

## ENCRYPTION IN EDGAR ALLAN POE'S FICTION: A TRANSACTIONAL READING OF SECRET WRITING

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***Abstract:** Not only was Edgar Allan Poe a writer and literary critic, but he was also one of the leading figures of cryptology. His essays on the art of secret writing, published in Graham's Magazine between 1841 and 1843, popularized the notion of cryptography in the United States. Yet, Poe's profound interest in encipherment had also permeated his literary composition. The present paper traces the different encryption methods employed in his crypto-fiction, in an attempt to examine the impact of his cryptographic experimentation with language upon the act of reading itself, through the lens of Transactional Reader Response theory.*

***Keywords:** cryptography, encryption methods, fiction, Poe, Transactional Reader Response theory*

### 1. Introduction

Edgar Allan Poe firmly believes in the power of writing to escape the confines of alphabetical language. In his essay "Marginalia", he declares "so entire is my faith in the power of words" (2017: 117). Contrary to the nineteenth-century approach to literary composition, Poe's fiction displays a wide range of secret texts, including symbols, codes, riddles, cryptograms, enigmas, semagrams, hieroglyphs, and ciphers. Cryptographically speaking, a secret text is the outcome of a pre-conceived cryptosystem. The latter is a linguistic system which encompasses two interrelated processes: encryption and decryption. As far as the first process is concerned, encryption can be defined as the transformation of any intelligible readable text (a plain-text) into a coded text (a cipher-text) according to a particular encipherment technique. Poe is quite aware that writing in codes "elude[s] the general comprehension" of readers, and therefore creates a transactional mode of reading experience (2013: 33).

In Poe's crypto-fiction, the reader is often invited by an unnamed narrator to participate in the resolution of secret writing. The reader is explicitly involved in every cryptographic transaction (verbal, three-dimensional, and pictorial), thereby becoming a primary component of the meaning-making process. This narrative approach derives from Poe's aesthetic theory (namely the single effect theory), in which every element in the story produces one effect in the reader's mind. Nonetheless, some scholars, including William Kurtz Wimsatt (1934), Shawn Rosenheim (1996) and Terence Whalen (1999), exclusively focused on the scientific aspect of Poe's cryptography rather than on the reading experience itself. On this account, the main objective of this paper is to explore the interaction between the secret text and the reader, through the lens of Transactional Reader

Response Theory. This literary theory, developed by Louise Rosenblatt (1978) and Wolfgang Iser (1972), suggests that meaning is the product of the reader-text interaction. On a broader scale, a transactional reading of Poe's secret writing could enhance the interpretation of his cryptographic narratives.

The paper seeks to address two major points. First, it will examine Poe's encryption methods in the following works: "The Gold Bug", the Dupin trilogy, namely "The Purloined Letter", "The Murders in the Rue Morgue", and "The Mystery of Marie Roget", and the novel *The Narrative of Arthur Gordon Pym*. These literary works are rife with different types of encoding techniques which are derived from the science of cryptography. Secondly, every encryption method in these texts will be investigated in relation to the act of cryptographic reading. Poe's secret writings generate a cryptographic transaction, governed by two active components: the cipher-text and the reader. The seemingly unintelligible secret writings call into play the reader's analytical reasoning.

Poe had popularized cryptography through his essays on secret writing before he ventured into a crypto-literary experience. From 1841 on, "Poe's readers" have gradually started to be "fond of puzzles of all sorts, as is evident in the popularity of gothic and sentimental works" (Hayes 2013: 365). In his time, cryptography was no longer a subject of elitism. Rather, it became a popular activity. Over the last decade of his life, Poe's keen interest in secret language culminated in his last works. He made out of cryptography, the science of solution, a luring "art of solution" (Poe 2013: 35). The American literary scholar William Wimsatt (1934: 779) views crypto-fiction as "one of Poe's most impressive gifts".

## 2. The mono-alphabetic substitution cipher

Edgar Allan Poe's "The Gold Bug" is the first short story in American literature to employ a cryptogram in a piece of fiction. The story revolves around an unnamed narrator who accompanies the protagonist William Legrand and his servant Jupiter on a treasure-hunt journey on Sullivan Island, South Carolina. Legrand unveils a hidden text written on an old parchment in invisible ink. This cipher-text, which leads to a buried treasure, reads as follows:

53++!305))6\*;4826)4+.)4+);806\*;48!8¶(60))85;]8\*:+\*8!83 (88)5\*!;46(;  
88\*96\*?;8)\*+(; 485);5\*12:\*+(;4956\*2(5\*-4)8¶8\*; 4069285);6!8)4++;1  
(+9;48081;8:8+1; 88;4(+?34;48)4+;161;:188;+?; (Poe 1998: 222)

The secret text above is called a cryptogram, yet Poe employs the term "cryptograph" synonymously. The word "cryptograph" was coined by Poe (1998: 22) in his essays on secret writing. Legrand is depicted as an experienced cryptographer who succeeds in decoding the cipher in question, because he has already solved other ciphers "of abstruseness ten thousand times greater" (Poe 1998: 222). After a first inspection, Legrand describes the cryptogram as "the more simple of ciphers" (ibid.). The use of the word "simple" is by no means arbitrary. This entails that the secret-text included in "The Gold Bug" is a mono-alphabetic substitution cipher. In modern cryptography, it is also called a simple substitution cryptogram. This encryption method, which consists in substituting every character of the plain-text for another character, is based on a particular code-key. Legrand tells the narrator that this cipher is "absolutely insoluble without a key" (ibid.); his words reflect Poe's in-depth knowledge of these species of ciphers.

It is worth noting that Poe's choice of the mono-alphabetic substitution cipher, as the simplest encryption method, is quite deliberate. In the early nineteenth century, cryptography was considered to be of supernatural origin. William Frederick Friedman, a twentieth-century American cryptographer in the army's Signal Intelligence Service, notes that "the popular conception of, and the reaction toward, the subject of cryptography in Poe's time -and to a certain extent today- are the remnants of a medieval point of view, [...] a cryptogram is a piece of writing [...] concealed, hence mysterious or occult, and thus supernatural" (Friedman 1936: 266-267). In other words, Poe was aware that the use of more complex encryption methods would inevitably exceed "the mental portrait [of] the average layman" or the average reader (idem: 267). He took into account, to a logical extent, the cryptographic knowledge of the nineteenth-century mass readership, who had only been accustomed to the simplest enciphering method through his prior essays and articles on cryptography in both *Graham's Magazine* and *Alexander Weekly Messenger*.

Most of Poe's crypto-tales are governed by two major characters, namely the protagonist who plays the role of a cryptographer, and an unnamed narrator. In "The Gold Bug", the narrator and William Legrand, "a well educated [man], with unusual powers of mind", embark on a journey in search of a buried treasure (Poe 1998: 198). Legrand holds complete autonomy of the whole process of secrecy, from encryption to decryption. He explains to the narrator the nature of the cryptogram and provides him with a detailed cryptanalysis. On the other hand, the narrator could be seen as a foil character to Legrand. He only endures perpetual anxiety because of his cryptographic incomprehension. He could barely fathom Legrand's logical train of thoughts. The discrepancy between the mental abilities of the two characters serves a communicative purpose. It aims to transfer the narrator's feelings of uncertainty and anxiety to the reader's mind. In other words, Poe's "transferential poetics [...] is aiming to make the narrator's boundary issues ours" (Frank 2015: 67).

Poe anticipates the reader's anxiety, which might be evoked by the cryptographic complexity of the text. For this reason, he creates a fictional double of the reader, the narrator. This produces a communicative nexus between the reader and the narrator. Poe endeavors to alleviate the reader's linguistic alienation by confronting him/her with his/her own double. In other words, the reader identifies himself/herself with the narrator's gradual understanding of Legrand's mode of reasoning. This transactional approach is intended to reduce the reader's unfamiliarity with the complexity of cryptographic language. In this context, Wolfgang Iser notes:

The process of absorbing the unfamiliar is labelled as the identification of the reader with what he reads. [...] What is normally meant by 'identification' is the establishment of affinities between one- self and someone outside oneself-a familiar ground on which we are able to experience the unfamiliar. (1972: 295)

In order to attenuate the effects of alienation and anxiety aroused in the reader's mind, Poe's narrator acts as a mediator between Legrand's unfamiliar secret text and the reader. Thus, Poe's transferential technique plays a fundamental role in his aesthetic theory. Such a crypto-literary transaction promotes a dynamic and engaging reading experience.

### 3. The Cryptographic detective problems

Edgar Allan Poe is regarded as the precursor of both detective fiction and crypto-fiction genres. In his Dupin trilogy, the two genres are merged with each other: “Poe combined two of his inventions, the detective story and literary cryptography” (Wimsatt 1934: 778). The trilogy revolves around a crime-solving process which is featured by a hidden solution of an enciphered investigation. Unlike the cryptogram in “The Gold Bug”, which is written on a “two-dimensional page”, the three detective stories are characterized by an encoded “three-dimensional world” in which the characters’ minds, objects and events are ciphers to be decrypted (Rosenheim 1996: 25).

To begin with, “The Murders in the Rue Morgue” is Poe’s first crypto-detective tale. Poe weaves a design of secrecy in the form of an intrigue crime problem, which consists in the murders of two ladies (Madame L’espagne and her daughter) in the rue Morgue. The prefect of police, Mr. “G–”, fails to puzzle out this crime. Then, a detective, known as Monsieur C. Auguste Dupin, intervenes, with the company of the unnamed narrator, in order to unravel out the mystery of the crime. Dupin is depicted as an ingenious detective who “is fond of enigmas, of conundrums, of hieroglyphics” (Poe 1998: 92). Poe’s fictional encryption method consists in enciphering all evidence and clues that could lead Dupin to the murderer.

“The Mystery of Marie Roget” is the second crypto-detective tale of Poe’s trilogy. In 1842, Poe fictionalized a real, unsolved crime that had happened in the vicinity of New York, where a girl, called Mary Cecilia Rogers, was murdered” (idem: 149). Similarly, this tale is about the mystery of a young woman, Marie Roget, whose corpse was found on the shore of the Seine in Paris. Poe encrypts the detective narrative by drawing a cryptographic plot in the form of a murder scene, with neither real suspected murderer nor decipherable clues. Dupin’s task is therefore to decode “the continual absence of all clue to the mystery” (Poe 1998: 152).

The third, “The Purloined Letter”, is the final piece of the trilogy. The story is about an immoral minister, named D–, who steals a letter from the desk of an unknown lady in a high governmental position. Then, he puts a letter identical to the original one on her desk in order to avoid being held in suspicion. The woman knows that D– is the holder of the original letter. So, out of fear of being blackmailed for its content, the woman asks the prefect of police, Mr. G–, to find the stolen letter. Yet, the prefect fails to accomplish this mission. That is why she asks for Dupin’s assistance. The latter attempts to unravel the mystery, find the place of the purloined letter, and take it back from the notorious minister.

In Poe’s Dupin trilogy, a prototypical cryptographic transaction is established between two active agents: the reader and the secret text. First, Dupin, reminiscent of William Legrand, is depicted as a cryptographer with “peculiar analytic abilities” (idem: 94). Dupin is an emblem of secrecy, since he often voices both the enciphered problem and its resolution. The detective Dupin is the manifestation of the whole cryptographic system. Second, the unnamed narrator seems omnipresent in all these detective fictions. He mirrors the reader’s act of secret-reading. Not only does he accompany Dupin as an eyewitness of every investigation, but he also communicates with the reader throughout the narrative stage, from the first process of encryption to the final decipherment process. The narrator’s role is to reconcile the intricate design of secrecy and the reader’s understanding of “the unheard-of powers of [cryptographic] interpretation” (Rosenheim 1996: 13). Poe intensifies

the transactional correlation between the text and the reader by elevating the narrator from the position of a mere storyteller to an intrusive and interactive interlocutor, who constructs a direct communicative relationship with the reader.

Overall, the trilogy is replete with secret identities (the minister D–, the prefect of police G–, the anonymous royal woman, the unnamed narrator, *etc.*), puzzling turns and twists, and more importantly, encrypted designs of criminal investigation. Yet, Poe’s artistic sensibility towards the act of reading manifests itself through his ability to decode the knotty connection between the reader and the secret-text. Simply, Poe establishes a connection between the text and the reader through the intermediary of the unnamed narrator. Poe’s choice of an unnamed narrator is by no means arbitrary. The anonymous narrative voice is meant to endow the narrator with a dynamic identity. The narrator’s identity is manifold because it reflects the many-sided identity of readers. In general, the act of reading a detective story is a cryptographic activity *par excellence*. According to Shawn Rosenheim (1989: 382), Poe’s cryptography is the origin of his detective fiction, because a “detective story begins by extending cryptographic modes of reading to the phenomenal world. Detective fiction applies to one’s sensory experience the same analytic tools used to break a code”.

#### 4. Semagrams

Among Poe’s cryptographic literary texts, only *The Narrative of Arthur Gordon Pym* was written prior to his essays on secret writing. Accordingly, this work, written in 1838, exhibits a different encryption method, which involves both cryptography and steganography. In chapter XXIII, the protagonist, Arthur Gordon Pym, and his friend Dirk Peters traverse three chasms and other paths in their journey to the South. Separate semagrams, respectively encompassed in the narrative, display the entire track of the two travelers. Van Tilborg (2005: 118), a Dutch scholar of cryptography, defines a semagram as “a picture or grapheme hiding a message behind innocent looking, frequently minute graphic details”.



Figure 1

Figure 1 “gives the general outlines of the chasm” (Poe 1965: 871).

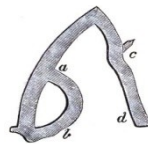


Figure 2

Figure 2 “is also a chasm which is “commencing at the opening *a* and proceeding round the curve *b* to the extremity *d* [...] *c* [is] a small aperture” (idem: 872).

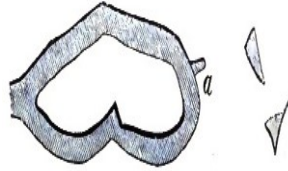


Figure 3

The narrator (*ibid.*) says that “the third chasm three hundred and twenty yards. At the point *a* was an opening about six feet wide, and extending fifteen feet into the rock.”



Figure 4

Figure 4 appears at the end (*ibid.*); it represents the whole trajectory traversed by Pym and his fellow Peter.

Pym, the protagonist, might be viewed as a maze runner and a pathfinder who goes through numerous meandering chasms, wells, holes, paths and ‘*cul-de-sacs*’ (Poe 1965: 883). These natural forms could be regarded as puzzling codes to be unscrambled. For Poe, Nature in itself is manifested as a whole cipher to be decoded. Pym strives, mentally and physically, to puzzle out his way. Consequently, a ‘labyrinthine’ atmosphere comes into being through a visual interaction between the reader and the text. However, upon reading Poe’s “Note” (attached to the novel), one discovers the existence of a verbal cryptographic dimension that exceeds the pictorial one. In the section “Note”, Poe (*ibid.*) points out that the aforementioned figures produce three verbal ciphers. The encryption method in question consists in concealing within these figures three messages which take the form of an Ethiopian expression, an Arabic phrase, and an Egyptian hieroglyph.

The three linguistic ciphers (verbal roots) are steganographically embedded in the narrative in the form of five semagrams. It might be said, then, that it is very difficult for a nineteenth-century ordinary reader to discern and decode the two hieroglyphs (Ethiopian and Egyptian) and the Arabic word. This could explain why Poe includes an elucidation of the whole decryption process in the “Note” section. Whilst the Arabic verbal root requires a translation process, the two hieroglyphics are ciphers to be decrypted. Singh states:

[T]he writings of ancient civilizations were not intended to be indecipherable: it is merely that we have lost the ability to interpret them. However, the skills required to uncover the meaning of archaeological texts are closely related to the art of codebreaking. (1999: 13)

This implies that a hieroglyphic writing is not a full-fledged established language; a decoding process is thus necessary to uncover their hidden meanings.

In *The Narrative of Arthur Gordon Pym*, a two-level cryptographic transaction is established between the reader and the secret extracts. Poe builds up both pictorial and verbal reader-text interactions. However, unlike “The Gold Bug” and the Dupin trilogy, wherein the cryptographic transaction is embedded within the narrative, the novel defers such transaction to a subsequent point beyond the narrative. Only after reading Poe’s “Note” would the reader notice the existence of encoded semagrams within the novel. It is true that stumbling on such recondite secrecy seems at variance with the ordinary reader’s cryptographic knowledge; yet, Poe is inclined to show that the reading process is not merely confined to the two-dimensional page. The universe itself, including Nature, is a broader space to be read and decoded. In “Eureka: A Prose Poem”, Poe notes that the material universe should be read as a poetic work, which contains all the secrets of being and existence. Poe (2015: 130) declares that the cosmos “is but the most sublime of poems”. In general, he seeks to interact with a Pym-like reader who is capable of decrypting his/her own path and of unmasking the far-fetched clues to his/her own being.

In general, according to Poe’s effect theory, an ideal act of reading is an active aesthetic engagement with the effect intended by the writer. It is only through aesthetic experience that one can fill in the gaps in the text. This idea finds its full expression in Iser’s conception of the ideal reader:

The ideal reader, unlike the contemporary reader [...] can close the gaps that constantly appear in any analysis of literary effects and responses. He can be endowed with a variety of qualities in accordance with whatever problem he is called upon to help solve. (1972: 58)

In a similar perspective, the reading process of secret writing transcends the limits of what Rosenblatt (1978: 24) calls “nonaesthetic reading [, in which] the reader’s attention is primarily focused on what will remain as a residue after the reading -- the information to be acquired”. This implies that Poe’s secret writings require active aesthetic engagement. “In aesthetic reading, the reader’s attention is centered directly on what he is living through during his relationship with that particular text” (idem: 25). In Poe’s crypto-fiction, the reader is explicitly engaged in the cryptanalytic process (the decoding process), through his/her aesthetic transaction with the secret text.

## 5. Conclusion

The paper displays a perennial interest in the transactional aspect of Poe’s cryptography. On the whole, a transactional analysis of Poe’s encryption methods could help to provide a window into new layers of literary interpretation. On a broader scale, the investigations into this area could also provide a considerable insight into a growing body of literature, notably the crypto-fiction genre. It is true that a transactional reading basically reinforces one’s understanding of Poe’s cryptographic works, but it is also a tacit incentive for readers to shape the way they approach truth in all its cryptic forms. Poe’s cryptography can be considered as an implicit invitation to transcend the limits of ordinary language. Although seemingly recondite, a fictional secret text demands reasoning beyond the logical

connection of things. Poe (1998: 174) says that “experience has shown and philosophy will always show that the larger portion of truth arises from the seemingly irrelevant”. This could explain the recurrent association between truth and decoding in Poe’s cryptographic narratives. Going beyond Poe’s crypto-fiction, a literary text, in general, offers the possibility of experiencing a creative reading. In his analysis of reading and responding, Derek Attridge (2004: 79) states that “creative reading [...] tries to decode the textual string with the necessary objectivity and accuracy”. One’s creative reading response could therefore decode all forms of literary indeterminacy.

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