The Keys of Diplomacy.

The encrypted correspondence of Saxon-Polish Ministers Wackerbarth and Flemming 1700-1720.

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Abstract

In the Great Northern War (1700-21), the two most important ministers of August II of Poland, Count of Flemming and Count of Wackerbarth, regularly exchanged reports and communications. Several passages of their correspondence are encrypted. Based on examples from the years 1700, 1706, 1715, 1717, and 1720s, this paper presents tentative results of the first phase of a project aimed at analyzing the entire correspondence from 1698 to 1728. Key questions concern differences in the structure of the ciphers and the efforts involved in decryption. New research perspectives are outlined, such as how ciphers are reused and how cryptography and steganography were combined. The examination of encrypted passages provides insights beyond the facade of 'August the Strong'.

1 Background and Agenda

During the Great Northern War, two ministers of August II of Poland (also known as ‘August the Strong’), Count Jakob Heinrich von Flemming and Count August Christoph von Wackerbarth, regularly exchanged reports and communications. Their correspondence is of great value and is nearly complete in the Saxon State Archive.[1] Several passages are encrypted. The use of ciphers and their decryption or the identification of the nomenclator will be the focus of the first part of the paper. Examples from the years 1700, 1706, 1715, 1717, and 1720 will be detailed to demonstrate why these passages were encrypted and others were not. This highlights the scientific significance and the necessity of deciphering historical documents. The second part explores the extent to which individual ciphers differ in their structure, opening new research perspectives.

2 Introduction of the actors

Count August Christoph von Wackerbarth (1662-1734) and Count Jakob Heinrich von Flemming (1667-1728), key ministers under August the Strong, were masters of diplomacy, adept at collecting, validating and encrypting information for their ruler's benefit.

[1] Cf. Saxon State Archive - Saxon Main State Archive (SächsHStAD), 10026, Loc. 00711/07, 00711/08, 00712/01 bis 00712/07, 00713/01 bis 00713/08, 02869/09, 03425/01 bis 03425/03; 11237, Loc. 10890/01. The counterpart records in Polish archives will be additionally consulted later in cooperation with Warsaw University.

 

Fig. 1: Flemming[2]　　Fig. 2: Wackerbarth[3]

Wackerbarth served in various military and diplomatic roles, including as envoy in Vienna and governor of the residence city Dresden (Löffler 2002). Flemming, always close to the king, was the gatekeeper in the information network of the court and involved in the cabinet affairs (Czok 1990). Their collaboration formed a communication triangle between Dresden, Warsaw, and Vienna, leading to extensive correspondence. A research project conducted by the author is underway to transcribe and decipher approximately 6,500 folio pages of their letters from 1699-1728, offering insights into both professional arguments and personal sentiments.

3 Research questions and methods

The dense transmission allows for an almost day-to-day reconstruction of the actors' knowledge. Due to their high offices, research interest focuses on the encrypted parts of the correspondence: What was encrypted and why? How strong were the codes? But the source corpus opens up the horizon to further questions. Because the effort to create new ciphers was very high, older ciphers were often reused.This aspect has been scarcely addressed by research so far. To recognize a pattern in reuse, a statistical analysis is necessary. Furthermore, invisible ink was also used, which additionally complicates the processing of the source. Partially readable sections may possibly be supplemented by AI. Behind this lies the question: Did secret inks offer better confidentiality than ciphers? Starting from these ciphers the research not only offers a new perspective on the court's operations and the "Saxon Sun King," but also on the practices of communication during the Great Northern War. The workflow is as follows: after transcription and translation, the letters are analyzed for their encryption method and then decrypted. This is done either using the vast number of transmitted cipher tables or decryption programs.

4 Research Status

The prevailing opinion in Saxony that everything has already been researched and said about this famous ruler is based on numerous publications. However, previous works are consistently pro-Prussian in color or remain very superficial because archival research into noble history was difficult in the GDR. Current research on the court of August II mainly focuses on art historical topics, as the saxon bibliography indicates.[4] Polish sources, on the other hand, are intensively evaluated (recently Kosińska 2019, 2023). Research in Saxony is gradually gaining momentum as well. A scientifically sound biography of the queen, Christiane Eberhardine, was recently published (Herz 2020). The cipher of August II has been deciphered, and the secret diplomacy of the court has been analyzed (Rous 2022). A Saxon-Polish-Lithuanian network (PLUS18) was initiated. The Saxon State Archive recently restored and digitized the letters of August II as well as all Saxon cipher tables. These are being gradually incorporated into the DECODE database (www.de-crypt.org/decrypt-web/RecordsList)database.[5] With the 300th anniversary of August II's death in 2033, increased research on this king and his court is expected. The processing of the Flemming-Wackerbarth correspondence is an important pillar, with the encrypted passages being of particular importance for research due to their highly relevance and brisance.

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[2] Portrait of Jakob Heinrich Reichsgraf von Flemming (1667–1728), Anonymus, 1720er, Belarusian National Arts Museum ЗЖ-4, CC 1.0, URL: https://commons.wikimedia.org/wiki/File:Jok%C5%ABbas_Henrikas_Flemingas.jpg?uselang=de [30.01.2024].

[3] Portrait of August Christoph of Wackerbarth. Frontispiz. Gesprek tussen August Christoph von Wackerbarth en Magnus Stenbock, Anonymous, 1737, Rijksarchiv Amsterdam, CC 1.0, URL: https://www.rijksmuseum.nl/en/collection/RP-P-2016-1197 [30.01.2024].

[4] Cf. Sächsische Bibliographie Online (Saxon Bibliography Online). URL: https://swb.bsz-bw.de [15.04.2024]

[5] Cf. DECRYPT. URL: https://www.de-crypt.org/decrypt-web/RecordsList]15.04.2024]

5 Encryption in Correspondence

So far more than 130 letters with twenty cipher documents have been analyzed. In these documents, simple substitution ciphers, nomenclators, syllable ciphers, matrices and symbol ciphers were used. The ciphers were regularly exchanged and renewed, because after a few years, a new suitable digit panel always has to be found. In addition to small, very short nomenclatures, large cipher books were created. Decryption allows for answering the question of what contemporaries considered sensitive. Not only were military details in war encrypted, but also diplomatic information or opinions on intrigues. Preliminary results show that Wackerbarth and Flemming wanted to leave the court in the face of defeats in 1706. This fact is hitherto unknown but of the utmost importance because Wackerbarth, as Minister of Construction later, organized the king's major projects. Without this brilliant mind, August II might not have been able to realize the Dresden Zwinger, which is a famous architectural complex near the castle with great pavilions for courtly games and well known as a main cultural attraction in Germany. Thus, the question of what was encrypted can be answered clearly. In the future the question of why needs to be separately considered for the three areas: military, diplomacy, and court internals. The strengths or weaknesses of the various encryption methods will emerge from further analysis of the cipher tables.

6 Deciphering

Some encrypted letters from the year 1700[6] could be made completely readable thanks to the support of computer expert George Lasry. The challenge was that the few snippets of text did not contain the most common letters of the German alphabet. O, C, H, G, and B often appear, while K is only included once.

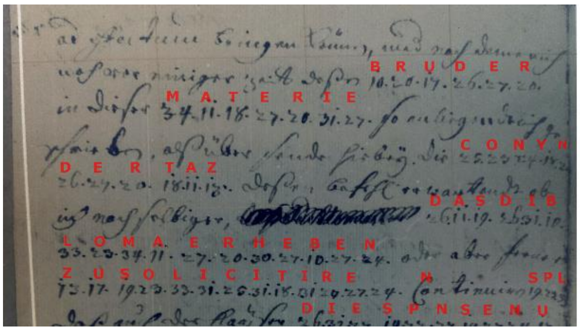


Figure 3: Letter from Wackerbarth to Flemming, 27th June 1700, SächsHStAD, 10026, Loc. 00711/06, f. 11-12, decrypted and image edited by George Lasry

Despite the small text basis, it was possible to decrypt the simple substitution by sending it through the decryption process several times. Later in the archive, I discovered the exact cipher for it – it was labeled "Cipher avec le Cour de Dennemarc" (Cipher with the Danish Court).[7] This cipher is a numerical cipher with a nomenclator in German language. The numbers are two- and three-digit, and the nomenclator extends up to 300. Non-values were not included. The nomenclator contains terms, names, and numbers. Simple substitution is mostly used in Saxony, but often changed. That was supposed to ensure security.

The letters from 1706, now written in French, were interlinearly resolved.[8] Finding the nomenclator among the tens of thousands of undated and unnamed nomenclators was difficult, but successfully. The number range extends from 57 to 999. It also has no instructions and no fixed nonvaleurs. So an "unknown" cipher, that is traditioned without any hint of its owner, date or localization, could be identified and assigned to an owner.

In 1715 another simple substitution cipher was used. The letters contain an interlinear resolution.[9] The matching nomenclator had an earlier year on the envelope paper.[10] This proves, that we cannot always rely on labelling.

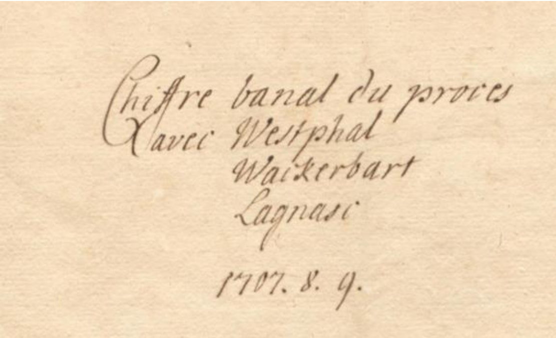
[6] Cf. SächsHStAD, 10026, Loc. 00711/06, f. 11-12.

[7] Cf. SächsHStAD, 10026, Loc. 03233/02.

[8] Cf. SächsHStAD, 10026, Loc. 00711/07.

[9] Cf. SächsHStAD, 10026, Loc. 0712/05, eg. f. 5-42.

[10] Cf. SächsHStAD, 10026, Loc. 03233/02.



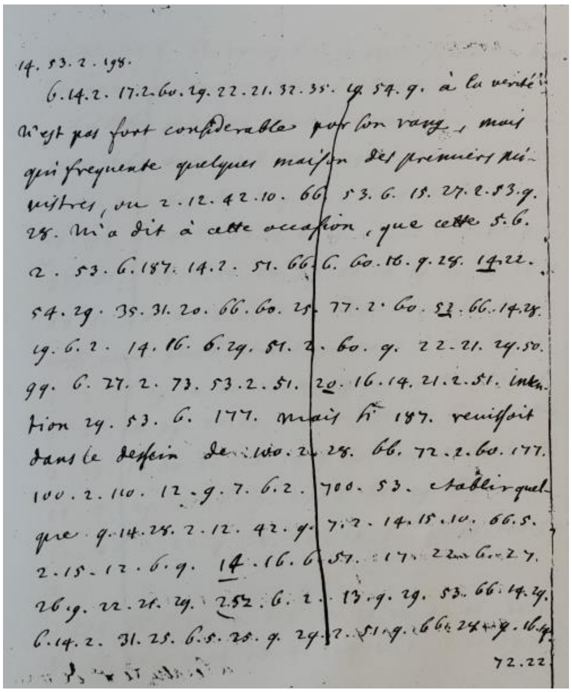
Chiffre banal du proces
avec Westphal
Wackerbart
Lagnasc
1707. 8. 9.

Figure 4: Cover sheet of a Nomenclator, matching to letters of 1715, SächsHStAD, 10026, Loc. 03233/02.

Why was this cipher specifically used again in 1715 and not another cipher? The cipher's selection for the reuse was certainly not random. To find out the pattern of reuse, statistical analysis will be applied in a later stage of the project.

Later the letters were apparently deciphered on a separate sheet, as the numbers were only crossed out and no longer deciphered interlinearly.[11]

A letter from the 24th July 1717 contains a substitution cipher with single- to three-digit numbers, with most numbers being two digits. Rarely do high numbers like 355 or 1000 appear and refer to a nomenclator. Deciphering or finding the nomenclator used in this letter has not yet succeeded.



14. 53. 2. 198.
6.14.2. 17.2.60.29.22.21.32.35. 29. 54.9. à la verité
n'est pas fort considerable par son rang, mais
qui frequente quelques maison des premiers mi-
nistres, ou 2.12.42.10. 66. 53.6. 15. 27.2.53.9.
28. m'a dit à cette occasion, que cette 5.6.
2. 53.6.187. 14.2. 51. 66. 6. 60.16.9.28. 14.22.
54.29. 35.31.20.66.60.25. 77.2.60.52.66.14.28.
29.6.2. 14.16. 6.29. 51. 2. 60. 9. 22.21. 29.50.
99. 6. 27. 2. 73. 53.2.51. 20.16.14.21.2.51. inten-
tion 29.53. 6. 177. mais si 187. reussit
dans le dessein de 100.2. 28. 66. 72.2.60.177.
100.2.110. 12.9.7.6.2. 700. 53. etablir quel-
que 9.14.28.2.12. 42.9. 7.2. 14.15.10. 66.5.
2.15.12.6.9. 14.16.6. 57. 17. 22. 60. 27.
26.9. 22.21.29. 252.6.2. 13.9.29. 53.66.14.29.
6.14.2. 31.25. 6.5.20.9. 29.2.51.9.66.24.9.16.9.
72.22

Figure 5: Letter from Wackerbarth to Flemming, 24th July 1717 (detail), SächsHStAD, 10026, Loc. 00713/01

In 1720, the Saxon-Polish court utilized a substitution cipher based on syllables in combination with special ink.[12] Thus, they had moved away from simple substitution and sought innovative methods for enhanced secrecy. Parallel to deciphering the syllable cipher, a method is to be developed to render invisible ink readable through chemical-physical processes. Since the hidden messages are still not readable today, the ink evidently provided better security than the encryption.

7 Summary and Research perspectives

The project highlights the increasing efforts towards improved communication security. It demonstrates the relative carelessness at the beginning of the Northern War and the learning curve within 20 years to change from simple substitution with nomenclator to a syllable cipher combined with special ink. The clerks abandoned doing interlinear deciphering. The hidden content proves to be extremely delicate for Saxon history.

However, the project also reveals research deficits. Three research perspectives emerge from the project. Firstly, a pattern of cipher reuse can be sought through statistical methods. Secondly, the use of invisible ink comes into focus and demands interdisciplinary methods, especially since it is also possible that sympathetic ink and cryptology were combined. Thirdly, the search for nomenclators among the mass of unassignable tables highlights the importance of describing the typical structure of a specific cipher. The analysis of the strengths and weaknesses of a cipher can be derived from the structure of the cipher. Each cipher has a specific structural image, comparable to a fingerprint. This 'fingerprint' consists of the representation, the rule system, the scope, and the specific non-values. In particular, the number of digits, the lowest and highest assigned number, and the exact specification of the non-values provide important clues to the pattern of a cipher.

[11] Cf. SächsHStAD, 10026, Loc. 00713/01, eg. f. 29-33.

[12] Cf. SächsHStAD, 10026, Loc. 03424/02, eg. f. 41-42, f. 100.

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