaeus Hagecius ab Hayek, *also* Th. Nemicus, born 1st Dec 1525 (somewhere quoted as 1st October) - died on 1st Sept. 1600.



PARENTS:

Simon Baccalaureus Pragensis (1485 - 1581) and *Katerina Kahnova* (former wife of Mikulas Kahn, married 13th Aug. 1519, he was the professor of Charles University).

LOCATION:

The House at the Green Mounds (Dům u zelených hájků), in existence since (at least) 1504, but no more in existence today. It was the same house Dee and Kelley stayed in Prague. Nearby is the Bethlehem Chapel (rebuilt) with Bethlehem Square where also lived the alchemist *David Pratner de Pratno*, 1622)

EDUCATION:

He studied in Prague, in 1548 left for Vienna, Bologna and Milano, where he continued to study astronomy and medicine. He studied mathematics under professor Cardan (of the famous Cardan Grille?). He graduated as Baccalarius 1550 (as Magister in 1555), later Master and lectured Mathematics in Prague till 1557, when he got married and served later as a physician. Sometime during that period he got his Doctor's degree as well (he uses that title first in his book published 1562).

LIFE:

He met Rosenberg when he was 18 years old, in 1553, making the horoscope for him, with prognosis which

favoured R. political ambitions. Being already the renown physician, he accompanied R, during his war in Hungary (1596-1570, when he was the chief physician). Raised to nobility 1554 and for his service in the war he was knighted 1571. He was a personal physician of Maximilian II (since 1572, staying then mostly in Vienna) and of Rudolph II (staying with him in Prague). He was nominated as Protomedicus of Czech Kingdom. Being knowledgeable and honest man, he was entrusted with the selection of Rudolph's scientists as well as alchemists - he usually tested them in his own house. It was him who raised Rudolph's interest in astronomy and consequently invited Brahe (1597) and Kepler to Rudolph's court; he however didn't live long enough to see Kepler in Prague. He became a personal friend of Brahe. In 1597, Prague became the center of systematic study of the Universe, on Hajek's suggestion; he also invented some astronomical measurement methods, e.g. corrected the measurement of the "parallax" etc. As a scientist, he preferred rational thinking and empirical knowledge, but he was also interested in occult cult wrote horoscopes. In 1597, he was in charge of supervising all calendars printed in Prague.

INTERESTS:

Botanics: He arranged the Imperial Gardens in Prague and Krumlov. Hajek also translated the Mathioli's herbal (rather hermetic, see note below) into Czech language (with his own recommendations of those used for various healings).

Astronomy: He was originally not Copernican, but later he recognized to proofs and changed his mind. His major achievement was the measurement (1572) of distance to the supernova in the constellation of Cassiopeia. His results were the best of all done at that time, which was recognized by Brahe himself. The nova being found farther than Moon, it provided another proof against Aristotelian System. He studied parallaxes of comets, namely those in 1572, 1577 and 1580. He also fought the superstition that comets are bringing wars and disasters. He proved the new star was nova, not another comet. His efforts were appreciated by naming one Moon crater as *Hagecius*.

Cartography: he was interested in geodetic and triangulation - he made the first plan of Prague City (1556-1563), already using triangulation methods. Since 1563, he switched to practicing medicine.

Trade: Hajek was interested in many manufacturing processes and described them in his books (for instance how to make the famous Czech beer).

PUBLICATIONS:

(Note: some names are here stated as vaguely as mentioned in the literature, we could not get a complete list anywhere. Some books were written in Czech).

- **1551** - the book about solstices of Sun and Moon.
- **1557** - *Oratio de laudibus geometriae*, the praise and apologia for Mathematics.
- **Since 1560**, he wrote yearbooks (astronomical ephemerides, with astrological forecasts, called "minuce". Hajek continued to do so every year, even while with the army in Hungary (he remembers writing during the siege of the town Raab). Last minuce mentioned in literature is from 1570, but there may have been some even of later date.
- **1562** - *Aphoprismnorum metoposopicorum libellus unus*. Num quam antea aditus.
- **1562** - He translated Mathioli's *Herbal*, written by Italian, Dr. Mathiollus (Pietro Andrea Mathioli, 1501-1577), personal physician of Ferdinand I, see sample from the book with illustrations, at http://www.amo-bulbi.it/ad_Mattioli_N_Engl.htm (compare with crude and dubious pictures in the VM, which suggests that the latter are not those of real plants)
- **1564** - another, not clearly specified book
- **1573** - manuscript: *De investigatione loci novae stellae in zodiaco secundum longitudinem ex unica ipsius meridiana altitudine et observationis tempore*
- **1574** - book, *Tables of daytime lengths, i.e. sunset and sunrise times, etc. for the purpose of clock adjustments*
- **1574** - *Dialexis De Nova et Prius Incognitae Stellae Inusitatae Magnitudinis*, about his Nova measurement, his most famous book. He also contacted all other scientists (9 total?) who did the same measurements.
- **1577** - *Descriptio cometae* . . .
- **1580** - *A Treatise of Comet and Celestial Signs*
- **1580** - In Czech: *O některých pøedešlých znameních nebeských a úkazích v povitoi, a o kometi tohoto roku* (About some heavenly phenomena ...and the comet of this year)
- **1580** - *Epistola ad Martinum Mylium*
- **1581** - *Apodixis physica et mathematica de cometis (tum in genere tum inprimis de eo, qui proxime elapso anno LXXX in confinio ferre Mercurii et Veneris effulsit, et plus minus LXXVI dies duravi)*
- ? - *Fragmentum astrologicum*, connecting medicine and astrology.
- ? - *Acta medica contra Philosophia*
- ? - book about Haley's comet
- **1595** - *On beer and the methods of its production and effects* (maybe the date is the one of the Czech version, some refs. say '1585, in Frankfurt').
- **1596** - book written in defense of his medical methods, also issued the second print of the above Herbal.

Note 1. *Thadeas Hajek* is considered to be hermetist by some. There were the others in his time: Claudius Sirtus Romanus, alchemist at Rosenberg), Johannes Kepler, Michael Sendziwoius alchemist, Tycho de Brahe, Jaros Greimiller z Trebska - alchemist, Edward Kelley, John Dee, Heinrich Khunrath - cabalist and alchemist,.

Note 2. *Simon Baccaulaureus Pragensis* (Šimon Hájek z Hájku) became bachelor in 1509. He wrote: *Tabula de proprietate participiorum et eorum discrimine juxta genera et tempora* (1547) He was also a polyhistor and owned large library, oriented to hermetic sciences. He owned many esoteric books, which raised the interest of Rudolph II who sought them. His office was decorated by alchemical signs and other symbols. Young Thadeas surely read most of those books.

Note 3. T. Hajek not to be confused with VACLAV HAJEK z LIBOCAN (+ 18. 3. 1553, Prague), Czech priest and chronicler. His chronicle (1541) is however full of non-confirmed data.

Above information is from Czech sources:

<http://eldar.cz/archeoas/matematikove/index.html> <http://www.astro.cz/cas/praha/crp/0011a.phtml>

http://www.amo-bulbi.it/ad_Mattioli_N.htm

http://www.ckrumlov.cz/uk/mesto/histor/t_alchym.htm

<http://www.stand.cz/astrologie/ceska/texty/johndee/johndee.htm>

http://www.skystar.cz/skystar/sky_main.php?menu=7

and others.

There are also links in English, namely:

http://www.levity.com/alchemy/a-archive_aug99.html

<http://utf.mff.cuni.cz/Relativity/History.htm>

<http://gama.fsv.cvut.cz/~hanek/DEJZ/EN/1/text1.php>

<http://www.bookfinder.com/dir/i/>

[Dialexis De Nova et Prius Incognitae Stellae Inusitatae Magnitudinis et/0384208711/](http://www.dialexis.de/Dialexis_De_Nova_et_Prius_Incognitae_Stellae_Inusitatae_Magnitudinis_et/0384208711/)

<http://webapp.uibk.ac.at/alo/cat/?id=5008885> (obsolete)

Jan B. Hurych



A12. MURDER OR SUICIDE? (The three escapes of Edward Kelley)

Contemporary opinion that Kelley died of his injuries after falling down while escaping from his prison may be prevailing today, however the two other versions of his death came to different conclusions: one suggests the murder, the other vouches for suicide.

First the murder version:

Charlotte Fell-Smith writes in her book "JOHN DEE"

(<http://www.johndee.org/charlotte/>)

in great detail about Kelley's death and her data based on letters from Bohemia, some of them addressed to John Dee:



" . . . Dee expected Kelley to join him at Stade. He confidently thought they would return to England together, obedient to the Queen's summons. But Kelley was now a great man with Rudolph, who had given him an estate and a title, and established him at his Court in Prague as a citizen and councillor of state. "

Kelley even bought the house, today still in existence (near Charles' Square). Apparently because of Kelley, it was later called by folks "the house of Dr. Faust". But let Mrs. Fell-Smith continue:

" . . . Burleigh . . . In a long letter to Edward Dyer, in 1591, who was then acting as the Queen's agent in Germany, he urges him to use every means in his power to induce "Sir Edward Kelley to come over to his native country and honour her Majesty with the fruits of such knowledge as God has given him." . . . He implores Dyer to induce Kelley to come. If he does not come, it can only be because by cunning or legerdemain he has deceived them and cannot do what he promises, or else he is an unnatural disloyal man and subject.

. . . Kelley of course did not return, but apparently wrote again, urging powerful reasons of excuse . . . Kelley knew better than to face the astute Englishmen at home. In Prague he felt secure, and all too bitterly he learned his mistake."

We still do not know where he got all that gold (from the Emperor or maybe he discovered in Bohemia some golden mine?). He was generously giving gold away but that did not make him more popular with Czechs, rather to the contrary. Then the fate struck:

" . . . A large force of the imperial guard, accompanied by the City Provost and one of the Secretaries of State, burst uninvited into his house to take him whilst at dinner. But a friend at Court had whispered a word, and the evening before he (Kelley, j.h.) had ridden off with one attendant towards Rosenberg. The intruders had to be content with haling off brother Thomas to prison, "pinacled like a thief." . . . Kelley had ridden off many miles towards his patron, the all-powerful Rosenberg . . . By three days after, May 2, the soldiers had tracked him down; and roughly seizing him, they cut open his doublet with a knife to search for concealed valuables or papers, vowing they cared not whether they took him dead or alive to the Emperor . . . Rosenberg's protection did not avail. Kelley was taken to the Castle of Purglitz, three miles from Prague, and there he was closely confined for more than two years . . . On December 5, 1593, Dee received news of his having been set at liberty on the previous October 4, just two and a half years after his arrest. "

And the cause of Rudolph's displeasure? A couple of independent letters from two English merchants to Burleigh and to Edward Wootton give the exciting story how he fell from favour:

"First, it is surmised to be debt . . . Next it is thought he was in league with a professed gold-maker from Venice, executed by the Duke of Bavaria at Munich, on April 25. . . Thirdly, the Emperor's fear that Kelley would depart for England is adduced. Dyer had brought autograph letters from the Queen recalling him. It was of course an invention; and the merchant opines Dyer is of too rare a discretion to permit secret letters to be seen or even heard of; it is more likely that

Kelley has some time or other vaunted at table that the Queen had sent for him. . . . Fourthly, it is the doing of the powerful family of the Poppels, second family in the kingdom, and great enemies of the Rosenbergs, who have been "the setters up and principal maintainers of Sir Edward Kelley hitherto." . . .

The fifth report is that Kelley had distilled an oil or medicine for the Emperor's heart disease, which was discovered to be a poison.

*. . . Lastly, the writer comes to what he takes for the true reason of Rudolph's anger. An Italian, named Scoto, having cast imputations on Kelley's powers of projection, the Emperor sent for him to come and make proof of his art at Court. Kelley of course excused himself, saying he was sick. Three times he was summoned, and then the guard was despatched to bring him. The accusation was Laesus Mejestatis, and the city wonders what will be the end. The Emperor dare not openly execute him, for fear of Rosenberg and the strong feeling in the State for a change of ruler. Yet **he may easily be put to death secretly in that castle where he is confined**, 'and Rosenberg not know otherwise than that he liveth, or is dead by disease.' "*

For Rudolph, Kelley apparently became the problem and he had to solve it one way or another:

"On December 5, 1593, Dee received news of his having been set at liberty on the previous October 4, just two and a half years after his arrest. In The Stone of the Philosophers, dedicated to Rudolph, he (Kelley, j.h.) speaks of two imprisonment, tells him grandiloquently that he has for two or three years (1588-91) used great labour and expense to discover for him that which might afford profit and pleasure.

*During the next year letters were two or three times exchanged between Kelley and Dee, and in March, 1595, Francis Garland, who had then not long returned from Prague, "came to visit me and had much talk with me of E.K." Kelley was apparently then restored to the Emperor's favour, for on August 12, Dee says he "receyved Sir Edward Kelley's letters of the Emperor, inviting me to his servyce again." . . . Then under date of November 25, 1595, Dee enters this curt note: **'the news that Sir Edward Kelley was slayne'**."*

Suddenly, the news spread that Kelley was dead and people started to gossip:

*Then prevailing story is that Kelley was again imprisoned in one of Rudolph's castles, and attempting to escape by a turret window, he fell from a great height and broke both legs, receiving other injuries, from which he shortly died. It is even said with some amount of credibility, that the Queen wrote imperatively to Dyer to secure his release, and **that everything was prepared in readiness to convey him secretly to England**, and that he was escaping for that purpose when the accident happened. This story has hardly been tracked home to its source. It may be true. On the other hand, **the end may have come in the more swift and secret manner suggested by the English merchant.** "*

Note by j.h.: Apparently Dee concluded it was a murder. Still, we may assume that such reason for the imprisonment - most probably the conspiracy to smuggle Kelley out of the country - was still valid at the moment of his death, but that does not prove it was a murder.

Now for the Czech sources, mostly documented by criminal court recordings and Czech archives . Josef Vesely, Radio Brno, in cooperation with historian Petr Hora-Horejsi, wrote in the program THE STORY OF EDWARD TALBOT (09.03.2006) :

"There was an officer in Emperor's office named John Hunkler. Kelley knew all about him - he was a snitch. One day he went to Kelley's laboratory and he spotted something weird, something nobody saw yet. Kelley dropped some metal plate and as he was bending over, the stream of his hair got loose revealing his secret. With the words "Did you injure yourself?" Hunker reached into Kelleys's hair. "Oh my God, what do I see? The first of Emperor's alchemists and he has no ears! ".... Kelley answered: "I am expecting your secundants (the witnesses for duel)".

"Hunker obliged him but informed Kelley that the Emperor has forbidden duels and the offenders will be executed. The duel took place behind the Poricka Tower at Spitalske pole. As a weapon, Kelley chose pistol. Two shots were heard. While Kelley was unharmed, his adversary was cut down. The doctor hurried to the injured man and after a brief inspection of his wounds found that Hunkler was dead."

Rudolph issued a patent ordering Kelley to be immediately arrested. The arresting officer delivered Kelley to castle Krivoklat. The court was arranged over there, with the exclusion of the public. For the record, Kelley admitted openly the court in Ireland punished him by cutting of his ears, but that he was still youngster then. After some time at Krivoklat, Kelley decided to flee using the rope. He fell, broke his leg and was transported to Prague hospital where his leg was amputated. He was provided with wooden leg and the Emperor felt pity for unlucky Kelley and freed him. Now poor Kelley had to borrow money but failed to pay any debts. He was therefore sentenced to the prison at castle Most (Hnevin). There again, he tried to escape through septic chimney, fell and broke his other leg. Vesely's adds: *"The very same night he drunk the poison and the body of man who was once the first alchemist of the Emperor was silently buried at the cemetery wall. "*

The story confirming this findings can be found on web page, city of Most, Czech republic

(<http://www.mumost.cz/english/turisti/hnevin/ekelley.htm>),

"... A duel with a court official Hunkler in 1591, during which this courtier was killed, became fatal for him. Since duels were forbidden by the emperor's enactment, Keely escaped to Vilém of Rozmberk, trying to rescue his life. Despite this, he was arrested and prisoned in the Krivoklat castle. After three-years lasting imprisonment he decided to escape. Using a rope, he let himself down the tower, but the rope got broken and (he) fell on a rock. His leg was found broken, so it was amputated and replaced with a wooden one. It was decided that Kelley would be transported to a safer prison – the Hnevin castle of Most. . . . Kelley was allowed to move all around the castle and perform experiments. In summer 1597, he finished his work "Tractus de lapide philosophorum" (an essay dealing with the philosopher's stone), by which he hoped to acquire the emperor's mercy."

The emperor did give him a freedom, but only within his prison, i.e. the walls of the castle. So Kelley decided to escape again.

."At night he dropped a rope from the tower to the castle moat. But the rope got broken. Kelley fell down the moat and broke his second leg. A court sheriff Baltazar of Sebnice sent immediately a messenger to the emperor's court to inform of Kelley's escape. The emperor finally granted Kelley a pardon and returned him his estates. But Kelley was forbidden to return back to England."

The last sentence actually confirms the real reason for his imprisonment, i.e. his efforts to return back to England. And that Rudolph would not have, he wanted the recipe how to make gold. Unfortunately, the red powder Kelley used to have was gone and he did not know how to make another batch. It is surprising Kelley actually believed in that powder and apparently it had something to do with the transmutation of lead into gold (one compound of gold actually has red color, j.b.h.)

"Kelley was still living in the Most castle where he was undergoing the treatment of his injury, and apparently suffered from intensive pain. He decided not to spend the rest of his life like a cripple, and therefore he drunk a liquid. Within a couple of seconds, he died. It happened on the 1st of November, 1597. But nobody knows the place of his grave. There is a rumor going around, that he cursed the Most castle and the city of Most before his death and wished it to disappear from the Earth's face as a compensation for the suffering that was done to him. The truth is, that the castle disappeared several decades of years later and the city itself had the same destiny, 400 years later."

As for the various dates of death, the final word is most likely by Charles Nicoll http://www.lrb.co.uk/v23/n08/nich02_.html

"... At the time of his arrest Kelley was an internationally famous figure, but thereafter the story grows confused: he disappears from view into the dungeons of 16th-century Bohemia. News of his death reached England in late 1595, and for a long time this provided the death-date in such biographies of him as existed (there is still no full biography). But the report was false. He is discernible in Bohemian documents for a couple of years after this: the date of his death is more probably November or December 1597, at the age of 42. "

This may be the end of it, except there is a record that somebody saw him later in Russia. It does not say if was so reported by Arthur Dee. who became the physician to Czar Michael I of Russia. He would have certainly recognized him, stopped him and talk to him :-). It is just another of VM legends.

So we can sum it up:

1591 - duel nad start of the imprisonment at Castle Krivoklat (Purglitz)

(?) - his attempt to escape from Krivoklat

1593 or 1594 - released from Krivoklat

(1594?) - imprisoned in Castle Hnevin near Most

summer 1597 - he finished the work on his work on "The Stone of the Philosophers"

(fall 1597) -his second attempt to escape - now from castle Hnevin

November 1597 - death by suicide (http://orf.at/040120-69969/69971txt_story.html actually says: "On 1 November 1597 he killed himself before the eyes of his family".

Interesting thing is also another comment " ... Kelley killed one of his guards in an attempt to escape." as per <http://www.alchemylab.com/Kelleydee.htm> (obsolete), but unfortunately it does not say in which attempt - it could have happened even before he was imprisoned in Krivoklat.

It is apparent that the Czech version - directly from Most - is the most accurate, since it is the first hand account from the local records in the archives and describes more of details then other reports. Therefore **we can consider the suicide as the most probable version of death**. After all, people do not die from broken leg very often :-).

The reason for the his arrest is however still obscure - the illegal duel may have been just a pretext and so is the other variant - the refusal to present himself at Rudolph's court. The claim, that Rudolph put Kelley in prison "to soften him up" in order to reveal his recipe for making gold probably just another popular speculation. It is most likely that Rudolph II **learned about his intent to run away to England** and suspected a conspiracy which he took as a betrayal. It was also the most secure way to make him stay in Bohemia.

Also **the reason for Kelley's suicide** is unclear - he may as well have been forced to do it, but we will never know. His "hesitation" to return to England may have been most likely just a pretention - it was not easy to leave the country without Emperor's consent (and with his family as well). But before he could prepare anything, he was arrested. He tried to escape and failed. He was moved to Hnevin where he wrote his treatise, dedicated to Rudolph. He did have comfortable life at Most, but apparently that was not what he yearned for. He tried to escape again and failed again. Hearing about it, the Emperor finally pardoned him, but he not completely: the real punishment still stayed - Kelley could not leave the country. It was still a life sentence, he was still a prisoner. So he took the only remaining way out - the poison. This time the escape worked.

If we ever find his grave, we may as well write on his stone the last sentence from his treatise 'The Stone of the Philosophers':

"As for me, how much I have endured on account of this Art, history will reveal to future ages."



A13. SEARCH FOR HIDDEN NUMBERS IN THE VM

(Jan B. Hurych, originally published 2 August 2004)

Following are the efforts made by me to recover the digits hidden below the blue paint on f102v2 (Beinecke 1006252) using the area Jorge Stolfi suggested there may be some numbers there. Comparing with the other methods, the deconvolution (kindly provided by VM-list conference, I do not recall the programmer) seems to remove also the areas where blue is over the brown, where it should leave the brown instead. Now we know that the picture consist of pixels and the filter apparently leaves only true brown pixels. What happens to pixels with the colors that are not true? So far it looks like the method reduces the brown text into a series of unrecognizable spots which does not help us too much. The reality, on the other hand, is that the overpaint by brush does not go by pixels but layers and some pixels are so well masked by blue that there is no trace of brown color in them. So I did not concentrate on one method only, but did comparisons with others.

I based my decision on the possibility that first six brown characters under the blue overpaint are all recognizable as certain numbers. In the case of one, two or even three, I would admit the coincidence, but if there is more, the case is worth studying. Unfortunately, the "masker" did quite a good job. On the picture, we see the difference between coloring (marked "Y") , which is clearly avoiding the decorative circles and masking (marked "X") where we can clearly see the vertical overpaint slashes covering almost exactly the symbols and moreover only the height of symbols, leaving quite a large area uncovered. Now this was not coloring, it was definitely the masking.



As for the size of numbers: they are almost of the same height as some VM "letters" but for proper investigation, the size of the sample of

course has to be large enough (Beinecke scans allow magnification up to the size I used, but not larger, due to additional distortion). The bumps in the vellum, lumps in the ink, and artefacts of the image compression of course cannot be discounted, but it is obvious they will not effect the result that much. They would be random and certainly would not make up for the shapes so close to certain numbers.

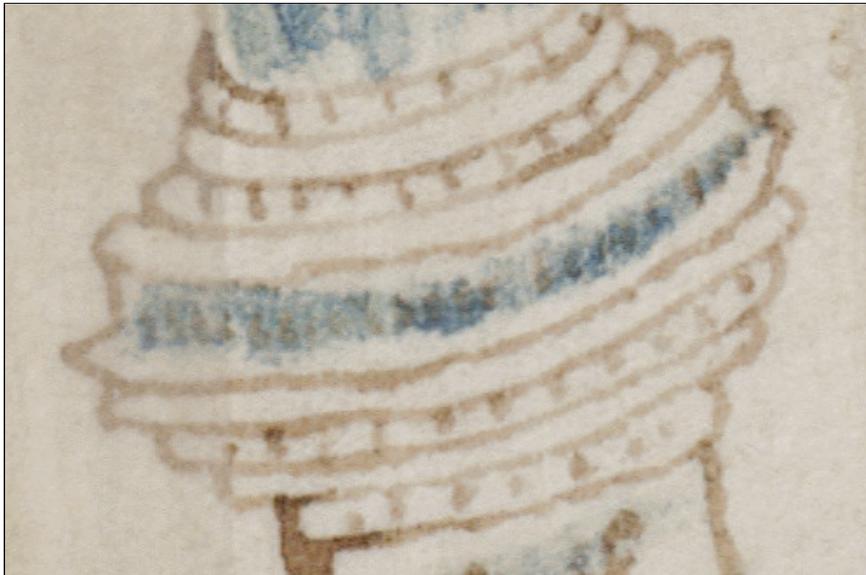
True, there are strings or circles or dashes somewhere else on the folio, but considering the spots in question as a decoration only is just jumping to conclusion before proper investigation is done. As for the claim "there is no reason for numbers to be there" it is putting the wagon before the horse - that's exactly what steganography counts on.

I realize that if we consider those are really the numbers, we would have to make some unwelcome conclusions like the one that it was surely "hidden" there intentionally (by locating it in the place nobody would look for it and besides, their original size it much smaller then shown here). And like it was not enough, they were additionally masked by overpaint The author's knowledge of Arabic numbers was of course expected long time ago (there are several numbers in the VM already) and he apparently knew about steganography as well. And what is more important: we would have to admit that the VM is something more than just what meets the eye, but that we have known all along :-).

EVALUATION

1) FIRST BY INTENSITY CHANGE:

Obviously, it was not enough and same poor results stemmed from contrast variations.



2) NEXT BY "COLOR SEPARATOR", KINDLY PROVIDED IN THE VM-LIST

The next step would be color filtering or separation. I guess with this filtering, I removed too much since I did not know how to optimize the composite colors of brown and blue. However, the results provider by other people seemed to have the same drawback.

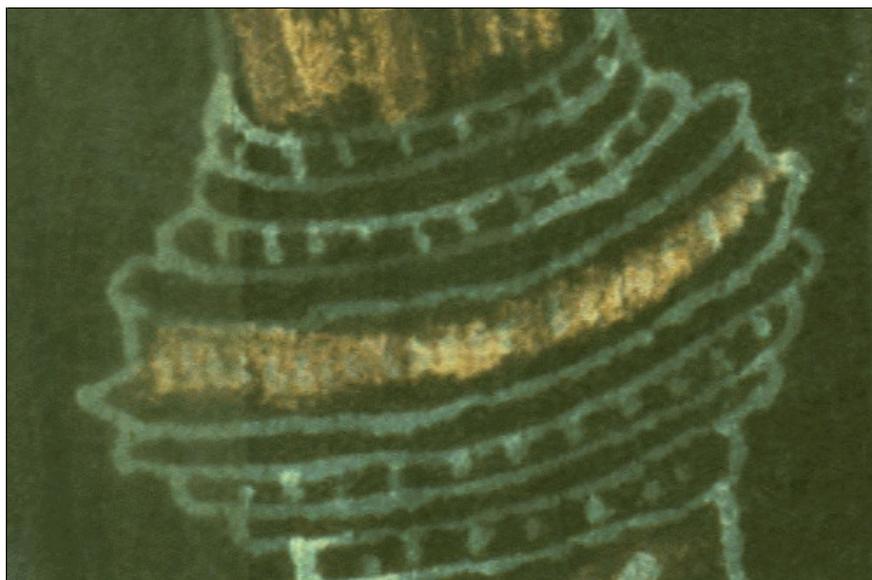


3) THE TRIAL TO REMOVE THE BLUE COLOR BY SOME OTHER MEANS:

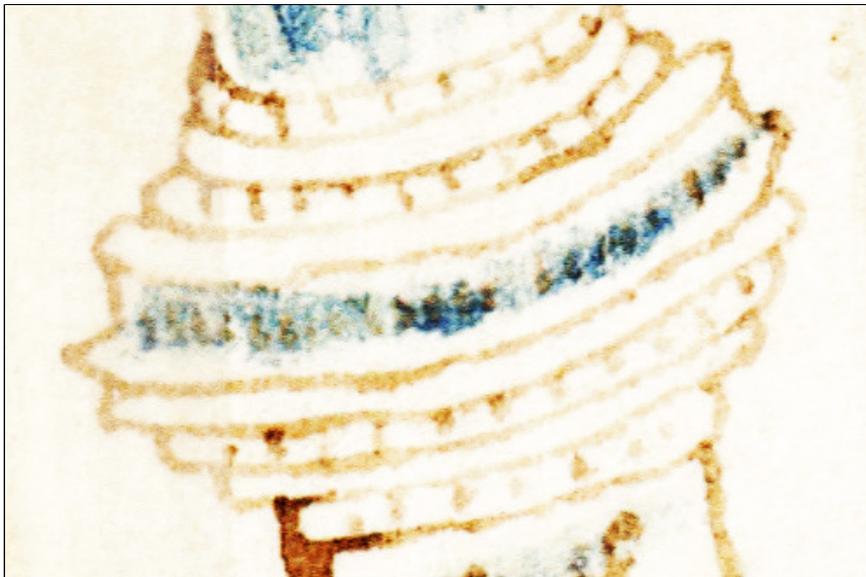
It didn't work too well either, apparently the "blue" is not real, pure blue of computer basic color.



4) THE WORK ON NEGATIVES, WITH VARIOUS DEGREES OF SUCCESS:



5) FINALLY THE TRIAL No.3. WITH THE REMOVAL OF THE BACKGROUND COLOR:

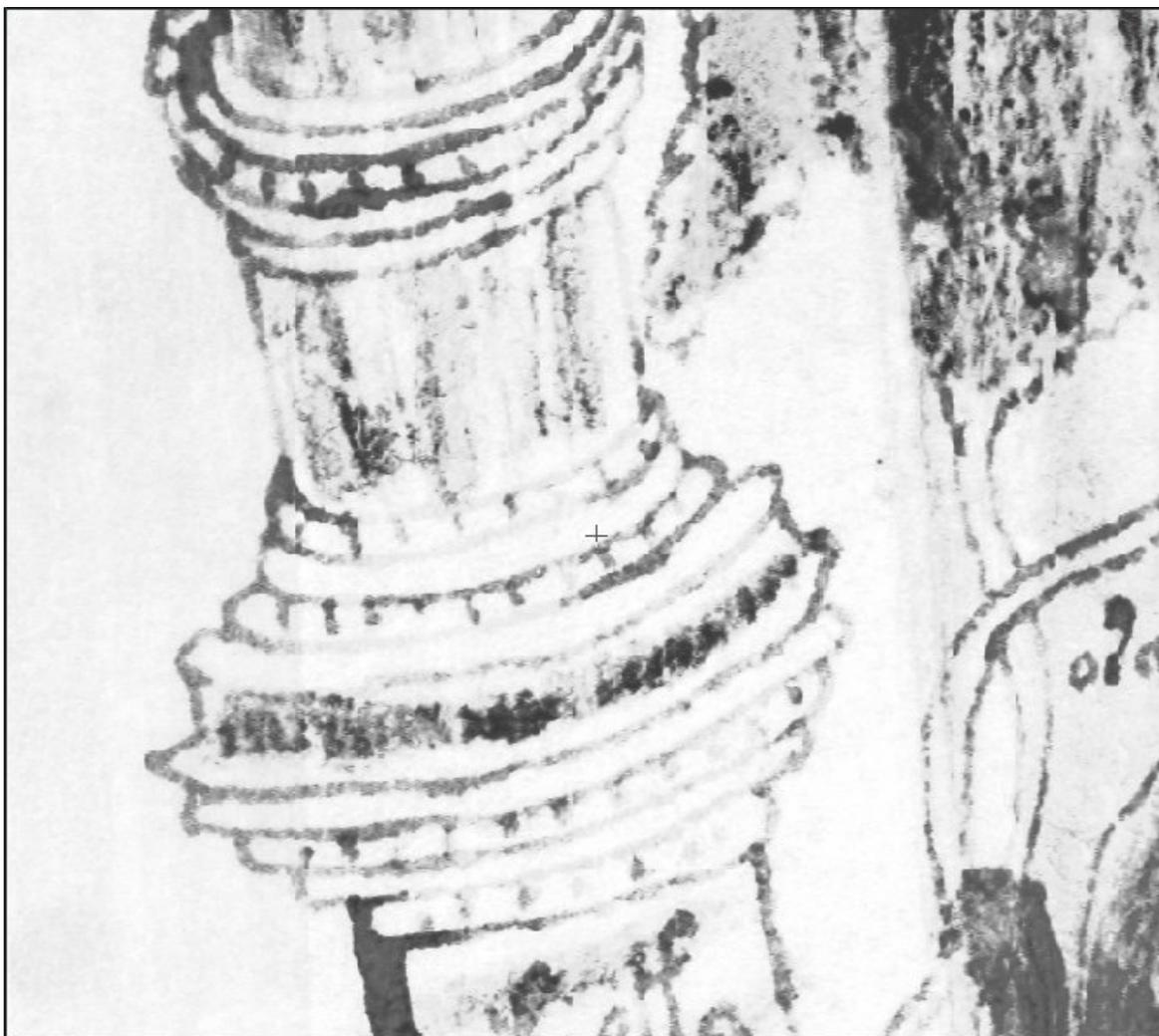


6) FOR COMPARISON, I ALSO THE USED OF PROGRAM GEOMATICA, WITH HIGH DISCRIMINATION FILTERS.

They all confirmed that there is something underneath the blue mask, looking suspiciously similar to Arab numerals.







This is as far as we can go to convince somebody that there surely are some numbers there. The other problem is of course to decide what those numbers are and to provide an educated guess what do they represent. After all, this is still the beginning . . .



A14. JULIUS CAESAR OF AUSTRIA (born approx. 1586 - died 1609).

Emperor Rudolph II had for many years a relationship with Katharina Strada, the daughter of his court antiquarian and for that reason also a very powerful nobleman. Rudolph fathered six very strange children by her.

Don Julius Caesar d'Austria was born the oldest son of the emperor Rudolph II. von Habsburg and Katerina Stradová. His full name was **Don Julius Caesar d'Austria**. Rudolf II put his whole trust and hopes into his eldest son Julius and helped him to get a good education as well as trying to find a good position for him at a royal court.

Due to Caesar's mental state which was however quickly deteriorating, it was decided to relocate him somewhere out of public view and Rudolph chose Český Krumlov, which he bought from Rosenbergs, as a residence for him. In the autumn of 1607, don Julius left Austria for Krumlov and lived there until his death on 25th June 1609.

There he became involved with Markéta Pichlerová, the daughter of the local barber Zikmund Pichler. As per Krumlov historical site <http://www.ckrumlov.info/docs/en/kaktualita.xml>:

"He invited Markéta to live with him with the permission of her parents. But after some time he became angry with her, beat her, cut her several times with a knife and because he thought he had killed her, he threw her from a window onto the rocks. This event was also noted by the Rosenberg chronicler Václav Brezan : ' . . . and in this condition she was thrown by him to the rocks. . . She fell on a rubbish heap which saved her life.' Once she was healthy again she hid herself from him, but he kept returning to her mother so Markéta had to go to him again. When Markéta became healthy, don Julius asked her father to give him Markéta back, but he refused to do so, fearing for her life. Don Julius put him into prison and threatened to kill him if Markéta wouldn't come. After 5 weeks of prison, Markéta's returned to the castle. The next day, 18th February 1608, don Julius in a fit of anger brutally killed Markéta and disfigured her dead body. He cut off her head and other parts of her body, and people had to put her into her coffin in single pieces

After that, when it became the public knowledge, Rudolph II made his son virtually the prisoner in Krumlov and he never left the castle. His health got worse and on 25th June 1609, he died. He was buried in the Minorite monastery in Český Krumlov and was meant to be later moved to a grave befitting the son of an Emperor, but Rudolf II died before this could happen. The grave was added to the wall, and hasn't been found even today. . ."

So far the history. There are several points that could be made in regard to his authorship of the VM. He was apparently interested in alchemy, had a good education and could have written the manuscript as a sort of his secret book, never to be published. Some pictures might indicate certain mental disturbance. Also, Horczicky once studied in Krumlov so he could have got possession of the manuscript via his local connections. That also makes the erasure of the H's name in the manuscript quite justified, since later he probably realized he might not want to be connected with Julius in any way. Also, the search for seclusive 'Julius the author' could have been very difficult - as it proved to be anyway :-).

On the other hand however, there are many counter-arguments. Firstly, the VM is undoubtedly the work of quite rational mind. Of course, if Julius was schizophrenic, his mind would in general quite rational but that does not prove he really wrote it.

The connection with Horczicky is pretty uncertain and even the reason for the erasure is only a speculation.

So we are actually left with the pictures only. I discovered on the net (<http://www.illustration-mag.com/uploads/Astrology%20final.pdf>) the picture of the zodiac, from the book of Leopold of Austria, *Compilatio De Astrorum Scientia*, Augsburg, 1489, see picture below) listed also in <http://palimpsest.stanford.edu/byform/mailling-lists/exlibris/1999/06/msg00224.html> and one exemplar being owned by Beinecke, as

Marston MS 209 Northwestern Germany, 1480

Leopold of Austria, *Compilatio de astrorum scientia*
<http://webtext.library.yale.edu/beinfla/pre1600.MARS209.htm>



Leopold (Leopoldi Ducatus Austrie) was of course just another Habsburg and if Julius was really learned in alchemy and astrology, he would certainly know that book, maybe even have it and try to copy those pictures in the VM. To be sure, I placed here the cut-outs I made from the VM, see below.



Comparing those two sets, some similarities can be observed in general, but in detail quite more dissimilarities could be found. True, he could have just drawn them from memory and we know the author was not too much of an artist. But he could just copy them from elsewhere and we cannot find there any proof Julius was the one who has really drawn the pictures.

Note: Lately, German author *Andreas Gössling* wrote the book *The alchemist of Krumlov* (*Alchymista z Krumlova*, in Czech translation, publisher Moba, 2006, Prague) which is called "the historical roman", but from description of the book we can see it is just a pure fiction and wild imagination. Julius - it is said there - had the obsession to inherit Rudolph's crown and he believed he was a victim of some conspiracy. He fought back using magic and his small army of alchemists. Even Markéta was power-hungry, etc., etc. Could we believe Julius was really that crazy? *Jan B. Hurych*



A16. HOW THE VM GOT TO PRAGUE (The story of Krystof Harant de Polzic and Bezdruzic) J. B. Hurych (15th June, 2007)

In search of the VM history, we have to consider two main periods: before it appeared in Prague and its fate afterwards. While for the first period we have only rumors, for the second period we have a mixture of facts and rumors :-). The enormous efforts were devoted to both periods, but it is typical, that majority of research was devoted to the *origin* of the manuscript itself.

As for the question how did it get in Prague, there is still only one *official* version: it was brought in Prague by John Dee and sold to Rudolph II. This was of course only the third hand information, suggested to Marci by Missowski. Dr. Missowski could be characterized - at the best - as a "creative writer", since he provided the postmortem charge of treason for general Wallenstein in order to justify his murder :-). The proof of certain manuscript in Prague is twofold: in the letter of Marci and in the letter by Baresch to Kircher. Marci is the historical person and Baresch is also mentioned in one of Marci's books. However, the link between Rudolph and Marci (and Baresch) was supposed to be only the "erased" and miraculously "resurrected" name of Horczicky de Tepenec, the courtier of Rudolph. From then on, the even more mysterious second period of the VM provenance (thanks to Voynich :-)) carries on.

If in fact the VM is the "Prague manuscript" (and there is detailed information in Baresch's letter to that effect) we still do not know how it appeared in Prague. Some western and eastern connections were provided, but no special person really fits the bill. Again, the rumor about Dee may or may not be true, but except of apparently purely coincidental "600 ducats" there is no confirmation. Naturally, if the VM originated elsewhere, somebody had to bring it to Prague. It was either bought in Prague or bought abroad and brought in Prague. It might even have been ordered there and sent by messenger to Prague (as later Marci sent it to Italy. Instead of sold it could have been donated by previous owner or even stolen during some war (as was done by Swedes, by coincidence in the same Prague). We simply do not have no proofs.

As for Baresch, he apparently was not the first buyer, since he did not know anything about its history and had no clue about the content and hardly told Marci anything about it, not even how he got it. or he knew and for some reason kept it secret. The most obvious buyer before him of course would be Rudolph or somebody rich enough to buy it (say Tepenec). Rudolph was a well known collector so he would be the preferable buyer or the receiver of such gift. And the person who brought did not necessarily have to be a foreigner either. However, except if we trust the *official rumor*, he apparently never even saw the VM .

Now lets have a look at famous travellers of that time, especially those who also travelled back to Bohemia. The most of them were Czech knights who went and returned from Crusades, but if we concentrate on later dates, it is only few who are famous enough.

One of them was *Zdenek Adalbert Popel de Lobkovic* who visited Italy, Spain and the countries en route. He also wrote the book about it. He became Emperor's Councilor, eventually the Highest Councilor and he still kept this position at the time when another traveller, *Krystof Harant*, wrote his book.

Another contemporary of his, *Wilhelm Slavata*, studied in Italy and travelled across Italy, Spain, Galicia, today's France, England, Holland, Denmark and Germany. He became the Supreme Judge and later the Emperor's Governor for Bohemia (the very same who was later thrown by rebels from the window of Prague Castle, see below).

In sixteenth century, many traveled to the Holy Land as pilgrims: *Martin Kabatnik* was one, however criticized by Harant for describing only his trip, not he geography or history of those places. The other, *Oldrich Prefát*, born in Prague, made in 1546 only half a trip, The most famous of them all of course by *Krystof Harant de Polzic and Bezdruzic*, the subject of this article.

Krystof Harant de Polzic and Bezdruzic



was born in 1564, as a son of nobleman Jiri Harant z Polzic (who in 1583 became the Emperor's Councilor). He was educated in Bohemia and learned Latin, Greek, all in all seven languages (Italian among them). He also learnt geography, history and art of music and painting. When he was twelve years

old, he joined the service of archduke Ferdinand of Tyrol in Innsbruck who was the brother of Emperor Maximilian II, the Emperor. There he further studied Greek and Latin literature and made short trips to Italy (namely Venice) and Germany.

In 1579 he accompanied Ferdinand of Tyrol to Venice and in 1585 he accompanied Ferdinand who brought Rudolph the Order of Golden fleece awarded to him by Spanish king. Later Harant returned to Bohemia but in 1591, Turks started the war and occupied most of Hungary. In 1593, Emperor Rudolph raised the army which was joined by many Czechs, Harant among them. His fought bravely with his detachment and after the war, he was awarded in 1597 a yearly pension 700 ducats (compare with the alleged price of the VM, 600 ducats).

In the same year, his first wife died and he, entrusting his children to the care of a relative, left for his pilgrimage to the Holy Land, apparently he was deeply touched by his wife departure. On the 2nd of April, 1598, he took off from Bohemia, with one companion (nobleman Herman Czernin z Chudenic, 12 years younger) and one servant only and reached Venice on 19th April. They spent almost three month in Italy, already well known to Harant and on 12th July they boarded the ship. They were dressed in simple Franciscan habit, not to raise any suspicion in Turks and on their way, they stopped at island Zante, Kandia and by the end of August, they reached Cyprus. When they reached Jerusalem, which was in Turkish hands in that time, they presented themselves at one time as Frenchmen, in other time as citizens of Venice, sometimes even as Polish. The reason was that the Emperor was still at war with Turks (in which Harant participated before :-), while the mentioned countries were at peace with them. He writes that Turkish custom officers were also very strict.

While our pilgrims visited all Holy places in Jerusalem, at the end were knighted in the Order of the Holy Grave, both of course being of noble descent. Once he was robbed of everything except for 22 ducats hidden in his belt. Reaching Cairo, then started the voyage back on 31st of October. They reached Alexandria and on the 12th of November and took the ship back, having no money except of one tolar. On the ship, he also suffered from malaria so he had to rest and recover from his illness. They reached Venice on 26th October.

After he returned, he lived in Pilsen, Bohemia, where Emperor Rudolph also moved when there was the flood in Prague. He became acquainted and the Emperor, recognizing his services for him in the war in Hungary, made him his Councilor (1699) and took him back to Prague. There Harant spent time studying sciences, writing Latin poems and composing the music as well (four of the compositions still exist). Being already a knight and from the family that was serving the king for generations, he was promoted into higher nobility on 8th January 1603.

The same year, he married for the second time. His wife, former widow, bought some more properties as well as the castle, all from her inheritance. In 1604, their daughter was born and baptized with the water of Jordan, which he brought back from his voyage. His second wife however died in 1607 (during the delivery of another child which died as well).

In 1608, he finally published the book about his pilgrimage. The book had also a lot of his own pictures (I did not see them myself, but as per witnesses, they were of high quality). We can also learn about his physical skills: he swam in the middle of sea, swam across the dangerous river Jordan six times in one run. He was great in ball games at Rudolph's court (especially in the game that was the predecessor of tennis), in various weapons, horse tournaments and hunting. He was the defender of truth, gentlemanly behavior and straight talker. In 1612, his third wife bought some more property around their already owned castle Pecka, so he spent most of the time there and not in Prague. Rudolph II died in 1612, but new Emperor Mathias II kept Harant's services and even promoted him as his Court Councilor. In 1614 Emperor sent him to return to Spain Rudolph's Order of the Golden fleece. On his voyage, he traveled via France, Spain, Madrid, Milano and Innsbruck.

At that time however, the religious unrest in Bohemia was increasing and Harant, till then a devoted Catholic converted to Protestantism (1618). When Mathias died in 1619, the Czechs elected their Government, called Directorium, and named him as its representative for several counties. Then the uprising against Ferdinand and Catholics, culmination in Prague defenestration, when Emperor's deputies Slavata and Martiniz were thrown from the window of Prague castle. Czechs recognized Ferdinand as the Emperor but not as their king, claiming they do not approve of him. The Emperor the war against Czechs and at the beginning, Czech were winning. In June 1619, Harant led the artillery of Czech army led by Count Turn and reached outskirts of Vienna. His artillery was so close that the Imperial palace was hit several times. However, Czech army had only 155 thousand men and 10 cannons, not enough to defeat the Austrian army, especially when the enemy got reinforcements. In August 1619, Czechs elected a Protestant Elector Ferdinand of Palatine as their king and he in turn made Harant his councilor and the president of Czech Parliament. In his office, he was just to both Protestants and Catholics as well and he even issued order to pay priests of both denominations.

In the meantime, the Emperor Ferdinand II recuperated and after a small resistance from Czech army (according to annalist Pavel Skala ze Zhore, their money for their mercenary army run out) and after reaching Prague, he defeated Czechs in the last battle at White Mountain, on 8th November 1620. That ended the Czech war, the first stage of 30-year war in Europe. It has to be said that Emperor army also had mostly mercenaries, but he had a pile of gold from Spanish Habsburgs, brought by them from Americas.

Harant was then arrested by general Wallenstein in his castle Pecka, imprisoned and with 26 others executed by sword on 19th June 1621 in Prague. It is interesting to mention that he was still afforded certain honor and was not quartered like

others. His property was confiscated by the Emperor, but not the property of his wife. She sold some property to general Albrecht von Wallenstein, who later donated it to Cartesian Monastery near Jicin. She also converted back to Catholicism and then she married Herman Czernin, the former companion of Harant on his famous voyage to Holy Land, who was in 1619 demoted by Directorium but later made a Count by Emperor. When she died (1637), he inherited the rest of her property. Harant was for long time presented as a traitor, however in 1638, his brother Johan Georg Harant, translated his famous book to German language for another publication. Second German publication, in Nuremberg 1678, was dedicated to Emperor Leopold I (who was also Habsburg, but moderate) with explanation that Harant wanted to dedicate it originally to Rudolph II. That might have been added just to soften the acceptance, since when the book was first published in 1608, Rudolph was still around and well.

THE BOOK.

When we study Harant's life and his book (see below) we may get a feeling there might be a slight connection with the VM. Not that he would write the VM itself (the sketches would be apparently more artistic), but it was possible he bought it somewhere during his famous trip and brought it back to Prague. It could have been on his alter trip to Spain as well, but most intriguing seems to be his pilgrimage to Holy land. As he himself claimed, there was not many famous people travelling that direction before him and those who were, did not write too much. His book is also full of historical a geographical data, that he must have obtained from some other books and he surely quotes many. On the other hand, we also learn all details of his trip and what he was witnessing (say manufacturing of silver coins) so we can see he was interested in many other things as well. he was of course very good writer and interesting at that.

That he brought something back, not only the water from river Jordan, seems to us to be highly probable. They rested v many monasteries (at that time still the major storages of old manuscripts) and visited many places with antique history (Venice, Padua, Ferrara, Creta, Jerusalem, Kahira, Alexandria). We also have to take in account that the arrival of the VM from East was up to now not considered too seriously, despite the fact that many evangelia and apocrypha were found right there. Now, when the search for western sources of the VM are almost exhausted, there may be the time to turn East.

We can see several connecting points: his trip to South and East, proper timing, his connection with Prague and last but not least the dubious fate of his inheritance. One witness claimed that for instance his musical compositions on his desk were considered as "some paper from the church" when he was arrested and searched. For that reason they were discarded and later recovered. If he ever had the VM, there are hew possibilities: he could have given it to Emperor, say Rudolph, when he was in his service, or kept it for himself. Then after his arrest, the VM could have been confiscated or kept by his wife and later obtained by somebody else (Czernin or even Wallenstein). When Wallenstein was assassinated (25th February 1634) it could have changed hands again. Of course, we do not see here any connection to Horczicky, but even he could have got in his hands the part of Harant's library after his execution, say in 1621 or 1622. After all, we know Horczicky collected books as well.

One way or another, the VM stayed in Prague till the time of Baresch and Marci. Another interesting point: since Harant was for long considered a traitor, it is not surprising that Baresch may have known he was the former owner, but did not want to reveal it for the fear he might be accused as well. In Harant's book, I unfortunately did not find any hint he bought anywhere any manuscript, however he had with him enough money (he was robbed only shortly before his return) and he was educated enough and had the interest in old books. Also, knowing other languages, he might have been attracted to the strange, mysterious manuscript. Still, it would be premature to close this case now when we still do not know enough. For the meantime, it should be apparent that the VM could very well came from other place than just Western Europe and Harant could have been the one who brought it.

(the end)

THE ADDENDUM: The List of Contents of the book by Harant)

The original in Czech published 1608, n German in 1637, the most recent published by Matice Ceska, 1854, which is on the Net, with the list I have translated here. The names there are mostly those of the locations en route, the names of famous I translated;acted as well, for others I preferred to use author's spelling, j.h.).

Title: **Krystof Harant : *The Voyage from Czech Kingdom,, to Venice, the Holy Land, Judea and further to Egypt, then to mountain Oreb, Sinai, the Mountain of St. Catherine in the Arab Desert.*** (In original Czech: *Cesta z Království ěeského do Benátek, odtud do zemi Svaté, zemi Judské a dále do Egypta, a potom na horu Oreb, Sinai a Sv. Kateřiny v Pusté Arábii*)

Foreword to 1854 issue

Foreword to the reader

The first volume

Chapter 1. - The voyage through Germany to Venice, Italy. . Bystoïce. Landshut. Rozenhaim. Hall. Inspruk. The Emperor Maximilián I. The gallery of his forefathers. Brix. Trident. Concilium of Trident. Simeon. About the plague. .

Chapter 2. - About Venice and our stay there. Arrival to Venice. The description of the town. Palma. the grand Canal. The Church of St. Marcus. Strappacorda. The treasure of St. Marcus. The robbery. The Arsenal. The Patriarch. The count and other officers. The story about the Emperor and the Pope.

Chapter 3. - The excursion to Padua and Ferrara. The Masterpiece. Padua. The University. . The garden of the physician. Ferrara.

Chapter 4. - The necessities for our voyage. The preparation for the trip.

Chapter 5. - The sailing to the ship. Our friends. The danger.

Chapter 6. - Our voyage from Venice to the island Zante. The town Ankona. The storm. The gallera with spies. . Brundisium. Via Appia. The Roman graves. Corfu. Ragusium. Cephalonia. Zante. Morea. Modon. Islands Cerigo, Cirigoto. The fish with wings

Chapter 7. - The island Kandia . The monastery in Kandia. The Hill Santa Croce.

Chapter 8. - The island Kandia. Candia. the beautiful women of Creta. Labyrinth.

Chapter 9. - The voyage from Kandia to Cyprus. Casso. Searpanto. Rhodiz.

Chapter 10. - The Cyprus. The monastery of Arnica. The Maltese knights.

Chapter 11. - The description of the island of Cyprus. Venus. Paphos. Salamis, now Famagusta. Nymosina. Nicosia. The defeat of Turks.

Chapter 12. - The sailing from Cyprus to the Holy Land. Limiso. The storm. Cizí loï.

Chapter 13. - Our landing in the Holy Land. The town Jaffa alias Joppen.- The harbor of Jaffa.

Chapter 14. - The town Rama and its description Ráma. Jebneel. Lidda. The plant aloe . Sangiach. The town Ramah. The country of Samuel.

Chapter 15. - The voyage to Jerusalem Dinas. Aseca. Terebinthi. Masfa. Raphaim. Emaus. The miraculous well. Nobe. Gaba. Salem.

Chapter 16. - The monastery of St. Salvator in Jerusalem. the interrogation at the gate. The habit of washing feet. Procession.

Chapter 17. - The monks of St. Francis as keepers of the monastery. The monastery of the mountain Sion. The monastery expenses. Z

Chapter 18. - Our pay to Turks to be able to visit the grave of Jesus. The courtyard.

Chapter 19. - Our visit of God's grave. The church. The chapels: of Holy Mary, the prison of Jesus, the lottery with his garment. The desecration of Holy places. First Christian ruler. The find of the Holy cross.

Chapter 20. - The other trips to Holy places. The chapel of St. Helena. The chapel of Calvary. The chapel of Izac's sacrifice . The chapel of Holy Mary a St. John. The kings of Jerusalem.

Chapter 21. - The procession to the grave of Jesus. . The place where Jesus resurrected and made s3emons.

Chapter 22. - The comparison of the Church at the grave to Czech St. Vitus grave. The return to the monastery of St. Salvator. The description of the Holy grave.

Chapter 23. - Our trip to the top of the Olivet mountain, then to Betanie (Bethany? j.h.), . Josafat Walley. The creek Cedron. The artifacts of Olive mountain. the steps of Jesus.

Chapter 24. - From Betanie to Jerusalem. Betfaje. Betania. The grave of Lazarus, his house, the house of Simon , . The Jewish cemetery.

Chapter 25. - Some places in the Holy City. The testaments of Pilatus, the rumors about him. The Jewish Rebellion. Florus. the house of Herodes, the Church of Salomon. The destruction of the Church. The Emperor Julian. The present state of the Church. The Emperor Heracleios.

Chapter 26. - Some places in the Valley of Josafat. The caves. the graves: of Holy Mary, St. Joachim and St. Josef. The road of the prisoner. The orad of Holy Cross.

Chapter 27. - Our trip to Jericho, river Jordan and other places. Bahurim. The castle Adomin. The hill Quarantena. The places of Christ's temptation. The dangerous way down the hill.

Chapter 28. - The well of Elyseus and and the trip to Jericho. The rose of Jericho. The Valley Achor. Jericho.

Chapter 29. - The river Jordan, The Dead sea, and back to Jerusalem. The desert of St. John Baptist. River Jordan. The crossing with the feet dry. Bethabara. Macherus. The mountain Phasga. Dead sea.

Chapter 30. - Some places in Jerusalem and outside, on Sion Mountain . Holy places in Jerusalem. the monastery of Sion Mountain. The palace of David, his grave. Bersabe. The house of the bishop Annas. The palace of Herodes. The prison of St. peter.

Chapter 31. - From Jerusalem to Bethlehem. Mountain Gihon. Bethlehem.

Chapter 32. - Bethlehem monastery and the Church of Virgin Mary. the Church of Virgin Mary. The chapels.

Chapter 33. - The procession in Bethlehem Church. the Church of Virgin Mary.

Chapter 34. - Some palaces around the monastery. The village of shepherds. The castle Bethsur. The caves of Holy Mary.

Chapter 35. - The second procession to Bethlehem church . Description of Bethlehem. The Beechen monastery. Hebron. The Valley Mambre. Return to Jerusalem.

Chapter 36. - The valley Siloë. The cave of apostles. The valley Benhinom. The well in Siloë. The grave of Absolon.

Chapter 37. - The monastery of the Holy Cross, the monastery of St. Salvator. Second visit of the Holy grave. The banquet.

Chapter 38. - Preparing for the trip. The graves of the kings of Judea. Indulgences.

Chapter 39. - Old Jerusalem and its destruction. The kings of Jerusalem. Jerusalem defeated by Babylon.

Chapter 40. - New Jerusalem. Barcochab the temptor. Julianus Apostate. Heraclius. Saracens. Gotfrid, first Christian king. Crusaders.

Chapter 41. - The knighting of the pilgrims. The ceremony.

Chapter 42. - Various orders of Christian Knights. . The beginnings in Rome. The order of the Golden Fleece. The Knight of Malta. Templars. The knights of Holy Mary.

Chapter 43. - The order and regules given by Roman Emperors and French Kings.

Chapter 44. - The documents an seals given by the guardian of the Holy Grave.

Chapter 45. - The Christian Sects in Jerusalem. The Christians. The wars with Turks.

Chapter 46. -Greeks and their religion. Greek wars. The epoch after Alexander the Great. Greek Patriarchs and clergy.

Chapter 47. - Georgians and Armenians. Georgians, their rulers. The land of Armenians. The cities. Their religion.

Chapter 48. - Nestoriáns, Syrians, Maronites, Jakobites a Abyssynians. Caramanni, Curti, Assyrians and Syrians. The cities of Syria. áni. Maroníti a Drusi. Jakobites. Abyssinians.

Chapter 49. - The Summary and the end of the first volume.

The Second volume.

Chapter 1. - Our trip to the city of Rama. Foreword.

Chapter 2. - To Rama and Gaza. Chameleon. Azotus. Dagon. Turks. . Ascalon.

Chapter 3. - Gaza. The pub v Gaza. Cheating monk. Silvanus the martyr.

Chapter 4. - Our sailing from Holy land to Egypt. Town Damiata. The Turkish treatment of pilgrims.

Chapter 5. - Description of Damiata. Consul a viceconsul. The fight with the monk. French king Louis. River Nile.

Chapter 6. - The voyage to the city of Cairo. Description of palms. Sailing on Nile. The custom fee. The towns by Nile.

Chapter 7. - Cairo. French Consul. Jews in Turkish owned countries. Arrival in do Cairo. Consul of France. Dangerous trip to castle of Cairo.

Chapter 8. - Emperor's garden, balsam bush. Turkish horse riding. The well of Holy Mary.

Chapter 9. - Our trip to Red Sea, the desert of Araby, Mount Sinai. Matharia. The caravan. Red Sea. The fort of Suez. Twelve wells of Moses. Gazellles. The desert ghosts.

Chapter 10. - The monastery of St. Catherine and mountain Oreb. The supper in the monastery.

Chapter 11. - Our climbing of Oreb, Sinai and the Mountain of St. Catherine. The chapel of Elias. The chapel on the top of Sinai. The well of Moses. The chapel of forty martyrs. The cane of Moses. St. Arsenius.

Chapter 12. - The monastery and our stay there. The burning bush. The body of St. Catherine.

Chapter 13. - Our return back to Cairo. . Dromedar or camel. The robbing of pilgrims by Arabs. Arabian bread. The place where Israelis crossed the sea. Our bath in Red Sea. The city of Suez. The ostrich.

Chapter 14. - Arabs and Arabia. The sea of sand. The baptism by sand. Eremus, the desert. . Mana. The city of Saba.. Maqueda the queen.

Chapter 15. - Red Sea.

Chapter 16. - East Indies, discoveries of Portuguese. . Brahmani. St. Thomas, Indian apostle. China, Siam. The Kingdom of Udia, Pegu, Narsinga, Cambay. Vasco Gama. Goa the town. Bengala, Cambaya. Towns Diu, Ormus. Former Babylon. Nimrod. Bagdet the town. Dutch in East Indies. Tamerlan the tartar. Quinsai in Mangi. The Tartars.

Chapter 17. - Our return to Cairo. The Baths in Cairo. Mummies. Pyramids. Mummy as a medicine.

Chapter 18. - Cairo. . The churches, hospitals, population. Giraffe and tatou. Turkish circumcision. The island of Mira. The flood.

Chapter 19. - Nile. crocodiles, water-horses. Nil øeka. the Sea of Ecus. The island Meroe. Thebaes. Crocodile. Tentyrité. Trochilus. Ichneumon. Dolphins.

Chapter 20. - From Bulao to Rosetta and then to Alexandria. Rosetta. Delta, the island on Nile. The bird of paradise.

Chapter 21. - Alexandria. The Column of Pompeius. The library of Ptolemaios.. S. Athanasius.

Chapter 22. - The Land of Egypt. the kings. the labyrinth. Two ships of Ptoilemaus and Cleopatra.

Chapter 23. - The voyage to the grave of of Mohammed, Mecca and Medina.

Chapter 24. - The religions of Egypt and Arabia as well about the Turkish religion. Mohammed. Mašlak. the punishments.

Chapter 25. - The short description of the land of Maurs, Abyssinia.

Chapter 26. - Our sailing back to Venice.



A16. THE VOYNICH MANUSCRIPT - DO WE REALLY HAVE ANY PROVENANCE? (revision 1)

Jan. B. Hurych

Note: The item 3) was updated with new information in September 2008 (Revision 1), see below in blue color.

For almost one hundred years were VM researchers attempting to get together supportable, verifiable provenance as a helpful tool for the deciphering its text and pictures. However, several valuable discoveries were made lately that brought many points of the "official" provenance (or rather a *scenario* of it) in serious doubt. Let me list here the critical points and supportive evidence to of their doubtful validity. We will discuss here the points of misinformation (1 to 11) and then the sources of misinformation (12 to 19), listed below.

1. The famous Marci's letter (to Kircher)
2. The assumption that Missowsky rumor deals with facts
3. The obscure role of Kircher
4. The obscure role of Baresch
5. The statement that Marci's letter was found with the manuscript
6. The assumption that the VM is the same manuscript Marci wrote about in his letter
7. The circumstances of finding the VM in Mondragone villa and the role of Strickland brothers
8. The sale of Marci's letter abroad
9. The unclear conditions of the VM exporting from Italy
10. The disinterest of Societas Jesu (The Jesuit Society) in the loss of the document belonging to Museo Kircheriano
11. The "miraculous" discovery of the hidden "signature" in the VM
12. Mrs. Ethel Voynich and Miss Nill
13. Professor William Romaine Newbold.
14. The manuscript itself
15. The "erasure" of the "signature"
16. The rumor about Rudolph and Dee
17. The rumor about Bacon
18. And then came Horczicky . . .
19. Modern, unsupported stories and books

Some of above points cannot be properly verified, others are just doubtful and the rest is contradicted by some other facts. We deliberately do not deal with Wilfrid Voynich as a separate point or source, since he was involved in many if not all of them. All in all, as we shall see, the existing official provenance is still only a provisorium rather than a serious research document.

THE POINTS OF MISINFORMATION

Let us scrutinize the individual points. Only the summaries are written here, the detailed work would probably require much longer document, but for our purpose of criticism only, such extent is not necessary.

1) The famous Marci's letter (to Kircher) was obviously not written in his hand nor has is usual format (compare with his other letters in Museo Kircheriano). Neither is the signature, even if it is rather similar to those in other letters, accompanied with his sign of *manu propria* (i.e. signed with his own hand) present in earlier letters. Apparently it was written by a scribe which is also explained by the fact that Marci was, at that time, most likely already blind. The information in the letter is of course crucial to the provenance. Some data there agree with facts: he did inherit the library of Baresch and yes, he was his longtime friend. While Marci claimed he sent the VM "soon after he inherited it", this may create the discrepancy of several years, since it was apparently sent much later. There is nothing in the letter however that would help to identify the manuscript he is talking about as the VM, located in Beinecke library. The pertinent, identifiable details are provided only in Baresch's letter to Kircher, discovered during the past ten years.

2) The assumption that Missowsky rumor deals with facts . The part where Marci quotes Missowsky is of course just a hearsay, as Marci readily admits in the letter and he especially warns Kircher to "make his own mind" about it. That part of course can be qualified only as a third hand information i.e. a "rumor" at best. Several researchers never doubted those are the real facts since they conveniently cover otherwise missing information about the arrival of the VM in Prague and its possible origin. Since there are no supporting facts to the story, it should be always described as "unconfirmed". The similarity between 600 ducats mentioned in the letter and 630 ducats in Dee's diary is only superficial, since Dee never wrote from where, when and how he obtained that money.

3) The obscure role of Athanasius Kircher. Baresch wrote two letters to Kircher, both about the VM and both with some samples of the script. No samples were ever found and only the second letter survived. From that letter we know that Baresch already wrote to Kircher before and while the delivery of the first letter was already confirmed by the messenger, he was politely suggesting that Kircher probably haven't got it (we are almost sure he thought Kircher did not bother to answer :-). We do not even know if Kircher answered at least the second letter while the letter itself exists and proves he got it.

Neither we know if he did some research of his own, before or after receiving Marci's letter and the manuscript with it. Neither the VM nor Marci's letter were discovered in Museo Kircheriano as all the remaining Marci's letters were. There is no description of the VM content in Marci's letter but it was fortunately described in some detail by Baresch in his letter. Marci might have gotten the confirmation of the successful delivery of his letter by the messenger or then again, might have not.

The other scenario suggests itself here and cannot be easily discounted. We have no word from Kircher that he ever got the manuscript nor we have the name of the messenger or some confirmation of the successful delivery. Last time Marci was asking Kircher about it was again half a year before his death via Kinner's letter, namely he wanted to know how is Kircher making up with the manuscript. The answer was never found and judging by Kircher's refusal to respond to Baresch, he apparently did not bother to write to Marci either.

Of course, there is also a possibility the manuscript never reached Kircher. Strangely enough, Marci's last letter was not archived by Kircher with the other Marci's letters but was found elsewhere, in Villa Mondragone and it was inside - or attached - to the manuscript. How and why those documents were separated from Kircher's museum is still the open question. We have no other indication (except Voynich's word) that they were at one time together and the VM is truly the Prague manuscript. Since Marci's letter does not describe the appearance nor content of the manuscript, it is no help to us either. Of course, whoever read Baresch's letter could have fabricated the lost manuscript. Voynich knew from Prague investigation that Marci inherited the library from Baresch library but we can assume that he never saw the recently "rediscovered" letter by Baresch, otherwise he would use the facts there in his VM provenance as a proof of identity of both manuscripts (i.e. that the manuscript he owned is indeed the Prague manuscript).

And as I noticed recently, Marci wrote in that letter that he was also sending with the manuscript Baresch's attempts to solve the VM - those notes were never found. If Kircher inserted the letter in the book, why not the notes as well - after all, they might have been as important as Marci's letter, even more! Or they should at least have been in the same box - what happened to them?

4) The obscure role of Georgius Baresch. Baresch apparently obtained the VM illegally and did not know anything about the author or former owners (except maybe the rumor he heard from Missowsky). If he knew more, he apparently did not tell Marci who would certainly tell Kircher - who was also his good friend - in his famous letter. The "erasure" of the "signature" (see later) was never mentioned by Baresch nor Marci and not even by Voynich before its discovery. In existing state, the folio is quite visibly damaged so we may safely assume that the whole *visible* damage was done by his people. That of course masked the original erasure so much that we cannot identify which is which. There was certainly no reason for Marci or Kircher to erase anything. For Baresch however, if he got the VM illegally, there would be a good reason (or for the thief who sold it to him). There are also several deliberate misinformations in his letter to Kircher, due to the fact he apparently wanted Kircher to *solve the cipher but not the content* of the VM, a quite impossible task.

5) The statement that Marci's letter was found with the manuscript. While Voynich claimed Marci's letter was found with the manuscript, he was quite vague about the details (was it attached by string, inserted, glued to the cover or just found in the same box with the VM?). We know that such coincidence is quite unusual - how many manuscripts are that lucky? - but it is quite probable. However, why was not there the letter by Baresch as well? It surely says much more about the manuscript content than Marci's letter. Too bad there was no witness to the event. It was suggested it was probably attached with wax or glue to the inside of the front cover to the manuscript (the dating of the cover of course was not determined yet either). Another interesting clue is that typed tabs with the name Petrus Beckx are found in the documents to accompanying the VM at the Beinecke Library (see also alter). After the letter was separated from the manuscript, there was no proof that the same letter was ever inserted or attached to the VM (except for matching of the glue spots, which was never done). As for the other facts: Voynich promised the seller not to reveal any "details" of the sale in public and he apparently kept his word till his death. This sounds unnecessary since there was at least one competitive buyer who could tell anyway - so what was the whole secrecy actually about? And who was Voynich really protecting by that promise? (see also later)

6) The assumption that the VM is the same manuscript Marci wrote about in his letter. While it seems obvious, it is not: at the beginning, there was only one proof - Voynich's statement that letter was found with the VM. For that, we have only Voynich's word, since now the letter is separated and it could have been found anywhere else. Also, there is nothing in the letter to associate it with what we can see in the VM. Another proof was therefore needed and then, miraculously, the hidden "signature" was found. Of course the whole story around it is clouded as much as the particular folio, particularly the area in question which shows chemical damage that apparently continued during past decades. Again, we have only xerox copy of the original photostat showing what actually saw Voynich in his time, of course only with rather small resolution. Little less is apparently seen today under ultraviolet light and less again in the resent scan of the folio (in color). Incidentally, the chemical treatment was really not necessary if the "signature" appeared clearly on the photostat.

7) The circumstances of finding the VM in Mondragone villa and the role of Strickland brothers. Voynich bought the VM from Jesuits of Villa Mondragone in 1912, with the help of a Reverend Father Strickland under the promise of secrecy and such secret was apparently to be kept forever. Based on facts revealed by Miss Nill after Voynich's wife Ethel death, the until then unknown correspondence made public. It is the correspondence between Voynich and both Father

Giuseppe (Joseph) Strickland and his brother Paolo (Paul) Strickland. Full name was actually Strickland-Scerberras. Giuseppe was the Prefect of Collegio Mondragone in 1888, 1893 and 1894, then Reverend Father there in 1903 and in 1912-1916). Paolo who also studied at Mondragone (there were four brothers and they all studied there) was apparently known to Voynich from England. We may possibly guess that it was him who knew about sale from Giuseppe, informed Voynich and maybe even had to do some convincing of his brother Giuseppe. We know only it was "Fr. Strickland, S.J. who introduced Voynich to Mondragone padres", but first name is not mentioned. It could also be some other Strickland (there was several of them in England at the time of Voynich and at least one of them was a Jesuit). The secret promise of course could have covered some other facts than the location of the sale and persons involved, namely the conditions of the sale, it's legality, the bypassing of some legal procedures or even non-existence of the export permit by Italian government (the laws against artifact exports were strict then already). The secrecy of the sale was however already violated by the fact that there was also another bidder (or was he just invented?). Either way, after the location of the sale was publicly known, the sale at Mondragone entered the official provenance as well.

8) The sale of Marci's letter to foreign buyer. The letter was clearly addressed to Kircher (e.g. "My dear Athanasius" . . .) who was a Jesuit and the rest of Marci's letters was already the property of famous Museo Kircheriano that he himself started from his collections. It is obvious the letter should have been offered first for sale to the Museo and not to Voynich. Also, there is a serious doubt if the letter was treated during the sale as a separate item and was really approved for the sale by superiors of the Mondragone. It looks like it was glued inside the manuscript to suggest it is a part of the manuscript since it might otherwise complicate the whole sale. Voynich was apparently adamant to get it since he badly needed it for the VM provenance. The question is then if the letter was really inserted in the VM by Kircher or only later by Fr. Strickland, to make it inconspicuous. Strangely enough, all Marci letters were originally Kircher's property and all of them - except the one found with the VM - are still the part of Museo Kircheriano (where is also located the letter by Baresch).

9) The unclear conditions of the VM exporting from Italy As we said, all sales of artefacts to foreigners needed the approval by Italian government officials. That could have been the most difficult point of the sale, even for the letter alone. There are really no details about the transaction and if there were some discrepancies, they could cause trouble later, even to Voynich. In that case, the promise given by Voynich was actually designed to protect himself as well. Interestingly enough, his wife was also waiting till her death before she revealed his secret in her letter. Was she afraid she might be forced to return the VM or getting penalized as well? The VM was jointly, as per last will, inherited by both women, maybe to make them share the secret as well.

10) The disinterest of Societas Jesu (The Jesuit Society) in the loss of the document belonging to Museo Kircheriano. Apparently all worries were baseless since neither Italian Government, nor Societas Jesu or even Vatican ever bothered anybody nor claimed the return of the VM or the letter. Of course, in the case the VM was fraud, there was nothing to claim. Jesuits would also have difficulties to claim rightful ownership: the VM was already tagged as personal property of the Father Petrus Beckx, 22nd general of the Society of Jesus. The tagging itself was done apparently illegally on many documents to prevent their repossession by Italian government at the time of Risorgimento and they were also moved from Collegio Romano to Mondragone. Nothing is known also about the VM fate during the years of Society suppression by Vatican (1773 till 1814). Their hiding of the documents is understandable, but surely the documents were planned to be returned back after the danger was over. The situation was quite normal in 1912 when Pie X purchased many of the documents for Vatican.

The other option would be to for Mondragone padres to offer both directly for sale to Museo Kircheriano (or at least Marci's letter). Instead, they were the very same year sold to the outsider (and that may not be a coincidence). Last but not least, even Voynich himself should have (even later) offered Marci's letter for a sale to Museo Kircheriano, where the collection of other letters was. The bogus tagging operation might not have been known at Mondragone and in their eyes, they had a right to sell it, at least the VM. Of course Marci's letter is a different case: it contained the name "Athanasius" and it was well known who it belonged to. That must have became public knowledge when Voynich made a photostat of the letter and displayed it long time before his death. Societas Jesu apparently found no record of it anywhere, therefore no action was taken, or they might probably suspected even some fraud in which case it was better to do nothing at all.

11) The "miraculous" discovery of the hidden "signature" in the VM. At the beginning, Voynich had only his word to prove the VM is really the Prague manuscript. Marci's letter does not quote any details about the VM and details about the sale he promised to keep secret. There was clearly not enough proofs for a credible provenance. And then, the real "miracle" happened: the erased "signature" with the name Horczicky was resurrected by his people, fulfilling at the same time several desperately needed links with the Marci's letter and the VM at the same time:

- a) The name of Horczicky, a Prague nobleman, confirmed that the VM was once in Prague
- b) Horczicky was a rich courtier of Rudolph II, there we have a link to Rudolph
- c) It also provided the needed timing for the missing link between Dee with Emperor Rudolph and Baresch with Marci, followed by Kircher.

Horczicky fits therefore very nicely as a last owner before Baresch (Voynich knew about Baresch from Marci's letter, but apparently did not know his name).

While there was a motive, means and opportunity, this is not to say that it was Voynich himself who fabricated the "signature". It surely might have been there long time before, being later erased, even if we do not know by whom. By the same token, a joke might have been played on Voynich by his assistant. Such things are more common then we would expect: see similar joke played on toads of Paul Kammerer or even the joke played by Andreas Mueller on Kircher. Voynich however immediately considered "the signature" to be a dedication by Rudolph II, in spite of the fact it was in

wrong place and in wrong hand. He apparently never saw Horczicky signature. Two of them were discovered quite recently, see my article "THE NEW SIGNATURE OF HORCZICKY (and the comparison of them all)". What he should have noticed however was the grammatical error in the Latin declination - Jacobi is genitive, suggesting an ownership, and not dative. To suggest a dedication, a gift to somebody, one should use the term *Jacobo*.

Considering, that the "signature" is written in non-connected script and in rather modern font in unknown hand, we may exclude Rudolph as well as Horczicky and we may also put the origin of the "signature" at any date, even much later (see my articles "The Handwriting Analysis of Some Possible Authors of the VM" and "More about Dr. Raphael Mnishowsky"). It is also suspicious enough that no erasure was noticed before the "reappearance" of the "signature" and its traces cannot be clearly identified even now. The "signature" appearance of course has all marks of a fraud and the botched one as that. Was there ever any erasure? We are told about it in some detail only by Voynich alone, while there certainly must have been several witnesses as well. He might have had some hidden secrets, which he apparently time by time masked by misinformation. For instance, the story about the promise "to keep the secret" was only told to Ethel Voynich by her husband and we do not know if she really repeated it word by word to Miss. Nill. Was his "promise" real or just a red herring? It is quite doubtful that the Societas Jesu itself would ever ask for such promise - more likely it was the promise given to some conspirators or again, Voynich might have invented it for his own protection.

THE SOURCES OF MISINFORMATION

12) Mrs. Ethel Voynich and Miss Nill. Very little can be verified about those two ladies. While the release of additional information after Mrs. Voynich death was provided by Miss. Nill apparently for the benefit of the public, the info may be still incomplete, thanks to some controversial points there. It is also interesting that Voynich never sold the VM or even offered it for sale - maybe because it was impossible to verify its "provenance", maybe for some other reasons. For instance, he could never sell the fraudulent or illegally obtained document - his integrity would be surely at stake. Unusual is also the fact that after his death, both ladies became - by his will - joint owners of the VM. Were there supposed to be bound together to keep a common secret? In that case, both Mrs. Voynich and Miss. Nill broke the promise Voynich originally gave and by telling them, even Voynich actually brought his promise :-). Miss Nill of course might have only been pretending she did not know the secret, at least before 1960. It is quite possible that she not only knew it but that she also gave that information to de Ricci in 1937 (In De Ricci catalogue MS 8 is thought to be the VM and De Ricci's census also mentions Anne M. Nill's help - 23 years before Ethel's death!). After all, we have no record about the VM before De Ricci in the whole Italy or elsewhere. As for the sale of the VM to H.P. Kraus, he was Miss. Nill employer at that time and he tried for several years afterwards to sell the VM, but could not. And so the VM ended as a gift to Yale University.

13) Prof. William Romaine Newbold. He carried the rumor in Marci's letter to the extreme and wrote a book (1921) where he "confirmed" that the VM author was really Roger Bacon. He also claimed he broke the VM code and assigned to Bacon some extraordinary discoveries. For some time, he was celebrated, in spite of the fact he never disclosed his method and nobody could double check it. The first researcher who did it was J.P. Manly and his judgement was deadly: he said Newbold was totally wrong. There is one minor point related to the provenance: Newbold claimed that Voynich told him (1928, two years before his death!) that he found the VM in some Austrian castle. If that is true, then he would have a hard time to explain how the VM got there from Italy (i.e. from Kircher) and why the secret Mondragone cover up was necessary. On the other hand, Bohemia was in 1912 still a part of Austrian Empire so that was probably another misinformation, maybe to put Newbold off the scent. Or did Newbold invented it himself as another cover up? I doubt it, it is more likely he was already a victim of another rumor, the one in Marci's letter. The whole mysterious atmosphere around the provenance could have been of course just a sale pitch by Voynich who may have originally wanted to sell the VM. But he actually did not try too hard to sell it anyway, so there must have been some other reason for such misinformation.

14) The manuscript itself. Almost every VM researcher noticed the controversies in the VM. First, the manuscript does not yield to the usual investigation. Not only due to the fact it has unknown author, unknown script and unknown language, but also that some findings are either coincidental, circumstantial, ambiguous or even controversial. As one of researchers said: every new discovery brings at least two new problems. The mysterious points are everywhere: the numbering of folios, the elegant, experienced handwriting of the script and yet quite amateurish pictures. The text that does not fit any plain language and yet impossible to decipher, even by famous experts. Enigmatic pictures of naked ladies and weird "plumbing" are reminding more anatomical sections of human body or anything else. Astronomical/astrological circles with some, but definitely not all, features of horoscopes, sky maps or what else are still waiting to be solved. No wonder that some researchers considered the VM to be a purposeful fraud and some even came with quite nonsensical theory of "encoded gibberish". Needless to say, after almost hundred years, we are still at the very beginning: every method stopped either before any serious results were achieved or - that is much worse - was carried on into senseless mystifications.

15) The "erasure" of the "signature". As we already mentioned, the erasure itself cannot be properly scrutinized, since the area is covered up by chemical damage caused by Voynich's or even older "treatment". Again, his story is only vague and it is commonly assumed that somebody used the wrong chemicals and/or ultraviolet light and the "signature" then suddenly appeared. In Voynich's own admission, it was like this: the photostat (he was using apparently some other technology than photography) paper was accidentally underdeveloped and the mysterious letters became visible. Further developing of course made them to disappear again. Somehow it did not satisfy Voynich people and they used some extra chemical, applied directly to the folio. The idea about the visibility under ultraviolet light was used of course later. The application of chemicals to the original was highly unprofessional (there might have even be even *several* applications and

experiments) and what's more, probably was not even necessary. The chemical damage apparently still continues today - see my article quoted above.

16) The rumor about Rudolph II and Dee. The rumor quoted in Marci's letter definitely originated in Prague and is based on third-hand information by Missowsky. Who was the originator is hard to tell, but it could not be Dee, since he apparently did not sell the VM to Rudolph after all and even his participation in the VM history is rather doubtful. Dee is not even mentioned in Marci's letter. True, he collected manuscripts in English monasteries and true, he was once personally visiting Rudolph while he was in Prague. But as he himself wrote in his diaries, his visit was unsuccessful and the only book he talks in connection with the visit was his own, *The Hieroglyphic Monad* - and Rudolph admitted to him that he did not quite understand it anyway. Still, unless the letter by Marci is forged, the rumor would provide two important links in already doubtful provenance of the VM. Needless to say, the rumor prevails even today and is repeated over and over, so it is already considered by some almost as an irrefutable fact.

17) The rumor about Bacon. While also present in Marci's letter, the rumor might really come from some foreigner and if true, it would be quite valuable: it points to the possible author of the VM. It is however rather dubious why would he encoded it - even if Roger Bacon should enciphered the text, the pictures would reveal their dangerous connection with esoteric and magic connection. We know that Franciscan monk Bacon was many times disciplined for his writings so it would be rather foolish for him to expose his work to unnecessary risk that way. The script, style and pictures are of course not resembling Bacon's style at all. It is also dubious if Dee - the inseparable part of Voynich's rumor - would sell such valuable English document (probably the most valuable of all other manuscripts he owned) to foreigner and what's more to the "papist" Rudolph. Interesting point however is this: Guiseppe Strickland, whose father was the Englishman, wrote one article about Boniface of Savoy, the Archbishop of Canterbury and the contemporary of Roger Bacon - so he was apparently an expert on that period of history and Bacon as well. So Guiseppe could not overlook Bacon's name in Marci's letter, if he ever saw it and he surely had the opportunity for many years in Mondragone. Therefore, if the VM was by Roger Bacon, he should have known it would have been the real treasure for Jesuits or even for Vatican !

18) And then came Horczicky . . . There is no other connection between Horczicky and the VM except for the "signature" with his name in the VM. We know it is his name: the title Tepenec was given only to him and was not transferrable to his children. And while the Castle Tepenec existed for two hundred years before he got his nobilitatio, it was in ruins already at that time, not being ever used as a title for any other person. Horczicky apparently picked it for that special reason. We already mentioned the "signature" was not in his hand and its font cannot be identified with any particular epoch either (see my article "The Handwriting Analysis of Some Possible Authors of the VM"). It however provided the missing link (see point 11) for the official provenance. As an author, Horczicky is out of the scope (he was not skilled in cryptography and even for the pamphlet he wrote once he needed the assistance of some educated Jesuits). Of course, as an owner, he was rich enough to buy the manuscript from Dee directly. Yes, he was rich enough that he actually lent money to Rudolph himself. Still, Voynich insisted the VM was donated to him by Rudolph II, for some obscure reason. It could have been a retainer for the loan or even the pay out after Rudolph's death. But we know that Horczicky already got from Rudolph the Melnik Castle, which he kept before only as a collateral and the VM cost was of course much less in comparison. If the VM was ever owned by Horczicky, it was apparently after Horczicky's death when it was bought - or any other way obtained - by Baresch. On the other hand, Horczicky's house was ransacked by mob when he was expelled after the uprising. Has he still had it after he returned from exile? His library and the most of his worldly possessions went after his death to Societas Jesu in Prague, but they have no record about the VM either. Needless to say the role of Horczicky in the provenance would be only the passive one, i.e. only as an owner and collector of books. The "signature" was considered by many as his exlibris, however it has no accompanying logo and date, while other books owned by Horczicky have it. If it is genuine, it was not in his handwriting and was most likely written in by some archiver. Also, it was erased by somebody who had good reason to hide that Horczicky was once the owner.

19) Modern, unsupported stories and books. Voynich provenance lead to many misunderstandings, theories and fantasies that were - and many still are - accepted as amazing insights or even visions. It is understandable that researchers had to use some inspiration to bridge the gaps, but too many speculations were taken as verifiable facts, especially those connected with the pictures in the VM. Some illusions keep popping up over and over. For instance, none of the plants was ever identified "as a whole" to be from this planet. Still, this will not deter even the botanists from the claim that those are the pictures of some known herbs or plants. But herbal is mainly used for identifying *real* plants so their pictures must be accurate and have every necessary detail for identification (compare with Mathioli's herbal from 16th century). No such care was taken in the VM: the pictures look like being a collage from different parts of different plants, some even defying the biology as we know it. Another example: the linguists are trying to prove that the VM is written in plain, natural language - in spite of the fact that they cannot come up with any such language, its vocabulary, more or less consistent grammar and they cannot even agree on the alphabet alone.

The recently published books are either compilations of already known facts or the literature resembling "Da Vinci Code" by Dan Brown: they are very exciting reading and they also pretend they are based on facts. In reality, they are nothing more than rather exotic ideas, serving more to enhance inspiration than to provide any serious provenance.

Is the VM real thing? It depends: even in the Middle Ages there were many shops manufacturing bogus manuscripts, the monks writing them as fast as they could. But they always made them inconspicuous, looking very real and also quite readable. The VM apparently did not pretend anything of that and it is obscure from the beginning to the very end. Apparently it was made for some special purpose, most likely not to be sold at all. Also, in medieval times, the

manuscripts were very expensive commodity and nobody would go to such tedious work unless he had already a certain sale in mind, especially of the manuscript nobody can read. As for Voynich manufacturing the bogus manuscript, I doubt it very much. Would he go through all the hard and time consuming work and then keep it without selling it? What would he wanted to prove? On the other hand, those two Jesuit brothers could have made it as a prank, but I do not see any particular reason either. Voynich of course might have discovered something they did and suspected them till the end of his life. For the same reason, he might have never told the whole truth, not even to Ethel. Would that be the real reason for his secret promise?

I do not think we may ever find the complete provenance based on facts and facts only. There is of course the other way around. Fortunately, we can try to decode the VM, both the text and pictures, irregardless what the contemporary provenance says. By doing that we may discover more facts, but apparently the hardest task is still in front of us.

References:

"The New Signature of Horczicky (and the comparison of them all), by Jan B. Hurych."

"The Handwriting Analysis of Some Possible Authors of the VM", by Jan B. Hurych

"More About Dr. Raphael Mnishowsky", by Jan B. Hurych

The references are located at: <http://hurontaria.baf.cz/CVM/> or at the mirror <http://voynichcentral.com/users/hurych/>

Note: I would like to thank the following researchers whose observations I used here: to John Reynolds, Dana Scott, Berj N. Ensanian and Xavier Ceccaldi (from his page at <http://www.geocities.com/voyms/>)

[Save this page](#) [Print this page](#)



A17. HOW MANY "HANDS" WROTE THE VM?

(The preliminary study to enable the further psychological profile of the VM author)
Jan. B. Hurych

Before we can undertake our task, i.e. the graphological analysis of the psychological profile of the author of the VM script, we have to first check the "2 or more hands versus 2 languages" theory by Captain Prescott H. Currier. The existence of more "hands" would have of course a serious impact on our study.

On 30 November, 1976, a one-day seminar entitled "New Research on the Voynich Manuscript" was held in Washington, DC Metropolitan area. Two detailed presentations by Captain Prescott H. Currier provided high points of that occasion. In them, and in the supporting paper printed as Appendix A of the Proceedings, he set forth his theory that there were several different scribes involved in the production of the Voynich Manuscript, and that their individuality was attested not only by characteristic "hands", reliably distinguishable by eye, but also by statistically distinct "languages".

I will start here with his document "Papers on the Voynich Manuscript", privately circulated typewritten manuscript, dated 30 November 1976, Washington, D.C., as it was edited by M. E. D'Imperio, who served as moderator at the seminar. Jacques Guy and Jim Reeds transcribed Currier's work into its present form in January 1992 and René Zandbergen presets it in HTML version on his site. It is basically Capt. Currier's presentation "Some Important New Statistical Findings" and some of his answers during the Q&A period at the above seminar.

Not only Currier claims that several "hands" but also two "languages" appear in the VM. He says "The reason they are important . . . if the manuscript were to be considered a hoax ...it's much more difficult to explain this if you consider that there was more than one individual involved". He also says that "These findings also make it seem much less likely that the manuscript itself is meaningless".

His first conclusion is of course easily refutable: many hoaxes and frauds were performed by a group of conspirators, not just by one individual. As for his term "language", it is rather vague as he himself admits and his proofs are mainly statistical comparisons of several parts of the VM "texts". The evaluations not being true linguistic, we can of course hardly talk about "languages", i.e. the VM still can be textually meaningless.

He claims he discovered that first 25 folios in **herbal section** are written in one "hand" (A) while the rest in herbal section (another 25 or so) is in "hand " B and also in different "language", by which he means they are statistically "distinct", i.e. significantly different. Here is the summary for the whole VM *as per Currier/d'Imperio record*. the pages are numbered by him, but as René Zandbergen comments: "The page numbers appearing in Currier's Table are inconsistent with the Petersen page numbers". Also, assignment of folios to the pages may be somehow problematic.

- **The Herbal Section** (pp 1 to 112) see above
- **The Mixed Section** (pp 113 to 132) no info
- **The Astrological Section** (pp 133-146) there seem to be no significant difference in the writing on any of the folios there. The "language" throughout is mostly A but without some of the more pronounced 'A' features found in Herbal 'A' "language".
- **The Biological Section** (pp 147-166) appears to be the work of a single scribe, all in "language" B. This could conceivably be the result of this section being the product of only one person.
- **The Pharmaceutical Section** (pp 167-211, pp 167-173 and two folios (pp 193-198) in the mid-portion of the section are in "language" B; the remaining folios are in "language" A. An interesting point here is the fact that there seemed to be more than the expected two "hands," one for each "language" as in the Herbal Section. In sum, he would venture a guess that there are at least three and perhaps as many as five or six different hands in evidence in this section. On the other hand it may all be an illusion (said by himself) .
- **The Recipe Section** (pp 212-234) contains only one folio on which the writing differs noticeably from that on the other folios. The "language" throughout the Section is 'modified B' (i.e., con-tain certain 'A' characteristics).

Note: Capt. Currier later changed his estimated number of "hands". Also, some VM Internet pages provide slightly different or incomplete list of affected folios, but as I will demonstrate later, we will not need to worry by that problem.

So far Currier, but one preliminary observation is already ringing the bell of doubts: he mentions *2 up to 8* "hands", but he found only *two* different "languages" in the VM. First we drop the "modified hand B", which is apparently some compromise - we have to realize that, in graphological sense, we cannot have a "partial" mixture (it must be either the hand of one person or the other :-). After that, we still have, as stated by Zandbergen, hands 1, 2, 3, 4 and X (hands A and B were apparently renumbered to '1' and '2' to agree with numbering of those two "languages").

Currier bluntly refused to accept any other possibilities. Still, there are many reasons why single person's handwriting would change in time (age, sickness - physical or mental -, injury, influence of some medicinal drugs or even alcohol) and it may even change back and fore again (in the case of alcoholic intoxication). The probability of the change increases for long writings that took a lot of time, as it was with the VM. There are also

mechanical reasons that distorts the handwriting: the sharpness of pen, thickness of ink and coarseness of the vellum surface, we have to consider all that as well. Of course, statistical changes in the text are real, but they may show only some coincidence - say the writer wrote some sections with different content when he was older and his handwriting slightly changed as well. The change of the content may also have some other, completely different reasons - say different sections with different subjects require different vocabulary and . Also, if text was coded, the second, different cipher can make the whole difference in statistics. Therefore the considering of connection "different hand = different brain" is especially illogical in the case the different scribes, since Currier claims that the VM was just copied. Why would different scribes need also different authors?

For above reasons, Capt. Currier's classification is rather unfortunate: instead of "hand" we should use more accurate word "handwriting" to account for the possibility that the "hand" could be the one of the author or the one of the scribe (or copyist), since we do not know the real case. Also, instead of "language" we should say rather "content" meaning of course the general variance in data and not any specific dialect (or even language). This would also cover for possible encoding. We kept here Currier's classification, but we will put the words "hand" and "language" always in quotation marks, to stress their true meaning is different.

Also, his claim that all five scribes would participate on one document does not explain why they all used only two "languages". That would indicate we should break the connection between "hands" and "languages" completely and treat them separately. Furthermore, provided that the distinction of "hands" was only visual, such observation had very little to do with the content itself. I took a look at the graphological proofs submitted by Currier and I actually found only the pictures shown at <http://www.voynich.nu/writing.html>, which I presume were provided by himself (or at least quote exactly the folios that show different "hands"). When one expert objected to Currier's classification, his opinion was discarded by Currier rather quickly: "It's curious to me that a calligraphic or paleographic expert in one of the writings I have seen says that the writing is consistent throughout, and is obviously the work of one man. Well, it obviously isn't, and I don't see how anyone who had any training could make any such statement, but there it is!" Provided that Currier meant by "writing" really the handwriting, we should be aware that Currier himself actually admitted he had no training in that area. It seems to me that his "hands" are mainly supported by the statistics he did of the text content of different folios. That was logical, since it admits he observed first the difference in writing and the statistics was done later, to prove they are different. Unfortunately, this kind of the "proofs" had nothing to do with handwritings. **Note:** He was also slightly inaccurate in his statement: the *calligrapher* is the expert in the field of different scripts, mostly artistic style, while *paleographer* is the expert in different historical scripts and neither is the expert in *personal handwritings*. The expert closest to this task would be a *Forensic Analyst of Handwriting* We will use here the term "graphology", well aware they are two kinds: the scientific category, i.e. one handwriting comparing the specifics of two handwritings and the other "graphology", trying to create the writer's personal psychological profile. We will try to continue in that direction in the next article.

Of course, the "hands" should be always treated separately (especially since some may not belong to authors but only to the scribes). Besides, there should be enough of purely graphological proofs if Currier observations were correct. Handwriting itself should be really a clear giveaway, since the "hand" is greatly affected by the long time habits of the person that does actual writing. He cannot change them so easily and if faking another handwriting, pretty soon will unconsciously return to his own habits. On the other hand, the content is strongly affected by the author, i.e. his intentions, style, form and vocabulary (and the possible encoding as well). He can of course change all that at will if he wants to, without changing his handwriting.

It is also interesting to clarify here Capt. Currier's attitude by quoting his statements from the Q&A section of the above article:

Currier: "I can prove four ("hands", j.h.) beyond a shadow of a doubt. I'm not a paleographer; I wouldn't stand up in court and try to defend this against a paleographer. But I'm positive, particularly in the Herbal Section. I imagine it to have happened something like this: some sixty-five folios were prepared ahead of time with drawings on them. They were placed on a table so. The first twenty-five folios were taken, one at a time, off the top and filled in with writing by one individual. At the end of those twenty-five, he got very tired and he called for help. Another man sat down opposite him at the same table. And they took them off, one at a time: one man took one off and did his thing, in his own "language," while the other man did his thing with another in his "language." And they went through the second stack and interleaved them; one man did it one way and the other did it the other way. When they were done, they had the Herbal Section! "

Question: *What about the fact that there were no erasures? That makes it look like a copying job.*

Currier: It must be a copying job. But how do two people copying from a single source produce material in two different "languages" simultaneously? I can just see them sitting there! I'm absolutely positive this is the way it was done. The folios were prepared in advance by someone else with the drawings on them. Sometimes the writing overlaps the drawings somewhat. The pictures of the Herbal Section look as if they were drawn by a single individual, but this I couldn't prove. The writing on folios 1 to 25 was done by one man. On folios 25 to 65, it was done by two men, one who worked a little faster (the man who did the first batch did more of the second batch; he was more experienced).

Question: *When a new hand takes over, do you see variations in the mode of writing the symbols?*

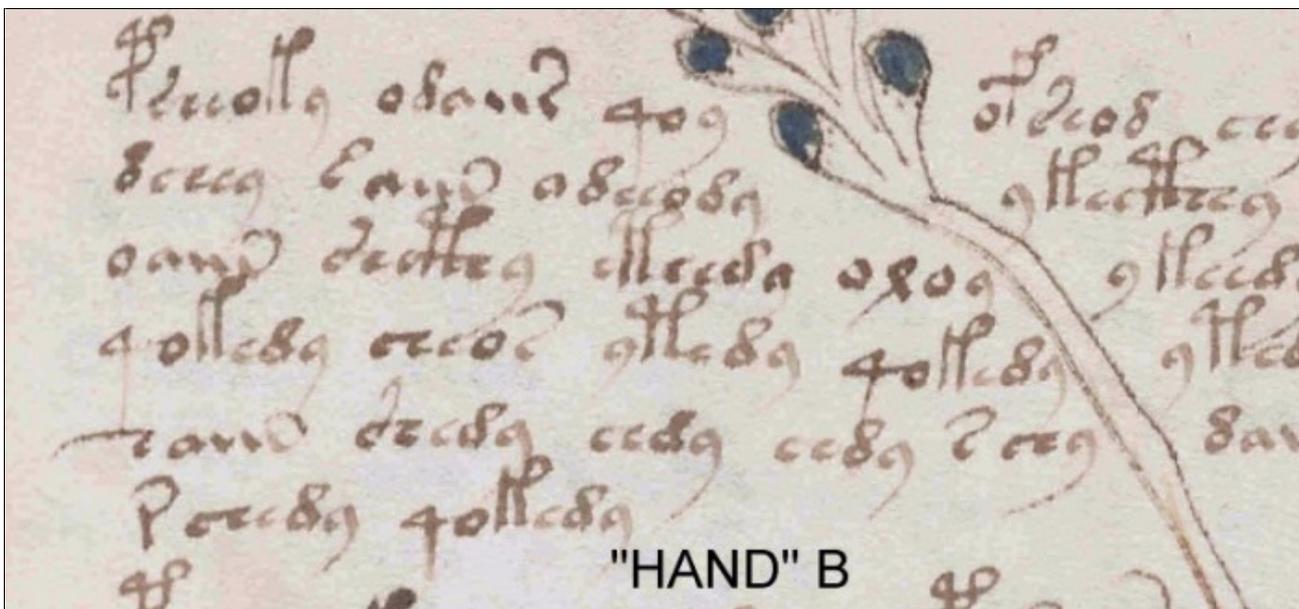
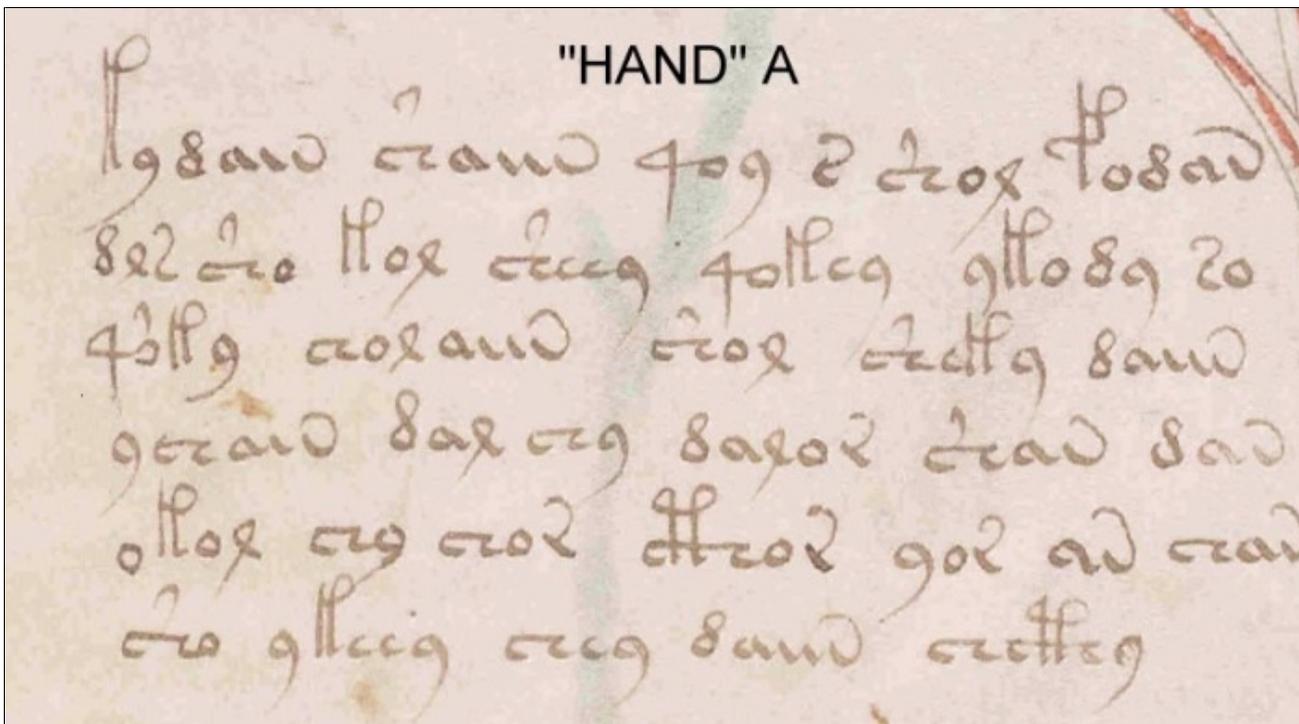
Currier: Yes, but it's the overall impression of the writing. In general, for example, in "Herbal A," the writing is upright, rounded, lines are well-spaced, it looks clean, clear, with no extraneous material. "Herbal B," in contrast, is uphill, slanted cramped writing. It's obvious to me. The first thing I noted looking at the manuscript as a whole was this difference in the writing in the Herbal Section, before I had taken a single count. I separated the pages by sight first, then took a ten-page sample in each of the two separate writings, and made separate counts. It stared me in the face — there it was: all my selections were correct. It was a sufficiently controlled procedure to make me think these conclusions are valid. Anyone can see it — just lay the pages out and look. I can't prove the pages are in the right order, but I just feel that they are. In the Astrological Section, the signs of the zodiac are in the right order.

Comment (j.h.): Currier must have been talking about some other singular folios, since in the samples on the page (the link above) it does not agree: as we can see below, it is the "hand" A that goes in his sample uphill, while "hand" B goes downhill and is not cramped. Those are the folios Currier meant , so to avoid confusion, we will use the very same samples for our investigation (samples marked by black line, They are the same as in the picture quoted, but little bit wider selection to be able to match the same words).



Another, additional research was done by Mary D'Imperio in "An Application of Cluster Analysis and Multiple Scaling to the Question of "Hands" and "Languages" in the Voynich Manuscript". She was only concerned with his statistics and used *the cluster analysis*. Her conclusion is that there are really two different "languages". To speak more accurately, there are only two different statistics, which is of course far from true language differences, that is the grammar and vocabulary evaluation. Also in her book "*The Voynich Manuscript - an Elegant Enigma*" there are only few sentences about it and again, no details about the "hands" are provided, she accepted Currier's theories without question. However, she mentions four more, unpublished articles by Currier which I had no opportunity to study. Interesting is her comment that Currier gave his computer experts the carefully prepared samples and wanted them to do only specific tasks. That was of course for content analysis only and I have a feeling that *true graphological analysis* is still long time overdue.

So here we have it: Currier used only his eye to distinguish those two or more handwritings. Let's see, what we can find if we use the professional criteria of the forensic analysis. Since his listing is using the questionable numbering by pages, i.e not the folios, we did not want to use folio nos, provided by Zandbergen since the cross-reference is still incomplete. So we did one step better, we used for our study the very same folios from the composite picture there. We consider that the picture is listing the folios that Currier had in mind since they belong to the ranges he specified. Further more, the "sub-languages" vary very little so we will disregard them at the beginning and will do first the analysis only first two, that is the "hand A" and "hand B" because there is the difference most pronounced and visible. Of course we use the largest, high quality scans made by Beinecke (see below) since the difference between Currier's pictures could be caused by different contrast or exposure and we want to be sure what Currier actually saw in original folios. They first areas we studied are displayed below and we can already see there more details and clearer pictures



Since the "hands" A and B are per Currier the most different, we will concentrate on those only. In our enlarged pictures, we can see what apparently raised Currier's curiosity: the script looks different, but we can already see the major reason: the pen was dull (or worn) and the ink on second sample is apparently different color (and consistency), it soaked in and run more. Also, the second picture by Currier looks much darker than in Beinecke scan, which suggest the vellum had coarser surface. Those differences of course have nothing to do with particular "hand" so we will ignore them and concentrate on real handwriting analysis instead. Now let's first state the graphological criteria we used for our comparison:

- 1) **Slant** - is a very typical criterion for individuality, usually kept same for the whole text. However, it may change slightly if the basic line bends, so the angle should be measured from the baseline. For statistical purposes, higher number of measurements should be taken. There is slightly different angel for upstrokes and downstrokes, so only upstrokes are measured for each sample. We draw line through each letter and approximate the upstroke as a straight line. After measuring it for each of consecutive 100 letters, we register the angles in different groups (say 90, 80, 70 degs etc.). The group with highest count is the representative *slant angle* (sometime called *graphotype*).
- 2) **Pressure** - in our case the thickness of the line will be affected beside the hand pressure also by the sharpness of the pen, the consistency of the ink and the roughness of the vellum. It may indicate not only the stress of the person, but also the illness, injury, and not in the last instance the skill in writing or a "light" or "heavy" hand. The gradation is difficult to measure, but here we only compare the two different writings.
- 3) **Neat versus sloppy** - this is also difficult to measure, one can only roughly compare and judge. Also, the the health of the writer, the pen

condition and the speed of writing may change the appearance of the writing very much. The grading of legibility often helps the evaluation. All in all, the personal traits will show here as well. For the same person, the neatness of his writing looks different if he copies something instead of writing down his own ideas. The writing of copyists are usually much neater, since there is a minimal mental involvement which may otherwise disturb the writer.

4) Rhythm - we judge if the writing "flows" easily or with interruptions, and there may be various reasons. Also, different persons react differently in otherwise similar conditions.

5) Margins and spaces - meaning spaces between letters, words and lines. It may show personal preferences or habit or it may be even given by available space on the page. Also, professional scribe has much more consistent spacing. Here we have an advantage of direct comparison of two writings.

6) Changes in handwriting - for the same person. Only rarely we can see those changes on a single page. We would have to compare many folios but that would be hindered by the fact that what we may consider the "changes" could be actually some other "hand". My decision therefore was leave this for the profiling in another article. Interestingly enough, the slant usually does not change with the persons's age.

7) Line droop - it can be caused by many factors, but it may be really specific to each person. It is a very good criterion but as we can see, when it happens very often and irregularly, sometimes up or down, we do not have a clear judgement. It is difficult to find what is specific droop for one particular person. Actually, the lines are seldom horizontal, and they swing very often according to space left after the pictures were drawn. Also, no helpful horizontal lines were drawn, as it was usually done in medieval manuscripts.

8) Graphozones - i.e. middle area of the letter, upper loops and lower loops. The dimensions may be effected when samples have different magnification ratio, but fortunately, the relative ratios of each character would not change. The ratios are very individual for each person, it is a very good criterion.

9) Stroke change - the angle may change towards the end of the word of a line. For writing left to right the slant may be progressively more perpendicular or otherwise. Here we could also spot the left-handedness, but in overall trend rather than in individual strokes. The backstrokes are also the individuality traits, as well as braking the character into single strokes, changes of their directions or a specific curvature, they all are important handwriting characteristics for a particular person.

10) Shakiness - may not necessarily come with old age, it could be an illness, both physical or mental, sometime it is however so small shakiness we can see it only when magnified or at close examination and therefore disregard.

11) Capital letters - for the VM, they are only four "higher" symbols, sometimes called "gallows" and they are generally considered as having some special function (which is not that of capital letters]. While we can use them for comparison, there would be some other criteria than those for lower case letters. Some researchers consider more complex lower case symbols as capital letters, not necessarily written with extra heights. Well, author did not bother with dots or commas, why would he bother with capital letters (especially if the text was coded)?

12) Upper loops - there are some specifics for the VM, but here we will do just simple comparison.

13) Lower loops - since there is no other example of the true VM script in existence, we do not know if the proper strokes are (say) round, elliptical, straight and what is the right connection between segments in the symbol, etc. Again, we may compare only the same symbols and search for their peculiarities.

14) Shading - it is believed that the text was written by quill that was cut the usual way (that is cut sharp and with vertical cut in the middle so the ink would run better. The shading can be done only on downstrokes or partial downstrokes. The thickness, start and termination of strokes are all good comparison criteria.

15) Individual characters - may vary from person to person - it is a very complex area and may be also sometimes very misleading. We did only some characters but the results were very convincing.

16) Covering of the page - crowdedness, fullness, also letter size changes, etc.

17) Others - color, ink, pen, etc.

We did the comparison of the whole folios marked on the sectors shown above) and the results are arranged in following table:

Criteria	A	B
Slant	right angle	close to right angle, within one hand range
Pressure	normal	higher, see comments below
Neatness.	neat	less neat but not drastically
Rhythm	normal	little faster
Margins and spaces	vary irregularly	vary irregularly
Changes	minor n the same folio	minor n the same folio
Line droop	variable, irregular	variable, irregular
Graphozones	same value	same value, very close
Stroke changes	minor	minor
Shakiness	no	very little
Capital letters	N/A	N/A

Upper loops	same kind	close
Lower loops	same kind	close
Shading	consistent	consistent
Characters	see below	see below
Others	N/A	N/A

Comments to this table:

1) Slant - the difference is very small, if any, it is not really the different angle to the baseline which also swings, but rather toward the horizontal line which is not proper evaluation. In general, both scripts are almost perpendicular (as was apparently designed by the inventor of the script). The line droop is generally different at the ends of the lines, but not consistently: sometimes line goes up, sometimes down. No helping lines were drawn by scribe.

2) Pressure - "Hand" B shows higher pressure on the pen, but it was needed in the case of the dull pen and rougher vellum. Also the density of the ink may play the role. As much as it is apparent, there is not enough indications to claim that higher pressure is related to the person only.

3) Neat versus sloppy - The sample B handwriting is not so neat as the sample A. But considering that sample A (folio 2) was at the very beginning of writing, the original care to put the text very neatly was probably lost when writing of the folio 26 :-).

4) Rhythm(or the text flow) - it looks the writing B is flowing more easy or without longer pausing which was apparently necessary for sample A since it was written with more care. It may also show the increasing skill in handling the originally not so familiar script and writing quicker.

5) Margins and spaces - In general the width of spaces vary substantially, but for both "hands" to the same degree, well within the same handwriting range. Margins are apparently different, since no measurements from folio to folio were done by author nor any template or guiding lines were used (as it was usually a habit already in medieval times).

6) Changes in handwriting format - within a line almost none, within the page, yes, but very small in both cases. The line droop is generally larger at the end of the line, but not consistent: by sometimes line goes up, sometimes down.

8) Graphozones - for middle area as well as upper loops and lower loops of characters we see pretty consistent ratios in both cases, see below.

9) Stroke change - if we measure angle only to the approximated base line (or rather curve) under each character separately, the changes are within the normal range, in both samples.

10) Shakiness - none for sample one, very little for sample 2, it may be again due to dull pen and coarse vellum or even something else. It is the shakiness of the base line which is more pronounce, letters do not seem to be shaky.

11) Capital letters - We cannot consider higher characters to be capital letters, there are only four. For high loops see below.

12) Upper loops - ratios basically consistent and similar in both cases

13) Lower loops - again, ratios similar and as for shapes, see pictures below. This evaluation shows quite consistent brakes in the characters, their number and directions are same for both samples. This is the most important characteristic, being totally individual.

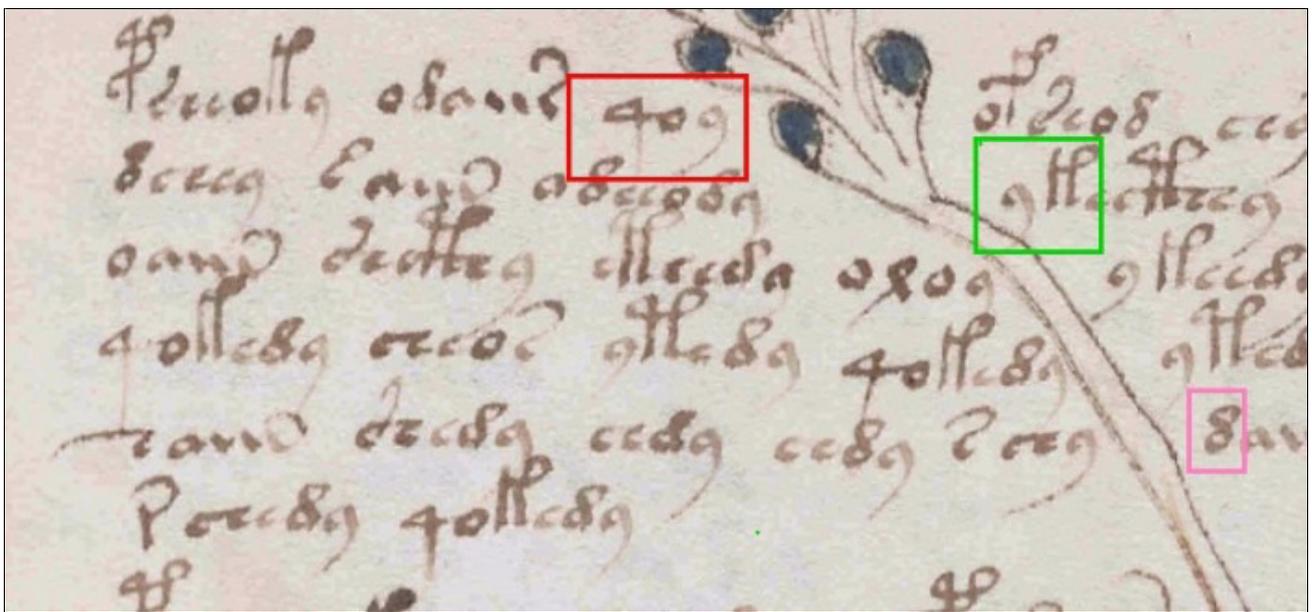
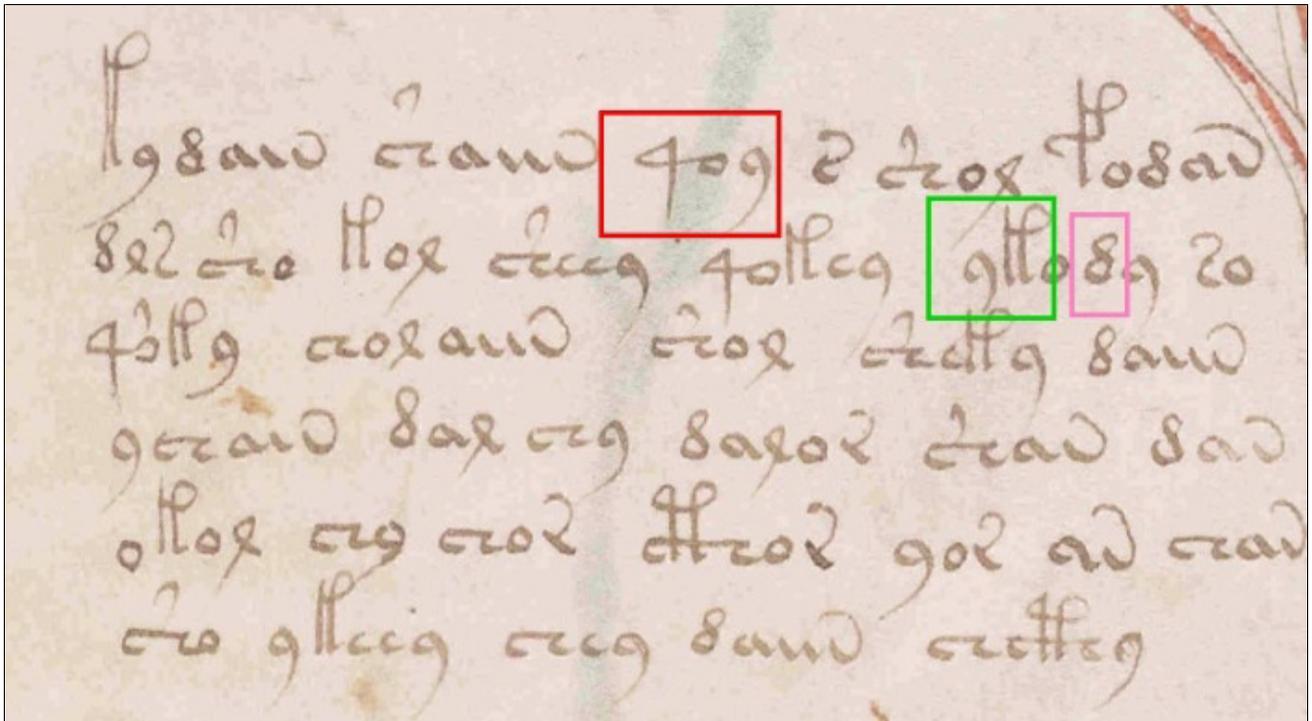
14) Shading - practically same, the shading is generally done by turning the pen downwards and applying more pressure. Of course most of it is enabled by the fact the quill had a slot in the middle, for better run of the ink. Also, the point was never really the point, but more like a very narrow chisel and hardness of both tips wears out with prolonged use.

15) Individual characters - this is what especially distinguishes one person from another, however we have here apparently a rather new script, probably not so automatic even for the writer. We cannot be sure for instance if the curves supposed to be circular or elliptical, neither we know what the true ratios should be. Nevertheless, when comparing those two samples, both are pretty consistent in most of the characters. There are several copies on the Net by several researchers done by their own hands, but all are almost immediately recognizable as copies (mine included :-). Nothing like that can be told about original "hands" in the VM.

16) Covering of the page space - varies in both cases. The additional crowdedness happens also in both samples (actually it is worse in sample A:-), but is apparently random and mostly was even "forced" on the writer in order to squeeze the text there. For comparison, we have to almost ignore it, since it does not look as typical trait of the particular "hand". There we can also see for the "hand" A the text writing running "uphill" why on other samples of the same "hand" A it runs down. In many cases, we can see the writer tried to follow the picture line (again, the proof the picture was there first, even if there are several exceptions). One only has to wonder, why had to be text separated by pictures instead of being written under them - that would of course require more vellum.

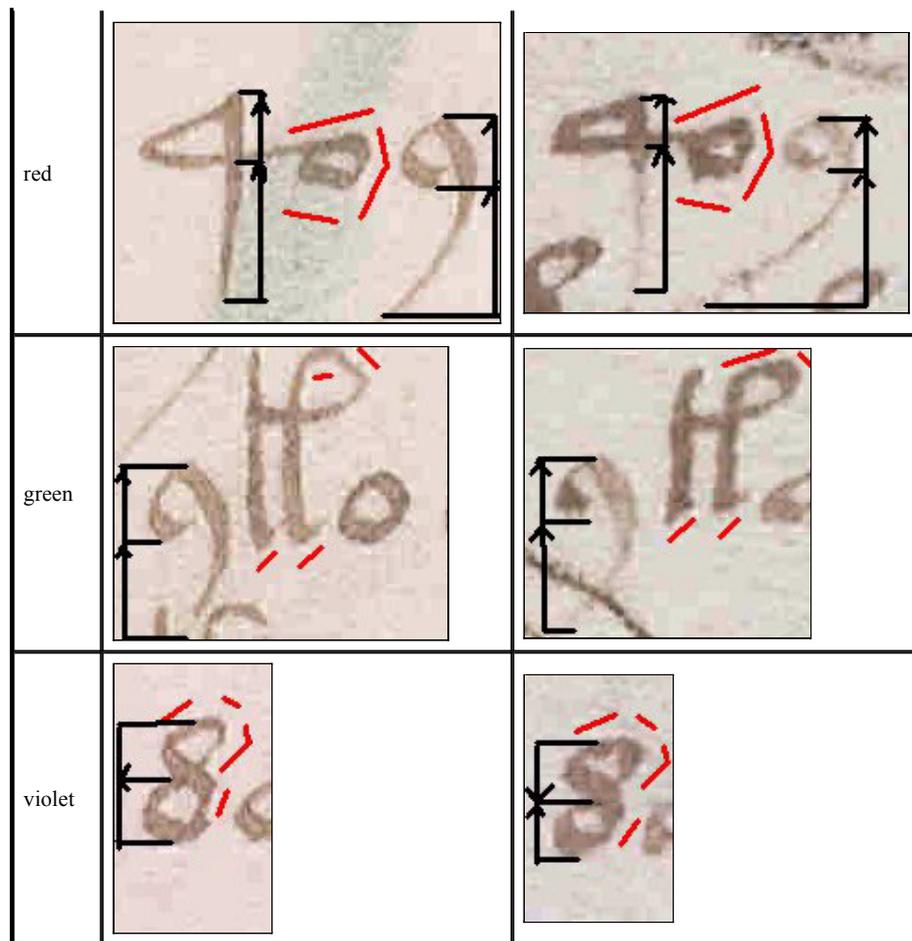
17) Others (color, ink, pen, etc.) may be different for different folio, but they are not specific for different hand. During the writing, each writer had to change often not only vellum, but also the pen due to wearing out. As for ink, that maybe running out too, however not that often.

As we can see from the table, not a single factor show a clear difference in the "hands". The most critical for the judgement are of course individual characters (symbols or letters, if you will). For that, we selected several areas within the samples that have similar "words", here we show them in corresponding colored frames.



The detail pictures within the frames are arranged in the matrix form, for better comparison. In general, we were looking for the specifics, e.g. dimensions and their ratios, segments in letters and their direction, etc. We marked here only some dimensions (in black) and some segments with their direction changes (in red). Of course the more detailed study was done on more samples, but for the illustration, we show here the typical ones.

Sample	"hand" A	"hand" B



As the comparison shows, that ratios of the dimensions (in black) are very close for both "hands", well within the one hand range. Even if the magnification of each sample was originally maybe slightly different, the ratios (say upper part to lower part) will stay the same for each sample. Also, the typical segments (in red) are seen in both the "hand" A and "hand" B. As for thickness and coarseness of the letters, those are not the attributes of the handwriting only, but rather those of pen, ink and vellum (notice that for the sample B the vellum was of darker color and therefore coarser). While both "hands" looks visibly different, the idea that somebody would succeed in simulation of the first hand so closely as we can see in above table is rather remote.

Also, we have to stress here that the Beinecke magnification shows the letters much larger than they are in reality, so differences shown cannot be normally seen that well in the VM by naked eye only. Still, the differences are amazingly small, contrary to those Capt. Currier's say saw with his eyes. They still may exist, but we do not know exactly where to look for them.

CONCLUSION: We are convinced that the "hands" A and B are the same, as well as the other "sub-hands". The differences observed simply do not justify the claim they belong to different persons. I did not consider any further research in the Capt. Currier's controversial theory necessary since it would not have any special use for our purpose. The differences simply do not extend the range of variations for one person's handwriting. Apparently we have now to wait for those, who still believe in many "hands" to provide true graphological proofs to the contrary.

As for different "languages" or "content" or "style" for different folios, that was of course to be logically expected and applies even for one hand only since it was something which the writer had under his full control and that is completely different area of research.



A18. THE HANDWRITING ANALYSIS OF SOME POSSIBLE AUTHORS OF THE VM.

Jan. B. Hurych

In our search for the VM author, we already concluded that different handwritings in the VM are clearly within the range of one person's handwriting, the existing variations being caused by personal changes (age, health, mood, environment) as well as the mechanical factors (different or worn pen, different ink, coarseness of vellum). If the VM was written by different authors (and that is merely a hypothesis based on statistics and not on the deciphered content), the VM was still handwritten by one hand only. In following evaluation, we will include those minor variations so the results will not be affected by one sample only (see table in my article "How Many "Hands" Wrote The VM?").

First, I have to point out the difference between the true **graphology** (paleography, calligraphy, forensic analysis, etc.) and **handwriting analysis** which has two different meanings: *the graphical analysis* of the writing (similar to the one used in forensic script analysis which we will use here) and the *personal profile analysis*, sometimes erroneously also called "graphology" or "handwriting analysis") which assigns different features of the writer's script specifics, namely personal and psychological traits. While all former disciplines are considered the true scientific disciplines, the *personal profile analysis* is not and does not even claim to be. However, it is not a pseudo science either: the results were confirmed statistically and surprisingly the experts in that discipline agree with most of the graphical rules and shape evaluations that are similar to the regular, forensic handwriting analysis. What they do not agree so much are of course their explanations.

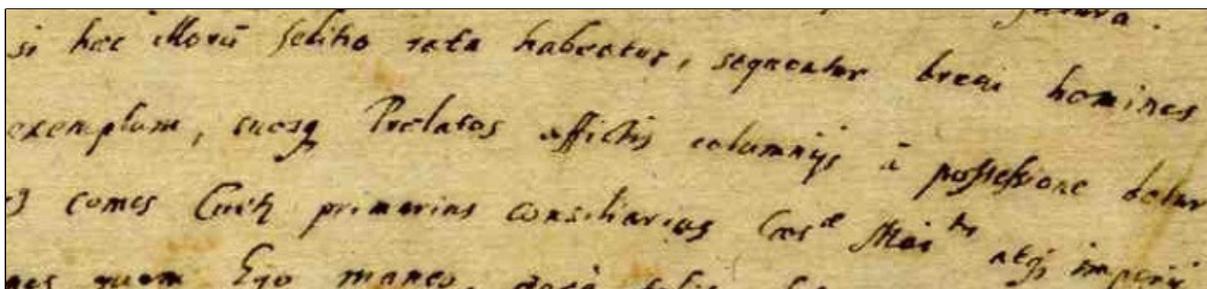
We all know the importance of personal handwriting and are periodically reminded of it when we sign the cheques :-). We also agree that our handwriting is very personal and very specific, almost like a fingerprint or voiceprint. Not all of us of course realize that when we write we are concentrating more on WHAT we write rather than HOW we write, meaning that our handwriting becomes automatically our trademark as well. Pretty early in the history people also started to ask if our handwriting also reveals more about our personality, that of course is the subject of the *personal profile analysis*.

Used basically for generating some kind of *personal profile*, such "graphology" raised a lot of objections, some probably justified, the other maybe less. Morally, it is not right to judge person by the handwriting only and this obstacle is bypassed by alibism claiming that they just "describe the person who would have such kind of handwriting and not the real writer as such". Still, major companies use handwriting analysis when hiring the job candidates and while it is probably illegal, they do it anyway, relaying on the fact the applicants do not know it is used that way. Of course the same objection is raised against the "lie detector" - which was for an alibi renamed as "polygraph", but the changes in (say) the skin resistance are still considered the true measures of truth and lie :-). As in graphology, a lot depends on the skill of the assistant, the "translator". This is one reason why we are going to analyze the handwriting but not to do any "profiling". The other reason is that we do not know the personal behavior of the suspected author so well anyway. The third reason is that the VM could be only a copy, rewritten by unknown scribe. On the other hand, we do have handwritings of different persons and we can make reasonable comparisons by the shapes of their handwritings alone.

My curiosity was raised by the fact that - as far as I know - no true handwriting analysis was yet done on the VM and there is no doubt it may provide some new information for our research. I did only the coarse evaluation, knowing that there are problems hard enough even for a professional. Namely, it is the fact that the VM script is either artificial or a long time forgotten one and since we have only one book and one handwriting, we cannot establish how would the handwriting of those persons look should they write in the VM script. Also, since we do not know how exactly was the script defined (relative dimensions, circularity of arcs, etc.) we cannot tell what is by definition and what is only the product of authors handwriting specifics. For instance: the new script might have been defined as strictly vertical but all we know it IS vertical. Also, the script is so different from our modern style that many contemporary rules simply cannot apply. For instance, the VM "characters" are not connected at all so we can judge only the spacing between "characters" but not the length of connections, which normally differs for different doublets.

I performed the analysis of some suspected VM authors (or rather persons from the VM history) and luckily we have long enough texts do it properly. Those are letters of Marc, Kircher, Baresch (his only letter in existence) and Horcziky's sample which may not be long enough. Presented below are small cutouts only, shown here just for illustration.

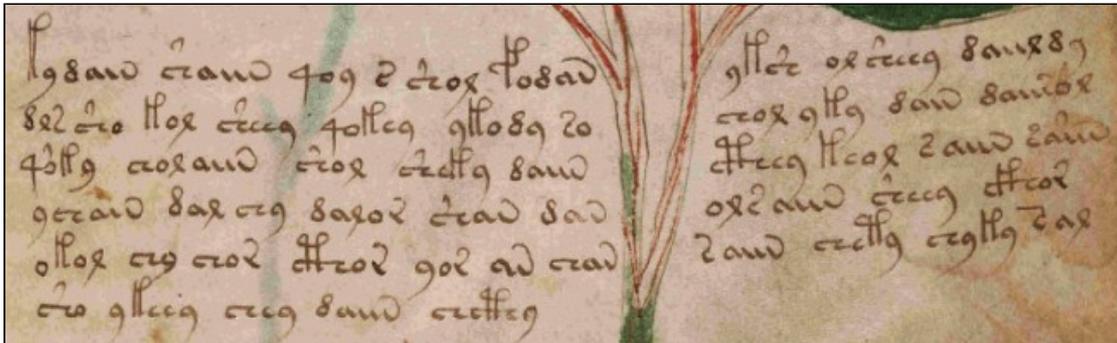
Marci: - I have used the older letter from 1658, with his regular signature, since his two last letters could have been written by his scribe (Marci was almost blind at that time and totally blind at the time of his death). There are many of Marci's letters posted in Archives of the Pontifical Gregorian University in Rome.



Marci to Kircher(1658)

Horczicky (from the Archive of Castle Melnik (1617))

The VM handwriting: We displayed here sample from one typical folio (Beinecke Library scans), but many were used for evaluation and averaged to avoid the minor excursions.



Voynich manuscript (folio 2r, Beinecke Library)

We tested the above handwritings using same graphological criteria mentioned in my previous article ("How many hands wrote the VM") and the results are here:

Criteria	Marci	Kircher	Baresch	Horczicky	VM
Slant (degrees)	50-60	70	95-90	~90	close to right angle
Pressure	MED	MED	HI	MED	normal or higher
Neatness.	MED	HI	LO	HI	neat or less neat
Rhythm	LO	HI	MED	MED	normal, faster
Margins and spaces	HI	HI	IRREG	N/A	vary irregularly
Changes	NONE	NONE	LO	N/A	minor, same folio
Line droop	HI	NONE	LO	NONE	variable, irregular
Graphozones	MED	MED	HI	HI	N/A
Stroke changes	LO	LO	LO	N/A	minor
Shakiness	SOME	NONE	LO	NONE	very little
Capital letters	MED	LO	MED	HI	N/A
Upper loops	NARR	NARR	WIDE	WIDE	N/A
Lower loops	MED	MED	WIDE	MED	N/A
Shading	LIGHT	LIGHT	HI	MED	HI
Characters	*	*	*	*	N/A
Others	N/A	N/A	N/A	N/A	N/A

NOTE: For * see point 15 below

Comments to the table:

- 1) **Slant** - Marci has variable slant, probably due to age. Kircher has perfect 70 degrees, with no perceptible changes, Baresch fluctuates between 95 to 90 (i.e. mostly negative slant) and Horczicky is close to right angle, all the time.
- 2) **Pressure** - Only Baresch has heavy pressure but possibly also a wide, heavier pen.
- 3) **Neat versus sloppy** - Kircher has very neat, almost like printed script, not changing at all. Horczicky too, but it was on the ceremonial, official document. Marci is not very neat, but his hand looks tired, which is also shown on the droop of lines at the end. Baresch is not neat at all, but his handwriting shows

skilled, fast writing hand.

4) Rhythm(or the text flow) - only Kircher shows beautifully flown script, Horczicky's flows almost like military march, Baresch is quick but impulsive and Marci is too modest to show anything special.

5) Margins and spaces - Marci and Kircher show wide margins, especially on the left side, Baresch's left margin is highly irregular and he apparently does not care too much about it. The sample of Horczicky was too short for any evaluation. Only Marci has rather wide spaces between words.

6) Changes - the script of Kircher is fixed, almost like printed, even Marci has a steady script. Baresch, in spite of the overall, not well organized look has solid, trained script. Horczicky is too ceremonial, however he keeps his special characters same all the time (see letters "k" and "p"), even in his signature.

7) Line droop - again, Kircher has practically no droop (only at the beginnings, the rows go slightly up and then for most of the line are almost perfectly horizontal (apparently due to longtime training - how he did it, not having any helping lines? :-)) Baresch is slightly going up or arching up and down on the same line. Marci's droop is extensive in this sample - probably the worse of all his letters - showing tiredness and aging. Before 1653 the lines were either horizontal or even slightly rising towards the end. The letter from 1659 shows some lines raising some drooping and his last letter has again the lines mostly raising.

8) Graphozones - upper and lower zones are of normal width for Kircher and Marci, while they are more pronounced for Baresch and definitely high for Horczicky.

9) Stroke change - all handwritings are of a very steady strokes. Again, Horczicky's sample is too short to analyze.

10) Shakiness - none was observed for Kircher and Horczicky, very low for Baresch, some for Marci, but again the age shows. His shakiness shows more on the baseline than on characters themselves.

11) Capital letters - Only Marci has very low ratio, while Horczicky has rather high, to the point of exaggeration.

12) Upper loops - Marci and Kircher have them narrow, Baresch and Horczicky wide.

13) Lower loops - same as for upper loops.

14) Shading - Marci and Kircher very light, higher for Horczicky, very high for Baresch - he apparently like his pen wider, too.

15) Individual characters - Marci's handwriting is simple, nothing special but readable, while Kircher's is very neat, showing he cares for the reader (of course he had to, the duke was apparently his benefactor :-). Horczicky's official title shows he wanted to stress his importance as the heyman (commander) of the castle, but generally it is true to his normal handwriting (see the other signature in his exlibris), just embellished. Baresch is an enigma: while his letter was basically begging for favor, he did not care to discipline his writing enough to show it. Only Marci's handwriting has characters separated, i.e. disconnected as it is in the VM.

On the purpose, we did not evaluate some factors like "covering the page space" (the VM has it always irregular due to pictures, sometime even crowded, while the letters have certain coverage rules) or effects of the ink, paper and pen (the letters were not written on vellum but rather on paper and that definitely shows). The table indicates the wide variations in personal writings, none of which really shows convincing indications that any of those four scientists really wrote the VM.

But can we entirely eliminate that possibility? Hardly, the script of the VM is quite different from those seen here that I suspect it was not only written, but literally "painted", i.e. more carefully drawn by pen. The smart, simple strokes of the VM "characters" allowed not only for the ease of writing but also required involuntary change of the handwriting habits as well. To write the VM, each one of those four would have to change his writing habits and there were many, as we can see on the samples - actually one could hardly believe they were all written within 50 years - the oldest being Horczicky's from 1617. That may give us an idea how futile is dating of any manuscript only by script. The only thing author would not (or could not) change consciously is the line droop or coverage of the page. Unfortunately, both these factors are so highly irregular in the VM that any reasonable comparison cannot be done. As for the others, there is no point to pick up one factor that is similar and neglect many others that do not fit.

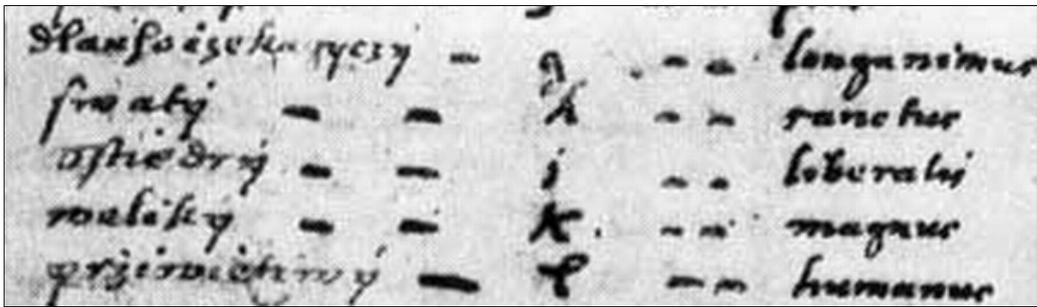
Again, the conclusion that none of the above persons wrote the VM is the most probable, since none of their handwritings has enough common indicators to qualify any one as an author. Besides, the VM script is an artificial script, invented no doubt to be simple, fast and readable. None of that was really vital for the VM since there is only one exemplar, so we may assume the author invented the script mainly for his personal, even everyday needs, maybe as a shorthand, maybe just for a secrecy. The VM was however written very carefully - only very few places offer any ambiguity and so far we could not see any mistakes (like typos or similar). Of course, with such script (simple arches and lines) many hands would be similar, since it does not allow too much for possible deviations.

CONCLUSION: As usual, any deeper research into the VM brings out more problems than solutions. However, we can conclude that handwriting analysis alone will not help us to establish the writer. Beside the fact that the VM could have been written by a scribe or anybody whose name we will never know, there are some other problems with identity of the author: we do not know the age of the VM and could not possibly check all persons who were in contact with the VM, especially when the "provenance" of the VM has so many gaps, namely before Baresch.

One person is missing in our comparison and that is Dr. Raphael Mnishowsky. The rather coarse copy of his handwriting was discovered by Rafal Prinke, but it was not part of this analysis since to my knowledge nobody suspected Mnishowsky as being author of the VM - until now and I discovered it rather late on the pages of Czech Wikipedia [here](#). There is the following statement (translated from Czech by me): "*The letters by Baresch suggest that the author of the manuscript was the orientalist Andreas Mueller and that it is undecipherable fraud. The lawyer Rafael Sobiehrd-Mnishowsky, the friend of Ioannes Marci claimed he discovered in 1618 unbreakable cipher which can lead to the opinion that Rafael Mnišovsky wrote Voynich manuscript as a demonstrative example of his cipher. There is no proof for this theory, however some circumstances may suggest that Marci already suspected Mnishowsky created the fraud.*"

There are several inaccuracies there (Baresch did not suspect Mueller and only one letter of Baresch survived, Marci never claimed Raphael was his friend nor he ever wrote he suspected him to create the fraud, etc.) When I commented in Czech Wikipedia that such information should quote a source, I was referred by them to English Wikipedia statement: "*Raphael Mnishovsky, the friend of Marci who was the reputed source of Bacon's story, was himself a cryptographer (among many other things), and apparently invented a cipher which he claimed was unbreakable (ca. 1618).*" Of course there is no source quoted in English Wikipedia nor the name of the person who posted those speculations.

While I leave the proofs of it to whoever posted it, I am including here for completeness the sample of Mnishowsky's handwriting. By the way, the spelling "Missowski" (or "Mischowsky" on his engraved portrait) is definitely a misspelling and I am using here his name Mnishowsky with "n" as it is closer to the way it appears in older Czech sources, i.e. Raphael Sobiehrd-Mnišovsky. The similar error is on Horczicky's portrait, but it was corrected by artist adding - out of line - missing letter "c".



Mnishowsky (from his textbook of Czech language, in Uppsala)

Interestingly enough, his cursive is very simple, almost modern and if anything, it looks like the one used in Horcizky's name in the VM below (see typical higher first arch in the letter "n" as in "magnus", simple form of letters "c" and "e", e.t.c.).



Part of Horcizky's name in the VM (Beinecke scan, preprocessed)

So the new idea may present itself: what if Baresch actually got the VM from Mnishowsky? And maybe it was Mnishowsky who wrote the Horcizky's name in the VM? We do not know yet. If we can prove that Mnishowsky actually saw the VM or even one time owned it, his little story in Marci's letter may eventually prove to be more than just hearsay.

28th October 2007



A19. THE MYSTERIOUS DR. RAPHAEL

Jan. B. Hurych

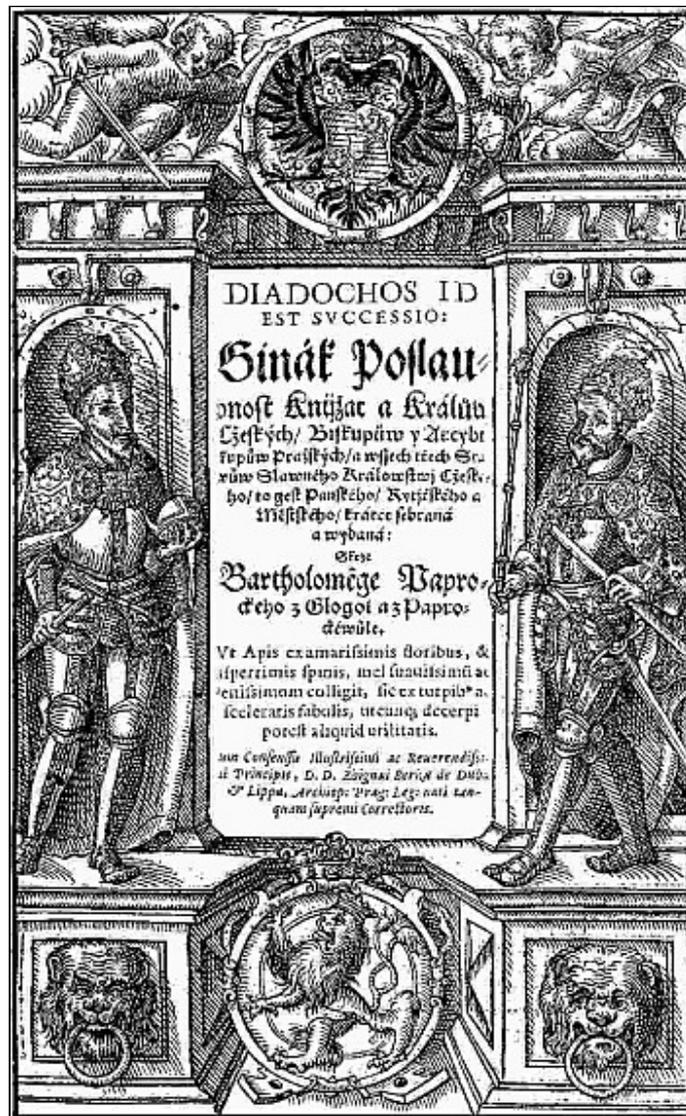
In this article, I am returning again to the person of Dr. Raphael Mnishowsky. According to English Wikipedia (and also repeated with minor variations in French, Spanish and Czech Wikipedia), he was . . .

" . . . the friend of Marci who was the reputed source of Bacon's story, was himself a cryptographer (among many other things), and apparently invented a cipher which he claimed was unbreakable (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". After Kircher published his book on Coptic, Raphael (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." (end of quote, no original source listed, j.b.h.).



Now that certainly looks like a far fetched story, but before we discuss it, we have to talk more about Mnishowsky himself. He is of course the famous Dr. Raphael from Marci's last letter to Kircher, even if Marci did not mention his family name. However, since he added that Dr. Raphael was the Czech tutor of Emperor Ferdinand III, it is definitely our Mnishowsky. We may therefore safely assume that Kircher knew who was Marci talking about, as well as he knew about Baresch whose name is not mentioned in the letter at all (since Baresch wrote two letters about the VM to Kircher already). Mnishowsky is in Czech records called *Sobiehrd - Mnishowsky*, since his original name was *Raphael Sobiehrd*. Soon he changed his name to Mnishowsky, long time before he got his nobility title "from Sebuzin and Horstein (Horshuv Tyn in Czech)". Of course, there was another branch of Sobiehrds, they were Protestants who went to exile and fought with Danish army against Habsburgs, while Raphael was staunch Catholic.

His life story is very well described on the VM Biography page of René Zandbergen, but we will not dwell here too much on official history. According to Czech records, he was born in Horshuv Tyn (Horstein) in Bohemia, so apparently the information by *Eugenia Berezanskaya*, in "The Voynich Manuscript", 2004, that he was born into a Polish family is not correct unless Sobiehrds were originally from Poland. While we know he studied with Jesuits in Prague and later in Rome and Paris, I spotted somewhere the information that he studied at Polish Crakow university as well. That is probably not accurate either, but since he translated the book "Diodachos" (the genealogy of Bohemian and Moravian nobility) by Bartholomeo Paprocki from Polish to Czech, we may assume that he knew Polish well, so he apparently spent some time in Poland after all. However, according to preface to contemporary Czech publication of "Diodachos", it was Paprocky himself who wrote the book in Czech language and Mnishowsky only did language corrections. Either way, he did not stop there but wrote some parts of the book himself, especially the one about monasteries and abbots, which he also signed with his name.



Paprocky's Diodachos

His speedy carrier started long time before the Thirty Year War, but it took much higher during the war time. After the defeat of Protestants in the battle of White Mountain (November 8, 1620) he got his nobility soon, within a month after public execution of defeated Protestant Directorium, in June 1621. he was a devoted Catholic and he participated in forcible catholicization of Bohemia and Moravia. As was usual at that time, the properties of defeated Protestants and their titles were then for grab. His coat of arms (registered as late as 1628) was split vertically into two equal fields, the left being divided in three rows (red, white and red), the right (yellow) containing half of black eagle (with red tongue), looking to the right. On the top was the helm with colors yellow/black (Austrian) and white/red (Czech) with the golden crown at the top. Interestingly enough the place Sebuszin he really owned, but Horstein was an empty title since he did not own the place, but was only born there. After becoming the royal procurator, he made himself well known as a *curator fisci* for executing the case of treason by generals Wallenstein and Trcka. That was of course after they were both murdered (1634) and he had to justify their killings (it took him 14 moths just to get together all the witnesses).

We know about his employment as a teacher of Czech language for Ferdinand III. As for his writing skills, beside his involvement with Paprocky's book, with some parts written by himself, he also wrote - apparently very good - poetry. He was also involved in alchemy, being a strong admirer of Michal Sendivogius who was for long time in employ by Rudolph II (another reference to Poland maybe?) and later even recommended two alchemists (Glauber and Cyprian Kinner from Poland) to Royal service in Viennese Court. Mnishowsky also claimed (as per Czech sources) he "studied alchemy for thirty years and was seeking the manuscripts associated with Rudolph and working in monasteries in Braunau and Kremsmunster". (See "The Making of the Habsburg Monarchy", 1550-1700, by Robert John Weston Evans, page 361) .

Note (added Feb. 2009): Interestingly enough, both monasteries are pretty old: Benedictine in Braunau (Austria) since 1133 (it used to be Augustinian, but after WWII exiled German Benedictine monks from Czech Braunau (same name, different place) changed it to Benedictine. There si also Benedictine monastery in Kremsmunster (Austria) since 777. There is also Benedictine in Baunau (Bohemia)

since 1213. Notice: Czech monastery has the only copy of Turin Shroud north of Turin (donated to monastery by Turin bishop in 1651) .

Mnishowsky died on 21th November 1644 and his body was put to rest in the crypt of St. Salvator, the same place where was already resting Jacobus Horczicky. Later they were both joined there by Marci as well.

Mnishowsky was never considered to be seriously involved in cryptography, but we can now assume he sharpened his skills there as well. The proof is in his book "*Constructio sive strues Trithemiana*" (1828), the handwritten manuscript which is in Uppsala, Sweden. The book was until now generally presented as being only the textbook of Czech language. Partly it was caused by abbe Dobrowsky, who wrote a note in the book: "Constructio grammaticae bohemicae secundum methodum trithemianam a Raphaelo Mnishowsky anno 1628". Some authors stressed its function as a handbook (e.g. *Carin Davidsson, "Johannes Tritemius' Polygraphia als tschechisches Lehrbuch, Cod. Slav. 60 der Universitätsbibliothek in Uppsala", 1959*). True, in its subtitle Mnishowsky actually promises it will teach one how to write Czech in very short time: "Qui nullum unquam idiomatis bohemicici calluit verbum, per eam in momento scribet convenienter bohemicum quantum volet" (as per quotation by Rafal Prinke in VML). It would sound like a modern advertisement, but if we read further, Prinke points to sentence "Occultus occulti scribendi modus quem nemo mortalium queat penetrare" (Method of hidden writing, which no mortal can penetrate) suggesting the other purpose of the book as well.

Fortunately, there is the sample picture of two handwritten pages from that book on Net (see my article *The Handwriting Analysis of Some Possible Authors of the VM*, 2007, in J.VS). In the sample, we do not see anything even remotely similar to the possible textbook and at best, we may suspect it is only a vocabulary, with corresponding Latin translation (right column) of Czech words (in the left column). What should however catch our attention is actually the third column in the middle, containing only one letter of the alphabet and going alphabetically down from the top to the bottom of the page. I have found in some Slovak sources on Net that the book is considered to be the first Czech treatise in cryptography.

So I contacted leading Czech cryptographer *Mgr. Pavel Vondruska* in Prague and he confirmed to me that the sample certainly looks like a code book - and he even quoted the similar cipher by Trithemius, named *AVE MARIA!* Of course it may be more complicated than the simple variation of Ave Maria (one cannot judge it from two pages only), but if we add the fact that Mnishowsky even named Trithemius in the title of his book, we are apparently on the right track. Of course, original Ave Maria cipher does not give a sensical text, but still may look like a prayer, being in Latin and consisting mostly of religious words. Mnishowsky is using Czech words that are far from any religious ones (they look more like from everyday life) and the text would be surely non-sensical for any knowledgeable Czech person. Also, the letter shown "A" is coded by adjectives only which would be a clear giveaway.

So was it a textbook or not? Again, the subtitle says it all: apparently it would do no good to his Royal pupil - or anybody else - to pretend this way to Czech person he really knew Czech language, but it could surely impress the foreigners. Of course, to advertise openly the real purpose of the book, i.e. to use it as steganography coding in order to hide it, would be dangerous to author - even Trithemius got in trouble because of that.

What actually was Ave Maria cipher? It was a simple substitution of each character of plaintext by word, each time of course by different word taken from the word page. The Ave Maria looked rather inconspicuously thanks to complicated Latin grammar so it could be easily mistaken for some prayer (hence its name). What Mnishowsky really improved was the fact that by using not so common language, i.e. Czech language, he made the cipher even less conspicuous to foreigners. He might have even improved the main rule by which the next word was selected. In his case, one wordpage was assigned to each plaintext letter and contained substitute words totaling 24 (the same as his alphabet does, leading probably to biographic substitution).

Each page was assigned its own letter of the alphabet and each letter (or two) of plaintext was therefore encoded by the whole word. That would of course may be a vehicle for only short messages, the longer ones would require to write quite long document :-). Not seeing the rest of Mnishowsky's book, we cannot judge how more advanced his codebook really was in comparison to Trithemius's. But since he already improved and extended Paprocky's book by his own writing, we may assume he did not rest with Trithemius ideas only. The decoding of course would require reversal process, rather cumbersome unless he had another trick in his pocket. Of course publishing of the book would make it a common knowledge and using exactly same set of words would make the cipher useless.

Our discovery leads to another suspicion: did Mnishowsky know about the VM more than Marci quotes in his letter? Could he had been for instance the owner of the VM before Baresch? I already made another observation in my article "The Handwriting Analysis of Some Possible Authors of the VM" (see also the samples there) that the "signature" in the VM could have been been written by Mnishowsky - the font and handwriting of the "signature" really looks like his own. That is for the word "Tepenec" only, the word "Jacobi" was not analyzed, since is very difficult to distinguish to outlines of the letters, as is shown in this picture:



Word "Jacobi" in the VM "signature"

Also, there is something very special in both handwritings: the script is not a "joined-up writing" or so called "running writing", but a simple, not connected cursive. While analyzing personal handwritings of Baresch, Kircher or Horczicky, we see they are almost always connected their characters and Marci' is only a little bit more disconnected, but within a reason. Nothing like that is Mnishowsky's handwriting. It is always completely disconnected, same way as in the "signature" in the VM. So we may assume that it was not a common feature to write this way, but personal specific. Also, his script is simple, almost modern, same way as it is in the "signature". What's more, I already mentioned previously that the letter "n" has the first arch higher than the second arch (not always but frequently enough), also the same way as it is in the "signature". Unfortunately, there are two serious reasons we cannot say "without reasonable doubt" that it is Mnishowsky handwriting: the script is so simple that even the variations from reason to person would be very small and besides, we have only 4 characters to compare ("T", being capital, does not show in Upsalla sample).

We do have however the other coincidences: Horczicky and Mnishowsky were contemporaries (Horczicky: *1575, +1622 ; Mnishowsky: *1580 +1644), they both attended Imperial court and surely had some common interests, namely alchemy . As for his knowledge about Baresch, René Zandbergen observed in VML that both Mnishowsky and Baresch studied about the same time in Italy. If Mnishowsky really wrote Horczicky's name in the VM, he would have owned it at one time. Then his official "story" will be probably more than just hearsay - but on the other hand, he would not tell Marci the whole truth, certainly not about his part in the story. And if he did not tell the truth, could the rest of his story be really trusted? And how much would this fact change the existing provenance? What if he actually knew the author or at least the true place of the VM origin? Would he tell Marci the truth? And if not, why? And who then erased the "signature" and why?

Now when we know for sure Mnishowsky was skilled in cryptology, what about him trying to solve the VM himself? How much he tried we may never know, neither we can confirm his alleged statement (in Wikipedia) that he discovered unbreakable cipher. Even if we could, there is still long way to the VM authorship. However, what we have found already (that his book is mainly cryptographic and that he possibly wrote the "signature" in the VM) is rather interesting and if proven, it may be crucial to the VM provenance: we may suspect that Mnishowsky was more than just the spreader of the court stories about the VM.

When Marci quoted Mnishowsky, he said "he told me" so it must have been before Mnishowsky died (1644). We know Horczicky died in 1622 and Baresch wrote his first letter to Kircher in 1637 and his second letter to Kircher in 1639. Baresch knew Marci already some time before 1622 and he died probably before 1662 (all dates per R. Zandbergen). Can we then establish the date Baresch got the VM in his possession? Most likely somewhere between 1622 and 1637. Now interesting is that Mnishowsky ended writing of his book in 1628, almost in the middle of this interval. When he told Marci his story about the VM we do not know either, but it may be in about the same time. He apparently didn't tell Marci from whom he heard his story but apparently it was not from Baresch who would have told it Marci himself if he knew.

Being interested in cryptography and knowing about the VM, Mnishowsky surely followed the fate of the manuscript very closely. If it was him who bought (or any other way obtained) the VM from Horczicky that part of his story might have come directly from Horczicky himself and Mnishowsky could have just written Horczicky's name there himself. If he then sold manuscript Baresch, he could erase it. He could have passed the story on him, but apparently he did not. Of course Marci does not mention Horczicky either. Or didn't Mnishowsky know about his ownership either? And was there at least somebody who did?

On the other hand, if Mnishowsky created a fraud, his story would be apparently false from the very beginning. However, it looks more likely that he was not the author of the VM, but he might still own it before Baresch. So he might have known more about its origin and that may put the old story in the new light . . .

10th November, 2007.



A20. THE RESEARCH OF THE VOYNICH MANUSCRIPT: The Strategies and the Results.

Jan. B. Hurych

In seven years, we will be celebrating the reappearance of the VM, the Voynich manuscript that ever since baffled many researchers all over the world. There is however not too many reasons to celebrate our progress in the search for solution of the VM. We gathered a lot of auxiliary data, scrutinized them and used them. And what we got so far? The list of old dogmas from Voynich era, some only coincidental events and then several new theories, remarkable only by contradicting each other.

It is not only because of three basic unknowns of the manuscript, that is *the author, the script and the language*, but also due to the lack of some general strategy. That is understandable, since each researcher has its own area of the expertise but it is also very regrettable, because many of works were undertaken, then abandoned and disappeared in oblivion, without us properly learning from our failures. With the shining exception of Mary d' Imperio's book, the rest of them either repeat the well known facts or venture into the land of illusions. That is not to say no progress was made but have apparently still long way to go. Couldn't we have done a lot more during those one hundred years?

The problem starts with the fact that the VM is rather *non-traditional document* and conventional methods of research usually do not get us there too far. Very often the results lead to contradictory conclusions which can be only resolved by further facts and we do not have them, unfortunately. I do not mean conventional statistical and other scientific methods that we know have proved themselves in other fields, but even those methods may need here further improvements. That is because we try to apply them on incomplete or incompatible sets of data. It is also possible that some methods cannot be improved any more (say carbon dating for certain periods of time) and have to be replaced by some other, more advanced methods. The use of computers is of course only as good as data we are giving to them. Maybe applying the methods of artificial intelligence could help us in future - or maybe not. The use of self-learning programs is still contemplated but - as far as I know - not applied yet.

What are the methods of research we are using now? Apart from the "guess, test and rest", the most favorite methods are the **similarity, analogy or coincidence** with application of inference, that is of **scientific induction**. How far it gets us? Let's see: the typical example is the discovery of the "sunflower" that lead to hypothesis about the "American" origin of the VM, the dating "after Christopher Columbus" and what not. Yes, it was Georgius Baresch who already noticed that VM plants were not from Europe and while it could be a sunflower all right, no other plant in the VM was confirmed as being from America. Also, while otherwise serious researchers were trying to find at least one other herb there that would remind us of some known plant (that is the *whole* plant, not just a leaf or blossom or root), anywhere on this Earth, but their efforts were apparently futile from the very beginning.

Why? It is now obvious that at least the majority of the flowers there are *not known to us* and there is a major uncertainty about the "sunflower" itself - there are other plants with similar blossom as well. How probable then could be the identification of the other plants in the VM "herbal" ?

Here we have to pause and get little bit back in time. The basic method for the VM research is *not the deduction* (mostly because we do not know all facts or premises) but the *induction*, i.e. by generalization that is "the reaching the universal from particular". It was Francis Bacon who not only coined the theory of induction but also pointed out the treacherous points when it is not applied properly.

That point was also made in now classic article by T.C. Chamberlin, (1890, "The method of multiple working hypotheses") summing it up nicely in the subtitle "With this method the dangers of parental affection for a favorite theory can be circumvented". How many times we saw the VM researchers changing subconsciously their "working" theory into the "ruling" theory and finding only *the facts for the support of such theory*? His **Multiple working hypotheses** when investigated simultaneously, i.e. in parallel, may not only reveal mutual connections between the causes of the phenomena but also force us to keep an open mind, all the time.

He also listed the drawbacks of such method, some of them being later eliminated by the use of the **Strong Inference**, proposed by John R. Platt in his article "Science, Strong Inference -- Proper Scientific Method" (16 October 1964). What is the recipe for the strong inference? In four points, it is :

1. Devising alternative hypotheses;
2. Devising a *crucial* experiment (or several of them), with alternative possible outcomes, each of which will, as nearly is possible, exclude one or more of the hypotheses;

3. Carrying out the experiment so as to get a clean result;
4. Recycling the procedure, making sub hypotheses or sequential hypotheses to refine the possibilities that remain, and so on.

That might look simple enough, but it is far from it: the set should include all possible hypotheses in order to guarantee the success. Another, the most critical point, is the test, the *crucial* experiment. As we can see, we **do not test to prove the correctness** of one hypothesis, we **test to separate off the empty theories**. Again it is mainly the elimination process and we have to choose very carefully the kind of test we will perform. This process should be mastered and applied by every researcher before he claims any minor success. Platt even coined the "touchstone question". It consists of asking - in your own mind - on hearing any scientific explanation or theory put forward, "But sir, what experiment could disprove your hypothesis?"

Now we are getting to **falsifiability** or testability: Bacon already warned that we cannot proclaim the hypothesis valid until we are sure we examined all possible cases for falsification - that is unless we know *where or when it is not valid*. Even the perfectly valid hypotheses should be falsifiable, claims Karl Popper. Those, that we cannot technically falsify, cannot be proven either. Typical case here is the empty hypothesis of "encoded gibberish", which is not falsifiable - how do you prove you decoded the text to the original plaintext, the proper "gibberish"? Such theory cannot be proven nor disproved. We have to keep in mind however, that even with the "strong inference" and all premises being true, the conclusion is only probable, meaning it could never be a hundred percent sure as it usually is with the deduction. As we can see, looking for I have to stress that it is more important to look for exceptions than for affirmations, which is usually impossible task anyway, considering that not all data are available or testable. And here comes my part of the story . . .

As we can see, it is more important to look for exceptions than for affirmations, which is usually impossible task anyway, considering that not all data are available or testable. As the case is, many approaches to the VM were usually limited to finding something reminding us of what we already know from elsewhere, something more or less similar and familiar. Then we hurry up to apply the idea on the whole set. Of course, we do not and cannot bother with all cases and so we rather jump to conclusion, but that is not how the scientific induction works. We are parting with reality too soon and instead of strong induction we get only a well intended but totally wrong fiction bordering with illusion. Can we really look for usual things and use them for explanation of unusual things? Hardly, especially for the VM, which is "A Riddle Wrapped in a Mystery Inside an Enigma" - as the famous quote by Winston Churchill goes. There nothing seems to be as it appears. So what good it is to look for similarities in appearances only?

It gave me an idea that there must be *the other, more productive method* for the VM research and I think I found it. The method is actually very simple: we have to do quite the opposite: we should **look for exceptions** not for similarities. It is a psychological fact that he who is looking for similarity will find it even where it does not exist. In reality, if we find something similar in the first instance, it is even more difficult to find another occurrence which is usually not that much similar and so it is more difficult even to spot it. And then comes the case there is so little similarity that it is practically none at all.

That's when and where comes handy my advice: instead of looking for similarities, **we have to search for something unusual, irregular or even impossible**. These occurrences are especially valuable: we know they are unusual so they apparently have something to tell us. They may give us some new, important information - but of course only if we know how to evaluate them.

For instance, say there is a plant with rather impossible shape of the root (I know it is but let just put it hypothetically). Of course, we mustn't stop there and our next question would be "**Why it is so?**" What was the reasoning of the author or the purpose behind it all? Was it just an error, inexperience, low skill of the artist or maybe something else? We can also count how many times such deviation appeared anywhere else in the VM and look for its variations. And the next question, going back again, is: "Could we explain at least one of those exceptions some way and what does it mean in general sense?" By answering such questions and explaining such exceptions, we may even get some valuable ideas.

Yes, surprisingly enough, such root may tell us more than the above mentioned "sunflower". We may conclude for instance, that the root was just invented and all other plants as well and yes, if we have more proofs, they apparently have some common idea behind them, for instance the *steganography*. In our case, the key to the text may be in the pictures. True, we have to prove it - we have to find the system that explains all that, something like a common denominator and more importantly, we have to test such theory. But if we do get confirmation, then we may get much further than from some similarities which, unless tested, may be only in our mind anyway.

After all, if the plant "sunflower" is a real sunflower, what does it tell us? True, the VM then could get to Europe only after 1492 (if we do not count Vikings :-) or any time later. But the other knowledge in the VM was apparently resident in America, and since the aboriginal nations of Americas did not know our use of vellum, it was brought in some drafts and copied later in Europe and could be much younger anyway.

Let's take another example: the VM history research was relatively rich but it as is shown in my article "The Voynich Manuscript - Do We Really Have Any Provenance?" it is also very dubious in some places. Taking one famous scientific person after another and trying to fit them as authors is another exercise in futility. We have handwritings of those people and we know their written works - and we also know they do not fit the hand or the idea of the VM. Before we could go on hunting for facts supporting some hypothesis about one particular author, we have to find out **why would he write** the way quite strange for his contemporaries, what did he try to hide the content and for whom he then wrote it. We certainly have no proof the VM was written for an ordinary reader, maybe for nobody except the author himself. If we take however all the specifics, we have to come up with the hypothesis, that the VM is surely hiding some secret. Of course the "real suspect" for the authorship would be the one who had **the reason** to hide something. Find the reason and find the traces of it in the VM - and you may eliminate a lot of "suspects" that way.

We can see here that starting with one person and trying to prove it was him is putting the horse behind the wagon. Besides, the attempt should be made first **to disprove him rather than to prove him** . Some disproving facts could be strong enough to eliminate him in the first round already. After reasonable search, we may even conclude the author cannot not be found in between the "rich or famous" and that it was apparently somebody not commonly unknown or even illusive (as is for instance the person of Georgius Baresch). What's more, the disproof can be an easier job: it is sufficient to eliminate the hypothesis by finding one example where it does not work, while to prove something one needs to test all premises and cases.

Just to make my point clear: I am not judging here some strategies used up to now. Those were effective methods but many were abandoned mainly for above reasons. Not always, but often enough they hit the wall simply because the similarities alone are only tools and not the real strategies. And what once was inspirational, eventually run out of continuation for simple reason: there is never enough similarities to make for the rule. Something else, something new must be discovered so we are able to sum it up and make the hypothesis testable. Also, I do not pretend that the strategy of looking for exceptions is anything new - after all, many people in the past did that and often drew the proper conclusions from them. Such approach seems to be also more productive and more dependable than just looking for similarities. Even if we find strong similarities, they are sometimes very *superficial* and how certain could be the general conclusions based on them?

22th November, 2007.



A21. MEDIEVAL MANUSCRIPT'S SECRETS LOCKED IN A LANGUAGE MYSTERY
(from interview of EUROPEAN WEEKLY with Jan Hurych)

B.Johnson

Medieval manuscript's secrets locked in a language mystery Secret software codes may have been cracked and the human genome mapped, but a strange book from the Middle Ages known as Europe's "most mysterious manuscript" has yet to be deciphered. Despite decades of painstaking research by dozens of experts, no one has identified the author or the date of the 204-page book of bizarre text and sketches called the Voynich Manuscript (VM).

Although the book's ownership can be traced to mediaeval Prague, researchers disagree over whether it was originally penned in 13th century England or 16th century Bohemia. Neither can they explain the book's purpose or the drawings of plant-like shapes, naked women and concentric circles.

And the deepest mystery is buried in the text itself: The VM was hand-written in either a secret code or a lost language that modern man cannot read. "We have not been able to decode a single sentence," Jan Hurych, founder of a Czech society devoted to ongoing VM research, told Deutsche Presse-Agentur (dpa). "Even though it was most likely written by one man, our modern technology and computers are still unable to tell us what it contains."

Hurych has spent a decade studying the VM, which is now safely stored in a rare books library at Yale University in the United States. The book's modern history began in 1912, when the American book dealer and collector Wilfred Voynich discovered the manuscript that now bears his name.

Some of the centuries-old correspondence and other documents uncovered over the decades since Voynich's discovery indicate that, before reaching Italy, the VM was owned by people living in Prague during the 16th and 17th centuries.

Hurych thinks it is more plausible that the VM was composed in central Europe in the 16th century. He thinks it "was written to be read only by initiated people. The script is apparently artificial, created by a certain pattern."

A Czech named Jacobus Horcizky is the earliest confirmed owner. But so far the historic trail ends at his life because, due to religious unrest, Hurych said he was "exiled and his house was ransacked by mob."

Yet even if experts eventually trace the book's author and origin, Hurych said the code-crackers won't rest until the central purpose of the VM is revealed. And in order to understand the book, researchers will first have to unlock the mystery of its unreadable text.

"The purpose of the manuscript is still just speculation," Hurych said. "It could be anything from joke or hoax (although it's pretty laborious and complicated) to a simple workbook of some scientist who tried to conceal his results from competitors.

"It may of course also be some secret document or exercise in special cryptography," he said. "We may further ask why it had to be hidden from public eye. The first thing that comes to mind is of course the fear of punishment, and we can speculate about the dangers of that time." But what does the book say? No one knows. The script letters in the text have been classified as "Roman miniature." Beyond that, nothing is certain.

Some scholars have theorised that the old form of the Czech language may have been a basis for the code. Hurych wonders whether the text may have been written in a code within a code. He's also tried, unsuccessfully, to link the text to medieval Latin.

In hopes of unlocking the script's mystery, one international group of researchers developed an arbitrary alphabet and then used it to write a complete transcript of the VM - in an unintelligible language. But that is as far as they got.

"The trouble starts when we try to find the language," Hurych said. "The VM lacks longer words and, so far, no known language was found to fit in."

So the hunt continues. At least 30 researchers and numerous assistants around the world are currently trying to solve the VM puzzle from historical, botanical, cryptological and linguistic perspectives.

14th November, 2004.



A22. MORE ABOUT DR. RAPHAEL MNISHOWSKY.

Jan. B. Hurych

In the last article, "THE MYSTERIOUS DR. RAPHAEL", we tried to get more information about the person, who "knew" the story of the VM origin. In this article, we reach a little bit further . . .

The role he plays in the provenance of the VM is crucial. As Marci indirectly admitted, the information Mnishowsky provided to him was apparently only rumor and Marci is not vouching for it. Strange, since he did not hesitate to give the good references to Kircher about Baresch in one of his previous letters. That was of course the information about Baresch's honesty, about the man he knew well. In his book, Marci also claimed Baresch was his friend and in his last letter, he shows compassion for unhappy Baresch when he mentioned his friend's spending his last years of life trying to solve the VM. By the way, Marci in his letter says he is also sending with the book the attempts of Baresch to solve the VM - where are they, Mr. Voynich? And if Kircher kept the letter, why not also the samples? As for Mnishowsky, Marci presented him there more like an acquaintance only and he let Kircher make his "own mind about it". Provided that Marci still remembered quite well the words of Mnishowsky - 22 years after Raphael's death! - we still have two major problems:

- 1) Was that information based on facts or just some rumors?
- 2) Did Mnishowsky really tell Marci the whole truth?

This way we split the main question in two, for obvious reasons: some researchers raised the opinion that such rumor was at one time circulated freely around Rudolph's court and was truly reported by Mnishowsky, the others think it was rather secret, internal information, possessed only by few and some even thought Mnishowsky invented the whole thing by himself.

Add 1) Let us suppose Mnishowsky repeated all the information correctly and the rumor was based on facts: then of course we would have found during past hundred years of intensive search some confirmation of it. None of that appeared: neither Dee (see below) nor Sendivogius nor any other Prague alchemist, astronomer or historian, none of them mentioned the VM! Such famous rumor should surely be repeated by somebody . . . Only prof. Newbold, 300 years later, repeated Mnishowsky's info about Bacon's authorship and built the whole "solution" around it, which did Bacon only disservice since Newbold decipherment was discarded as non-applicable and utterly wrong. True, the story about 600 ducats was later dug out of Dee's diaries, but there is only superficial coincidence with 630 ducats and Dee never said what he got them for, was it a gift or sale or payment for some services! Nothing was mentioned by otherwise punctual Dee in his diaries and besides, he had several manuscripts and the VM would be probably the last one he would ever part with . . .

Therefore, if Mnishowsky's story was never confirmed can we be sure it is really disproved? Not necessarily, but we surely reached the dead end. Of course, we do not know anything about Horczicky's ownership either, except for his name in the VM, suspiciously erased and then miraculously recovered again - his name which is not even written by his hand.

Add 2) The other question is even more tricky: we do not know if Mnishowsky lied or not. The rumor might have existed exactly as he told Marci and there again, we have a shortage of supporting facts, only Mnishowsky's word for it and unfortunately, he was also a lawyer :-). Of course, if his story was true (i.e. if question 1 is answered affirmatively), we still have only his version for it. Marci did not mention he heard it also somewhere else and that's why he did not want to vouch for it, apparently.

So let's try to attack the problem from the other end - did Mnishowsky tell anybody else? We surely do not know about such person (so far, at least) confirming he heard the rumor as well. Marci does not mention anybody, not even Baresch. So again, dead end. We can probably raise some more questions about the time and subject of the information passed between Marci and Mnishowsky. Did it happen just during a small-talk, some "by-the-way" or was it Marci who was personally inquiring about it? Marci and Mnishowsky were both members of the Imperial Court, both in high functions and as we could guess, the corridors of Prague Castle were apparently populated by courtiers having nothing better to do than to talk rumors. But if it was an answer to curious query by Marci himself, how did Marci know exactly whom to ask? Apparently they knew about each other's cryptography interests: Marci solving Swedish general Banner's letters and Mnishowsky writing his own book or at least his deep interest in cryptography.

It is a possible scenario but what would prompt Marci to investigate the origin of the VM? You guessed it: Georg Baresch was apparently extremely curious and asked his friend to inquire somewhere or maybe directly from Mnishowsky. In that case, he must have known about Mnishowsky's cryptographic interests or his book. That's where is a space for some further speculation and the Wikipedia story claims Baresch got the VM directly from Mnishowsky. It actually suggests Mnishowsky created the VM as a fraud. Baresch of course never told Marci where he got the book from - Marci would otherwise certainly told Kircher. Mnishowsky did not tell him either . . .

In the meantime, let's stick to the facts. Did Baresch own the VM at that time already? In 1662 Marci published the book where he mentioned he knew Baresch for 40 years. According to René Zandbergen, Marci knew Baresch even earlier, before 1622, apparently since in

1618 when Marci was already studying in Prague. That means Horczicky was still alive at that time (he died 1622) and most likely still owned the VM (if he ever did - all we know is that his name is there, or was, hidden, before Voynich brought it to the light again). Of course, Horczicky was arrested in 1618 by Directorium, later exchanged for Dr. Jessenius and sent to exile from which he returned in 1621 to die a year later. There is a report in Pavel Skala's *"The Bohemian History"*(1626) that the houses of the persons exiled at that time were ransacked which may suggest why the VM became lost. In 1625 Marci graduated as a Doctor of Medicine and in 1626 he was appointed the Chief Physician of the Bohemian Kingdom, apparently with the push by his protectors (Count Lobkowitz and Archbishop Harrach) and automatically became the member of the Imperial Court. Later he became the personal physician of Emperors Ferdinand III and Leopold I. Mnishowsky was a member of Imperial Office since 1618 already.

Baresch wrote his first letter to Kircher in 1637 and let it delivered to him personally by p. Moretus - that means at that time he not only owned the VM but got it probably much earlier, considering he hesitated some time, tried his hand first, then asked for help some other persons, maybe even Marci and then spent some time copying the samples for Kircher. In 1638 Marci undertook a journey to Rome and met with Kircher. At that time, Marci apparently already knew Baresch had the VM, but we do not know if Marci talked to Kircher about it. Either way, Kircher did not answer the letter. In 1639 another letter is written by Baresch to Kircher, and again, if we can read between lines, he owned the VM some for time even before he wrote his first letter. To sum it up, Baresch got hold of the VM somewhere between 1622 (when Horczicky died) to 1637, providing Horczicky did not part with the VM until his death. During that time, Baresch already knew Marci well, as Marci admits in his book. If we assume Baresch spent some additional time with Marci, both trying to solve the VM, we still may guess he did not get the VM much sooner than Marci became member of Imperial Court (1626, the earliest date Marci could approach Mnishowsky with his question) and possibly less then 11 years later (1637). Also, if Baresch was so desperate to solve the VM, he would not wait the whole 15 years to contact Kircher who was world famous for his "solving" of hieroglyphs.

Marci claims he got the info from Raphael personally. Assuming Marci asked him - maybe because he was prompted by Baresch - the conversation took place some time between 1626 (when Marci joined the Court) and 1644 (when Mnishowsky died). Say Baresch got the VM in 1626 and when apparently nothing more could have been told by Mnishowsky about the content of the VM, Baresch wrote to Kircher his first letter. But would he really waited 11 years, knowing already that Marci knows Kircher? Probably not, since he could not wait longer than one year after the first letter and in 1639, he wrote the second letter, In 1640, Marci wrote to Kircher recommending Baresch, apparently answering Kircher's query. Was it something in the second letter which raised Kircher's interest? Or was it just only Baresch again pushing Marci? All that insistence could indicate that Baresch still had high hopes, so it could have been the early period of his ownership.

J. Fletcher also mentions Baresch met Kircher in Italy and admired his apparatus. When it was and where is the record of it, we do not know, but that may be another reason Marci did not mention Baresch's name in his last letter: he did not need to, Kircher knew pretty well who he was talking about especially since Marci mentioned he wrote him letters. We may assume - if Kircher was ever interested in the VM and as the "solver" of secret writings he surely would have been - that he always wanted to put his hands on the original, while disregarding the copies sent to him before. It was a very logical decision, because single samples just would not do or maybe he was just suspicious, no doubt. Of course, Baresch did not want to send the whole VM, he wanted to keep the VM content, the real secret, for himself. Kircher apparently saw he was being used and refused to serve such low purpose. Apparently Baresch never intended for the book to be sent to Kircher after his death either, since Marci would surely mention that in his letter. It seems that even Marci hesitated for four years before he sent the book (Baresch apparently died before 1662).

Now let's go back to Mnishowsky. He finished his book on cryptography in 1628, i.e. around the earliest time Marci could have talked to him about the VM. It looks like that was around the same time Baresch got hold of the VM. The other option, that Baresch got it right after Horczicky's death (1622) would put it in the time Marci was still student in Prague - but again, Baresch would have waited with his first letter to Kircher the whole 17 years! That does not seem too realistic, considering his passion for solving the VM. If however he really got it later, who then had the VM after Horczicky's death? Maybe Jesuits, who inherited most of Horczicky's earthly possessions, but how did Baresch managed to get it from them? True, they might have considered it as one of the "libri prohibiti" but it was not on their list and besides, the instructions would have forced them to burn it.

Most likely, Baresch did not get it from Jesuits but from somebody else. It is of course possible he got it from Mnishowsky's who could have been owner for some time. But how did he got it? True, they were both staunch Catholics, but for Jacobus it was the way he was brought up by Jesuits in Krumlov, for Raphael it was mostly the means to his carrier (in his epitaph he does not claim he served the God, but the Emperor only :-). Besides, his carrier started after 1622, he could not have known Horczicky nor Baresch that well. One thing is for sure: neither Mnishowsky nor Baresch told Marci the whole truth, apparently for some obscure reasons. Baresch was already insincere in his letter to Kircher (we can hardly believe he wanted the decryption only for the "benefit of mankind" and we know it did not "collect the dust on the shelf" only). And Mnishowsky apparently did not tell Marci how he knew for sure that Rudolph owned the very same book. And there is of course one other possibility. . .

Lets us quote again **Wikipedia**: ". . . the friend of Marci who was the reputed source of Bacon's story, was himself a cryptographer (among many other things), and apparently invented a cipher which he claimed was unbreakable (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". After Kircher published his book on Coptic, Raphael (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." (end of quote, no original source listed, j.b.h.).

For some time, I was trying to find the author of that section in Wikipedia, but whoever he is, he merely copied (not in the same words, but close enough) *the comment by Jorge Stolfi*, made in VML, msg00052.html, 27 Dec 2000, I quote:

"Chinese theory notwithstanding, you may recall my other theory that the VMS was actually written by Raphael Mnishovskey as a demo of his

new "uncrackable code". He would have had the book delivered to Baresch for a first test. After watching the poor guy struggle with it for many years, Raphael would have prodded first Baresch and then Marci to send the book to Kircher for the final test. The story about Rudolph and Bacon, quoted in Marci's letter, would then be merely a bait to get Kircher's attention." (end of quote, j.b.h.)

We will not crosscheck here this statement, since it was already admitted it was just a theory, but we can now surely add our two recent findings that are make it a real possibility.

The first discovery.

The first is the discovery that Mnishowsky's book "**Constructio sive strues Trithemiana**" (1828) is in reality no textbook of Czech language but the cypher book, Trithemian style. Thanks to well known Czech cryptographer *Mgr. Pavel Vondruska* from Prague, we can say with great confidence that the book deals with Mnishowsky's invented cypher in the traditional "Ave Maria" style (the famous cypher of Trithemius), produced in two versions of the code (in Latin and Czech). It replaces each letter by code word so the final text looks like a Latin prayer or innocent Czech document. There are however two differences: while Trithemius was using words of religious vocabulary, Mnishowsky selected more ordinary, common words. and he sorted them as some kind of grammatical tree. For instance, the two-page sample from the book (provided by Uppsala University) contains only adjectives, both Latin and Czech.

To confirm the above suspicion, I was searching further and got valuable information from leading Slovak cryptographer *Mgr. Jozef Krajčovič, PhD.*, who kindly provided me with the excerpts from the book by **Kašpar, J.: Soubor statí o novovikém písmu** (The Compendium of Articles about the Modern History Writings, Praha, Karolinum 1993. ISBN 80-7066-679-X. pages 188-190). Below is my translation of excerpts in English (from Chapter 6., The Secret Writings in Modern History. Note: The original Czech names are transcribed in MS Central European font):

*"The first in the sense of provenience as well as linguistics Czech cryptographic textbook in manuscript form is **Constructio sive Strues Trithemiana**, written in 1628 by Czech lawyer and high Imperial Officer Rafael Sobihrd Mnišovský ze Sebužina a Horštejna, based on the same principle as Trithemius's Polygraphia. It differs in two details: it is bi-lingual, i.e. Czech-Latin and as per author's introductory words, it may serve not only as a cryptological textbook but also as a tool for translations from Czech to Latin and vice versa, as well as for the memorizing of the words in the vocabulary.*

Since the words are not in alphabetical or any other logical order, it cannot be used as a vocabulary. The structure shows clearly that it could be used only as a cryptographical help-book and that it was designed for that purpose. Its bilingual content however multiplied the possibilities of the coding and the security of the message.

The Czech user could possibly use it to exercise his knowledge of Latin language, but it was not designed that way, it would otherwise look quite differently. We do not have a record of its common use neither there is any second copy that apparently had to be in the possession of the recipient. The manuscript was of course in Bohemia only for short time, at the end of the 30years war (1648, j.b.h.), it was moved to Sweden as the war booty.

The manuscript of Mnishowsky is stored in the library of the University of Uppsala in Sweden under sign. MS Slav. 60. It contains 208 paper sheets in octave format, the text is on folios 5r-188r (according to V. Flajšhans the text ends at fol. 188r and on fol. 189r is in green ink written the date the work was finished). The manuscript brought attention of several researchers. The first to mention was J. Dobrovský in his book from 1796 called 'Literarische Nachrichten von einer Reise nach Schweden und Russland'. He stated in it that it was the Czech grammatical textbook designed per Trithemius's method and he named Rafael Mnišovský as the author. Half a century later, B. Dudík saw the manuscript; he did not agree on the name of the author, but also considered it to be a grammatical textbook (B. Dudík, Forschungen in Schweden für Mährens Geschichte, Brünn 1852, s. 326-328). The correctness of Dobrovsky's identification of the author confirmed V. Flajšhans (Knihy české v knihovnách švédských a ruských, The Czech Books in Swedish and Russian Libraries, Praha 1897, p. 52-53) and he also mentioned the opinion of Jireček, that Rafael Mnišovský de Sebužin wrote this Latin-Czech manuscript originally for his pupil, archduke Ferdinand, later Ferdinand III. (see note 17 below). The deepest research was apparently done by Carin Davidsson in her article "Johannes Trithemius' Polygraphia als tschechisches Lehrbuch", Cod. Slav. 60 der Universitätsbibliothek in Uppsala, Scando-Slavica 5, 1959, p. 148-164. She was the first to mention the manuscript can be used as cryptographical handbook - which is of course suggested already in the Latin foreword of the book. This book is also mentioned as a Latin textbook in "Rukovì humanistického básnictví v Èechách a na Moravi od konce 15. století do začátku 17. století (The Manual of Humanist Poetry in Bohemia and Moravia from the beginning of 15th till the end of 17th century, Vol. 3, Praha 1969, s. 364-366. There is also more info about Mnišovský.

Note 17 (still part of the quote, j.b.h.): The hypotheses that Mnišovský wrote the book as a textbook of Czech language for his pupil Ferdinand, mentioned in literature, is apparently erroneous. Ferdinand became the pupil of Mnišovský in 1619 but the book was written in 1628, at the time he was the secretary of the Court Office. The format of the manuscript is such that Ferdinand could not learn Czech from it, as it is known that in 1627, a year before the book was finished, he spoke Czech language already. Last but not least, should it have been written for the crown successor, Mnišovský would have certainly mentioned it in the foreword or in the dedication."

Note 18: The manuscript is already mentioned in the list of books of Queen Christina since 1649, see C. Davidsson, c.p. s. 148. "(end of excerpts, j.b.h.)

Needless to say, the excerpts are from the book published by **Charles University of Prague** and they are the results of serious research. From it, we can now reach some further conclusions:

a) Not only is not Mnishowsky's "Constructio" any kind of textbook, but it was not even written for Ferdinand (too bad, he would probably have had the second copy of the book :-). The Mnishowsky himself claims the linguistic application of the book as a bonus only, not as a main purpose.

b) The book has no dedication which is rather unusual for that time. Wasn't it intended for print at all? What purpose then it should serve? We can only guess since his pupil is now out of the picture. Interestingly enough, the VM has no second copy either.

c) If ever Mnishowsky wrote the VM, it came most likely later than his book. Only after studying material for his book, he might have invented much better cipher and get an idea to create a hoax. For that, he needed vellum, but "Constructio" itself is written on paper. And what is more important, the encryption used in the VM is no doubt much more sophisticated. So the VM could have appeared after 1628, but before 1637 (when Baresch wrote his first letter to Kircher). The narrow the span since the comment in Wikipedia, suggesting Mnishowsky discovered his "unbreakable cipher" already in 1618 - is apparently wrong. It may have been typo and the date of "Constructio", 1628, was meant instead. Besides, why would he go back to rather simple Trithemian Ave Maria ten years later after he discovered "unbreakable cipher"? Besides, year 1618 was the year of Prague defenestration, start of the 30-year war and Czechs had more pressing problems than to play with unbreakable ciphers. Horczicky was in jail and the other Catholics laid low or relocated to Vienna as he did. Whom could he possibly brag to about his cipher?

d) Two mistakes were apparently made in early research: first by Dobrowsky, who considered it just a textbook (apparently he did not look too deep since he was otherwise Czech author, extremely skilled in his language) and then by Dudik who assumed wrongly that the abbreviated signature (Rafaël Mnisch., written at the end of the book) means that the true author's name was Mnisch. Both errors now stay corrected. The third mistake, that the book was written for Mnishowsky's Imperial pupil Ferdinand, cannot be traced to its origin, but we now know it had only superficial connection.

e) While the book stayed in Bohemia approx. for 20 years (not so short time, all things considered :-)) it was moved to Sweden 4 years after Mnishowsky's death. Since Swedes never got across the bridge to the other side of the river (the student militia musketeers, Marci among them, had successfully defended the barricade there), the book must have been stored after Mnishowsky's death somewhere in the castle treasury. At that time (1648), the VM was at least for 11 years already in Baresch's hands.

So we may have several years of unaccounted ownership of the VM. So why not by Mnishowsky? We learned that Mnishowsky had a good knowledge of cryptography and we know (see my previous article) that he was interested in alchemy, too. But did he really write the VM? I already mentioned his typical, unconnected script which was apparently unusual for his time, something which is also typical for the VM, if we disregard the fact the script there is unknown and disconnected by its design (it has to be, to avoid the uncertainty). We also know the "sentences" in the VM are not identified in normal sense and there is no use of dots (a full-stop, the sign already known in 14th century), only the paragraphs. At the end of each paragraph, the line (the row) is terminated and new row is started. for another "paragraph". The lengths of paragraphs are of course variable, the majority is approx. from 30 to 70 "words". It is a little bit longer than the average length of our sentences (say in this article), but it was never considered by researchers to be rather unusual fact and so the "paragraphs" were always considered as single sentences.

On the other hand, the "paragraphs" as sentences are rather short for Ave Maria cipher (replacing each letter by one word) so it was apparently not applied for the VM. That alone of course does not eliminate Mnishowsky as an author or not even Trithemius, for that matter; since they both were able to come up with something much more sophisticated and economical. Mnishowsky's book however makes him one of the few cryptographers of the time who were skilled enough to improve the Trithemius ideas and even write a book about it. And what's interesting, besides Bacon and Dee, he seems to be another "suspect", well knowledgeable in advanced cryptography. He had to know the works of Thrithemius very well: he even quotes him in the subtitle of his work, indirectly suggesting he learned a lot from his books.

The second discovery.

Recently, I have made another discovery: the peculiar similarity of Mnishowsky's handwriting with another one. Not to the VM handwriting, which would be hard to prove anyway, but the similarity to the hand that wrote the name of Horczicky into the VM. Here is the sample of the word "Tepenc" with Mnishowsky letters from his book, with Mnishowsky letters interposed:



It is apparently the closest we may ever come to the hand that wrote Horczicky's name. That is not to say we should be completely satisfied with the above similarity, but we may never get better hand to fit the famous "signature" in the VM. This of course does not mean Mnishowsky wrote the VM as well, but to write name Horczicky there, yes, he had to own it in one time or another. After all, we already proved that it was not Horczicky who wrote his name there (see my article "THE NEW SIGNATURE OF HORCZICKY"). Of course, why would Mnishowsky write that particular name there and how did he know it was Horczicky who owned it before him we may only speculate. Add to it the fact that Mnishowsky "forgot" to mention all that to Marci and we may as well doubt the rest of his story, too. But that would put the old provenance story on the very shaky ground indeed . . .

20th December, 2007.



A23. THE LOST NOTES OF GEORGIUS BARESCH.

Jan. B. Hurych

From the VM provenance and the 'one and only' letter in existence written by Baresch, we know that Baresch sent in 1637 a letter to Kircher with some samples (apparently the handwritten copies of several VM folios). The date can be roughly calculated, since in his second letter (27th April 1639) he claimed he sent the first letter to Kircher "one and half years ago". He sent it by pater Moretus from Prague SJ who was at that time travelling to Rome. In his second letter, he also claims Moretus confirmed that the first letter safely arrived in Rome. Neither the letter nor samples were ever found . . .

We may of course assume four possibilities:

1. The documents never reached Kircher. This is highly unlikely: while Baresch politely suggested that in his second letter (apparently not to get Kircher offended), we can see he did not believe it - after all Moretus already confirmed to him he brought it to Rome personally. Whom he actually gave it we do not know, however there exist several letters written by Moretus to Kircher after that event. We may assume Moretus met Kircher once also personally, maybe at that special voyage to Rome.
2. Kircher assumed Baresch sent him a hoax (he was already tricked by Andreas Mueller's hoax, but was it before that?) and so he destroyed the documents. However, Kircher was curious person and while he did not try to solve it, he might as well decided to keep the documentation, there was no harm in it. Still, they were never found and we have no record he ever studied them at that or any other time.
3. The attachments were simply lost, no details are known.
4. They might be still stored somewhere, but that is highly unlikely, since the letter was not found either.

The second set of attachments is mentioned in the second letter by Baresch to Kircher. While the letter survived, no samples were ever found. We may safely assume Kircher received those samples together with the letter and so they may still exist. There is no record about them anywhere, but the most likely place would be the *Museo Kircheriano*. The other options of course still exist, that is they were lost or Kircher disposed of them.

Then of course we have to ask the question why would Kircher save the letter but throw away the samples, the only ones he had at that time? We may guess that he started to get interested in the VM in about the same time since a year later Marci sent him a letter (on 12th Sep 1640), recommending Baresch as his friend, apparently to answer Kircher's query. Marci also mentioned in that letter some samples sent to Kircher which according to René Zandbergen raises the possibility "it would be Baresch's third submission of material from the Voynich MS".

Now all that history is very well known and I would not repeat it here if that is all that is to it. However, recently I hit on the *statement about still another set of Baresch's attachments*. They were mentioned nowhere less than in *Marci's famous last letter to Kircher* (19 August 1666), where he claimed he sent with the book also "Baresch's attempts to solve the VM".

The translation of that letter can be found in the book by Mary d' Imperio, "The Voynich manuscript - the Elegant Enigma", page 81, and in the first chapter, she explains that it "provides its translation from Latin as prepared for Voynich and published by him (1921, p.271)".

The original text in question is this (per original saved in Museo Kircheriano):

"...uerum librum ipsum transmittere tum recusabat in quo discifrando posuit indefessum laborem, uti manifestum ex conatibus ejusdem hic una tibi transmissis neque prius huius spei quam uitae suae finem fecit. "

Translated:

"...but he at that time refused to send the book itself. To its deciphering he devoted unflagging toil, as is apparent from attempts of his which I send you herewith, and he relinquished hope only with his life. "

The word "conatibus", the ablative of "conatus" (=attempt, effort) of course could mean only some records made by Baresch to solve the VM, i.e. notes or samples of his attempts, maybe even some partial solutions. These notes were accompanying the VM and so must have been received by Kircher but they were never found either. The VM and the letter was found and sold together - according to revelations by Ethel Voynich - by Villa Mondragone padres. I wonder if there is any official bill of sale (due to Voynich secrecy arrangements) so we

would never know if the notes were part of the sale or not. Needless to say, the notes were never mentioned or investigated further, neither they were publically proclaimed as missing. At this stage, it seems highly improbable that Kircher would keep the VM manuscript and throw away the notes, his last possible opportunity to learn something more about the VM.

Yes, it makes perfect sense that Kircher stored those notes as well, especially if he was tempted to solve the VM. Kircher might rightly assume that Baresch knew more than Marci revealed in his letter. Maybe he knew the author, the history of the VM or leave some hints about the cipher key (there are some scribbles right in the VM, but they are too short to be qualified as any "attempts"). After all, Baresch had the VM for at least twenty five years. The notes should be somewhere, but where? Of course, they might not have been transported to Mondragone with the VM and could be possibly lost. It is rather surprising nobody ever noticed this discrepancy - and - as far as I know - ever searched for those notes.

It is apparent that Marci put high importance on those notes when he sent them to Kircher. We can speculate that in one time, he even tried to help Baresch with the solution and he also kept the VM himself for several years before he sent it to Kircher. He was very good in mathematics, as his books show and in one time, he attempted to solve the cipher of Swedish general Banner, together with Kircher, as one of his letters proves.

It is surprising that none of those three (or four, if René Zandbergen is right) attachments were ever found. True, the first two would be most likely just the copies of the VM folios (still, some of those might be the copies of now missing folios!), but the last package, the attempts to solve the VM, would be a very important addition to our otherwise slim documentation related to the VM. We may be even able to study the attempts by Baresch and get the idea what cipher (or language) he suspected most, maybe because he really knew more then it was revealed so far.

While Marci claimed Baresch never solved the VM, he might not have known if Baresch wasn't actually on the brink of the solution. And who knows, the full story of the VM could have be written by Baresch in those notes as well, when he realized that nobody else knew it and after his death, it would be therefore lost forever. The notes might therefore conveniently complement the triangle of the most important documents around the VM, namely the Marci's letter, Baresch's letter and the VM itself.

18th January, 2008.



A24. THE VM RESEARCH: The new philosophy and new methods.

Jan. B. Hurych

From the very beginning, the VM research split into several branches, namely historical, linguistic, pictorial, herbal, astrological, text solving and several others. Some were determined by the simple fact that the VM contains several sections. Pretty soon another split happened, namely between those attempting to solve the text. Some believed it was all written in natural language, some went further and suspected possible encoding, any kind of coding. Both of course needed the VM transcript and during the years, several transcripts were provided bringing the new problem: which transcript should be used?

1) The first group was looking for natural language to fit the unknown text which was of course complicated since the script - the alphabet - was unknown as well. So the VM solution was hindered by the fact that we do not know the VM alphabet. In fact, unknown script is the kind of encoding itself, something like mono-alphabetical substitution cipher. To solve the problem, we need to assign to the transcribed text (say in Latin alphabet) the corresponding characters to get the plaintext. This is usually done "manually" which is rather lengthy and cumbersome process. In basic cryptology we use with advantage the *frequency tables*, that is of course if we know what language was used which for the VM we do not know. The tables of frequencies of course vary for different languages. So we would have to try different tables in order to discover any recognizable words in that particular language.

Of course we have to choose **the language first** and see what we get. Even so, some character frequencies are so close we have to use the "guess and try" method and judge from the sense of the partially decrypted sentences in a given language, in order to find the correct letters. The other critical point is the size of the sample. Military experts believe that the sample longer than 500 words is usually large enough, providing the decryptor is skilled in the given language. In the VM which is long enough even the sample size could be large enough, again provided we know the language. So the researchers pick the language first and resort to finding individual words, either by following some hints, questionable statistics or similar kind of leads. So far no language was found and we do not have any reliable conversion yet. In the case that only artificial language was used, there is actually a very slim chance the VM would be ever translated.

2) Those who believe the VM is further encoded (that is: on the top of the unknown script) have it difficult as well. Even if they get the solution, they might not know it until they cross-check it with several languages and hit the right one. No wonder that some in desperation proclaimed that the VM text could be just an encoded gibberish. That is of course the dead end: their decoded gibberish may still be the wrong gibberish and we have no means to find if it is not :-).

There are of course many ways how to encode the plaintext and while many methods were tried, there may be still more to come. If we leave for simplicity the steganography aside, the general idea of encryption is to replace the plaintext by some other text, either by **encoding it**:

- a) **via codebook**, where code-words have no mutual relationship (by algorithm, formula or procedure) with original text since they are only arbitrarily assigned in the codebook. As with the artificial language where we do not have a vocabulary, here we do not have the proper codebook and the decoding is only a guesswork with no practical use.
- b) **via cipher**, which is usually given by formula, algorithm, grill or any other rule of conversion. Again, not knowing the language of the plaintext (and its vocabulary), the results of the application of any rule cannot be properly verified. We can of course try to crosscheck the resulting plaintext with several languages, so the process is rather **opposite to method used in (1)**. The resulting plaintext then should be really plain and clear with not too many ambiguities - otherwise the solution could not be valid.

In both cases above (a and b), several famous cryptographers, namely the military experts, tried their art on the VM and failed. The reason is obvious: while the unknown script can be replaced simply by a transcript, the **unknown language is still the main obstacle**. In other words: the unknown script works like a *cipher* and the unknown language like a *codebook*, unfortunately both at the same time. With military ciphers, the language and alphabet are usually known. There are only few possibilities in the war, if we put aside some exceptions (say Navajo language operators during the WW II, truly the great idea). Also in war, there are only several methods of cracking unless the completely new cipher is invented. Even the codebook can be partly assembled via intercepted messages since mostly the military terms are used in them and the code books books can be even captured with the help of various agents. No such help is available for the VM.

Needless to say, we expected the big help from historical research. The main candidate, Latin language, was however found not to be the plaintext language, certainly not for something simple like the monoalphabetical substitutional cipher. The transposition cipher was not seriously considered or tested due to too many combinations possible. The help provided by pictures of plants or those in astronomical section was not yet sufficiently used. As for the author, we have nothing but a rumor.

The main problem is apparently in the **VM research philosophy**. While we clearly have here the case of three unknowns (script, language and possible coding), we usually have to freeze the two variables and do the research in one domain only. Such research is of course isolated, limited and also impractical. To study the language behavior is not the easy part and the statistics may be helpful but so far it created more questions than answers. Of course, we can guess some vowels, few characters and maybe some suffixes, but not the entire alphabet or grammar. Surprisingly, if we apply the results from one to another folio, we immediately hit the snags. If it is the case, we usually do not check if our results may satisfy some other hypothesis. Instead, we try only several languages and stop there instead of thinking that there may be some additional encoding after all.

With researchers-decryptors, similar failures happen. While the (1) group works mainly with vocabulary and grammar, here we chose first the encoding method and try to apply it. If we fail, we blame it on the fact that we do not have the proper language. Some even go for more complicated encoding, a grille or even double encoding. All that without going back and finishing the work on lower level

All this said, I do not intend to raise here any criticism: we have here the most complicated and enigmatic case that was never tried before. We simply do not know any better than to use **the old, proven methods**. What we should blame is of course our research philosophy - it simply does not fit our problem. And how about our methods - they do not even follow the existing philosophy. And yet another question pops up: what did we really learn from other sciences, from their progress, from their new methods?

The most powerful tool is actually the feedback. We all use it - so to say - but not in continual mode. Our advance is in leaps: ahead, back and ahead again, rather inconsistently and mostly only if he hit the snag. Our criteria of errors are usually not too strict and even rather vague. And yet, analog and later digital computers made their progress mainly because of continuous feedbacks, iterations and loop operations, those well known secrets behind any simulation. They enable us to solve the problems faster and better. Simply said, we should not only mechanize the solving process but also **optimize it**.

That brings the inevitable stage: the use computers. So far, they were utilized mostly for statistical evaluations of the VM text, various measurements and counts, comparisons, sorting and searching. We can also try computerize the decoding, say by trying the different cipher-solvers. But that apparently did not work. Can we use for instance use the *reverse engineering* for reconstruction of the plaintext? Well, that's what we are doing when we are searching for suffixes and whatnot, but apparently the existing methods are not up to our task. Is there something else we missed?

Yes, it is. We missed the **learning process**. True, we are learning during the process but that is not purposeful, true learning process. Or is our every next step based exclusively on what we learned before? Can we iterate our investigations so they converge to something better, more enriched, more positive? We can, but again, "manually" it takes time, isn't fast enough and so it is not too efficient. We can mechanize our processes but without learning, we cannot optimize them. Is there anything that will provide such learning stage we are missing right now?

Yes, there is, they call it artificial **neural networks** (NN) and they are now commonly used as advanced tools for solving processes that do not have mathematical, logical or other formulas or procedures, simply because we do not know them too well or do not understand them or they are functions of many variables. Now isn't our VM the typical case of such problem? All we can get are the organized output data, the transcript. And that is all neural networks really need! They adapt to the problem, correct themselves accordingly, all that via the process of learning and testing, in iterative cycles. They can map the complicated input-output function so well that they will eventually simulate the whole searched-for process. Such "trained" network can be then used for the extrapolations, forecasts, estimates, simulations, planning or other tasks.

Can we use Neural Networks for cracking of the VM? Well, they do good jobs in both *linguistics* (translations, syntax, grammatical rules, speech recognition, e.t.c.) as well as in *cryptography* (deciphering, breaking the code, new methods for encoding, e.t.c.). Of course, they are extensively used also somewhere else: statistics, stock predictions, weather forecast, process control, medical diagnosis and what not.

Based generally on independent units - neurons, with many inputs and usually one output, they perform various mathematical or statistical functions based on combination of input levels. They have basically two modes of learning: **supervised** (both input and outputs are provided) or **unsupervised** (only outputs are provided, as it is our case with the VM). They can work for parallel processing and they can use various combinations of internal functions to do the job.

Do they have disadvantages? Yes, they may not always be accurate or the learning takes long time. They cannot solve certain problems and they are usually not transparent - that is they give us the solution but we cannot really know how it was reached. The solution is locked in the trained memory and if NN are retrained for something else, the solution is lost. Those problems of course can be avoided by proper statement of the problem as well as by the proper kind of neural networks.

Now the crucial question: can they help with our VM problems? Especially when we do have output (the transcript) but no input (the plaintext)? Yes, but hardly the way they are used now in other fields of application. How could we go about it? Say we use the transcript of one folio and as for input, we provide some estimated data and let the NN try to learn the relationship. Then we apply the learned function to another folio and see what we get. If it does not give us anything similar - I use that term loosely - to the first input, our guess was probably wrong. Not too much of the result, right, but at least it will eliminate the wishful thinking that so often leads the research completely astray. Yes, so we have to play "what-if" game. Is it just possible that we may train NN's so they can simulate the unknown

language and grammar for the group (1) research or the unknown encryption process for group (2) research? I believe it is. We might be even able to find out if the input is only a gibberish (group 3 :-). But I believe what we will find is that the input has some strange - but still valid - grammatical or cryptographical rules. All that can be now done much faster than "manually" and may provide us with results that can be further evaluated or used and not just be dependent on our - sometimes faulty - judgment.

As you can see, I do not have any definite method how to do it. It may or may not work. We will have to study first the ways the experts use NN for solving of their problems, be it linguistic, translational, encryptic or statistical. Of course, our problems are not similar to theirs but maybe we will overcome some of our difficulties and the results may even inspire us further and enable the discovery of the true solution . . .

4th February, 2008.



A25. THE SEARCH FOR NUMERICAL CODES IN THE VM.

Jan. B. Hurych

Even before the search for natural language of the VM (that is without any code being used) was in full speed, some researchers suspected the manuscript could have been encoded (or enciphered). Several points were leading to that conclusion:

- **The truly unknown script.** In spite of minor similarities here and there the VM script was never found in any other document or record. The possibility that we are dealing with "once-living-but-now-dead" language and/or script seems to be very low, considering that even with unknown and dead languages, we usually have quite a number of documents or artifacts that were left behind. More likely, we have here an artificial script and/or coded text, where the script is simply one kind of encoding (say as in Morse code e.t.c.]
- **It was a frequent habit already in the Middle ages to encode the important documents.** The secret script was already considered as an encoding tool (say like Freemasons' script) - and sometimes even the one and only tool of encryption. Pretty soon it became obvious however that it is only one special case of the *substitutional*, monoalphabetic cipher for which they already developed the so call "letter frequency" statistics. One just had to use the transcript (any unambiguous assignment would do) and then, letter by letter, to guess and check for the proper plaintext until the text had one, non-ambiguous meaning . So to make the text hard to crack, additional enciphering was used, such as reversed order of letters, polyalphabetical cipher, grill, transposition cipher or other methods.
- **No description of the script.** Contrary to other secret scripts, which were artificially created and were mostly described in minute details by the authors in their books, the VM script is described nowhere. And what's more, its character frequency does not fit any of languages so far investigated. (Note: Actually there is a resemblance to the statistics of Latin, but using the corresponding conversion table, we do not get the plaintext in Latin. This would also point to the fact there was probably additional encoding used, say monoalphabetic or transposition cipher - that would not change the frequency curve).
- **The natural language search did not provide any solution.** When quite a number of the known languages were tried, the attempts switched to less known languages, of course with the same negative results. Here I beg to differ from those, who claim they did find such language: what they really found are the methods of interpretation - mostly trimmed to the expected results - something like reading tea-leaves. And so we have now several leaf-readers that accuse each other for reading the sense into the random sediment not realizing they themselves do the same.
- **The shortage of longer words.** There were of course more indications that the VM is encrypted text, namely since the longer words there are missing, there is totally disconnected script, strange plants, strange pictures and astrological/astronomical charts.
- **The call for the cavalry.** It was quite logical that a great hopes were put on the expert decoding and top *military experts* tried their hands (and brains as well) in cracking the VM, unfortunately with no success.
- **When decoding failed,** the research turned for a while to the search for natural language and after failure of that, the decrypting was undertaken again. That created the vicious circle which we are not able to break. So instead of working in cycles, we should count our losses and split in two groups, each devoting their full time to the either non-encoded natural language or decoding. After all, the VM could hardly have both at the same time . . .

In order to undertake the cracking of the VM, we have to first see the problems that did not allow the military experts to reach that goal. As I mentioned in my last article ("The Research of the Voynich Manuscript: The Strategies and the Results) the military cryptography has certain advantages that we cannot exploit in the VM decoding: the scripts (or signals used, say Morse) are very well known and as for the language, there are only few necessary to be tried. Beside that, there are already some known methods, partly cracked messages, mistakes by enemy operators, set of usual - and suspected, mostly military - expressions, dates or same messages translated in different languages and/or coded by already known cipher, captured enemy operators, captured coding documents or coding machines and last but not least, the actions of friendly spies. Actually they are so many possibilities that one wonders how much of the cracking success is thanks to them alone :-). Unfortunately, none of that is available for the VM.

That is not to say that military experts have it easier, just different - and what's more, some of their cracking methods are simply not applicable for the VM either. But the *most difficult obstacle is still the language and next to it the VM script*. Why also the script? Those two problems are actually interrelated. We know that frequency characteristics do not help, since they are good for monoalphabetic enciphering only. But they might not fit for some other reason as well: the script of the VM is not clear at all. For instance, is the script more of the phonetic type (say the characters represents whole syllables) or is it only singular with maybe several composites (say doublets) for some sounds? We simply have to have a match of the script with existing language - just imagine the difference between English "sh" and German "sch" - certainly, they both sound the same, but what a difference it would make for decoding where every letter counts! Besides, some questions around the VM script are not yet solved: are "gallows" really characters of script or are they something else, say only the indicators of the new key? Are the Currier's characters "M", "N" and "3" really single characters or only composite characters (in EVA alphabet the same characters are indicated as "in", "iin" and "iain"?). Especially when EVA has also characters "i" and

"n" so the confusion is complete and resulting frequency curves are therefore useless.

Can we avoid those problems? If the text is not encoded, we apparently can: once we establish the language, we can easily decide which alphabet is right and which is not, mostly from the meanings of the words alone. For decrypting however we have to try only the words with characters that are non-ambiguous. So the problem is this: if we find the "solution", how do we know it is the right one? Apparently we have to try to read the "solution" in many languages before we discard it . . .

I think the solution is in already hidden the VM: we have to assume that the author really wanted the transcript to be

a) read, and

b) understood - provided the assumption a) is correct and the proper method of encrypting, suggested in the VM, is found.

True, the VM may be only for initiated, but even they could not relay on their memory only and next generation of readers would may completely lose it. So the codes (or keys to ciphers) have to be hidden *somewhere* and *somehow* in the manuscript itself. The assumption a) is quite probable, since nobody would in his sane mind go through such work just for himself, just for his pleasure. He would not make spent so much time to make it so mysterious and challenging, just to please his ego - that would require the public. And he if so, he must have been sure enough with his coding so he could have placed some hints there as well. The point b) is even stronger: such book would certainly raise the curiosity and many would want to read and understand it, same way like we want to :-). All that in spite of the fact - or maybe because of the fact? - we do not know why the author wanted the others to read/understand it, i.e. we do not know the true secret of the VM which can be known only after decoding . . .

What's left is then to find the right method, but that is the most difficult part of it all. However, since we assume the key must be there, we should start looking for it first. If we find something peculiar and the application of it will give us some interesting results, we may be on the right track. So we should look for hidden numbers. Why searching mainly for numbers? The linguists did all kinds of possible statistics, but their explanation did not confirmed the basic fact that the text is in natural language. For instance the testing of the second entropy suggests the VM has a meaningful, organized content. Some read it the way it supports the theory that the VM is written in natural language - in spite of other facts that show the VM is rather "un-natural". For instance if the VM is only the written record of some melodies expressed by strange notation of musical notes what do the results of second entropy tests tell us about the melody itself? No, to satisfy the claim of natural language we have to find the language itself.

As for the key, it could be of course alphabetical, numerical, mixed or expressed some other way (say inside the text or just steganographically, e.t.c.). Alphabetical key would be of course hard to recognize in unknown script and what's more, we probably would not know how to use it anyway. The numbers however have one and only meaning (i.e. 3 is 3 and not 4). Of course, if they are not written as visible digits, they must be expressed some special way One way is of course by unnoticeable digits - see section (1) below where the numbers are masked, the other is by counting objects (2) or there may be some other ways as well (3). First two techniques can be both found in the VM and they are peculiar enough to assume they have some other purpose the just to number the lines - the case I mentioned in my article for Journal of Voynich Studies, "THE NUMBERS IN THE VM".

1) Numbers are written in (but masked).

In above article I already mentioned the folio f49v where is already 5 lines starting with numbers from 1 to 5. It was suggested by some they were written later, by somebody else than the author, but if we study the writing style and its details as well as the color of the ink, we see they are in the same hand, most likely written at the same time. Of course, it proves the author knew the Arabic numerals but that is really no surprise, considering how long were those numerals known in Europe. Since they are in numerical sequence, they apparently served for numbering the lines in question, for some obscure reason. and so they are not our concern here.



Original sample, part of folio f102v2e

I also mentioned quite different case, in the article "SEARCH FOR HIDDEN NUMBERS IN THE VM" (see the picture above, folio f102v2). It required certain speculation what is hidden underneath and I went to extensive testing to see what could be seen on one of those seemingly decorative cylinders (of not-so-obvious purpose, some were suggested already). The find was first described by Jorge Stolfi who also suggested there might be some numbers hidden under the blue coloring, partially covering the brown scribbles in ink.



First attempt for deconvolution

I went through several methods of color filtering (I am using here the rather inaccurate name for intensity, color and gamma manipulation,

as well as other graphical tools available to me then). Several methods show undoubtedly some spots similar to Arabic digits. Again, it raised the criticism with shallow statement that "those are only the decoration doodles" or even more ludicrous "there were not supposed to be any numbers there like if that was not what we were trying to establish first place :-).



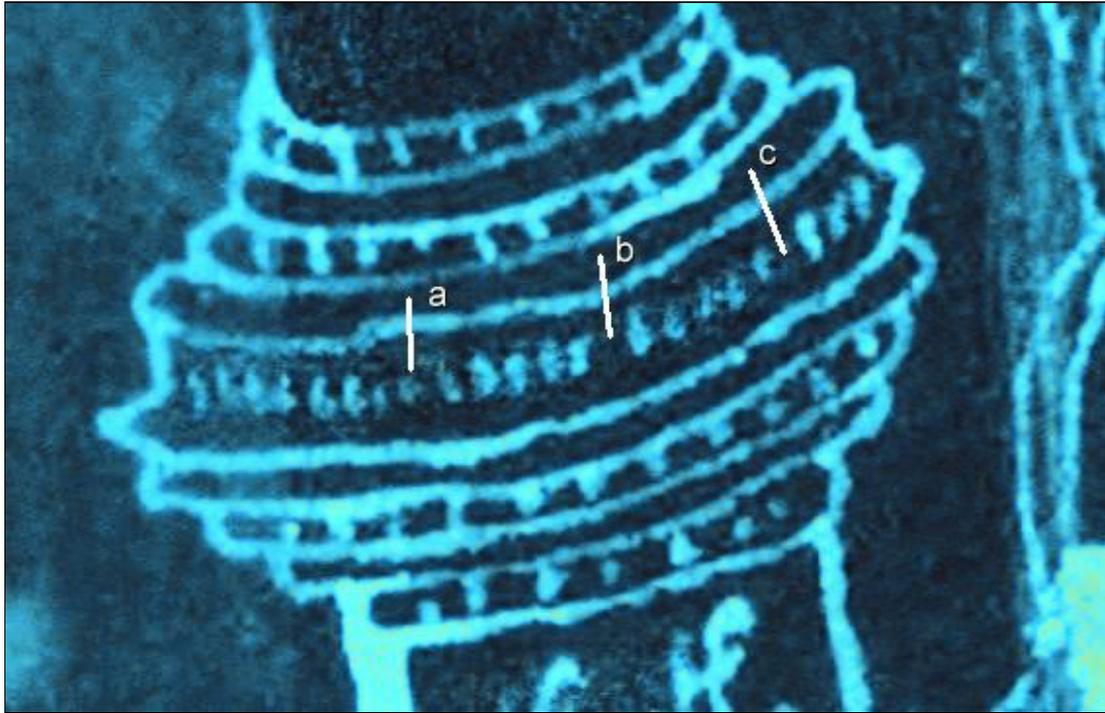
The second attempt for deconvolution

So I searched for deconvolution filter and I got one, for forensic deconvolution (courtesy of Dr. Charles E. H. Berger) with very good results (see pictures below) which confirm the hypothesis that the scribbles underneath are indeed numbers (or maybe mixture of numbers and letters). It also verified that this particular method of deconvolution works best for separating layered colors, one applied on the top of the other, as in this case. Of course, the outlines are still jagged, as it could be expected since either writing is very small but the coverage by the blue color was removed completely.

It would not work so well however if the top color would soak into the lower layer, creating thus composite colors of many shades, which would not be so easy to remove completely or if they were, some red-brown mix would be removed as well therefore we would be losing some shape information. Apparently the top coloring was applied some time later, long enough to prevent soaking and mixing of two different residua. It was discovered already in the past that the coloring was done after the pictures were drawn and it was therefore proposed by some, that it was done by different person. How much time passed in between the text and coloring is of course difficult to tell but that is not so important now.

More important is the question what purpose the coloring served. The original idea that it served the embellishment of the book or even for better recognition of the plants is clearly not satisfactory due to apparent negligence of the illustrator and limited number of colors that were used. It simply cannot satisfy such purpose which fact of course should any illustrator know beforehand.. Also, in the case of plants, the colors are not natural, have no shades and in some cases they clearly suggests they simply were not correct.

The results are convincing: the purpose of coloring was mainly the one of masking. Not everywhere in the VM but surely in this particular case and maybe somewhere else as well. We can see that blue color is not fully spread over the required area but it is just barely covering the numbers. When we follow the coloring stripes from left to right, we can see the height diminishes and at the end it just covers only the numbers. The purpose is then obvious, of course we still do not know what it all means. It is rather clumsy done anyway, we can see there is something underneath and the illustrator should expect it will be noticed. It could have been even done intentionally, to stress there is something important there. On the other hand, it would be conspicuous even without coloring: it will bring readers attention anyway, except in the scale 1:1 is really too small to be easily overlooked.



The negative of second attempt for deconvolution

The symbols there look more like numbers, but to cover all cases, I will just call them "symbols". There are visibly (that means distinctly and most likely intentionally) only three gaps "a, b, c", two unquestionable ("b" and "c") while the gap "a" shows some spots which due to their indefinite shape might be just what they appear to be: only the spots. However, by eliminating those and accepting even the gap "a", we have following groups of numbers, with total in each group in bracket: I(2) - II(4) - II(5) - IV (3). Of course, if we do not accept "a" as a gap, there will be only joint group of I and II, making for 13 numbers in that group which is another possibility.

We have to realize that original size is rather small, so it would be difficult to write there anything readable without magnifying glass and very sharp pen. However, even that small, the inscription there was apparently still readable with glass, so covering by extra layer of paint was chosen. While the shown pictures are probably of the best resolution and reproduction we can get, the uncertainty is still high so even if we would know how to use such key, there is still uncertainty in some numbers. I will not go here into guessing what numbers or letters there may be, only to suggest that they may be the part of some key which - thanks to the uncertainty of some signs - will not be able to help us too much anyway. They might however serve well as a part of learning process, namely if we try to find some other connection, maybe even on the same folio.

2) Numbers expressed by physical objects.

It is certainly noticeable, that the pictures in the VM are very strange: the herbs that do not exist on this earth, the "horoscopes" of unusual construction, circles full of stars with crude suggestion of some heavenly constellations, bathing beauties and strange cylinders like the one discussed above. It was of course suspected from the every beginning that the author might have used the steganography. Here I use the modern meaning of the word, i.e. the information was hidden there indirectly, inconspicuously, not by "steganography" described say by Trithemius, where the "hiding" was done simply by encoding. The pictures of course can hide almost anything, but one has to know *what to look for and where to look*. Simple steganography may just use the counts of objects but more sophisticated steganography would be dealing with symbols, allegories and other indirect means.

To start, we may simply assume that there are hidden numbers in the pictures expressed via counts of objects. There are such places in the VM, namely on folio f100r (Beinecke 1006246). Two rows of plant miniatures could hardly serve any other purpose, such as categorizing or display of plant variations, since each vary so much - from its neighbors as well as from the rest - that it is impossible to tell what they could possibly have in common at all. Not only the shapes are weird but the variations sometimes do not follow the biology and it looks like they are only products of phantasy. One could even guess that the author tried to make them that way, to distinguish them only by something else: that they each have easily counted number of leaves and roots. Especially the number of roots is unnatural - if the plant has more than one root, their number is normally not by any standard, i.e. it does not matter if they are shown say 4 or 5 since it does not serve for recognition. And what's more, the numbers of leaves and roots are very different and within the whole scale from 1 to 10. The only exception is 15 leaves in one case which may only be not leaves bud buds. I am displaying the numbers in the tables under the pictures, counting plants from left to right.



Top picture

L	5	9	7	7	3	3	15	9	5	6	4
R	3	2	5	5	2	?	3	1	1	5	2

Similarly for the bottom picture below. Please also notice that each row in here as well as in the case above starts with mysterious picture of the cylinder reminding us the casing for the rolled scroll. I think that is the hint the arrangement of plants is really the key to something.



Bottom picture

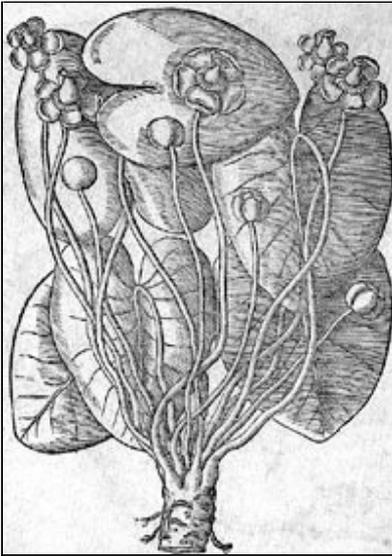
L	3	10	1	2	5
R	1	1	4	3	6

There are other folios with similar "codes" such as folio f99r, f99v and 88r -, the last however with the cylinder changed to vase or what, but apparently with the same purpose. Again, we are not going to dwell here on the application of the coed - in the meantime, we can hardly guess how to use it anyway.

As an extension of the idea, it is possible we can find such keys inn the folios with the picture of individual herb only, but the key might be

"encoded" differently (there are also blossoms) and each folio may be encoded by different key.

3) Numbers identified by colors.



Mathioli's woodcut

It is also possible o that the colors in the pictures might have some meaning in regard to this point of view, at least to distinguish the different parts of the code. In that case they would not directly represent the numbers alone. Contrary to masking mentioned in point (2), it is possible that in the case of individual herbs the colors might serve also some other purpose but hardly to make the plant more recognizable (like some researchers are thinking). On the contrary, some colors (tints) are missing and with those that are present, there are no "shades" so that would make herbs even less recognizable.

Simply said, the "herbal" part of the VM is not herbal at all: the crude pictures, the lack of details, sometimes even disregard of natural shapes and apparently no solid knowledge of botanical science makes it actually anything but herbal. One cannot believe the author could draw those plants from the picked samples as is usually the case - maybe from memory, but one could hardly remember so many strange shapes by heart. Neither it is of course the way the herbals are produced. Herbals are made to be used for recognizing and identifying the plants and that is of course "the main and only" reason the pictures in herbals are drawn. Compare the beautiful woodcuts in Mathioli's herbal at the left (published in 1554 and in Czech translation published by Hayek in 1562, here courtesy of the site <http://penelope.uchicago.edu/>).

Conclusion: There is no doubt there are more occurrences of the second type of number hiding in the VM, we just do not know what to count and where. From the shown tables, one cannot get wise either: if presented to cryptologist, it would most likely generate more questions than answers. Still, the probability the VM is encoded and the keys are right there is very high and while trying to trace the keys might be uncertain and ungrateful undertaking, there is still the possibility to apply the known cryptographical methods just to

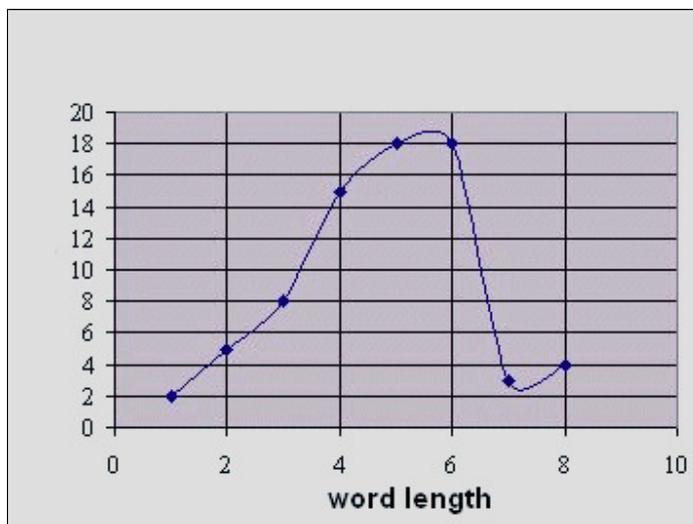
the text alone. That may be the way where we could hope for interesting news.

6th of March, 2008.



A26. THE VM MANUSCRIPT LETTER FREQUENCY.

Jan. B. Hurych



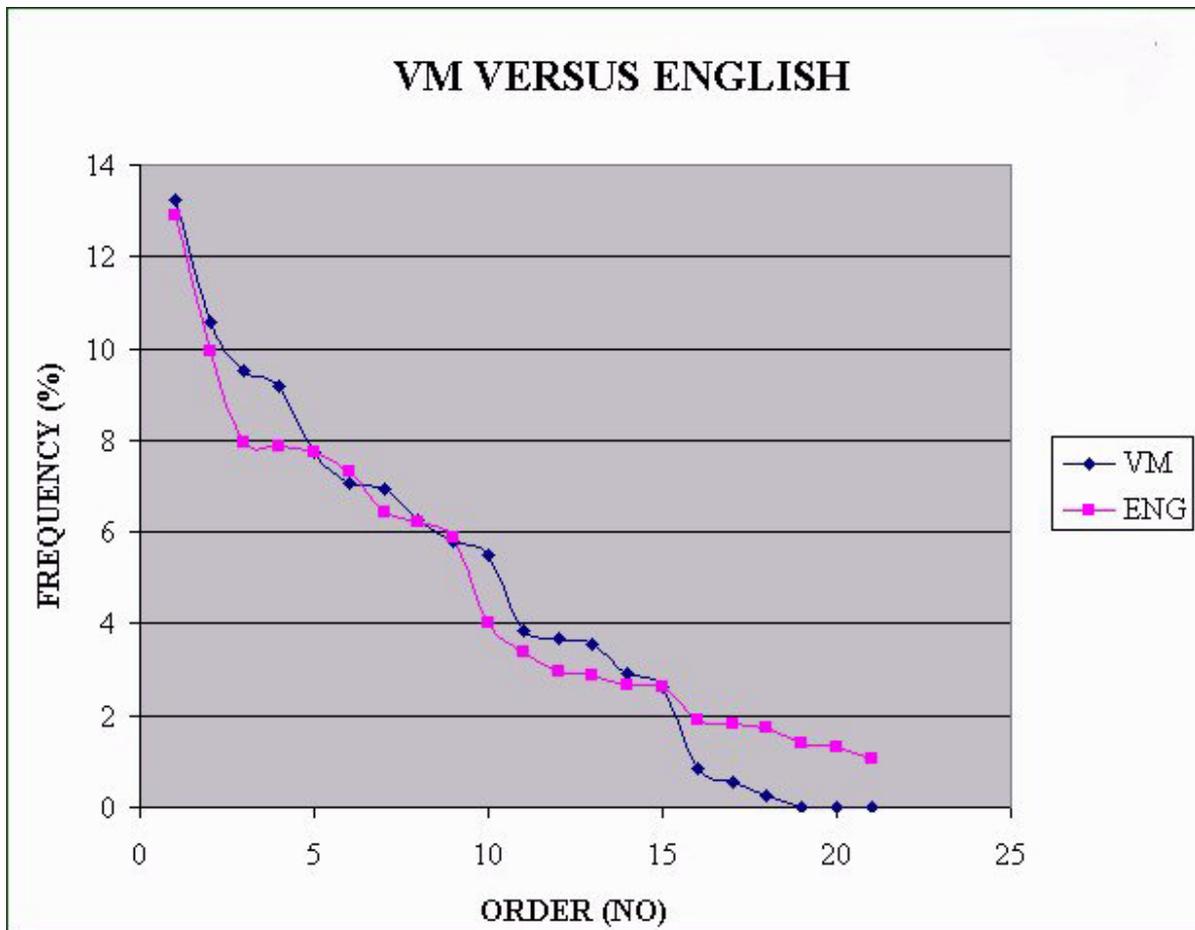
The "word frequency" (that is the frequency of words) of the VM was investigated by many researchers, namely Jorge Stolfi . From the graphs we can see that the words longer than six characters have very low frequency, contrary to Latin and other languages. It almost seems like the longer words were artificially shortened (say curtailed or abbreviated) or almost not used at all. No wonder several researchers looked in different direction: they tried to find the mysterious language that has only short words. The research also found out - via second entropy - that the VM is more compact, more informative than other natural languages. What does it really mean for the language is of course still the subject of speculation. There is of course also the "frequency of the same words" in the VM, but that would greatly depend on the time the VM was written and even more on the author himself. . .

The "letter frequency" of the VM was studied as well but the results were only partial and not clearly evaluated.

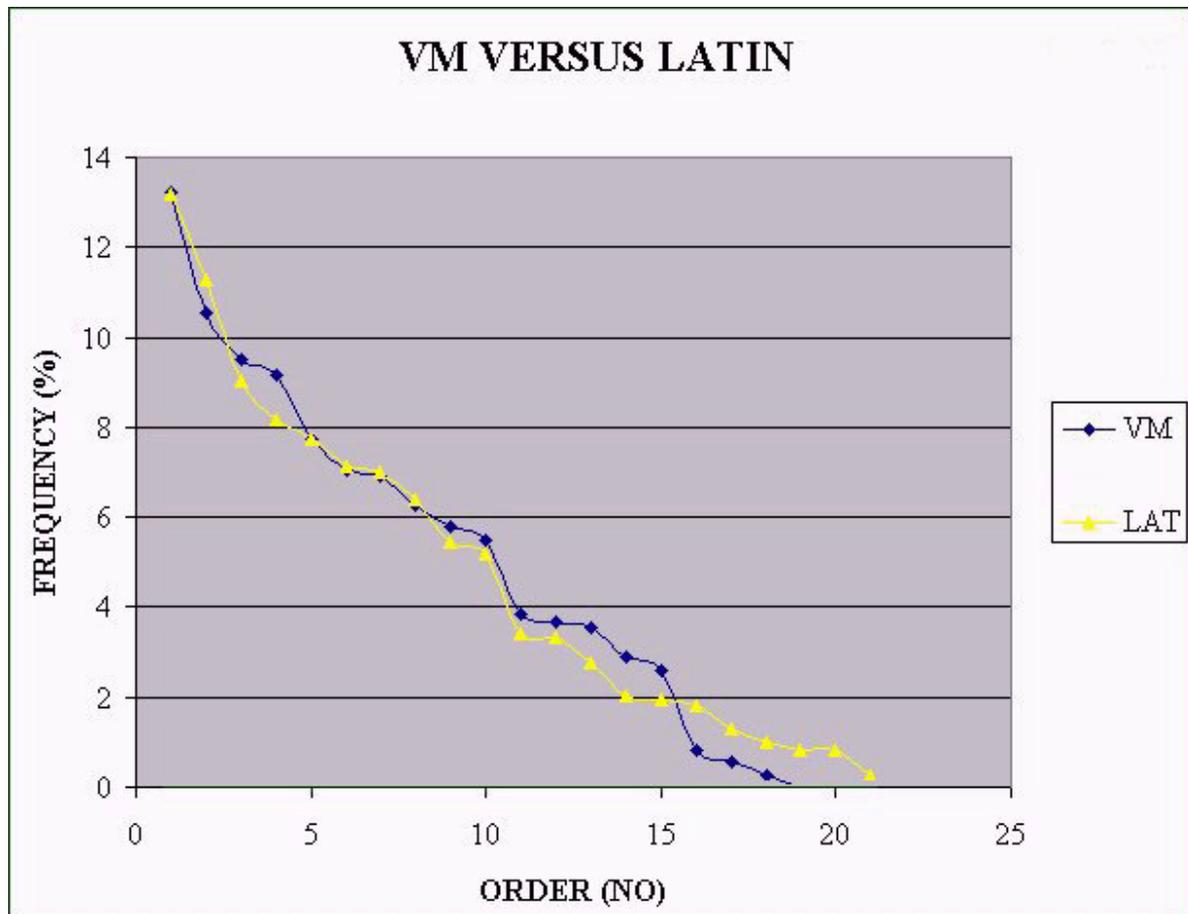
All that in spite of the fact that the "word frequency" would already indicate that the language of the VM was *not natural but rather the encoded one* or even the artificial one. And what's more: the *letter frequency* is usually the first approach when we try to decode the encrypted text . . .

To clarify the situation for me, I decided to do the calculations myself and I used the VM transcript from [Stolfi](#) The result is below where I also included similar calculation for Latin and English languages. For my Latin sample, I used the text of medieval Latin by **St. Augustin** (Confessions, Book 1, <http://ccat.sas.upenn.edu/jod/latinconf/> which I consider more dependable than published tables for Latin where I could not trace the date and source (the Augustin's Latin is most probably the Latin Roger Bacon or others would rather use). I have also taken the sample of medieval English of **Francis Bacon**, from *The advancement of learning, Book 1,* at: <http://darkwing.uoregon.edu/~rbear/adv1.htm> very close to English language of John Dee's time. The results are tabled and plotted below.

	VM	%		ENG	%		LATIN I	%	
1	o	24651	13.24	e	13299	12.88	e	3584	13.16
2	e	19661	10.56	t	10269	9.95	i	3073	11.29
3	h	17734	9.52	o	8197	7.94	a	2464	9.05
4	y	17072	9.17	a	8123	7.87	t	2220	8.15
5	a	14413	7.74	n	8003	7.75	u	2103	7.72
6	c	13140	7.06	i	7545	7.31	s	1940	7.13
7	d	12907	6.93	s	6651	6.44	n	1903	6.99
8	i	11634	6.25	r	6418	6.22	m	1744	6.41
9	k	10816	5.81	h	6083	5.89	r	1484	5.45
10	l	10221	5.49	d	4162	4.03	o	1413	5.19
11	r	7131	3.83	l	3483	3.37	c	926	3.40
12	t	6838	3.67	u	3034	2.94	d	906	3.33
13	s	6596	3.54	c	2965	2.87	l	757	2.78
14	q	5392	2.90	m	2735	2.65	p	557	2.05
15	n	4867	2.61	f	2728	2.64	b	525	1.93
16	p	1557	0.84	p	1962	1.90	q	493	1.81
17	m	1055	0.57	w	1891	1.83	v	351	1.29
18	f	465	0.25	g	1800	1.74	g	272	1.00
19	g	31	0.02	y	1440	1.40	f	224	0.82
20	x	24	0.01	b	1343	1.30	h	222	0.82
21	v	2	0.00	v	1094	1.06	x	67	0.25
		186207	100.00		103225	100.00		27228	100.00



The difference between English and the VM is apparent, not only in magnitudes but in the shape of the curve itself. For individual neighboring points, the slopes vary and the English *curve cuts across the VM curve* rather irregularly. Also, it does not have the typical steps and letter "gatherings" as the VM curve has.

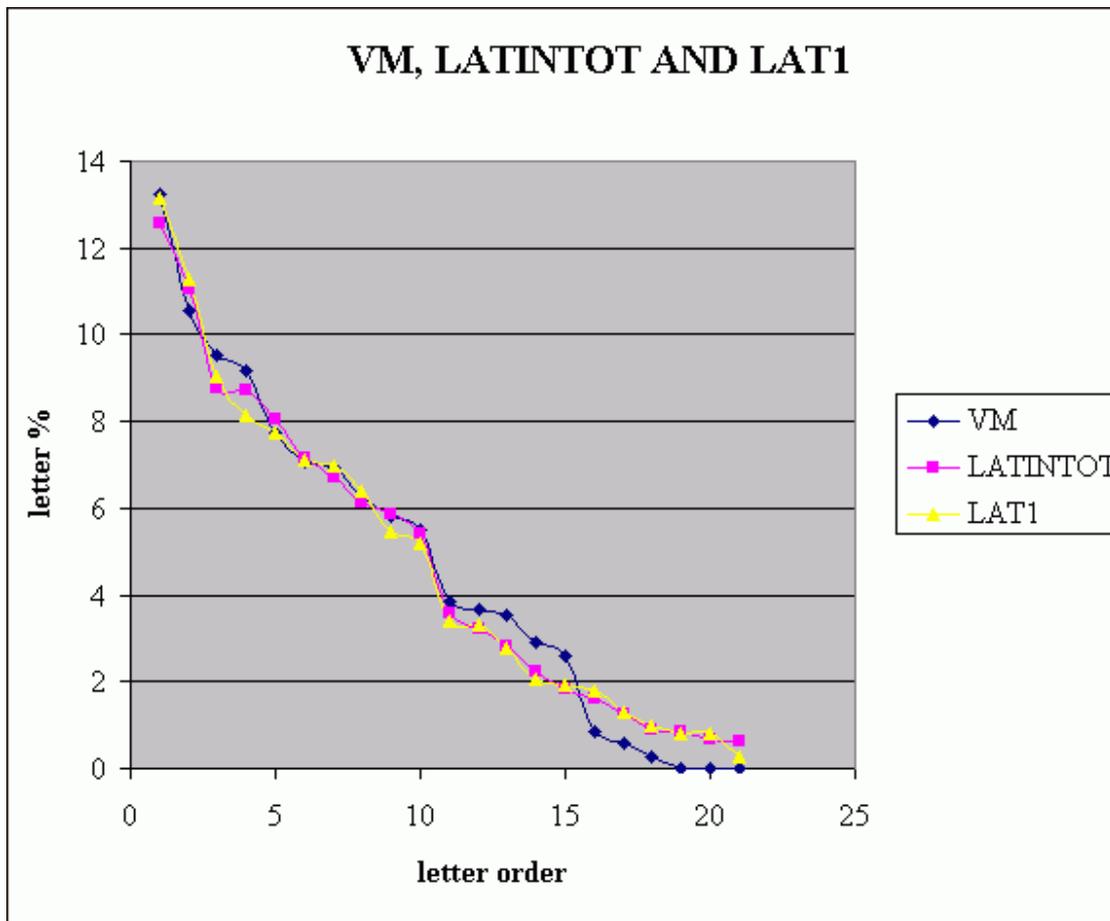


What surprised me however, was the close similarity to the Latin language curve to the one of the VM. Comparison shows that the curves for the VM and Latin are not only close, they even *have those typical jumps and letter "groupings"*. Simply said, the result looks almost incredibly close.

True, several authors already suggested that the VM language could be Latin after all - it was the "international" language of educated scholars and would be surely a top contender. However, so far I did not see in literature a clear proof of that suggestion. True, the correlation on the graph is not perfect, but much closer than English or any other languages I have tried. As for not-so frequent letters, no coincidence was expected anyway since the statistics is there highly inaccurate due to low numbers of appearance. For the same reasons, this "tail" of the curve is usually not used by cryptographers for decrypting.

To be really sure, I let my colleagues to calculate the same sample text by different computer programs and the results were very close to mine. They will be never exactly the same: EVA transcription lists many unidentified characters which may or may not be properly statistically accounted. Also, I didn't take composite signs of EVA (ch, ans, sh, cth, ckh, atd.) as single "letters" but only as 2 or 3 separate letters (it would be too difficult to modify program to search for special "two letter character" or "three letter character". Thus EVA may not be the best tool for statistics since we are still not sure if those are the 2 or 3 letters but one symbol (=for one sound) or just 2 or 3 separate letters. It would have been more practical to use for such case different symbols whatsoever (say like Friedman).

Still, I wanted to be sure if I did not pick by accident the one book that fits so well, so I have combined all 13 books of St. Augustin (see below, LATINTOT). For comparison, the first book curve is marked as LAT1). The result is almost the same, actually the LATINTOT is even closer to the VM than LAT1.



For the above statistics, I did not count *spaces* as characters, assuming that they are what they are, i.e. just spaces. This may not be the case so I also made another statistics where I counted the number of spaces between words in the VM and calculated the "average word in the VM". Percentually, the results are very close to other languages, so it means that the number of words in the VM is percentually (per document length) about the same as for Latin which is rather surprising discovery. The "average" word length for the VM is 4,61, for Latin 5,25 and for English 4,96 so the rounding up to full word length would give us value "5" for all three languages. The VM has of course still the shortest average word, but the difference from Latin is not as great as for the longest words. Again, author could have used Latin with some abbreviation or artificial curtailing of the words. On the other hand, using only shorter words would apparently create different frequency curve.

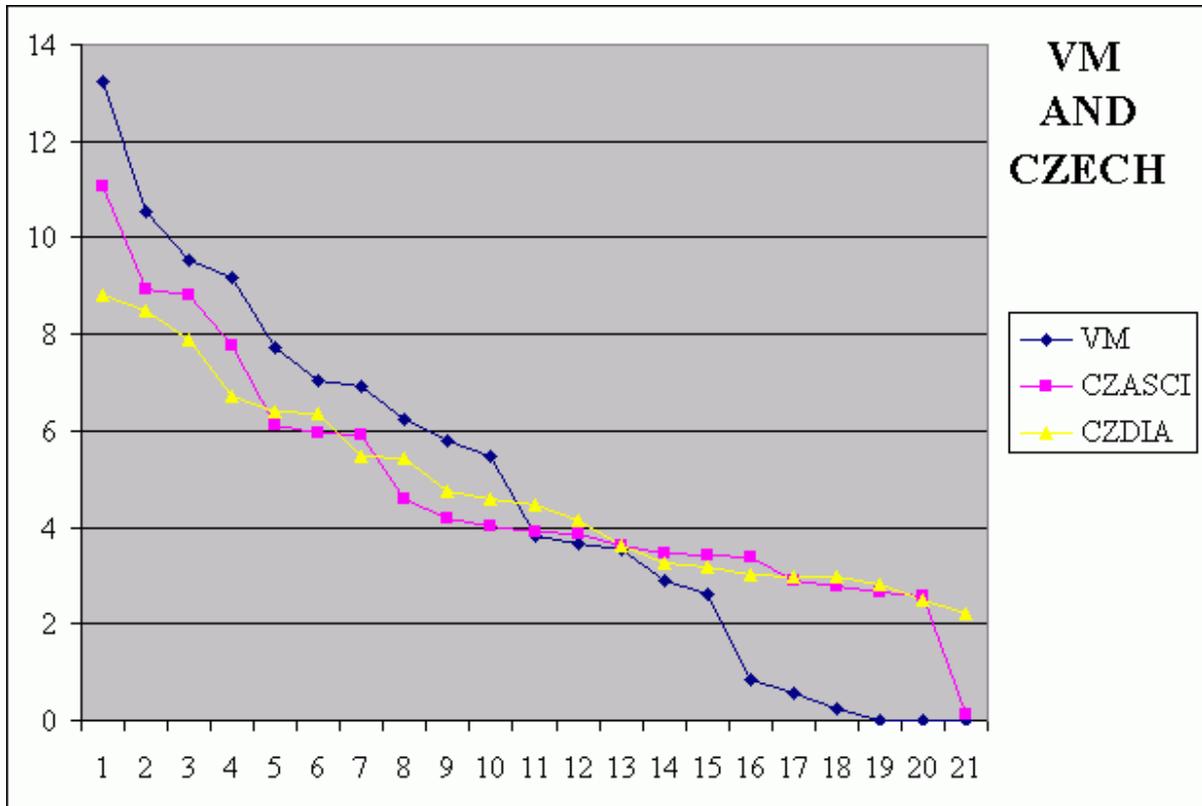
Why do we then claim the VM has "the shorter words" than majority of natural languages? Well, not all of them are the shorter ones - the VM simply has less of "longer" words, which is apparently compensated by higher number of "medium length" words. In other words: the curves for different languages have different shapes but the "areas under" are about the same size, even if the most of words in the VM are five and six letter words. The word length is therefore limited, either naturally (by using some unusual language itself) or artificially, for instance by already mentioned abbreviating or with the length of words curtailed or modified by *transposition cipher*.

The plain *substitution cipher* (even polyalphabetic) will not change the word length - except for Polybius, where there are two coordinates for each letter. *Only the transposition cipher* usually changes not only the position of letters but the length of words as well, depending on the pattern used (say rectangular transposition) plus the use of nulls (the idle characters that are not a part of the plaintext).

I worked-out the frequency table for medieval Czech language as well, using the Czech book by **John Amos Comenius** "*The Labyrinth of the World*" from 17th century. The full text is on page <http://users.ox.ac.uk/~tayl0010/labyrint/indexB.html> I have made two calculations: 1) type "czasci", without Czech diacritics, and 2) type "czdia" with diacritics distinguished, e.g. "s" and "š" were considered as two different letters, since they describe two different sounds.

I combined first ten chapters of the mentioned book to get equal number of characters as the VM has. The point worth mentioning is that I evaluated the Czech text itself as it was presented there, i.e. in today's diacritics, not knowing if Comenius really used it that way (even if the so called *spelling reform* was done at the beginning of the 15th century by rector of Carolinum, Jan Huss (by the way also the follower of John Wycliff religious reformation}). And again, Czech language has also longer words that do not appear in the VM. All that said, the accuracy of the result is not expected to be very high, but it is still *enough to eliminate the hypothesis that the VM text was written in plain Czech language*. There is still the possibility that Czech language was used but in combination with another substitution cipher, of

course the probability of such combination is rather remote.



I also tried other languages, e.g. Lithuanian, but the differences from the VM were even greater than for Czech language. So much more is surprising the fact that the Latin language curve follows the VM rather closely. On the other hand, if the VM was written by medieval scholar, the Latin would be surely his first choice anyway.

Based on above statistics, I constructed the conversion table "VM-LATIN":

VM	o	e	h	y	a	c	d	i	k	l	r	t	s	q	n	p	m	f	g	x	v
LATIN	E	I	A	T	U	S	N	M	R	O	C	D	L	P	Q	B	V	F	G	H	X

The next step of course was the conversion of the text, that is of the VM characters into Latin characters. Following text is the conversion of the first VM folio according to the above table:

VM <fi1r>, original transcript:

kchsy.chadaiin.ol-!!!!!!oltchey.char.cfhar.am- yteeay.char.or.ochy-!!!!!!dcho.lkody.okodar.chody- dao.ckhy.ckho.ckhy.shy-!!!!!!
dksheey.cthy.kotchody.dal- dol.chokeo.dair.dam-!!!!!!sochey.chokody= potoy.shol.dair.cphoal-!!!!!!dar.chey.tody.otoain.shoshy-
choky.chol.cthol.shol.okal-!!!!!!dolchey.chodo.lol.chy.cthy- qo.ol.cho*es.cheol.dol.cthey-!!!!!!ykol.dol.dolo.ykol.do!!ch!!ody-
okol.shol.kol.kechy.chol.ky-!!!!!!chol.cthol.chody.chol.daiin- shor.okol.chol.dol.ky.dar-!!!!!!shol.dchor.otcho.dar.shody-
taor.chotchey.dal.chody-!!!!!!schody.pol.chodar=

Conversion into Latin characters:

RSTLA.STUNUMMN.EO-!!!!!!EODSTIA.STUC.SFTUC.UM- ADIIUA.STUC.EC.ESTA-!!!!!!NSTE.ORENA.ERENUC.STENA-
NUE.SRTA.SRTE.SRTA.LTA-!!!!!!NRLTIIA.SDTA.REDSTENA.NUO- NEO.STERIE.NUMC.NUM-!!!!!!LESTIA.STERENA=
PEDEA.LTEO.NUMC.SPTEUO-!!!!!!NUC.STIA.DENA.EDEUMMN.LTELTA- STERA.STEO.SDTEO.LTEO.ERUO-!!!!!!
NEOSTIA.STENE.OEO.STA.SDTA- PE.EO.STE*IL.STIEO.NEO.SDTIA-!!!!!!AREO.NEO.NEOE.AREO.NE!O!ST!!ENA-
EREQ.LTEO.REO.RISTA.STEO.RA-!!!!!!STEO.SDTEO.STENA.STEO.NUMMN- LTEC.EREO.STEO.NEO.RA.NUC-!!!!!!
LTEO.NSTEC.EDSTE.NUC.LTENA- DUEC.STEDSTIA.NUO.STENA-!!!!!!LSTENA.PEO.STENUC=

The first look at the converted text does not tell us too much. Some letters were not even there and the fact we took composite symbols as 2 or 3 separate letters (as it is in EVA transcription) does not help our purpose either. And we only converted the written transcript of the VM, not the phonetical one (for instance, Latin "u" was sometimes written as "v") and the area with low frequency is inaccurate by the

definition.

We could however suspect the presence of another cipher. If *substitution cipher* was used, it could have been only the *monoalphabetic* one, otherwise the VM curve would change. On the other hand, the **transposition cipher would not change the letter frequency either**, however it was always claimed by some that it would have higher entropy than the VM. Putting aside the justification of such claim (we are talking here about the language and grammar, not just the data as Shanon did), it is suprising taht the same claim was not raised against the Cardan Grille which is of course just another form transposition cipher :-). Either way, is there a possibility to transpose the letters the way the entropy calculation would be fooled? I think there is.

At the conclusion, we can see that the letter frequency statistic is a powerful and rather revealing tool for studying the VM and it may even open a space for new ideas.

March 28th, 2008



A27. THEODORUS MORETUS or THE MESSENGER TO ROME

Jan. B. Hurych

Theodorus Moretus was born in Antwerp, Netherlands, in February 1602. When he was sixteen years old, he entered the Jesuit order and studied in Louvain, Belgium, a city with famous old University. Sometimes he is listed as of Dutch nationality, the other time as a Belgian. Louvain was also famous for its workshops, where many medieval manuscripts were copied, although in Moretus's time it was not as much as before the invention of press. The hand copying was cumbersome so they preferred the manufacturing of fraudulent manuscripts instead those being more profitable when sold as originals. He studied there mathematics and actually so well that in the year 1629, he already became a professor of mathematics in the German city of Munster.



His career in the Bohemia begins when his former teacher of mathematics from Louvain, pater Gregorius, in that time teaching in Prague, became ill. In 1630, Moretus was sent to his assistance. The state of health of his professor later deteriorated even more and when in 1631, Gregorius left the Bohemia, his place is taken by Moretus. At that time he did not know yet that he would never leave Bohemia till his death, in 1667.

He taught there at Jesuit University called *Clementinum*. Strangers as they all were, of *Clementinum* achieved the privilege of supreme power over the original Czech university *Carolinum* and all later over all Czech education as well. They also claimed to abolish the Golden Bull of the Emperor Charles IV. (which confirmed in 1356 the establishment of the *Carolinum* university (1348) as well as its rights). Thanks to interference of archbishop Harrach, the friend of Marci, they did not succeeded to abolish it completely. In the year 1638, some of Jesuit monopoly was withdrawn by Ferdinand III, giving *Carolinum* the independent faculties of law and of medicine and Marci became the dean of it. The same year Marci travels to Rome, probably to fight for more freedoms for *Carolinum* and there he also met with Kircher.

But Jesuit intrigues continued and later again the Jesuits won. In the year 1654, much younger *Clementinum* (est. 1562) was joined with *Carolinum* (est. 1348) into *Karl-Ferdinand University*, and much older *Carolinum* became a subject of Jesuit ill will and harassment. In the new university, Jesuits got the politically more influential faculties, i.e. philosophy and theology. It lasted that way until 1882, when the universities were finally separated into independent Czech and German Universities. The humiliating of the famous Czech university was done in spite of the fact it was Czech students of *Carolinum* who actually stopped Swedes in 1648 at Charles's bridge barricade thus proving their valor and loyalty to Emperor. They were lead by Marci himself who afterwards received the aristocratic title "de Cronland", not s much for his bravery but rather to break his resistance to Jesuit usurpation of his old university. In 1662, Marci became the rector of the joined university, but only for one year.

Now let's return to father Moretus. In Bohemia, he changed several times his locations as a teacher. Being the Doctor of Philosophy and Theology, he taught mostly mathematics, geometry and astronomy - in places like Olomouc, Znojmo, Jihlava, Breznice, Klatovy (1667) and also Nisa and Hlohova. He may have been for some time even in Wroclaw, Poland, but most important was his stay in Prague, where he appeared actually several times (1634-39, 1641-42, 1646-1656).

His scientific work was very fruitful: he made various discoveries in physics and astronomy, hydraulic sand music but mainly mathematics and Jesuits called him proudly "our Archimedes". His research in optics brought him even fame among such scientists as was Robert Hooke, Drebbel, Kircher and Marci. His books were mostly technical: *Tractatus physico-mathematicus de aestu maris* (1665) or *Propositiones mathematicae ex hydrostatica de prima suppositione Archimedis* (written together with Josephus Nicotius, 1667). Several of his manuscripts with mathematical subjects still exist and are stored in *Czech National Library in Prague* (see Reference 1 at the end of article). He probably wrote some mathematical *textbooks* as well (see Reference 10). He also has a crater on the Moon named after him (as Kircher and Marci both have) which certainly confirms his scientific achievements.

Today is the name *Moretus* known more under the "Plantin-Moretus Museum" in Belgium, a printing museum, named by UNESCO as one of the worlds cultural sites (in 2001). That of course needs explanation: Christoffel Plantin was the famous printer, specializing in printing of scientific and humanistic books. In 1575 his print shop had already over seventy employees. His printing empire was extended after his death (1589) by his son-in-law *Jan Moretus*, who began printing books of other topics as well. Whether he was the relative of Theodorus, who lived rather later (1602 to 1667) we do not know, but I recently discovered that Theodorus was the son of Peter Moretus and Henrietta Plantin, so there is some relationship, maybe they were relatives of Jan and Christoffel. Family Moretus was already in good relations with Jesuits, since at the end of 16th century they were awarded by Pater Provincial the printing rights for all Jesuit books in Belgium (1593). No wonder that Theodorus decided to become a Jesuit and felt among them like at home . . .

His first five-year period in Prague (1634 to 1639) is the period of his trip to Rome, which Baresch mentioned in his second letter Kircher. He was bringing Kircher the first letter of Baresch (written 1937). There is no record about that letter elsewhere except the second letter by Baresch which states that Moretus confirmed the delivered the first letter to Kircher (or to his office). What happened to the letter, we do not know - there was no answer by Kircher. However, Baresch himself in his second letter to Kircher (1939) tactfully suggested - even if we see that he did not believe it - that the first letter was probably lost somewhere. He was apparently trying not to offend Kircher and made an excuse why he did not get any response from Kircher (not even the confirmation Kircher got that letter).

This can be explained the way Kircher simply did not bother to write, being once duped by Miller to decrypt a fraud and becoming the subject of laugh afterwards. In addition, Kircher was known as an expert on hieroglyphics, but now we know now that his system was entirely wrong, in spite of the all glory he received. So he simply did not want to get involved. Of course, after the second letter of Baresch was found (and it still exists), it is quite unlikely that the first letter was simply lost. it.

The package also contained the samples of the VM folios - actually only copies - which is also mentioned in Baresch's letter. Kircher's impolite silence is of course inexcusable, especially when Moretus claimed he delivered the package. However, it is possible that Kircher only sent back the verbal message by Moretus with the promise that he would review it. But in that case Moretus did not deliver the full answer, only confirming the delivery but no response . . .

But there are other letters in Museo Kircheriano, from Moretus to Kircher and in very friendly tone, so it is almost certain that Moretus then directly met with Kircher a became his pen pal. For example, there is a letter to Kircher from 1638, that is a year after his visit to Rome, already suggesting to us they might have met even sooner, before Moretus's visit to Rome, maybe for some mathematical dispute. They both lectured mathematics at universities and in addition to their membership in Societas Jesu they had apparently one common passion: to confide to each other the various gossips. Especially Moretus, judging from the letters with his complaints. He apparently he did not like Prague, neither the city nor its people and of course they did not like him either, simply because he was a Jesuit and a foreigner.

However, what we do know about Moretus a man? During the time of his successful scientific career he did not obtain any higher position in the society SJ - he was always called the Reverend Pater only with no other titles. Was he so modest, with no ambition or just unsuccessful in inner politics of the Society? On the other hand, he might have been conspiring against others too much so he became rather unpopular with his superiors. I do not believe that he would have liked being moved too often all around but the reasons of his transfers are not known.

The Museo Kircheriano has those letters he wrote to Kircher from Prague 1638, 1639 and a also from his second stay in Prague, in 1642. They have basically some scientific content, mainly a description of what he did and some technical questions. For example, he wanted to know from Kircher how large is the *congio Farnesiano* (the Roman liquid volume of about 3.3 liters). Elsewhere he asked how long is "Roman foot" - it is clear he wanted it for his hydraulic, mechanical or other studies. Kircher was also interesting in the physics of fountains. Those measurement units were important for his calculations - the use of improper units would give wrong numerical values.

In addition -and that is only my speculation - there are also some rumors in his letters, of personal nature. For example, he calls somebody, not too politely, as an "old Villapandus." Of course, Joannes Villapandus did exist, he was a Spanish Jesuit, who wrote three architectural books (1596) with illustrations, describing Greek Corinthian arcs and - at that time already destroyed - Solomon's Temple in Jerusalem. He even "knew" exactly about its treasures and the total cost of the building. That was of course a rather ridiculous claim, especially to scientists and mathematicians like Moretus and Kircher. At the time Moretus used his name, Villapandus was already dead, while it seems Moretus wrote about someone who still alive. True, the text is not clear whether there was indeed a mockery neither it named the person

who was the target of the mockery. Similarly, Moretus wrote about somebody in Prague, the person surely known to Kircher, as "losing" his memory, without mentioning the name. Pater Kinner was straightforward: he wrote to Kircher the same about Marci but more politely).

With little imagination, we can assume this: both Moretus and Kircher were members of Society Jesu, both were mathematicians, both in a foreign country and particularly for Moretus, it is clear that he was not too happy being in Bohemia. They both would have underestimated Baresch, especially when he bragged he studied in layman's university Sapienza, which was probably underestimated by Jesuits, being a competitor to their Collegio Romano. Of course, Baresch got his baccalaureate in Prague's Clementinum, before the time foreign mathematicians were employed there. It is also a known fact that Jesuits mocked mainly non-Jesuits.

Since we never found the letters from Kircher to Marci (or to Baresch, but I doubt if he ever wrote to him at all) we do not know what was the real relationship of Kircher in regard to Marci. We know that Marci did not make any secret about his admiration of Kircher - well, he even donated the VM to him. Nothing of that sort of admiration can be said about Kircher, in spite of the fact he is called by some researchers to be "the friend of Marci". One example says it all: on August 19, 1666 Marci sent the now famous letter to Kircher, together with the VM manuscript, in his words "by Pater Provincial" and we know Kircher received both since we found them. However in the letter dated 5th of January 1667 Pater Kinner (that was another Jesuit from Prague who also wrote to Kircher and apparently for some time worked as an assistant to almost blind Marci) wrote to Kircher and forwarded him in his letter the request by Marci asking how is Kircher progressing with his study of the VM.

It is incredible that Kircher, after receiving such valuable gift, would let Marci wait for half a year for answer! Kircher also already knew about Marci's deteriorating health. Soon afterwards, Marci actually died, in April 1667 and most likely still without any answer from Kircher! That is not a behavior of the friend. It seems that Marci was always treated by Jesuits with respect, refusing to be one of them. According to historical records, Marci signed on his mortal bed the document he did not even see - since he was totally blind then. Maybe he was told it was just his last will, but it was actually his declaration of voluntary joining of Jesuit order! Victory of Jesuits over the old, brave rector of Czech university was then complete . . .

There was no reply from Kircher to Baresch's first letter and apparently not even to the second one. They both were obviously delivered to Kircher (the first one, in 1637, directly by Moretus, and the second, from 1639, even survived) . The second letter also contained samples of the VM folios, but then followed another letter, this time by Marci, who was recommending Baresch to Kircher, apparently on Baresch's or Kircher's request (1640).

It is my impression Moretus mocked in his letters to Kircher somebody in Prague, maybe Baresch and/or Marci, especially since Moretus did not mentioned names - so Kircher must have known them too. We can go even further in our suggestion: when Moretus met in person with Kircher in Rome, it is almost certain that Kircher asked Moretus to tell him his opinion about Baresch, since Kircher personally did not know him. If so, he could have got from Moretus some information either before or even after reading the letter. Thus his opinion could have been prejudiced by Moretus's response. It is possible that "old Villapandus" could have been Baresch who apparently was known to Prague Jesuits by his theories about the VM and considered by them to be rather eccentric. It is almost certain that the one who "lost his memory" was Marci himself. Also, in one of his letters Moretus spoke ironically about someone in Prague who was solving the quadrature of circle - we know from Marci's books he was the one who is trying to do that. Of course even Moretus's teacher Gregorius tried that and it was possible that in that time it was already considered an impossible task and later became a synonymum for foolish things (as I recall from my school days).

What Moretus told to Kircher regarding Baresch, we do not know, he surely did not praise him, otherwise Kircher would soon contact Baresch himself and start cracking the VM. If he however pictured him as someone obsessed by chimera or even as an old fool, we suspect that Kircher would throw away the samples and would not even bother to answer. Of course, if Moretus gave Kircher some bad references, it would have been only verbally and he certainly would not mention it to Baresch nor to Marci. Since in his second letter Baresch wrote he "once again" sent the samples and that "the holder of the letter has seen them", Baresch most probably gave Moretus the whole book to see - and probably even expected him to assure Kircher that the manuscript was genuine and fill him with details . Moretus, of course, might not do exactly that. Maybe he considered the content of the book as some black magic and refer to it that way and Kircher would then hardly touch that stuff. There might have been also some other reasons for him to give Kircher negative appraisal of the VM and/or Baresch.

It is quite possible that Kircher's behavior was mainly influenced by the information given to him by Moretus. In their letters, Moretus and Kircher wrote to each other as one colleague to another, almost as equals, with certain sympathy for each other. This could also influence Moretus to sincerely advise Kircher not to take the VM seriously, in spite of the fact he surely knew how important was Kircher's expertise to Baresch. He also apparently knew about Marci's friendship with both Baresch and Marci.

Kircher might however changed his mind again, apparently asking one year after the second Baresch's letter since Marci himself wrote letter to Kircher (1640) in which he recommended Baresch as worthy of his trust. Whether it was the response to a query by Kircher we do not know, but it was possible, since Kircher at that time already received two letter from Baresch plus his samples.

So it is also possible that Kircher, in spite of negative report by Moretus, still seemed to be interested. However, there is no record about *any* response by him to Baresch. We must admit that all this is only our speculation but it would explain the unreasonable bias Kircher had against Baresch. Maybe our hypothesis would not do Moretus justice, but what about Kircher?

It is certain that Marci sent Kircher the VM after Baresch's death because he guessed (or read in one of the missing letters from Kircher to him) that Kircher was curious enough and really wanted to see the original. Baresch would of course, while he lived, never send the

original to Kircher. Kircher then would not be able to solve the VM from few samples only (we cannot do it even now, from the almost complete original :-). If there are some hidden signs in the VM suggesting how to solve it, one would surely need the whole book to search for them and Kircher knew it. Baresch certainly wanted to get the hidden secrets in the VM only for himself. He planned to use - or misuse - Kircher for the cracking of the alphabet only, without revealing the content, the real secret. That was of course an impossible task indeed.

Interestingly enough, it may be that by sending the VM to Kircher, Marci actually did his dead friend Baresch disservice. Baresch was apparently offended by Kircher's silence, otherwise he would let Kircher have his book at least after his death. Marci, who was almost blind already, had no use of the book and sent it to Kircher as a great favor since we know he could have sold it for good money. On the other hand, he provided him with some facts and rumors as he heard from Mnishowsky but he was clearly reserving any judgement as far as their veracity.

In my article about Kircher (Athanasius Kircher - The VM in Rome) I described his use of secret manuscript written in Arabic by rabbi Barachias, explaining the meaning of hieroglyphs. Due to the fact he never shown it to anybody, he was richly quoting it in his books. Since Kircher's theory about hieroglyphs was utterly wrong, there is a suspicion that such manuscript never existed. If the VM would later proved to be a fraud, the public would surely suspect the other manuscript to be a fraud as well. Considering all that danger, we can see how easy could have been to convince Kircher that the VM is indeed a fraud.

We may have doubts if Marci's last letter found inside the VM is referring to VM. It could have been easy to plant the letter there since there is no detail mentioned in it that would fit the VM appearance or content. Besides, the letter was - as per Voynich - inserted in the manuscript but by he himself later separated it and we have no witness he was there first place. Even if laboratory test would prove it was there before, how we can be sure it was Marci who put it there? The letter of course seems authentic even if it was written most likely by Marci's scribe. It is mentioning the manuscript without name and "from Prague" only but fortunately, the description found in Baresch's letter has some details that fit the VM well, namely the "exotic flowers, which are not known in Germany, alchemistic recipes . . ." and the like. Voynich apparently did not see that letter, otherwise he would use it conveniently as a part of the provenance, not waiting for the "miraculous" resurrection of Horczicky's "signature".

It is curious that Voynich never found the accompanying notes by Baresch - that were part of the package . Surprisingly, Voynich never mentioned them and we may either assume that they were not in Mondragone - or if there were, there were not offered for sale. Most likely, they were overlooked when the VM was transported from Rome. Or they may be at Villa Mondragone still :-)

Kircher certainly got the VM but for some reason never answered or thanked to Marci himself. For what reason? Is it possible that researchers who call Kircher "Marci's friend " were wrong after all? Perhaps he could not forgive Marci that he resisted Jesuit's overtaking his Carolinum and fought for its complete autonomy. As we saw above, Kircher was Jesuit first and he owed to Societas Jesu very much. While he collected Marci's letters and perhaps even acknowledged Marci's scientific achievements, he may never been in reality his true friend. How else can we explain that even during the last Marci's illness accompanied by blindness, he could not even write him how much he appreciated his valuable gift? It seems that Kircher and Moretus had something more in common than just their mathematics . . .

(the end)

References:

- 1) For personal and other data about Moretus I used those in the site http://www.math.muni.cz/math/biografie/theodorus_moretus.htm and elsewhere from Net.
- 2) *Propositiones mathematicae ex hydrostaticae the first suppositione Archimedis ...* by Theodorus Moretus and Josephus Nicotius, the 1667
- 4) *Tractatus physico-mathematicus de aestu maris*, by Theodorus Moretus
- 5) *Principatus incomparabilis primi filii hominis, Messiae, et primae parentis Matris Virginis* by Theodorus Moretus
- 6) *Propositiones mathematicas ex harmonica de soni magnitudine*, by Theodorus Moretus
- 7) *Tractatus in octo libros physicorum. . .*, Theodore Moretus et Paulo Schabone, 1633
- 8) *Mathematici Tractatus* (Prague, 1641), T. Moretus Moretus
- 9) *The luna pascali and solis motu* (Wratislaviae, 1666), T. Moretus Moretus
- 10) *Mechanics and mechanical philosophy in some Jesuit mathematics textbooks of the time during seventeenth century*, issued by Springer Netherlands, 2007
- 11) Doc. RNDr. Ing. Ing. Karel Mack, CSc. *Theodorus Moretus, provinciae nostrae Archimedes*, Technical University of Liberec

16th August 2009



A28. VM PHILOSOPHY versus VM POLITICS

Jan. B. Hurych

First published in the Journal of Voynich Studies.

After almost one hundred years after its discovery, the VM still resists the individual and even joined attacks of linguists and cryptographers. If we look for possible causes of such failure - it is a hard word, but it has to be said anyway - we are rather confused. Most likely, there are several of those causes, all of them working against us. That is not to say we do not have enough of "efforts" but I hesitate to call them "solutions". Yes, efforts, unfinished and unproven but also not completely disproved either. We never really went deep enough to say quite clearly "this is definitely not working". It was always "it could not work" or "it should not work". True, the burden of the proof should be always on the discoverer himself but we never asked him for complete proof neither we helped such person to provide it for us. So we ended with many hypotheses, none of them completely dead nor alive. If we sometimes go back to them, it is for answers that should have been provided long time ago. Some answers are of course lost forever . . .

Typical case is the one of the most enigmatic VM researchers. Leonell C. Strong, a cancer research scientist who wrote over 300 scientific articles, mainly about genetic link in the origin of cancer, is known he provided oncologists with inbred strains of mice cancer. However, he was also an amateur cryptographer - according to his admission, he spent over 25 years studying the medieval cryptography.

Then there he saw the book by professor Newbold with photographs of two VM folios and by applying the methods of Trithemius, Porta and Selenus, he believed he happened to decrypt the text. How much of it he got decrypted, we cannot tell but he himself felt the limitations of such small sample (two folios only). Learning that Mr. Voynich got the most (or all of) the VM folios "photocopied" as photostats (which technology may not be completely clear to us today) he tried to get a hold of it - or at least to borrow them - for his study.

That's where his misfortune started. (Note: What follows here is based on his own correspondence which is, by the way, very interesting reading and he surely gets our sympathy for his efforts.) The year was 1945 and contrary to Mr. Voynich who encouraged the public to look for VM solution, Strong could not get a hold of those photostats. Mrs. Voynich was very sick at that time and Miss. Nill, acting on her behalf, several times simply refused the request. For him, it was especially frustrating, knowing some other persons had an access and he was not even allowed to know their names. One of them was of course Mr. Friedman whom he approached with request as well but who, without VM owners, could not just lend it to him.

Unhappy for being refused the access, Strong concentrated on those two folios or rather on the copies of them. On folio 93, he discovered the encrypted name of Anthony Ascham, the brother of better known Roger Ascham. It is unclear how he knew that person was the author, but he never doubted that. He tried to get more information about A. Ascham and learned he wrote some almanacs, namely the "Treatise on astronomy" and "A Little Herbal, etc." (1555). Strong also tried to compare the handwriting of the above with the one of the VM but we have no results about that (it would be rather non-conclusive due to the simplicity of the VM script which gives no clues - I tried hopelessly the similar comparison for other authors). Neither did he try to compare the drawings of plants in the VM with the pictures in Ascham's herbal (if they were any).

He was encouraged by his choice of Ascham by discovery of the VM "sunflower" by prof O' Neill, since that plant appeared first in Europe after Columbus discovery and that put Roger Bacon out of the picture completely (as did Manly with Newbold :-). Askham however fits timewise OK. Unfortunately, that left the languages of choice to those only Askham knew :-).

Surprisingly, Strong believed the VM deals with herbal medicine, mainly for woman, since one sentence in the VM reads according to his decrypting "*When skuge uf tun'c-bag rip, seo oogon kum sli of se mosure-issue ped-stans sku-bent, stokked kimbo-elbow crawknot.*" which he believed was in medieval English and so he translated it into modern English as: "*When the contents of the womb rip (or tear the membranes), the child comes slyly from the mother-issuing with the leg-stance seewed and bent while the arms, bent at elbow, are knotted (above the head) like the legs of a crawfish*". Irregular as the sentence seems, with many interposed words and comments, we have to give Strong the credit for trying to decrypt the whole sentence and make some sense to it. There is of course the great danger that the wishful thinking can smudge the original meaning completely. (Note: as per his own words, Strong considered the content of the VM "unsuitable for women" while later admitted it was something like Kinsey report in Ascham's time. Apparently he thought it dealt also with anticonception and abortion).

In June 15, 1945 he published in the magazine *Science* the article ANTHONY ASKHAM, THE AUTHOR OF THE VOYNICH MANUSCRIPT. Here he made already several tactical mistakes:

- a) the assignment of the authorship was surely premature,
- b) his claim he knew the whole encrypting scheme was challenging for some and irritating for others - especially since he did not disclose how he did it,
- c) the choice of the "medieval English" was utterly wrong.

First attack went against the language, so devastating that he tried to investigate the old Gaelic language instead and again, the experts proved him wrong again. What's more, some of his decoded expressions were utterly modern, namely "paprika" etc. That of course did not eliminate Ascham's authorship completely but made it rather weak.

As for his claim he could decrypt the whole VM - without having seen more than two folios - it was a psychological mistake, as he himself realized. He was told by somebody that for the owner, the unsolved manuscript had higher selling price advantage. Come to think of it - if the VM was fraud and the owners knew that, they might have been afraid of a disclosure.

As he later claimed, the article was intended to get the public attention to the VM, but we suspect it was rather the attention to his solution, to get him the permission to see the photostats. He also expected most from the article he wanted to publish in Time Magazine but it was turned down by editors with following answer: *Time & Life Building, The Weekly Newsmagazine Rockefeller Center New York Editorial Offices: "We regret that were unable to run the story on the Voynich manuscript and sadly return the wealth of material that you so kindly lent us. We felt unable to use this story because of the lack of cooperation on the part of the manuscript's owners. Naturally, our editors felt the subject too contentious to discuss without a fuller view of all its aspects."*

Somehow, somebody interfered, that is certain. Strong blamed owners of the VM. Later, he was hinting that while Mr. Friedman was working on the VM solution (imagine, there was still the war going on!) he was probably also involved in some conspiracy. There might be something in it, considering that instead of letting Strong to see the Photostats, Friedman suggested for Strong to give him the solution and he would try it on the computer himself :-).

Strong still carried on in his research and two years later he published another article, *Strong, Leonell C. and McCawley, E. L. "A Verification of a Hitherto Unknown Prescription of the 16th Century."* in the Bulletin of the History of Medicine (Baltimore, Md.) 21 (November-December 1947). There he tried to apply his discoveries from the VM, namely as per picture in folio 93, dealing with plant used as a contraceptive based on "antibiotic" qualities of such plant.

Still, even in 1962, he was still not able to see the photostats and even *The New Yorker* refused to print his article without the permission of the owners. That was probably the last straw: he totally abandoned the project, swearing that "nobody ever will learn his secret" while some other time he said "it is all in Trithemius, Porta and Selenus". From his notes, some researchers tried to simulate his solution, but soon stopped pointing out there is too many possibilities for "wishful translation". For those reasons, we did not try here to discuss his methods or provide any criticism by cryptoanalysts, all that being beyond the subject of this article.

So where did he go wrong? Was he secretive, suspicious, afraid that somebody will steal his solution? Or was he right in his suspicion, mistreated and treated unfairly? Or was it just because he was so immersed in his assumptions that he did not like any criticism and got easily offended? After all, we all have our pride and that is all right, I presume. One thing is however for sure: his advertisement of "complete solution" was premature and without checking the whole manuscript, he could never prove his point. Later, when he learned the VM is in Yale, he still did not pick up where he stopped before.

He was not the only one who did not provide us with the clear, repeatable method for the solution. Too bad, because those theories, like zombies, exist only in limbo, between the life and dead. Newbold and many others after him also presented the incomplete, ambiguous methods that can hardly be called "solutions". Even the "gibberish" theory is like a snake eating its own tail: gibberish, yes, but very organized gibberish indeed: it is looking like VM, following VM grammar and providing very low entropy as well :-). Of course it is an easy way out - if it is only gibberish one does not need to look for the solution . . .

What can we learn from that? Well, there is so far no complete solution and probably never will be. So let's be humble and do not claim unclaimable. Besides, if we announce the solution, any solution, we have to be ready to throw it to the public for scrutinizing. Simply said, we have to be ready. The best advice to such proponent of new solution is the question: how can be your hypothesis falsified? If he never asked himself this question, he is simply not ready to proclaim anything. And he should not be offended if some other person has different opinion, provided the objections are presented decently and with no personal attacks. But most of all, the burden of proof is on the person who comes with the solution - if he is not ready to present it all, he should at least give enough material so his theory can be substantiated. Not just the decoded text, please, one can write thousands of them. Everybody should be his own hardest critic. And of course, one might be on right track but there is no time for celebration one day before the exam :-).



A29. JUAN CARAMUEL DE LOBKOVIC.

Jan. B. Hurych

First published in the Journal of Voynich Studies.

He was a Czech on his mother side but for the world he was known as Spaniard (his father was a Spaniard, his mother was Czech noblewoman from Lobkovic) was born in Madrid (23 May 1606) and died in Vigevano, Italy (8 September 1682). At one time, he was a Catholic bishop in Bohemia, but for his views at odds with Jesuits. He was mainly a scientist and he corresponded with Marcia and Kircher. Among other things, he was interested in mathematics and Asian languages, especially Chinese (that was probably the reason he exchanged letters with Kircher).



Picture courtesy of <http://pagesperso-orange.fr/caramuel/>

He entered the Order of Cistercians in Spain and later moved to Flanders where he obtained a doctorate of theology at the University of Louvain. He had to leave later because of the Palatinate war and was accepted in the Court of Ferdinand III (who was once taught by Mnishovsky) in Vienna. Later again he was made an Abbot in Scotland and later still in Vienna. Eventually, he became the archvicar in Prague.

In 1648 he defended with musket the barricade on Charles Bridge in Prague against the Swedes and for his heroism he got from Emperor the golden chain - while Marci got (for the same heroism) his title "de Kronland". He became a bishop of Hradec Kralove region, Bohemia and later an archbishop in Otranto, Italy and died as a bishop of Vigevano, Italy. He wrote about 262 works on grammar, poetry, rhetoric, mathematics (mainly combinatorics and probability), on astronomy, architecture, physics, logic, metaphysics, theology, etc.

More about his work can be found in [here](#) Unfortunately, the works quoted there are not available on Net. There are some interesting data and documents from that website which I believe should be investigating further:

- 1644 Letter to Marci, 26th June (Mathesis biceps, vol I, 479a)
- 1644 (9th July, from Speyer, Germany) letter to Descart (published by Pastine, 187-188) More of the same letters
- 1644 (26th July, Speyer, a letter to Kircher (Rome, APUG, Ms. 556, Carteggio Kircher II, f. 365-365, published by Cenal 1953, 122-124).
- 1644 (10th September, Frankenthal) letter to Pierre Gassendi (published in Gassendi, Opera, IV, 480) and a letter to Marci (Mathesis biceps, 469).
- 1647 (Spring, Prague) Caramuel came to Prague and settled in the monastery Emauzy Monastery (plausible date suggested by Velarde Lombrana 1989, 200). During that time, he became a close friend of Jan Marcus Marci (see ThMF, § 1623, Rome 1656, II, 109).
- 1647 (24th October, Prague, Emauzy, he wrote the book: Authoris de projecto pacis, ab Excellentissimis Dominis plenipotentiariis exhibito iudicium, printed in SR Imperii Pax licita demonstrata. Editio tertia (Vienna 1649, 164-166).
- 1650 (28th March, Prague) letter to Marci (Theologia moralis fundamentalis, Rome 1656, I, 129; of Editio Tertio, Lyons 1657, 101-102).
- 1650 (Easter, Prague, Emauzy: Declaration of papal authority (Theologia moralis fundamentalis, Rome 1656, I, 95: "Prague in Caesarea Montisserati Monasterio pridie solennitatem paschatis Anno 1650"; similar version in theology moralis fundamentalis. Editio Tertio, Lyons 1657, 75).
- 1653 (16th January, Prague, Emauzy) The first letter to François de la Bonne Esperance, OCD (reprinted in Noctua Belgica ad aquilam Germanicam, Louvain 1657, np). - 1653 (8th November, Prague, Emauzy), the second letter to François de la Bonne Esperance, OCD (reprinted in noctua Belgica ad aquilam Germanicam, Louvain 1657, np).
- 1654, 4th February: Caramuel's theology moralis fundamentalis (first published in Frankfurt 1652) The work was condemned by Jesuits.

- 1654 (4th May, Prague, Emauzy) letter to Pietro Francesco Passerinimu (repr. in Passerini's Schedarium liberale, Piacenza, 1659)
- 1655 (April: Caramuel left Prague for Rome. His travel itinerary (Prague, Bratislava, Trieste, Venice) is documented in a letter sent to Pope Alexander VII (Vatican Library, ASV, Segretario di Stato, Particolari, 30, f. 365r.)
- 1657 (he returns to Prague, 8th May, Prague, Emauzy: letter to Alexander VII (Vatican Library, ASV, Segretario di Stato, Vescovi., 43, f. 90R-v,).

In 2006, the conference was held in the Czech Republic under the auspices of the Academy of Sciences and the diocese of Hradec Králové, devoted to the work Juan Caramuel, see [here](#), also available in English.

Note 1: In 1635 Ferdinand III of Spain invited the Benedictines from Montserrat to Prague and they settled in Emauzy. In his books Caramuel called the monastery as "of Monsterrat", although the monastery was built originally by Charles IV for Balkan Benedictines.

Note2: There is one quote in Schoenberg Center: "The earliest cryptographic treatise by a Spaniard appears to be the Steganographia of Juan Caramuel y Lobkowitz (Madrid, 1606-1682), a mathematician, and was not published until 1635 in Latin and in Cologne, Germany." There is apparently more we can learn about Caramuel and his friendship with Marci. He came to Prague ten years after Baresch wrote his first letter to Kircher. There is also a remote possibility he might have learned about the VM and even seen it.

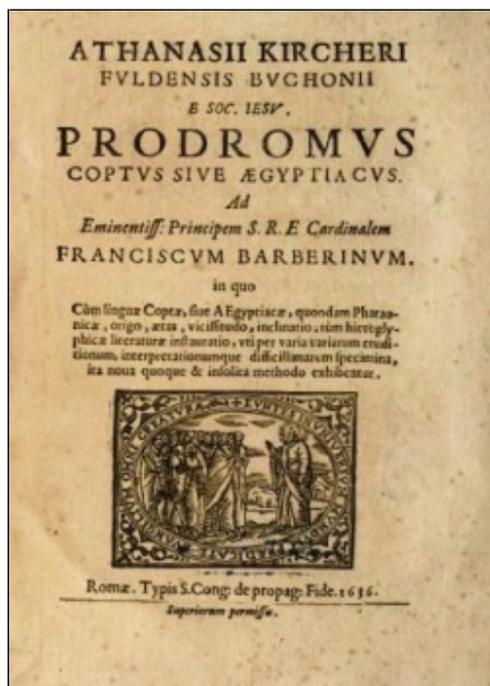


A30. ATHANASIIUS KIRCHER - THE VM IN ROME

Jan. B. Hurych

First published in the Journal of Voynich Studies.

In 1666, Ioannes Dr. Marci sent from Prague the manuscript VM to Kircher in Rome, together with the letter, which is also preserved. In the letter, Marci urged Kircher to try to solve the manuscript's mystery. Unlike other letters by Marci, this one was not collected and archived in his Museo Kircheriano but it appeared about many years later (in 1912) in Jesuit school located in Villa Mondragone. It was sold, together with the manuscript VM itself, to antiquarian Wilfrid Voynich. Whether Kircher ever tried to solve the manuscript, we have no proof. Let's try to consider what could Kircher do with it and why the manuscript laid almost 250 years, nobody had any interest in it and the owners seemed pleased they could sell it to Voynich.



Kircher's *Prodromus Coptus*

litterarum (The Republic of letters). It was a kind of correspondence between the scientists, the forerunner of similar communications carried later in the time of Enlightenment. The network of scientific correspondents wrote mainly in Latin and their letters served the international exchange of information. It was intended especially for scientists in far-away places to know about the latest research, to gain some insight and also get the possibility to discuss their works. The system worked rather well, even in time of the Thirty Years' War when Europe was divided into two hostile camps. While he was the Catholic, Pereisc corresponded also with Protestants which did not make him very popular among Jesuit hierarchy. Soon he became Kircher's friend and even though their relationship later deteriorated, he continued to support Kircher and trust him.

Athanasius Kircher, whose name was recently resurrected after a long time neglect, was born in 1601 (or 1602) near Fulda in German Hesse. He also studied (since 1614) in the Jesuit college as seminarist and after four years he left for Paderborn to study philosophy and theology. He could not finish his studies since the Thirty Years' War broke out and when the city was later defeated by Protestant armies, he escaped to Cologne with the group of other students (1622). During the flight, he almost drowned in the river Rhine when the ice broke underneath of him and the river was carrying him away from the others. However he managed to get to the shore and having reached Cologne, he finished his studies there and began his teaching career.

He taught in Koblenz and later in Heiligenstat where he again met with misfortune on his way / he was captured by enemy soldiers and almost miraculously escaped the gallows. In his new destination, he taught mathematics, Hebrew and Syrian languages and for some time, he was in the service of the archbishop of Mainz. He completed his four years study of theology there and in 1628 was ordained as a priest.

Kircher spent the mandatory year after ordination in Speyer where he discovered in the Jesuit college library the books with pictures of Egyptian obelisks and there also began his interest in Egyptology and Oriental studies. He became the professor of mathematics and Hebrew in Würzburg.

In 1631 however, Würzburg was conquered by the army of Gustav Adolf and so he ran again, this time to French town Avignon where he got the professorship at the Pontifical University and was introduced to rich French aristocrat, well-known astronomer, lawyer and expert on antiquities, Nicolas-Claude Fabri de Peiresc (* 1580, +1637). Peiresc was not only a great astronomer (one crater on the moon is named after him) but he also carried a rich correspondence with other scientists in Europe, the so-called *Respublica*

The following facts may also help us to clarify Kircher's relationship to the VM. Many details here are from the book of Daniel Stolzenberg, "Egyptian Oedipus: Antiquarianism Oriental Studies & occult" (Stanford University, 2004) while others are from various books about Kircher. Based on those facts, I carry on with my own assumptions, related to both Kircher and the VM. The events described here are mainly those concerning Kircher's book, *Prodromus Coptus* (published in Rome, 1636), the very same book Baresch spoke about in his second letter to Kircher (1639 and possibly even in his first letter from 1637, which is apparently lost). There are surely serious implications in regard to Kircher's attitude towards the VM.

Prodromus made a big impression on Baresch and it seems he was introduced to the book through Marci. We do not know however, how far was Baresch sincere in his letter: he certainly mentioned it to get Kircher interested - the book could have been considered as a good reason (or excuse) to write to him. There is no doubt he wanted to use Kircher, to get his help with deciphering the VM, but he apparently had his own personal plans. We can guess it from the fact that with both letters since he sent Kircher only copied samples, no originals.

It is interesting to guess why Kircher devoted so much time to Oriental studies and Egyptology. We know that on top of his all other interests, i.e. the mathematics, physics and linguistics (he knew several languages and even tried to create a sort of universal language), the Oriental studies remained at the forefront of his concerns and occupied probably most of his time. Unfortunately, while in other disciplines he made valuable discoveries, his explanation of hieroglyphs was absolutely incorrect. We can probably explain it by his passion that might have sometimes blinded his reasoning.

Perhaps it stemmed from his interest in ancient secrets, maybe certain influence had even his Christian name. Saint Athanasius (* 293, +373 AD) was the bishop of Alexandria as well as the spiritual leader of Egypt from the fourth century after Christ. He was also a defender of Holy Trinity dogma which is considering Christ as an integral part of the divine Trinity. He was recognized by Roman Catholics and Orthodox Church as a Saint and even Protestants regard him as a great religious personality. His sanctuary is in the Coptic Cathedral in Cairo. It is certain that all that was also known by Athanasius Kircher and probably boosted his interest in the Coptic language and Copts in general. Who were the Copts? Coptic Orthodox Church was founded by one of the twelve apostles, the evangelist Marcus and "Coptic"

originally meant only "Egyptian" (from the Greek "aigyptos"). Today, it is understood only as special Coptic religion (represented by ten percent of Egypt population). After the fall of Alexander the Great's Empire, Egyptians were exposed to new political and religious currents, namely the Christian, and after the Arab invasion of 693 AD, also to Islam. Old time religion of the Pharaohs was then already a history.

Copts today, even if they speak only Arabic language, are proud on their traditional Christianity. Coptic language was more or less the final stage of Egyptian language but was still used in Egypt in some places even at the end of seventeenth century even if the Arabic language is prevailing there since the twelfth century. It was already with the arrival of Christianity (in the first century A.D.) that the Egyptian texts was replaced by Greek alphabet which was more practical than the last Egyptian script (called *demotic*, used till about 400 A.D. but the new Coptic alphabet still contained some of its letters).

While Coptic alphabet is practically Greek, Coptic language has only few Greek words. Also the grammar of Coptic language remained very similar to late Egyptian. With the arrival of Arabic language, Coptic texts disappeared and they are now found only in the Coptic religious books. Since the Coptic language was there still used in Kircher's time, it was just necessary to compile a vocabulary, i.e. phonetically assign Coptic alphabet to Latin alphabet and they could then translate the first Christian texts and other manuscripts. The older secrets were of course hidden in hieroglyphs whose meaning remained - in part thanks to Kircher's faulty theory - virtually unknown until Champollion's discovery.

The image shows the title page of Athanasius Kircher's book 'Lingvæ Coptæ'. The title is 'LINGVÆ COPTÆ' with 'AEGYPTIACAE ANTIQVAE. PARS PRIMA. CAPVT PRIMVM. De literis Coptitarum.' below it. A table of the Coptic alphabet follows, with columns for 'Figura', 'Nomen', 'Nomen', and 'Potestas'. The table lists letters from Alpha to Zeta, with their Coptic symbols and Latin equivalents. At the bottom, it says 'Habent Coptitz in vniuersum literas 32. quarum figuras, nomina, potestates, in sequente schemate contemphare.'

Figura	Nomen	Nomen	Potestas
Α	Αλφ	Alpha	A
Β	Βιτα	Vida	V
Γ	Γαμμα	Gamma	G
Δ	Δαλτα	Dalda	D
Ε	Ει	Ei	E
Σ	Σο	So	S
Ζ	Ζιτα	Zida	Z

N n a H

Kircher's Coptic alphabet

Kircher, in the meantime, found refuge in France, not knowing that he would never return to Germany any more. His Jesuit superiors found him quickly the professorial position in Avignon. He had the advantage due to his knowledge of Hebrew (which was then popular, providing better understanding of the biblical texts) and the classical Syrian language (which he also taught) as well as Arabic language which just started to be taught in the seventeenth century. Oriental literature was seen as a source of information that would be otherwise lost and its knowledge had to be restored. And it was Peiresc himself who encouraged Cardinal Barberini to support the study of Ethiopian language because he heard from one Capuchin that one library was discovered in North Africa, with about eight thousand books, among them also the prophecies of Enoch which were all written in Ethiopian. Similar findings were made by a well-known traveler Echelense who received the support of Cardinal Richelieu and the Pope Urban VIII. Then Kircher told Peiresc about the large library in Cairo, with one thousand manuscripts, covered with unknown hieroglyphs.

We can therefore imagine the amazement of Peiresc when Kircher also claimed he owned Arabic manuscript written by Jewish rabbi Barachias (or Berechiah) Nephi from Babylon whom he also called Abenephius. Who the rabbi was - in fact if he ever was - we do not know; one Nephi and his family lived around 66 BC in Jerusalem before God ordered him to go into the wilderness (as per Book of Mormon). The only reference to rabbi Barachias I found is in the book by Madame Blavatsky and she only quoted Kircher :-). It is interesting how Kircher happened to have the manuscript: he claimed he saved it from the library of the Archbishop of Mainz while he was fleeing from enemy. Moreover, he said the manuscript explained the meaning of hieroglyphs. That way he gained not only Peiresc's interest but he also his introduction to his "Republic of letters" and its members.

As you can see, Kircher thus acquired the scientific and political connections he needed and he used them well. When he arrived in Avignon, he was only thirty (Pereisc was 52) and he spent there only two years (1632 through 1633). For such a short time he made an excellent start of his scientific and public career. Before he came he was quite unknown scholar - he wrote only one dissertation on magnetism in Würzburg which - at that time - did not create any deep interest. When he was leaving France, he had a series of letters of recommendation and a lot of influential friends thanks to Pereisc. He just had to use that all to his benefit.

Kircher thought that the rich culture of Egypt - even before the flood - was saved only thanks to Hermes Tristegistos who (according to Greek legend) fled to Egypt and brought with him the alphabet and Hermetic philosophy. He was apparently the one who was called Thoth by Egyptians and he is assumed to be the author of thousands of Hermetic writings. Hermetic writings were very highly appreciated in the Middle Ages - especially those dealing with alchemy and astrology - but we do not know how many of them were really so ancient :-). Some texts are most probably really from the time of pharaohs. In the Arab tradition called Her mesas Idris, otherwise also known as Enoch (whose "alphabet" discovered or rather invented themselves Dee and Kelly :-).

Kircher also promised Pereisc that he would send him the Latin translation of the manuscript which he planned to write. But after some time, when Kircher did not want to show Pereisc the manuscript alone, Pereisc began asking for a copy of the manuscript some Arabs in Tunis. All in vain: the manuscript was apparently unique issue. And Kircher sent him his various treatises instead, perhaps to quiet his curiosity, perhaps to advertise his own work. Today, we believe that Kircher was not interested in translation of the manuscript at all but rather in the promotion of his own works, his own glory. It reminds us the situation when Baresch sent Kircher just copies of the VM instead of the original. It is no wonder that Kircher saw right through Baresch - if the VM contained any secrets, Baresch surely did not want to share them with anybody. That game could Kircher, as we see, master very well himself :-).

Yet Pereisc naively believed that he would show him Barachias's manuscript, eventually. In the meantime, he understood that Kircher owned the manuscript and therefore had the right to exploit it fully without someone sharing his glory. He would be of course fully satisfied if Kircher published the Latin translation of the manuscript for others to study. Instead, Kircher sent again something like a "commentary to the manuscript", his own writing. Therefore Pereisc started to doubt Kircher's explanations and wondered how much of the text citations agreed with the manuscript and how much of it was Kircher's ideas only. We know today that Kircher had a habit to use fictional quotes. The translation did not progress and Kircher only supplied new excuses. Pereisc got him some Arabic dictionaries and even the job in the Jesuit college in Aix, the city where he lived, to have him close and possibly even push him little bit toward his goal.

However, another problem surfaced: the Emperor in Vienna needed a professor of mathematics as a replacement for the deceased Johannes Kepler and Jesuit superiors chose Kircher to go to Vienna. Unhappy Pereisc wrote to Cardinal Barberini asking him to convince the Jesuit General Vitelleschi to change the selection. He explained that this would not only be a big loss thanks to Kircher's involvement in teaching of the local aristocracy and that Kircher also needed more time for his study of hieroglyphs.

While they waited the answer, Kircher visited Pereisc in June 1633 but again he brought only his research and more excuses: he said he was unable to write because of the visits and school examinations, preparing his new book for printing and the like. The next visit was again postponed by Kircher, although Pereisc already invited several interested scientists - which is strange, considering it would enhance his reputation. In September, Kircher was ready to leave for Vienna but before his departure, he finally presented Pereisc his rare manuscript . . .

Well, not exactly: per Pereisc description, he let him copy only some hieroglyphs from the obelisk drawn on one folio and gave him their translation "according to the rabbi Berechiah". Kircher himself claimed that he showed Pereisc the manuscript and when he "felt the smell from Egyptian lamps, he praised Kircher with the words of praise that Kircher in all his modesty could not repeat". The truth is that after the whole year of waiting, Kircher showed him only the last page of the manuscript, actually only an index of hieroglyphs. And he allowed him to copy only few hieroglyphs - possibly only the same from a well-known book by Horapollon which also begins with the same hieroglyph of the eye. We can see that such strange behavior must have got suspicious even to otherwise trusting Pereisc. He also see the copy of the inscription on the obelisk St. John of Lateran in Rome which was rather crude and more like an amateurish imitation and a fantasy.

Here we have to ask a serious question: is it possible that Kircher, the experienced Egyptologist, was fooling himself? Well, yes, if we consider the story by Mueller who sent him an "unknown" text he fabricated and Kircher "solved" it. Maybe it was just because he often uncritically welcomed anything that supported his theory . . .

In the case of the VM, Baresch wrote to Kircher about "hieroglyphs" in the VM and Kircher knew they were none there. On the other hand, Marci approached Kircher with the cipher of general Banner and was not refused. Therefore if Kircher did refuse to study the VM (and we have no proof of such refusal) it was not because he was not scientifically interested. There must have been some other reasons.

Was he afraid of his failure to solve the VM? We know only one fact: a lot of things Kircher studied over so many years and wrote about, contained clear, easily noticed errors. Was it somehow overblown self-confidence or did he just refused to see his errors? Stolzenberg writes that Kircher often sacrificed the principles of scientific work, such as accuracy, healthy skepticism and reservation at the expense of his speculative hypotheses. (Note: It's inexcusable but understandable - the history of VM research gives us many examples of such confusions, jh).

Let's take the case when he was saddened when Pereisc drew attention to one mistake while Kircher objected because "for those images I found so beautiful explanations". . . Pereisc correctly argued that, in his view, the script on the obelisk celebrates the famous deeds of Pharaoh to which Kircher replied "no, these are secrets of Hermes Tristegistos and not some unknown history of the Kings". The meeting ended in debacle but Pereisc continued to support Kircher in the eyes of contemporaries until his death in 1637 (Note: Interestingly, it was the same year 1637 Baresch wrote his first letter to Kircher and in 1639 the other. Kircher's book was already over the Europe and Kircher

could not afford any damage to his reputation.).

In Marseilles, where he began his journey to Vienna, Kircher wrote Pereisc the letter in which he promised he would send him the translation of the rabbi's manuscript. In response, Pereisc gave him - before he boarded the ship - a letter of recommendation to Cardinal Barberini in Rome where Kircher planned to stop on his way to Vienna. In that letter he however omitted his previous praise of Kircher's interpretation of hieroglyphs; he probably already had his doubts about Kircher's ability.

Here we should stop and ask one important question: did Kircher really want to go to Vienna? On one hand, he was born as a German, therefore it should be the area close to his native language and there was nothing higher estimated than the life at Imperial Court. On the other hand, it could have meant the end of his plans, which depended on the financial aid that would later support his independent scientific work. At court, he could not work on his discoveries and without aid, he could not carry on his research. As a professor of mathematics he would probably remained unknown to the world and we know how much he was attracted to Egyptology. . .

In order to avoid the Germany threatened by war he already had bad experience with, Kircher chose a longer route through Genoa via boat with the stop in Rome. Their ship was however driven by the storm to one island near Marseille and her Captain disappeared and left passengers to their fate. Fortunately, some other ship took them aboard but it was also driven away from the course and almost sunk before it finally put them ashore in Italy. It does not seem that Kircher was in any hurry to reach Rome. And it happened: when he finally got to Rome, Kircher learned that someone else was already sent to Vienna. The coincidence of two storms may however have been partly invented by Kircher since he apparently knew from Pereisc that things looked promising and Vienna just needed sometime to decide. Of course, he did not plan to go back to suspicious Pereisc but he wanted to remain in Rome. Why would he needed Pereisc's letters to Barberini in Rome if he planned to start his job in Vienna?

It worked: Barberini actually kept Kircher in Rome and gave him the task to translate the manuscript of Barachias and he could also use the rich resources of Vatican and other libraries in Rome. In addition he received the position of a professor at Collegio Romano where he taught mathematics, physics and oriental languages. Later he actually went independent to do only his own research which provided for him a comfortable living, thanks to his books with dedications to rich patrons as well as smart public advertising.

While Pereisc assessed Kircher's explanation of hieroglyphs as misguided, he still believed in his mysterious manuscript, the translation of which, as he hoped, Kircher will eventually complete and publish. But it has not happened that way, not before Pereisc's death nor never after. Here again we can strongly doubt not only the existence of the manuscript but even that of rabbi Barachias ever lived. The manuscript was not found, neither in Kircher's estate nor it was ever catalogued in Museo Kircheriano. If Kircher ever had such manuscript, we will never know how many of his quotations were true to original If he quoted it correctly then the manuscript was full of errors and false speculations - and it would have very dubious scientific value. We can rather assume that Kircher actually used very little of that manuscript, although he later in his books still had a lot of "quotes". The biggest - and practically the only one - importance of the Barachias's manuscript lays in the fact it started Kircher's fabulous career.

We will not address here Kircher's errors, it's enough to say that Egyptian hieroglyphs are of the phonographic type, i.e., they represent one, two or three consonants, whereas the vowels are not shown. Thus, it is only a sort of acronyms or abbreviated script - as some Egyptologists suspected long time ago - and not some magical symbols with meanings Kircher painfully invented. His seems to be the case of "putting the cart before the horse", that is he invented the meaning and then delivered the explanation. Many people did not notice but experienced researchers as Pereisc were not deceived. Even so, he still took Kircher's resistance to show him the entire manuscript as "the considerations of conscience" - i.e. because the book probably contained some magical nonsenses. He might also believed that Kircher just wanted to keep all the secrets for himself. But why? At that time, there existed some old books by Ammianus or Hermapion (both freely available for reading). As for possible immorality hidden in the text - L. Strong also suspected some immoral content in the VM. Nothing of that was ever confirmed.

Pereisc then discovered in his notes he made when seeing Barachias's manuscript, the words of the Koran, much younger than was allegedly Barachias's manuscript. Here we have to point out that Barachias's manuscript was surely not our VM since Kircher had most already rabbi's manuscript in 1628, and carried it later all the time with him.

In 1634, Kircher notified Pereisc he would publish the book of his comments with the complete translation but later again hesitated, claiming the manuscript contained some magical procedures. Pereisc suggested to Kircher to translate only the innocent parts, selected per Kircher's discretion. In 1635, Kircher finally began to write his book *Prodromus Coptus* (Introduction to Coptic language) and in the autumn of 1636 the book was printed. There was no translation of Barachias in the book but he promised unhappy Pereisc that they would be included in his next book, *Oedipus Aegyptiacus*. Once Pereisc died - apparently the only one who still insisted on the translation - the promise was easily forgotten. We can imagine that Kircher was greatly relieved: the manuscript that helped him to start his career and led him to Rome, would remain secret forever :-).

Again, we have to ask: why didn't he deliver the translation? Since it was in Coptic, the language known to Kircher, the linguistics was not a serious problem. Was there really something so shocking in the content of the manuscript it had to be hidden from public? Say something against Church dogmas? Hardly, it was only a guidebook how to read hieroglyphs. Neither we can assume Kircher did not understand Barachias explanations of the symbols. So only one explanation remains: there was never any Barachias manuscript or it it was, Kircher simply did not have it. . .

It is clear that the Barachias's manuscript could not be our VM for some other reasons as well - it was not written in Arabic and there are no Egyptian hieroglyphs there. We can only guess how much was Kircher driven to solve the hieroglyphs - probably as much as we want to

solve the VM script :-) Marci also sent Kircher - directly with the VM manuscript - some Baresch attempts to solve the manuscript texts. None of that was ever found. It is of course possible that they were put aside by Kircher (as he probably did with first and second samples) and after his death, they were not considered important documents and were thrown away. Especially critical was the period when the Jesuit property was confiscated during Italian Risorgimento and experts believe that the VM and Marci's letter were saved only because they were quickly transferred to Villa Mondragone. The greatest chance for survival however had those scraps of Baresch's records sent by Marci with the VM, since we know the manuscript survived, as well as Marci's letter. We do not know whether they still existed in Voynich time but then again, being separated from the VM, they might have been discarded or sold to somebody else. Voynich did not talk about them but then again, the entire purchase was covered with secrecy and some part of the mystery Voynich surely took to his grave. Situation in Mondragone at that time is also unclear - only De Ricci 1937 catalog refers to the M8, which, as experts now believe, is our VM. Strangely enough, in 1937 the VM was 25 years gone from Mondragone, so how it suddenly happen to be in that catalogue :-). Is there still some hope to find those notes in Museo Kircheriano, in Mondragone or even in Voynich estate? What if Baresch, the last person in the know, wrote there the history of the VM?



Kircher's dedication to Ferdinand III

"Prodromus Coptus" it is clear to us that Kircher's ability to crack the manuscript would be skewed by his rich imagination. True, he got his glory but his "translation" of hieroglyphs was completely wrong. All this is know to us only now when we can really read the hieroglyphics but even during his life he had many critics and the distrust to his theories grew with time.

But we do not want here criticize Kircher's methods or to condemn its errors. We were just following the beginnings of his career, only with the intent to clarify his relationship to hieroglyphs and thus to VM as such. True, the VM has no Egyptian hieroglyphs but Baresch in his letter flattered Kircher as an expert on hieroglyphs and no doubt at that time many were convinced about his expertise. But even if Baresch could have doubts, there was probably no other person in his mind who could possibly solve the VM. Indeed, it appears that Baresch learned about the book from Marci who was interested in ancient languages and was even receiving from Kircher some directions and advices in that filed. It is also true that almost any unknown script was often referred to as "hieroglyphs" suggesting simply the unreadable text. For example, the son of John Dee wrote that his father had a book full of "hieroglyphics", though probably it was something of that sort because Dee never studied Egyptian hieroglyphs. Besides, the original sense of the word "hieroglyphs" does not mean Egyptian script at all, just the carved writing. . .

One of the really amazing Kircher's qualities was his knowledge of foreign languages - they said he knew about twenty of them. However, if he knew only the spoken language, do might have not understand the script, the typical example being the Chinese picture alphabet. In the case of VM we do not know neither the language nor the script. And so it was just this impossible combination Baresch wanted Kircher to solve. Of course, Baresch wanted to learn from Kircher the script and the language but not the text itself. He saved the discovery of the VM's hidden secret to for himself alone. This was of course unsolvable task and even Baresch should have known that the random samples just won't be enough. Perhaps he suspected the VM was written in a language he was familiar language and he expected Kircher to crack the alphabet only, believing he could then read the book himself.

That was apparently the first thought of Kircher as well - today, we believe the VM is either encrypted or written in unknown (or even artificial) language. The idea of well-known language used in the VM would be especially attractive for Kircher since he already once guessed - correctly - that Copt language is an Old-Egyptian, just slightly modified. Today, it is obvious that even knowledge of twenty languages would not help if the manuscript was not decoded first. For that Kircher would have to be also the cipher expert (actually even better expert than those we have today :-). While we know that Marci and Kircher tried to solve the cipher of Swedish general Banner but we do not know how far they got. Again, we can see, even Marci had too high opinion about Kircher's abilities to crack the ciphers. On the other hand, it is true that they were both skilled mathematicians (which might have helped) but judging by Kircher's failure to crack the hieroglyphs, his knowledge of languages would be probably more of a disadvantage than otherwise.

The only person who could accurately evaluate those Kircher's abilities should have been apparently only Kircher himself. The question is this: was he enough critical to himself? I doubt it; he had rather overblown self-confidence. So there were some other reasons not to go

public with his solutions - if he had any at all. Firstly, it was a risky business and besides: why do all that just for Baresch and not for his own glory? Too bad we do not have any record if he ever asked for the whole manuscript. But then again, he finally got the whole original and probably still did not make any attempts to solve the VM - we have no records of that. Of course, he might have waited until he finds the solution. One way to be more certain would be to find his scribbles in the VM . . . To learn what Kircher did with the samples Baresch

sent to him, we have to guess his first reaction. Surely, he first wondered if it was a trick played on him. Later, in his letters, Marci described for him Baresch as reliable, serious scientist, and what's more, as his friend. It seems to be that Kircher himself asked him for those references. But not even after that he did not start any cracking.



Kircher's Museum

We know about three cases where he was tricked. Kircher was never too critical to the ideas of others not even to his own. In the first case, his competitor Andreas Mueller (sometimes written as Müller) sent him a fake manuscript with the intent to fool him or even to ridicule him. Unfortunately, I could not find when it happened but I guess that it was considerably later after *Prodromus* came out since before that Kircher was not so well known. That could possibly date it only after Baresch's letters, so it is important it happened only later.

Once Kircher "solved" the mysterious text, Mueller went with the story public and made Kircher ridiculous. This story somewhat does not sound right to me - to do such a thing as a private little joke, yes, but one does not do the ridicule the colleague in the eyes of the public - not even the competitor and especially not with such dirty trick. As a private joke, it is not such a big thing. It is therefore possible that historians found that joke somewhere in private correspondence and blew it out of proportion. We do not know Kircher's reaction and his side of the story but our researchers repeated that nonsense over and over. Trusting Kircher simply might have believed Mueller's story and tried to please his colleague, even if he was not completely sure with his solution.

Another, similar sample, on another occasion, actually failed to fool Kircher: allegedly again written in Chinese characters on silk paper.

He discovered in the mirror that the letters were nothing but the set of Roman numerals written backwards (that sounds silly but the information is rather vague).

Apparently even this was originated by Mueller, who was an expert on Chinese symbols and probably wanted to show how little Kircher knew about it. Again, it seems to be just a practical joke, intended not so much to fool Kircher but to entertain Mueller himself. Indeed, it also appears that this is just the Kircher's side of the above story. Of course, the whole story could have been also invented by Kircher's assistant Gaspar Schott who collected such stories and or interpreted them for the visitors of Museo Kircheriano. Kircher himself of course never was in China - he wanted to be sent there as missionary but he did not get approval by his superiors. Therefore, he could be an easy target for anybody who was there. It is also possible that the text was in so called katakana script form the eighth century AD, which is nothing like Chinese picture script.

The third story is even more suspicious - some young rascals buried the stones that they carved in various shapes, in the place where a new house was built. Kircher acknowledged the authenticity of stones and "explained" what the different pictures should mean, which was of course a sheer nonsense. All that looks like some joke of his students, I know we did those to our poor professors often and when we told the stories later, they accumulated a lot of fiction as well. If, on the other hand, Kircher had a good sense of humor, he could have provided those false explanations to those rascals as real thing and enjoy himself how much he fooled them :-).

But even if we take these stories with caution, Kircher apparently erred a lot. It was also noticed by such scientists as Leibnitz, Descartes and Mencke. Abbe Jean Jacques Berthelemy (archaeologist of the 18th century) even said that Kircher's *Oedipus Aegyptus* is the silliest encyclopedia that was ever published. The archaeologist Jablonski said it more gently: "In Kircher's work, there is more ostentation than erudition". Huygens even suspected that Kircher was afraid to say some of astronomical views publicly - we should not forget that Galileo was sentenced only three years before the issuing of *Prodromus*. Pereise already discovered how easily Kircher accepted the ideas that would not hold its own under thorough criticism. On the other hand, Huygens honestly recognized the valuable Kircher's conclusions in his theory of sound.

Unfortunately, we do not know when the first of above three stories really happened since after the trick made by Mueller Kircher surely had to be afraid of hoaxes. This is especially important in the case of Baresch's letters - the first one was written in 1637. The first letter probably has not raised Kircher's interest nor the suspicion - there is even a possibility that if Moretus gave Kircher rather dubious description of Baresch he immediately lost his interest in the VM. We witnessed such loss of interest in the uniformed public after Gordon Rugg claimed - but never proved - that the VM is a hoax. I guess that Kircher got more interested after the second letter by Baresch (see my article "Theodorus Moretus or the messenger to Rome"), since he archived that letter. Also, Marci wrote him later in one of his letters that the manuscript is the real, original thing Baresch was trying to crack. After receiving of the original VM, there was no doubt it was real.

There is of course possibility of another fear, not just that the VM could be a fake . . .

As I mentioned, Kircher could have thought Baresch was playing with him the same game Kircher once played with Pereisc. Even more, he might have suspected Baresch knew how the things really were with Barachias manuscript. It was not the possibility the Barachias manuscript was some kind of fraud itself - it may have very well existed - but the fact Kircher boosted his career on erroneous explanation as he might have later discovered himself. It is not important who erred whether Kircher or Barachias. It is just possible Kircher himself found the errors of his ways but the book was already all over the Europe, he had to pretend everything was as he wrote it. Should he accepted Baresch's challenge and fail, he could have been exposed and he did not even know if the VM is a fraud or not . . .

Contrary to Barachias's manuscript which he could read, the VM posed to Kircher different, cryptographical challenge, he might have tried to decrypt it but he surely failed. There was nothing to brag about or even communicate the failure to Baresch or anybody else. Therefore he decided not to answer at all. Judging by how often Kircher quoted Barachias manuscript (which is amazing, considering nobody ever saw the book or the reprint) he certainly depended on its content and alleged explanations in it. He might have invented some of the quotations but his reasoning was grossly dependent on the book itself. Thanks to the fact he trusted the book that much, Kircher never discovered how wrong he really was. He could not possibly decipher the VM without outside help. It is a sad fact he always had more ideas than the correct results. The question remains whether he really wanted to attack the new challenge and solve the VM at all. What if that would bring in the light the old story of Barachias manuscript and people would like to see it? Let the by-gones be by-gones, let skeletons stay in the closet.

We can well imagine that for the man with so many interests the VM was a great temptation and he apparently could not resist such temptation. On top of it, Baresch really complimented Kircher's vanity. For that reason it seems unlikely that Kircher scrapped the samples right away - not he, the man who always saved and catalogued everything he could put his hands on. But it is not surprising he did not write to Baresch at all: he could see his through his game and suspected that Baresch surely did not tell him all there was. Certainly Baresch never sent him the whole manuscript and if he knew the author, he never disclosed him. That might even offended Kircher. Should he confirmed the receipt of the samples, he would be obliged to admit he tried to solve the VM. That could put his name in jeopardy while continuing in his books about hieroglyphs guaranteed him certain glory.

In addition, he had his own problems: the popularity he gained through *Prodromus*, was only a few years old and it still needed to be taken care of. He was planning more books which he also wrote and published. He had at that time, however, other interests as well: in the same year he got the first letter of Baresch (1637) he accompanied Duke Frederick of Hessen on a trip to southern Italy, Sicily and Malta. On his way, he witnessed the explosion of Etna and even got lowered down to the volcano of Vesuvius, to be able to examine it.

The life of Kircher was full of adventures: when he was thirty, he was already marooned on the island on his way to Vienna. Once, he was almost trampled to death by runaway horses and some other time he fell in between the wheels of the mill and miraculously escaped the death. When escaping from Germany he was taken prisoner since he refused to take off the priest's cassock even when risking the hanging. Somehow the soldier were touched by his courage and let him go. During the plague in Rome (1656), Kircher took care of the sick people and by sheer miracle did not get infected. During that time he invented his theory that the plague was caused by small micro-organisms which he saw under the microscope (*Scrutinium pestis physico-Medicum*, Rome 1658). He observed them even before Robert Hooke (1665) or Lewenhoekdid (1676) and certainly almost two hundred years before Ferdinand Cohn (1828-1898) identified them as the source of diseases.

It is therefore possible that Kircher tried to solve the mystery of the VM secretly. He did not succeed, otherwise he would have boasted about it or even write the whole book about it and dedicate it to some of his sponsors. Kircher was all his life a great showman, especially when he stopped teaching and made his living by writing books which he then dedicated to various royalties and nobles. He expected the hefty donation and was not disappointed.

One of his books was dedicated to Emperor Ferdinand III and there was also on the intercession of Marci that Kircher got Emperor's support. At that time, all his documents were in the Museo Kircheriano and possibly even the samples sent by Baresch. We can suspect however he archived them separately (probably together with scraps of Baresch's solutions that Marci sent to him with the VM) . We can even assume that all that he neatly arranged together, as neatly as his handwriting is :-), next to his almost two thousand manuscripts he owned, many letters of his friends and forty-four books he wrote.

For two hundred years, nothing happened but then came Victor Emmanuel II (1870) with his army and conquered the Papal State. Many books from the libraries had been "confiscated" (read "stolen" :-). Many Vatican books, however escaped that sad fate since they had been previously marked as private property. And so was the manuscript VM labeled as exlibris of Petrus Beckx who was then the head of the Jesuit order and the Rector of the University. The VM was then moved for security to Villa Mondragone. We can understand that the "labelers" overlooked or underestimated some notes from unknown Baresch, but obviously they did not overlook the VM. Perhaps in their rush they took the books first or the notes were already separated before from the manuscript. It is also interesting to note that although Kircher exhibited in his museum most of the documents in his possession, the VM was nowhere reported.

What is even more interesting is the fact that Baresch's attempts to solve the VM mentioned by Marci as being sent with the VM are not mentioned anywhere else and apparently were never found. Voynich did not mention them either. Still, they would surely had far greater value for Kircher (as well as for us) than Marci's letter itself, especially since they would independently confirm the VM is really the Prague manuscript, the one sent to Kircher. Marci's letter has no details that could be used for identification and Voynich separated the

letter from the manuscript, apparently without any witnesses. On the other hand, the second letter of Baresch was found, with some indicators, say "...paintings of flowers unknown in Europe". Interestingly enough, Kircher apparently did not answer that letter either, but he saved it. Curiously enough, that letter was not found in Mondragone but in Rome . . .

Later, Kircher abstained from public life and concentrated more on his rich collection in Museo Kircheriano, adding the new building. Museo Kircheriano (1651), which still exists, is his permanent - and also his greatest - gift to mankind. He invited there his guests, mainly from the royal families, impressed them with the exhibits and thus made the money for the museum. One of the visitors was also former Swedish Queen Christina who turned to Catholicism and moved to Rome. She certainly knew how to appreciate his exhibits: she "collected" a lot of her own from Rudolph's treasure in Prague. I believe it was called a "war booty" then :-). Kircher surprised her with plants that grew in the beaker right in front of her eyes. Most likely, those were only some crystals and Kircher knew it :-). He even tried to solve the mysterious inscription on the sword of her father, king Gustav the Great, but in vain. We can also imagine how much was Kircher's establishment esteemed from the recorded visit by the members of the Royal Society of Sciences. Kircher used the museum not only for general education but also as an entertainment, and most importantly, he did it "Ad Maiorem Dei Gloriam" - and his own as well :-).

Coming back to question: what did Kircher do with Baresch's notes and eventually with the VM? The previous story might give us a hint: he probably did the same as he did with Barachias's manuscript: he kept it well hidden and didn't show it to anybody. Besides, he could not read the VM at all, while he still could use some of the Barachias. Was he feeling bad about it? I guess he did: he could not exploit its content and what's more: the VM was probably the only mystery he did not "solve".

Kircher was probably just another victim of the paradoxes of the pre-enlightenment time: his insatiable desire for knowledge and research ultimately resulted in his claims that wanted to implement the old dogmas on new discoveries. That's why he could not abandon Aristotle's system, the history according to Bible and other secular axioms. He chose for his cosmic system not the one by Galileo but the half-way cut system of Tycho de Brahe. He recognized the esoteric view of the world but modified it for censor's approval. He however never believed in alchemy. Of course the judgement on Galileo did not stop the Earth on its circulation but it did removed from the Church the stamp of infallibility. That was the beginning the believers started to lose the faith.

Kircher's work, especially his gift of inspiration, the art of collecting and his interesting books strengthened the prestige of the Catholic Church, at least temporarily. Where else could the reader find beautiful engravings of obelisks, ancient works of art and natural mysteries? Later again the admiration passed when his errors were discovered. But we should not be too judgmental - the majority of scientists then could not manage even a small fraction of what he did, especially in the field of archiving and teaching. Of course in number of erroneous explanations Kircher probably still has a world record. On the other hand, he was often the very first one who published the books about many new discoveries and he ventured in the areas nobody before him ever did. His books do not contain only errors: Kircher was mainly the facts collector and there is plenty of them in his books - he just explained some of them incorrectly but that was a frequent phenomena in that time of discoveries. His greatest achievement was that he inspired the others who eventually came with the right answers.

It is interesting that although his greatest achievements were in mechanics and physics (for example, he discovered the Laterna Magica), he was the most appreciated, especially at the University of Rome, for his language skills. Peiresc himself advised (after publication of *Prodromus*) the Egyptologist Saumaise (whom Kircher overtaken by publishing his book sooner), not to criticize Kircher too much because he is just mistaken and to err is human. This remark, however, can be seen also in other light: Kircher was leaving for Levant and Egypt, and having there his contacts, he could have brought some new manuscripts in Coptic language and both, Peiresc and Saumaise, were very interested to see them. Peiresc of course well remembered that after his first criticism of Kircher, he left for the ship to Rome, without saying goodbye. It was certain that Kircher would, after further sharp criticism, never lend Peiresc anything and his protector still hoped for Kircher's translation of Barachias's manuscript . . .

The recently published book "*Athanasius Kircher, The Last Man Who Knew Everything*" (The last man who knew everything, the Routledge, 2003), edited by Paula Findlen, apparently did not intend an irony in its subtitle - it just underscores the overall effect of his lifelong work which is - for one person - truly monumental. He was not only interested in almost everything but he even tried to explain everything. We can say that he made the study of science at least a lot more interesting. But it took others to harness the science by sticking to the facts, evaluate them and develop the methods how to identify the faulty hypotheses. After three hundred years, we are still in that learning process and the research of the VM is no exception.



A31. VOYNICH NOW AND THEN.

Commentary to the Article of W.M. Voynich
in "The Transactions of the College of Physicians of Philadelphia", Vol.33, 1921.

Jan. B. Hurych

First published in the Journal of Voynich Studies.

Recently, I had an opportunity to review the above article and compare what was written there and what we know today. For almost one hundred years we now still base the VM provenance on the statements made by Mr. Voynich (WMV for short). True, some of them hold today, the others were time by time corrected or modified. The comments here should not be taken as a criticism of Mr. Voynich - he surely did the great job - they are just listed to direct the readers to other possible options. The comments are ordered and the pages of the article are listed as well.

1 - (Page 415) There WMV claims he found the VM in the "ancient castle" with other manuscripts embellished with the "arms of such personages as duke of Parma, Ferrara and Modena". Further he suggests the VM manuscript was owned by the House of Parma. In comparison, his private letters indicate the place of purchase was actually Villa Mondragone, certainly not a castle (more to it later). True, WMV had correspondence in private with Mondragone padres, but how do we know they are really talking about our VM - there are no names like Kircher, Marci or detailed description of the manuscript mentioned. That he bought some manuscripts there is without question but was the VM among them? We may suspect that he was right first time: even Newbold in his book says that WMV found it in the castle and he went even further quotes him as saying "the Austrian Castle" while Voynich in this article states clearly "in Southern Europe" (see also point 14).

CORRECTION: I have got the info about Newbold statement somewhere on the Net. Since I haven't read the book, I cannot personally vouch for it. However, the "Austrian Castle" **is not a rumour** - even older info - from 1916 - is found in the description of the Exhibition of Voynich books in Michigan and the information there was evidently given to them by Voynich himself:

"Voynich books in Michigan. The Michigan Alumnus - Volume 22 - Page 69, 1916 The collection, which was discovered in an Austrian castle, is the very cream of various ducal collections removed from Italian cities at the time of Napoleonic wars. . . . (the book is) wholly in cipher, and illustrated with scores of drawings, which is attributed to Roger Bacon. The key to the cipher has not yet been discovered."
For copy of the whole article click [here](#)

2 - (Page 416) WMV admits that the idea of Roger Bacon popped in his mind even before the further examination of the VM was made, just based on the estimated time of the origin which he guessed was "the latter part of the 13th century". He discards off hand Albertus magnus and claims the author was none other than Roger Bacon. We know of course that the name of Roger Bacon is mentioned in the Marci's letter that accompanied the VM so he could have learnt it without too much trouble from there. So it looks rather strange that WMV claims that "it was just some time after the purchase" that he read Marci's letter inserted in the manuscript. It seems to us as probable as if somebody gets a book as a birthday gift and he does not read the card that goes with it. Of course he justified it by the fact the letter was dated 1665 (or 1666), too late for Bacon, therefore he considered it to be of no consequence. Imagine the unknown manuscript without any references except for that letter attached to the front cover - as he claimed - and it did not immediately raise his professional curiosity? There is of course one explanation why he noticed only the date there but did not read the content: the letter was in Latin and he might have been waiting for the exact translation (by the way, the article does not mention who did the translation).

3 - (Page 416) In the note (1) at the bottom of the page WMV explains that he was not revealing the location of the castle since he wanted to buy the rest of the collection later. We can wonder if that was the only reason - for instance, exporting the manuscripts from Italy was at that time conditioned by government permit (which might not have been granted and besides, the letter once belonging to Athanasius Kircher (plus the manuscript no doubt) should have been offered first to Museo Kircheriano as a part of its collection of letters and not to foreign antiquarian. But was it really?

4 - (Pages 417, 418, 419) WMV claims Marci joined Jesuit Order several months before his death while some other Czech sources claim it was "on his deathbed". It seems to be that the event at the deathbed was documented and the persons present as well. They were mostly Jesuits and Marci was already totally blind - how could he know what he was signing? On the other hand, he might have applied for acceptance several months before his death - it was certainly not a simple procedure. Of course the application might have been prepared by padres ahead of time, without his knowledge, as a surprise. After all, he spent most of his life his life with Charles University fighting its Jesuit takeover. Another interesting point there: WMV claims the first catalogue of Museo Kircheriano was made in Amsterdam in 1678: who made it if not Kircher himself? (Kircher died two years later, in 1680). The VM is not listed there or in any other later catalogues, so we do not have any proof Kircher actually received the VM - he did not even write Marci about receiving it. Or could it be Kircher sold it to somebody? WMV suggests he left the manuscript to someone at the Court of Parma, with Farnese family. He also claims it was Kircher who asked one time to see the original. He might have but Marci only confirmed Baresch sent Kircher copies. We may easily assume Marci sent him the VM on his own initiative knowing that Kircher would appreciate it.

5 - (Page 419) WMV claims he does not know the name of the owner before Marci and hopes the Czech archivers will find it for him. It is of course possible he was given Baresch's name later - after all, there is a record Marci inherited the library of Baresch and apparently Voynich was in frequent contact with the director of Czech archives. Also, Baresch's name appears in one of Marci's books. On the other hand, WMV did not see Baresch's letter to Kircher - otherwise he would use it as a proof for his provenance, since Baresch was the owner before Marci and he was also residing in Prague.

6 - (Page 420) WMV mentions the information given to Marci by Dr. Raphael and chastised Marci for omitting to mention his surname (WMV figured it out O.K. but he does not mention it in his article either :-). He also wonders if Raphael was a contemporary of Rudolph or if his information was just a "tradition" (meaning "a rumor"). True, Raphael was later working for Rudolph, but at the time Dee was in Prague he was too young to be able to hear it as a contemporary rumor.

7 - (Page 420) WMV was corresponding with the director of Czech State Archives who told him many of those facts, for instance that the mother of Mnishowsky was Polish nationality (WMV uses the wrong spelling "Missowsky" without "n" - that is common mistake except for M's portrait which says "Mischowsky"). That would explain M's knowledge of Polish language and his work for Bartholomeo Paprocki. Therefore the information by Eugenia Berezhanskaya (see my article THE MYSTERIOUS DR. RAPHAEL, JVS 8-4-2007-11-10) that he was born into Polish family, is partly correct - however he apparently considered himself to be of Czech nationality. **8 - (Page 420)** WMV suggests Marci could have had the VM as early as right after Mnishowsky's death (1644) while some pages back he quotes Marci that he inherited the book and was sending it to Kircher "*as soon as it came to his possession*" that is 1665 (or 6) so would have waited twenty years. Apparently WMV was confused - in another place he states that the owner before Marci did not live after 1644 either.

8 - (Page 421) Here is **the famous statement** by WMV that when he got the VM, the margins on the first page "had appearance to be blank" and only due to the "accident" (when the photo was "underexposed") the name of Tepenec was revealed. He also mentioned that he applied the chemical treatment afterwards, so we can assume the Plate 2. must have been made only after that. The reason is obvious: sole underdevelopment would not make the picture so dark as it is and both the "signature" and the other text would appear to be light grey. As we can see, they both have the same shade of darkness. Also the "signature" is very clear to read - actually much better than any later reproductions including even the colored scans done by Beinecke. The chemical treatment must have worked very well then. Unfortunately, it did not stop working afterwards since what we see now by naked eye is close to nothing.

9 - (Page 422) It seems WMV slightly promoted Horczicky: he apparently never was a director of Rudolph's alchemical laboratories (he was hired just as a chemist as per record in Vienna) and as for being the director of Emperor's gardens we are not really sure either. He took care however of Clementinum gardens, but that was while while he was still the student there.

10 - (Page 422) WMV suggests the VM might have been given to Horczicky by Rudolph or loaned to him for working purposes. Later WMV even claimed the name in the VM is a part of Rudolph's dedication. That is considered now highly improbable: it is not in the proper place and style for formal dedication and besides, Jacobi (genitive) should have read "Jacobo" (dative).

11 - (Page 424) Here is the **very first appearance** of the "mysterious personality" as he is called by WMV - of **John Dee**. WMV of course have no real proof Dee ever owned the VM. We can disregard rather vague comment by his son that Dee owned some strange manuscript (WMV quotes Charlotte Fell-Smith's book on it). As for coincidental amount of 640 ducats in Dee's diary (to 600 in Marci's letter), that was received *from unknown person for unknown service* - it was clearly a coincidence (it could have even be the payment for his spy services for Queen Elizabeth).

Of course WMV needed the missing link in the provenance chain *Marci - (Baresch) - Horczicky - Rudolph - missing link - Bacon* and Dee would fit there very well. But was he really the owner of the VM as well as the seller of it to Rudolph? True, Dee was interested in Bacon and yes, he collected old manuscripts, but those are only indirect indications. But Dee was not alone interested in Bacon - many scholars of Dee's time were (WMV mentions that Roger's name was considered in intellectual circles in Prague as a token of learning). As for the manuscript: WMV uses tautology: since it was Bacon's, it must have been owned by Dee and if Dee owned it, it must have been Bacon's manuscript. In reality, there is no proof it was Bacon's manuscript therefore Dee is not proven either. We need concrete info about the VM and for that there we have no record in Dee's life and his works. Suggestion by WMV that Dee was afraid to be publicly associated with that "heretic" Bacon makes no sense when WMV several pages later confirms De himself introduced the works of Roger to his namesake Francis Bacon.

12 - (Page 428) WMV suggest that Dee, failing to decode the VM, made it a gift to Rudolph. That of course contradicts Raphael's statement that Rudolph gave the bearer of the manuscript 600 ducats, suggesting not a gift but a simple sale. Interestingly enough, Raphael did not mention the owner of the VM, just "the bearer". It is a reasonable assumption Dee would not miss the opportunity to present the VM to Rudolph himself - he was still interested to get employ in Emperor's court.

According to WMV, the time in question could be either 1584 or 1588, when Dee often visited Prague. Well, Dee had an audience with Rudolph in 1584, duly recorded in his diaries, but otherwise exact Dee did not mention there anything about any sale (the diary mentions Rudolph already had the book written by Dee, apparently given to him ahead by Dee's messenger, to get Emperor interested). In 1586 however were Dee and Kelley expelled from Prague - and the very same year Dee writes in his diary about 600 ducats! It does look like the money were from anybody *but* Rudolph! Fortunately, they both found the very same year the employ with Rosenberg. In 1588 Kelley left Rosenberg for Prague to serve Emperor and Dee might have been visiting him there. Of course there is no record that Dee also visited Rudolph who was not interested in him at all. Neither was apparently Count Rosenberg since Dee could not make any gold and so in 1589, Dee left for England forever.

13 - (Page 428) WMV quotes "the translation" of the VM by Prof. Newbold and seems pleased about it - Newbold's article about the VM is in the very same issue of the Transactions.

14 - (Page 430) WMV then summarizes the provenance of the VM which is more or less as it is recorded today. According to him Kircher presented the VM to one of the ruling houses in Italy where it was till 1912. That of course completely eliminates the possibility of the VM being found in Villa Mondragone. As we pointed out, Mondragone is anything but castle. True, it was once owned by Farnese family but according to <http://www.villamondragone.com/history/>, cardinal Marco Sittico Altemps bought the Villa in 1567 from Ranuccio Farnese. In 1571, cardinal Ugo Boncompagni lived there and the villa is since then called Mondragone by the dragon on Boncompagni's coat of arms. Therefore when Kircher got the VM, the villa was already not in the hands of Farnese family, to be exact for almost one hundred years. Of course, The VM could have been located elsewhere, maybe even on one of those Farnese castles (if they still had any). Of course, why especially Farnese? Either Voynich knew more or was interested to hide the place where he found the VM. He had apparently good reason for it since he did not even make it a part of his provenance :-).

The other theory that the manuscript reached Mondragone via Jesuit connection (per Beckx' exlibris found on those books) makes of course more sense. That the villa was the hiding place for books in the time of *risorgimento* could be probably easily proved or disproved by records. Even Voynich might have known how the books got there (Beckx was the famous general of the Society of Jesus). It does seem therefore strange that WMV did not follow that lead. Surprisingly enough, those valuable manuscripts, property of Jesuit order, were transported secretly from Rome and hidden with such an effort, only to be later sold privately to foreigner. We have no doubts that the other manuscripts he bought there were valuable too - after all, he himself indicated he still wanted to buy the rest of the collection.

20th July, 2009.



A31. ILLUSTRATION TO THE ARTICLE
REFERENCE FROM **The Michigan Alumnus** - Volume 22 - Page 69, 1916 (for info only, not to be copied).

1915]

EVENT AND COMMENT

69

County Agricultural Society. In 1886 he was a member of the National Council of Administration of the Grand Army of the Republic, in 1893 Commander of the Department of Michigan of the G. A. R., and in 1897 Commander of the Michigan Commandery of the Loyal Legion. During 1898-99 he acted as supervisor of the first ward of Ann Arbor. On June 1, 1894, Colonel Dean was appointed Regent of the University in place of Henry Howard, deceased, and in 1899, he was elected to succeed himself for the full term beginning the following January. ¶ Colonel Dean was married on August 24, 1865, to Delia Brown Cook. Their daughter, Elizabeth Whetten Dean, was graduated from the University with the class of 1891.

— — — — —

AN EXHIBITION OF RARE BOOKS AND MANUSCRIPTS The celebrated Voynich collection of illuminated manuscripts and very rare and early printed books was placed on exhibition in Alumni Memorial Hall for four days beginning Tuesday, November 2, after being shown for several weeks at the Art Institute in Chicago. The exhibit was held under the auspices of the University Library, and was made possible through the courtesy of Mr. Wilfrid M. Voynich, the owner of the collection, who is an international book dealer with offices in London, Paris and Florence. The collection, which was discovered in an Austrian castle, is the very cream of various ducal collections removed from Italian cities at the time of the Napoleonic wars. Owing to the fact that the books have never before been in private hands, they are in a state of almost perfect preservation. ¶ Perhaps the most interesting single item in the collec-

tion is a book on the Archaeology of Rome and Italy written by Marcanova and illustrated with 16 full-page and 80 small drawings by the celebrated Florentine designer, Mazzo Finiguerra. This book was done for Novella Malatesta, Prince of Cesena, in 1465. There is also a manuscript of the art of war of the 15th century by Roberto Volturno, which is known to be the one used by the printers in 1472 when the first printed edition was published. Inserted is a drawing by Andrea Mantegna. ¶ The specimens of early printing include the Froissart Chronicle of 1525, printed in London by Pynson; several books printed by Sweynheim and Pannartz of Rome, the first printers of Italy; the first complete Hebrew Bible, printed in Concino in 1488; Caxton's translation of St. Jerome's Lives of the Fathers, printed by Wynken de Worde at Westminster in 1495, with numerous other specimens of 15th and early 16th century printing. In addition some rare specimens of

Created 22th July, 2014.



A32. THE VM SEARCH AND RESEARCH.

Jan B. Hurych

First published in the Journal of Voynich Studies.

Needless to say, much of the VM research is devoted to the search for historical truth, supported by old records related to VM. We are searching for the author name, the place and time the manuscript was originated, for the people who knew about it or were any way connected with it as well as the circumstances around it. Of course, we are mainly basing our search on the facts or hints of the provenance, some historical documents and facts - but sometimes those are just hearsay or superficial connections. Be it as it may, it is probably the first logical and most obvious approach. No wonder some of the research results are reflecting also the personal bias but that can be - and should be - straightened up by discussion.

What is however disturbing is the fact that we are afraid to detour from our old golden incremental way, that is building only on the past research and neglecting the other sources of information that may be still waiting for us. True, we do not read about them in the provenance and certainly not in those many books about the VM that happily publicize something that most of us already know (which is however useful for general public) but also the old stuff that was already disproved long time ago (which is extremely counterproductive to our research).

Let me demonstrate it on several examples. We are still spending enormous amount of time trying to get the details about the Emperor Rudolph II who apparently never saw the VM and possibly never owned it either. On the contrary, we never tried the deep search into resources of those persons who might have known or studied the VM in the past. One typical example is of course the set of notes by Georgius Baresch sent to Kircher with the VM - their possible existence was apparently ignored by Voynich himself since there is no record he ever looked for them. That is of course hard to believe even if he once claimed he first did not notice the name of Bacon in Marci's list either. The latter could be excused by the fact he was waiting for more official translation of Marci's letter but how could he ignore the mentioning of Marci's notes? [The letter itself claims they were part of the package with the VM. And since Kircher knew about Baresch and his effort to solve the VM, Kircher surely realized Baresch was probably only one person "in the know" and kept the notes as well. Incidentally, what happened to Voynich notes about *his* solving of the VM? Was anybody looking for them?

Similarly, Gaspar Schott was the assistant of Kircher who something like his PR manager as well and was probably also the inventor of many rumors about him. It is likely he saw the VM and contrary to Kircher who was suspiciously silent about it, he might have mentioned it in his books or correspondence.

Next in line is of course Kinner who wrote two letters to Kircher mentioning the VM but did he really see the VM before it was sent to Kircher? And let's not forget Mnishowsky who knew about the VM certainly earlier than Marci and maybe even before Baresch. It looks like it was him who told Marci about Bacon being suspected as the author of the VM. He was the collector of manuscripts for Rudolph (the fact discovered recently) and might have had some insight knowledge as well. It was him who told Marci about Bacon being suspected as the author of the VM. We also neglected to study the book written by Mnishowsky (we were misled by the wrong appraisal of the book by p. Dobrowsky when he visited Sweden and the fact Mnishowsky was a tutor of Emperor's son). We kept repeating the nonsense it was just a textbook of Czech language while our colleagues, Czech cryptographers, knew already for long time it was a book about new methods of cryptography, the first one originated in Bohemia. We also ignored the fact Mnishowsky by his own admission was commissioning some old manuscripts for Rudolph in Austria and he could have been himself the "deliverer" of the VM to Rudolph. Of course none of that fit to our rather old VM provenance of the VM, dogmatically immunized against some recent facts that could disagree with the legends presented there.

True, we investigated to the depth the writings and private diary of John Dee, who was never mentioned before Voynich suggested him as a possible link to Roger Bacon (being once the owner of the VM). He based it on coincidental amount of 600 (640 respectively) ducats that were supposedly paid to Dee by Rudolph. Now that was supposed to happen in the same year he was expelling Dee and Kelley from Prague as wizards - little inconsistency, isn't it? At the same time we neglected some other ways how could the VM get in Bohemia (especially from the East or South). We also completely ignored the possibility the VM was written in Bohemia (as was Codex Gigas, The Devils bible) say by [Horzicky himself who it seems was the only one scholar who had enough knowledge of all subjects appearing in the VM (botany, medical herbs, astrology and alchemy practice). So here we have four persons connected with the VM (Mnishowsky, Horzicky, Baresch and [Marci), all Czechs but could not make nothing of it. Of course all that would not fit the old age assumed by the provenance and so Bacon won by default (literarily by the first glance Voynich threw at the VM, as he admitted :-). Also, we can still do

more research in the works and correspondence of Dobrzensky who was Marci's pupil and Moretus who delivered first letter by Baresch to Rome and most likely were shown beforehand the VM to convince Kircher it was genuine manuscript.

Now from more recent history: was anybody trying to investigate the private documentation left by Miss Nill, the confidante of both Voynich and his wife Ethel? Nothing was also made of the fact Newbold publicized in his book the confident information - maybe erroneous, maybe deliberate - that Voynich admitted he got the VM in Austrian castle (or south European, as Voynich himself stated in his article).

CORRECTION: I have got the info about Newbold statement somewhere on the Net. Since I haven't read the book, I cannot personally vouch for it. However, the "Austrian Castle" **is not a rumour** - even older info - from 1916 - is found in the description of the Exhibition of Voynich books in Michigan and the information there was evidently given to them by Voynich himself:

"Voynich books in Michigan. The Michigan Alumnus - Volume 22 - Page 69, 1916 The collection, which was discovered in an Austrian castle, is the very cream of various ducal collections removed from Italian cities at the time of Napoleonic wars. . . . (the book is) wholly in cipher, and illustrated with scores of drawings, which is attributed to Roger Bacon. The key to the cipher has not yet been discovered."
For copy of the whole article click [here](#)

Too blindly did we accepted the assumption it was villa Mondragone, while the Voynich correspondence with Mondragone padres in Beinecke does not especially talks he bought there - among other manuscripts - also the VM *itself*. Too gladly we assumed that the Prague manuscript mentioned by Marci is really the VM and not some other one that was switched for, by mistake or deliberately. After all, nothing in Marci's letter identifies the details of the VM and by removing the letter from the book where it was located (very unusual coincidence in antique world, anyway) , Voynich made himself a disservice.

We were also too quick to assume as quite normal the fact that such old manuscript was never mentioned before, that is before Baresch. The manuscript that raises so much interest today would hardly have been ignored by scholars of the sixteenth and even earlier centuries. And the rumor at court mentioned by Mnishowsky? Nobody mentioned it elsewhere, not in the books neither the courtiers in their memoirs.

These discrepancies are too serious to be put aside just because they make the existing provenance less credible. And what is more important - they put the assumed date of the VM origin in serious doubt. Hopefully, the carbon dating of the folios that is now in the process may narrow the span of the time the VM could have been written. True, it will be only the time the parchments were manufactured but at least we would know it could not have been written earlier. As with the Turin shroud, there will be always some doubts left and we would have to rely also on some historical facts. Nevertheless, that is what is the research all about: the re-search.

1st of December 2009,
Jan B. Hurych,

20th July, 2009.



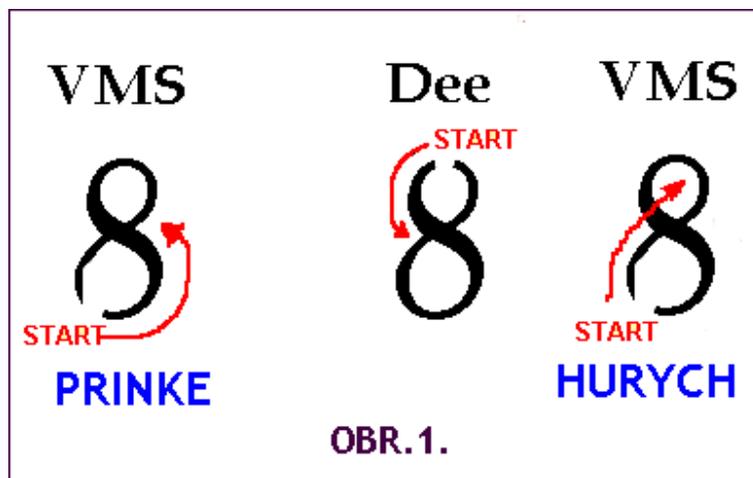
A33. NUMBERS IN THE VM AND WHO NUMBERED THE PAGES?

J.B.Hurych

I have already stated elsewhere my doubts about the VM folio numbering, namely the fact being claimed by English experts that it was "definitely" done by John Dee. Well, looking at the page of Rafal Prinke (<http://hum.amu.edu.pl/~rafalp/HERM/VMS/vms.htm>, not available any more)

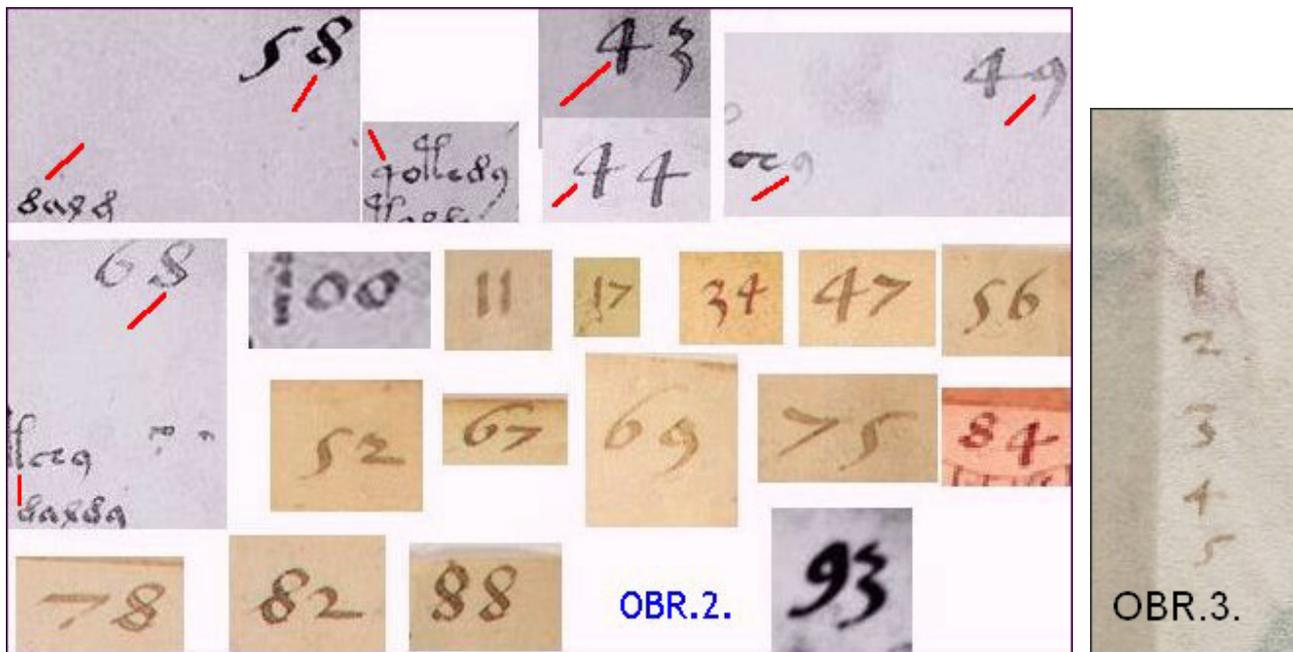
I found his proof to support my idea. I have only one comment: the number "8" (see obr.1.) surely eliminated Dee as an author, however as for the arrow in the left picture (marked as "Prinke") I have to disagree - the shading cannot be done by the quill that way. When moving the pen so much sharp angle in "up" direction (toward the top), the split legs of the pen would be bending and biting into paper (the proper, easier direction is marked as "Hurych"). Well, either way, Dee wrote it differently. Observing the number "8" with large magnification (say via graphic editor) would surely further confirm the way it was written.

As for John Dee, we can see from the table on Mr. Prinke's page (he is comparing Dee's handwriting from Trebona archive, at <http://hum.amu.edu.pl/~rafalp/HERM/VMS/numery/numbers.htm>, now not available), that those in the VM have different shapes than those of John Dee. I do not know from where the English experts took their samples of Dee's handwriting. It is of course possible that John Dee's handwriting changed with his age or sickness, but hardly that much.



Similarly, I do have comments to the table there suggesting the number styles as they were written in different centuries. The table alone is apparently O.K., but when studying old manuscripts, we encounter many exceptions. For instance, Johann Amos Comenius wrote the way of "15th century" as late as in 17th century. It all depended mostly on the conservatism of particular writer and the numerals are probably even more conservative than the letters, so we can only speculate. All that simply means that we cannot establish the age of the VM by page number style only. As for the text, the symbols (letters?) in the VM are clearly disconnected one from another mainly due to the fact that those artificial symbols, when written connected, would create ambiguity (they have often same sections).

I also observed the similarity between the folio numbers and some VM symbols of similar shape (see obr.2). I discovered three basic similarities: no. "9" and the script symbol that looks like "9", number "8" and the symbol "8" and also number "4" and the symbol "4". I compared the samples of symbols and numbers, both from *the same folio pages*. There is really more than just similarity - the signs are almost identical, apparently written by same hand as the text itself. The angles, shapes, shadings and overall styles are undoubtedly the same. Also added are the five Arabic numerals, written directly as a part of text (f49v, Beinecke 1006171, (see obr.3). As we can see, they are also all similar to those in page numbering, especially no. 5.



There is no doubt in my mind that the page numbering was therefore done by the author alone and since John Dee was never considered to be the author first place, the English theory is surely further doubtful. It also makes more sense that the numbering was done by the author - when assembled in the book, the identification by page numbers for better orientation before or soon after finishing was a common practice .

When we observe the pages 78 and 84, we can see that the author carefully avoided the pictures while writing the text as well as while he was numbering the pages. So the pictures were done first, then followed the text - we can see the text was often "squeezed" in order not to interfere with the pictures. The page numbering was apparently done as the last thing - sometimes the author had to write the numbers even "inside" the pictures, not exactly in the right corner, as he otherwise wrote them on the majority of pages.

Most likely, the numbers were written after the binding was done. It looks however like the original binding was lost and the existing one was done later. The temporary consensus claims the numbering was not done by the author but later, by somebody else, after the binding was lost (or even that the original manuscript was not bind at all). It is claimed that some pages are in wrong order - that is not they are not in the order a priori assumed by some researchers them.

I do not want to argue with that assumption, since it is only the indirect proof and besides, the suggested orders vary from one to another. Instead, what I present here are the real samples from the VM and I simply leave the comparison to the readers of this article. Also, the order of paging is otherwise very consistent, more that could be achieved when numbering the randomly misordered loose sheets. It is quite possible that the disorder, if any, could have happened to the author alone, for various reasons, for instance last minute mix-up. The numbering then could have been done automatically, without further checking. True, the numbering could have been done by somebody else than by the author, but as we can see, he would have to copy the author's handwriting extremely well and for no apparent reason whatsoever.

I realize that there are inherently less variations in writing the numbers than in writing the letters, but it is still enough to make the proper conclusion. So let's compare: the similarity of numbers "4" and "9" with their "letter" counterparts is really striking. So is the similarity for number "8" (in all samples except in the first - the page no. "58" has "8" interrupted and thus extra distorted). The vertical lines in "4" not only have the same kind of shading, but also typical small curves at corners. All that even if we consider that the author apparently used for his numbering a bigger pen, thus the shading is wider and the numbers are larger than their counterparts in the text. We can also observe that the numbering of pages is quite uniform, apparently all done at the same time.

3rd June, 2007.



A34. THE SIGNATURES OF HORCZICKY (and their comparison)

J.B.Hurych

This article was originally published in the old CVM page as a discussion so it is now transcribed into full-bodied article. In the meantime, there might be some other Horczicky's exlibris considered as his signatures but they differ substantially.

• **Signature No.1.:** Discovered in 2003, in the Archive of the Castle Melnik, Bohemia. The signature is on the official order document issued by Horczicky himself (1617) - he was then the heyman of the Castle. The search was suggested by **J.B. Hurych**, the document found and copied by **Karel Slajnsa**.

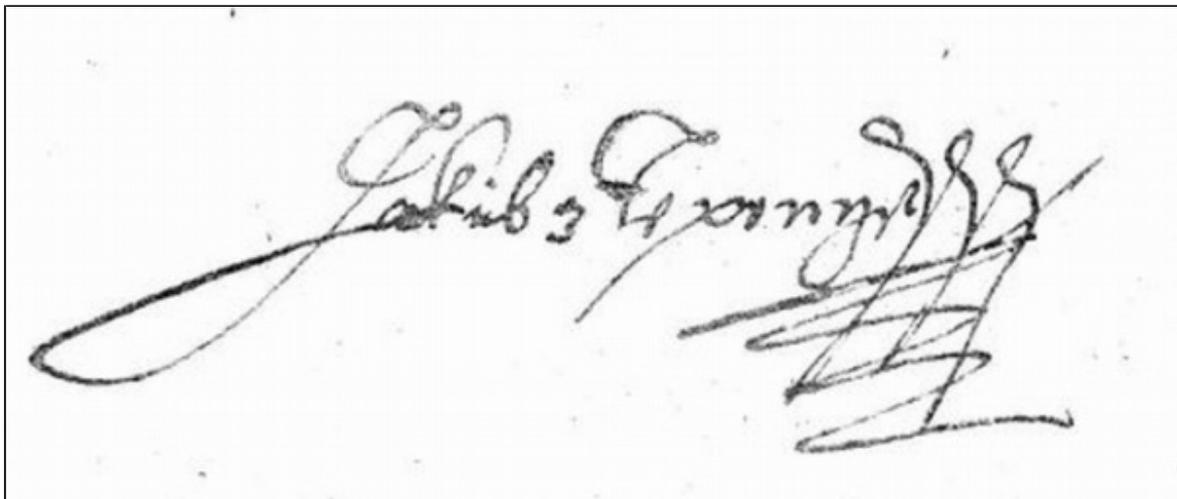
• **Signature No.2.:** The second signature was discovered in Prague by **René Zandbergen** as the exlibris in one of the books owned by Horczicky. It was once the property of Clementinum, see <http://www.voynich.nu/extra/ime/sinapius1602a.jpg> It does not however contain the word "Tepenc" (as does the one in the VM as well as the other two signatures). Instead, it has the old name "Sinapi", the latinized "Horczicky" .

• **Signature No.3.:** In January 2007, **Petr Kazil** copied another signature from the book in National Library of Prague, on the recommendation of **Rafal Prinke** (it was announced by Rafal in 2000, but it was somehow overlooked until 2007. The photographs by Peter are at <http://www.xs4all.nl/~kazil/testfiles/vu/>

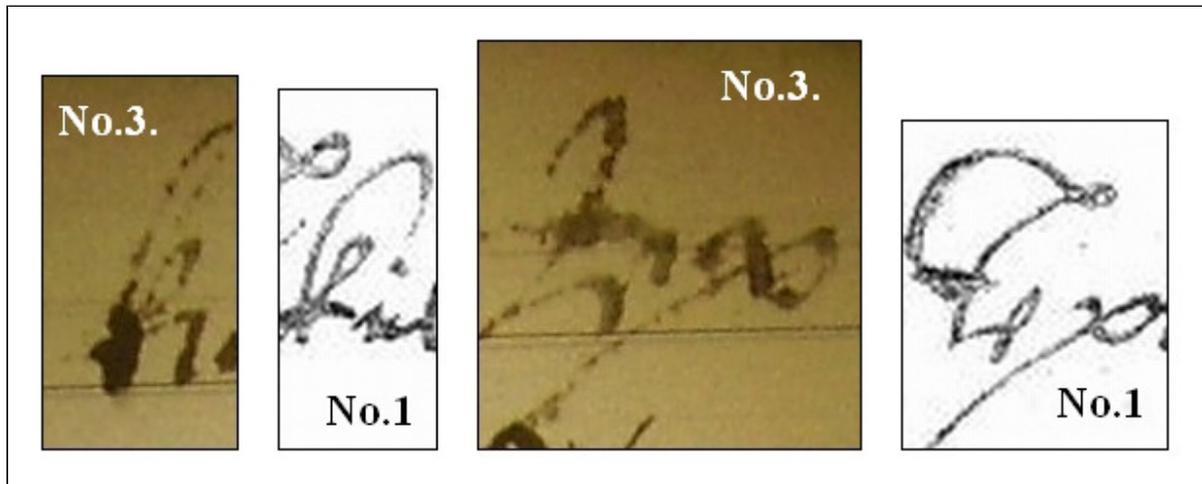
Our comment: The reaction of the critics on our first discovery (in 2003) was slightly negative, in spite of the fact it was confirmed by the Archive to be genuine and properly dated. It happened to be on official document signed by Horczicky and it was objected that it was too "ceremonial" signature to be used for analysis of Horczicky's name in the VM. When the second signature was found, it was hurriedly considered as "similar" to the one in the VM, without any further proof. Now, when the third, non-ceremonial signature was found, one can see clearly it is by the same hand as the first signature and what was considered "ceremonial" are the same embellishments as in that exlibris except of several loops at the end, added. So our first signature is now vindicated and to further prove the similarity of those two "signatures", i.e the first and the third, the following comparisons are given. Also at the end, the comparison with "signature" in the VM is made as follows.

THE COMPARISON OF SIGNATURES.

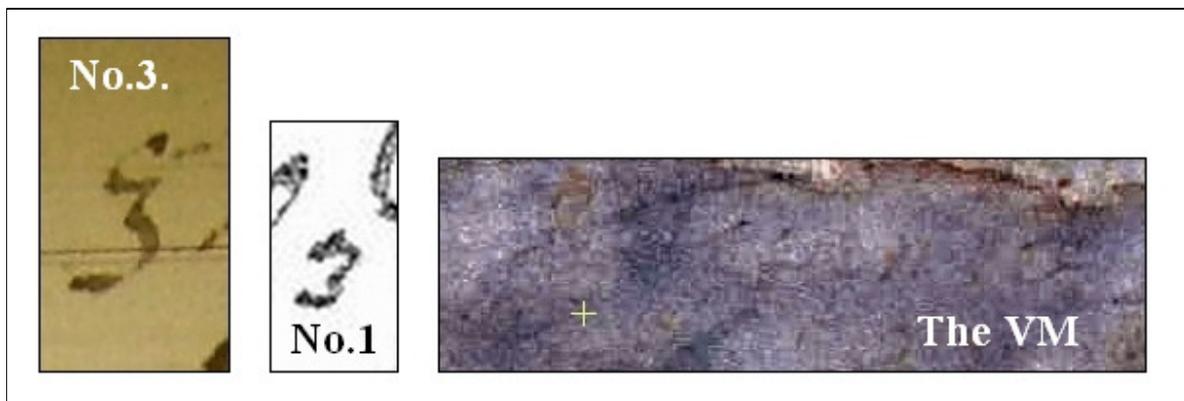
Both first and third signatures are in Czech language, i.e. the words "Jakub z Tepence", in first case are in **nominative** (it is the official signature), and it is slightly modified, in the third signature, as "Jakuba z Tepence" where "Jakub" is in **genitive** (since it is exlibris, that is the way to indicate his ownership). Note: it seems that he actually wrote it Tepence). First we show here the first signature, slightly magnified - please adjust the intensity of your monitor or the screen angle for laptop for the best viewing of the scans.



The whole third signature can be seen by clicking on the link above, here we only compare some letters in the same sections. First the letter "k". The agreement in the shape and form is extremely good. Then follows the section "Tep", please notice the similarity of peculiar letter "p" in both cases.



The word in between "Jacobi" and "Tepeneč" is in both cases the Czech letter "z" written in the old fashion, looking like number "3". The meaning of "z" in Czech language is the same as in Latin "de". Even here are certain similarities in both samples. For comparison, the third picture is from the VM and the symbol is written at the beginning of the word "Tepeneč". It was guessed once it was really the Latin "de" or a Greek letter "delta", i.e. the shorthand for Latin "de". None of this can be seen here and it seems it is in all three cases simply the letter "z". Of course, we cannot be sure, the symbol in the VM is hardly visible.



Before we carry on, some words about the signature No.2, that is the "Sinapi" signature. There is no doubt that it is the Horczicky's name before he received his title, however latinized, followed with serial no. of the book owned by Horczicky (see the link above). The word "inscriptus" added after the name could confirm his name was written by him personally or that the book was donated by him to Clementinum as a gift (since no such word exists in the signature No.3 and that one was definitely his property). In second case, the name may not be in his own hand but in the hand of some archiver of the Clementinum, where is the book now. Also, the comparison of that signature with two other signatures is very difficult and as much as we can say, the script and the style are rather different (there are only few letters that are the same, while letter "p" is quite different and the rest cannot be compared at all. So we cannot compare it with the VM "signature" and for that reason we will not use it in our analysis. Also only letters "p" and "n" exist in both samples for comparison and we cannot find any tell-tale peculiarity that would give away the hand and confirm any similarity or identity with the one in the VM.

Please note, that the quotation marks when we use the word "signature" in the VM are applied here to indicate that we have to yet prove that there is really Horczicky signature in the VM. I believe that we have now enough material to compare with both "signatures" No.1. and No.3 with the one in the VM. For comparison, we used the color scans of the VM folio from Beinecke, not the old xerox copies that may be further distorted, probably being only the "copies of the copies". Not too much is seen at xerox copies anyway, only the fractions of words "Jacobi", "Tepeneč" and possibly the word "Prag".

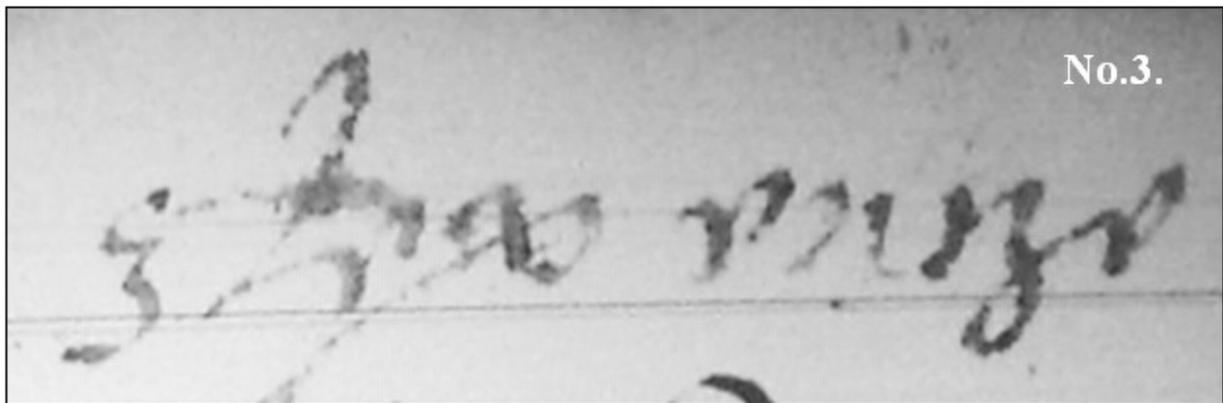
There is however clearly the whole word "Tepeneč" in the colored scan that can be enhanced by filtering in graphic editor and luckily, that word also appears in both signatures No.1 a and No.3.. The word "Tepeneč" has good outlines and shape so it is sufficient in details to

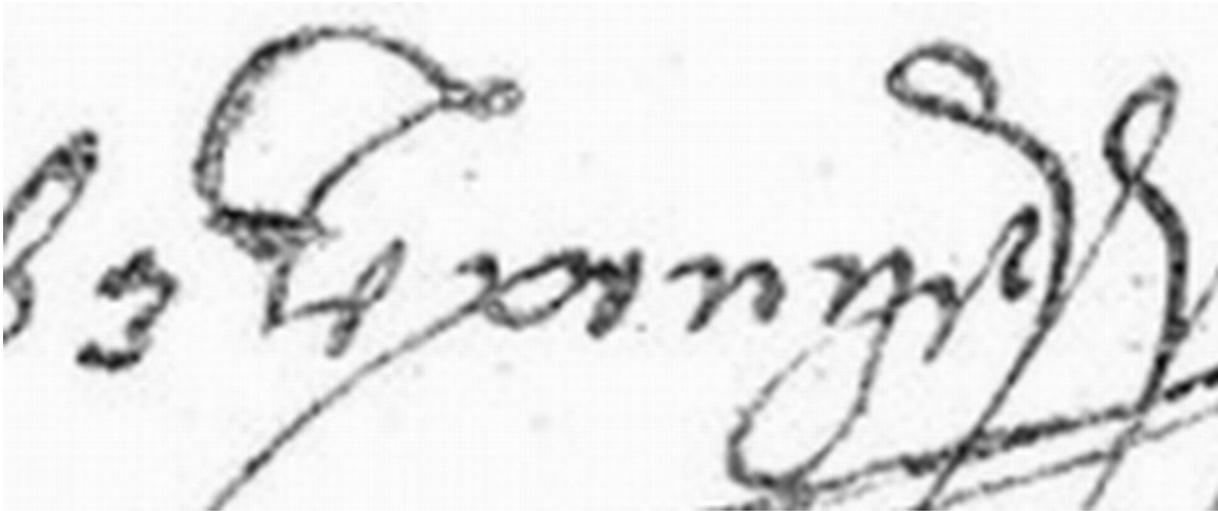
identify any similarity of the the hand that wrote them. As for the person, there was no other Tepenec in his time, the name given to him at *nobilitatio* was of the castle Tepenec that was already then in ruins for 200 years and there was no bearer of that name before him.

For comparison, we present here small sample of colorgraphic filtering of the "signature" .



We studied only the area of the word "Tepenec" with proper magnification and below are the "signature" in the VM and corresponding No.1. and No.3. signatures, with proper scaling for better comparison .





As can be seen, we could not find any resemblance between those two signatures and the one in the VM. What remains to study are the words "Jacobi" and "Prague", but we did not do it since our graphic enhancement did not show them clearly enough. Apparently, they can be seen only under the ultraviolet light and or on some Xeroxes and even there the quality is not too good for any decent comparison.

CONCLUSION: We could not confirm that the "signature" in the VM was written with the same hand that wrote the signatures No.1 and No.3. The script in the VM is also rather simple, totally disconnected and reminds some modern script, it may even stand for the one of the twentieth century cursive. If there was an intent to simulate Horczicky's signature, the forger apparently had no idea how his signature looked like, especially if the ending should truly be "-encze" as in the signatures and not "-ence" as in the VM.

COMMENT: Since the time this article was published, several additional points were cleared, thanks to documentation posted by Dana Scott, at <http://www.voynich.us/photo.htm>. The most valuable is the clear copy of xerox picture after Voynich treatment. The question still remains what is the second word (is it "z" or "de"?), since in none of the xeroxes nor on Beinecke scan is clear enough. However, if it is Czech "z" then the word Tepenec is wrong - it should be in proper Czech declination "z Tepence" (as seen in the signature no.3) otherwise it is a *serious grammatical error* (it should be in genitive, i.e. "z Tepence"). Horczicky never made such mistake in his own signature and neither would any Czech, only foreigner probably would. If it is however "de Tepenec" then it is in good Latin. Of course, Horczicky never signed himself in Latin form, except in the signature No.2, but as we said, it may not have been written by him, since there is no similarity with No.1 nor with No.2. signatures.

As for Voynich xerox copies, several parts of the "signature" can be also seen in Beinecke scans, but very little of the visible chemical damage to the vellum can be seen on rough xeroxes.

Because of the damage, we cannot date the signature neither the erasure (if there really was one). Voynich actually never talked about the spilling some chemicals on the folio, only about "underdeveloping" of the Photostat. Voynich claims it was due that "underdeveloping", that the "signature" appeared visible. Photostat technique of course only projects the original on light sensitive paper, so no chemicals were needed to be applied to the original itself. Later, he admits, some chemical treatment was applied to the vellum, probably to make the "signature" permanently visible but also with some catastrophic effect to the surface of the vellum. Was that really necessary? Couldn't they do some experiments first? Even more problematic is that we do not know now which spots are old and which happened during the claimed former erasure (the "signature" was first not visible at all). Also, some spots and/or text may have disappeared during the last 90 years, thanks to the light exposure and/or continuing process due to those chemicals (which were never really specified either). Neither we can distinguish the traces of alleged former erasure nor even the means the "signature" was erased (mechanical, dilution, chemical?). What we may need is the special depth penetrating scan to distinguish between several layers of spots. What's more: since the "signature" is not in Horczicky's hand, we do not know who wrote it and when. And of course, the suspicion of the planted "signature" now even more enhanced.

Still, there is one positive result: we can clearly accept the signature No.1 (in the official document) and the signature No.3 (the exlibris) as the true signatures of Horczicky - the similarity is simply overwhelming.

(23rd January 2007)



A35. THE RESEARCH OF THE VOYNICH MANUSCRIPT: The Strategies and the Results.

Jan. B. Hurych

In seven years, we will be celebrating the reappearance of the VM, the Voynich manuscript that ever since baffled many researchers all over the world. There is however not too many reasons to celebrate our progress in the search for solution of the VM. We gathered a lot of auxiliary data, scrutinized them and used them. And what we got so far? The list of old dogmas from Voynich era, some only coincidental events and then several new theories, remarkable only by contradicting each other.

It is not only because of three basic unknowns of the manuscript, that is *the author, the script and the language*, but also due to the lack of some general strategy. That is understandable, since each researcher has its own area of the expertise but it is also very regrettable, because many of works were undertaken, then abandoned and disappeared in oblivion, without us properly learning from our failures. With the shining exception of Mary d' Imperio's book, the rest of them either repeat the well known facts or venture into the land of illusions. That is not to say no progress was made but have apparently still long way to go. Couldn't we have done a lot more during those one hundred years?

The problem starts with the fact that the VM is rather *non-traditional document* and conventional methods of research usually do not get us there too far. Very often the results lead to contradictory conclusions which can be only resolved by further facts and we do not have them, unfortunately. I do not mean conventional statistical and other scientific methods that we know have proved themselves in other fields, but even those methods may need here further improvements. That is because we try to apply them on incomplete or incompatible sets of data. It is also possible that some methods cannot be improved any more (say carbon dating for certain periods of time) and have to be replaced by some other, more advanced methods. The use of computers is of course only as good as data we are giving to them. Maybe applying the methods of artificial intelligence could help us in future - or maybe not. The use of self-learning programs is still contemplated but - as far as I know - not applied yet.

What are the methods of research we are using now? Apart from the "guess, test and rest", the most favorite methods are the **similarity, analogy or coincidence** with application of inference, that is of **scientific induction**. How far it gets us? Let's see: the typical example is the discovery of the "sunflower" that lead to hypothesis about the "American" origin of the VM, the dating "after Christopher Columbus" and what not. Yes, it was Georgius Baresch who already noticed that VM plants were not from Europe and while it could be a sunflower all right, no other plant in the VM was confirmed as being from America. Also, while otherwise serious researchers were trying to find at least one other herb there that would remind us of some known plant (that is the *whole* plant, not just a leaf or blossom or root), anywhere on this Earth, but their efforts were apparently futile from the very beginning.

Why? It is now obvious that at least the majority of the flowers there are *not known to us* and there is a major uncertainty about the "sunflower" itself - there are other plants with similar blossom as well. How probable then could be the identification of the other plants in the VM "herbal" ?

Here we have to pause and get little bit back in time. The basic method for the VM research is *not the deduction* (mostly because we do not know all facts or premises) but the *induction*, i.e. by generalization that is "the reaching the universal from particular". It was Francis Bacon who not only coined the theory of induction but also pointed out the treacherous points when it is not applied properly.

That point was also made in now classic article by T.C. Chamberlin, (1890, "The method of multiple working hypotheses") summing it up nicely in the subtitle "With this method the dangers of parental affection for a favorite theory can be circumvented". How many times we saw the VM researchers changing subconsciously their "working" theory into the "ruling" theory and finding only *the facts for the support of such theory*? His **Multiple working hypotheses** when investigated simultaneously, i.e. in parallel, may not only reveal mutual connections between the causes of the phenomena but also force us to keep an open mind, all the time.

He also listed the drawbacks of such method, some of them being later eliminated by the use of the **Strong Inference**, proposed by John R. Platt in his article "Science, Strong Inference -- Proper Scientific Method" (16 October 1964). What is the recipe for the strong inference? In four points, it is :

1. Devising alternative hypotheses;
2. Devising a *crucial* experiment (or several of them), with alternative possible outcomes, each of which will, as nearly is possible, exclude one or more of the hypotheses;
3. Carrying out the experiment so as to get a clean result;

4. Recycling the procedure, making sub hypotheses or sequential hypotheses to refine the possibilities that remain, and so on.

That might look simple enough, but it is far from it: the set should include all possible hypotheses in order to guarantee the success. Another, the most critical point, is the test, the *crucial* experiment. As we can see, we **do not test to prove the correctness** of one hypothesis, we **test to separate off the empty theories**. Again it is mainly the elimination process and we have to choose very carefully the kind of test we will perform. This process should be mastered and applied by every researcher before he claims any minor success. Platt even coined the "touchstone question". It consists of asking - in your own mind - on hearing any scientific explanation or theory put forward, "But sir, what experiment could disprove your hypothesis?"

Now we are getting to **falsifiability** or testability: Bacon already warned that we cannot proclaim the hypothesis valid until we are sure we examined all possible cases for falsification - that is unless we know *where or when it is not valid*. Even the perfectly valid hypotheses should be falsifiable, claims Karl Popper. Those, that we cannot technically falsify, cannot be proven either. Typical case here is the empty hypothesis of "encoded gibberish", which is not falsifiable - how do you prove you decoded the text to the original plaintext, the proper "gibberish"? Such theory cannot be proven nor disproved. We have to keep in mind however, that even with the "strong inference" and all premises being true, the conclusion is only probable, meaning it could never be a hundred percent sure as it usually is with the deduction. As we can see, looking for I have to stress that it is more important to look for exceptions than for affirmations, which is usually impossible task anyway, considering that not all data are available or testable. And here comes my part of the story . . .

As we can see, it is more important to look for exceptions than for affirmations, which is usually impossible task anyway, considering that not all data are available or testable. As the case is, many approaches to the VM were usually limited to finding something reminding us of what we already know from elsewhere, something more or less similar and familiar. Then we hurry up to apply the idea on the whole set. Of course, we do not and cannot bother with all cases and so we rather jump to conclusion, but that is not how the scientific induction works. We are parting with reality too soon and instead of strong induction we get only a well intended but totally wrong fiction bordering with illusion. Can we really look for usual things and use them for explanation of unusual things? Hardly, especially for the VM, which is "A Riddle Wrapped in a Mystery Inside an Enigma" - as the famous quote by Winston Churchill goes. There nothing seems to be as it appears. So what good it is to look for similarities in appearances only?

It gave me an idea that there must be *the other, more productive method* for the VM research and I think I found it. The method is actually very simple: we have to do quite the opposite: we should **look for exceptions** not for similarities. It is a psychological fact that he who is looking for similarity will find it even where it does not exist. In reality, if we find something similar in the first instance, it is even more difficult to find another occurrence which is usually not that much similar and so it is more difficult even to spot it. And then comes the case there is so little similarity that it is practically none at all.

That's when and where comes handy my advice: instead of looking for similarities, **we have to search for something unusual, irregular or even impossible**. These occurrences are especially valuable: we know they are unusual so they apparently have something to tell us. They may give us some new, important information - but of course only if we know how to evaluate them.

For instance, say there is a plant with rather impossible shape of the root (I know it is but let just put it hypothetically). Of course, we mustn't stop there and our next question would be "**Why it is so?**" What was the reasoning of the author or the purpose behind it all? Was it just an error, inexperience, low skill of the artist or maybe something else? We can also count how many times such deviation appeared anywhere else in the VM and look for its variations. And the next question, going back again, is: "Could we explain at least one of those exceptions some way and what does it mean in general sense?" By answering such questions and explaining such exceptions, we may even get some valuable ideas.

Yes, surprisingly enough, such root may tell us more than the above mentioned "sunflower". We may conclude for instance, that the root was just invented and all other plants as well and yes, if we have more proofs, they apparently have some common idea behind them, for instance the *steganography*. In our case, the key to the text may be in the pictures. True, we have to prove it - we have to find the system that explains all that, something like a common denominator and more importantly, we have to test such theory. But if we do get confirmation, then we may get much further than from some similarities which, unless tested, may be only in our mind anyway.

After all, if the plant "sunflower" is a real sunflower, what does it tell us? True, the VM then could get to Europe only after 1492 (if we do not count Vikings :-) or any time later. But the other knowledge in the VM was apparently resident in America, and since the aboriginal nations of Americas did not know our use of vellum, it was brought in some drafts and copied later in Europe and could be much younger anyway.

Let's take another example: the VM history research was relatively rich but it as is shown in my article "The Voynich Manuscript - Do We Really Have Any Provenance?" it is also very dubious in some places. Taking one famous scientific person after another and trying to fit them as authors is another exercise in futility. We have handwritings of those people and we know their written works - and we also know they do not fit the hand or the idea of the VM. Before we could go on hunting for facts supporting some hypothesis about one particular author, we have to find out **why would he write** the way quite strange for his contemporaries, what did he try to hide the content and for whom he then wrote it. We certainly have no proof the VM was written for an ordinary reader, maybe for nobody except the author himself. If we take however all the specifics, we have to come up with the hypothesis, that the VM is surely hiding some secret. Of course the "real suspect" for the authorship would be the one who had **the reason** to hide something. Find the reason and find the traces of it in the VM - and you may eliminate a lot of "suspects" that way.

We can see here that starting with one person and trying to prove it was him is putting the horse behind the wagon. Besides, the attempt

should be made first **to disprove him rather than to prove him** . Some disproving facts could be strong enough to eliminate him in the first round already. After reasonable search, we may even conclude the author cannot not be found in between the "rich or famous" and that it was apparently somebody not commonly unknown or even illusive (as is for instance the person of Georgius Baresch). What's more, the disproof can be an easier job: it is sufficient to eliminate the hypothesis by finding one example where it does not work, while to prove something one needs to test all premises and cases.

Just to make my point clear: I am not judging here some strategies used up to now. Those were effective methods but many were abandoned mainly for above reasons. Not always, but often enough they hit the wall simply because the similarities alone are only tools and not the real strategies. And what once was inspirational, eventually run out of continuation for simple reason: there is never enough similarities to make for the rule. Something else, something new must be discovered so we are able to sum it up and make the hypothesis testable. Also, I do not pretend that the strategy of looking for exceptions is anything new - after all, many people in the past did that and often drew the proper conclusions from them. Such approach seems to be also more productive and more dependable than just looking for similarities. Even if we find strong similarities, they are sometimes very *superficial* and how certain could be the general conclusions based on them?

27th March, 2005.



A36. MNISHOWSKY ONCE MORE

Jan. B. Hurych

Recently, mysterious Dr. Raphael Mnishowsky (Mnišovský in Czech) once again popped up unexpectedly in my mind. I was talking with one of my friends about one book and not remembering neither the title nor the author, I just could not identify it to him, only by quoting some things from its content. Unfortunately, it did not help: my friend never read the book. I returned home and almost instantly I remembered the file where the book was mentioned by name as well with the name of the author . . .

And then, I realized how must have been confused Mnishowsky when Marci was asking him about the VM - the VM has no author nor the title and provided Mnishowsky never saw the VM, it would be quite impossible for him to identify the VM with one particular manuscript owned by Rudolph II. Marci who of course saw the VM at his friend Baresch, probably described the pictures there, the script, the details. But nothing would have worked, Mnishowsky might have seen some books in Emperor's library but none of them would really fit the vague description of the VM . . .

But that is not how the meting went. How do we know? Let's analyze the only record of what was said to Marci by Mnishowsky, in the famous letter by Marci to Kircher:

"Dr. Raphael, tutor in the Bohemian language to Ferdinand III, then King of Bohemia, told me the said book had belonged to the Emperor Rudolph and that he presented the bearer who brought him the book 600 ducats. He believed the author was Roger Bacon, the Englishman." (I am quoting here the translation as presented on René Zandbergen's page, j.h.)."

From that is obvious:

- 1) Dr. Raphael is none other than Raphael Mnishowsky, the tutor, etc., the historical person.
- 2) Marci quotes the words Mnishowsky personally told him
- 3) There is no maybe: Mnishowsky said he *knew* Rudolph owned the VM
- 4) With the same certainty, he "knew" Rudolph paid the "bearer" 600 ducats for the book

Then we have not so clear statement in the last sentence:

We can take the words "he believed" as three different possibilities. Who did "believe"? Was it just Rudolph, Mnishowsky or even the bearer of the book? All three persons were mentioned in the preceding sentence. To that sentence is apparently also related the next sentence by Marci: *"On this point I suspend judgment; it is your place to define for us what view we should take thereon .. (quote as from above source, j.h.):"*

Well, there we have it: *Marci did not doubt the VM is the one Mnishowsky was talking about* nor that it was owned by Rudolph. He actually *only doubts the Bacon's authorship*. I have to admit that originally I suspected Marci thought that *all* Mnishowsky told him was just as court rumor. That was till I read the statement in the book by R.J.W.Evans, *The making of the Habsburg monarchy*, where he quotes Mnishowsky as saying he was *"seeking out manuscripts associated with Rudolph and working in monastery libraries.."* So I re-read the letter and realized Mnishowsky *knew* what he was talking about.

Of course, we can again take the word "associated" two ways:

- 1) *He got license by Rudolph* to look for old manuscripts for him. That is quite possible since in 1602 already published (mostly his) Czech translation of Paprocki's book with his own part about monasteries added (he was 22 years old then and Rudolph abdicated in 1611), or
- 2) *After Rudolph's death*, he was looking in different places for remains of Rudolph's library which was in disarray after 1612. In that time, part of it was already sold by Emperor Mathias and the rest was later taken as a war booty by Swedes in 1648 (when Mnishowsky was already four years dead).

Strange as it looks, both possibilities are supported by additional fact - that is Mnishowsky *must have seen the manuscript*, as we already concluded above. True, he might have seen it somewhere but more likely, he might have been connected with the VM even more directly

. In the first case, he might have been himself the "bearer" of the VM to Rudolph (bringing with him the "Bacon theory", either overheard or by his own opinion). That is also supported by the fact that he knew the price so well.

The second point is even more intriguing: if Mnishowsky found the VM after Rudolph's death, could it be him who actually procured it for Baresch? It is really suspicious that neither Baresch nor Marci ever mentioned how Baresch got the VM. Marci may have not known nor guessed but Baresch surely knew how he got it but would not tell either. Of course, Mnishowsky was also Imperial officer of confiscations (after the defeat of Bohemian uprising) and Baresch surely would not want to compromise him.

There is only one snag with both theories: that is the name of Horczicky written in the VM. Today we know it is not his signature nor exlibris but that it was written by some other hand. Interestingly enough our handwriting analysis (see our article "The signatures of Horczicky and their comparison") has found only one handwriting which was closest to that in the VM "signature": the handwriting of Mnishowsky as we compare it from his book "Construction sive strues Trithemiana". . .

Jan B. Hurych, 23th December 2009



A37. PHONETISATION OF THE VM - FIRST RESULTS (First published in *Journal of Voynich Studies*)

Jan. B. Hurych

The choice of a language and conversion of VM transcript is critical for the phonetizing. Beside Latin and Czech, the English is the next contender. It seems that our conversion of VM transcript to Latin does not really crack the secret of the VM. It is actually only decoding the arbitrary font of EVA into Latin text per my Historical Latin Letter Frequency Table, and there is probably another encoding still present in the VM on top of it. I would like to continue searching for medieval frequency tables - as I was told there were several of them made at medieval time. In reality, EVA actually provided only monoalphabetical enciphering of VM letter symbols. By using the table, we simply "deciphered" EVA as well as any other monoalphabetical substitution cipher if it was present in the VM already. All that of course, provided the VM plaintext is in Latin. Not so surprisingly - by doing that, we did not get the readable, sensible plaintext in Latin. That's why I got the idea for phonetizing the result.

As for other languages, I tried Czech language conversion table but its phonetizing sounds, just superficially, of course, similar to the Latin one, most likely because of the sentence structure present in the VM. We may try the other languages later but for the meantime, the best resources and results we now have are still for Latin, so I would suggest to stick to that one for the time being.

Pronunciation of medieval Latin is quite similar to International phonetic table while English pronunciation of the same text is quite different - so what we need is the true phonetic method. Example: letter "a" can be pronounced in English several ways, depending on the syllable, surrounding consonants and the position of "a" in the syllable. In Latin, there is only one way, that is as in English "ah".

The English pronunciation of medieval Latin stemmed from the fact they originally vocalized the written word and did not bother about true Latin pronunciation. So sometimes it completely distorted the sound of the word, and I heard even priests often pronounce it English way (say suffix "-atio" in Latin is pronounced as "ah-tzio" while English pronunciation sounds like "ey-shio"). In this case, the phonetic version could lead to erroneous conclusions. Similar problem would be of course with other languages, typically with French (surprisingly, not so much with French Latin ;-).

The phonetizing (by the way, I wanted to use the word "voicing" or "vocalizing" or even "reading" but we are doing here something else again) serves several purposes, namely as another tool in the process of decoding the VM. It is not accurate of course but may be quite inspirational. It is simply just another tool how to crack the VM. It may help in the search for the original language, the sentence and word structure and/or information flow. So far the VM researchers worked with written version only, so it is for us completely new game. Also, we cannot expect any deeply revealing results soon.

The existing text-readers, when they encounter unpronounceable word (unpronounceable in English that is) are just spelling it letter by letter, again in English spelling of course. It is caused mostly by low frequency of vowels since EVA provided just the arbitrarily chosen letters. To eliminate that inconvenience, we have to break those words in syllables - if it helps - or insert some vowels (the best is so called quiet "e"). We do not know exactly which are the true vowels in the VM plaintext but I compared it with Sukhotin's results and his vowels basically agree with those in Latin conversion (not in that order of course, but make it pronounceable all the same). Also, the conversion shows those vowels (that is a, e, i, o, u, y) have higher frequency than the EVA arbitrary "vowels", so we are apparently on the right track. Therefore, for the meantime, we should be able to carry on with the existing conversion until we find the more accurate one.

Still, there are words that remain unpronounceable even in Latin pronunciation, mostly the clusters of syllables. There are two possible reasons: first is the mentioned inaccuracy of the table of conversion (given the fact the some letter frequencies are too close to the neighbours to establish the proper order), second is there may be further encoding present in the VM - say abbreviations, anagramming, even partial transposition cipher, e.t.c.

So far we found only very few complete words (like several words "saint" which of course should be "sanctus" in Latin, so I believe it was only coincidence), and also some fractions of Latin words (which may suggest the plaintext was in Latin but somehow further modified).

Jan B. Hurych, 27th January 2010



A38. MONDRAGONE FOREVER?

Jan. B. Hurych

I have to admit there was one of the surviving Voynich legends I never seriously doubted: it was the finding of the VM in Villa Mondragone. Only after writing two of my previous articles (THE VOYNICH MANUSCRIPT - DO WE REALLY HAVE ANY PROVENANCE? and VOYNICH NOW AND THEN) I started to analyse the rather controversial facts surrounding the Mondragone find. After all, after discarding the legend about Bacon, Dee and even Rudolph's ownership (all were just the third hand information) there are still two rather dubious points in the provenance: 1) The almost miraculous appearance - almost apparition - of Horczicky's "signature" and 2) Marci's letter that was "supposedly" inserted in the book with apparently no other witness present. Neither the letter content mentioned anything to prove the VM is really the Prague Manuscript Marci was talking about. By removing it from the book, Voynich unintentionally lost the proof of the identity of those two manuscripts.

Then there is the other part of the provenance that was never seriously doubted. That is until now: the Villa Mondragone, the place Voynich allegedly found the VM, the fact that he however guarded as a deadly secret, truly till his own death and even after, till the death of his wife Ethel. In my articles above I already pointed certain ambiguous info Voynich originally provided. Not then and not even later he ever mentioned the Villa Mondragone by name. Closest he ever came to it was the mentioning in his article in "The Transactions of the College of Physicians of Philadelphia", Vol.33, 1921, that he found the VM *"in the ancient castle in Southern Europe"* . . . *"with other manuscripts embellished with the "arms of such personages as duke of Parma, Ferrara and Modena"*.

Well, Mondragone is no castle, even Wikipedia calls it "the patrician villa" and it looks more like a palace or chateau since it has no features typical for the castle (like fortification and so on). Being built in 1573 or later, it could hardly be called truly "ancient" - the time of building the ancient castles was practically gone by then. As for noble families, Mondragone was once owned by Farnese family (about one hundred years) and by Borghia family (per Wikipedia) who "exhibited parts of their art and antiquities collections there". Voynich however provided the guess the VM manuscript was once owned by the House of Parma, the family that never owned the Mondragone.

Of course the difference between castle and palace is a commonly known fact and especially the antiquarian could hardly make such a misinterpretation. Of course we should give Voynich a benefit of doubt but when W.R. Newbold claimed in his book that Voynich told him he found it in the "Austrian Castle", we see just another contradiction there: Mondragone is not in Austria neither it was in any time the part of Austrian Empire.

More contradictory are the reasons Voynich kept quiet about the place he discovered the manuscript. In his article above, (Page 416, note 1) he explains that he was not revealing the location of the castle since he wanted to buy the rest of the collection later. We can wonder if that was the only reason - especially when it brought the whole provenance in serious doubts and could suggest he that it possibly was a forgery. The claim that he wanted to buy some more books there later also became invalid as the years came passing by. Besides, the revealing of the VM origin would surely increase the value of the VM and outweigh the loss of some other buys in Mondragone. There must have been some more serious reason - or even danger - that prevented the revelation of the secret.

For instance, we know that exporting the old manuscripts from Italy required, already at that time, the special permit by Italian government and no such document is mentioned anywhere. Also, Marci's letter, once belonging to Athanasius Kircher, should have been first offered for sale to Museo Kircheriano as it was a part of its letter collection and not to be just sold to foreign antiquarian, especially since there was apparently no refusal to buy by Museo Kircheriano found. But was the VM bought from Mondragone padres?

Interestingly enough, neither they nor Vatican ever confirmed or denied the VM ownership. They apparently found no record of it anywhere, therefore no action was taken, not even after the final revelation. They even might have suspected some fraud in which case it was better to say nothing at all :-).

There is of course even more serious reason why Voynich would never reveal the place he found the VM. Mondragone might not be the real finding place but just a convenient substitute but it that would be intentional misleading. So instead, Voynich kept quiet. The revelation of Mondragone was provided only later as a posthumous message from Ethel Voynich - and made public via Miss Nill. We know that she became the sole owner of the VM after Ethel's death and tried - for

some time without any success - to sell it. Eventually, Mr. Kraus bought it and failing to sell it as well, he donated it - for free - to Yale. And all that time it was claimed the VM had a priceless value. It reminds us about the fact Marci also donated the VM to Kircher for free while on the other hand Rudolph supposedly payed for the VM the horrendous sum of 600 ducats. What did then Marci and Kraus know we do not know?

Let's imagine this: Miss Nill was stuck with the manuscript which was for long time without any proof of the discovery or even the place of it. So to complement the provenance the alleged place of origin was trimmed to the other facts. In the world of antiques, that surprisingly happens more than often. And the correspondence not known until then was presented publicly as a proof of the find. Those are the letters between Voynich and both Father Giuseppe (Joseph) Strickland from Mondragone and his brother Paolo (Paul) Strickland. While they are surely genuine, they do not talk specifically about the VM but rather about some sale of manuscripts and the VM - we are asked to believe - was among them. After the location of the sale was publicly revealed, Mondragone entered the official provenance for good.

But was it really the place Voynich obtained the VM from? At the time of the sale the VM did not have any name, no author nor any provenance. The language it was written was not known so it could not be even read and its age was not certain either. Most of that is still not known, so we are running here in a vicious circle: the provenance had no value without the verified place of the sale and the place itself cannot be firmly supported by some other facts of the provenance . . .

In reality, there are only two references related to the find. *The first one* is the accompanying Marci's letter - if we believe it was found while being inserted in the VM since we only have to take Voynich's word for it. Surprisingly enough, Voynich in the above article claimed he did not pay any attention to the letter at first which of course sounds as probable as receiving some gift and not to look in the card accompanying it :-). Otherwise, the letter does not say anything specific enough to recognize that it really talks about our VM and it could be used easily to talk about some other manuscript. The VM is however not listed in Museo Kircheriano catalog - the one published at Kircher's life - so we do not have any proof Kircher actually received the VM at all. *The other reference* is the letter by Baresch claiming his Prague manuscript contained some pictures of plants not known in Germany. Of course there are in existence many manuscripts showing no plants "known in Germany".

So - you may ask - **what is so important about the place the VM was found** anyway? Plenty: since the origin is critical and if it was not in Mondragone, the whole provenance with all other legends would be then null and void. But is there anything else to support such suspicion?

I have found something and while I was not the first, apparently the proper logical conclusion was not drawn from it so far. Voynich advertised in 1909 he bought the large amount of old books and manuscripts (and the sale possibly happened in 1908). He actually altogether with the bookstore and the building of *Libreria Franceschini* in Via Ghibellina in Florence. It was formerly owned by Signore Pietro Franceschini who died and his son sold it all to Voynich. The add - from Voynich himself - mentioned the number of those books as 500 thousand (yes, you read correctly!) and he was offering books for sale. It was such a bonanza that Voynich later moved part of his headquarters from England to Italy. The sale of *Libreria* therefore happened some three years before Voynich found the VM in Mondragone - but did he really find it there?

There is another information in the book written by Voynich acquaintance. Mr. G. Orioli, the Italian, quotes in his book "*Adventures Of A Bookseller*" that Voynich himself mentioned the great sale and even recommended him to become antiquarian himself. He also bragged about one convent where he obtained a lot of old manuscripts from monks, only in exchange for some modern books. So here we have another possible place of sale, next to Austrian castle, Mondragone and some other places as well.

Now they all might be the good candidates but if it was not Mondragone, the *Libreria Franceschini* had something rather special: it is documented that the books there were the **government confiscations** from the time of *Risorgimento*. No doubt while some of the loot was sold for the fish-wrapping paper (as I learned from vatican sources), the others were repossessed by Signore Franceschini from the places where there were piled up without anybody having any knowledge where they came from. In his love for books he saved many of them from their sad fate but of course neither he nor Voynich could have possibly known anything about their provenances since they were hoarded haphazard by confiscators and were sentenced to destruction.

That of course would be a serious problem for Voynich since mentioning the true place of the VM find since it was known the books in the *Libreria* were the true orphans and nobody knew anything about their past. It looks rather similar to the unknown VM past, doesn't it? So Voynich did not need to lie and invent another place - he just kept quiet till his death so the place of the sale was deliberately shrouded in the secrecy. Only later, without his knowledge, some substitute place was apparently invented, quote "for the benefit of the public".

If that is what really happened, it would answer several serious questions that were not - so far - answered to our full

satisfaction:

- *Why the VM, found allegedly in Italy, had originally no Italian part of its provenance except Kircher's ownership?* New answer: There was nowhere to go back from the Libreria :-).

- *Why Voynich kept quiet all the rest of his life?* New answer: There was nothing to gain by mentioning the obscure shop containing books with no previous history. Besides, admitting there was no provenance would make the VM really "priceless" :-). - *Why was the obscure castle originally mentioned together with some noble family names?* New answer: It was thrown in it for better sounding story. Then again it could have been as good guess as any.

- *Why so far the provenance did not lead us to any new discoveries?* New answer: It did not and it could not, even if the true place would have been known - again, there was nowhere to go.

- *Why the existing provenance does not provide anything that would fit the recently obtained carbon dating of the vellum age?* New answer: All of the authors so far suggested were selected to fit the old legends, not to real facts.

The hypothesis that the Libreria was the real place the VM was found may now give us some new ideas. And what's more, if the VM was not found in Mondragone but somewhere else, it opens the **new avenues for other theories that were discarded before only because they did not fit the old provenance**. Considering even the possibility that it was found in Libreria but did not belong to *Risorgimento confiscations* (Signore Pietro also collected books from other sources) the searching for the place he got the VM would bring us new possibilities . . .

Jan B. Hurych, 29th December 2010.



A39. THE LINK ENDS AT BARESH.

Jan. B. Hurych

Rich SantaColoma quotes the letter by Wilfred Voynich written in May of 1921. In the letter, Wilfred wrote, "Now I have no definite information but it is possible that Marci got the MS. at the same time that he inherited the alchemical library of Georgius Barschius, some time after 1622. I can find nothing about Georgius Barschius."

Voynich (further V.) knew the info about Marci's inheritance and the name of Baresh from the letter he got from Prague that quoted Baresh's (further B.) name, so apparently he did not need to guess. I think I have read about the letter sent from Prague archiver to V. quoting the inheritance document with B's name. It apparently still exists, of course it does not say the VM was THERE.

Marci mentions B. - except for his name - and himself getting the VM from deceased friend in his letter to Kircher. Since Marci hardly inherited many libraries from many deceased friends, B. was the major candidate for possible VM ownership. It was then easy to put together 2 and 2 and get 5 :-).

But seriously - we are sure now at least of one thing: that V. knew B's name as in the quote above. What is the real SHOCKER is the fact V. never mentioned B. publicly in the provenance he so painfully put together. It would be advantageous to put B. there - even if only as an hypothesis. It would provide the missing link V. needed and with B's lifespan it was enough to move the VM closer to Horczicky (further H.) and/or Rudolph. Let's not forget V. did not hesitate to put in many of his other speculations: e.g. he invented John Dee as another former owner of the VM. That is of course another dead end sine it left him still with almost 200 obscure years to get to Bacon.

But V. did not use B's name anywhere. Why? Little did he know he could search further and find Baresh's name in that now famous letter from B. to Kircher. But that's not really why he omitted to mention B. there. My suspicion is that - for some obscure reasons - it did not fit his overall theory. Maybe he found B. leads somewhere else, to another author than to his beloved Bacon.

And there is something else: let's not forget that the link from Marci to B. creates more problems than solutions: B. could have got VM anywhere and anytime before he donated it to Marci. It just opens many new and dangerous avenues. Our "VM impressionists" have looked in vain to find the link from B. to H. so they took it for granted, as usual :-). They just chose one of thousand possible links, the only one that leads to - surprise, surprise - to Horczicky (further H.)!

Now that does make the life easier but not too real. H. himself and his alleged signature does NOT lead directly to Rudolph. Sure, H. was Rudolph's court subject and sure, he got his title from him but there is no solid evidence Rudolph ever donated it or sold it to H. (Voynich even thought the "signature" is just the dedication by Rudolph to H. :-). Neither there is any evidence Rudolph ever owned the VM (Mnishowsky's hearsay is just third hand rumor). So H's entering the scene was just the straw that was supposed to float the Titanic of V's provenance.

Except for creating the virtual link to Rudolph, H's contribution to VM story is practically nill. On the contrary, it is already B., where the present chain ends. Yes, Baresh - who is the SOLID link to Marci, who spent many years with the VM study, who wrote to Kircher about it and who, at the end, generously donated the VM to Marci - and who apparently did not know the previous owner of the VM either.

Even if we take H's signature for granted (such as "black on white" even if doubly erased, once by clumsy chemical treatment :-), we have now the rest of the "chain" with all virtual links suddenly separated: Bacon to Dee, Dee to Rudolph, Rudolph to Horczicky, Horczicky to Baresh (or someone else as Rich suggests). One thing is for sure: we can rightfully doubt the deliverance of the existing provenance . . .

Jan B. Hurych, 7th October 2013.



A40. THE MISSING TWO HUNDRED YEARS IN THE VM EXISTENCE

Jan. B. Hurych

One day, I was discussing with my Czech friend Karel Slajsna - who discovered the true signature of Jacobus Horczicky in Melnik Castle (in 2003, signature from 1617) - again about that castle. Karel lives in Melnik town and on my request, he went to archive in the castle and asked for their assistance to get a copy of the official, certified signature of Jacobus, who, as we know, was once a captain of the castle. Since the name of Jacobus was discovered in the VM, ours was the first officially confirmed signature of his.

The position of the captain (the ruler of the castle and surrounding county) was originally mortgaged to him by Emperor Rudolph II and after Rudolph's death (1612), he got it for good, apparently as a backpayment for the money he lent to Emperor. After the uprising of Czech protestant nobility, we was jailed and eventually exchanged for the rector of Carolinum (the Charles University in Prague), Dr. Jan Jesenius, who was at that time captive of the Emperor. Free Jacobus was afterwards expelled from the Bohemia (1618 or 1619). Soon after the battle on the White Mountain (1620) that marked the end of the uprising, he got his Melnik castle back but he died (1622) from injuries suffered when he has fallen down from his horse. His property was inherited by Prague Jesuits. Dr. jJesenius was executed one year before (1621) by victorious Catholics with 26 other leaders of the uprising . . .

As I tried to get more info about the castle, Karel mentioned that Melnik was traditionally the town, belonging traditionally to Czech Queens who usually resided there. The most famous one was Barbara of Cilli, the wife of Emperor Sigismund, the Holy Roman Emperor. By marriage she was also the Queen of Bohemia, Germany and Hungary. So I looked more closely to her curriculum vitae and was surprised with several details that suddenly woke up my imagination . .

She was born at 1392 and died 1451, residing at that time, already as the dowager Queen, in Melnik castle.

While her husband was alive, she lived in Hungary, mostly on her Hungarian fiefdoms, but after his death 1437 she was arrested by her son-in-law Albert II (for conspiracy). She escaped and found the shelter at Polish Royal court (1438) and after his death, she moved to Melnik in Bohemia (1441).

also found several interesting points I would like to present here:

1) **Her lifespan** is surprisingly close to the carbon dating of the VM (1404 to 1438, in average around 1420). After the carbon dating, we do not have now any serious candidate for the author of the VM. Roger Bacon, (1214 – approx 1292), mentioned in Marci's letter and favoured by Voynich so much, is now definitely out of the race :-). So are the others who lived and died before 1420. True, the VM still could have been only the later copy of some original, the copy written by somebody living later. But no older original was found so we may never prove it. Almost dead is also the "dating by sunflower" which did not reach Europe before 1492. there is of course the possible use of older, virgin parchment later, but again, that is just a theory.

So far we somehow neglected the period of two hundred years from 1420 to say 1620 (or around which is approx. time Horczicky might have got the VM. True, the legend of Dee collecting old manuscripts in monasteries of England that were devastated by King's Henry the VIII order, is a very interesting except it may not apply to the VM at all. We are not even sure the VM was once owned by Dee - that is just another legend by Mr. Voynich. So we do not even know **the owners** of the VM during that "dead" interval in the VM provenance! The carbon dated actually opened that early period of the provenance quite open to any speculation . . .

2) . By mentioning here **Queen Barbara of Cilli**, I am not suggesting she was the author of the VM. True, some considered even Hildegard of Bingen (1098 – 1179) who lived even before Roger Bacon and, Barbara fits the time scale quite well - but that is not enough to justify it. However, Barbara could have easily already owned the VMN and there are other circumstantial points there.

3) We know she lived long enough in Melnik castle (from 1441 till 1451) to establish there her own alchemical laboratory and actively work on the transmutation of common metal into gold. For that, she had to study the alchemy quite thoroughly and what better information she could get than from old manuscripts? She apparently had some minor successes which also raised the rumor she could make the cheaper silver and used it for cheating when paying her debts.

4) That rumor was started by Jan z Lazu (Johann von Laaz - also Johannes de Lasnioro or Lasnioro, Ioannes of Laaz, Lassnior), the most famous of Czech alchemists and the author of several books of alchemy in Latin. It was for instance "Tractatus Aureus" or "Tractatus II, de lapide philosophico", now available from Google Books. He lived and wrote his books in the first half of the 15th century (e.g. "Cesta spravedlivá Antonia z Florencie, 1457). In his books he claimed he was the student of Antonio de Florence (who approx. 1400 till 1469), the mysterious master of Alchemy who was also living some time in Bohemia and died there, too. Could he be Antonio Averlino z Florencie? (Nick Pelling says no :-)

5) One day Jan appeared in Melnik, apparently being invited there by Barbara herself, but his visit did not have the happy ending: he accused Barbara of cheating in her demonstrations and eventually left Melnik for good. She could have obtained the VM from him while they were in good terms but more likley she could get it elsewhere. We were trying again to get some information from the castle archive but were told, that that old records do not exist there any more. Barbara died of plague in Melnik catle (1451) and was buried at St. Vitus Cathedral in Prague, in the place reserved for Czech kings and Queens. .

6) Two hundred years later settled in Melnik castle another ruler, our famous Jacob de Tepenez. . We already know he collected all kinds of books, some still in existence with his ex-libris and being the master of the castle, he had access to the local library or archive. In today's archive, there is still some of his official correspondence (that(s where we got his signature from). Putting together his interest in old books as well as the possibility the VM was still there, it would be easy for him to claim the book for himself. Well, he had the opportunity, the means and the motive . . ,

7) The VM, being still today in good shape, could have very well be hidden there in the library for those two hundred years, before it was repossessed by Jacobus and included in his private library. If we accept this theory, we may not only be closer to the possible author but we could also have the missing two hundred years link in the VM provenience. . . All this may sound strange but it may provide the continuation from Horczicky backward, the space that is now empty and void. .

Jan B. Hurych, 6th June 2014.



A41. VM - THE CIPHER OR CODE?

Jan. B. Hurych

Messrs. Montemurro and Zanette (further M+Z) claim in their article <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0066344> that **the VM is written in constant, plain language**. They might have as well added "or in monoalphabetic cipher" since their system does not consider the "meaning of words" (or language criteria) but only their "information content" (using data processing and information theory criteria). They, of course, like other supporters of "plaintexted VM" did not address the practical objection to their findings: how come that in last one hundred years, nobody was able to solve the VM while "the answer was right at hand"? Of course, the VM author, writing in the 15th century would hardly use the language that was not used any more in his time nor invent some artificial language (which would not pass the (M+Z) test - as their test of Fortran clearly shows).

One only wonders why Mr. Montemurro abruptly terminated the discussion carried at <http://www.microsofttranslator.com/BV.aspx?ref=IE8Activity&a=http%3A%2F%2Fwww.plosone.org%2Farticle%2Fcomments%2Finfo%3Adoi%2F10.1371%2Fjournal.pone.0066344> Namely in the "remark on criticism", I quote: *"Therefore, from now on, we may not respond to criticisms supporting the hoax hypothesis, unless: 1. They have been peer-reviewed before publication in order to guarantee their scientific rigour.* In substance, one can call the criticism "unscientific" - that's that! And I thought the science can beat anything without resorting to use the branding iron :-). The minor detail remains: who is to determine what is "scientific" and what is not? The (M+Z) conclusions only show the content of the VM can be recognized as being somehow organized to carry some information but not necessarily the linguistic way in the true sense of the word. But that we already know, anyway.

On the other hand, the supporters of the **contrary hypothesis** i.e. the claim that the VM is just "random gibberish", (represented by M. Rugg) could be of course countered by statistical results, Zipf's Law e.t.c. Taking aside the fact that Mr. Rugg's method has its own system, that is, it is not "entirely random" gibberish, there is actually no true proof for gibberish provided either. The fact we cannot "read it" does not necessarily mean it is a gibberish :-). And R's claim he can create gibberish that would simulate the VM rules, cannot be tested either: we do not know yet all the rules in the VM and using only some would not be fair.

The rest of all other possibilities - other languages, ciphers, anagrams, shorthand and what not, e.t.c - was also investigated to great length - even if not too deep. The problem is that it did not get us anywhere either and until we have thorough linguistic investigation, i.e. for grammar, syntax and vocabulary - preferably by real linguistic expert - we cannot be sure yet either.

In the meantime, I noticed that practically no research was done on assumption that the VM is **not enciphered but coded**, that is it may be using substitute words for plaintext words and the meaning of those can be found only in the codebook which is not available. Impossible? Well, there are some points or hints that it may be so.

Before I go to any elaboration, let me point to the fact that the "codebook" does not need to be too extensive, probably only of the size of military codebook. Some codewords need not even be in the book just being created automatically by some rules, like in English: short, shorter, shortly, shortness or by combination: short-tail, e.t.c.

Such method was already known in the Middle Ages and only some important words were replaced by code. The rest - i.e. the words not revealing anything important were in plain language. Such meaningless words would of course mess-up enough our research of the VM., i.e. all statistics and decoding. Also, the search of the underlying language would halt since the codewords may be even non-sensical in any language.

Some facts may indicate this possibility: it was observed that the words in the VM are limited to length of 5 "letters" and there are only very few with length 6 and none of 7. Such language was searched for but so far in vain. The codebook usually also has mainly just short words - they could be generated by random **(method A)** but the meaning of them would be assigned by certain codebook only. Another similarity to the VM is that codebook might have rather excessive number of *similar* words (which fact was not explained for the VM either).

The other way (**method B, used mostly in modern times**) is to create the code using plaintext words in certain plaintext book (which is published but not so common) and code consists of the pattern PP-LL-CC, where PP stand for page no. digits., LL for line no. digits and CC for count of the position on that line, from left to right.

Of course, we can count either "letters" or "words" and also the position selected would indicate **either the letter** (but then the VM plaintext would be rather short :-) **or the whole word** (which is then substituted the word in the VM). Such system using numbers would however not explain why the VM alphabet has 24 - or so - letters and how could they possibly represent the numerical system of PP-LL-CC.

The method A is more convenient: codewords can be selected by random or by secret system, neither revealing the true content. Such codewords could look to us as completely nonsensical (gibberish) and would be difficult to guess their meaning - even if we know that such coding was used. Without the proper codebook (with alphabetically sorted codewords - for the ease of coding and decoding) we can only guess, relying on the surrounding words and comparing each case (while guessing those as well). On the other hand, the statistical test would reveal that the words are used by some grammatical (or other) rules and some of those words surely carry certain information, such as the words selected by (M+Z) in their article.

Interestingly enough, here we may have both *apparent "gibberish"* of Mr. Rugg and the "information content" of (M+Z). What we do not have however is the codebook :-). And there is of course the sad consequence: any attempt to try to solve the VM as plaintext (even if it is in different language), by deciphering - or any way so far used - had to lead to complete failure. That is exactly what happened.

As for the hoax, the coding would also be the surest way to cover it up. Not just treating it as some simple jigsaw puzzle (as the friends of gibberish believe) neither as an enciphered or even simple plaintext. All that is just too plain and straightforward: the coding method uses only unknown associations and solving one word does not get you one step forward because to solve another word, you have to start all over again.

Is it possible to solve such challenge? I do not know - since all above is only my hypothesis. First we need to use some other approach (preferably linguistic, such as grammar, syntax, organization of the vocabulary and searching for "expressions with two or more words", e.t.c.) to establish if the VM is indeed coded. And then we have almost unsurmountable problem of solving it . . :-).

Jan B. Hurych, 20th July 2015



[B1 - NUMBERS IN THE VM AND WHO NUMBERED THE PAGES?](#)

[B2 - THE REASON FOR SHORT WORDS, TRANSPOSITION CIPHER, THE LATIN IN THE STATISTICS](#)

[B3 - NEW FACTS FROM PRAGUE, MORE STATISTICS](#)

[B4 - LETTER FROM R. ZANDBERGEN, BARESH, KELLY, STOLEI](#)

[B5 - LEONARDO, FREQ. TABLES FOR OTHER LANGUAGES, EXAMPLES OF "LATIN" CONVERSION](#)

[B6 - THE EXAMPLES OF HOROSCOPE, MORE CONVERSIONS](#)

[B7 - LETTERS FROM SPAIN AND ENGLAND, MAGIC CIRCLE, CONVERSIONS](#)

[B8 - LETTER FROM POLAND, THE SATIRE](#)

[B9 - OUR RECENT DISCOVERY, DISCUSSION.](#)

[B10 - THE DISCUSSION ABOUT OUR DISCOVER](#)

[B11 - POLISH DISCOVERY, THE DEATH OF TYCHO DE BRAHE, OTHERS](#)

[B12. THE NEW SIGNATURE OF HORCZICKY AND THE COMPARISON OF THEM ALL](#)

[B13 - INTERNATIONAL DISCUSSION \(JULY 2008, AUTHOR'S CONTRIBUTIONS ONLY\)](#)

[B14 - INTERNATIONAL E-MAIL CONFERENCE \(OUR CONTRIBUTIONS ONLY\)](#)

[B15 - SEARCH FOR HIDDEN NUMBERS IN THE VM](#)

[B16 - INTERNATIONAL E-MAIL CONFERENCE, PAGE NUMBERS](#)

[B17 - INTERNATIONAL E-MAIL CONFERENCE \(IEC\)](#)

[B18 - INTERNATIONAL E-MAIL CONFERENCE, INTERVIEW WITH DEUTSCHE PRESSE](#)

[B19 - NEWS: NUMBERS IN ANOTHE MANUSCRIPT SIMILAR TO THE VM, ALSO IEC](#)

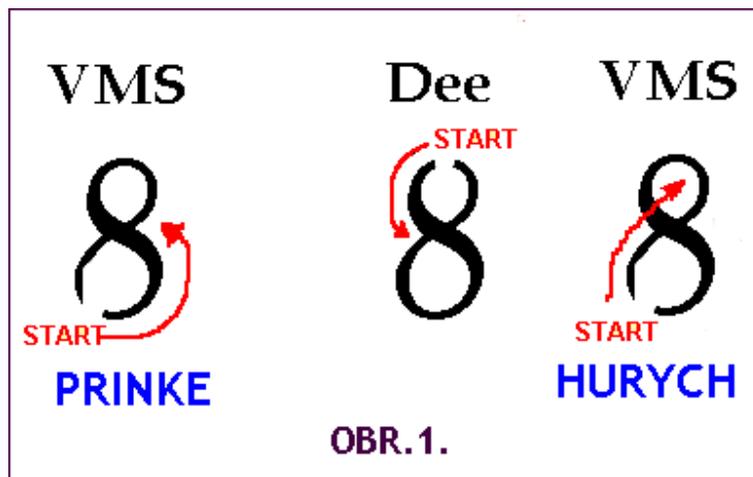


B1. NUMBERS IN THE VM AND WHO NUMBERED THE PAGES?

J.B.Hurych

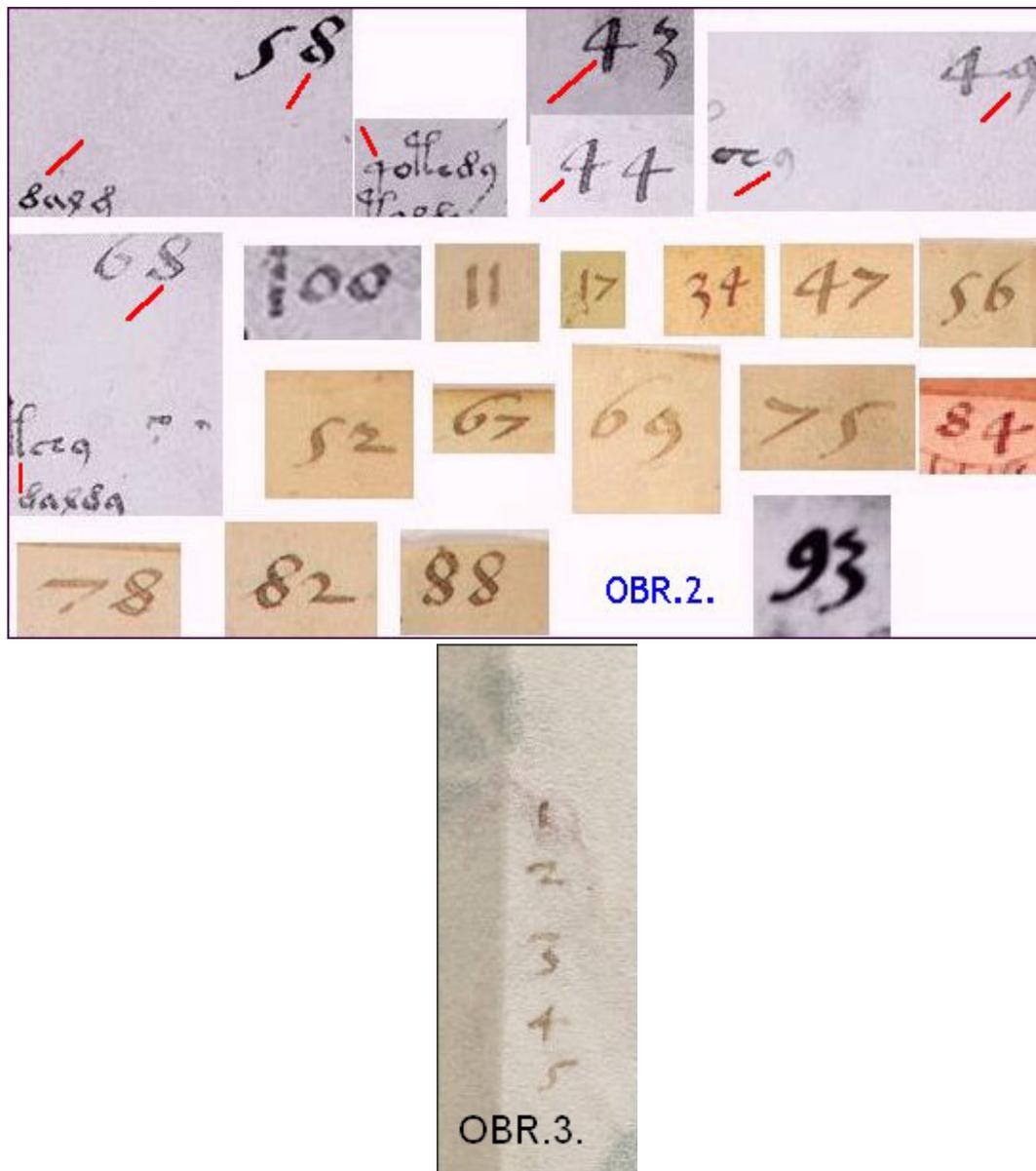
I have already stated elsewhere my doubts about the VM folio numbering, namely the fact being claimed by English experts that it was "definitely" done by John Dee. Well, looking at the page of Rafal Prinke (<http://hum.amu.edu.pl/~rafalp/HERM/VMS/vms.htm>, not available any more) I found his proof to support my idea. I have only one comment: the number "8" (see obr.1.) surely eliminated Dee as an author, however as for the arrow in the left picture (marked as "Prinke") I have to disagree - the shading cannot be done by the quill that way. When moving the pen so much sharp angle in "up" direction (toward the top), the split legs of the pen would be bending and biting into paper (the proper, easier direction is marked as "Hurych"). Well, either way, Dee wrote it differently. Observing the number "8" with large magnification (say via graphic editor) would surely further confirm the way it was written.

As for John Dee, we can see from the table on Mr. Prinke's page (he is comparing Dee's handwriting from Trebona archive, at <http://hum.amu.edu.pl/~rafalp/HERM/VMS/numery/numbers.htm>, now not available), that those in the VM have different shapes than those of John Dee. I do not know from where the English experts took their samples of Dee's handwriting. It is of course possible that John Dee's handwriting changed with his age or sickness, but hardly that much.



Similarly, I do have comments to the table there suggesting the number styles as they were written in different centuries. The table alone is apparently O.K., but when studying old manuscripts, we encounter many exceptions. For instance, Johann Amos Comenius wrote the way of "15th century" as late as in 17th century. It all depended mostly on the conservatism of particular writer and the numerals are probably even more conservative than the letters, so we can only speculate. All that simply means that we cannot establish the age of the VM by page number style only. As for the text, the symbols (letters?) in the VM are clearly disconnected one from another mainly due to the fact that those artificial symbols, when written connected, would create ambiguity (they have often same sections).

I also observed the similarity between the folio numbers and some VM symbols of similar shape (see obr.2). I discovered three basic similarities: no. "9" and the script symbol that looks like "9", number "8" and the symbol "8" and also number "4" and the symbol "4". I compared the samples of symbols and numbers, both from *the same folio pages*. There is really more than just similarity - the signs are almost identical, apparently written by same hand as the text itself. The angles, shapes, shadings and overall styles are undoubtedly the same. Also added are the five Arabic numerals, written directly as a part of text (f49v, Beinecke 1006171, (see obr.3). As we can see, they are also all similar to those in page numbering, especially no. 5.



There is no doubt in my mind that the page numbering was therefore done by the author alone and since John Dee was never considered to be the author first place, the English theory is surely further doubtfull. It also makes more sense that the numbering was done by the author - when assembled in the book, the identification by page numbers for better orientation before or soon after finishing was a common practice .

When we observe the pages 78 and 84, we can see that the author carefully avoided the pictures while writing the text as well as while he was numbering the pages. So the pictures were done first, then followed the text - we can see the text was often "squeezed" in order not to interfere with the pictures. The page numbering was apparently done as the last thing - sometimes the author had to write the numbers even "inside" the pictures, not exactly in the right corner, as he otherwise wrote them on the majority of pages.

Most likely, the numbers were written after the binding was done. It looks however like the original binding was lost and the existing one was done later. The temporary consensus claims the numbering was not done by the author but later, by somebody else, after the binding was lost (or even that the original manuscript was not bind at all). It is claimed that some pages are in wrong order - that is not they are not in the order apriori assumed by some researchers them.

I do not want to argue with that assumption, since it is only the indirect proof and besides, the suggested orders vary from one to another. Instead, what I present here are the real samples from the VM and I simply leave the comparison to the readers of this article. Also, the order of paging is otherwise very consistent, more that could be achieved when numbering the randomly misordered loose sheets. It is quite possible that the disorder, if any, could have happened to the author

alone, for various reasons, for instance last minute mix-up The numbering then could have been done automatically, without further checking. True, the numbering could have been done by somebody else than by the author, but as we can see, he would have to copy the author's handwriting extremely well and for no apparent reason whatsoever.

I realize that there are inherently less variations in writing the numbers than in writing the letters, but it is still enough to make the proper conclusion. So let's compare: the similarity of numbers "4" and "9" with their "letter" counterparts is really striking. So is the similarity for number "8" (in all samples except in the first - the page no. "58" has "8" interrupted and thus extra distorted). The vertical lines in "4" not only have the same kind of shading, but also typical small curves at corners. All that even if we consider that the author apparently used for his numbering a bigger pen, thus the shading is wider and the numbers are larger than their counterparts in the text. We can also observe that the numbering of pages is quite uniform, apparently all done at the same time.



B2. THE REASON FOR SHORT WORDS, TRANSPOSITION CIPHER, THE LATIN IN THE STATISTICS

Please note:

The photographs of the VM pages are at:

- the beautiful new scans at Beinecke <http://webtext.library.yale.edu/beinflat/pre1600.ms408.htm> click there on the link. Black and white are here:

- <http://www.geocities.com/Athens/Delphi/8389/voygal1.htm>
- <http://www.almaleh.com/v1.htm> French site with colored photos.

2) Complete transcript of the VM in the EVA alphabet:

- <http://www.voynich.com/pages/index.htm>
- Another transcription is at: <http://www.dcc.unicamp.br/~stolfi/voynich/>

DISCUSSION: b2. (B16) .

1) New explanation of the "shortness" of words in the VM. (Jan Hurych).

While searching in libraries, I found one interesting transposition cipher there. It bears some interest, since it would explain the shortness of words in the VM (I have changed it a little bit and the result is in Fig.1)

	V	I	T	A		N	O	S	T
	R	A		B	R	E	V	I	S
	E	S	T		B	R	E	V	I
		F	I	N	I	E	T	U	R
	V	E	N	I	T		M	O	R

FIG.1.

For Latin text I have used the words "VITA NOSTRA BREVIS EST, BREVI FINIETUR, VENIT MORS . . ." etc., (the third verse of "Gaudeamus Igitur", just in case you didn't recognize it :-). The text is written horizontally, with spaces included between words. The enciphered text can be read vertically, with additional spaces after the end of each column.

The result is:
"VRE V IASFE T TIN AB NI RBIT NERE

OVETM SIVUO TSIRR". The receiver of the message will just write words vertically in the matrix and the result can then be read horizontally. I have found a slight problem, however: let's consider the column, which ends with a space before its end (i.e. column no.6, NERE), *it should be written in cipher with two spaces*. Otherwise the receiver of the message would not know how to start the fifth column properly - that is as "_ RBIT" (correct) and not "RBIT_" (incorrect). I haven't seen any "double spaces" in the VM, so it was apparently replaced by some other insignificant letter, functioning as "null".

As we can see, original text has quite long words (i.e. "FINIETUR") and yet the enciphered text has at max 5-letter words. Well, so far we are for the most part looking for the "short-worded" language. This method also gives an explanation of why the author of the VM wrote the letters separately (in the 15 century there was already "connected" script): it would be otherwise difficult to separate individual letters, since some letters contain the other ones as their integral part :-). Also, that's probably why the author avoided commas, they do not need to be enciphered, being otherwise the clear giveaway to the method.

The encipherment is elegant and simple - no mathematics - but really not that simple. We still do not know the dimensions of the above matrix. What we do know, however, is that the transposition cipher retains the letter frequency intact. We can now look at those frequency tables . . .

Comments (by Lukas Palatinus): I have to say openly that this theory has some drawbacks and it will require at least some improvements:

- a) The grammar cannot be explained by this cipher. By "grammar" I mean certain rules for the building of words. Could this happen in this cipher too? How do we reach the state when the combination "aiin" is almost always at the end of words?
- b) If we replace the end of each column by a space, the frequency of the words (in ciphered text) with column length (at 5 as in the example) would be much higher than that of the others. But the curve of the VM is that of a nice Bell shape. If we don't put a space at the end of the column, we may have words of different lengths and with Pascal distribution.
- c) And last but not least, transposition is the most known cipher and can be solved quite easily. I would be surprised if no one who tried that approach would not finish it. Especially Friedman and Manly were experts who would not pass this option. Well, maybe they did not have an EVA transcription.

The answers (by J.H.):

- a) Well, grammar . . . Take for instance "controller" and "closer" - they both end with "er" but each "er" has a different function - and we don't even know what function "aiin" has in the VM language (even if it as a plain language which is not encoded). The repetition of "suffixes" may very well be some code.
- b) True, the listed example has 4 five-letter words and 8 shorter, 2 of each, but this is not a typical example and we do not really know the number of columns and rows used. Besides, I am not claiming that this is the solution :-), I am only describing the method of how we can "shorten" the words, nothing more (yet). And I do not think that the idea to shorten the words was so silly, on the contrary: it kept us looking for a mysterious language with "super-short" words.
- c) True, a transposition cipher is easy to write - no mathematics - but it is not so easy to solve; after all, a six letter word can be written in $6!=720$ ways and we are not even talking about double transposition. Both features of such cipher are advantageous for the writer. And we cannot use a frequency table, because the letters are already the "true ones". I believe that the transposition idea surely occurred to experts, but I haven't read anywhere that it was because they tried to explain the "shorter" words in the VM.

2) Letter frequency tables.(by Lukas Palatinus)

Prior discussion: My congratulation to your discovery that the page lettering was done already by author himself. It also proves that the script is quite artificial - some letters certainly look like numerals - the author must have known that.

I am also enclosing the letter statistics for the VM, which I compiled from http://www.dcc.unicamp.br/~stolfi/voynich/Notes/015/majority_evt) by Mr. Stolfi. There are several visible jumps in frequencies, typical for the VM.

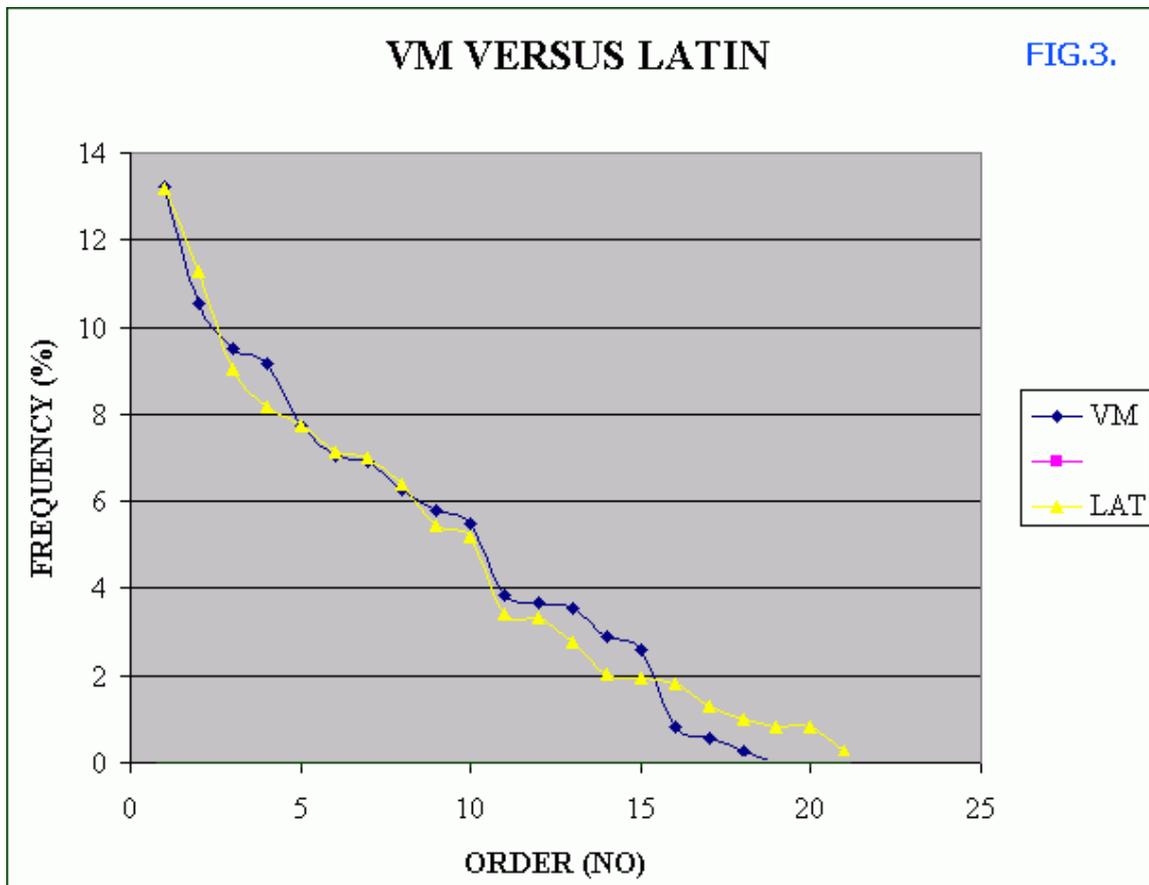
The table of letter frequencies (fig. 2)

(the one for the VM is by Lukas Palatinus ("EVA" transcription), the English and Latin are by Jan Hurych)

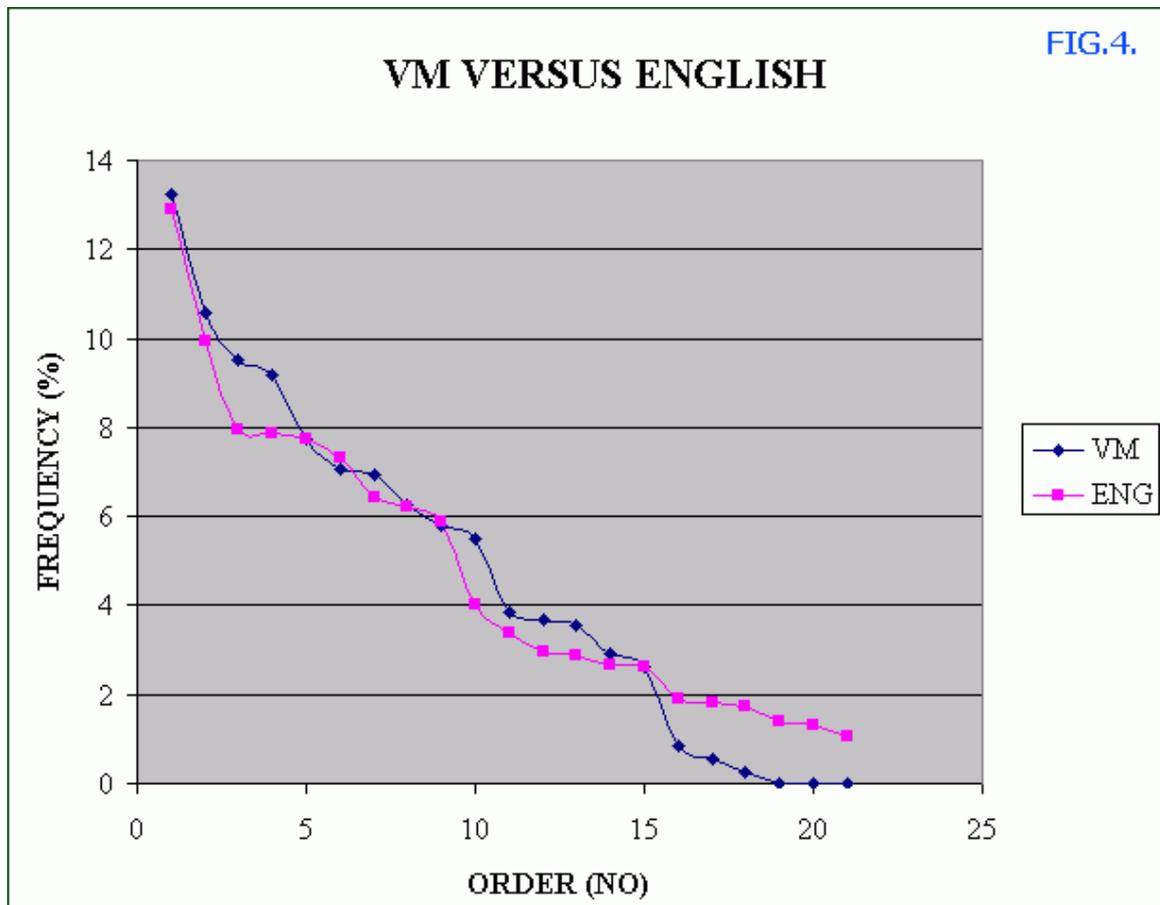
FIG.2.	VM	%		ENG	%		LATIN I	%	
1	o	24651	13.24	e	13299	12.88	e	3584	13.16
2	e	19661	10.56	t	10269	9.95	i	3073	11.29
3	h	17734	9.52	o	8197	7.94	a	2464	9.05
4	y	17072	9.17	a	8123	7.87	t	2220	8.15
5	a	14413	7.74	n	8003	7.75	u	2103	7.72
6	c	13140	7.06	i	7545	7.31	s	1940	7.13
7	d	12907	6.93	s	6651	6.44	n	1903	6.99
8	i	11634	6.25	r	6418	6.22	m	1744	6.41
9	k	10816	5.81	h	6083	5.89	r	1484	5.45
10	l	10221	5.49	d	4162	4.03	o	1413	5.19
11	r	7131	3.83	l	3483	3.37	c	926	3.40
12	t	6838	3.67	u	3034	2.94	d	906	3.33
13	s	6596	3.54	c	2965	2.87	l	757	2.78
14	q	5392	2.90	m	2735	2.65	p	557	2.05
15	n	4867	2.61	f	2728	2.64	b	525	1.93
16	p	1557	0.84	p	1962	1.90	q	493	1.81
17	m	1055	0.57	w	1891	1.83	v	351	1.29
18	f	465	0.25	g	1800	1.74	g	272	1.00
19	g	31	0.02	y	1440	1.40	f	224	0.82
20	x	24	0.01	b	1343	1.30	h	222	0.82
21	v	2	0.00	v	1094	1.06	x	67	0.25
		186207	100.00		103225	100.00		27228	100.00

3) Could it be the Latin language? (Jan Hurych).

Comparison shows that the curves for the VM and Latin are not only close, they even have those typical jumps and letter "groupings", see fig.3. Simply said, the result looks almost incredible, but it is still preliminary.



For my Latin table, I used the text of medieval Latin by St. Augustin (Confessions, Book 1, <http://ccat.sas.upenn.edu/jod/latinconf/>), since I could not find any table on the Net. Still, the method of enciphering is yet unknown - for instance, we do not know the number of rows and columns in the transposition matrix. What's more, we have to try other literature to get more accurate statistics, eventually to confirm our findings.



To know more about differences, I have also prepared a table for the medieval English of Francis Bacon, from *The advancement of learning, Book 1.*, at: <http://darkwing.uoregon.edu/~rbear/adv1.htm> The difference between English and the VM is apparent here, not only in magnitude, but in the shape of the curve itself. The English curve cuts across the VM curve irregularly; it does not have the typical steps and letter "gatherings". What surprised us, however, was the close similarity to the Latin language.



B3. NEW FACTS FROM PRAGUE, MORE STATISTICS

• Newly discovered addresses:

- <http://www.fsbobiz.com/voynich/> (obsolete) *Froggy botanical archive*, some photos of botanical pages from the VM.
- <http://www.ehabitat.demon.co.uk/herbal.html> (obsolete) Comparison of different herbals from 12th century, pictures.
- <http://www.ils.unc.edu/~mornj/voy/> Master's paper of Jason Morningstar about zero symbols (nulls) in the VM. His list of links is [HERE](#) (obsolete) Beinecke Library of course is no more free, see above).

6. DISCUSSION (B17).

a) The Research in Prague (Dana Kovaříková).

I wrote in our correspondence to Mrs. Kovaříková, who is working at VM research in The Czech National Library following info:

Zikmund Winter was the professor of history in the town of Rakovník and the archivist of Czech National Museum (he lived in 19th century). He also wrote several books, dealing with persons and history of Prague in years 1500 - 1620) and he might have mentioned somebody named Barsch (former owner of the VM who was discovered by René Zandbergen). Georgius Barsch was apparently a loner and as an alchemist, he was probably amateur - very few people made living as professional alchemists in his time. He died the same year Marci wrote his famous letter or maybe one year earlier - and considering he lived not more than seventy years, that would give us approximate time for his birth. There should be some records in Prague universities, either Carolinum or Clementinum or at least in cemetery records.

Mrs. Kovaříková writes:

1. As far as Jesuits is concerned, before they were expelled (in 18th century), their library was excellent, but they had to leave it in Prague, where it is now the property of National Library, <http://www.nkp.cz/> Jesuits later returned, but we don't know how much of their library was returned to them (comment by j.h.).
2. In regard to Dr. Z. Winter – I went through his notes and it is amazing how much is there.
3. Just for your info:
 - I have found two interesting notes in his book "*O životě na vysokých školách pražských knihy dvoje*" (Two books about the life at Prague universities)
 - 1) In 1602 Jakub Sinapsis Bojanovicensis Moravus was registered in Clementinum (he is nobody else but Jacobus Horezický de Tepenec)
 - 2) Another administrator was Dr. Marcus Marci, in 1651, (from "Arch. musejní r. 1654")

I have also discovered the reference to Barsch and Barsches from Kamenitz, but only in the index. **Barschovitus nobilis str. 442, Barschovs from Kamenitz str. 188.**

We thank Mrs. Kovaříková for all that information - it looks there are some records about Barsch after all (j. h.)

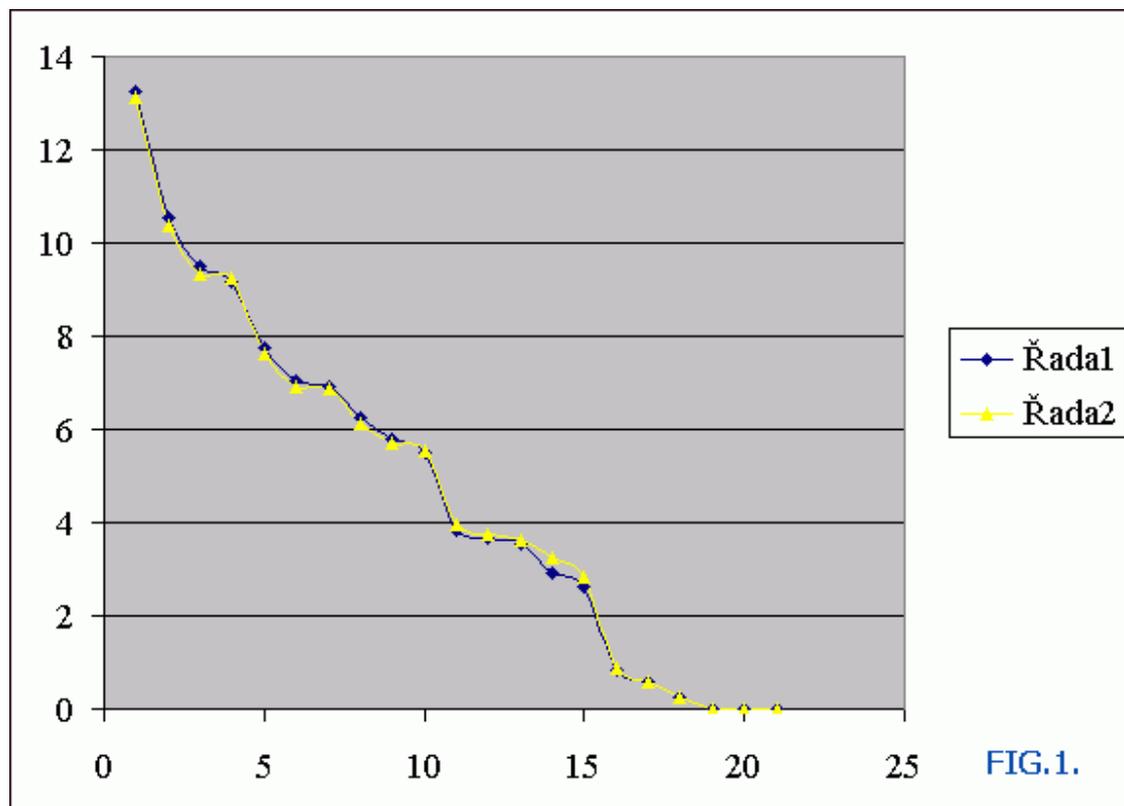
b) Frequency tables for the VM (continuing, J. H.)

Re. last discussion: I have sent the English version of this Bulletin to Mr. Zandbergen and Mr. Stolfi - so far received no answers.

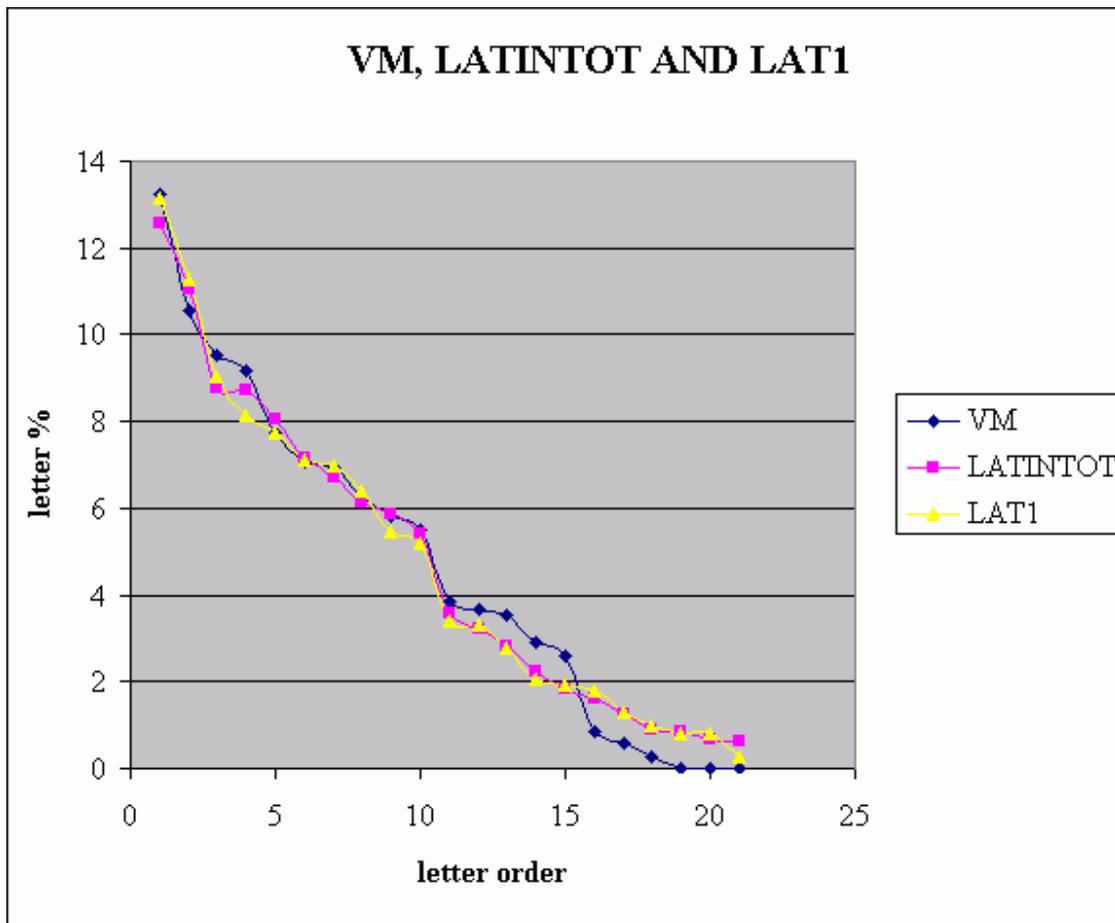
In my last discussion I have posted two hypotheses:

- (1) Frequency tables of the VM *letters* are similar to those of medieval Latin (and quite different from medieval English)
- (2) The short words in the VM can be explained also by special *transposition cipher*.

- To be doubly sure, I have compared my results for the VM with *Lucas Palatinus* who used different program for evaluation. The results (see Fig. 1.) are almost identical, definitely better than is needed the required accuracy and we can therefore rely on them. They will never be completely accurate: EVA transcription lists many unidentified letters - and we couldn't count them. Also, I didn't take composite signs of EVA (ch, ans, sh, cth, ckh, atd.) as single "letter" but only printed, i.e. as 2 or 3 separate letters (it would be too difficult to search for them through the whole transcript). Besides, we are not really sure if they are the symbols for one sound or just three letters connected together - the graphics representation supports either possibility.



- For my last Latin frequency table, I have used only the first book of St. Augustin (see Fig.2., LAT1). Later, I yet again corrected the table using all 13 books of St. Augustin (LATINTOT). The result is almost the same, actually the LATINTOT is even closer to the VM than LAT1 :-).



- I also made another statistics, that is I counted the number of spaces between words in the VM (Fig.3.) and calculated the "average" word in the VM. Percentually, the results are very close to other languages, i.e. the number of words is percentually about the same as for Latin (see calculations in blue color) which is rather surprising discovery. The "average" length for the VM is 4,61, for Latin 5,25 and for English 4,96. The decimal fractions used are of course a nonsense (each word has whole number of letters only), but we have to use it for comparison (rounding up would give us value "5" for all three languages). The VM has of course the shortest word, but the difference from latin is not as great as for "the most frequently used word" (see later).

ENGLISH		%		LATIN		%		VM		%	
1	_	22619	space	1	_	5192	space	1	_	38690	space
2	e	13299	12.75	2	e	3584	13.16	2	o	25052	13.05
3	t	10269	9.85	3	i	3073	11.28	3	e	19772	10.30
4	o	8197	7.86	4	a	2464	9.04	4	h	17806	9.28
5	a	8123	7.79	5	t	2220	8.15	5	y	17686	9.22
6	n	8003	7.67	6	u	2103	7.72	6	a	14542	7.58
7	i	7545	7.23	7	s	1940	7.12	7	c	13229	6.89
8	s	6651	6.38	8	n	1903	6.99	8	d	13093	6.82
9	r	6418	6.15	9	m	1744	6.40	10	i	11673	6.08
10	h	6083	5.83	10	r	1484	5.45	11	k	10922	5.69
11	d	4162	3.99	11	o	1413	5.19	12	l	10567	5.51
12	l	3483	3.34	12	c	926	3.40	13	r	7549	3.93
13	u	3034	2.91	13	d	906	3.33	14	s	7121	3.71
14	c	2965	2.84	14	l	757	2.78	15	t	6930	3.61
15	m	2735	2.62	15	p	557	2.04	17	n	6162	3.21
16	f	2728	2.62	16	b	525	1.93	19	q	5426	2.83
17	p	1962	1.88	17	q	493	1.81	21	p	1654	0.86
18	w	1891	1.81	18	v	351	1.29	22	\$	1130	0.59
19	g	1800	1.73	19	g	272	1.00	23	m	1128	0.59
20	y	1440	1.38	20	f	224	0.82	25	f	484	0.25
21	b	1343	1.29	21	h	222	0.81	total	celkem	191926	100.00
22	v	1094	1.05	22	x	67	0.25	spaces	mezer	38690	
23	k	522	0.50	23	l	12	0.04	av.word	pr.slovo	496	
24	x	252	0.24	24	z	4	0.01				
25	q	153	0.15	total	celkem	27244	100.00				
26	j	136	0.13	spaces	mezer	5192					
total	celkem	104288	100.00	av.word	pr.slovo	525					
spaces	mezer	22619									FIG.3.
av.word	pr.slovo	461									

- Why do we then claim the VM has "the shortest words"? Well, not all of them are the shortest :-). The VM simply has less of "longer" words, which is compensated by higher number of "medium length" words. (see Mr. Stolfi, <http://www.dcc.unicamp.br/~stolfi/voynich/00-12-21-word-length-distr/> (Note: I cannot copy the graph here without his permission and the mail apparently does not work :-)). In other words: the curves have different shapes but the "areas under them" are about the same size. The maxima of Stolfi's curves (= those "most frequently used words" mentioned earlier, not to be confused with our "average length word"), his Fig.2, are: the VM (5,5), Latin (7,8) a English (6,5). In other words, the most words in the VM are five and six letter words while for Latin they have eight letters. Similarly, the longest "average" word is for Latin language (5,2) a shortest "average" has the VM (4,6), but the differences there are much smaller.

The conclusion? The VM word length is limited, either naturally (by language itself) or artificially, for instance by already mentioned *transposition cipher* (see last discussion). Either way, the limitation is extremely smooth and no break in the curve was observed. Our "average" values are of course those of "tokens" (per Stolfi definition), but for "most frequently used" we used his graphs for "words" instead (the token curves are rather unworkable).

Comment: Mr. Stolfi's definition is: "A word is an abstract sequence of symbols; a token is an occurrence of a word in the VMS text (delimited by blanks, line breaks, etc.)".

Substitution cipher (monoalphabetic), has usually same no. of letters as plaintext (except for Polybius, there are two coordinates for each letter) so the frequency curve does not change, while *polyalphabetic* cipher does change frequency curve, making it more flat. Only the **transposition cipher** changes the length of words, again if we do not consider the "breaking" of the plaintext into five letter groups, which are not words a all. Of course both ciphers can be also combined, making the solution much more difficult.

Both ciphers were known at the time the VM is dated and the objection they couldn't be used in the VM is therefore not valid. The question *if they were really used* (one or the other, but hardly both) could be of course answered only by finding the solution first :-).



[BACK TO DISCUSSIONS](#)

B4. LETTER FROM R. ZANDBERGEN, BARESH, KELLY, STOLFI

Newly discovered addresses:

- <http://www.voynich.nu/sources.html> New info by René Zandbergen about Barsch (also Baresch or Bareš, the last owner of the VM before Marci (see also our discussion below)
- New link to our page appeared on the page by John Baez, <http://math.ucr.edu/home/baez/voynich.html> There is also a short descriptions, some photos and good list of related literature.
- The page [here](#) (obsolete) has some detailed info plus pictures.
- The page <http://www.voynich.nu/index.html> was also further updated, see above.

6. DISCUSSION (B18).

a) E-MAIL WITH RENÉ ZANDBERGEN.

As **R.Z. pointed out**, there is the new information on his page, at: <http://www.voynich.nu/sources.html> It is in the section "*Marci about Barsch in "Philosophia vetus restituta"*", the quotation about Barsch from Marci's books, confirming they were good friends at least since 1622 and he really inherited books from Barsch. More at: <http://www.voynich.nu/letters.html>, in letters to Kircher (2 from Marci, 1 from Barsch).

There is also the proof that even Voynich a Brumbaugh knew about Barsch, see: <http://www.voynich.nu/sources.html> I can agree with R.Z. that the name "Barsch" is actually the Czech name, spelled in Czech as "Bareš" (with little "v" above "s") pronounced "Baresch", "a" as in parrot, "e" as in "ten", "š" as "sh". The abbreviated title "M. " before the name of Barsch could mean "Master" or "Magister" (i.e. Bachelor), both being titles awarded only by some university, but it is interesting that as late as in nineteenth century the Czechs called the druggists/pharmacists "the magisters". It could be that in Barsch's time the alchemist was already also a chemist and apothecary.

R.Z. mentioned the page http://www.ckrumlov.cz/de/mesto/histor/t_alchym.htm is claiming Kelly met Horczicky, but that does not completely agree with the time scale:

1) Kelly (1555-1597) and Horczicky (1575-1622) could meet only during 1584-1597, when Kelly was in Bohemia, but Horczicky would then be only 9 to 22 years old. He studied in Krumlov and Count Rosenberg hosted John Dee a Edward Kelly nearby, but Kelly left 1588 for Prague, to enter the service in the court of Rudolph II. In theory, he could have meet Horczicky in Krumlov, but the boy was then only 13 years old at most. According to Mrs. Kovašiková, Prague researcher, there is a record that Horczicky was a bean (?) in Clementinum University in Prague in 1602 (he entered it probably in 1598) and that was probably the very first time he appeared in Prague. By that time, Kelly was already dead.

2) The mentioned page claims Horczicky died peacefully in Clementinum while it is proven he died after he fell of the horse in Melník. True, he is buried in Church of St. Salivator in Clementinum compound, but he was brought there - most probably - after his death. Since Jesuits inherited all his possessions, it would be interesting to find out if they got the VM as well. Most likely they did not, since they would hardly sell it to Baresch. The VM disappeared most likely in 1618 - 1620, while Horczicky was exiled and his house was plundered by mob. Consequently, Barsch probably bought the VM from some thief or obscure dealer.

3) Dee's audience with of Rudolph II: John Dee did not mention in his diaries any offer to sell Rudolph II the VM manuscript. His visit was more like a "job interview". He brought the message of his "angels", namely to help R.II. against Turks. R. II. didn't particularly enjoyed being call "a sinner" and passed the request to his secretary to shelve it :-).

4) Kelly left Trebona (Tøeboð) in 1588, one year earlier than Dee, for the service at R.II. court. They did not depart at the same time as the quoted page claims. After Kelly's departure, Dee could not communicate with angels and his son neither. Because of that, he served no purpose to Rosenberg who was moreover interested mainly in gold and believed that only Kelly knew how to make it.

b) E-MAIL FROM LUKAS PALATINUS:

The complete list is at: <http://www.dcc.unicamp.br/~stolfi/voynich/Notes/050/L16+H-eva/text16e6.evt> (obsolete)

c) FREQUENCY TABLES (continuation, by J. H.)

I worked-out the characteristic table of medieval Czech language, for comparison with the VM (see fig.1.), using the Czech book by **John Amos Comenius "The Labyrinth of the World"** from 17th century. The full text is on page <http://users.ox.ac.uk/~tayl0010/labyrinth/indexB.html> I have made two calculations:

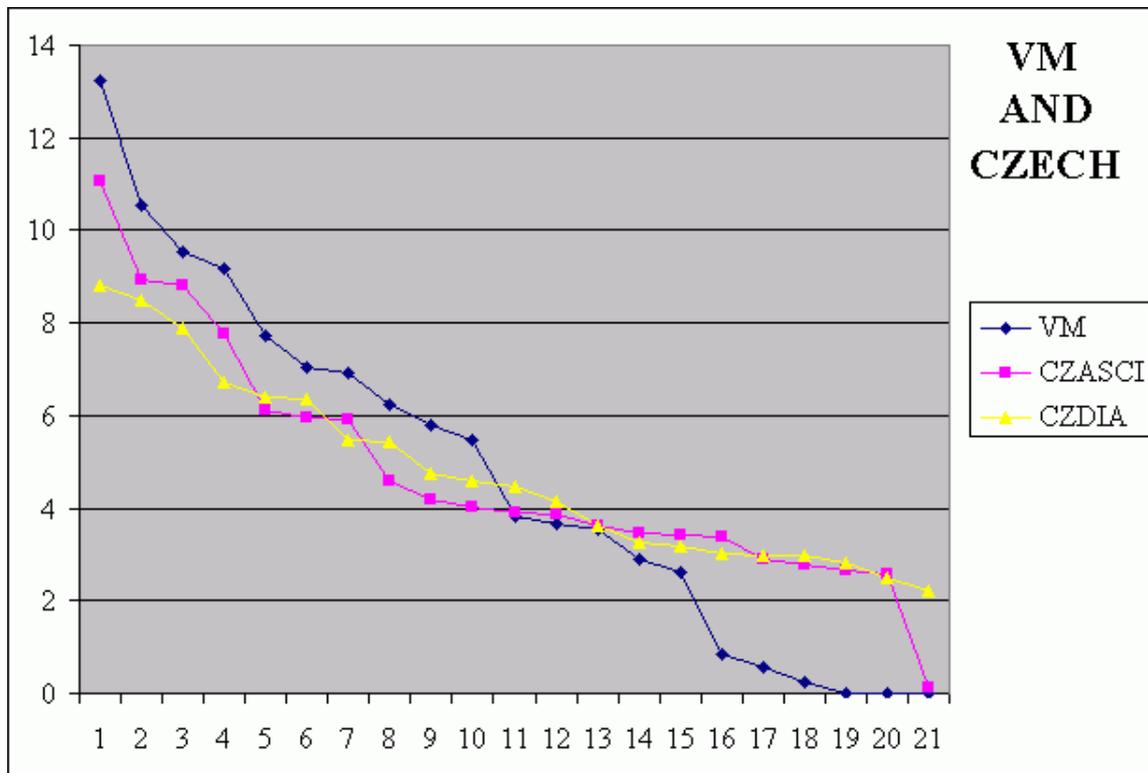
1) type "czasci", without Czech diacritics , e.g. considering letter "š" ("s" with little "v" above) and letter "s " both as the same,

and

2) type "czdia" with diacritics distinguished, e.g. "s" and "š" were considered as two different letters, since they describe two different sounds.

		VM	%		czasci	%		czdiacr	%	FIG. 1.
1	o	24651	13.24	e	23622	11.07	e	4103	8.83	
2	e	19661	10.56	i	19027	8.92	o	3948	8.49	
3	h	17734	9.52	a	18787	8.81	a	3660	7.88	
4	y	17072	9.17	o	16598	7.78	n	3119	6.71	
5	a	14413	7.74	s	13051	6.12	t	2974	6.40	
6	c	13140	7.06	t	12713	5.96	i	2962	6.37	
7	d	12907	6.93	n	12626	5.92	l	2545	5.48	
8	i	11634	6.25	l	9769	4.58	s	2529	5.44	
9	k	10816	5.81	v	8908	4.18	m	2207	4.75	
10	l	10221	5.49	m	8549	4.01	v	2123	4.57	
11	r	7131	3.83	d	8324	3.90	d	2081	4.48	
12	t	6838	3.67	r	8275	3.88	k	1920	4.13	
13	s	6596	3.54	z	7701	3.61	í	1686	3.63	
14	q	5392	2.90	k	7412	3.47	p	1507	3.24	
15	n	4867	2.61	u	7298	3.42	u	1476	3.18	
16	p	1557	0.84	c	7197	3.37	h	1399	3.01	
17	m	1055	0.57	p	6152	2.88	j	1380	2.97	
18	f	465	0.25	j	5885	2.76	r	1378	2.96	
19	g	31	0.02	h	5655	2.65	c	1301	2.80	
20	x	24	0.01	y	5520	2.59	á	1156	2.49	
21	v	2	0.00	f	269	0.13	z	1022	2.20	
		186207	100.00		213338	100.00		46476	100.00	

I combined ten first chapters of the mentioned book to get equal number of letters as the VM and I just hope the language there was not too much modified to comply with today's Czech grammar and vocabulary; it did not look like it was. The other point worth mentioning is that I evaluated the text itself as it was presented there, not knowing if Comenius used all today's diacritics. While the spelling reform was made as early as in 15th century, the spelling rules were not rigidly followed. Similarly, neither was the spelling in Shakesperian times - compare it with fixed spelling of today's English. All that said, the accuracy of the result is not expected to be high, but it is still enough to eliminate the hypothesis that the VM text was simply written in Czech language (as I suggested long time ago :-). The "shortness" of words in the VM itself of cause cannot be a sufficient proof, but here we have it: the addition of additional spaces or transposition cipher would do the visual trick, but it would not change the overall frequency curve.



The result (see fig.2.) varies so much from the VM that I believe we are entitled to eliminate the above possibility. True, further addition of "nulls" (i.e. the idle groups of letters) could have been done as well and would change the frequency curve, but I dare to say that the curve would be much more deformed that it is in the above figure since it would certainly not follow the characteristics of natural language.

I have also tried other languages, e.g. Lithuanian, but the differences from the VM were even greater than for Czech language. So much more is surprising the fact that the **Latin language curve follows the VM very closely** (see last discussion, B17, on our VM page). There is still the possibility that Czech language was used, in combination with substitution cipher (monolaphetical only), but the probability is rather remote. On the other hand, if the VM was written by medieval scholar, the Latin would be surely his first choice - after all it was the language commonly used by medieval scientists.

Based on this last assumption, I created the conversion table "VM-LATIN" ("VM" being the one used in EVA transcript):

VM	o	e	h	y	a	c	d	i	k	l	r	t	s	q	n	p	m	f	g	x	v
LATIN	E	I	T	A	U	S	N	M	R	O	C	D	L	P	Q	B	V	F	G	H	X

Following text is the subsequent conversion of two VM folios according to above table:

VM <fi1r>

kchsy.chadaain.ol-!!!!!!oltchey.char.cfhar.am- yteey.char.or.ochy-!!!!!!dcho.lkody.okodar.chody- dao.ckhy.ckho.ckhy.shy-
 !!!!!!!dksheey.cthy.kotchody.dal- dol.chokeo.dair.dam-!!!!!!sochey.chokody= potoy.shol.dair.cphoal-!!!!!!
 dar.chey.tody.otoaiin.shoshy- choky.chol.cthol.shol.okal-!!!!!!dolchey.chodo.lol.chy.cthy- qo.ol.cho*es.cheol.dol.cthey-
 !!!!!!!ykol.dol.dolo.ykol.do!!ch!!ody- okol.shol.kol.kechy.chol.ky-!!!!!!chol.cthol.chody.chol.daiin-
 shor.okol.chol.dol.ky.dar-!!!!!!shol.dchor.otcho.dar.shody- taor.chotchey.dal.chody-!!!!!!schody.pol.chodar=

CONVERSION:

RSTLA.STUNUMMN.EO-!!!!!!EODSTIA.STUC.SFTUC.UM- ADIIUA.STUC.EC.ESTA-!!!!!!
 NSTE.ORENA.ERENUC.STENA- NUE.SRTA.SRTE.SRTA.LTA-!!!!!!NRLTIIA.SDTA.REDSTENA.NUO-
 NEO.STERIE.NUMC.NUM-!!!!!!LESTIA.STERENA= PEDEA.LTEO.NUMC.SPTEUO-!!!!!!
 NUC.STIA.DENA.EDEUMMN.LTELT- STERA.STEO.SDTEO.LTEO.ERUO-!!!!!!
 NEOSTIA.STENE.OEO.STA.SDTA- PE.EO.STE*IL.STIEO.NEO.SDTIA-!!!!!!AREO.NEO.NEOE.AREO.NE!O!ST!!
 ENA- EREO.LTEO.REO.RISTA.STEO.RA-!!!!!!STEO.SDTEO.STENA.STEO.NUMMN-
 LTEC.EREO.STEO.NEO.RA.NUC-!!!!!!LTEO.NSTEC.EDSTE.NUC.LTENA- DUEC.STEDSTIA.NUO.STENA-!!!!!!
 LSTENA.PEO.STENUC=

VM <fi1v>

kydainy.ypchol.daiin.otchal-!!!!!!ypchaiin.ckholsy- dorchory-!!!!!!chkar.s-!!!!!!shor.cthy.cth!- qotaiin-!!!!!!cthey.y-!!!!!!
 chor.chy.ydy-!!!!!!chaiin- *haiidy-!!!!!!chtod.dy-!!!!!!cphy.dal!s-!!!!!!chokaiin.d- otochor.al-!!!!!!shodaiin-!!!!!!chol!
 dan-!!!!!!ytchaiin.dan- saiin.daind-!!!!!!d!kol.sor-!!!!!!ytoldy-!!!!!!dchol.dchy.cthy- shor.ckhy.daiiny-!!!!!!chol.dan=
 kydain.shaiin.qoy.s.shol.fodan-!!!!!!yksh.olsheey.daiildy- dlssho.kol.sheey.qokey.ykody.so-!!!!!!chol.yky.dain.daiirol-
 qoky.cholaiin.shol.sheky.daiin-!!!!!!cthey.keol.s!aiin.saiin- ychain.dal.chy.dalor.shan.dan-!!!!!!olsaiin.sheey.ckhor-
 okol.chy.chor.chor.yor.an.chan-!!!!!!saiin.chety.chyky.sal- sho.ykeey.chey.daiin.chcthy= ytoain=

CONVERSION:

RANUMNA.APSTEO.NUMMN.EDSTUO-!!!!!!APSTUMMN.SRTEOLA- NECSTECA-!!!!!!STRUC.L-!!!!!!
 LTEC.SDTA.SDT!- PEDUMMN-!!!!!!SDTIA.A-!!!!!!STEC.STA.ANA-!!!!!!STUMMN- *TUMMNA-!!!!!!STDEN.NA-
 !!!!!!!SPTA.NUO!L-!!!!!!STERUMMN.N- EDESTEC.UO-!!!!!!LTENUMMN-!!!!!!STEO.NUN-!!!!!!
 ADSTUMMN.NUN- LUMMN.NUMMN-!!!!!!N!REO.LEC-!!!!!!ADEONA-!!!!!!NSTEO.NSTA.SDTA-
 LTEC.SRTA.NUMMNA-!!!!!!STEO.NUN= RANUMN.LTUMMN.PEA.L.LTEO.FENUN-!!!!!!
 ARLT.EOLTIIA.NUMMONA- NOLLTE.REO.LTIIA.PERIA.ARENA.LE-!!!!!!STEO.ARA.NUMN.NUMMCEO-
 PERA.STEOUMMN.LTEO.LTIRA.NUMMN-!!!!!!SDTIA.RIEO.L!UMMN.LUMMN-
 ASTUMN.NUO.STA.NUOEC.LTUN.NUN-!!!!!!EOLUMMN.LTIIA.SRTEC- EREO.STA.STEC.SDTEC.AEC.UN.STUN-
 !!!!!!!LUMMN.STIDA.STARA.LUO- LTE.ARIIA.STIA.NUMMN.STSDTA= ADEUMN=

The first look at the converted text does not tell us too much. Besides, some letters were not even there and the fact we took composite symbols as 2 or 3 separate letters (as it is in EVA transcription) does not help our purpose either. We only converted the written transcript of the VM, not the phonetical one. Combination of both would bring in play too many variables. We could however suspect the presence of *transposition cipher* - the problem is that there are too many ciphers possible. If however the *substitution cipher* was used, it could have been only the monoalphabetic one, otherwise the VM curve would not follow Latin so closely as it does.

For the Latin expert, this result may be of some interest. After all, what is the grammar if not a set of *algorithms or codes* - here I beg the pardon of linguists - by which we modify the words and set them into sentences?



B5. LEONARDO, FREQ. TABLES FOR OTHER LANGUAGES, EXAMPLES OF "LATIN" CONVERSION

Newly discovered sites:

- <http://www.crystalinks.com/voynich.html> is short excursion through the VM
- http://www.world-mysteries.com/sar_13.htm is another excursion plus history
- **Truly humorous - but apparently deadly serious** is the article by Mrs. Edith Sherwood Ph. D. on <http://www.edithsherwood.com/> She suggests that the author of the VM is Leonardo da Vinci. Well - why not, but the first objection which comes in mind is the fact, that those primitive pictures in the VM could not have been drawn by the artist Leonardo. Mrs. Sherwood has an answer to that, too: Leonardo drew it when he was only 8 years old. Here I quote from the article, with my comments in brackets:

1) According to botanical experts the flowers and root systems of some of the plants do not match. (*Meanting: each plant has parts from different other flowers, j.h.*) This is an error that a child is likely to make. (*Well, even adult, take for instance me with my poor knowledge of botany, but not our Leonardo, who was always the keen observer and drew from reality. Moreover, many VM flower parts do not exist anywhere on our Earth, so it is rather deliberate phantasy than mistakes, j.h.*)

2) The biological drawings have a childlike quality. One drawing, s3724838, shows one of the little ladies, as the arrow indicates, with both breasts and male genitalia. This is hardly an adult error. (*The author probably never heard of hermaphrodites - it could have been intentional, j.h.*) This picture also depicts the union of a sperm with an ova, indicating an extraordinary insight into human reproduction. (*The particular picture could have been as well the rocket, aiming at Mars, showing extraordinary insight into cosmic travel, j.h.*) The author of these pictures was however unfamiliar with human female anatomy, but had probably observed the dissection of a female dog or pig. (*No comment here :-*). Leonardo da Vinci's drawings of a fetus are extraordinary and as an adult he would not have made this type of error (*In Leonardo's times, even adults didn't know how fetus looked like and there were no books about it. Actually, it was Leonardo himself, who started to dissect animals in order to learn more about them. The scientific dissection of human cadavers came even much later, j.h.*)

3) The drawing is outstanding for a child but only adequate for an adult. (*This does not eliminate some other adult person without particular talent, j.h.*)

It is interesting, why was Leonardo picked at all - according to above reasoning the pictures in the VM could have been drawn by totally unknown adult, without talent and with no knowledge about anatomy. The author however found in that picture one word, which (read in mirror) can be remotely taken as somehow deformed word "lionardo". Also, the same picture shows the ram (Aries), otherwise also the zodiac sign of April. Unfortunately to author - as anybody can see - the picture is definitely not the ram, but only a goat, provided with "tale-tale" udder. If it is zodiac sign, it must be therefore only *Capricorn* - but apparently poor Leonardo never saw any ram either :-). There are also 15 ladies on the picture and there you have it: 15 April 1452, the birth day of Leonardo.

The year does not show teh year at all, but we may safely assume it was not Benjamin Jovet, Henry James, Emile Durkham, Bliss Carman, Thomas Szasz, Jeffrey Archer èi Dave Edmunds, all born on 15h April. Bessie Smith èi Claudia Cardinale can be both eliminated too; their knowledge of female anatomy is certainly adequate. In the case of Leonhard Euler, we may not be so sure. True, he was a mathematician and the son of priest, but he was also twice married. Minor problem would cause the fact that he was born hundred year after our Baresh was already trying to crack the VM in Prague. That leaves Leonardo as the only candidate, but hold it: where it says it was "da Vinci"?

More likely, it was another Leonardo, born on Capricorn, that is on 15th of January. The proof that he wrote it while he was 8 years old can be found on every page of the VM - have you noticed how many number "8" are there? But the year still remains a mystery: it could be that the real author the VM - Leonardo da Nostradamus - was predicting that on 15th of April 1912 the great RMS Titanic would sink to the bottom of the ocean. The great "Leonardo theory", hitting the iceberg of logic, will soon join it there, too.

6. THE DISCUSSION (B19).

a) The Frequency table for other languages (J. H.)

The similarity between the **letter frequency** of the VM and Latin language - however it may be inaccurate - is still rather surprising. I haven't found similar calculations elsewhere; meaning the calculations or research which would deny such similarity (if you find any, please let me know). The cryptoanalysts could claim that the **letter group frequencies** would be more accurate, but we also know hat transposition cipher would mix all those in such way that the letter-group statistics would be useless here. The eliminating of other languages would be rather time consuming, so we may concentrate on Latin instead. If we do not find the solution, it would be sufficient proof that it is not Latin text or the cipher is more complicated or that we are simply not up to it :-).

Still, I was able to find one listing on net, from excellent "Classical Cryptographic Course" by Lanaki (Randy Nichols, President of the American Cryptogram Association from 1994-1996) at <http://www.aegeanpress.com/books/catalog.htm#Cryptography>, showing the differences between to European languages. The quoted numbers are of course only guides for deciphering and the letters are sometimes grouped while the percentages for them are rounded up to the nearest whole number (see the steps on the curves below). They do not have the accuracy we provided for the VM, but they show quite clearly that the differences between languages are quite large. Considering that Latin was the vvery first language suspected to be the plain language of the VM, the mutual coincidence should not be surprising. On the contrary, the fact that Latin was so early discarded from the race should be more doubtful.

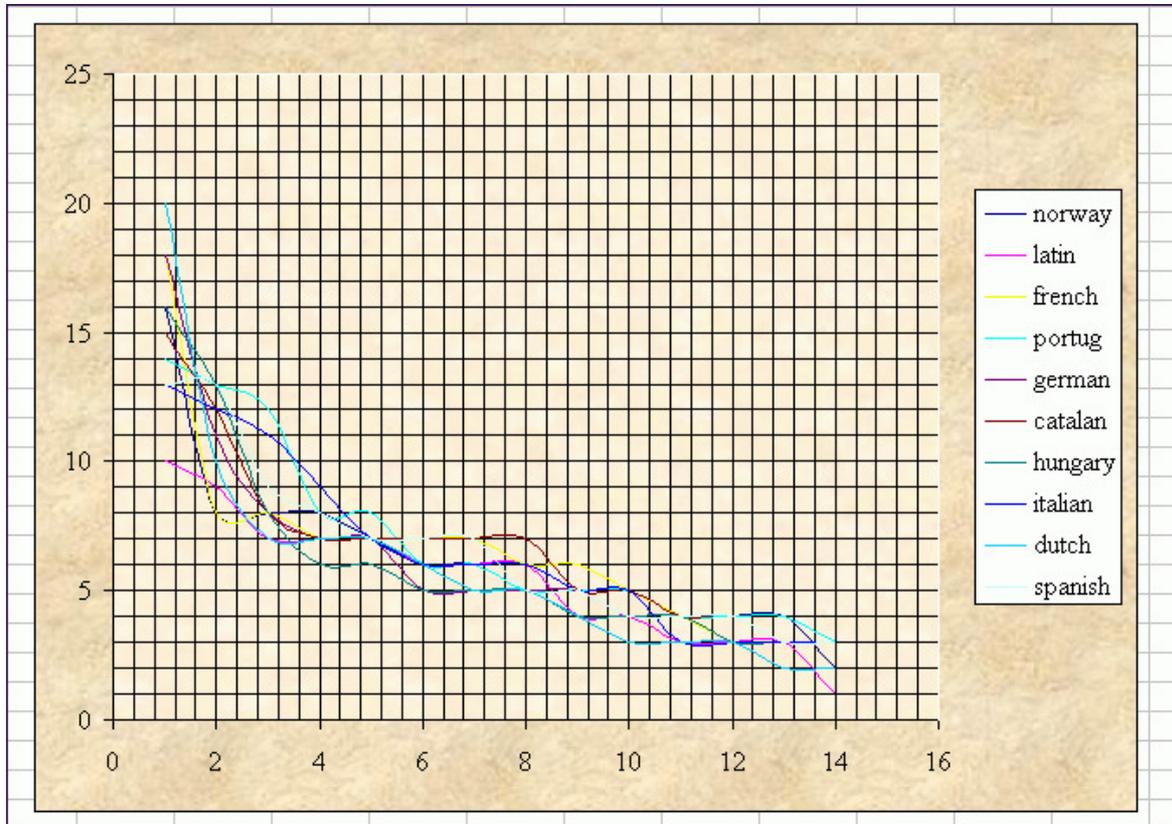


PARTIAL FREQUENCY DISTRIBUTION FOR CRACKING XENOCRYPTS

	16	8	7	6	5	4	2	<1		
NORWEGIAN:	E	RNS	T	AI	LDO	GKM	UVFHPA'	JBO'	YAECWXZQ	
	10	9	7	6	4	3	<2			
LATIN:	I	E	UTA	SRN	OM	CPL	(bal)			
	18	8	7	6	5	4	3	2	<1	
FRENCH:	E	AN	RSIT	UO	L	D	CMP	VB	F-Y	
	14	13	12	8	6	5	4	3	2	<1
PORTUGUESE:	A	E	O	RS	IN	DMT	UCL	P	QV	(bal)
	18	11	8	7	5	4	3	2	<1	
GERMAN:	E	N	I	RS	ADTU	GHO	LBM	CW	(bal)	
	15	12	8	7	5	4	3	1	<1	
CATALAN:	E	A	S	ILRNT	OC	DU	MP	BVQGF	(bal)	
	16	13	8	6	5	4	3	<2		
HUNGARIAN:	E	A	T	OS	LNZ	KIM	RGU	(bal)		
	13	12	11	9	7	6	5	3	2	<1
ITALIAN:	E	A	I	O	L	NRT	SC	DMO'U	VG	(bal)
	20	10	7	6	5	4	3	2	<1	
DUTCH:	E	N	IAT	O	DL	S	GKH	UVWBJMPZ	(bal)	
	13	9	8	7	5	4	3	1	<1	
SPANISH:	EA	O	S	RNI	DL	CTU	MP	GYB	(bal)	

The listing was converted by us into manageable table - the groups were split, but the original inaccuracy was kept. That explains the breaks - or steps, if you will - on the curves, see below:

	norway	latin	french	portug	german	catalan	hungary	italian	dutch	spanish
1	16	10	18	14	18	15	16	13	20	13
2	8	9	8	13	11	12	12	13	12	10
3	8	7	8	12	8	8	8	8	11	7
4	8	7	7	8	7	7	6	9	7	8
5	7	7	7	8	7	7	6	7	7	7
6	6	6	7	6	5	7	5	6	6	7
7	6	6	7	6	5	7	5	6	5	7
8	5	6	6	5	5	7	5	6	5	5
9	5	4	6	5	5	5	4	5	4	5
10	5	4	5	5	4	5	4	5	3	4
11	4	3	4	4	4	4	4	4	3	4
12	4	3	3	4	4	4	4	3	3	4
13	4	3	3	4	3	3	3	3	3	2
14	2	1	3	3	3	3	3	3	3	2



b) Frequency tables for the VM (continuation, J. H.)

In our last discussion, we posted the table of conversion between Latin and the VM, based on our comparison of their frequency tables:

VM	o	e	h	y	a	c	d	i	k	l	r	t	s	q	n	p	m	f	g	x	v
LATIN	E	I	A	T	U	S	N	M	R	O	C	D	L	P	Q	B	V	F	G	H	X

In the last Discussion (B18) we also added the conversion of first two folios; in this issue, we are adding few more:

VM <f2v>

kooiin.cheo.pchor.otaiin.o!dain.chor-!!!!!!dair.shty-
 kcho.kchy.sho.shol.qotcho.loeees.qoty-!!!!!!chor.daiin-
 otchy.chor.lshy.chol.chody.chodain-!!!!!!chcthy.daiin-
 sho.cholo.cheor.chodaiin=
 kchor.shy.daiiin.chkchoy-!!!!!!s!shy.dor.chol.daiin-
 dor.chol.chor.chol.keol.chy.chty-!!!!!!daiin.otchor.chan-
 daiin.chotchey.qoteeey.chokeos-!!!!!!chees.chr.cheaiin-
 chokoishe.chor.cheol.chol.dolody=

CONVERSION:

REEMMQ.STIE.BSTEC.EDUMMQ.E!NUMQ.STEC-!!!!!!NUMC.LTDA-
 RSTE.RSTA.LTE.LTEO.PEDSTE.OEIIIL.PEDA-!!!!!!STEC.NUMMQ-
 EDSTA.STEC.OLTA.STEO.STENA.STENUMQ-!!!!!!STSDTA.NUMMQ-
 LTE.STEOE.STIEC.STENUMMQ=
 RSTEC.LTA.NUMMQ.STSRTEA-!!!!!!L!LTIA.NEC.STEO.NUMMQ-
 NEC.STEO.STEC.STEO.RIEO.STA.STDA-!!!!!!NUMMQ.EDSTEC.STUQ-
 NUMMQ.STEDSTIA.PEDIIIA.STERIEL-!!!!!!STIIL.STC.STIUMMQ-
 STEREMLI.STEC.STIEO.STEO.NEOENA=

VM <f3r>

tsheos.qopal.chol.cthol.daimm-
 ycheor.chor.dam.qotcham.cham-
 ochor.qocheor.chol.daiin.cthy-
 schey.chor.chal.cham.cham.cho-
 qokol.chololy.s.cham.cthol-
 ychtaiin.chor.cthom.otal.dam-
 otchol.qodaiin.chom.shom.damo-
 ysheor.chor.chol.oky.damo-
 sho.aor.sheoldam.otchody.ol-
 ydas.chol.cthom=
 pcheol.shol.sols.sheol.shey-
 okadaiin.qokchor.qoschodam.octhy-
 qokeey.qot.shey.qokody.qokchey.cheody-
 chor.qodair.okeyy.qokeey=
 tsheoaron.shor.or.chor.olchsy.chom.otchom-!!!!!!oporar-
 oteol.chol.s.cheol.ekshy.qokeom.qokol.daiin-!!!!!!soleeg-
 soeom.okeom.yteody.qokeeo.dal.sam=
 pcheoldom.shodaiin.qopchor.qopol.opchol.qoty-!!!!!!otolom-
 otchor.ol.cheor.qoeor.dair.qoteol.qosaiin-!!!!!!chor.cthy-
 ycheor.chol.odaiin.chol.s.aiin.okol!or.am=

CONVERSION:

DLTIEL.PEBUO.STEO.SDTEO.NUMVV-
 ASTIEC.STEC.NUV.PEDSTUV.STUV-
 ESTEC.PESTIEC.STEO.NUMMQ.SDTA-
 LSTIA.STEC.STUO.STUV.STUV.STE-
 PEREO.STEOEOA.L.STUV.SDTEO-
 ASTDUMMQ.STEC.SDTEV.EDUO.NUV-
 EDSTEO.PENUMMQ.STEV.LTEV.NUVE-
 ALTIEC.STEC.STEO.ERA.NUVE-
 LTE.UEC.LTIEONUV.EDSTENA.EO-
 ANUL.STEO.SDTEV=
 BSTIEO.LTEO.LEOL.LTIEO.LTIA-
 ERUNUMMQ.PERSTEC.PELSTENUV.ESDTA-
 PERIIA.PED.LTIA.PERENA.PERSTIA.STIENA-
 STEC.PENUMC.ERIIA.PERIIA=
 DLTIUCEV.LTEC.EC.STEC.EOSTLA.STEV.EDSTEV-!!!!!!EBECUC-
 EDIEO.STEO.L.STIEO.IRLTA.PERIEV.PEREO.NUMMQ-!!!!!!LEOIIG-
 LEIEV.ERIEV.ADIENA.PERIE.NUO.LUV=
 BSTIEONEV.LTENUMMQ.PEBSTEC.PEBEO.EBSTEO.PEDA-!!!!!!EDEOEV-
 EDSTEC.EO.STIEC.PEIEC.NUMC.PEDIEO.PELUMMQ-!!!!!!STEC.SDTA-
 ASTIEC.STEO.ENUMMQ.STEO.L.UMMQ.EREO!EC.UV=

CORRECTION: In the the last issue were several errors caused by our computer program, which was not fully tested yet. We are sorry and the correct versions are here:

VM <f1r>

RSTLA.STUNUMMQ.EO-!!!!!!EODSTIA.STUC.SFTUC.UV-
 ADIIUA.STUC.EC.ESTA-!!!!!!NSTE.ORENA.ERENUC.STENA-
 NUE.SRTA.SRTE.SRTA.LTA-!!!!!!NRLTIIA.SDTA.REDSTENA.NUO-
 NEO.STERIE.NUMC.NUV-!!!!!!LESTIA.STERENA=
 BEDEA.LTEO.NUMC.SBTEUO-!!!!!!NUC.STIA.DENA.EDEUMMQ.LTELTA-
 STERA.STEO.SDTEO.LTEO.ERUO-!!!!!!NEOSTIA.STENE.OEO.STA.SDTA-
 PE.EO.STE*IL.STIEO.NEO.SDTIA-!!!!!!AREO.NEO.NEOE.AREO.NE!O!ST!ENA-
 EREO.LTEO.REO.RISTA.STEO.RA-!!!!!!STEO.SDTEO.STENA.STEO.NUMMQ-
 LTEC.EREO.STEO.NEO.RA.NUC-!!!!!!LTEO.NSTEC.EDSTE.NUC.LTENA-
 DUEC.STEDSTIA.NUO.STENA-!!!!!!LSTENA.BEO.STENUC=

VM <f1r>

RANUMQA.ABSTEO.NUMMQ.EDSTUO-!!!!!!ABSTUMMQ.SRTEOLA-
 NECSTECA-!!!!!!STRUC.L-!!!!!!LTEC.SDTA.SDT!-
 PEDUMMQ-!!!!!!SDTIA.A-!!!!!!STEC.STA.ANA-!!!!!!STUMMQ-
 *TUMMNA-!!!!!!STDEN.NA-!!!!!!SBTA.NUO!L-!!!!!!STERUMMQ.N-
 EDESTEC.UO-!!!!!!LTENUMMQ-!!!!!!STEO.!NUQ-!!!!!!ADSTUMMQ.NUQ-
 LUMMQ.NUMQN-!!!!!!N!REO.LEC-!!!!!!ADEONA-!!!!!!NSTEO.NSTA.SDTA-
 LTEC.SRTA.NUMMQA-!!!!!!STEO.NUQ=
 RANUMQ.LTUMMQ.PEA.L.LTEO.FENUQ-!!!!!!ARLT.EOLTIIA.NUMMONA-
 NOLLTE.REO.LTIIA.PERIA.ARENA.LE-!!!!!!STEO.ARA.NUMQ.NUMMCEO-
 PERA.STEOUMMQ.LTEO.LTIRA.NUMMQ-!!!!!!SDTIA.RIEO.L!UMMQ.LUMMQ-
 ASTUMQ.NUO.STA.NUOEC.LTUQ.NUQ-!!!!!!EOLUMMQ.LTIIA.SRTEC-
 EREO.STA.STEC.SDTEC.AEC.UQ.STUQ-!!!!!!LUMMQ.STIDA.STARA.LUO-
 LTE.ARIIA.STIA.NUMMQ.STSDTA=
 ADEUMQ=

Conclusion: It looks like the used cipher (if the VM was really written in Latin and encoded) would not be so simple to crack. It may be

that my rusty knowledge of Latin is not so great - so far I haven't got any interesting idea how to go about it . . .



B6. THE EXAMPLES OF HOROSCOPE, MORE CONVERSIONS

Newly discovered sites:

Here again is the list of links related to **Raymond Lull**, see our article A17:

- List of his books and other works:

<http://orbita.bib.ub.es/ramon/>

- His system is described at:

<http://www.c3.hu/scca/butterfly/Kunzel/synopsis.html>.

His *Arte electionis* is at:

<http://www.math.uni-au.gsburg.de/stochastik/pukelsheim/2003e.html>

The Augsburg edition of the same book:

<http://www.math.uni-augsburg.de/stochastik/llull/>.

- The sample handwriting of Lull is at:

<http://www.math.uni-augsburg.de/stochastik/llull/welcome.html>, click on: *Artifitium electionis personarum*

The comment in the VM, "*michiton oladabas*", see:

<http://www.ic.u.nicamp.br/~stolfi/EXPORT/projects/voynich/98-11-07-f116-redrawn/>

- The comment by Dana Scott is at:

<http://www.voynich.net/Archive/msg00431.html> (obsolete)

- Rafal Prinkle has some examples of Czech manuscripts on his site:

<http://main.amu.edu.pl/~rafalp/HERM/VMS/manus.htm> (obsolete) He also mentions the link:

<http://main.amu.edu.pl/~rafalp/HERM/VMS/uppsala.htm> (obsolete) [from "Cod. Slav. 60 der Universitätsbibliothek in Uppsala", Scando-Slavica, tomus V (1959), p. 164 ")], the textbook of Czech language by Dr. Missowsky - read about him in the section *History* on our page. The manuscript is now in Uppsala, Sweden. How did it get there? Apparently during the pillaging of Prague by Swedes (1648) since the doctor lived from 1580 till 1644. There must be still other Czech manuscripts in Sweden (some were returned after WWII), maybe even those written by Horczicky or Marci . . .

The letter from Nick Pelling.

Nick Pelling read our page and sent me this letter (verbatim):

Dear Jan,

For your next issue of the VM Bulletin, you might add a link to the (rapidly growing) Voynich Jargon page I set up recently - this should be especially helpful for newcomers trying to understand what Voynich web-sites are talking about. :-)

<http://www.voynich.info/vmswiki/phiki.php?VoynichJargon> (obsolete)

Also: in your current issue, you describe the VMS' "magic circle" page. On page 376 of Richard Kieckhefer's "Forbidden Rites: A Necromancer's Manual of the Fifteenth Century", you'll see a similar-looking three-ringed magic circle, with the centre divided into four (this from folio 105v no.40 of the manual he's describing). This was a Christian magic circle, with each ring of text dedicated to part of the Trinity.

However, I suspect that the four spirits in the centre of the VMS' f57v magic circle represent "directional demons": on p.169 of Richard Kieckhefer's book "Magic in the Middle Ages", he mentions the famous astrology professor Cecco d'Ascoli as invoking the (dark) spirits of the four compass directions:

N Paymon
E Oriens
S Egim
W Amaymen

A similar set is mentioned on the web, in a Harry Potter-style kids website (bizarrely):

N Amaymon
E Magor
S Egym

W Paymon

I also found a description of Paymon (Paimon) on the web:

<http://members.tripod.com/~Lilybunny/library/ref/troll/lieutenants.html>

"A high-ranking devil, Paimon takes the form of a young woman wearing a crown and riding a camel."

On the circular diagram on f57v: I can't make out a camel, but would you agree that the character on the left (West?) appears to be a young woman wearing a crown?

Finding descriptions of the other three directional spirits would be interesting, though I haven't had any luck so far, as only Paymon appears to merit any description at all... perhaps that's why two of the other four on (f57v) are turned away from the reader.

Further reading indicated that the four directional spirits were often placed inside magic circles to enhance their power - there's a magic circle in the British Library with five concentric rings (MS Sloane 3556, f1v) which I also had a look at... though without resolving anything, unfortunately. :-)

I thought you might like to know all this! :-)

Cheers,Nick Pelling.....

Comment by j.h:

Originally, I thought it is the astrological circle, but now I am more inclined to believe it is a *magic* circle. Still, I am no expert on either. Our contemporary literature however is - unfortunately - not concerned too much with magic in the VM, but there are also other indications (text "daiin, daiin" may be some chant or magic formula, after all).

The letter from Pablo Garcia (excerpt):

Hello Jan,

I read recently a book about this manuscript where it tells that maybe the author was Ramon Lull. He was a Spanish man who lived during 1220 until 1305. More or less.

One of the languages he spoke was Catalan. Do you think that the language of the manuscript may be influenced by Catalan?

There's one thing I can't understand. EVA is supposed to be the alphabet of the manuscript translated in our letters, right? How does it work?

Thanks,

Pablo **My answer (j.h.):**

Hello Pablo,

EVA is only arbitrary assignment to unknown signs of the unknown script (mostly by graphic similarity only) - therefore transcripts have no meaning (we do not know neither script nor the language yet :-). It was expected that using the frequency calculations we would be able to guess the language and assign the right letters to EVA, however it did not work so well.

According to my letter frequency calculations, the closest language is Latin, however even my "conversion" does not make sense. The next step is to assume that the VM is written in code after all, see my Discussions on the VM page. More about EVA and others is on pages of Mr. Zandbergen, Stolfi and others, pls see the references on our VM page.

Regards and thanks,

Jan

Conversions. (J. H.)

Comment: I am trying to get the program which would be capable *to format automatically* the whole text (with no spaces, that much I manage myself :-) in the matrix with n columns, "n" being selectable - in order to be able to read it then vertically. That's the one way how to establish if the text is really a transposition cipher. In the meantime, here are more conversions into "Latin" (I am using Excel for conversion, but I already have a short program in Javascript (originally used for conversion into Morse-code :-). It can be opened in the browser and text in EVA can be pasted into it - anyone interested can get it from me, free.

Two more sections follow here:



VM <f4r>

otchol.chol.chy.chaiin.qotaiin-!!!!!!daiin.shain-
 qotchol.chy.yty.daiin.okaiin.cthy= pydaiin.qotchy.dy.tydy-
 chor.shy!tchy.dy.tche*y- qotaiin.cthol.daiin.cthom- shor.shol.shol.cthy.cpholdy-
 daiin.ckhochy.tchy.koraiin- odal.shor.shyshol.cphaiin- qotchoiin.she*r.qoty-
 soiin.chaiin.chaiin- daiin.cthey=

CONVERSION:

EDSTEO.STEO.STA.STUMMQ.PEDUMMQ-!!!!!!NUMMQ.LTUMQ- PEDSTEO.STA.ADA.NUMMQ.!
 ERUMMQ.SDTA= BANUMMQ.PEDSTA.NA.DANA- STEC.LTA!DSTA.NA.DSTI*A-
 PEDUMMQ.SDTEO.NUMMQ.SDTEV- LTEC.LTEO.LTEO.SDTA.SBTEONA-
 NUMMQ.SRTESTA.DSTA.RECUMMQ- ENUO.LTEC.LTALTEO.SBTUMMQ- PEDSTEMMQ.LTI*C.PEDA-
 LEMMQ.STUMMQ.STUMMQ- NUMMQ.SDTIA=

VM <f4v>

pchooiin.kshe*.kchoy.ch*pchy.dolds-!!!!!!dlod-
 ol,chey.chy.cthy.shkchor.sheo.cheory-!!!!!!choldy-
 *ho.sho.chaiin.shaiin.daiin.qodaiin-!!!!!!o,ar,am-
 qok*hy.qochy.choteol.daiin.cthey-!!!!!!choaiin-
 shor.sheey.ct!!!o.otoiin.shey.qotchoiin-!!!!!!chodain-
 ytchoy.shokchy.cph!ody= torchy.sheeor.chor.chokchy.cphy!dy-
 ola*n.chor.cthol.sho.otor.cthory- qooko,iiin,cheom.chcthy.shoky.daiin-
 otaiin.sheo.okeody.chol.chokeody- sho,kcheor.shody.shtaiin.qotol.daiin-
 qok*y.sho.okeol.s.keey.shar.char.ody- shody.s.cheor.chokody.shodaiin.qoty-
 ochody.chy!key.chtody=

CONVERSION:

BSTEEMMQ.RLTI*.RSTEA.ST*BSTA.NEONL-!!!!!!NOEN- EO,STIA.STA.SDTA.LTRSTEC.LTIE.STIECA-
 !!!!!!!STEONA- *TE.LTE.STUMMQ.LTUMMQ.NUMMQ.PENUMMQ-!!!!!!E,UC,UV-
 PER*TA.PESDTA.STEDIEO.NUMMQ.SDTIA-!!!!!!STEUMMQ- LTEC.LTIIA.SD!!!!
 E.EDEMMQ.LTIA.PEDSTEMMQ-!!!!!!STENUMQ- ADSTEA.LTERSTA.SBT!ENA=
 DECSTA.LTIIEC.STEC.STERSTA.SBTA!NA- EOU*Q.STEC.SDTEO.LTE.EDEC.SDTECA-
 PEERE,MMMQ,STIEV.STSDTA.LTERA.NUMMQ- EDUMMQ.LTIE.ERIANA.STEO.STERIENA-
 LTE,RSTIEC.LTENA.LTDUMMQ.PEDEO.NUMMQ- PER*A.LTE.ERIEO.L.RIIA.LTUC.STUC.ENA-
 LTENA.L.STIEC.STERENA.LTENUMMQ.PEDA- ESTENA.STA!RIA.STDENA=



B7. LETTERS FROM SPAIN AND ENGLAND, MAGIC CIRCLE, CONVERSIONS

Newly discovered sites:

Here again is the list of links related to **Raymond Lull**, see our article A17:

- List of his books and other works:

<http://orbita.bib.ub.es/ramon/>

- His system is described at:

<http://www.c3.hu/scca/butterfly/Kunzel/synopsis.html>.

His *Arte electionis* is at:

<http://www.math.uni-augsburg.de/stochastik/pukelsheim/2003e.html>

The Augsburg edition of the same book:

<http://www.math.uni-augsburg.de/stochastik/lull/>.

- The sample handwriting of Lull is at:

<http://www.math.uni-augsburg.de/stochastik/lull/welcome.html>, click on: *Artifitium electionis personarum*

The comment in the VM, "*michiton oladabas*", see:

<http://www.ic.u.nicamp.br/~stolfi/EXPORT/projects/voynich/98-11-07-f116-redrawn/>

- The comment by Dana Scott is at:

<http://www.voynich.net/Archive/msg00431.html>

- Rafal Prinkle has some examples of Czech manuscripts on his site:

<http://main.amu.edu.pl/~rafalp/HERM/VMS/manus.htm> He also mentions the link:

<http://main.amu.edu.pl/~rafalp/HERM/VMS/uppsala.htm> [from "Cod. Slav. 60 der Universitätsbibliothek in Uppsala", Scando-Slavica, tomus V (1959), p. 164 "], the textbook of Czech language by Dr. Missowsky - read about him in the section *History* on our page. The manuscript is now in Uppsala, Sweden. How did it get there? Apparently during the pillaging of Prague by Swedes (1648) since the doctor lived from 1580 till 1644. There must be still other Czech manuscripts in Sweden (some were returned after WWII), maybe even those written by Horcizicky or Marci . . .

The letter from Nick Pelling.

Nick Pelling read our page and sent me this letter (verbatim):

Dear Jan,

For your next issue of the VM Bulletin, you might add a link to the (rapidly growing) Voynich Jargon page I set up recently - this should be especially helpful for newcomers trying to understand what Voynich web-sites are talking about.

:-)

<http://www.voynich.info/vmswiki/phiki.php?VoynichJargon>

Also: in your current issue, you describe the VMS' "magic circle" page. On page 376 of Richard Kieckhefer's "Forbidden Rites: A Necromancer's Manual of the Fifteenth Century", you'll see a similar-looking three-ringed magic circle, with the centre divided into four (this from folio 105v no.40 of the manual he's describing). This was a Christian magic circle, with each ring of text dedicated to part of the Trinity.

However, I suspect that the four spirits in the centre of the VMS' f57v magic circle represent "directional demons": on p.169 of Richard Kieckhefer's book "Magic in the Middle Ages", he mentions the famous astrology professor Cecco d'Ascoli as invoking the (dark) spirits of the four compass directions:

N Paymon

E Oriens

S Egim

W Amaymen

A similar set is mentioned on the web, in a Harry Potter-style kids website (bizarrely):

N Amaymon

E Magor

S Egym

W Paymon

I also found a description of Paymon (Paimon) on the web:

<http://members.tripod.com/~Lilybunny/library/ref/troll/lieutenants.html>

"A high-ranking devil, Paimon takes the form of a young woman wearing a crown and riding a camel."

On the circular diagram on f57v: I can't make out a camel, but would you agree that the character on the left (West?) appears to be a young woman wearing a crown?

Finding descriptions of the other three directional spirits would be interesting, though I haven't had any luck so far, as only Paymon appears to merit any description at all... perhaps that's why two of the other four on (f57v) are turned away from the reader.

Further reading indicated that the four directional spirits were often placed inside magic circles to enhance their power - there's a magic circle in the British Library with five concentric rings (MS Sloane 3556, f1v) which I also had a look at... though without resolving anything, unfortunately. :-)

I thought you might like to know all this! :-)

Cheers,Nick Pelling.....

Comment by j.h:

Originally, I thought it is the astrological circle, but now I am more inclined to believe it is a *magic* circle. Still, I am no expert on either. Our contemporary literature however is - unfortunately - not concerned too much with magic in the VM, but there are also other indications (text "daiin, daiin" may be some chant or magic formula, after all).

The letter from Pablo Garcia (excerpt):

Hello Jan,

I read recently a book about this manuscript where it tells that maybe the author was Ramon Lull. He was a Spanish man who lived during 1220 until 1305. More or less.

One of the languages he spoke was Catalan. Do you think that the language of the manuscript may be influenced by Catalan?

There's one thing I can't understand. EVA is supposed to be the alphabet of the manuscript translated in our letters, right? How does it work?

Thanks,

Pablo **My answer (j.h.):**

Hello Pablo, EVA is only arbitrary assignment to unknown signs of the unknown script (mostly by graphic similarity only) - therefore transcripts have no meaning (we do not know neither script nor the language yet :-). It was expected that using the frequency calculations we would be able to guess the language and assign the right letters to EVA, however it did not work so well. According to my letter frequency calculations, the closest language is Latin, however even my "conversion" does not make sense. The next step is to assume that the VM is written in code after all, see my Discussions on the VM page. More about EVA and others is on pages of Mr. Zandbergen, Stolfi and others, pls see the references on our VM page

Regards and thanks,
Jan

Conversions. (J. H.)

Comment: I am trying to get the program which would be capable *to format automatically* the whole text (with no spaces, that much I manage myself :-) in the matrix with n columns, "n" being selectable - in order to be able to read it then vertically. That's the one way how to establish if the text is really a transposition cipher. In the meantime, here are more conversions into "Latin" (I am using Excel for conversion, but I already have a short program in Javascript (originally used for conversion into Morse-code :-). It can be opened in the browser and text in EVA can be pasted into it - anyone interested can get it from me, free.

Two more sections follow here:

VM <f4r>

```
otchol.chol.chy.chaiin.qotaiin-!!!!!!daiin.shain-
qotchol.chy.yty.daiin.okaiin.cthy= pydaiin.qotchdy.dy.tydy-
chor.shy!tchy.dy.tche*y- qotaiin.cthol.daiin.cthom- shor.shol.shol.cthy.cpholdy-
daiin.ckhochy.tchy.koraiin- odal.shor.shyshol.cphaiin- qotchoin.she*r.qoty-
soiin.chaiin.chaiin- daiin.cthey=
```

CONVERSION:

EDSTEO.STEO.STA.STUMMQ.PEDUMMQ-!!!!!!NUMMQ.LTUMQ- PEDSTEO.STA.ADA.NUMMQ!
 ERUMMQ.SDTA= BANUMMQ.PEDSTA.NA.DANA- STEC.LTA!DSTA.NA.DSTI*A-
 PEDUMMQ.SDTEO.NUMMQ.SDTEV- LTEC.LTEO.LTEO.SDTA.SBTEONA-
 NUMMQ.SRTESTA.DSTA.RECUMMQ- ENUO.LTEC.LTALTEO.SBTUMMQ- PEDSTEMMQ.LTI*C.PEDA-
 LEMMQ.STUMMQ.STUMMQ- NUMMQ.SDTIA=

VM <f4v>

pchooiin.kshe*.kchoy.ch*pchy.dolds-!!!!!!dlod-
 ol,chey.chy.cthy.shkchor.sheo.cheory-!!!!!!choldy-
 *ho.sho.chaiin.shaiin.daiin.qodaiin-!!!!!!o,ar,am-
 qok*hy.qoqthy.choteol.daiin.cthey-!!!!!!choaiin-
 shor.sheey.ct!!!!o.otoiin.shey.qotchoiin-!!!!!!chodain-
 ytchoy.shokchy.cph!ody= torchy.sheeor.chor.chokchy.cphy!dy-
 ola*n.chor.cthol.sho.otor.cthory- qoko,iiin,cheom.chcthy.shoky.daiin-
 otaiin.sheo.okeody.chol.chokeody- sho,kcheor.shody.shtaiin.qotol.daiin-
 qok*y.sho.okeol.s.keey.shar.char.ody- shody.s.cheor.chokody.shodaiin.qoty-
 ochody.chy!key.chtody=

CONVERSION:

BSTEEMMQ.RLTI*.RSTEA.ST*BSTA.NEONL-!!!!!!NOEN- EO,STIA.STA.SDTA.LTRSTEC.LTIE.STIECA-
 !!!!!!!STEONA- *TE.LTE.STUMMQ.LTUMMQ.NUMMQ.PENUMMQ-!!!!!!E,UC,UV-
 PER*TA.PESDTA.STEDIEO.NUMMQ.SDTIA-!!!!!!STEUMMQ- LTEC.LTIIA.SD!!!!
 E.EDEMMQ.LTIA.PEDSTEMMQ-!!!!!!STENUMQ- ADSTEA.LTERSTA.SBT!ENA=
 DECSTA.LTHIEC.STEC.STERSTA.SBTA!NA- EOU*Q.STEC.SDTEO.LTE.EDEC.SDTECA-
 PEERE,MMMQ,STIEV.STSDTA.LTERA.NUMMQ- EDUMMQ.LTIE.ERIANA.STEO.STERIANA-
 LTE,RSTIEC.LTENA.LTDUMMQ.PEDEO.NUMMQ- PER*A.LTE.ERIEO.L.RIIA.LTUC.STUC.ENA-
 LTENA.L.STIEC.STERENA.LTENUMMQ.PEDA- ESTENA.STA!RIA.STDENA=



B8. LETTER FROM POLAND, THE SATIRE

Newly discovered sites:

- <http://www.jura.ch/lcp/cours/dm/codage/stegano/cardan.html> (obsolete) - says more about the Cardan Grill (used by Gord Rugg) - it is in French, but click the buttons and you will understand how it works)
- <http://www.voynich.net/Arch/2004/01/msg00365.html> - more about Czech mediaeval cryptography.

The letter from our Polish reader. (Michal, Poland)

I have learned recently about mysteries surrounding the VM. I made few observations regarding the manuscript. I am not sure if you will find them useful, but I decided to write them anyway. After comparing photographs of Voynich manuscript available on the Internet, it appeared to me that the author (or the authors) may have wanted to deal with (to describe) life processes. They may wanted to draw analogies between construction of floral (botanical) organisms and human body indeed. The women and the "plumbing" system may be the illustration of fluid (especially blood) circulation in the body. Why lustful pictures of women performing actions? Maybe the author felt other representations of MOTION would be imperfect and, therefore poorly informing reader about his/their intentions/concepts.

Moreover, woman at the time was often considered impure. The sinful, perishable, frail part of the human life - the physical - was often thought to be embodied in a young, attractive girl. Those who were struggling to keep their lusts were ordered to confront their imagination with skinned down body. The purpose was to eradicate desire for sexual relation with women.

I think that naked women further indicate author(s)' interest with body functions, fluid economy and other life processes. The emphasis has been put on physical, material aspects of LIFE with no particular references to spiritual side (astrology excluded). Such radical and empirical approach to the issue of LIFE may have caused the author to face dire consequences in XIII as well as XVI century. Therefore, author decided to cipher it. I would like to only emphasize pictures of naked women and how they (I think) relate to graphic representation of motion and perishable/impure nature of human body.

Our comment: Many experts still call the mentioned pictures as "plumbing". That is quite unprofessional and also shows the "debt" of their studies.

THE VM WAS WRITTEN BY ROOSTER! (by J.B.Hurych)

As we learnt from our special correspondent from Eastern Ontario, Canada, Prof. P.E.C. King - the head of *The Chair of Poultry Studies* (no typo here - we also thought about "poetry") at the UNIVERSITY OF UNDERBRIDGE discovered the way the VM was written. His article "*My and only my discovery*" will soon appear in " The Digest and Digesting of Assorted Poultry". In the meantime, we can only disclose the following facts:

Prof. King, being renown expert mainly in other fields (and meadows) was so far interested in the VM only as an hobbyist, but recent discoveries tempted him to go public as well. What is it all about? Well, using only half a bushel of corn and one whole rooster, he succeeded to write the VM in less than a week. A anybody can repeat that experiment, provided that the rooster does not die of overfeeding.

The method is actually very simple, but ingenious as well - he is throwing corn by hand on medieval encoding device invented by Dominican monk Guy Barbecue (also called *Barbecue Grill*). The "grill" is actually some medieval window, full of round glasses, each marked by different letter of ADAM Alphabet (i.e. slightly modified EVA alphabet) and the corn is then picked by the rooster. We have to ascertain that the rooster cannot read, to assure the randomness of the pickup.

The letters corresponding to marked little windows were then read by the assistant and written down by professor himself. And here comes the real genality: prof. King also solved the mystery of "shorter-than-usual" words in the VM - he used the assistant who was stuttering. Every time he started to stutter, King inserted a space, indicating the new word and his hepler being born stutterer, the frequency of the words then appeared to be the same as in the natural language.

Prof. King is also the discoverer of the "pecking phenomenon" that is "the less you feed the pigeon the more he pecks" (on the switch providing the food). He actually started his VM experiment with the pigeon, but the bird flew away after having

enough of it. So he was conveniently switched for rooster and everything went fine. The animal was thus fed continuously, contrary to the assistant who stuttered much better when being starved. That was achieved simply by the provision he has to buy his food from his not so great salary.

Needless to say, the result of experiment was very similar to the VM and with the help of computer (program "Medieval Windows" was provided courtesy of undisclosed software house) and some crypto-cosmetics, many VM peculiarities were simulated as well. *"Contrary to contemporary experts", says King, "I didn't need to look for any original text in the VM - I already know that it is a hoax. And to simulate a hoax is a cinch: here we have only rooster-picked probability and natural stutter of my assistant. Moreover, the assistant quite recently died of undernourishment, so here is your unbreakable code, ha ha ha."*

When asked how does it all proves that the VM is hoax, King laughed: *"Listen, if there was any text in the VM, I would have already cracked it. So there you have it - it must be a hoax!"* Does he have any plans for future? *"Of course, my dream is to prove The Epos of Gilgamesh was written by ostrich. The only obstacle is that there are no ostriches in Eastern Ontario . . ."*



B9. OUR RECENT DISCOVERY, DISCUSSION. (by Jan Hurych and Karel Šlajsna)

Thanks to our long time cooperation with Czech Republic, we were able to obtain the true signature of Jakub Horczicky de Tepenec from Czech archive which we are displaying here below, apparently **the first one ever published on Net**.

As I mentioned in my e-book "*Záhadný rukopis*" (in Czech, "The Mysterious Manuscript"), it is somehow surprising that the bearer of **the only name mentioned in the VM** - and therefore of the *first name* (timewise) truly historically connected with the manuscript - **was never considered more then "the person who received the VM as a gift from Rudolph II"** (or so the rumor says - it was of course only the third-hand information from Marci who was clearly distancing from it :-). True, nobody denies Horczicky's ownership of the VM, but the research always stopped right there. He was never considered to be the author or at least the person who could solve the VM, in spite of the fact he is the first truly recorded owner of the VM.

Apparently it did not matter that

- a) **he was very gifted researcher and experimenter in botanics** (and nobody can deny that the VM is mostly filled with the pictures of plants and the related text),
- b) **he was an apprentice of Jesuit apothecary** in Krumlov and apparently his best student
- c) **he later made fortune by selling all kinds of his own medicine** - namely his *Aqua Sinapius* - and that was while he was still a student of Jesuit University in Prague (Clementinum)
- d) as a student, **he was in charge of the University gardens** and - according to one source - **apparently even in charge of Rudolph's Royal botanical gardens**
- e) **he was also a skilled alchemist** and - again according another source - possibly even **the director of Rudolph's alchemist laboratories**
- f) **he was apparently also skilled in astrology**, since those two professions went hand-in-hand in those times (we may say the astrology was a prerequisite for the work of an alchemist :-)

While all those interests and skills are strongly present in the VM, Horczicky was never seriously suspected to be more than some lucky receiver of the book. Nobody really knows why he would have to be given the book in first place - being richer than Rudolph, he could have bought it from him :-). Strangely enough, all his skills were forgotten in the search of the true author of the VM. It was considered to be more appropriate to follow the rumor of Dr. Raphael from Marci's letter. Raphael was once the State prosecutor who "proved" the treason of Albrecht of Wallenstein in his posthumous trial. Wallenstein was of course already murdered by Emperor's orders - without any trial - so it was necessary to justify the murder. Dr. Raphael could be therefore considered to be more like a "creative" writer at the best.

Coincidence between his rumor about 600 and Dee's 630 ducats. Dee mentioned in his diary he obtained the sum, but never bothered to explain how and what for he got it, while otherwise he described other things in full details :-). That probably lead Voynich to his invention of the "missing" link - that is Rudolph's ownership and his subsequent gift to Horczicky, thus connecting two dubious situations with even more dubious link. This rather romantic invention is still repeated today in spite of the fact that the "dedication" in the VM says "Jacobi" (genitive) instead of "Jacobo" (dative) as we would expect in such case. Of course nobody could explain why Rudolph paid 600 ducats to Dee and then gave it so generously to Horczicky as a gift (considering Rudolph's everlasting need for money :-) or why Marci then parted with the VM (worth by some estimates almost 2 kilograms of gold) so quickly a donated it - again for free - to Kircher.

I pointed out that the skills required for writing the VM were namely those I listed above for Horczicky. Neither of other "suspected" authors had **all** those skills, so it was for me only logical to add Horczicky to the list (as well as for some other facts). To pursue further the obvious scenario - which was supposed to be done long time ago - I needed the cross-reference, that is the Horczicky's handwriting for comparison. Finally, I obtained that from my assistant Mr. Karl Slajsna, Czech citizen, who contacted the archive of town Melnik, Czech Republic. Following is the translation of the accompanying letter and the copy of the attachment.

The State Regional Archive, Prague
The State County Archive, Melnik
Pod Vrchem 3358, 276 01

To: Mr.Karel Slajsna
Brozanky 33
276 01 Melnik

Your letter dated 12th November, 2003

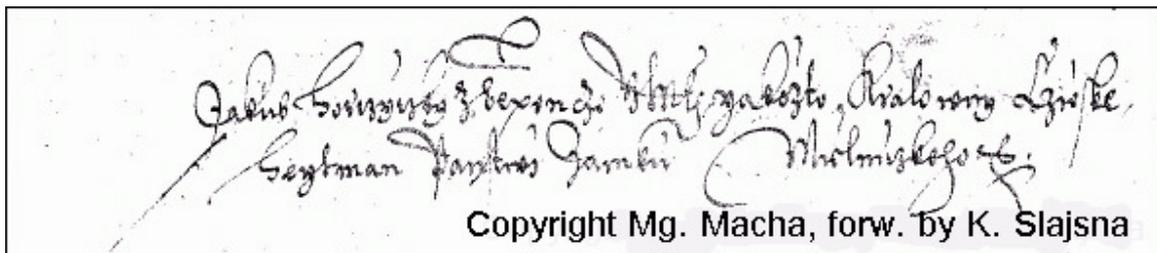
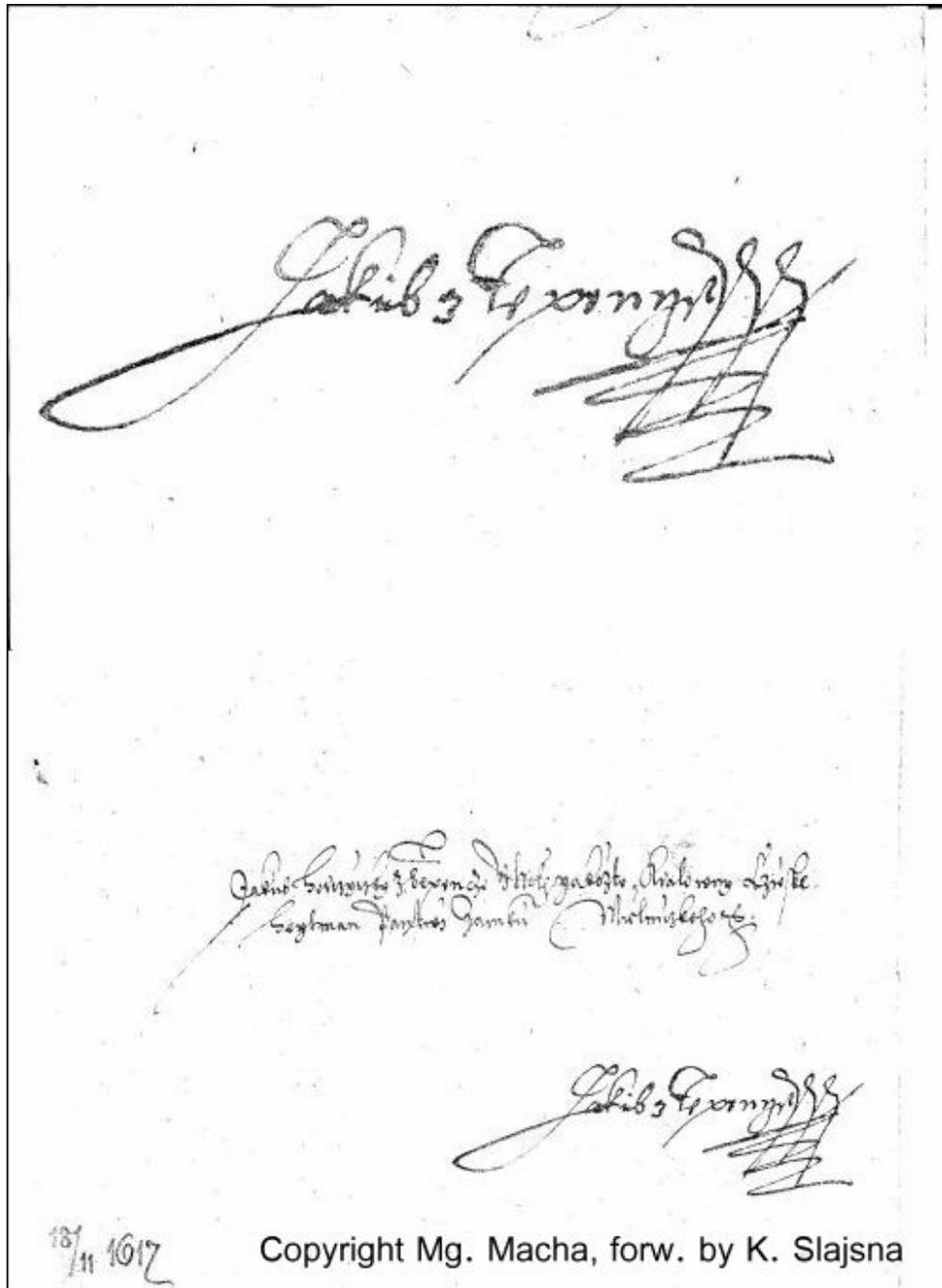
Our No. 379/2003
from: Mach
In Melnik, 9th February, 2004

Re: The handwriting of Jakub Horcicky from Tepenec, Heytman of Melnik

In regard to your request to locate the documents with the handwriting and possibly the signature of Jakub from Tepenec, the heytmán of Melnik, we are glad to inform you that there are several documents in the Archive of the Town of Melnik issued by the office of Melnik county during the period he was the heytmán of the town. His handwriting appears only on one document, dated 18th November 1617, addressed to the city council, namely his signature.

The copy of that signature is in the attachment. You can see the original in the office of the archive, during office hours, i.e. on Monday and Wednesday from 8,00 to 17,00 hours or on other days, as per agreement. The document will be reserved there for you for the duration of one month.

Signature,
Statni Okresni Archiv Melnik
(The State County Archive, Melnik)



The pictures above are the whole document (with text and Horczicky's signature) plus the enlargements of the text. The text is apparently also by hand of Horczicky, namely letters k, b, p, n are identical in both. We read the text as:

"Jakub Horcziczky z Tepencze JMC (Jeho Milosti Císařské) jakožto Kralovny Czieške heytmán Panství Zamku Mielniczkeho"

The English translation is then:

"Jakub Horcziczky de Tepenec His Imperial Majesty of Czech Queen heytmán of Melnik Castle County." (We thank Mr. Nebesky for accurate reading of the above text)

The spelling there is in contemporary Czech, without today's diacritics. The text is apparently only the ceremonial title of the undersigned, where heytmán (hauptman) at his time was the commandant of the county and town Melnik. Being the Heytmán of the Castle, which was inside the town, he was more or less the ruler of the town and surrounding lands. Originally, he was apparently given the lands as a guarantee for loaning Rudolph some money (according to book "Who was Who", in Czech "Kdo byl kdo?", published by Rovina, 1992). Later, but that was before his exile (1618, at the beginning of 30-year war which spread from Bohemia all over the Europe). He was according to our document (note the year 1617!) already the Captain of the Castle Melnik so he took the possession after Rudolph's death (1612). He as then the infamous persecutor of Protestants (as per book of his contemporary, Pavel Skala ze Zhore: "Czech History", copy published by Svoboda 1984, Praha and written between years 1618 and 1640, when he died in exile).

After the Protestant taking the power and creation of own government (Directorium), he was jailed and later exiled. After the defeat of the uprising, he returned to Melnik, where he died a year later from fall of the horse (1622).

Conclusion: the search for Horczicky's handwriting *was not initiated in order to prove he was or wasn't the author*. The sample of the handwriting could however clarify some pertinent questions which require first the conclusion of two further tasks:

1) The comparison of erased signature in the VM (seen only under ultraviolet light and discovered already by Voynich) **with the handwriting of Horczicky**

2) The comparison of side-comments in the VM (written supposedly by somebody else than author) with the handwriting of Horczicky.

While the negative result under 1) cannot disprove his authorship (he still could write the VM), the positive result cannot prove it either - we would have to find the elements of his handwriting in the true script of the VM and that would be quite difficult

. Even if we can see that the VM script is closer to the script from the time of Horczicky than that of Roger Bacon, the VM in Beinecke could be only the work of copyist. Positive result could of course strengthen our suspicion he was the author, but not so much: why would he hide the content of the VM, but include his name in the manuscript? The signature: was more likely written by somebody else.

The results under 2) may be more informative: if the handwriting of the side-marks is found the same, apparently Horczicky cannot be the author. On the other hand, he was apparently - timewise - closer to the source of the VM and being able to get more information than we ever could, so he could know the true author or even get some hints for solution - see famous note "michiton . . . etc."

Both tasks were already undertaken by us and we will inform you about our results as soon as we get them.



B10. THE DISCUSSION ABOUT OUR DISCOVERY CONTINUES . . .

There was some interesting discussion on Internet VM conference at <http://www.voynich.net/Arch/2004/03/threads.html> in regard to our the verified signature of Jacobus Horcizicky. Some are copied here. The comments might be slightly obsolete - since that time two more signatures were found, see later discussions.

As for Horcizicky's name, allegedly written in the VM by Emperor Rudolph II or possibly even Horcizicky (or anybody else for that matter :-), it is barely visible on the folio f1r



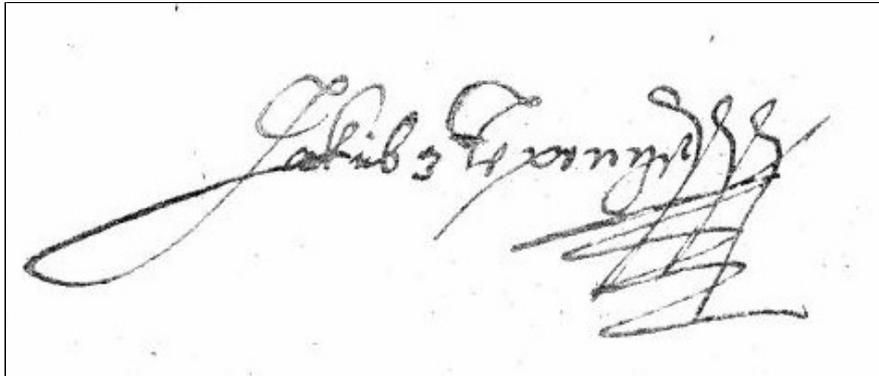
To enhance the erased part, I used graphic enhancement, with following results:



Even better resolution is on following picture (the only part "... Tepenec" that is clearly readable is shown here so it can be used for comparison with the style and handwriting of the one in the VM) :



Compare with Melnik signature:



Needless to say they are quite different in form, partly because "our" signature may be rather ceremonial, but the handwriting is definitely not the same.

P.S. The more interesting is of course the question who erased the "signature" in the VM and why. (It seems to me that there are some scratches below the signature and elsewhere on that folio). As for the reasons of the erasure, there are several options: either to conceal the name of Horcizky by some other person (for whatever reason and in whatever time after 1608) or the original vellum had his signature on and was reused by the author of the VM who had to erase it first. That would of course make the manuscript quite younger which seems rather improbable.
Jan.

Discussion on other subjects, not related to above:

Yes, it is the same Jesuit seminary in Krumlov, there was only one there. As far as the apothecary shop is concerned, it was officially attached to the seminary, but as for building, I never checked it. Jacobus worked there as an assistant to priest named *Martin Schaffner* who was very successful in healing the burghers as well as inhabitants of the seminary. When Jacobus left the seminary for Jesuit University named Clementinum in Prague, he also started to sell his *Aqua Sinapia*, the medical potion, apparently very effective, since it made him quite rich. I took the liberty to look-up the e-mail address of the webmaster (of the page you discovered) but found only one of *Ing. Libor Sváček*, who is the photographer and apparently the webmaster and author as well. I wrote to him in Czech, trying to gain his cooperation or at least some e-mail addresses. Funny you mentioned the Prague Jesuit College in Clementinum - I wrote to them about a month ago, with the same offer of cooperation, but they haven't answered yet; apparently they are still considering it:-). I was also pointing out that Horcizky is the only name in the VM we can be sure of and I wondered why it was not investigated further. He possessed all qualifications the VM author needed: he was gifted student and scholar, skilled in botanics and herbal healing, great experimenter, and as an alchemist he apparently knew astronomy and astrology as well. I really appreciate you are following this lead,
J.

Hello,

Krumlov and Trebon, both belonging to count Rosenberg, were havens for alchemists, with importance no less than Rudolph's laboratories in Prague. It was there where Dee and Kelly worked after being expelled from Prague. Dee's son was even born there and was given name "Trebonius".

While Kelly later left Trebon to Prague, in Rudolph's service, Dee stayed in Trebon but without Kelly he could not even contact his "angels" and eventually left for England. Kelly's fate was even worse: apparently he run out of his "red powder" and could not make gold any more. Of course, Rudolph didn't believe him and put him in prison. When Kelly tried to escape, he fell from the wall and died from his injuries.

If I get answer to my letter to Krumlov webmaster, I will try to get somehow the notice about the VM on that page, too :-).
J.

Hi,

I guess that the letters in "our signature" of Tepenez are more on the side of cursive than that of fractured script - after all the connections between some letters are clearly visible - and the additional text is even more on the side of cursive. As for your suggestion: have you seen another book "signed" by Horcizky? b By the way, our document was not written in German but in Czech language :-).
J.

Hello,

There is my four-part article about the VM at:
<http://rhea.tci.uni-hannover.de/hurontaria/1999/C996a.htm>
<http://rhea.tci.uni-hannover.de/hurontaria/1999/C997a.htm>

<http://rhea.tci.uni-hannover.de/hurontaria/1999/C998a.htm>
<http://rhea.tci.uni-hannover.de/hurontaria/1999/C999a.htm>

Some data there may be already obsolete or surpassed - it is actually the original article I wrote in 1999. I keep it there basically for one reason only: it contains my original questions and hypotheses, which are still haunting me :-).

J.

Hi,

"Jakub z Tepence" would be written in Czech - Jakub is still today a common Czech name for Jacobus (whatt looks like "3" could be Czech "z" meaning "de", from) orit could be Greek delta, sometimes used for Latin "de" .

The name of "Tepeneč" (today's Czech spelling of the little castle in Moravia - already in ruins in H's time, but still existing today under the name of Tepenec) is pronounced in Czech as "Tepenez" (meaning something which is wrought, in case of iron, or chiseled, in the case of stone) and should not be written as "Tepenez" pronounced "Tepenez") in spite of the fact that "etch" is more common Czech suffix for location names, while "ec" is more used for persons.

However, it looks to me that Jacobus was also using two letters for spelling "c", both in "Tepeneč" and "Horcizky". There was a different pronunciation for letters "c" , "z" and the combination "cz" (pronounced "tz", "z" and "tch") in that time - and still is, but "cz" is no more used in today's Czech spelling, it was replaced by letter "c" - è- with little "v" above "c"). Letter "c" in today's Czech is pronounced as "t" in Horatio in true Latin (not as in English version :-), but I prefer to use here more common transcription "tz". "z" was pronounced same way as "z" in English (say "zero") and "cz" was pronounced like English "ch" (or "tch"). So "Horcizky" was pronounced "Horcizky" there is at least no doubt about that - suffix "cký" is still commonly used in Czech, including the dash above "y" (but the whole name would be written today as "Horc'ický", where c' is the c with the little "v" above, i.e. "è").

I have no problem with Jacobus writing the "z" in the first picture as "3" and in the second picture as more developed "3", with full bottom loop. However, I cannot figure why he writes "c" in "Tepeneč" as "cz", while in the place where there should be "cz" (Horcizky) he also writes "cz" (like "Horcizky" or something similar). Both bi-letter groups however do look slightly different and we also have to take in account the fact that the spelling in that time was not unified (same way as it was not in the Shakespearean England :-). We can however assume that if Jacobus signed the VM for his own purpose, he would probably use Czech language (that is using "z" instead of "de"), but if it was for reference to his colleagues or for library or scientific catalogue, he might use "de" (as it was in Rudolph's "nobilitatio" document).

As for the folio **fr1**. As I may guess from the official Xerox copy after the Voynich treatment or later from final result in Beinecke colored scans, there were several technologies used in the place where the alleged name was erased: one can see some spots by soaked liquid (big spot covering the signature) and some parallel scratches (in angle) as well as some unidentifiable marks, consistent with mechanical erasure (the name was apparently in ink). I do not think the original erasure was done by chemicals, rather only by washing with water, but we cannot eliminate it either. As for chemicals used: I think that the copying method of Voynich time was similar to the one used for blueprints, that is ammonia vapors and high voltage ultraviolet light(creating some ozone), no soaking was needed there. That would hardly destroy the indentation seen even today, but could slightly change the color of the ink and start some chemical reactions. If however the document was experimented lately by soaking it in some liquid, we can forget the further deep analysis :-). If blueprint method was used, then the visibility under ultraviolet light not premeditated but just an accident, since the ultraviolet light is the part of blueprint process. J.

P.S. One quEstion remains: why did Voynich use the crude copying methods instead of pure and clean photography, well developed in his time? He certainly would know it would eventually damage the VM and he knew its value :-). So we may suspect it could have been done before his time. Also, exposing to light may in long run create unwanted reactions - valuable originals are usually not tampered with, but stored in nitrogen atmosphere and darkness, to prevent aging.



B11. POLISH DISCOVERY, THE DEATH OF TYCHO DE BRAHE, OTHERS

• **OUR RESEARCH OF FOLIO flr** with alleged signature of Horcicky can be found [here](#)

THE DISCUSSION ABOUT OUR DISCOVERY CONTINUES ... (Jan Hurych)

There was some interesting discussion on Internet VM conference at [here](#) in regard to the verified signature of Jacobus Horcicky. Here are the copies of my answers, not necessarily in time order. Please excuse the typos etc.
Signature J. is mine, J.H.

Hello,
This time I divided our c contributions by subject.

a) HORCICKY

The signature discovered by us is [here](#).
Author PK#01 is quoting the Encyclopedia Ottův slovník naučný 1899, at http://uair01.xs4all.nl/Voynich/Horcicky_Encycl/horcicky_enc.html (obsolete) a the quotations there is in Czech ! Similarly, the information about Marci: http://uair01.xs4all.nl/Voynich/Marci_Encycl/marci_enc.html (obsolete) , also in Czech.

According g to them H. wrote pamphlet "*Konfessi katolická t. Vyznání pravé víry koesanské všeobecné o naději, lásce, spravedlnosti koesanské atd.*" (The Catholic religion, Confession of true christian belief, etc. Prague, printed 1609, 1677 and 1782.) The author PK#01 also found three books about Marci, in the catalogue of the Academy of Science :

Jan Marek Marci z Kronlandu

Zapomenutý zakladatel novoviké fyziologie a medicíny
Zdenik Servít
1989 Praha, Academia ISBN 80-224- (rest is missing), 274 pages
*Prof. Servít was first director of Prague Institute of Physiology (1954-1969).
(Servít, Zdenek, 1913-1986)*

Jan Marcus Marci z Kronlandu

Historická monografie
Josef Vinaø
1934 46 pages
MUDr. et PhDr. Josef Vinaø, was since the fall of 1934 lecturing at Charles University

Joannes Marcus Marci,

a seventeenth-century Bohemian polymath
Charles university celebrates the 4 (rest is missing)
Petr Svobodný, Anna Bryson
1998 ISBN 80-7184-475-6 236 pages

b) POLISH SOLUTION

The Polish researcher named *Basik* claims in his article (3th October 2003) he solved the VM by various analogies with contemporary and antique languages. He invented the whole system of phonology (phony logic?) and recognized 45 letters and 50 words of Manchurian language in the manuscript. There may be 4 foreign letters of foreign alphabets there too. He admits he learned Manchurian from one book. For the meantime, no proof was given.

c) **THE HYPOTHESIS ABOUT THE DEATH OF TYCHO DE BRAHE.**

In German television, there was a film "heavenly Intrigues" by G. and A.-L. Gilder. They claim Brahe died of mercury poison - apparently they found some in the hair during 1930 autopsy in Prague. Some say it was Kepler who poisoned him. More info is here: http://www.fixedearth.com/brahe_poisoned.htm and here [http://www.metaweb.com/wiki/wiki.phtml?title=Tycho Brahe](http://www.metaweb.com/wiki/wiki.phtml?title=Tycho+Brahe) There was also some lead found in the skull around the nose, which was artificial, apparently made of silver. According to that document, his bladder burst while he was dining at Rosenberg's. The only verified thing so far is that his is really buried in The Holy Mary of Tyn, in Prague.

e) **CIPHERS:**

I have suggested the the VM maybe written in transposition cipher, including the relocation of spaces - how is could be done is described [here](#) I was told that it would only increase the entropy of the second order. As far as I know, the entropy requires distribution in words so here it does not count. On the other hand, we were congratulated for our discovery of Horczicky's true signature.

g) **JOHN STOJKO** was suggesting to me - thanks to similarity of our languages, he is of Ukrainian descent - to look at his page, [here](#) He believes that the VM is written in Ukrainian, alphabet being the similar one to Russian alphabet, just different script.

h) **THE FRAUD OR RATHER HOAX.** We already mentioned the "new" theory - that the VM may be a hoax. But until we define what we mean by the hoax, we are nowhere close. The hoax is pretending it is something else. Now the VM is not pretending, it is actually written in strange script and even stranger language.

i) **LATIN LANGUAGE?**

Our statistics shows the text of the VM may be written in Latin, the frequency of letter is really close. Now all we need to solve it :-).

j) **AMAZON IS PREPARING THE PUBLISHING OF THE NEW BOOK BY Kennedy & Churchill** [SEE ADD HERE](#)



B12. THE NEW SIGNATURE OF HORCZICKY AND THE COMPARISON OF THEM ALL. Jan B. Hurych, January 2007)

• **Signature No.2.:** Since our discovery of official signature of Horczicky IN 2003 (No.1., see our section B10), the second one was discovered in Prague. It was **René Zandbergen** who discovered it as an exlibris in one of the books owned by Horczicky. It was once the property of Clementinum, see <http://www.voynich.nu/extra/img/sinapius1602a.jpg> It does not however contain the word "Tepence" as does the one in the VM, as well as the other two signature. Instead, it quotes the old name "Sinapi" .

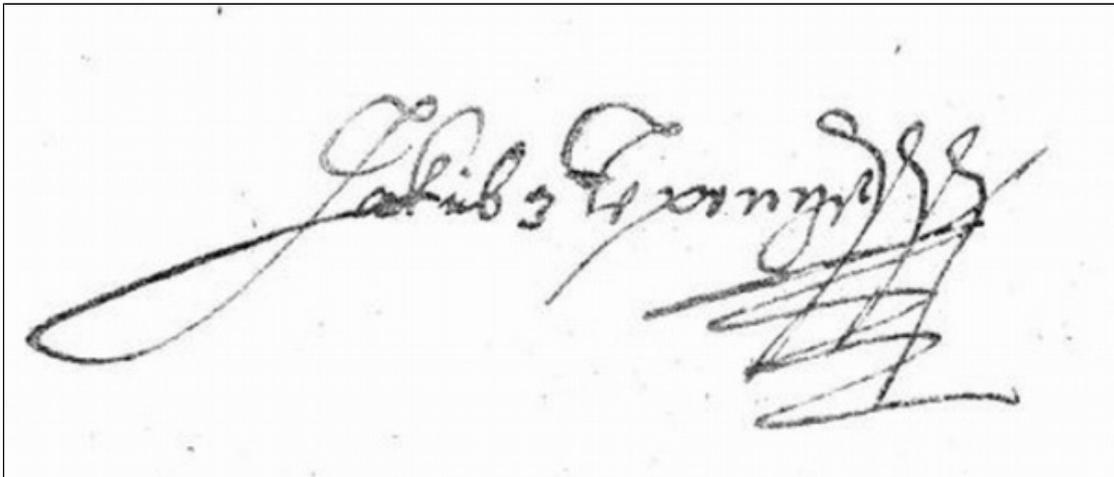
• **Signature No.3.:** Quite recently, in January 2007, **Petr Kazil** copied another signature in the book in National Library of Prague, on recommendation by **Rafal Prinke** (it was known in 2000, by Rafal, but it was somehow overlooked until 2007. The photographs by Peter are at <http://www.xs4all.nl/~kazil/testfiles/vu/>

Our comment: The reaction to our **first** discovery (year 2003) was slightly negative. It happened to be on some official document signed by Horczicky when he was the heytman of Melnik castle, 1617) and it was objected that it was too "ceremonial" to be used for analysis of Horczicky's name in the VM. When the **second** signature was found, it was considered as "similar" to the one in the VM, without any further analysis. Now, when the **third**, non-ceremonial signature was found, one can see clearly it is by the same hand as the first signature. So we are now vindicated and to further prove the similarity of those two "signatures", i.e the first and the third, while the second is quite different. The following comparisons are given. Also, the comparison with "signature" in the VM is made.

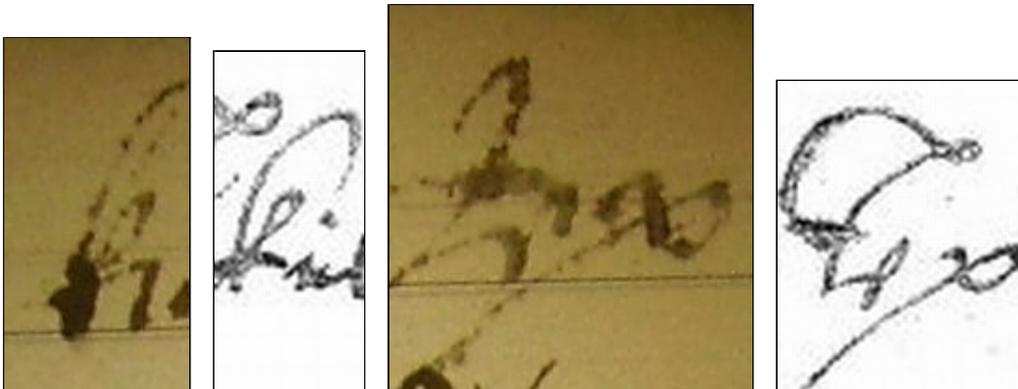
THE COMPARISON OF SIGNATURES.

(Jan Hurych)

Both first and third signatures are in Czech, i.e .the words "Jakub z Tepence", in first case are in **nominative** (the official signature), and slightly modified, in the third, as "Jakuba z Tepence" (**in genitive**, since it is the exlibris, ownership), First we show the first signature, slightly magnified:



The third signature can be seen by clicking on the link above, here we only compare some letters in the sections. First the letter "k". The picture on the left is the third signature, at the right is the first one. The agreement in shape and form is very good. Then follows the section "Tep", notice the similarity of peculiar letter "p" in both cases.



The word in between "Jacobi" and "Tepeneč" is in both cases the Czech letter "z" written in the same old fashion, looking like number "3". The meaning of "z" in Czech language is the same as in Latin "de". Even here is certain similarity. For comparison, the third picture is the same symbol from the VM, also in between words "Jacobi" and "Tepeneč". It was guessed once it was really "de" or a Greek letter "delta", the shorthand for Latin "de". None of this can be seen here and it seems it is the same "z" (meaning the sign in the space before capital "T"). Of course, we cannot be sure yet, the symbol is hardly visible.



Before we carry on, some words about the second, that is the "Sinapi" signature. There is no doubt that "Sinapi" is former Horczicky's name (before he received his title), latinized. The word "inscriptus" added may or may not confirm it was written by him personally. However, the comparison with two other signatures is very difficult and from what we see the script and the style are different as well (and there are only few letters that are the same). For that reason we will not use it here in the analysis of the VM "signature" since it does not give us enough information for comparison. Only letters "p" and "n" for comparison exist there (in "Tepeneč" and in "Sinapi") and we cannot find any tell-tale peculiarity that would give away the hand and confirm any similarity with the one in the VM.

I am using here the quotation marks around the word "signature", since we first have to prove that what was found in the VM is really the Horczicky signature **written by his hand**, not just his name written by somebody else. I believe that we have now enough material to compare it with the signatures No.1. and No.3. For comparison, we used color scans from Beinecke, not the old xerox copies that may be only the "copies of copies", therefore further distorted.. Also, not too much is seen at xerox copies, only the words "Jacobi" and the other one, considered as "Prag".

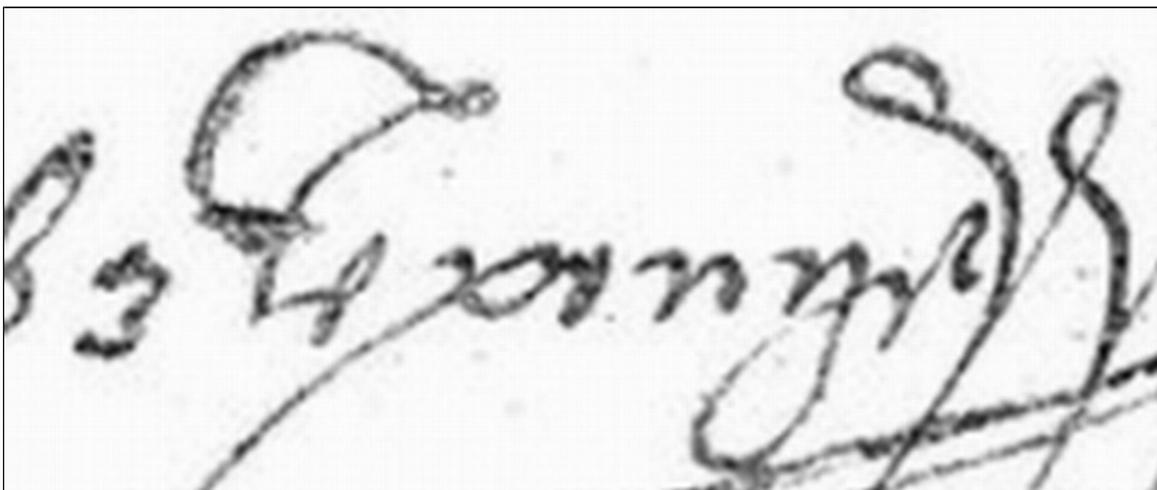
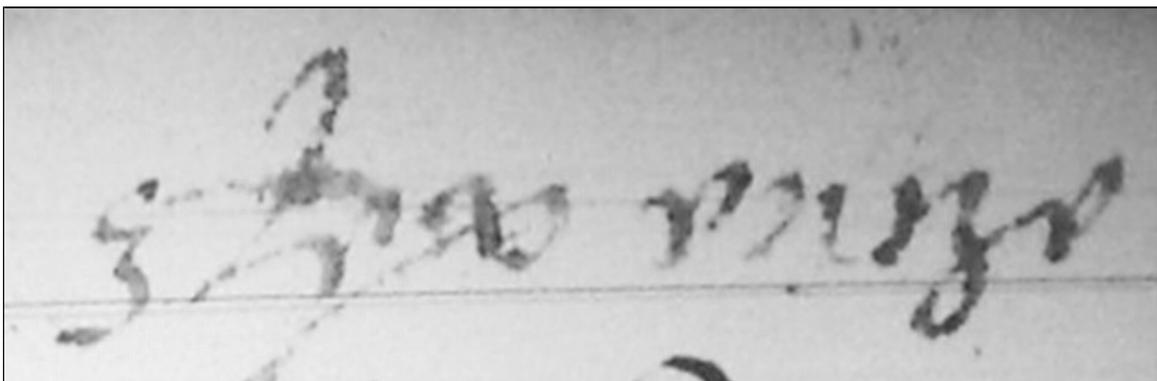
There is however the trace of the word "Tepeneč" **in the colored scan** that can be enhanced by filtering in graphic editor and luckily, that word also appears in both signatures No.1 and No.3..

It is really not necessary to worry about the other parts, since the word "Tepeneč" is clearly visible on enhanced Beinecke scan to be compared with above signatures. It has good outlines and shape so it is sufficient to identify similarity of the the hand that signed it. There was no other Tepeneč in his time, the castle Tepeneč given to him at *nobilitatio* was already in ruins for 200 years then and there was no bearer of that name before him.

For comparison, we present here small sample of colorgraphic filtering of the "signature" .



As I said, we studied only the area of the word "Tepenec" with proper magnification and below are the corresponding sectors of the first and the third signature, also with proper scaling.



As can be seen, we could not find any resemblance between those signatures and the one in the VM. What remains to study are the words "Jacobi" and "Prague". We did not do it since our graphic enhancement did not show them clearly enough. Apparently, they can be seen only under the ultraviolet light and we did not get any photographs of them, only some Xeroxes that were apparently not of the first generation but rather the copies of copies.

CONCLUSION: We could not confirm that the "signature" in the VM was written with the same hand that wrote the signatures No.1 and No.3 (i.e. in Horzicky's hand). Since the time this was posted, several additional points were cleared, thanks to

documentation posted at <http://www.voynich.us/photo.htm> By Dana Scott (thanks, Dana!) . The most valuable is the clear copy of original folio picture after Voynich treatment. Now we are not sure what the colored scan shows in those places. I am now convinced that the first word is apparently "Jacobi", but neither scans or xerox shows it clearly. It is of course less important for comparison than the word "Tepeneč" which identifies the only one Tepeneč in history. The question still remains what is the second word (is it "z" or "de"?), since none of the pictures is clear enough. If it is "z" then the word Tepeneč should be in proper Czech declination as "Tepence" (as seen in the signature no.3, otherwise it is a serious grammatical error, since it should be genitive of the word Tepeneč, i.e. "Tepence"). Only foreigner would do such mistake, Horczický would hardly make an error in his own signature and hardly any of his countrymen. If it is however "de" then there is no error, it is in good Latin - but Horczický never signed himself in Latin form, except in the signature No.2, where of course it was a different name (Sinapi), before him getting the title.

As for Voynich's Xeroxes, only some parts of the "signature" in them can be also found in Beinecke scans since further chemical damage to the vellum, not seem on rough Xeroxes, apparently carried on in last ninety years or so. What is worse, we cannot even see the possible erasure marks. Voynich in reality never talked about the spilling some chemical on the folio, only about "underdeveloping". Photostat technique only projects the original on light sensitive paper, so no chemicals were needed to be applied at original. Later, he admitted he did some chemical treatment of the folio, probably to stabilize the now visible "signature" but with catastrophical effect. That was of course not necessary and highly unusual undertaking. . Even more problematic: we do not know how much of the spots disappeared during last century due to light effects and continuing chemical process. Neither we can now see the traces of former erasure, we cannot even tell if there was any erasure at all.

Again, we can accept the signatures of Horczický (No.1. and No.3.) as being very similar and undoubtedly in the true hand. However, based on that, we can raise serious doubts about the claim that the "signature" in the VM was also written by Horczický. Moreover, we cannot date the VM "signature" nor the erasure.

Comment: later, we have found the title text we received with the "signature" was also in Horczický's hand - compare letters "p" and "k" in both samples, they are the same elaborated style.



B14. E-MAIL CONFERENCE:

(MARGARET D. GARBER: "Alchemical Diplomacy, Optics and Alchemy in the Philosophical Writings of Marcus Marci in Post-Rudolphine Prague 1612-1670", Comments on dissertation, j.h. - quotations are in italics)

Jump to: [PART A](#) [PART B](#) [PART C](#) [PART D](#) [PART E](#)

PART A:

Pages 1-36 (numbering by author's pdf):

The author is using the term "alchemy" interchangeably with "chemistry" (the word used by Marci), even for his study in optics. For her purpose (to reach the roots of the modern approach to alchemy and the beginning of chemistry) it serves well enough, but how much was Marci really involved in "old" alchemy? One Czech info I read somewhere mentions somebody actually have seen him to "turn lead into gold" and that he got public reputation of being alchemist as well. But it seems to me that the most he knew about true alchemy was from Baresch (was he by any chance the member of the University? There is no record as far as I know). This is important in order to guess his interest in the VM, why - if Marci was so interested - he then sent it to Kircher at all: was it only because he was turning blind or that after many attempts he still failed to crack it? How many years he kept it for himself and did he really try to crack it himself or together with Baresch? Some of the notes in the VM could actually be his own (I haven't "Czeched" that yet:-).

Rather new point to me is also another reason which turned alchemists to chemistry - the "medical" needs. Their contemporary physicians needed more and more medicines and "chymiatra" slowly crept at universities: in Marburg 1609 there was a chair (probably the first ever) lead by Johannes Hartmann. Since Medical Faculty of Prague University was lead by Marci, he may have used Baresch as instructor, maybe even in higher position (didn't book mention Baresch was Marci's tutor? - I haven't got that far yet :-).

The author also says: "*Chymia was not yet formal medicine at Charles University, but it was a practice medicine students learned for the purpose of making medicaments and medicines. It could include the theoretical accounts of transmutation (the transformation of one species into another) and chrysopoeia, the process of turning baser metals into gold by alchemical means.*"

Now this is only the author's guess, but it would explain why and how could somebody saw Marci doing transmutations, maybe even with Baresch's help. The book also says: " *his belief the things he witnessed from the ovens of "chymists" and hermetists ("philosophers of fire") convinced him that peripatic views provided (and defended mainly by Jesuit scientists, j.h.) are "an insufficient explanation to the happenings in these ovens..."* and that "*Marci... represents one type of alchemist who found it reasonable to quote the "ancient prophet" Hermes' phrase "as above, so below", while simultaneously using contemporary astronomy to explain microcosm/microcosm correspondences...*"

The most surprising is the note of Marci's "*use of Kepler's concept of the VIS MOTRIX (capitals are mine and this is a new thing to me, j.h.) as the model for his "seminal agents that directed generation of plants, animals and humans.*" That will be further discussed in Chapter III, which I am anxiously waiting to read.

Some minor points: Marci married Italian girl Maria Miseroni, daughter and sister of famous (and rich) artists at Rudolph's Court, so we may say "he married well". Add to it his diplomatic skills and involvement in Court affairs (beside him being the Emperor's physician as well as the rector of the University :-) and we can see he was quite influential person.

Marci also named his one son as "Johann Georg", so apparently Baresch may have been even his godfather, such good was his relationship with Marci. Being a friend of Marci, it is really surprising that while Baresch must have been publicly known as well, the records of it are nowhere to be found. Judging by the fact he had alarge library, he must have been not only a practitioner, but the man of books and scholar.

As per book, it also explains further why was not Marci invited into Royal Society. Henry Oldenburg sent Edward Browne in Bohemia to contact Marci, but it was in 1669 and Marci was already dead. Still, Harvey met Marci personally in Prague already in 1636, being the member of English delegation to Emperor. Excellent article describing that visit is in Medical History (my accidental discovery :-).

[TOP OF PAGE](#)

PART B:

Pages 36 - 65:

From the very beginning, I already got the impression that when quoting sources, the author sticks to verbatim, but when

assuming on her own, she uses hypotheses that are not confirmed. Fortunately it is easy to find what is what :-).

For instance, the author claims, I quote:

"Dr. Smolka (the living Czech expert on Marci, j.h.) portrays Marci in heroic terms (i.e. the most important scientist in these [Bohemian, j.h.] countries). Yet he... attempts to minimize that he was a physician and frames him instead as a practitioner of exact sciences ... he was the physician until the end of his life.... he appears as a great anticipator of Newton, Locke, ...however (he was, j.h.) the physician devoted to answering questions that emerged from intellectual and social milieu of seventeenth century Prague".

Now Marci surely was no "anticipator" - we may call him forerunner or predecessor or some may not - but he studied optics for the same reasons as Newton did, that is from scientific curiosity, not because there was hunger for answers in the contemporary (understand high) society. His books were definitely issued as scientific works - after all Graber knows he was first the professor, dean and later the rector of Prague University and "then" also a doctor. The plain truth is that Marci at least as good physicist as he was a good physician. He was also interested in "chymistry" and "alchemy" - well, even Newton was interested in alchemy, if I remember correctly, but that does not make him "mainly alchemist" either :-).

Next, Graber apparently accepts without any doubt the opinion of Evans that defeat of Protestantism actually strengthened Czech nobility. While he apparently tries to rewrite the history, there is no reason why Graber's dissertation should repeat such nonsense. The core of Protestant nobility was immediately executed in 1621 and 150 thousand people (of estimated 2 million population) chose (or rather were forced to choose) exile before religious conversion. People of lower standing did not even have that choice, they had to stay. All Protestant nobility (there was none afterwards, zero!) was then replaced by foreigners (mostly mercenaries who helped to defeat Czech army, some even with no pedigree at all :-)) and the remaining Catholic Czech nobility had to collaborate with Austrians. Eventually, the foreigners prevailed and even remaining Czech nobility practically ceased to exist - later, after 300 years of being part of Austrian Empire (1918), there were only very few Czech noblemen left. The remaining handful was eliminated after 1948 by Communists.

The merging of lay Charles University with Clementinum into Ferdinand-Charles University (and with major say by Jesuits) was no progress either - they had Theology and Philosophy which gave the basic policy even to Medicine and Arts (so called lay faculties). There was continuous fight for more freedom of thinking by the lay parts. Not political, just to be able to follow the world progress and - thanks to Marci's diplomatic and scientific talents - even to manage to keep up with it. No wonder Marci spent most of his time fighting Jesuits - how much he had to envy the freedom of thinking afforded in the British Royal Society!

As for Court physicians, they did have more some freedom in research (when it came to their own health, Habsburgs apparently were real freethinkers :-)) and they also worked as Imperial advisors. The university officials and professors, however had to follow rules given by their Jesuit masters. They lost their grip on Bohemia only after being expelled by Emperor Josef II, more than 100 years later (1773).

This is not to diminish the Jesuit research - the publicized one, to be accurate. I overheard the rumor that Jesuit scientists in Rome secretly confirmed Galileo findings long before his trial. They may even agreed with his scientific explanation, but they were just not allowed to make it public :-). Of course, this may be only another whitewashing of history, next time we may hear they discovered all long before Galileo did :-).

The author also spends much of her time with Marci's function as the Imperial physician, which she probably needed for her purpose, but which is irrelevant to our search. Graber of course failed to stress the Imperial physicians were all also excellent scientists (compare the series: Mathioli, Hayek, Bachacek, Jessenius, Marci) since for her they were mainly physicians.

The interesting part starts again at page 65 of scan listing. Marci was initiated into alchemy during his medical studies - as he himself admits in "Philosophia vetus restituta". It was in Prague and he just started his studies. Per René: *"it was after 1618, but probably not before 1622, since there was no Medical faculty yet."* René also makes interesting statement: *"What Marci did between 1618 and 1622 is unknown, which is unfortunate since he must have first met Baresch before 1622."*

But more likely one could study medicine even before Jesuits established the medical faculty (1622). Czech Page <http://cupress.cuni.cz/cgi-bin/caroshow/monografie/jessenius.htm> claims :

"It was in 16th and at the beginning of 17th century that in spite of the progress in renaissance science the medical faculty in Prague in the name did not exist. It was surviving the way some professors gave lectures from medicine at the Art Faculty of Charles University." Marci there encountered (in Prague or at the faculty?) a "LOCAL ALCHEMIST" (Marci's words, capitals are mine, j.h.) George Barschius. Does it mean he was the "local of Prague" or "local of the university" ? Hard to tell, so far only the first meaning was ever considered (Graber also adds a note "fl.1625" in bracket). At the beginning, Marci did not believe Baresch's teachings but frequent discussions later changed his opinion.

By the way, more of his friends are listed on <http://galileo.rice.edu/Catalog/NewFiles/marci.html> where also "Philosophia vetus restituta" (in short PVR) is mentioned. I said above I am not sure how deep was Newton in alchemy - what I meant was that he might have been both scientist and alchemist, but I AM NOT PUTTING ONE AGAINST THE OTHER since alchemy is also a science. And especially I would not claim that Newton investigated properties of light JUST from alchemist's point of view (this not exact analogy to Graber's statement , true, but still the same nonsense).

Today's definition of science is quite different from theirs. Renaissance scientists were interested in everything they could

study, sometimes even risking their lives (Bruno). Nothing like today, when we try to avoid the conflicting areas when they are proclaimed modern tabu :-).

Yes, we have no confirmed record about some years of Marci's life and how Graber got "years 1620", I am not sure. Rene says exactly, I quote: "*As soon as the Prague University came into the hands of the Jesuits, in 1622, the medical faculty was opened and Marci became one of its first students. He graduated on 17 April 1625 with the defense of his outstanding thesis De temperamento in genere.*" One Czech source claims we do not know about his whereabouts since 1616 till 1623, the other claims he joined University at 1618, but that is dubious as well. Official Czech magazine *Spektroskopie* claims "*he began his medical studies at Charles University in Prague in 1618, finishing them in 1626*". The year 1626 is definitely wrong, and for 1618 there is no source quoted. And Marci claims he met Baresch before 1622 (based probably of Marci claim in his book PVR that he knew him 40 years). Lanskrone site claims he finished studies in Olomouc in 1615, went to Prague in 1618 and graduated in 1626. All data are apparently incorrect, but Galileo Project also claims he started in Prague at 1618.

In fact Marci became Magister of Philosophy in Olomouc on 18th August 1616 (he studied theology but never became a priest) and then next news about him are from Prague, when he joined - and he is mentioned there - in December 1623 as a student of the newly reopened (now how could it be reopened if it did not exist before?) Medical faculty of Prague University (1622). Those three dates are quoted from actual registers.

Of course he could have studied medicine at Charles University since 1618 and join the new faculty in due process. In 1625 he graduated there as doctor of medicine (confirmed) and in the same year he became a fresh acting professor (confirmed). In 1626 he became the first "physicus" of Czech Kingdom (confirmed), apparently being one of the first truly Medicine Doctors who graduated from Prague University. Later, at 1630 he became the regular professor of Charles University and in 1638 he became its dean. In 1654 he became personal physician of Ferdinand III. and in 1658 the same of Leopold I. In 1662 he became the rector of University, but stayed only for a year (all confirmed data). Czech Wikipedie got it all right, but it starts smartly at 1625 only :-).

Marci got his title as a reward for his courageous defense of Prague against Swedes (on Charles bridge, they built the barricade just a the street across from Clementinum). I also read that after 1648 the same defenders-students were (as a reward) graduated earlier, "honoris causa". It was not Marci's case, he already had his title for 23 years, but imagine the already old professor (he was 53) joining his students at the barricade. In Clementinum garden, in the corner, there is still a solitary statue of "student musketeer" in full armor, the reminder of those events.

As for Garber, she apparently read PVR, but where? I bet she did not borrow the copy from Dr. Smolka :-)

[TOP OF PAGE](#)

PART C:

Pages 65 till 82 - "*as a neophyte in spagyric arts*" - is this really a quote from PVR or just a description by Garber?

- "*Barschius responded more as one versed in operations of nature than as one versed in sophism*". Yes, B. was mainly the practitioner, but does that mean he was not trained in philosophy? Not necessarily, I think.

- "*in iatrochemical training...mentor ... skilled in 'chymia'*". The author maybe suggests that Baresch might have been a training instructor at university. It surely could be the one way they met, but not the only one. Of course it may not matter that much WHEN he met him; but IF IT WAS AT UNIVERSITY that would be important point - in notes: Marci quotes he knew Baresch for 40 years (most likely with tolerance at least +/- 1 year) - so assuming the book was written the same year it was printed (but this may be rather weak assumption), he met him in 1622 (+/-1 year, more likely the minus :-). So if Rene says it was before 1622, he is close enough. But that means Marci was already in Prague in that time - or even earlier and 1618 fits even better, but we have no proof for that (yet).

Pages 66 - 68: - "*sophism*" mentioned by Marci is explained by author as "*THEORETICAL KNOWLEDGE*" (capitals are mine, j.h.) contrary to "*practical experience*" of Baresch, but I doubt that was exactly what M. meant. The term is mainly used for philosophical discipline or reasoning (setting aside the derogatory meaning, which may or may not be present in M's statement). It may simply mean that B. converted him by practical demonstrations rather than by "sophisticated" talk. - "*...Marci produced philosophical text that explained B's experiences*" and "*... Barschius was wealthy collector who acquired a considerable library of which he made Marci the heir*". Baresch being rich is just a guess: Dee had also very large library and still could not be qualified as rich at all :-). "*M. thereby portrayed his own conversion to alchemy by means of an alchemical apprenticeship from a true master*". Then B. must have been known as great master - any proof? - author hints that Marci may have trained his students in alchemy (or rather "chymia") and that - even before 1622 - there was some alchemical training at Charles University. Unfortunately, Marci did not say that exactly and as I mentioned before, mixing the term "chymia" and "alchemia" is leading to doubtful conclusions. Horczicky for instance was hired by Rudolph as "chemist" as the records from Vienna archives shows, but chemists were used to manufacture chemicals for general use: dyes, soaps, solvents, etc or even some medicines too (Horczicky m manufactured also his own Aqua Sinapia (quite a businessman, he even used his name in the product like in "Buckley's cough sirup" :-)).

- I would recommend to stick to term used by M. and then guess what they mean - than giving it arbitrary title "alchemia" (and then guess what that doesn't mean :-)). It is not for the purpose of accuracy (there was none since the term was mainly - but not always - use exchangingly, but for establishing which area was Baresch really expert, to follow his environment.

CHAPTER II, LIFE BETWEEN COURTS AND UNIVERSITIES. **Pages 53 - 55**

- rector "*Bachachus*" is surely typo, actually it was Martinus Bachacius de Naumierzicz (Martin Bacháček z Naumeric) another Imperial physician and rector of Charles University
- Jessenius apparently may have had some influence on Marci, he was there rector when Marci was still student - but influence was surely most likely medical, not alchemical, since nothing is known about Jessenius's involvement in alchemy. And as the author correctly added, to claim any acquaintance with Jessenius after his execution would be politically dangerous. Conclusion: we will probably never know :-).
- when medical studies were under Jesuit supervision and Marci was defending his theses, his professor Martin Santinus (yes, the same one!) criticized his paper which "*was clearly about alchemy*" (says Garber, j.h.), but he let him pass. Then later, when Santinus was the rector and M. was still a young medicus (meaning the fresh M.D.), Santinus learnt to "*love chymia*" (and this is the term Marci used). Again and again, word "*chymia*" appears in M's text, especially in connection with medications made "*of metals and minerals*" that gained Santinus approval. Whatever the procedures may have been (even those purely "alchemical" :-), the repeatable results were more likely only those of today's medicinal chemistry. Santinus, while accepting the medical and metalurgical results, may not accepted the alchemical explanation as well.

I am spending this much time with the problem since we are trying to establish B's profession and interests, apparently hidden in the VM since he was looking there for some solution - and he may have heard some rumor about the content. Was it medicine or gold making he was looking for? Or other alchemical secrets? And how much was B. trained in herbal remedies? In other words: was he alchemist, metallurgist or say apothecary expert as well?

Other section deals with Sternebergs: rich, politically influential family, protectors of culture and sciences. They owned 23 Kircher books, apparently he really wrote so many - or did he just sold them part of his library? :-). It was them who invited M. to the famous trip to Rome. The listing of his other friends:

- Lobkowitzes: another rich family, while Caramuel was "just" an abbot and mathematician (but he owed large library, so he was rich too :-)
- Harrach-Wallenstein (not a direct relative of the "traitor" Wallenstein, I hope :-)
- Martinitz: another rich and influential family - he was stadtholder (second next to Emperor) of Bohemia
- Thurns: old Czech noble family, but the Catholic branch only, I believe there were also some Protestants there
- Kinner, Court confessor, had important position (well, he has to guard the confessional secrets :-) apparently it was he who recommended M's book PVR

- M. was convincing Kircher that he should trust alchemy (per Garber, Kircher in his books criticized alchemy)
- if Garber is right, Marci was involved in alchemy much more than is generally anticipated. However nowhere actually M. used the word "alchemy". Even Garber's quotations have mainly 'chemical' or 'medico-chemical' meaning: "efficacy of metals, minerals, gems and stones", "medical virtues of bloodstone", "medical properties of provincial minerals". We have to study his book.
- The critical point is this: Garber claims that in his book Marci provided alchemical theories (explanations) for Baresch's experiments. But what theories? Typical alchemical theories, e.g. stars, hermetic basics, or old masters, Kelley' books and others? I do not think so, let see from the book itself. He surely did not use the explanations of modern chemistry, but his "seminal" force is rather new term in alchemical tradition, it extended Kepler's idea (per Garber).

III. LIFE IN SUBTERRANEAN CITIES.

Page 81

- this chapter is more about metallurgy and mineral baths than about alchemy and there is nothing about Marci at all :-).

Page 94:

IV., MARCUS MARCI AND ROYAL SOCIETY OF LONDON.

- interesting point: Sir Thomas Brown learned about Prague and alchemy from Dr. Arthur Dee, son of John Dee. The Royal Society was mainly interested in purity of gold and apparently the best gold was from Slovakia in Hungary and Czech gold was the second best. Interestingly enough Habsburgs got plenty of "Spanish" gold from America and had no problem with its "purity" (no pun inted, I mmeant chemical purity :-). The other nations had to be improving the transmutation methods, having shortage of noble metals..

Now something struck me as weird idea: Kelly may have discovered secretly some - maybe abandoned - golden mine in Bohemia WHICH YIELDED FOR HIM ENOUGH GOLD TO SPREAD IT AROUND IN GIFTS (as it is confirmed from many sources) but in pub lic, HE CLAIMED IT WAS THE RESULT OF HIS TRANSMUTATIONS (same way the modern con man knows how to whet the appetite :-). That fact of him giving away so generously gold always bothered me (he never got that much gold from Rudolph or Rozmberk, that's for sure :-). And that would also explain why he could not tell Rudolph how he did the transmutation, not even when he was imprisoned - he preferred to escape :-). Poor Kelley - and Rudolph thought K. played hard to get :-)!
[TOP OF PAGE](#)

PART D:

More comments to above: I do not expect Kelley knew the real m method of transmutation all along and didn't want for some obscure reason to reveal it to Rudolph. I sincerely doubt it - the essay he wrote to Rudolph to get his pardon is just the

rehash of old stuff see [here](#). True, he did have a red powder that did it, but he run out of it since he wasted it on all those gifts. Was it generous promotion or just foolishness? One thing we know for sure: he did not know how to make the powder. See elsewhere here my opinion about red powder being some compound of gold (today's glass makers add gold compound to glass to color it ruby red). Kelley could have goldpalate the surface of melted metal, pour the ingot, let it cool and before it got to test replace it with a sleigh of hand for the real gold ingot.

There might be also some objection to my sticking to the term 'chymia' Marci used - however it may sound as nitpicking, while both terms were used interchangeably in those times, their meaning started to separate already at the beginning of 17th century.

See **MARTINÁ“N-TORRES & REHREN: FIRE-ASSAY REMAINS HM 39(1) 2005: Alchemy, chemistry and metallurgy in Renaissance Europe:**

"The prefix *al-* of *alchymia* is nothing but the Arabic definite article added to the Greek *chĀ-meia* or *chy-meia*, probably derived from *cheein*, the word used for smelting. This *al-* was misinterpreted in the 17th century as connoting special excellence. Subsequently, the term *alchemy* was progressively reserved for what was considered the magnificent side of the discipline, i.e. the gold-making endeavour. Hence synonyms became non-synonymous (Newman and Principe, 1998)."

So as we can see, the "chymia" was already considered of "lower calling" while "alchymia" was mainly devoted to transmutations of precious metals. Marci talked about furnaces in connection with Baresch so I do suspect he meant mainly metallurgy. From our point of view it is of course important, what was the real Baresch's profession if we try to find him. As an good alchemist, he would be surely well known, while as a metallurgist he may have been known mainly by Marci only.

Author than makes interesting observation: "*..operators finally achieved separation by pouting Aqua Fortis from vitriol springs which separated silver from gold. . . .Given that elabotrate and mysterious means it is not surprising that Browne described their operations as transmutations.*" So here we have it: the pure chemical (by today's standards) operations could have been easily considered "transmutations", too!

Page 97

Here comes another confusion. Garber asks: "*Could Mr. Marcus (as he is called by Browne) be Marcus Marci?*" apparently she did consider some confusion with Englis calling him Mr. Marcus. Apparently she did not know it was a habit of that time: that Marci for instance calls Raphael Missowski "Dr. Raphael" or nobilemen called as "John de Sternberg". Besides, Marci should be for long time already known to Royal Society through Harvey's visit of marci in Prgaue. The real confusion of course is the fact that Oldenburg insists Browne must see Marci - in the year 1668/69, long time after M's death! By some other comments, some thought Marci was either Hungarian or Transylvanian! Well, taht is not surprising: the great Shakespeare put Bohemia on the seashore and got away with it!

Page 101: Conclusion

- In his book *Mundus Subterraneus* (Ms. Graber apparently used it as the title in one of part of this book), written by Kircher, he praises Marci's alchemical expertise for procuring serpentine. serpentine minerals are with high magnesium and iron content, such as serpentine or olivine and coem to think of it, they are conidered now to remove carbon dioxide form air, rather in teresting appilication. Of course, the separation of serpentine is chemistry or metallurgy alone.

Page 103

In the bottom note, the author quotes one Italian book about Marci, it would be in interesting to look in it. book

CHAPTER II: POLITICS AND PEDAGOGY.

Page 107

I. INTRODUCTION:

The chapter describes Marci's philosophy, especially on transmutation and Aristotelian holomorphism. He deals with 2 important aspects: generation and corruption. The author says one surprising statement: "*In the historiography of alchemy, matter theory divided alchemist from chemists.*" So now when she convinced us alchemia=chymia, how could then tehy were distinguished as "alchemista and chemists?" In substance, they are orwellian " same but some are more same" :-).

Artistotelian hylomorphism is the materialist conception of universe and they do not support transformation of metals (especially into "noble" ones). Marci believed that metals, plant and animals shared common starting point in prime matter - and he thought it was as a king of non-entity. This may have been the opinion somewhere between thomists and scottist philosophers, whose battles shook contemporary Prague university. Per Marci this prime matter was "unformed" and the direction which way it will develop was "the spirit or force".

So Ficino's "*anima mundi*" (from *De vita coleitus*) was extended by Marci into invisible force that takes shape as new entity. I cannot comment on this, but I belive the author studied this part very well - now which modern theory was Marci forerunner of? Certainly not Einstein's "energy=matter", I hope :-). On the other hand, wouldn't this be a first class heresy (the moving force was supposed to be God himself, ne cest pas? That's why he needed Kinner's recommendation for this book. . .

[TOP OF PAGE](#)

PART E:

Page 112 till 115 Further on, the discussion is about "vitalism" versus "corpuscularism" which may interest more historians and theoretists of alchemy. After 1635, the year he published "Book of Operative Ideas" (Libro Idearum...), Marci drifted more to quasi-corpuscular-alchemical philosophy of transmutations, which - according to him - encompasses not only metals and plants, but also humans. The second part of the book was never finished, but was further expanded in the PVR. As an explanation Marci wrote he was interested more in hypotheses than in practical parts and he did not performed the tests needed for that second part. However, in the PVR he simply stated that such part was not agreeable to Roderigo Arriaga, then Dean of Theology (1654-1667) and under circumstances, also his boss. They did remained enemies for long time, but strangely enough, they both died the same year and were buried close to each other in Church of St. Salvator (nothing is left from Marci's crypt now). Apparently first hundred pages of PVR are devoted to the defense of "Idearum". Interestingly enough, Marci claims that astronomers are also using some ideas "that do not appear to be real" (like Copernicus or Brahe), but nobody tried to attack them so drastically. His ideas led him later to study magnetism and attractive forces in the nature. While he was Scottist, apparently he had to be also "politically correct" and claim that he just follows the Aristotelian and other "old" theories. Of course Santinus didn't accept his "*anima mundi*", that was reserved only for God.

Page 118
II DIPLOMACY AND DIVISIVENESS IN CHARLES UNIVERSITY.

The following section basically clarifies the historical background, which may be boring for some, but I still recommend it for scholars to read. I have no criticism here, some facts were new even to me.

Marci claims that his education was not only in "*healing by herbs, stones and minerals, but also by 'chymia'*" which makes clear now what he meant (my apologies, but I had to hear directly from him that he really meant alchemy :-).

Short history of Charles University of Marci time follows. Author also claims Marci started to study medicine there in 1618 (that corresponds the other Czech claims he went to Prague to study medicine - Law and Medicine was then under Arts). That was the year of Prague defenestration, the 30 year war just started and Jesuits were expelled from Prague. In the year 1620 the Protestant armies were defeated and rector of the University, Jessenius, was executed. The University being before mainly of Protestant nature, was suspected as the enemy of state and only by converting to Catholic religion the professors could save their jobs. Only 2 did, the rest preferred to go to exile (with them left 3600 teachers of secondary schools). Jan Vodnanský Campanus apologized, in order to save the University and became the new Rector (1621) but soon committed suicide rather than to collaborate. In 1622 Jesuits got supervision of Charles University which thus lost its autonomy.

During those years, Marci graduated in 1625 as doctor of medicine, 1626 became the chief physicist of Bohemian Kingdom, 1630 the professor of medicine. The real problems started after publishing of his book "Idearum Operatricium Idea". He was attacked by Arriaga and only archbishop cardinal Harrach saved him.

Time went by and he became the Personal Physician of Ferdinand III in 1637, dean of Faculty of medicine in 1638 - that was after separation of Carolinum (Charles University) again from Jesuit Clementinum. He also devoted more time to other studies (see book "De Proportione Motum"). The Jesuits and Ferdinand however aimed at joining of both universities, which took place as late as 1654, with new name "Charles-Ferdinand University" (it kept its name till 1918). That of course offended Pope Urban (Carolinum was originally created by papal bulla) and together with harrach tried to stoip him.

However here we can see the Marci' art of negotiation: he got the permit for Medicine and Law to elect their own deans and also, the rector having the right to confirm even the Jesuit graduates, to overrule jesuits. That was big step from 1637, when Carolinum had no rector at all. In 1642 Marci became the member of Committee concerned with merging of both universities, but their work was stopped due to war (In 1648 Prague was attacked by Swedes. The brave fight of Carolinum students brought also better attitude from Emperor and some professors were raised to nobility, Marci too). In 1657 Marci became the Personal Physician of Emperor Leopold I and in 1662 was elected rector (1662-1667). At the same time he publishes PVR which again irritates Jesuits, but apparently he felt stronger then :-).

Page 131
Marcus Marci's Theory of Transformation (continues in next part, soon)



B15. SEARCH FOR HIDDEN NUMBERS IN THE VM

Following are the efforts made by me to recover the digits hidden below the blue paint on f102v2 (Beinecke 1006252) using the picture Jorge Stolfi suggested there may be some numbers there.

Comparing with the other methods, deconvolution seems to remove also the areas where blue is over the brown, where it should leave the brown instead. That of course does reduce the brown text under into a series of unrecognizable spots which does not help us too much. We cannot concentrate on one method only, but do comparisons of many.

I based my decision on the fact that first six characters are all recognizable as certain numbers. In the case of one, two or even three, I would admit the coincidence, but if there is more, the case is worth of studying. Unfortunately, the "masker" did quite a good job. Following picture shows the masking (marked "Y") above the one in question (marked "X"), which is clearly avoiding the decorative circles. On the other hand, in the area in question we can clearly see the vertical slashes covering almost exactly only the height of symbols, leaving quite a large area uncovered. Now this was not coloring, it was mainly masking.



As for the size of numbers: it is almost the same height as some VM "letters" so there was no problem to write it legibly. For proper investigation, the size of the sample of course has to be large enough (but without distortion, which Beinecke

scans allow up to the size I used, but not larger). The bumps in the vellum, lumps in the ink, and artefacts of the image compression cannot of course be discounted, but it is obvious they will not effect it to such level as we can see. It would be rather random and would not certainly make up for the shape so close to certain numbers.

True, there are strings or circles or dashes somewhere else, but considering the spots in question being the same decoration is just jumping to conclusion. As for no reason for something to be there - that's exactly what steganography is based on :-).

I realize that if we consider there are numbers there, we would have to make some unwelcome conclusions like the one that it was simply "hidden" there - first intentionally (by locating it in the place nobody would look for it), then even masked by other color (maybe unintentionally, if the "masker" overlooked it). The author's knowledge of Arabic numbers was of course expected long time ago and the use of steganography as well. And what is more important: we would have to admit that the VM is something more than just what meets the eye, but that we have known all along :-).

EVALUATION

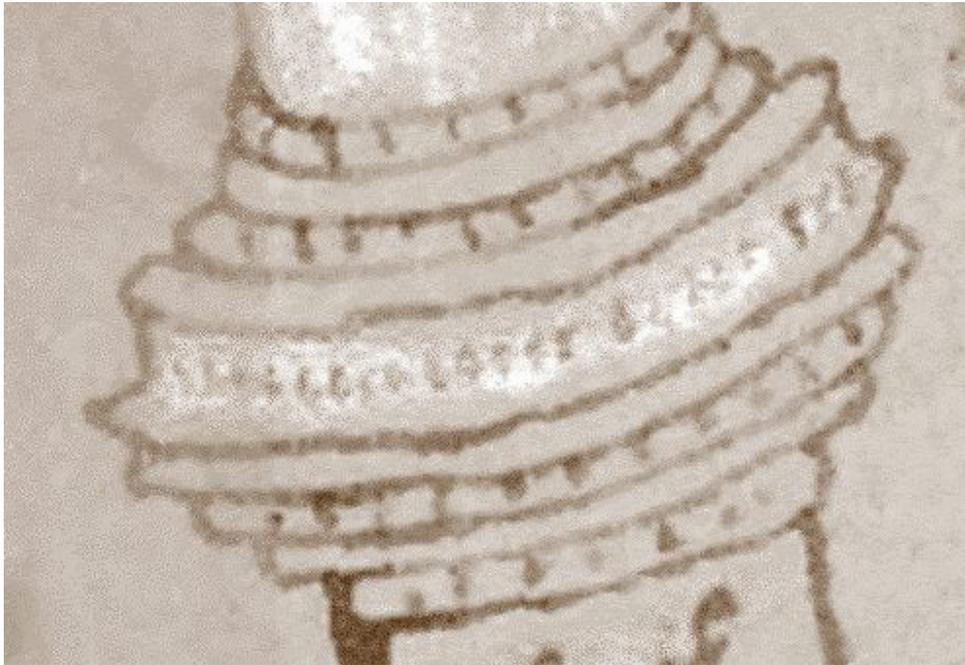
1) FIRST BY INTENSITY CHANGE:





2) NEXT BY "COLOR SEPARATOR", KINDLY PROVIDED IN THE VM-LIST
(I guess I have removed too much since I do not know how to handle the composite color of brown and blue):

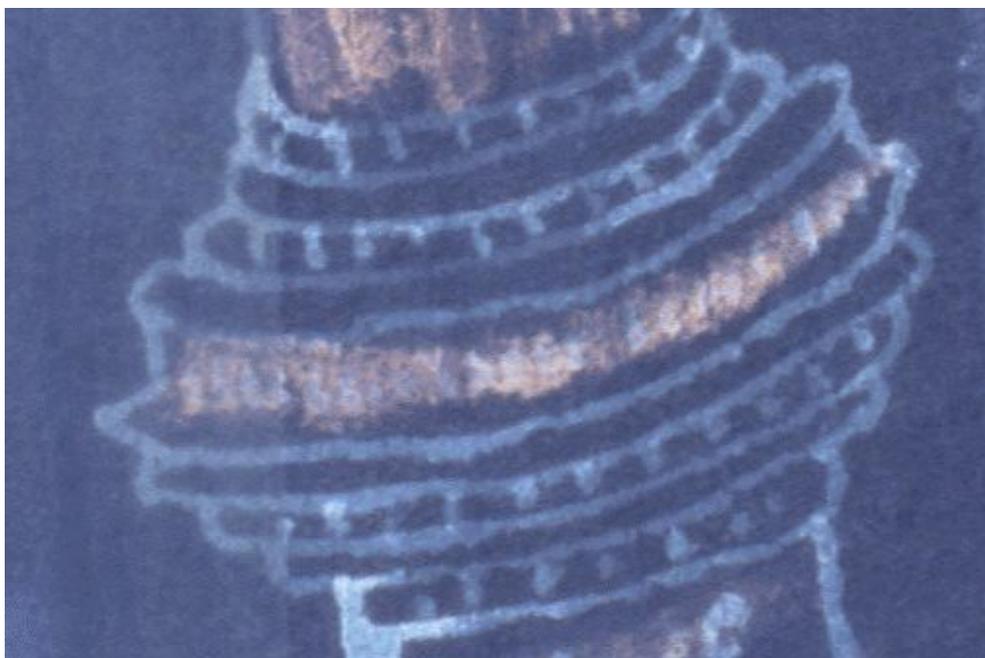


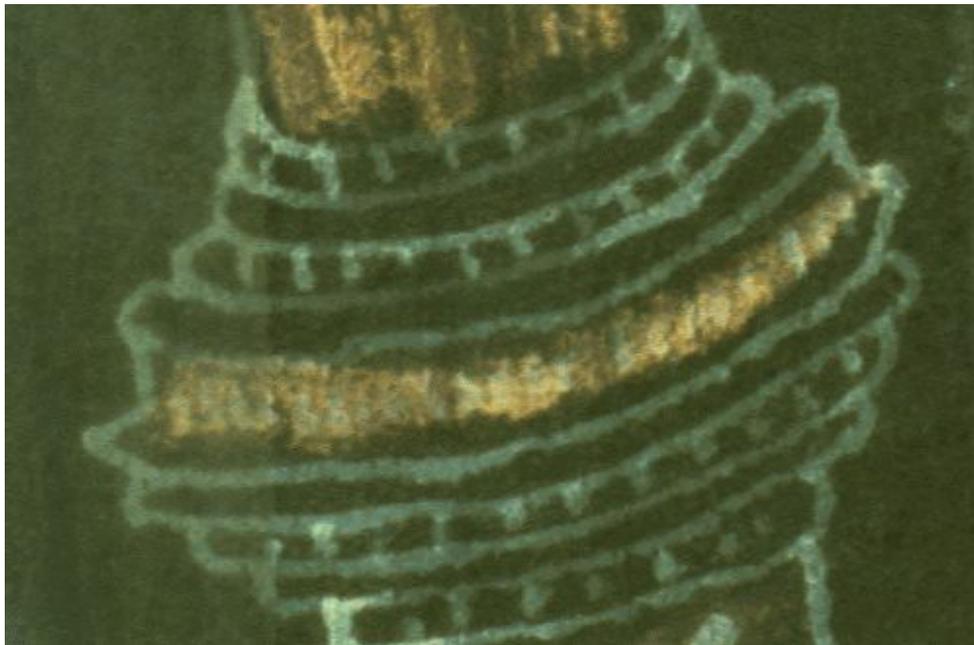


3) NEXT IS THE TRIAL TO REMOVE THE BLUE COLOR BY SOME OTHER MEANS:
(It didn't work too well, apparently the "blue" is not so pure blue):



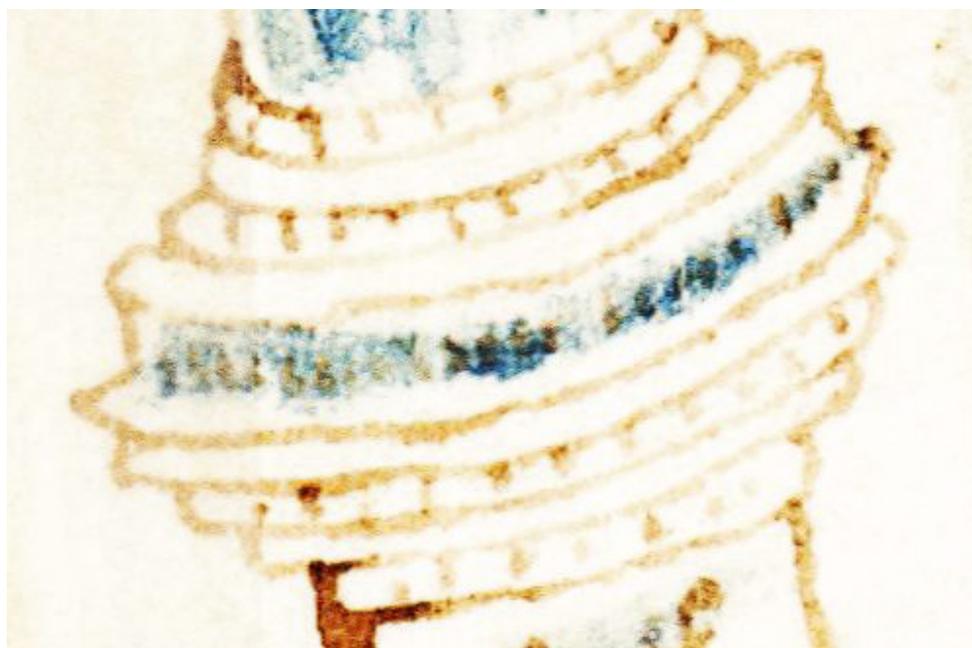
4) THEN I WORKED ON NEGATIVES, WITH VARIOUS DEGREE OF SUCCESS:







5) FINALLY I TOOK THE TRIAL No.3. AND REMOVED THE BACKGROUND COLOR BY INCREASING THE INTENSITY AND CONTRAST:





B16. INTERNATIONAL E-MAIL CONFERENCE (IEC)
(our contributions only)

There is some interesting discussion running on Internet VM conference at <http://www.voynich.net/Arch/2004/03/threads.html>. Here are the copies of our e-mails, not necessarily in time order. Please excuse the typos, errors, etc. The signature J. is mine, J.H.

Hello,
Working from the negative, I got clearer view and it certainly looks like "Horczicky 3 Tepenec", 3 being the old form of "z" meaning "de" in Latin. Proper expression in Czech would be of course "Tepence" due to declination - that is the form Horczicky would sign it, see <http://www.angelfire.com/electronic2/ohlas/VM/b25.htm> but the handwriting is nothing like his.
J.

Hello,
of course, I can see it now! Isn't it incredible? I guess many more things will be seen on those scans - we cannot be thankful enough to Beinecke people,
J.

Hello,
true, we need more material written by Horczicky and we are now searching in Prague and Vatican for disappeared works of Horczicky, wish me luck. True, I brought Horczicky into the family of suspected authors, but I would be surprised if he wrote the whole thing in unknown script and then openly signed it - it looks more like the name was added by some archive officer, maybe in Clementinum or elsewhere. On the other hand, if he is not an author, he could have only signed it as his property - and then I suspect we may find some notes in his handwriting. After all, most of his estate went to Jesuits in Prague.
By the way, the color picture revealed the excessive of damage done to f1r in the place in question, mainly discoloring, probably made by some chemical stuff. I originally suspected that the VM was in one time stolen and then sold to Baresh, but it would be easier for thief to hide the name simply by destroying that page, this is too suspect. More likely, the damage was done in some other time. The question is, why would anybody want to hide Horczicky's name? As you can see, I am trying to establish the almost impossible thing, that is how did Baresh get it.
Regards,
J.

Hello Jan,
the first word reads 'Jacobj' and the letter in between is like a small delta with a short stroke crossing the ascender, meaning 'de'. This is from a picture published by Voynich in 1921.
It is much more visible on the scans than I would have expected.
Cheers, R.

Hello,
I was not too happy with the resolution given by LizardTech - it is not their fault, they are OK, but the view is apparently "watered down" by Internet Explorer. So I have found another viewer - it is Canadian made Geomatica 9 FreeView and can be downloaded from [here](http://www.hurontaria.baf.cz/VM/b28.htm)
The pictures are awesome - it actually show how GOOOOOD the scans are - and you can see results at ["http://www.hurontaria.baf.cz/VM/b28.htm"](http://www.hurontaria.baf.cz/VM/b28.htm)
The word "Tepenec" is now clearly visible, however the first word now does not look like "Horczicky" Curiouser and curiouser!
J.

The pictures are awesome - it actually show how GOOOOOD the scans are - and you can see results at . The word "Tepenec" is now clearly >visible, however the first word now does not look like "Horczicky" Jan - Actually, I don't see very much. I've checked and there is nothing >wrong with my PC, but probably I don't see much because I'm red green color >blind. Could you check this page: <http://www.toledo-bend.com/colorblind/Ishihara.html> - I see just the 25 and 56. If you see all six numbers, then that probably explains it :-)

Hello,

I can see all six numbers. Of course the first picture is via IE-explorer, nothing too much to see - I will discard that one. The second picture shows the word "Tepeneč" - it is basically white on blue (I used the negative for better discrimination). But you have to look from the distance, it is that big. The third picture is a positive - little bit better than the negative and I think you may have problems with the colors on that one - but it does look like "Jacobj" and the sign between is as Rene says rather like delta (lower case Greek letter with crossbar, meaning Latin "de"). To me it first looked like "3" - I mean the gothic letter "z", the Czech version of "de", however the word is not "Tepence" (as it should have been using Czech preposition, due to declination), but "Tepeneč". Rene's explanation covers that also nicely. I will place the third picture on my side in black and white so you may see it - I hope it will show OK (I will let you know tomorrow), when it is done. My rather old observation is that "Jacobi" is genitive (possessive), not dative as it would be if it was written as the dedication by Rudolph to H.. Many people now agree that Horczizky might have identified the VM with his name himself, as an owner. The other option is that some archiver or later owner marked it by the name of the past owner, as an indication. What is even more obscure is that do not know why it was later erased. My explanation is that it was probably stolen, but why the erasure? Maybe to make it appear older?

J.

>> Actually, I don't see very much. I've checked and there is nothing >>wrong with my PC, but probably I don't see much because I'm red green color >>blind.
I converted the last picture into grey scale. Look for the white traces, similarly as in the picture with "Tepeneč" - their height is about one third of the picture.
Regards,
Jan

Hello,
yes, I especially find the sharpness and colors with Geomatica really better. For those, who would like smaller standalone, there is [Mr SID Viewer](#)
[here](#)
It is fast and you can do some operations - you can pan, measure, and copy to clipboard - and it is not just a plugging.
J.

>Hi everyone, >>>I also installed both, but suspect that what you're seeing in the Geomatica >FreeView is merely a different "gamma curve" - this would enhance some >detail at the expense of others, so is not a free lunch. :-o > As it is used for geospatial data, I would assume that the Geomatica accuracy must be superior contrary to any enhancements which are after all more sophisticated tweaking. After all, isn't it thanks to some "enhancements" that we can now see the famous "pyramid" on Mars?
I sent e-mail to Geomatica for more details - namely if "what we get is what we see and at the same time I downloaded the PhotoFlair, for comparison, thanks for the tip. regards,
J.

Hello,
yes, I especially find the sharpness and colors with Geomatica really better. For those, who would like smaller standalone, there is [Mr SID Viewer](#) at:
[here](#)
It is fast and you can do some operations - you can pan, measure, and copy to clipboard - and it is not just a plugging.
J.

Just this weekend I noticed some striking symmetry in the >Voynich alphabet (or whatever it may be). I have laid out the alphabet in >the following table. This is by no means the only way to group them, nor >does it bring up any obvious solutions. Just thought that it might inspire >someone.
It is obvious that some VM signs are composites of the other, simple ones. This could have lead to uncertainty should the "letters" be connected and not separated by spaces (or was it the only reason for their separation?). After all, writing separate letters is more tiring since one has to lift the pen for each "letter". On the other hand, the script is definitely not a "printed font" version, which automatically requires inter-letter spacing.
Why would the author invent so many composite signs while he had other single shapes available (say larger circle beside the smaller one, or short lines under different angles) is not clear - after all the signs for "r" and "s" or "d" and "g" are too close for comfort :-). Or maybe there is some system in it, as your table shows, but which one?
True - as we can see from your table - he was using very few basic elements and yes, some shapes, even composites, are much simpler than some Latin letters (cursive "k" or "y", etc.) He was surely simplifying the "letters" of his alphabet to high degree and still - or maybe because of that - the writing does look quite beautiful. He was certainly skilled in writing his script, which suggests he probably perfected it for long time.
Gallows, on the other hand, show combinations of rather higher order - so they might have some meaning of their own, as Nick already suggested in his work.
Also, the text has no commas, which were - I believe - already used in middle ages, neither it has full stops - the "sentences" look more like paragraphs. All those features are present in coded messages, here they are becoming superfluous or even a clear giveaway. Also, the function of spaces between the words" is still unclear. Apparently, we have still long way to go.
J.

Hello Jan,

the first word reads 'Jacobj' and the letter in between is like a small delta with a short stroke crossing the ascender, meaning 'de'. This is from a picture published by Voynich in 1921.

It is much more visible on the scans than I would have expected.

Cheers, R.

> IMO, the first sensible step should be to put together (semi-)automated >> ways of Wikifying existing data and placing it all on the Wikibook site. >> Collating this quantity of information will be a significant technical >> task

What we are missing right now is some kind of subject/author index, that is for each subject to name the authors and their last words on related subject, with the link to their literature (on that particular subject), something like "whodonewhat". After all, we are sometimes promoting the ideas which were already suggested/studied before and the results were published.

That may help us to avoid re-inventing the wheel(s). It may not be the last words in the particular research, but it will surely save the time. The subjects should not be too wide neither too narrow, but I do not see the main problem there.

J.

A short bio (in Czech!) of Theodorus Moretus:

[here](#)

Sometime ago Rafal (and I believe Marcio, more recently) suggested that the National Archive of Prague be checked for his diaries/correspondence for probable communications with Bareschius or Kircher. So it could be a nice item to keep in agenda, in case someone is planning to travel there.

L.

For those who do not speak Czech here is the translation of that article :

THEODORUS MORETUS

born 9th February 1602 in Antwerp

died 6th Nov 1667 in Vratislav, Bohemia

Theodorus Moretus entered the Jesuit order 1618

during 1620 - 1627 he studied in "Lovani"(Lovan? Louvain?)

His profs of mathematics were Gregorius and Sancto Vincentio

1629 became professor of math at Jesuit college in Munster

Gregorius left for Prague but had health problems (maybe stroke?)

so they sent there Moretus to help him (1630 - 1631).

Gregorius left Prague because of war,

Moretus stayed in Bohemia till his death, becoming the prof. in Jesuit colleges:

Olomouc (1632 - 1634)

Prague (1634 - 1639, 1641, 1649 - 1652)

Vratislav (1659 - 1662, 1663 - 1667)

The following dates are by "Hoffmann, H.: Theodorus Moretus. 107. Jahresbericht der Schlesischen Gesellschaft für vaterländische Cultur, str. 118 - 155. Breslau 1935."

1639 - 1649 he was in Znojmo, Jihlava, Bøeznice and Prague

1652 - 1659 Klatovecy, Nisa and Hlohov

His specialty was physics and astronomy. In the book "Legatus uranicus", published in Prague 1683, he is called "Provinciae nostrae Archimedes".

In ref 3, " there is ten of his works listed

devoted to math, but apparently only for physics and astronomy.

There is several his manuscripts still in existence, solving some math problems e.g. in

"Exercitationes mathematicae, physicae, poeticae atque

sermones" which is archived in Czech National Library, n o. VI B 12 a,b

deals also with geometry, namely the sections of cone.

REFS:

H.: Theodorus Moretus. 107. Jahresbericht der Schlesischen Gesellschaft für vaterländische Cultur, str. 118 - 155. Breslau 1935.

2. "The hisotry of Exact Scienc es in Czech Countries till the end of 19th century", Dijiny exaktních vid v ěeských zemích do konce 19. století. Ed. L. Nový. ĚSAV, Praha 1961, str. 80, 81, 107.

3. Schuppener, G.: Jesuitische

Mathematik in Prag im 16. und 17. Jahrhundert (1556 - 1654). Leipziger Universitätsverlag, Leipzig 1999, str. 175 - 177.

4. "Vetter, Q.: The development of mathematics in Czech countries from 1620 till the end of the 17 century", Vetter, Q.: Vývoj matematiky v ěeských zemích od r. 1620 do konce 17. století.

Sborník pro dijiny pøírodních vid a techniky. VI (1961), str. 216.

Authors:

Pavel Sisma, Karel Mačák (as per address, they seem to be from math. dept. of the Charles' University, Prague.)

J.

Hello,

I have already contacted my friends living there, it may of course take some time. As you may know, our group already discovered a true signature of Horzicky and posted it on Net - we will also try to contact the authors of the article,
J.

>Sometime ago Rafal (and I believe Marcio, more recently) suggested that the National Archive of Prague be checked for his diaries/correspondence for probable communications with Bareschius or Kircher. So it could be a nice item to keep in agenda, in case someone is planning to travel there.

Hello,

Lately, there was somebody from Brazil who proposed the link between the VM and Lull, unfortunately for me the article is in Spanish,
J.



B17. INTERNATIONAL E-MAIL CONFERENCE IEC (our contributions only)

• **OUR FURTHER INVESTIGATION OF FOLIO flr** based on new Beinecke series of scans follows here. Our thanks go to the **PEOPLE FROM BEINECKE WHO DID SUCH A GREAT JOB!!**

First, we used the copy of flr displayed with the help **MrSID Online Viewer by LizardTech, Inc**, which is actually add-on to Internet Explorer. We obtained the picture below - we used the negative for better discrimination. Not too much was visible there, even with higher magnification.

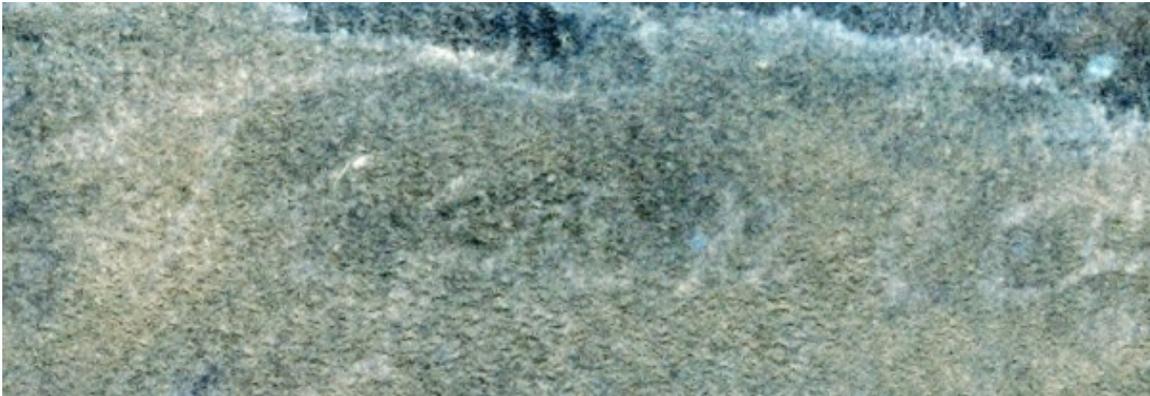


Then we discovered another viewer, which does not have the limitations caused probably by IExplorer - the name is **Geomata FreeView** and can be downloaded http://www.pcigeomatics.com/product_ind/freeview.html

NOTE: We have got many comments about the difficulties to read the text in the pictures. One of them can be caused by colorblindness - pls try to copy the picture and modify the intensity of RGB colors. The other problem is the intensity and/or contrast setting of your monitor - again, pls copy the picture and try various adjustments of intensity or contrast by your graphic editor. The other option would be the adjustment of your monitor, but we do not recommend that one - it may be difficult to return exactly to your original settings. For comparison, we posted two pictures each, for different gamma.

The first picture shows the name "Tepeneç" quite clearly. Again, we used the negative, which was more revealing, so look for **white traces**.

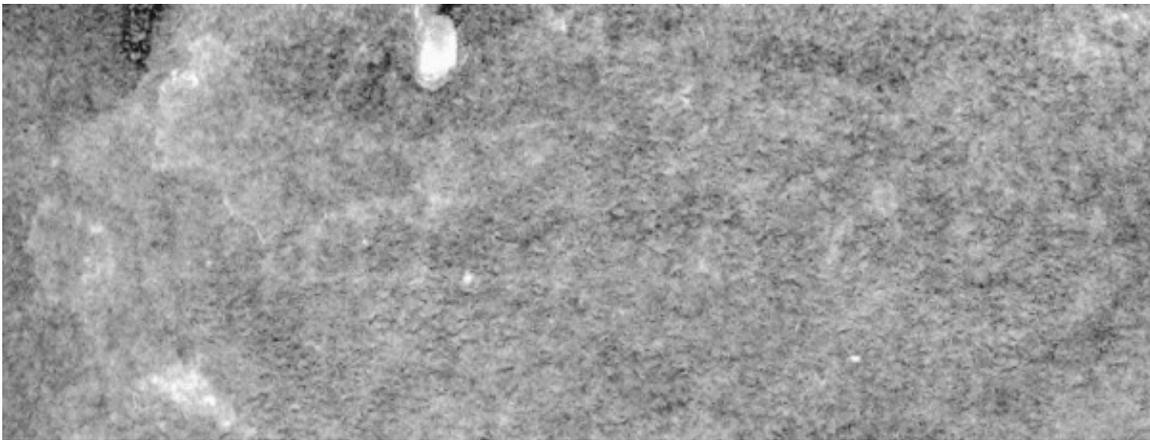
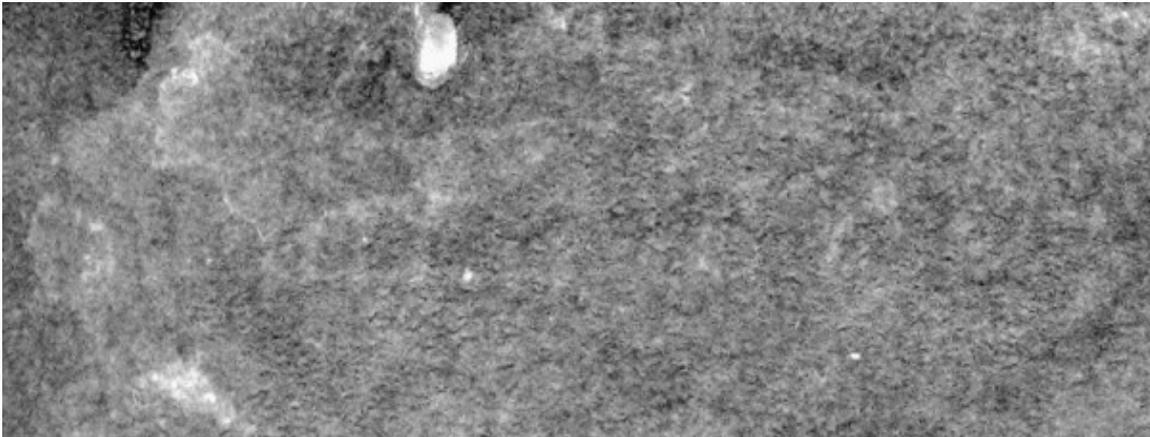




The other portion of the signature was however even more surprising - there we used first the positive - look for **dark traces**. While the last letters "iczky" are suspected, the letters at the beginning do not look like "Horc" or "HorcZ" (as it was once written). So we had another mystery. . . Not for long, I have got letter form René Zandbergen that Voynich already discovered the script reads "Jacobj δ de Tepenecz" where " δ " is written as Greek letter delta (lower case) with the top bar, meaning Latin "de". It looks however like there is more then 6 letters in the first part, but we need still more work on it.



Of course, in the last picture, the colors can play trick on our eyes, so I converted it in greyscale (unfortunately some discrimination is lost) and again, this time from the negative, so look for **white traces**. Still, one can read in it quite different things - contrary to the section with "Tepenec", which is quite clear . . .



THE DISCUSSION WILL BE ADDED LATER . . .
(Jan Hurych)

There was some interesting discussion on Internet VM conference at <http://www.voynich.net/Arch/2004/03/threads.html> in regard to the verified signature of Jacobus Horczicky. Here are the copies of my answers, not necessarily in timely order :-):

Hello Marcio,
you can find true signature of Jacobus here:
[here](#)

As for his name, allegedly written by Rudolph II or possibly himself (or anybody else for that matter :-)) in the VM, it is barely visible on the folio **f1r**, the "light" copy (and even worse on the "dark" copy) is at <http://voynich.no-ip.com/folios/> (obsolete) and the dark copy is at <http://www.geocities.com/ctesibos/voynich/image/f1r.jpg>.

As per last month discussions, apparently it was hard to get better copy - the "signature" is best seen under ultraviolet light since it was erased). Still, it would be worth trying to get one such copy; after all, it is the only "truly" documented name in regard to the VM.

P.S. As for the reason of the erasure: either to conceal the name by some other person (for whatever reason) or - by somebody's suggestion - the old vellum was reused, so whatever was there before was erased, too :-). It seems to me that there is more scratches of that kind elsewhere on that folio.

Regards,
Jan

Hi Marcio,
yes, it is the same Jesuit seminary in Krumlov, there was only one there. As far as the apothecary shop is concerned, it was officially attached to the seminary, but as for building, I never checked it. Jacobus worked there as an assistant to priest named *Martin Schaffner* who was very successful in healing the burghers as well as inhabitants of the seminary. When Jacobus left the seminary for Jesuit University named Clementinum in Prague, he also started to sell his *Aqua Sinapia*, the medical potion, apparently very effective, since it made him quite rich.

I took the liberty to look-up the e-mail address of the webmaster (of the page you discovered) but found only one of *Ing. Libor Sváček*, who is the photographer and apparently the webmaster and author as well. I wrote to him in Czech, trying to gain his cooperation or at least some e-mail addresses. Funny you mentioned the Prague Jesuit College in Clementinum - I wrote to them about a month ago, with the same offer of cooperation but they haven't answer yet; apparently they are still reading it :-). I was also pointing out that Jacobus is the only name around the VM we can be sure of and I wondered why it was not investigated further. He possessed all qualifications the VM author needed: he was gifted student and scholar, skilled in botanics and herbal healing, great experimenter, and as an alchemist he apparently knew astronomy and astrology as well.

I really appreciate you are following this lead,
Jan

Hello,
Krumlov and Trebon, both belonging to count Rosenberg, were havens for alchemists, with importance no less than Rudolph's laboratories in Prague. It was there where Dee and Kelly worked after being expelled from Prague. Dee's son was even born there and was given name "Trebonius".

While Kelly later left Trebon to Prague, in Rudolph's service, Dee stayed in Trebon but without Kelly he could not even contact his "angels" and eventually left for England. Kelly's fate was even worse: apparently he run out of his "red powder" and could not make gold any more. Of course, Rudolph didn't believe him and put him in prison. When Kelly tried to escape, he fell from the wall and died from his injuries.

If I get answer to my letter to Krumlov webmaster, I will try to get somehow the notice about the VM on that page, too :-).
Jan

Hello,
a) since both copies of f1r are rather bad, we could not get too far; some results will be published by the end of month on our VM page - we will post the update here b) we compared the scribbles on the folios **f66v** (bottom), **f86v3** (almost center), **f66r** (bottom) and **f17r** (top - anybody knows why there are some light-colored rectangles, overlapping the text?), but so far we found no match.

We also compared the Horczicky's writing with **f116v** (top), no match there either. Now there is a **mystery**: why would the author provide one page with nothing more than something which looks like a key - and in different script whatsoever? True, there are two different sections: the very top and 3 lines below, but both look like done by the same hand. On the other hand, if this folio is the part of the VM, where is the VM text?

Regards,
Jan

Hi Rafal,

I guess that the letters in "our signature" of Tepenez are more on the side of cursive than that of fracture script - after all the connections between some letters are clearly visible - and the additional text is even more on the side of cursive. As for your suggestion: have you seen another book "signed" by Horczicky? It would really help our research in spite of the fact that we would rather settle for officially authenticated signature that we have than the sole name of Horczicky in another book, which may have been written by anybody, as the case may be with his name in the VM anyway. By the way, our document was not written in German but in Czech language :-).

Regards,
Jan

Hello Dennis,
if you have in mind the page translation like they have in Google, there is - as far as I know - no such service for Czech language yet. Neither do I recommend to start with vocabulary - but as I said, there is a large part of the book in our here (here, introduction) Some data there may be already surpassed - it is actually the copy of original articles published before, in now non-existent magazine Hurontaria. I keep it basically for one reason only: it contains my basic questions and hypotheses, which may still haunt me :-).
Jan

Hello,

well, the text surely looks more clear under highlighting - but what is peculiar is the spot below the big rectangle, on the flower. While it has similar texture of the "noise" as the main rectangle, it does not look like some protective foil or graphically introduced "highlight", but simply as a drop of some liquid. There is a lot of additional marks by later treatment, too. Too bad we do not have the color copy. There are also some perfectly linear scratches at the bottom, were they drawn by author or how could they possibly get there? They do not look like a fold.

By the way, silly question: why didn't Beinecke provide color copies of all folios? I bet most researchers would appreciate that.

jan

Hi Marcio,

the top line in our first picture is actually the enlargement of the last line of the same picture and was done by the archive office. It is truly the signature and reads "Jakub z Tepence", written really in Czech - Jakub is still today a common Czech name for Jacobus and "z" (looks like "3") is Latin "de" - meaning "from" in Czech.

The name of "Tepenec" (today's Czech spelling of the little castle in Moravia - already in ruins in his time, but still existing today under the name of Tepenec) is pronounced in Czech as "Tepenez" (meaning something which is wrought, in case of iron, or chiseled, in the case of stone) and should not be written as "Tepenez" pronounced "Tepenez") in spite of the fact that "etch" is more common Czech suffix for location names, while "ec" is more used for persons.

However, it looks to me that Jacobus was also using two letters for spelling "c", both in "Tepenec" and "Horczicky". There was a different pronunciation for letters "c", "z" and the combination "cz" (pronounced "tz", "z" and "tch") in that time - and still is, but "cz" is no more used in today's Czech spelling, it was replaced by letter "c" - è- with little "v" above "c"). Letter "c" in today's Czech is pronounced as "t" in Horatio in true Latin (not as in English version :-), but I prefer to use here more common transcription "tz". "z" was pronounced same way as "z" in English (say "zero") and "cz" was pronounced like English "ch" (or "tch"). So "Horczicky" was pronounced "Horczitzky" there is at least no doubt about that - suffix "cký" is still commonly used in Czech, including the dsh above "y" (but the whole name would be written today as "Hore'ický", where c' is the c with the little "v" above, i.e. "è").

I have no problem with Jacobus writing the "z" in the first picture as "3" and in the second picture as more developed "3", with full bottom loop. However, I cannot figure why he writes "c" in "Tepenec" as "cz", while in the place where there should be "cz" (Horczicky) he also writes "cz" (like "Horcziczky" or something similar). Both bi-letter groups however do look slightly different and we also have to take in account the fact that the spelling in that time was not unified (same way as it was not in the Shakespearean England :-). We can however assume that if Jacobus signed the VM for his own purpose, he would probably use Czech language (that is using "z" instead of "de"), but if it was for reference to his colleagues or for library or scientific catalogue, he might use "de" (as it slightly was in Rudolph's "nobilitatio" document).

As for the picture of **fr1**, I am trying to use my graphics editor for some enhancement and I will release it by the end of month. Also, as I may guess from the official Xerox copy, there were several technologies used in the place where the alleged name was erased: one can see some soaked liquid (big spot covering the signature) and some parallel scratches (in angle) as well as some unidentifiable marks, consistent with mechanical erasure (the name was apparently in ink). I do not think the original erasure was done by chemicals, rather by washing with water, but cannot eliminate it either. As for chemicals used: I think that the copying method of Voynich time was similar as for blueprints, that is ammonia vapors and ultraviolet light; no soaking was needed. That would hardly destroy the indentation seen even today, but could slightly change the color of the ink. If however the document was experimented on after 1912 rather unprofessionally by soaking it in some liquid, we can kiss the further analysis good buy :-), regards, Jan

P.S. Why did Voynich use the crude copying methods instead of pure and clean photography, well developed in his time? He certainly knew it would eventually damage the VM and he certainly knew its value :-). Also, covering the vellum permanently with plastic sheets - as somebody suggested - may in long run create unwanted reactions - valuable originals are usually not tampered with, but stored in nitrogen atmosphere and darkness to prevent aging.

We are also enclosing here the contribution of the researcher from Slovakia,

RNDr. Jozef Krajčovič, friedo@szm.sk, who is a cryptography expert. His page is here: <http://friedo.szm.sk> - and we cordially recommend it to you.

Greetings,

I would like to present here in short my opinion on the history of the VM solution and to sum up my theory about the cipher system used in the VM. I would like to thank you for your info about some VM sources, especially about the page by *René Zandbergen* which is very interesting! In the section "Proposed solutions" <http://www.voynich.nu/solvers.html> is very interesting comment about *Dr. Manly*, the military cryptographer, and about his opinion that the cipher used in the VM is a simple substitution cipher with high number of nulls, which means he was not too far from truth! He also criticized Newbold's solution by documenting it did not work, especially in regard to text fractions in the VM. It is the proof ad absurdum. It reminds me it can also be used against Gordon Rugg's "solution" and his "hoax theory".

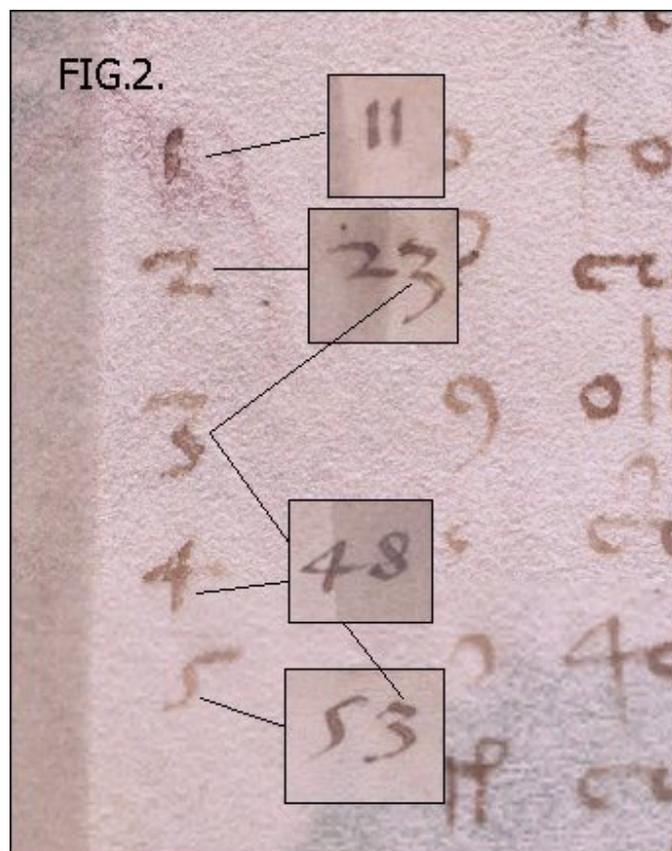
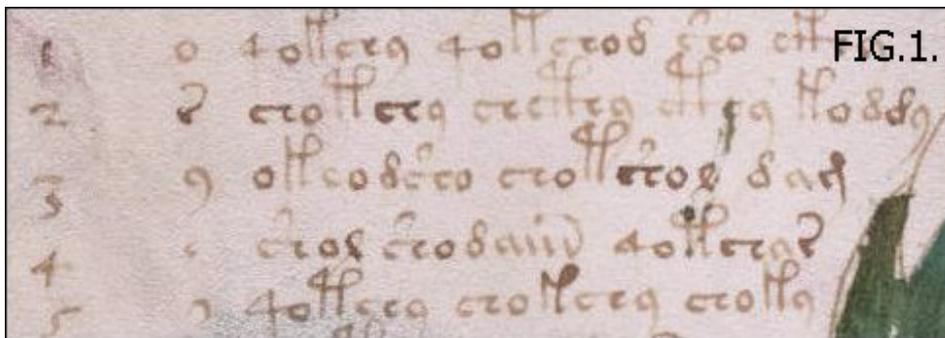
I agree with you that these linguists cannot be successful since they do not consider the layer of the cryptographic work-over. On the other hand, the cryptographers did not consider the columnar transposition cipher and *Friedman*, the most famous of them all, ended up with the theory of the artificial language since he did not understand the linguistic part of the VM and his basic alphabet was normalized. The cooperation of both groups (i.e. linguists and cryptographers) would be beneficial here. As far as the transposition cipher, we cannot eliminate it right now; it also appears that the VM language could be Latin, after all. In the meantime I think each page had its own transposition key. (Note: Then follows the text about Czech cryptography of medieval ages, already posted in the MN conference, see the address above).

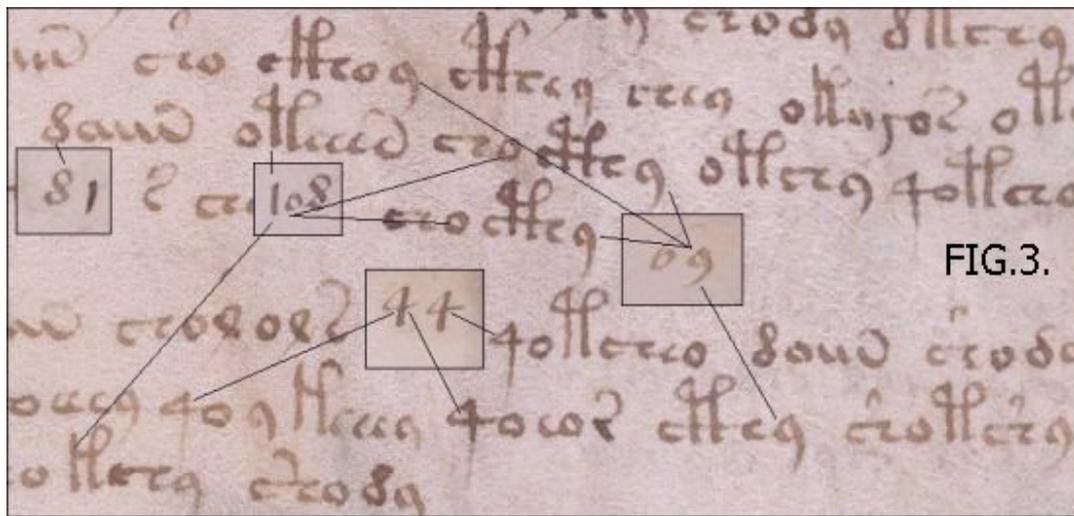
I am looking forward to further cooperation in solving of the VM,
Jozef Krajčovič



**B18. INTERNATIONAL E-MAIL CONFERENCE IEC
(our contributions only)**

• **PAGE NUMBERS:** Well, nobody wants to see it - they cannot believe it - but the hand that did numbering of the VM pages looks terribly similar to the one that wrote the VM (one of two, anyway :-). The problem is therefore not with us - we just point it out, we do not explain it and we do not have problems with it, the others do :-). Moreover, I gathered all page numbers in the figure [here](#) and they are quite consistent. Now there is one page containing arabic numbers, yes, written by author, on f49v (see fig 1.) and so I could not resist to insert the page no.s with same digits (see fig.2) . Add to it the some other numbers (see fig.3) and tell me that there is not similarity . . .





INTERNATIONAL E-MAIL CONFERENCE

There is some interesting discussion running on **Internet VM conference**. Here are the copies of our e-mails, not necessarily in time order. Please excuse the typos, errors, etc. The signature J. is mine, J.H.

Hello,

With all minor discrepancies, isn't it strange we were not able to solve at least something of the text yet? It is not fault of EVA, but of the concept. The hope that only better transcript can give us the solution is futile. Imagine you never heard about music and you get in hand one printout of sheet music with some missing notes - how do you figure out that those elliptic pictures are actually notes? If you can read, then the accompanying text in the sheet is helpful, so you imagine that the signs are probably sounds. Still, it may be just pronunciation, no it cannot, the ellipses are just positioned differently, so it must be something lese. If you know something about frequency, you may consider harmovic sounds and so on. Only then you start to worry about signs like # and b or missing notes.

jan

Hello,

There is a difference between hallucination and educated guess as you well know - and Beinecke scans are quite capable to provide higher discrimination needed. We can see that when we magnify the ordinary VM symbols on the same folio, their edges are still smooth and quite sharp, not fuzzy as we would otherwise expect. When the edges become fuzzy, we know it immediately so there is no guessing when. Still, as for denying the masking intent: I can distinctly "hallucinate" that the length of blue dashes is shorter and shorter as we go further to right, exactly per diminishing heigth of brown scribbles underneath. Of course, the painter might have tried to save the paint :-).

>What I actually meant was that other strings of circles and dashes in >pharma section look just as plausibly like numbers as this page (if you >squint your eyes a bit) - except that in those other examples, we don't >have a blue wash covering them to force us to use our imagination, so as to >complete the gestalt. :-)

You are of course joking, a circles can only remind us zero and dashes no.1, squint as much as you can. Well, we just have to wait of other numbers appearing elsewhere and furthermore more "legible". Still, even if it is a series of numbers, it will not help us to solve the riddle.

Jan

Hello,

On my page, I did deconvolution too and got the same results as you (see my referenced page). Still, comparing with the other methods, deconvolution seems to remove also the areas where blue is over the brown, where it should leave the brown. That of course does reduce the brown text under into a series of unrecognizable spots which does not help us too much. We cannot concentrate on one method only, but do comparisons of many. If you take two first pictures on your page and magnify them for comparison, you can see my point.

I based my decision on the fact that first six characters are all recognizable as certain numbers. In the case of one, two or even three, I would admit the coincidence, but if there is more, the case is worth of studying. Unfortunately, the "masker" did quite a good job. I added to my page another picture - the first one - showing the masking ("Y") above the one in question ("X"), which is clearly avoiding the decorative circles. On the other hand, in the area in question we can clearly see the vertical slashes covering almost only the height of symbols, leaving quite a large area uncovered. Now this was not coloring, it was masking.

As for the size of numbers: it is almost the same height as some VM "letters" so there was no problem to write it legibly.

For proper investigation, the size of the sample of course has to be large enough (but without distortion, which Beinecke scans allow up to the size I used, but not larger) . "The bumps in the vellum, lumps in the ink, and artefacts of the image compression" cannot of course be discounted, but it is obvious they will not effect it to such level as we can see. It would be rather random and would not certainly make up for the shape so close to certain numbers.

As for Nick's arguments: he apparently did also only the deconvolution. True, there are strings or circles or dashes somewhere else, but that is just jumping to conclusion based on sheer similarity. As for "no reason for something to be there" - that's exactly what steganography is based on :-).

I realize that if we consider there are numbers there, we would have to make some unwelcome conclusions like the one that it was really "hidden" there - first intentionally (by locating it in the place nobody would look for it), then even masked by other color (maybe unintentionally, if the "masker" overlooked it) . The author's knowledge of Arabic numbers was of course expected long time ago and the use of steganography as well. And what is more important: we would have to admit that the VM is something more than just what "meets an eye", but that we have known all along :-).

Jan

Hello,

Bringing Kelley as an author of the VM is the weakest point of Mr. Rugg's hypothesis, based only on Kelley's poor "character reference" :-). It can be dismissed outright - the probability of finding some proof of Kelley's authorship is close to zero. > Also, I would not expect the rules of such a hoax to be too complex. The input might well be random, but the rules for a hoax might be fairly recoverable - if in fact it is a hoax. And that might be the best evidence that it is not in fact a hoax.

Right. The reason for using gibberish as plaintext - actually the only reason given by Rugg - is to save the time, so he better come up with very simple rules of encoding while still preserving the complex VM structure. I do not believe it will be more than superficial agreement anyway :-). Since VM rules do not vary too much from one folio to another, swapping Cardan grills for different folios would not help and swapping them for one folio would be cumbersome and quite time consuming.

Now there is however the other reason not mentioned by Mr. Rugg: one CANNOT break the cipher if the plaintext is just gibberish. I admit it does look tempting, but the skilled forger had to consider something else. For an "unreadable" book he would not get too much, while demonstrating he can make a gold by using it will bring him more money and for longer period of time :-). The second option however has a hidden danger: after some period of promises, he would have to reveal at least a aprt of the decoded text to raise the fading hopes of his already skeptical employer. To make it really believable, he would have to also provide the method of cracking - at least for some part - which would be surely checked for veracity. Gibberish of course would not do and we cannot credit the forger with rather sophisticated, premeditated design and at the same time with making such primitive mistake.

Either way, I do not see too much time saving by using gibberish as a plaintext. And one can surely make a hoax even using normal plaintext. But for Mr. Ruggs, the gibberish is necessary to support his theory of a hoax, otherwise we could ask him to find the real plaintext. And in that case it would all fall through the grill (call it Cardan or any other name).

Jan

Hello Nick,

Right you are. And it neither needed to encode the gibberish to be a hoax. What were the reasons for encoding some gibberish anyway? According to Gordon, it was to save time. O.K., if we take for instance Kelley, we can imagine WHY he would fabricate a hoax, but HOW he would go about it?

First, he would have to get some old vellum, reasonably old-looking ink and he could just started to write, right? Wrong! He started to fill vellum with many pictures and spent enormous number of hours just making them. Why would he waste so much time on that? Just to add to the mystery? Sure, but so MANY pictures? It certainly beats Gordon's reasoning that the author just wanted to save time.

Now for the text: wouldn't it be more reasonable for author to write some text of his own and pretend it is something older? Kelley actually did write some works so why settle here just for gibberish? And another thing: if the author used Cardan grille, why he had to choose gibberish at all? The encoding would not go any faster than with "normal" text! Besides, the VM has certain rules, that's why is now Gordon trying to figure out how to simulate the VM structure. If those rules had to be implemented by author manually, there was another substantial loss of time. And the result would be only the more sofisticated gibberish :-).

I think that's where Gordon drifted in the land of dreams - as a mathematician, he is more interested in encrypting and automation of the process than in the psychology of a hoaxer. All in all, Gordon knows that even if the encoding was done by Cardan grille, he himself would not be able to solve it - there is still that strange script and dubious language - so he could not provide the original text . By claiming the source was "gibberish", he bypassed all that - or he thinks so :-). All he has to do now is to provide another VM look-alike gibberish, right? Not in my book. Another irony is he does not need Cardan grille to do that, he can surely use some other encoding system.

The exotic cocktail of otherwise unconnected points - the Cardan grille, Kelley, gibberish and hoax - may provide for good

sci-fi, but is otherwise quite superficial mixture, made by piling one assumption on another. That does not mean Gordon's efforts are without bonus - he might discover other hidden rules in the VM, but to our (and probably even his) sorrow it will never lead to the original text (or gibberish, for that matter :-).

Jan

Hello,

This really is not correct. The word length >distribution depends on two main questions: >- which transcription alphabet is used? . . . There is apparently more things to consider, since we really do not know the function of the spaces yet. Let's categorize:

- 1) The spaces are used as delimiters of words as in natural language - that is I believe the case you described.
- 2) The spaces have been inserted as nulls (in plain language, the spaces between words are actually nulls as well - except being delimiters - but that is not what I mean here :-). Say if I write the whole VM without spaces - as one word - and then insert spaces by random, I get text, where the solver needs only to eliminate the spaces and guess the proper spaces by the content. I believe it will give him say 97 percent certainty, if we are talking about plain, simple text and provided he can read the script and knows the language. However, with limited number of "word lengths" used (say by throwing multi-sided dice) he will not get the VM "word frequency curve" - all word lengths will have about the same frequency, right?
- 3) Same as 2), but more complicated - say length of the next "word" will be function of the dice throw and of the length of "preceding word". There are many combinations and the results may vary.
- 4) The "word length" is the function of some encrypting algorithm - but at the same time it will simulate the bell curve. I cannot imagine off-hand how it can be done.
- 5) Other possibilities - but hard to specify in detail.

In none of above cases is the "word length frequency curve" the result of PURE probability, since the VM has similar shape as for other natural languages. What we seem to know for sure is that the longer "words" in the VM are somehow missing in comparison with majority of natural languages - and the bell curve is skewed or simply nonsymmetrical. That still does not eliminate the use of natural language. Interestingly enough, the AVERAGE "length of the VM words" according to our statistics is only about 1 character shorter than for some other languages. Can it indicate that the total number of the spaces is about the same, they are just misplaced?

Now talking about Cardan grille - would Ruggs gibberish have spaces and how would they be encoded? The use of grill will certainly mess them up :-). Or would the grill provide new spaces with the same word frequency curve as the VM? And how?

Jan

Hello,

>>So, if the VM is meaningless, the best anyone can do is to show (ie demonstrate with a reasonable degree of match) the method.

I understand what you are trying to say: since one cannot prove the VM plaintext is meaningless without really solving it, one can only demonstrate the method how it PROBABLY could have been done. Yes, probably, because we will never know, after all, he can only deliver the gibberish :-). But Jacques is right, the method presented may bring some serious doubts about the whole thing. The problem is that Rugg got himself locked in vicious circle - without proof are all his theories fruitless. The crux of the thing is to show HOW IT WAS DONE, all his other statements are just cosmetics, giving his theory the superficial credibility: Kelly, hoax, even the statement, that the author must have used gibberish as plaintext. Now let's count: he cannot prove Kelly did it, he cannot prove it is a hoax, he cannot even prove that author had to use only gibberish!!! What's left?

Funny, one Rugg's statement was passed without any comment: the statement he credits some VM researchers, i.e. that using meaningful text, it would take the author many years to encode it into the VM. I for one do not subscribe to that "many years" idea. Use of Cardan grill is of course very easy, but Rugg is hinting about some sophisticated use of it, to get VM-lookalike structure. Of course, he is too shy to tell us how. And why would the Cardan grill work faster on gibberish than on meaningful text? After all, to generate the gibberish plaintext or meaningful plaintext may take the skilled writer almost the same time! And at the end, who will tell the difference? Or is Mr. Rugg trying to tell us that the normal plaintext will never look so good in the VM?

>The question whether the VM is a hoax can't be conclusively decided, if the >VM really is a hoax. (I know this sounds paradoxical, but isn't.)

I am afraid it cannot be decided even if it is not a hoax - this is a trick Rugg is well aware of :-). If I write say this: "ow gqwe ukklqa", you will never know if the plaintext has any meaning, since you do not know neither plaintext nor the cipher, not even the original language. Yes, it may be a hoax, but you will never know unless I tell you. Now you try to solve it and get something like "rg mott wertxd". Gibberish? You bet, but honestly: what does it really tell you? You may have used the wrong method, it could be simply an artificial language or it could even be doubly encoded "my dear brother". >Thus, requiring logical "proof" from Rugg is fallacious in itself -- it's >something he couldn't give, even if he was right.

Well, you go to the court and accuse somebody he is a murderer, but you tell judge you do not have a proof. Would you

consider the judge's decision to strike your statement out as fallacious? By the way, nowhere I read that Rugg admits he cannot provide the proof, in spite of the fact he knows that already :-).

>Fourty years of intense research have failed to make any significant >progress in finding meaning in the VM. Which some might consider empirical >support for the theory that there is no meaning.

For many thousand years, people did not know the theory of relativity. Is it an empirical proof that theory makes no sense? Or is it just an indication it was not so obvious?

>OTOH it so happens that every decryption attempt which tries to exploit one >of these features is instantly killed by another feature which contradicts >the attempt.

By the same token Rugg's theory would be already dead - if we use scientific criteria - but he keeps it still alive by denying the public the "secret" of his method :-). For how long?

>Now I actually think the idea to devise a plausible algorithm for producing >seemingly meaningful text, and gradually refining it to include more and >more features of the VM, is not such a bad one. Actually, I think it's the >only way one could substantiate the hoax hypothesis.

"Gradually refining"? How? By providing set of rules longer than all the text in the VM or devising supercharged, multi-dimensional grills with each cutout having different rule? After all, you can do only few things with Cardan grille :-).

>(That Rugg might shamelessly exploit the PR created in this manner doesn't necessarily >devalidate his findings.) What findings? He didn't find yet anything and he admits he expects to find only gibberish at the end . . .

Jan

Hello,

It is obvious that some VM signs are composites of the other, simple ones. This could have lead to uncertainty should the "letters" be connected and not separated by spaces (or was it the only reason for their separation?). After all, writing separate letters is more tiring since one has to lift the pen for each "letter". On the other hand, the script is definitely not a "printed font" version, which automatically requires inter-letter spacing.

Why would the author invent so many composite signs while he had other single shapes available (say larger circle beside the smaller one, or short lines under different angles) is not clear - after all the signs for "r" and "s" or "d" and "g" are too close for comfort :-). Or maybe there is some system in it, as your table shows, but which one?

True - as we can see from your table - he was using very few basic elements and yes, some shapes, even composites, are much simpler than some Latin letters (cursive "k" or "y", etc.) He was surely simplifying the "letters" of his alphabet to high degree and still - or maybe because of that - the writing does look quite beautiful. He was certainly skilled in writing his script, which suggests he probably perfected it for long time.

Gallows, on the other hand, show combinations of rather higher order - so they might have some meaning of their own, as Nick already suggested in his work.

Also, the text has no commas, which were - I believe - already used in middle ages, neither it has full stops - the "sentences" look more like paragraphs. All those features are present in coded messages, here they are becoming superfluous or even a clear giveaway. Also, the function of spaces between the words" is still unclear. Apparently, we have still long way to go.

Jan

Hello

>I'd be surprised. Mind you, the Templars' order was destroyed in 1307, which >seems to predate the VM by at least 150 years. Any theory linking the two would >have to explain the gap.

Apparently somebody discovered the date when the VM was written - I am sorry I missed that :-). Now Roger Bacon (1214-1292) didn't even live to see Templars being dispersed and still, his authorship was seriously considered. And yes, there was a gap about 250 years after his death - till Dee discovered the VM in one monastery (or so they claimed) - which so far did not bother anybody, since it was expected the manuscript probably laid there comfortably all that time :-).

But seriously, I was looking just for some proofs, since I accidentally hit a page hinting VM-Templar connection and could not find any.

Jan



B19. NEWS: NUMBERS IN ANOTHER MANUSCRIPT SIMILAR TO THE VM, ALSO IEC

NEWS: Jan Hurych has discovered amazing **similarity between the handwriting** of the numbers at certain manuscript in Berkeley library (more to come).

INTERNATIONAL E-MAIL CONFERENCE

Following are our contributions to International VM conference (VM-List). Please excuse some typos and grammatical errors.

LETTER NO.1.

Query, Jan:

Can anybody write here a short review of Gordon Rugg's article in Cryptologia? Apparently there is no other attempt of proof elsewhere.

Jan

P.S Do you know that one planet was named after Joannes Marci? (**3791**) **Marci**. Not to confuse with Mars Color Imager (MARCI) on Mars Surveyor 98 (that was just an orbiter, not a planet :-).

LETTER NO.2.

Jan on Kircher

Kircher was definitely tricked beforehand, but probably not by the VMs: does anyone recall what year he was fooled, and by whom? I seem to recall an ornate mirror script being described on-list, but no scan of it ever being posted - Kircher probably did destroy that one. :-)

As per Marcio comment in this list: ... This link provides more information on the hoaxes Kircher was victim of (there was more than one): <http://www.museumofhoaxes.com/kircher.html>

Well, I have read somewhere he was quite a showman himself: during Queen Christina visit in his museum, he showed her some plants that grew in the beacon right before her eyes (I presume it was some crystals looking like plants, but he of course never said it to her :-).

LETTER NO.3.

On Kircher, next letter:

In his second letter, Baresh made a hint that the first letter may have never reached Kircher - but at the same time he claims the deliverer reached Rome safely. Since Baresh did not get any answer from Kircher, he was trying to excuse him.

We may understand it better when we realize Kircher was once tricked to "solve" the fake and was then publicly exposed to some ridicule. He apparently threw the first letter and the attachment in garbage, judging by the fact he kept the second letter. Of course, the letter may have got lost after all. Still, no samples were found belonging to second letter and apparently Kircher sent no answer to Baresh to that letter either (and there is no mentioning of it in Marci's letter either). Of course, he may have sent letter asking for more samples, but surely there would be then the third letter by Baresh in existence (he was desperate to get VM solved). Privately, Kircher may have consulted with Marci who in his famous letter hinted that Kircher was interested - that's why he sent him the whole thing. Neither there was found any proof (so far) that Kircher worked on the VM at all.

What we are missing here is Kircher's correspondence to Marci. We may assume it should have been be in Jesuits's archive in Prague since he was admitted to the Order on his deathbed. Unfortunately, the whole archive was confiscated by Joseph II and taken away. Jesuit archive in Rome does not have it and Prague does not have it (according to our contacts there) - so the only place it possibly could be is Vienna, but we have no contact there. Anybody wants to help?

Jan

P.S. There was a rumor at that time that Jesuits secretly buried the archive in their cellar before they had to leave Prague 1773, but I doubt if we get permission to dig there :-).

LETTER NO.4.

Objection, R.Z.

Don't underestimate the local historians. If there were a chance to find something, they would have gone for it. When I was in Prague in September, I actually mentioned this story to one of the people I met there (his field is history of astronomy) and he just responded (with a big smile) that there are lots of rumours and lots of underground spaces.

LETTER NO.5.

About alleged treasure

I already said it was only a legend. And there is really a lot of underground spaces in Prague, some of them not yet thoroughly investigated. One thing surprised me however: I always thought that historians work mostly with rumors. And the rumor confirmed from several places is then called a "fact" :-).

As for Marci's grave being empty: we know pretty well how difficult is to find anything after several centuries. After all, we still do not know which grave in that Dutch church belongs to great Comenius.

Jan

LETTER NO.6.**Jan about location:**

Que: However, I meant to ask the general, philosophical question: - how >does one prove a negative? >Does anyone know the address? A ground-penetrating radar scan might help to >convince the owners that it's worth the effort. :-)

Well, it should be under Clemetinum University complex, now owned by Jesuit Order - in their church there Horcizky himself is buried. The rumor actually talks about some bricklayer who was called to put up the wall underground. He was blindfolded so he did not know the exact place but noticed some boxes in the room he had to wall-in. He of course thought it was some gold so when Jesuits left Prague, he was spending nights underground and still is looking for the treasure - knocking of his hammer can be heard still today . . .

Needless to say, he could not find the place since there is apparently the whole a labyrinth of underground corridors there (nothing unusual in old Prague). Actually the idea about documents - rather than gold - was mine, it would explain why we cannot trace them :-). The part about bricklayer of course could be true enough, Emperor Joseph II did not give Jesuits enough time to pack up and the legend says they believed they would be soon back.

LETTER NO.7.**Jan about dating of handwriting:**

I would not jump to conclusion: the handwriting looks like it was done by older person, for sure by somehow tired hand, but not necessarily by Rudolph. Also, if it was an older person, he may have used some older script - Comenius in the middle of the 17th century actually still used unconnected script, so dating by handwriting only could be quite far off.



F1. FAQ - FREQUENTLY ASKED QUESTIONS
(actually they are not frequently asked, but should be :-)-

This page is continuously updated (and may be never finished :-). THE MANUSCRIPT (general)

THE AUTHORS
THE LANGUAGES
THE SCRIPT
THE PICTURES-plants
THE PICTURES-astro
THE PICTURES-balneo
THE CRYPTOGRAPHY
THE SCRIBBLINGS
THE HISTORY

THE MANUSCRIPT (IN GENERAL)

QUESTION	COMMENT
How can we determine the age of manuscript?	No scientific test was done yet. The carbon dating was considered inaccurate (still, it should have been done).
If the above can only establish the age of vellum, was it some re-used vellum?	There are some places in the VM where we may believe so. vellum was rather expensive.
How many sheets are missing?	It is anybody's guess but it will not affect the solution (hopefully).
Is VM large enough to get proper solution?	Per cryptographic standards it is, but let's not forget we do not know the script neither the language. Military cryptographs quote a minimum to be 500 words, but of course they know the language :-).
What was the purpose of writing the VM?	It could have served one person as diary or scientific record. Or it could serve many, but only the initiated ones.
Is the VM encoded?	In general sense, yes, by unknown script. Further investigation proves there might be some extra cipher or maybe steganography.
What is the purpose of pictures?	As for "plants", they are not recognizable plants, but composites (see Mary d'Imperio, 3,3,1). They might serve some encryption. As for pictures in "astro" and "balneo" sections, we simply do not know yet.
What was the original binding?	Existing binding and covers are apparently not the original ones. When it was done, we do not know, but Baresch calls the VM "a book" (ex libro) so he suspects it had some. Also, the title page is missing. The VM does not seem to be finished, either.
What is the place of origin?	So far the most accepted place is the Central or Northern Europe, but that judged by the script forming. Since the script is no doubt artificial (nothing systematically closer was found) , we may be here for a surprise.
What is the VM fraud?	Certainly not by Voynich, many facts were discovered after his death. Also, fraud usually pretends to be something famous it is not - we do not find such pretention in the VM. There are no such hints that it contains some secret recipe, transmutation procedures or works of famous philosophers. While some superficial researchers claim Kelley or Dee composed the fraud, they did not bother to provide any proof of it.
Does the VM contain only gibberish?	It may look like it does but such statement is only sensationalistic. Deeper study show that the VM has fix constructs, rules and appearance and we may expect that the original text was sensible as well. With all the efforts the author apparently put in it, it would be real overkill. Also, with fraud, it is made such way it would try to emulate something. Nothing is emulated there. It is general opinion, that it has

	sensible text, but there are of course different opinions concerning the solution itself.
--	---

THE AUTHOR(S)

QUESTION	COMMENT
How many authors and why would there be more than one?	There may be more authors of text and/or pictures. Why? We do not know yet. Apparently the first one is the most important one, he actually created the code. As for coloring and scribbings, they have only secondary importance - most likely, anyway.
Concentrating on the first author only, how can we establish his identity?	There are so far no records and we only have secondhand rumors. However, the hand writing and mainly <i>the pictures</i> (if they were done by the same person) should be a giveaway. Of course, more info can be obtained when the text is cracked. It would be also useful to make "psychological profile" of the author from the handwriting (to be investigated).

THE LANGUAGE(S)

THE SCRIPT

QUESTION	COMMENT
What is the language of the plain text?	The word statistics and the length of words does not point so far directly to any existing language. The letter statistics however is very close to medieval Latin. Of course, when assigning the characters per frequency curve, no sensible text was obtained. That would suggest additional encryption, mainly the transposition cipher or grill, because single alphabet substitutional cipher would be transparent vis a frequency curve application. Multiple alphabet would make the curve quite different.
What are the main candidates for such language?	It is believed that the origin of the VM is European. Unless the work was of strictly national character, no particular national language was used. The language of science then was Latin (Greek was also still used). Of course we cannot off-hand eliminate other languages. In the case of artificial language we are of course at dead end.

THE PICTURES (of plants)

QUESTION	COMMENT
Is it written in unknown script?	No similar script was ever found. Not only the script is unknown, we believe it is artificially constructed.
Who did numbering of folios.	Using g large magnification, we observed the numbers are same style as used in the text of the VM - rthre is on folio with 6 different numbers. Also the characters looking like "8" or "9" are drawn same way, with same shading and direction of writing, the similar arcs, but with thicker pen. The objection that some pages are misnumbered does not prove it did not happened to author himself - after all, our idea what follows could be wrong as well.
What about the appearance?	The script itself is a work of genius - it is the most appealing thing on the VM. Not only it uses simple, esthetically pleasing forms, but it looks quite natural and "easy to write" Also, it looks like the hand was well skilled (trained) in writing) but not in drawing or painting.
Are there any mistakes in the text?	Not that we know of. That could be proof that the VM is the original issue and no further scribe was used for it (he would surely make some mistakes). Also, the encoding was apparently easy to make - the lines flow without interruptions (which would be otherwise seen) or brakes and the droop at the end of the line indicates that the line was written in one continuous writing and relatively fast - writer did not have time to observe the beginning of line. Even when copying the coded text, it would normally show some mistakes (well, there may be mistakes, we just do not

	know where :-).
--	-----------------

THE PICTURES (astronomical/astrological)

QUESTION	COMMENT
What quality level are the pictures?	The pictures look like drawn by one person only and not too skilled in it (that would eliminate Leonardo right away :-). This is contrary to pleasing handwriting but it may not mean anything special.
What about the pictures of plants?	They do not look like pictures in herbals (with keenly observed details (sometimes they look more like outlines. Even author himself would not be able to look for them in the field by his pictures only (if those plants actually exist). Neither we can agree with some botanists, who believe the author just omitted some important points from inability to draw. Some places quite clearly suggest possible encoding (see the sections of plants with many types of roots but each with clearly distinguished number of them (drawn such way nobody would be confused by their number :-).
What about coloring of plants?	There are no "proper" colors for some sections and it looks like the work was done of somebody else than an author. Several pages even reveal some characters and number underneath of the coloring. In other places, it looks like the coloring was only masking the text underneath. The masking has the length proportional to the original text and when that one is longer - even in the same row, so is the masking.

THE PICTURES (balneo)

QUESTION	COMMENT
To be filled	To be filled
To be filled	To be filled
To be filled	To be filled

THE CRYPTOGRAPHY

QUESTION	COMMENT
To be filled	To be filled
To be filled	To be filled
To be filled	To be filled
QUESTION	COMMENT
Why was the VM encrypted?	The content was apparently secret (or just pretended to be). Most likely it was quite dangerous to the author as well as for readers.
Are the pictures encrypted?	They may not be encrypted, but they are mysterious as well. After all, there might be the part of message hidden in them.
What are the symbols representing?	It was suspected they were the letters of alphabet or syllables, which of course did not help. They may however represent some code words or even the words in the artificial language (which helps us even less :-).
Why are there no full-sto the tops nor commas?	Apparently they were not needed or they would be a dead giveaway. The lengths of paragraphs however corresponds to those of average sentences.
Why is the writing disconnected between "characters"? What is the meaning of the spaces?	Apparently the "letters" consists of very few segments which would lead to confusion is the writing was connected. In fact, the connected writing was apparently used already in the timing of writing the VM. They "spaces" may be really the spaces, or just nulls (i.e. randomly spread empty spaces). Of course it also strongly suggests additional coding being used.

THE SCRIBBLINGS

THE HISTORY

QUESTION	COMMENT
How many different persons participated in scribblings?	To be investigated.
Are there any famous hands in scribblings?	To be investigated.
To be filled	To be filled

QUESTION	COMMENT
What is there actually known?	Practically all the "facts" are only rumors. Even the "signature" of Horczicky - with the range 1612 he got his title 1622 he died, as much as it looks narrow, falls apart if we consider that it may have been written by somebody after his death.
How did Baresch get the VM?	It looks most likely he bought it from a thief. it certainly does not look like inheritance or gift (he was rather young when Horczicky died).
How did Horczicky KY got the VM?	Most likely, he bought it. There surely the trace ends; whatever was before is still mystery.
Why Voynich never named the place he got the VM from? He had to realize that such behaviour would shake the VM provenance and endanger the possibility to sell the VM at all.	We may never know - his several excuses are dubious and Mondragone place found after his death was not confirmed by seller. While he surely bought some books from there, we would have only his word for the VM alone (and he never said that :-). Most likely place was apparently the Libreria Francescina where he bought "500 thousand " books (by his own words) three years before the alleged VM find (1912). Since those books were confiscations, it was wiser not to mention the VM was also such an orphan without any provenance at all. And he did not want to lie either . . .

THUMBS (Select Quire)

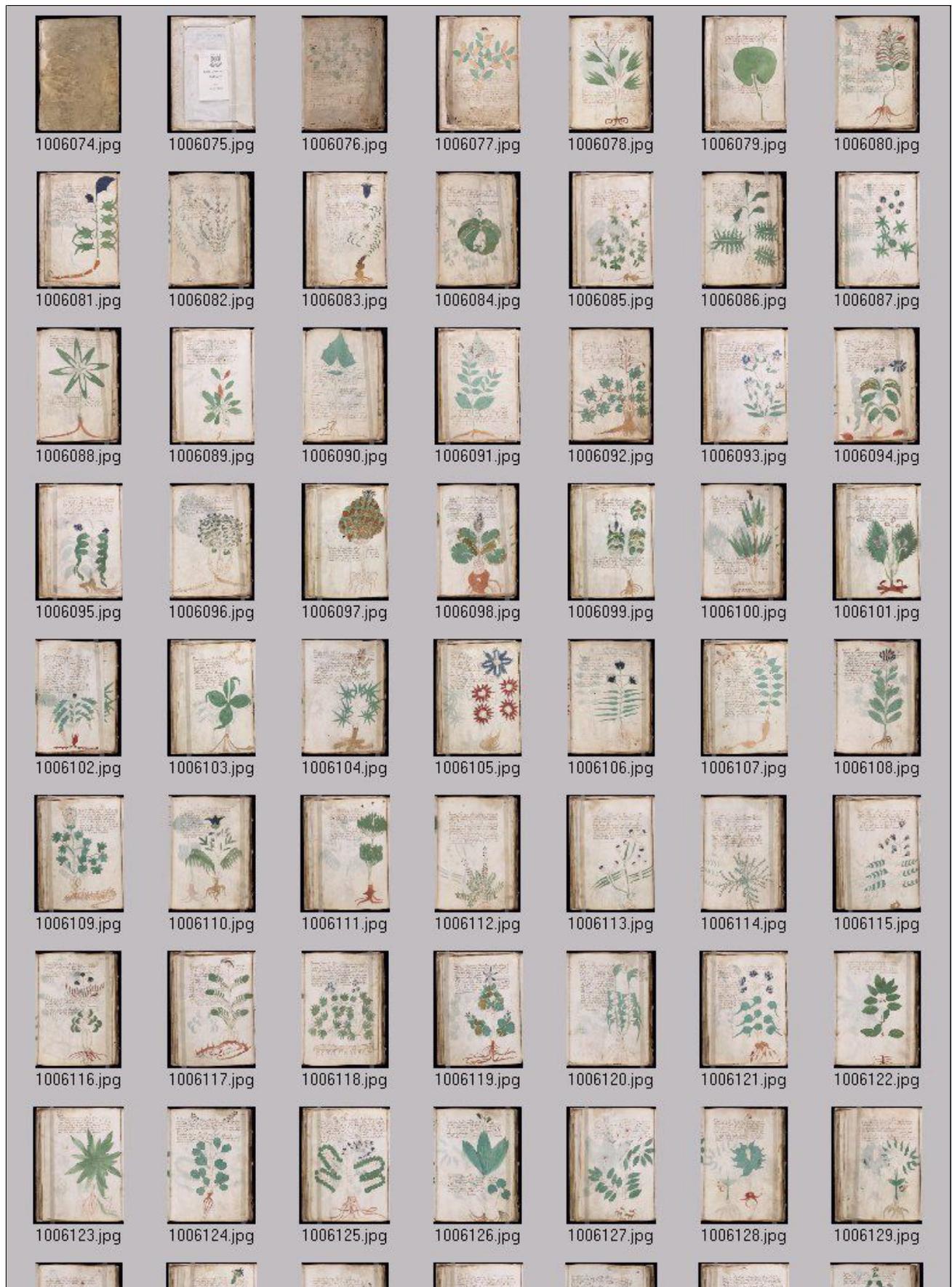
The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>



q1 q2 q3 q4 q5 q6 q7 q8 q9 q10
q11 q12 q13 q14 q15 q17 q19 q20 addons

Quires q16 and q18 are empty.

Exception, this page only: Here are all VM thumbs, with Beinecke numbering





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.



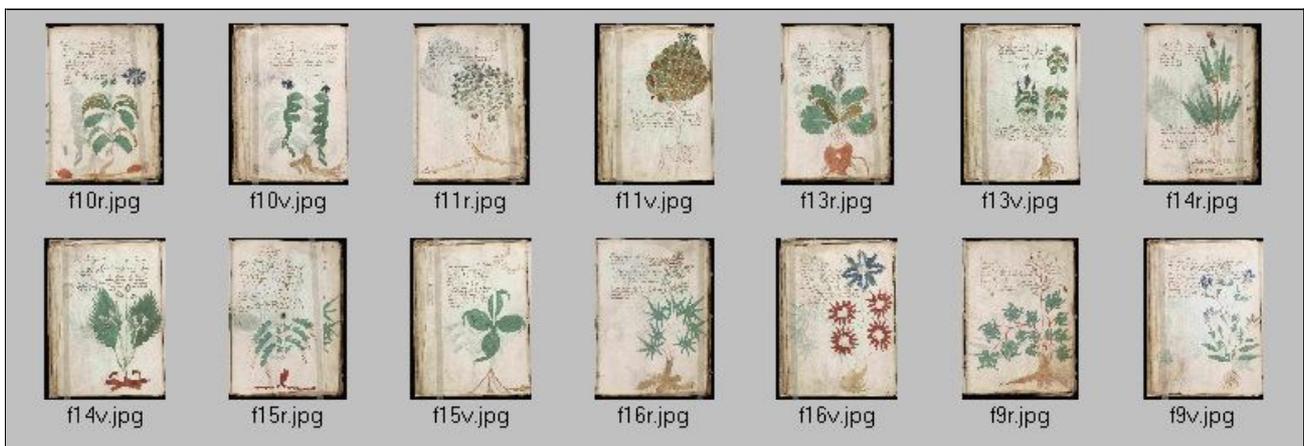


THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

- | | | | | | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------------------|---------------------|
| q1 | q2 | q3 | q4 | q5 | q6 | q7 | q8 | q9 | q10 |
| q11 | q12 | q13 | q14 | q15 | q17 | q19 | q20 | addons | |

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.



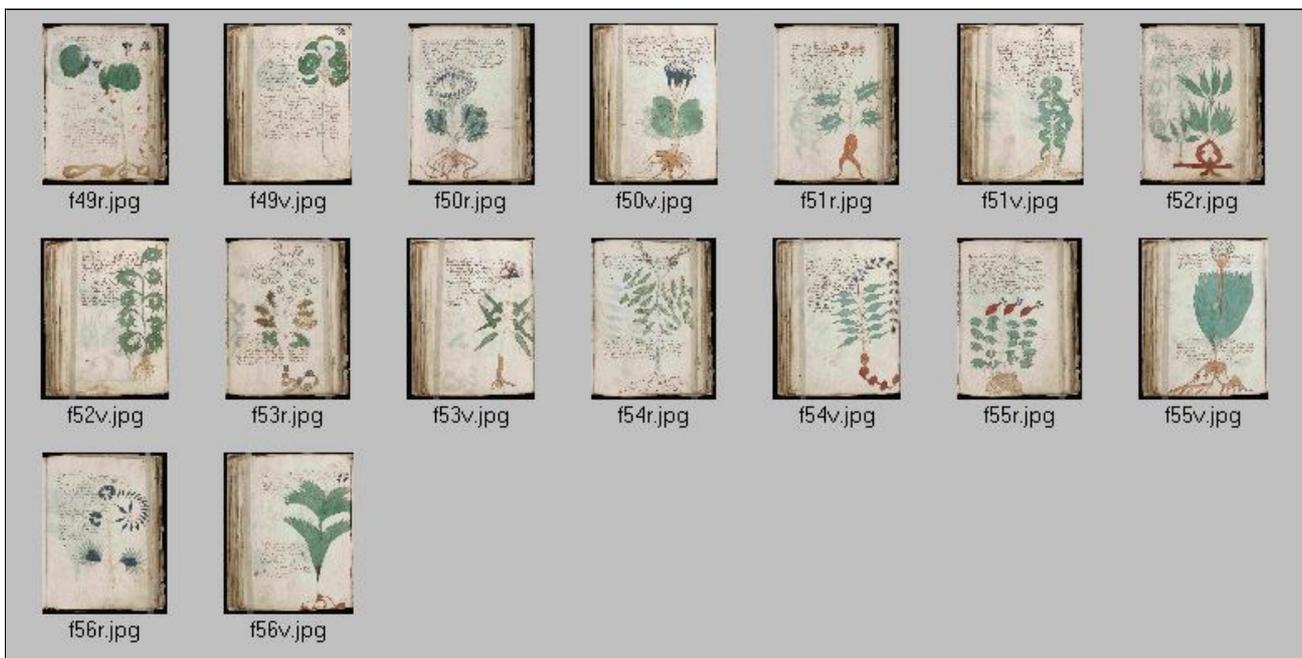


THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

- | | | | | | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------------------|---------------------|
| q1 | q2 | q3 | q4 | q5 | q6 | q7 | q8 | q9 | q10 |
| q11 | q12 | q13 | q14 | q15 | q17 | q19 | q20 | addons | |

Quires q16 and q18 are empty.



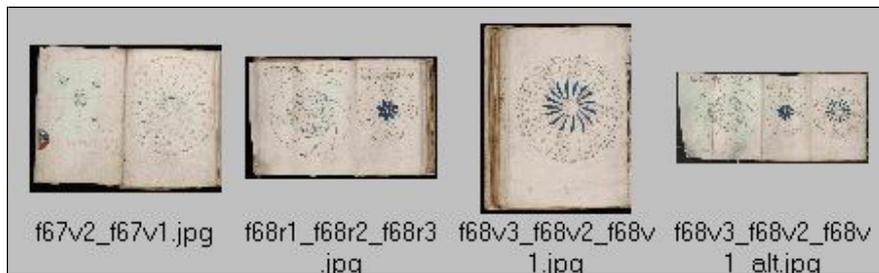


THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

- [q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
- [q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.

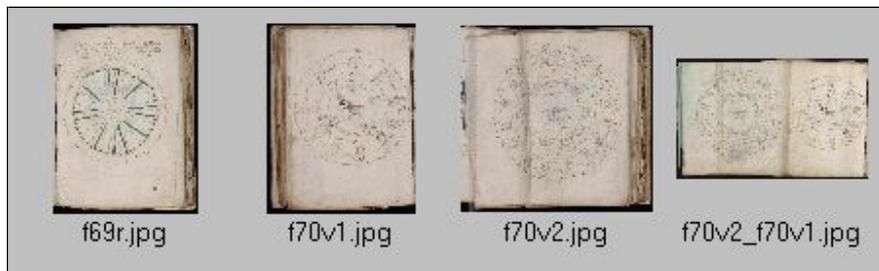


**THUMBS (Select Quire)**

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.

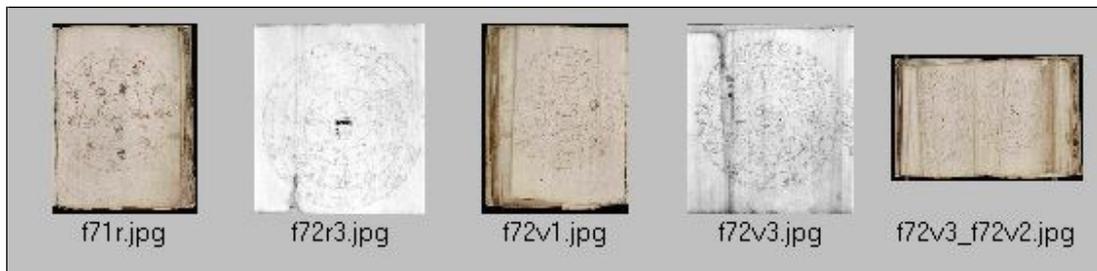


**THUMBS (Select Quire)**

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.

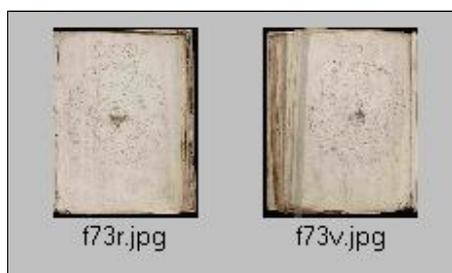


**THUMBS (Select Quire)**

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

- | | | | | | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------------------|---------------------|
| q1 | q2 | q3 | q4 | q5 | q6 | q7 | q8 | q9 | q10 |
| q11 | q12 | q13 | q14 | q15 | q17 | q19 | q20 | addons | |

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

- [q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
- [q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

[q1](#) [q2](#) [q3](#) [q4](#) [q5](#) [q6](#) [q7](#) [q8](#) [q9](#) [q10](#)
[q11](#) [q12](#) [q13](#) [q14](#) [q15](#) [q17](#) [q19](#) [q20](#) [addons](#)

Quires q16 and q18 are empty.





THUMBS (Select Quire)

The thumbs are just for quick pictorial identification, with folio numbering. For pictures, see <http://voynichcentral.com/gallery/>

- | | | | | | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------------------|---------------------|
| q1 | q2 | q3 | q4 | q5 | q6 | q7 | q8 | q9 | q10 |
| q11 | q12 | q13 | q14 | q15 | q17 | q19 | q20 | addons | |

Quires q16 and q18 are empty.





SELECT NOTE:

N2 -THE NEW BEINECKE SCANS OF THE VM - crossreference

Original scans are [here](#)

Since Beinecke is using their numbering, the following table may help you to crossreference it.

PAGE	NO.	FOLIO
1	1006076	f1r
1	1006077	f1v
1	1006078	f2r
1	1006079	f2v
1	1006080	f3r
1	1006081	f3v
1	1006082	f4r
1	1006083	f4v
1	1006084	f5r
1	1006085	f5v
1	1006086	f6r
1	1006087	f6v
1	1006088	f7r
1	1006089	f7v
1	1006090	f8r
1	1006091	f8v
1	1006092	f9r
1	1006093	f9v
2	1006094	f10r
2	1006095	f10v
2	1006096	f11r
2	1006097	f11v
2	1006098	f13r
2	1006099	f13v
2	1006100	f14r
2	1006101	f14v
2	1006102	f15r
2	1006103	f15v
2	1006104	f16r
2	1006105	f16v
2	1006106	f17r
2	1006107	f17v
2	1006108	f18r

2 1006109 **f18v**
2 1006110 **f19r**
2 1006111 **f19v**
2 1006112 **f20r**
2 1006113 **f20v**
3 1006114 **f21r**
3 1006115 **f21v**
3 1006116 **f22r**
3 1006117 **f22v**
3 1006118 **f23r**
3 1006119 **f23v**
3 1006120 **f24r**
3 1006121 **f24v**
3 1006122 **f25r**
3 1006123 **f25v**
3 1006124 **f26r**
3 1006125 **f26v**
3 1006126 **f27r**
3 1006127 **f27v**
3 1006128 **f28r**
3 1006129 **f28v**
3 1006130 **f29r**
3 1006131 **f29v**
3 1006132 **f30r**
3 1006133 **f30v**
4 1006134 **f31r**
4 1006135 **f31v**
4 1006136 **f32r**
4 1006137 **f32v**
4 1006138 **f33r**
4 1006139 **f33v**
4 1006140 **f34r**
4 1006141 **f34v**
4 1006142 **f35r**
4 1006143 **f35v**
4 1006144 **f36r**
4 1006145 **f36v**
4 1006146 **f37r**
4 1006147 **f37v**
4 1006148 **f38r**
4 1006149 **f38v**
4 1006150 **f39r**
4 1006151 **f39v**
4 1006152 **f40r**
4 1006153 **f40v**
5 1006154 **f41r**
5 1006155 **f41v**
5 1006156 **f42r**

5 1006157 **f42v**
5 1006158 **f43r**
5 1006159 **f43v**
5 1006160 **f44r**
5 1006161 **f44v**
5 1006162 **f45r**
5 1006163 **f45v**
5 1006164 **f46r**
5 1006165 **f46v**
5 1006166 **f47r**
5 1006167 **f47v**
5 1006168 **f48r**
5 1006169 **f48v**
5 1006170 **f49r**
5 1006171 **f49v**
5 1006172 **f50r**
5 1006173 **f50v**
6 1006174 **f51r**
6 1006175 **f51v**
6 1006176 **f52r**
6 1006177 **f52v**
6 1006178 **f53r**
6 1006179 **f53v**
6 1006180 **f54r**
6 1006181 **f54v**
6 1006182 **f55r**
6 1006183 **f55v**
6 1006184 **f56r**
6 1006185 **f56v**
6 1006186 **f57r**
6 1006187 **f57v**
6 1006188 **f58r**
6 1006189 **f58v**
6 1006190 **f65r**
6 1006191 **f65v**
6 1006192 **f66r**
6 1006193 **f66v**
7 1006194 **f67r1**
7 1006194 **f67r2**
7 1006195 **f67v2**
7 1006195 **f67v1**
 f68r1
 f68r2
 f68r3
7 1006196 **f68v3**
7 1006196 **f68v2**
7 1006197 **f68v1**

7 1006198 **f69r**
7 1006199 **f69v**
7 1006199 **f70r1**
7 1006199 **f70r2**
7 1006200 **f70v2**
7 1006201 **f70v1**
7 1006202 **f71r**
7 1006203 **f71v**
7 1006203 **f72r1**
7 1006203 **f72r2**
7 1006203 **f72r3**
7 1006204 **f72v3**
7 1006204 **f72v2**
7 1006205 **f72v1**
7 1006206 **f73r**
7 1006207 **f73v**
7 1006208 **f75r**
7 1006209 **f75v**
7 1006210 **f76r**
7 1006211 **f76v**
7 1006212 **f77r**
7 1006213 **f77v**
8 1006214 **f78r**
8 1006215 **f78v**
8 1006216 **f79r**
8 1006217 **f79v**
8 1006218 **f80r**
8 1006219 **f80v**
8 1006220 **f81r**
8 1006221 **f81v**
8 1006222 **f82r**
8 1006223 **f82v**
8 1006224 **f83r**
8 1006225 **f83v**
8 1006226 **f84r**
8 1006227 **f84v**
8 1006228 **f85r1**
8 1006229 **f85r2**
8 1006229 **f86v4**
8 1006229 **f86v6**
8 1006230 **f86v5**
8 1006230 **f86v3**
8 1006231 **Ros.**
8 1006232 **f87r**
f87v
11 1037112 **f88r**
8 1006233 **f88v**
8 1006233 **f89r1**

8 1006233 **f89r2**
9 1006234 **f89v2**
9 1006235 **f89v1**
9 1006235 **f90r1**
9 1006235 **f90r2**
9 1006236 **f90v2**
9 1006237 **f90v1**
9 1006238 **f93r**
9 1006239 **f93v**
9 1006240 **f94r**
9 1006241 **f94v**
9 1006241 **f95r1**
9 1006241 **f95r2**
9 1006242 **f95v2**
9 1006243 **f95v1**
9 1006244 **f96r**
9 1006245 **f96v**
9 1006246 **f99r**
9 1006247 **f99v**
9 1006248 **f100r**
9 1006249 **f100v**
9 1006249 **f101r1**
9 1006249 **f101r2**
9 1006250 **f101v2**
9 1006251 **f101v1**
9 1006251 **f102r1**
9 1006251 **f102r2**
9 1006252 **f102v2**
9 1006253 **f102v1**
10 1006254 **f103r**
10 1006255 **f103v**
10 1006256 **f104r**
10 1006257 **f104v**
10 1006258 **f105r**
10 1006259 **f105v**
10 1006260 **f106r**
10 1006261 **f106v**
10 1006262 **f107r**
10 1006263 **f107v**
10 1006264 **f108r**
10 1006265 **f108v**
10 1006266 **f111r**
10 1006267 **f111v**
10 1006268 **f112r**
10 1006269 **f112v**
10 1006270 **f113r**
10 1006271 **f113v**

- 10 1006272 **f114r**
- 10 1006273 **f114v**
- 11 1006274 **f115r**
- 11 1006275 **f115v**
- 11 1006276 **f116r**
- 11 1006277 **f116v**