

When the Catholic threat to England intensified once more in the 1580s, and Sir Francis Walsingham found himself in need of a good conspiracy to finally rid England of Elizabeth's Catholic cousin, he perhaps remembered the fiasco of the Casket Letters. Mary might have long abdicated her Scottish throne, and she may have continued living under house arrest, but she remained a powerful figurehead. Only her death would do, and that required unimpeachable evidence of treason. The Casket Letters might have served to sharpen the executioner's axe, but had also shown that mere forgeries alone would not legitimately allow Elizabeth to swing it. Walsingham decided that the best way forward was to manoeuvre Mary into betraying herself. He did this through careful and cunning manipulation of her correspondence.

Walsingham and the Queen of Scots had long clashed over matters relating to correspondence. When first placed under house arrest, Mary had been allowed to use the diplomatic mailbags of foreign embassies in London, but within two years she was complaining of being 'obliged to leave all my letters open', and by 1582 that all her correspondence was passing through Walsingham's hands.⁴⁷ Mary was either being disingenuous in order to convince Walsingham that this was the case or needlessly pessimistic, as many of the letters sent between 1578 and 1583 appear to have escaped his clutches.⁴⁸ The exposure of the Throckmorton Plot in 1583, which had shown that the Spanish were more than willing to collude with Mary to overthrow Elizabeth, had led to the banishment of the Spanish ambassador Bernardino de Mendoza. This left the French diplomatic mail stream as Mary's only official line of communication with her supporters. Unbeknownst to her, Walsingham had recruited a mole in the French ambassador Castelnau's embassy in the form of one of his clerks, Laurent Feron, who had kept the 'spymaster' supplied with copies of Mary's correspondence.⁴⁹ The Throckmorton Plot may have ended in the ignominious death of its eponymous leader, Francis Throckmorton, but 1584 also saw victorious Spanish armies in the Low Countries and the assassination of William the Silent in Delft at the hands of a Catholic. Burghley and Walsingham responded by drawing up the 'Bond of Association', which effectively enshrined in its signatories (the majority of the country's ruling classes) an obligation to protect Elizabeth and the

Protestant succession from harm and conspiracy, by use of immediate force if necessary. The bond cleared a way through the thickets of law which had long hindered the crown from taking direct action against Mary (who was, ironically, also a signatory). Furthermore, Castelnau's involvement with Throckmorton allowed Walsingham to blackmail the French ambassador: he now promised to keep his secret safe in return for direct access to all of Mary's correspondence. There was no longer any need to rely on the subterfuge of a mole, as Castelnau simply shared all of Mary's communications with Walsingham directly.

Walsingham further tightened his grip on the Scots queen. He replaced her keeper, the rather too familiar Sir Ralph Sadler, with the austere and unforgiving Calvinist Sir Amias Paulet, and then had her moved from the unpleasant and malodorous Tutbury Castle to the more salubrious environs of Chartley Manor, a moated manor house (owned by Essex). In doing so he even appeared magnanimous: it had been alleged that the castle's environs were affecting Mary's health. The move also served a practical purpose. John Somer, who was onsite assisting Sadler, had complained that it was hard to control the queen's correspondence in Tutbury, as her household was scattered all over the sprawling residence.⁵⁰ With her new gilded cage came a new household, and new possibilities. Walsingham, aware that his blatant, if not absolute control of Mary's correspondence was hindering her from pursuing any conspiracy in which he could then ensnare her, adjusted his approach. He presented Mary and the new French ambassador, the vigorously Catholic Guillaume de l'Aubespine de Châteauneuf (who had replaced the compromised Castelnau in 1585), with an apparently golden opportunity to establish an entirely new, and seemingly very secret, line of communication. The man at its heart was a new member of the Chartley household, a Catholic refugee called Gilbert Gifford. Mary had no reason to suspect Gifford of being anything other than loyal to her and the Catholic cause – he had been recruited by Thomas Morgan, whose association with Mary began when he joined the household of George Talbot, 6th earl of Shrewsbury, in 1568.⁵¹ Unfortunately for the Catholics dabbling in epistolary subterfuge, Gifford was working for Walsingham.⁵²

No stranger to clandestine communications, Mary had at her disposal a number of ways to smuggle correspondence both in and out of prison (which is what Chartley was, for all the pretensions to house arrest). This was not the problem. The problem was what happened when these letters made it into the outside world. Gifford is best known for his ingenious method of smuggling letters in and out of Chartley, either placing them in ‘a small watertight box that he slipped through the bung-hole of a beer cask where it floated on top of the beer’, or in a space hollowed out of the bung which sealed the barrel.⁵³ As beer was only delivered once a week from Burton Abbey, and surreptitious letters plainly entered and left Chartley on a more regular basis, Mary’s more familiar methods, which included smuggling letters hidden in the lace of girdles and in pairs of shoes, must still have been in operation.⁵⁴ It was the channel Gifford opened with Châteauneuf that was important, however, as no matter how these letters got themselves out of Chartley, they still had to get to the French ambassador for distribution – and Gifford ensured that they would first pass through Walsingham’s hands. Elizabeth’s secretary of state was ready to take action against Mary just as soon as the opportunity arose.

THE BABINGTON PLOT

Had the young and wealthy recusant Anthony Babington not appeared on the scene, Walsingham would no doubt have invented him.⁵⁵ Babington was not a complete stranger to Mary: he had delivered various packages to her while she was in the custody of the earl of Shrewsbury, whom he had attended as a page.⁵⁶ He subsequently fell in with a bad crowd in Paris, some of whom were Mary’s agents, and by June 1586 this rather naïve young gentleman had assembled a motley crew of Catholic conspirators around himself. Together they hatched exactly the kind of plot that Walsingham needed to expose in order to condemn the Scottish queen – a poorly thought-out but treasonable plan to assassinate Elizabeth and place Mary on the English throne. Unfortunately for Babington, one of his ‘co-conspirators’ was Gifford. Walsingham was thus aware of the plot before any letters had reached Chartley, and had merely to follow it as it played

itself out, collecting whatever evidence he needed on the way to achieve his goal: Mary's execution. Things got serious when Babington, encouraged by Mary's willingness to renew their acquaintance, sent her a long letter in which he first explained his plan and then asked her permission to carry it out. It was July 1586.

Babington's letter gave Walsingham the opportunity he needed to catch the queen in a treasonous act, but Elizabeth's secretary of state knew full well that everything depended on her response. Perhaps more importantly, it depended on the evidential trail with which he might convince a court that it was, indeed, *her* response: Mary had argued cogently (albeit at one remove) during the tribunal of 1568–9 that it was impossible to prove that the Casket Letters were her true voice, a defence Walsingham needed to circumvent. While Mary may have thought Gifford's new postal channels rather more secure than was, in fact, the case, she was no fool. Conscious of the need both to secure her communications from prying eyes and to distance them from her own voice, Mary ensured that the letters Gifford ferried between her and her supporters were written in cipher.⁵⁷

CRYPTOGRAPHY, CIPHERS AND SECRETARIES

As we have seen, the process of enciphering a message is conceptually simple: you apply the rules that govern your particular system of secret writing to your plaintext message and you end up with your ciphertext or cryptogram. To decipher the text, that is, to turn it from ciphertext into plaintext, you simply reverse the process. This means that the rules that constitute the cipher need to be available to both sender and receiver – and also that the security of the message relies not only on the complexity of your cipher, but also on no one else being in possession of these rules.

The labour-intensive and cumbersome task of enciphering letters into great strings of letters, numbers and symbols was seldom executed by the monarch. Secret script was instead the prerogative of the secretaries – in Elizabeth I's case, Cecil would underline any parts of a draft letter that were in need of enciphering, and then hand it to another secretary who would

produce a fair copy in secretary hand and cipher for the queen to sign.⁵⁸ In Mary's case, as one of her secretaries pointed out during her trial, there was also far too much of it for someone unpracticed in cipher and codes to produce, let alone a queen, whom years of inactivity had rendered somewhat sickly: 'They cannot any way say it should stand with reason that the Queen did decipher and put in cipher her letters herself. For it appeareth that she dispatched more pacquetts ordinarily every fortnight than it was possible for one body weak exercised therein to put in cipher and decipher those sent much lesse for her being diseased, a Queen etc.'⁵⁹

It was also part of secretaries' remit to store the cipher keys, as one of Walsingham's clerks, Robert Beale, suggested: 'A secretary must have a special cabinet, whereof he is himself to keep the key, for his signets, ciphers and secret intelligences'.⁶⁰ Secretaries, as the name suggests, were keepers of secrets. No mere penmen, they were a vital part of the business of government. They acted, according to Nicholas Faunt, another of Walsingham's secretaries, as his master's 'own pen, his mouth, his eye, his ear, and keeper of his most secret cabinet'.⁶¹ A secretary enjoyed unparalleled trust, like no other servant or minister; Robert Cecil compared the counsels between prince and secretary to 'the mutual affections of two lovers, undiscovered to their friends'.⁶² Such trust was not to be accorded lightly, logic suggesting that the wise man would 'let [his] secret services be known to a few'.⁶³ Secretarial manuals recommended employment of two secretaries, one for internal affairs, one for foreign affairs – the latter generally enjoyed more prestige, power and autonomy.

Mary had employed her two secretaries at Chartley, the Scot Gilbert Curle and the Frenchman Claude Nau, since 1568 and 1574 respectively. Nau, a Parisian lawyer, had been recruited on her behalf by the Guise family in France, and acted as her de facto foreign secretary, and thus as her primary keeper of ciphers. Curle, while the junior man, also enjoyed a great deal of trust, as Walsingham's cryptanalyst Somer suggested: 'Curle, [Mary's] Scots secretary ... is not so quick spryted nor prompt as Nau (French-like), but hath a shrewd melancholy wit, not so pleasant in speech & utterance, suspicious enough. She maketh great accompt of him for his fidelity & secrecy'.⁶⁴ Curle was also deeply involved in the manipulation of ciphered texts. Walsingham's informers did not know that Mary also

employed a third, secret secretary, Jerome Pasquier, her master of the wardrobe at Chartley (either he or his father had served as secretary to Castelnau), to carry out much of the labour-intensive work of enciphering and deciphering letters and keeping their various cipher keys organised and up to date.⁶⁵ Nau, as Mary's senior secretary, bore ultimate responsibility for all ciphered communications, however, and Curle and Pasquier worked under his supervision.⁶⁶

TAKE A LETTER, ANTHONY

The famous ciphered letter from Babington to Mary that marked the beginning of the end for Elizabeth's cousin was actually an enclosure – a letter within a letter – sent to Nau at Chartley.⁶⁷ Its exact date is unknown, but it can only have been after a letter Curle sent Babington on Mary's behalf on 25 June.⁶⁸ Not long after Curle sent this letter, Walsingham was informed by his agents on the ground that Babington was ready to put his plan into action, and on 7 July the spy chief sent one of his best cryptanalysts, Thomas Phelippes, to Chartley. The master codebreaker arrived at the manor house two days later.⁶⁹ It is possible that Phelippes was sent to Chartley at this time to replace Somer, who had been at both Wingfield and Tutbury working with Sadler.⁷⁰

In moving Phelippes from London to Chartley, Walsingham sought to ensure that his surveillance operation would not founder on the rocks of time. It was all well and good intercepting a letter, opening it, copying it, repairing it with fish glue and perhaps a counterfeit seal, and sending it on its journey looking as fresh as the day it was first locked, but if this letter took much longer than expected to reach its destination, the delay might cause an understandably skittish conspirator to run to the hills. Certainly, this was a constant worry, as Davison would later warn Phelippes in a way that suggests that neither he nor Burghley entirely trusted Phelippes to relock violated letters as convincingly as, say, Gregory might: 'The French ambassador hath written to my Lord Treasurer [Burghley] complaining of the apprehension & deferring of his packets ... they should be made up ready to be delivered unto him but that you will first let your Lord Treasurer

& me sight in what state the packets are before they be delivered.⁷¹ There was a good reason that most letters began with a formulation such as ‘I received your letter of 10 July on 12th instant [i.e., of this month]’: this would tell the recipient how long letters were taking to move from A to B – these formulations provided a sort of temporal security. Babington, at this point, was in Derbyshire, conveniently close to the brewery at Burton-on-Trent that marked the end-point of Gifford’s beer-barrel postal service, and nowhere near London (sending a letter from Chartley to London could take up to four days, and even then it still had to be opened, decoded, closed again and sent on to its original destination, causing considerable delay).⁷² Having Phelipps onsite also allowed the authorities to take immediate action should it be deemed necessary.

Unaware of the status of this new watcher, Nau wrote to Babington on 13 July informing him that Mary had received his ciphered letter the evening before: ‘Yesternight Her Majesty received your letters and therein closed, which before this bearer’s return cannot be deciphered. He is within these two or three days to repair hither again; against which time Her Majesty’s answer shall be in readiness.’⁷³ Nau here demonstrates the importance of time – Babington was using a key sent to him by Curle (we will explain how we know this presently), but there was insufficient time to decipher Babington’s letter before the secret bearer had to leave Chartley. Perhaps more importantly, Mary and her secretaries had to consider the contents of Babington’s letter, craft a response in French (Mary’s mother tongue), and translate it into what ran to ten pages of English prose before the letter could be enciphered.⁷⁴ Nau expected that the reply would be ready to send by the time the bearer returned to collect the next batch of letters, on 15 July at the earliest. Acknowledging this fact gives the lie to the idea that Mary prevaricated for a week before deciding on her course of action. Nau knew that it would take time to decipher Babington’s letter, to write a response that would avoid directly incriminating his queen, have Curle translate it into English and, finally, encipher it. Mary was not dallying, uncertain of how to act. She knew her own mind. She merely waited for her secretaries’ quills to catch up with her resolve.

The cipher key (Fig. 21) Babington used to encrypt his letter, and that Curle used for Mary’s reply, comprised an alpha-numeric-symbolic

alphabet, with five nulls, one dowbleth (indicating that the letter it follows ought to be repeated, thus avoiding repeating symbols that would make decoding easier in most languages: they would immediately indicate ‘nn’, ‘ll’, ‘tt’, ‘ee’, etc.), and a thirty-five-word nomenclator. Each of these features was designed to slow the progress of decoding should the letters fall into the wrong hands. Even this cipher key, which was relatively simple, could be used to create a complex cryptotext that resisted easy decoding: it was hard enough to use when you had the key to hand. Fig. 22 shows a small part, roughly 5 per cent, of the letter Mary sent to Babington as it might have been enciphered.⁷⁵

Though this is invariably called ‘Babington’s cipher’, it was created and supplied by Mary’s secretariat. Nau and Curle used two distinct types of cipher keys, what we will dub ‘nursery’ and ‘mature’ ciphers. When approached by a prospective correspondent, Mary’s secretaries would send a relatively simple key with which they might make their initial epistolary advances. If Mary found their overtures compelling, they would be provided with a new key, one more suitable for the correspondence to come. This is what happened with Babington: the end of Mary’s reply to him included the words ‘I have commanded a more ample alphabet to be made for you, which herewith you will receive.’⁷⁶ This new, mature cipher was more complex than the nursery version hitherto used between the pair, and subsequently far more difficult to break.

In August 1586, in a search for more evidence, Walsingham’s men ransacked Mary’s apartments. In the process, they found fifty-three cipher keys, of which seventeen resembled the nursery cipher used for the initial correspondence with Babington, while the remaining thirty-six were more complex or mature ciphers.⁷⁷ The nursery cipher used by Babington was not discovered in this haul, but has survived in a copy made by the authorities at an earlier juncture, alongside two other cipher keys of similar construction (see Fig. 23). These three cipher keys have the same basic structure (an alphabet comprising twenty-three letters, five nulls, one dowbleth and a thirty-five-word nomenclator). The regularity of these cipher keys (including the number of symbols common to all three, and the omission of the letter ‘w’) suggest that they came from the same source; this source was most likely Mary’s Scottish secretary, Gilbert Curle.

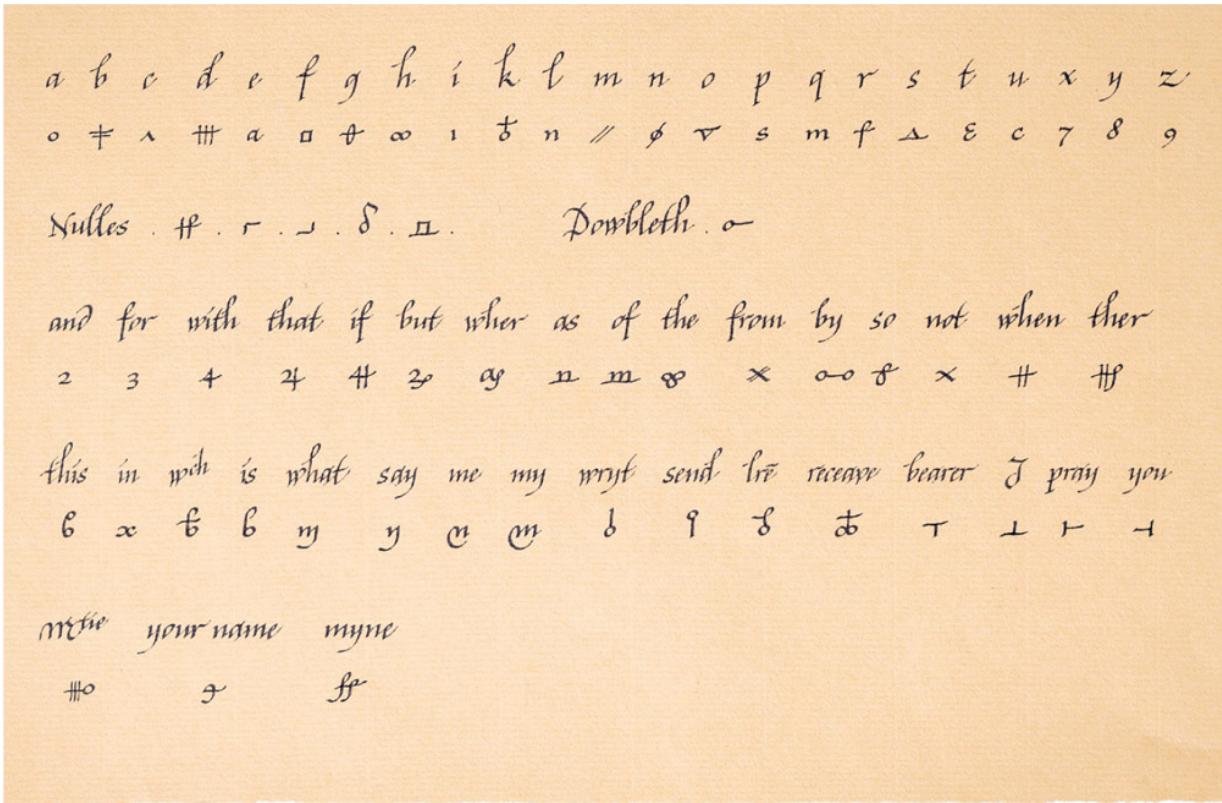


Fig. 21: A modern rendering of the cipher key used between Babington and Mary's secretariat.

The simple truth is that, no matter what the history books say, Phelippes did *not* break Babington's cipher during this period. He simply did not need to – he already had the key. This fact is corroborated by a feature common to each of the three nursery ciphers: the nomenclator words 'your name' and 'myne' only make sense in a key sent by one individual to another. If Phelippes had deduced these keys, he would either have used the names of the individuals concerned, or, if he had yet to discover who the individuals at either end of the correspondence were, 'the writer's' and 'the recipient's'. The similarity between these keys may have acted to protect the identity of users, as it would have made it difficult to assign them to particular individuals until further contextual evidence had been collected. The authorities were plainly unsure – at least initially – which of these ciphers was used by Lady Ferniehirst, which by Dr Lewes and which by Anthony Babington, as each of these names has been assigned to different keys before being crossed out and reassigned.⁷⁸

Fig. 22: Just as material conditions are crucial to understanding how the dark artificer might counterfeit a letter, so must we appreciate the amount of time it takes to encipher one. With this in mind, we recommend that you decipher this passage, which has been enciphered using the ‘Babington’ key, as seen in Fig. 21, and perhaps even re-encipher it.

The messages sent during the Babington Plot using the nursery ciphers might well have thrown any cryptanalyst playing with frequency analysis off the scent, if only temporarily, as they might have reasonably assumed that such letters had originally been written in French, not English as was the case.⁷⁹ The mature ciphers took the same form as the nursery ciphers, but they were far more complex, increasing the number of features designed to confound the cryptanalyst. While the nursery ciphers featured an alphanumeric-symbolic substitution alphabet, the mature ciphers took this one step further. Fig. 25 is a good example of this. It shows a fully homophonic symbolic alphabet, with each letter having four symbolic options available. Alongside the homophonic alphabet stand upwards of thirty nulls, as well as symbols serving to double and annul the preceding character, and symbols for punctuation. It also provides symbols for bigrams (sequences of two letters), trigrams (sequences of three letters), digraphs (a pair of letters which make one speech sound), and a much enlarged nomenclator of upwards of 150 entries, including phrases such as ‘My good brother’,

names of individuals, countries and towns, as well as the months of the year, a rare feature for sixteenth-century cipher keys.⁸⁰

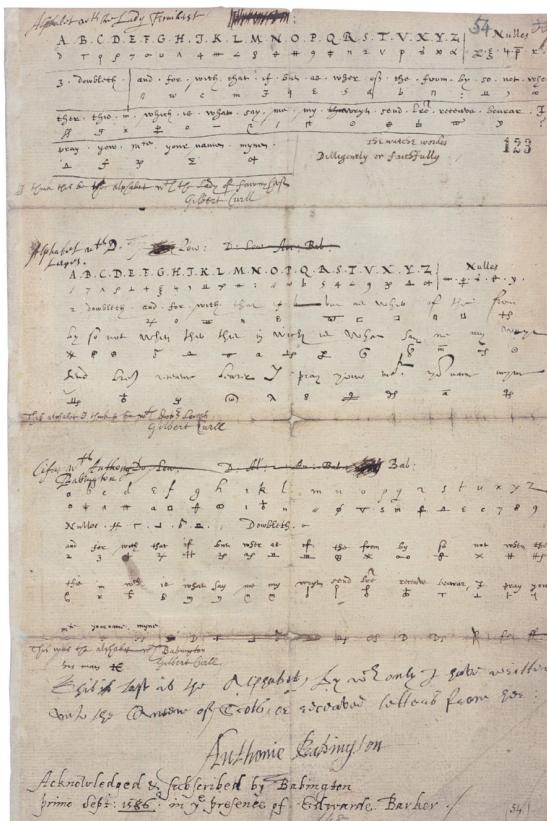


Fig. 23: Three cipher keys bearing the signatures of Gilbert Curle, who matches them with their correspondents (two tentatively and one certainly), and Anthony Babington, who confirmed the key he used while writing to Mary.

The new, mature cipher that was sent to Babington was a far more intimidating beast than the nursery cipher it was intended to replace. It was also just as useless, as it was simply intercepted en route, copied and sent on its way. When Babington wrote a letter to Mary using this new key, Phelippes could decipher it as easily as he had the previous messages.⁸¹ That these more complex ciphers were of Nau's design became clear in the subsequent trial, as Phelippes stated: 'The new Alphabet sent to be used in time to come between that Queen and Babington ... is of Nau's hande.'⁸²

When historians talk of 'the cipher code of Mary, Queen of Scots', what they mean is 'one of the many cipher keys formulated by her secretariat and used by one individual in their correspondence with the Scottish queen'. Similarly, when they talk of Phelippes 'breaking Babington's code', what

they actually refer to is his *deciphering* of Babington's letter – as we have seen, he already had the key. This is no disparagement of the talents of Walsingham's first-choice cryptanalyst, of course, as he had already proved his worth in other campaigns. Even the best cryptanalyst needed time to break a cipher, however, and when it came to potential threats against the life of his queen, Walsingham could not afford to dither. In order to maintain control of the situation, he needed to know exactly what was being planned, preferably before the plotters themselves. This is why Gilbert Gifford's inveigling himself into Babington's circle was so important to Walsingham's plans. Gifford's efforts in ensuring that any letter, whether inbound or outbound, and no matter how secretly it appeared to be directed, passed through Walsingham's hands (albeit by proxy), meant that it was not only the messages between Mary and Babington that had been intercepted and copied, but also the key to understanding them. Phelippes would have begun to decipher Babington's letter before Mary had even received it.

MISUNDERSTANDINGS, MISAPPREHENSIONS AND FATAL MISTAKES

On 14 July, both Phelippes and Mary had read Babington's letter in which he explained his plans for placing Mary on the throne of England. It plainly improved both their moods, as on that day Phelippes wrote to his master of an encounter with the Scottish queen in which she acknowledged him as she was going out riding.⁸³ He wrote, 'I had a smiling countenance but I thought of the verse *Cum tibi dicit Ave sicut ab hoste cave*'.⁸⁴ The Latin translates as 'beware the hearty greeting, it may hide an enemy'. It presumably did not occur to Mary that his apparent good mood might have sprung from his understanding that it was Mary, not Elizabeth, who was now firmly caught in the jaws of a trap. Here the Latin phrase Phelippes uses becomes all the more interesting: it is only the second half of a well-known medieval couplet – the first line accuses Englishmen of having tails.⁸⁵ When it came to Mary, Phelippes had a tail hidden from her view – the tail of a rat who betrayed her with a smile, or that of a devil, damning

her to a traitor's death. Phelippes was perhaps of the same mind as the duke of Gloucester: 'I can smile, and murder whiles I smile'.⁸⁶

Mary may have been feeling too positive following her secretaries' deciphering of Babington's message to read his countenance in any other way than as friendly and encouraging. Certainly she had changed her tune regarding Phelippes. Barely four months earlier she had warned Châteauneuf off a man who had offered him his services: 'I suspect [this man is] one named Phelippes, Walsingham's servant, who about Christmas resided in this house upwards of three weeks, beware of committing yourself further to him, for, now that he has promised to do me service, I know that he plays a double game'.⁸⁷ She would soon cast him in a more positive light.

Two weeks after the silent exchange of glances with this slippery servant of Walsingham's who had suddenly reappeared at Chartley after six months' absence, Mary wrote to her friend Thomas Morgan describing a hooded man 'of low stature, slender, every way dark yellow haired on the head and clear yellow bearded, eaten in the face with smallpox, of short sight, thirty years of age by appearance'. This man, she said, was Phelippes. While in her earlier letter to Châteaneuf she was certain that Phelippes was playing a '*double jeu*', by July she had returned to a prior conviction that he was a friendly mole, Morgan's man sent in her hour of need. She told Morgan that 'myself and some of mine have given him occasion to have declared himself at hunting and otherwise', but that she had thus far been disappointed.⁸⁸

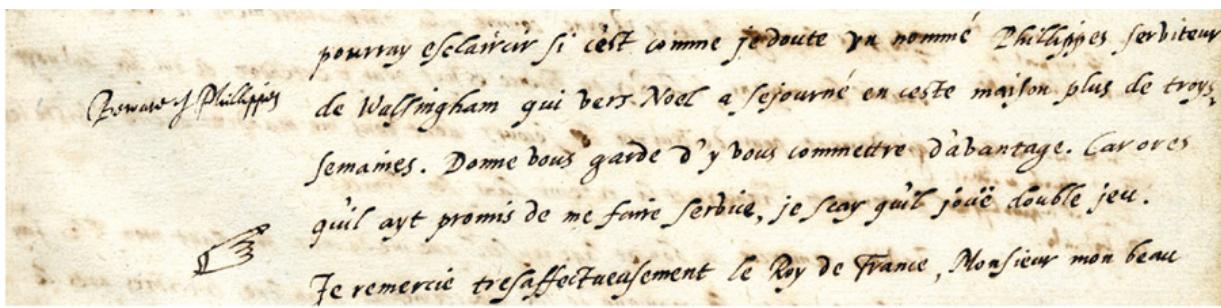


Fig. 24: Phelippes had deciphered Mary's letter to Châteauneuf, and not only written the words 'Beware of Phillipes' in the margin, but doodled a manicule pointing at the passage in question. By this drawing, he visually reiterated the message he had sent to Walsingham with his line of Latin verse: Phelippes was proud to be the undoing of the Scottish queen.

Phelippes's triumphalism did not go unnoticed. Several years later, when Mary's son had finally acceded to the English throne, his earlier threats to have revenge on those who took part in the murder of his mother must have loomed large in Phelippes's conscience. The cryptanalyst attempted to launder his part in the proceedings by asserting that he had only followed orders, and intimated that he would have been unable to assist the stricken queen in any case, even if he had wanted to: 'at Chartley he had as good watch set on him as there was on the imprisoned Queen's servants'.⁸⁹ This latter point is supported by Mary's correspondence. She told Morgan: 'it is true that he hath been looked to as narrowly as any of mine saving that without license he might go abroade [i.e., wander out of Chartley]'. In the deciphered transcription sent to Walsingham, Phelippes edited out this line, suggesting that if it was true that the watcher was himself being watched, he did not want his master to know that he knew.⁹⁰

TRIAL AND TRIBULATIONS

Mary's response to Babington, sent on 17 July 1586, largely sealed her fate, containing as it did the words 'proceed in the [rest of the] enterprise'.⁹¹ The letter, naturally, went directly to Phelippes, who immediately set about transforming the dense knots of cipher symbols into some ten pages of plain English. There was no need to go through the rigmarole of frequency analysis, as he already had a copy of the appropriate cipher key – but even with the key, this was the work of several hours. Before he sent the plaintext on to Walsingham in London, or so the story goes, Phelippes drew a gallows on the address leaf, an act which has led to this missive being termed the 'Gallows Letter' by historians, even though none of the extant copies features this macabre doodle. But this is likely a misreading of the material nature of post. Phelippes did not send a single letter to Walsingham but, as was common practice, a thick packet of letters. Walsingham, in his reply to Phelippes, refers directly to 'the gallows on the packet', not the gallows on the letter.⁹² The packet also contained deciphered letters to the archbishop of Glasgow, Dr Lewes and Morgan. In his covering letter, Phelippes tells Walsingham that 'I hope she [Elizabeth] will hang Nau and

Curle'. The gallows he drew were not for the Queen of Scots but for his vanquished opponents on the cryptological field of battle, Mary's two secretaries. It was not that he felt Mary deserved to escape punishment: he counselled that Mary's original enciphered letter to Babington, which he still possessed, ought to serve as 'evidence against her [Mary] if it please God to inspire Her Majesty [Elizabeth] with that Heroical courage that were needed for avenging of God's cause and the security of herself and this state'.⁹³ Phelippes was also well aware that, given Mary's status, she would be beheaded rather than hanged: this is why he specifically referred to Mary's letter as the 'Bloody Letter' or the 'bloodye dispatche'.⁹⁴

THE POSTMAN AND THE POSTSCRIPT

Phelippes sent his transcript, that is, a deciphered copy of the 'bloodye dispatche', to Walsingham on 19 July, two days after the ciphered original had been 'sent' from Chartley. It comes as no surprise that Phelippes, even though he was in possession of the relevant cipher key, could not produce his plaintext translation sooner – after carefully opening the letter, he would have deciphered each of the symbols one by one on a separate sheet of paper. With a letter such as this, which comprised some 10,000 characters, this would have taken quite some time. Finally, if he had time to spare before a private messenger bound to London was ready, he would have copied out the plaintext to make his scribbles more legible, and then sent this fair copy to Walsingham, accompanied by several other letters. In order to prevent disaster, Phelippes held on to the unscathed original.

In his accompanying letter, Phelippes argued that they might yet 'discover more particularities of the confederates' by sending the original onwards to Babington.⁹⁵ Walsingham's interest was piqued, but he stopped his servant from instantly releasing the original, and instead told Phelippes to come to London, and to bring the cryptogram with him. He was to receive thanks for his work from the queen herself, though Walsingham warned him that the other 'quaint devils', the 'practisers' as he called them, would be jealous of this honour, and in any case, the gallows doodle on the packet of letters itself had got everyone talking.⁹⁶ It was now five days

since Mary had sent her response to Babington, and still her letter was caught in Walsingham's postal system.

By the time Phelipps arrived in London, Walsingham (or, potentially, Queen Elizabeth herself) had decided against arresting Babington immediately in favour of Phelipps's earlier recommendation. To increase the likelihood of Babington's revealing 'more particularities of [his] confederates', it was determined that a forged postscript be added to Mary's already extremely long message. This postscript was a simple request that Babington reveal the identities of the 'six gentlemen' who were to carry out the assassination. Walsingham knew full well that were such an addition to Mary's letter, which was 'very long and all in cipher fair written', to be poorly produced, Babington would spot this blatant attempt at entrapment and flee.⁹⁷ Phelipps may have been a master cryptanalyst, but his hand was somewhat scratchy, and certainly not 'fair'. Walsingham's operatives all had their own expertise, and he had handwriting experts in his little black book. Within it, he found a man 'expert in the *imitation* of hands; and could add, according to instruction, any postscript, or continuation of one, in the very form and turn of letters wherein the rest of the epistle was written, to draw out such farther intelligence as was wanted for a complete discovery, from the traitors themselves, of their treasonable intercourse'.⁹⁸ According to the eighteenth-century source cited here, the man Walsingham chose was the 'small writer' himself, Peter Bales, the man who had wowed Elizabeth with his micrographical skills a decade before.

Walsingham was mindful of his coterie of freelance operatives, however, as he knew that passions and jealousies were already running high. It was for this reason that he wrote to Phelipps on 30 July, the day after Babington had (finally) received the invisibly doctored letter, asking him to reassure Arthur Gregory that 'he shall not find me unmindful of him, as one that esteems both his sufficiency and his fidelity'.⁹⁹ Gregory, who also counted the imitation of hands as one of his particular skills, was presumably put out that the flamboyant and rather arrogant Bales had been selected for this task rather than he.

The postscript as delivered on 29 July was apparently perfect, as Babington never questioned its authenticity, but the twelve-day delay in its delivery had prompted the bird to fly. Walsingham, however, feared that it

was the postscript that had lost him Babington, and with it the original, ciphered letter sent him by Mary. ‘You will not believe’, he wrote to Phelippe, ‘how much I am grieved with the event of this cause [and] fear the addition of the postscript hath bred the jealousy [suspicion]’.¹⁰⁰ As it turned out, Babington had not only been completely fooled by this textual embellishment, but had even answered it: ‘I wrote for answer … that so soon as any resolution should be taken I would inform her.’¹⁰¹ Walsingham had risked everything for nothing, but while his operatives lost sight of Babington for a few days, no harm was done. The more Walsingham learned of Babington, the more clear it became that as a conspiratorial mastermind he was somewhat lacking – he could not tell Mary, or Walsingham, the names of ‘the six’ for the simple reason that they were yet to be chosen. If this postscript was truly the first instance of such a forgery in the history of intelligence, as Christopher Andrew suggests, it also has the dubious distinction of having been utterly pointless.¹⁰²

Phelippe had been confident that Babington would not carry out Mary’s final instructions, ‘Fail not to burn this [letter] presently’, writing to Walsingham that ‘it is like enough for all her commandement her letter will not be soon defaced’.¹⁰³ There are several reasons why Phelippe might have thought that Mary’s enciphered letter would survive for longer than its royal author might have wished, and this is besides the fact that, judging from the amount of letters surviving in archives bearing the same message, such instructions were often ignored.¹⁰⁴ For one thing, the letter was extremely long and would take no little time to decipher – and Phelippe did not know that Babington was not entirely comfortable with ciphers, and needed help from another conspirator, the poet Chidiock Tichborne, to finish the job. For another, Babington needed to be sure he understood and had memorised the instructions it contained before committing them to the flames. There is also the possibility that Babington, as a Catholic, would have a strong urge to keep the letter as a sort of ‘relic’ of Mary, the conspiracy and his glorious part within it.¹⁰⁵ History now records the burning of the letter as having taken place, even though Babington does not mention it in his confession.¹⁰⁶

True, the enciphered letter with the added postscript does not survive, and not even a copy of this cryptogram was presented as evidence at the

trial, but it is just as likely that Walsingham himself had destroyed it. For Walsingham, the fake postscript would have served as evidence that he and his agents had tampered with the letter. This might not have affected the outcome of Mary's trial greatly, but it would quite possibly have cast further doubt on its legitimacy and thus of her execution – and tempers across Europe were already frayed enough.

Whether or not the original was committed to the flames by Babington as ordered or burnt by Walsingham himself matters little, however. Walsingham had learned from the Casket Letters affair. As Mary made clear in her futile demand to see originals, an enciphered letter written neither in her hand nor even, when translated, in her first language was proof of nothing: the words 'proceed in the [rest of the] enterprise' could not possibly be connected to her through ink alone. The way to entrap Mary was not through documents in which her voice was not to be found anyway, but through her keepers of secrets, her secretaries.

Before Walsingham's men rifled through Mary's drawers in August, both the Scottish queen and her secretaries had been removed from Chartley. This gambit was a great success – the boxes of documents containing the fifty-three cipher keys that they discovered were soon in Walsingham's possession, safe from the attentions of any match-wielding queen or secretary. Walsingham returned Mary to her apartments in Chartley a fortnight later, on 25 August, but retained both her archive and its keepers, Nau and Curle. Walsingham finally had total control of the Scottish queen's secrets.¹⁰⁷

Mary had placed her faith in the inscrutability of enciphered letters. Historians have suggested that Walsingham had a perfect facsimile of the original ciphered text produced to stand in for the letter Babington received (and burnt, according to this argument), and that it was this facsimile that Mary's secretaries identified as being the true and original letter. In this way, they suggest, Nau and Curle were tricked into giving the testimonies that ultimately condemned Mary. Such suggestions are not only speculative but make little sense.¹⁰⁸ For one thing, no such facsimile has survived. Second, any ciphered letter to or from an individual such as Babington (who at this point was still using one of Curle's nursery keys) would have looked much like another: Mary's secretaries were potentially

communicating with seventeen individuals using twenty discrete but remarkably similar cipher keys. As such, the secretaries could only have testified to a plaintext letter, copies of which are not only extant, but are plainly the documents referred to in the court proceedings.¹⁰⁹ Curle, for example, testified that '[he] setteth down all the points of the Queen of Scots's letter to Babington in self same words that it is here formerly set down to be given in evidence against her', while Nau 'sayeth, that he took the points of the letter written by the Scottish Queen unto Anthony Babington ... of the delivery, of the Scottish Queen's own mouth from point to point ... these points contained in the Scottish Queen's letter to Babington were first delivered by the same Queen unto this Examinant by her own speech'.¹¹⁰ There was no need to present the original cryptogram to convict Mary. Her secretaries, who were by profession the keepers of her closest secrets, had thrown her under both the coach *and* the horses. They testified that those treasonous parts of the correspondence with Babington they were shown during their interrogations had been dictated to them.¹¹¹

That Walsingham did not rely on perfect facsimiles of the ciphered letters to extract confessions from Nau, Curle and Babington merely accentuates the fact that no matter how expertly one might counterfeit a hand, it only went so far. In a court of law, what mattered was the explicit testimony of those party to the conspiracy: it was not counterfeited letters that sank Mary, it was human testimony. While a letter written by a secretary was still assumed to represent the words of the employer, what truly mattered was not the physical artefact but the manner in which it was authenticated – Nau, Curle and Babington authenticated Mary's words, and her words were treason. Phelipps and Gregory, the latter of whom had recently arrived at Chartley, might have taken possession of all of the materials necessary to make convincing counterfeits of Mary's letters – they had her paper stock, wax, pens and possibly ink, not to mention a whole heap of cipher keys – but they did not need to take advantage of them. The only bit of counterfeiting that went on during the back and forth of the Babington Plot was undertaken in the postscript, and while Babington did not suspect it was anything but his mistress's ink and voice captured in symbols, it made no difference to proceedings: it posed a question he could not answer.

The fate of the Babington Plot revolved around the false sense of security given to its protagonists by cipher keys; it was foiled without a single letter exchanged between Mary and Babington being read through cryptanalysis, and Mary was condemned without recourse to any letter containing treasonous words in her own hand – Phelippes already had the cipher keys, and Mary’s secretaries swore that the words they wrote and enciphered came directly from the mouth of the Scottish queen. Phelippes may have wished that Nau and Curle be hanged, but it was not to be: for betraying their queen, they were granted their lives. Babington was executed on 20 September 1586; Mary, Queen of Scots was beheaded on 8 February 1587.

UNPLEASANT REVERBERATIONS

Following Mary’s execution, a passer-by stumbled upon Secretary Curle’s wife Barbara, who was part of a Scottish train on their way to Fotheringhay Castle hoping to collect their mistress’s body: she exclaimed that ‘the young King can not be so graceless and monstrous in nature as to leave his Mother’s death unrevenged’, and that as a fellow secretary, Phelippes should intervene for her husband’s release from prison. A friend assured Phelippes that he should ‘build but little upon the speech because they carry but Womanish presumptions’, but it made Walsingham’s cryptanalyst decidedly uneasy.¹¹² In this he was uncomfortably prescient. The hard times that befell him following Walsingham’s death were only to get harder. The combination of his inadvisable communications with Hugh Owen, who had created a web of agents for the Spanish that bore comparison with Walsingham’s, the accession of Mary’s son James VI to the English throne and the subsequent Gunpowder Plot led to a longer spell behind bars, and the rest of his life disappeared in a haze of court cases and unpaid debt.¹¹³

It is difficult to find much fault with how Mary, Queen of Scots and her secretaries wielded cipher and codes over the course of the Babington Plot. Her secretaries, Nau and Curle, produced two distinct levels of cipher keys for Mary’s use, nursery and mature, which they assigned to her correspondents relative to the level of security required. The more complex

or mature ciphers were extremely sophisticated, and demonstrated a keen understanding of the cryptanalytical techniques then in use – they were anything but simple, sharing several features with the ‘Great Cipher’ later created by the Rossignols.¹¹⁴ If anything, the protection offered by these complex ciphers and her general faith in cryptography may have lulled Mary into a false sense of security. The oft-held view that she formulated her own ciphers and that they were particularly weak as a result, but that this demonstrates her independence of mind and is thus ‘empowering’, is not only patronising but completely ignores the fact that she used her secretaries Nau, Curle and Pasquier to encipher and decipher all her correspondence.¹¹⁵ This, no doubt, was largely down to her education in France. By thirteen or fourteen, Mary had been trained to act secretly and divulge her secrets to few, and was keen to demonstrate how well she had internalised this lesson. She told her secretary that she wished to write to her mother, Mary of Guise, in cipher, in effect asking for a suitable cipher key. Not only was this request denied, but she was actively discouraged from undertaking such writing practices herself: ‘her secretary advised her that there was no need as he was already sending her mother all sensitive information in code’.¹¹⁶ While she was well aware of the importance of protecting her correspondence from prying eyes, there is no actual evidence that Mary practised the art of cryptography herself. She left such activities to her secretaries.¹¹⁷ She understood full well that, in doing so, she set her correspondence at another remove from her voice. She had argued during the tribunal of 1568–9 that the Casket Letters were not in her hand, and thus could not be used in evidence against her. By having her secretaries encode English letters on her behalf, she ploughed this same furrow. Her mother tongue was French, despite her Scottish heritage, and enciphered English letters could thus hardly be used as evidence against her. While she was correct in her reading of the legal situation, she was defending herself against the wrong threat. It was, ironically, her secretaries and their facility with cipher and codes that were her undoing.

Fig. 25: One of the ‘mature’ cipher keys developed by the secretariat of Mary, Queen of Scots.

THE GENERATION GAME

Despite their failure to save Mary, Queen of Scots, cipher systems combining substitution alphabets and nomenclators remained the most popular and usable method of protecting one's correspondence for another two centuries or so. In 1589, for example, one of Burghley's spies, Thomas Fowler (whose code name was 'Fidelis' – the faithful), noted that the beautiful sister of the 2nd earl of Essex, Penelope Rich, had entered into a secret correspondence with the bereaved James VI of Scotland on her brother's behalf. She had fabricated a witty nomenclator as part of her correspondence, inventing 'nicknames for every one that is partaker in the matter': Elizabeth I was 'Venus'; James VI was 'Victor'; Essex 'the weary knight', and she herself 'Ryalta'.¹¹⁸ While James was impressed by 'the fineness of her wit, the invention and well writing', he nevertheless required an interpreter, someone by whom 'the dark parts thereof [were] expounded to him'.¹¹⁹ This need for assistance resurfaced in 1602 when James

allegedly hired a tutor to instruct him in the art of secret writing, a type of intelligence with which he was neither ‘acquainted nor accustomed’.¹²⁰ If Henry, Lord Howard, is to be believed, the tutor he chose was Francis, Lady Kildare, the woman who, in 1603, was appointed governess to James’s daughter the Princess Elizabeth. James thus became the second monarch in England in a century to be taught cryptography by a woman. While Lady Kildare was quickly dismissed because of her husband’s involvement in treasonous plots, she never lost the king’s favour and was, for instance, invited to Elizabeth’s wedding in 1613.¹²¹ It is not clear whether or not Elizabeth Stuart learned the art of secret writing from her governess or her father, but she would spend much of her life surrounded by experts in the trade: her husband’s uncle, Duke August of Brunswick-Lüneburg, wrote the influential *Cryptomenytes* (1624) under the pseudonym Gustavus Selenus, for instance.¹²² Unlike her grandmother, Elizabeth enciphered and deciphered her letters personally, even though she had a small army of secretaries at her disposal. It is hard not to reach the conclusion that Lady Kildare, if not her father, had counselled her in the danger of allowing secretaries too much access to one’s secret correspondence. Nevertheless, the exiled queen did follow diplomatic convention inasmuch as she kept using the same cipher keys for several years, sometimes treating them like family heirlooms: denied the opportunity of giving her son Charles Louis the keys to Heidelberg Castle when he came of age in 1635 by the inconvenient fact of its being occupied by foreign powers, she gave him the cipher key she and her late husband had used from 1622.¹²³

While Elizabeth Stuart was a more than capable cryptographer, she, like Walsingham before her, knew the value of having a specialised cryptanalyst to hand. This is perhaps one of the reasons she used her influence to help the Dutch polymath and poet Constantijn Huygens secure the position of secretary to the new prince of Orange in 1624.¹²⁴ It was a typically smart move. Huygens had studied cryptanalysis at the University of Leiden in 1616, and his secretarial salary was soon being enhanced to the tune of 100 Dutch guilders per month, the equivalent of £10 sterling, for the decryption of letters.¹²⁵ Huygens took his side hustle extremely seriously, and in his autobiography waxed lyrical on how his expertise had benefitted his master, the prince of Orange, during the wars with the Spanish: ‘At every single

siege, I proved my skills, anticipating the tricks of the enemy by means of my own knowledge of deceit (in times of war one is allowed to be deceitful). Even if the letters originated in Constantinople or were fantastically shaped, like griffins or other never before seen fable beasts, I managed to decrypt them.’¹²⁶

The narrative of ciphers and codes always falling to cunning cryptanalysts is one spread largely by the cryptanalysts themselves, it appears. When Huygens wanted a pay rise, he and his friends reminded Amalia, the dowager princess of Orange, that he had been instrumental in securing the siege of Breda for her late husband.¹²⁷ In a private letter to Elizabeth, however, Huygens presented a very different image of himself and his ability to break Spanish ciphers. In one packet he sent letters from both the private secretary to Tommaso Francesco of Savoy, prince of Carignano, and the Spanish resident agent at Charles I’s court, Juan de Necolalde, admitting in his accompanying letter that ‘There remain several others in cipher, in which I hoped to be able to assist Your Majesty. But they are addressed to the king of Spain, whose ciphers have always been found more difficult to conquer than he.’¹²⁸ Phelippe, of course, would have agreed with him.

Sir Thomas Roe, Elizabeth Stuart’s most loyal supporter and sometime Stuart ambassador in Constantinople, begged her to send him a cipher key with which they might secure their correspondence. Mindful that taking this need for a cipher into his own hands might be seen as insolent, given their relative stations, Roe waited four years before finally relenting and sending her a monophonic cipher alphabet and nomenclator, though they abandoned its use after two years.¹²⁹ A decade later, finding that once more ‘there may be cause of secrecye’, he again mustered the courage to send her a cipher of his own devising, this time a polyalphabetic shift cipher using four discrete alphabets and a numerical nomenclator of somewhere between 43 and 160 characters.¹³⁰

Roe was aware of Elizabeth Stuart’s love of instruments, with his friend Sir Dudley Carleton, the Stuart ambassador in The Hague, pointing out that the only gift she truly appreciated were ‘fine and curious workes’, such as astrolabes and clocks.¹³¹ It is likely that Roe had enticed her to communicate in cipher with him once again by sending her a mechanical

device, a cipher wheel, because the mistakes that she made while encoding her letters point strongly to her using such a device.¹³² His new cipher employed neither Alberti's schemata of indicating the alphabet in use via the inclusion of an upper-case letter in the text, nor did it follow Trithemius's method of changing alphabet by one degree for each letter. Instead, it combined the numerical key used in both della Porta's cipher wheel design and in the Trithemian table found in Selenus's *Cryptomenytes* with Alberti's more random method.¹³³ A typical sentence would read as follows: 'I have had newes from K. 50. 6nfzn. 4kmyhq4. 4lmp. 5mnw last 4dkwzhu.'¹³⁴ Elizabeth did not encipher every word: Roe's new cipher, like any fully polyalphabetic cipher, was a lot of work, even if you had a Trithemian table or cipher wheel handy. Roe soon realised that it was too unwieldy: 'I find I have put Your Majesty to too much trouble to read, and write my Cyphar, and because it is too busy to use all the letters, you may please to save the labour, unless it be for names, or words referred to figures. I sent it only to secure my errors, that they did no hurt; Your Majesty is safe, and out of danger.'¹³⁵ Elizabeth Stuart's brother Charles I made the same observation about the cIPHERED letters sent him by Lady d'Aubigny, namely that 'I do not think fit to stay this packet upon the deciphering of them; because it will cost more than a day's work.'¹³⁶ To be viable, a cipher had to balance security with usability: the next cipher Roe sent Elizabeth would be merely homophonic rather than fully polyalphabetic.

Most of the many treatises and books on the subject of ciphers were more concerned with the mathematical rather than the practical considerations of ciphers – some, such as Trithemius's work, were considered more demonological than mathematical. Selenus's *Cryptomenytes* ran to over 500 pages, many of which were taken up with seemingly endless tables. Falconer was not alone in his opinion of Vigenère's autokey cipher: not only did it require 'too much time to be put into practice', but it had other disadvantages, namely that 'by the least mistake in writing, it is so confounded, that the confederate with his key shall never set it in order again'.¹³⁷ Theory, as Mary, Queen of Scots discovered to her cost, was all well and good, but practice was another matter entirely – and this held whether your ciphers were too difficult to use

in the field, or, as in Mary's case, the keys were known by your enemies all along.

Constantijn Huygens's library shelves groaned under the weight of the accumulated wisdom of Western cryptographers in various editions and languages. Vigenère's *Traicté des chiffres* nestled alongside Trithemius's *Polygraphie* (1561); della Porta's *De Furtivis* (1563), *De Occultis Literarum Notis* (1593/1606) and *Magiae Naturalis* (1558); Daniel Schwenter's *Steganologia & Steganographia: Geheime Magische/Natürliche Red-und Schreibkunst* (c. 1620, largely plagiarised from Trithemius); *Polygraphie* (1621), Dominicus van Hottinga's plagiarised edition of Gabriel de Collange's French translation of Trithemius's *Polygraphia*; Selenus's *Cryptomenytices* (1624); Pietro Maria Canepari's *De Atramentis Cujuscunque Generis* (1660); and Gaspar Schott's *Schola Steganographica* (1665). Despite being in possession of this formidable cryptographic resource, when he was asked to design a series of ciphers for English Royalists during the Civil Wars, he produced examples that Elizabeth Stuart's grandmother would have recognised and perhaps even dismissed as overly simplistic: homophonic substitution alphabets with an extensive nomenclator.¹³⁸ The fact of the matter was that despite the theoretical innovations, the ciphers that were used during the fifteenth, sixteenth and seventeenth centuries were those that gave the greatest balance between security and usability.¹³⁹

3



DISGUISE & DISTRACTION

In *The Advancement of Learning* (1605), Francis Bacon wrote that ciphers were best when they fulfilled three criteria, namely that they ‘be not laborious to write and read; that they be impossible to decipher; and in some cases, that they be without suspicion’. As we have seen, all of the cipher systems available, whether they used letters, numbers or symbols, visibly advertised their purpose. For Bacon, the ‘highest degree’ of cipher enabled the spy ‘to write OMNIA PER OMNIA [all into all]’. He devised his solution to the thorny problem of how to write in a cipher that did not look like a cipher while serving under the English resident ambassador in Paris, Sir Amias Paulet. While Bacon had been sent to France in the latter half of the 1570s to gain a working knowledge of the French legal system, he appears to have taken the opportunity to learn from his colleagues in Paulet’s secretariat, one of whom was Thomas Phelippes. Bacon, Phelippes and Paulet considered each other as friends for many years afterwards, and were in regular communication while Mary, Queen of Scots was being held in Chartley Manor.¹

Bacon would wait a further eighteen years before he thought fit to explain what kind of cipher he had been describing in *The Advancement*, in an expanded and updated version of his 1605 work called *De Augmentis Scientiarum*, published in 1623. His method was avowedly steganographical, that is, it was a sort of ‘hidden writing’. Steganography was the second branch of cryptology, cryptography being the first. Deriving from the Ancient Greek words *steganós* (cover, roof) and *graphia* (writing, drawing), it differed from cryptography as it sought to ‘hide in plain sight’,

and thus conceal meaning imperceptibly. The primary purpose of steganography was to look like anything other than a secret message. In the world of spies and intelligencing, this technique was not restricted to writing. In a very real sense, steganography is the art of disguise – whether you are making a letter look like a boring discussion of your nephew's boils by starting and ending with descriptions of them (an interceptor confronted with dozens, if not hundreds, of epistles would tend to first scan the beginning and end of a message for suspicious phraseology and toss those letters lacking any obviously interesting matter onto the ‘no action to be taken’ pile), or hiding your true identity as a counterfeiter and fraudster behind the costume and authority of an ambassador, you are donning a disguise.²

Steganography became increasingly important in seventeenth-century England, not least in 1643 when Parliament, heartily sick of the large numbers of Royalists plotting against it using ciphers to keep their secrets to themselves, took the rather direct if draconian route of simply outlawing all cryptographic writings. By April of that year, possession of a ciphered letter or even a cipher key was considered proof of espionage, and was thus punishable by death.³ To all intents and purposes, the government had equated cryptography with treason. To escape prosecution conspirators took cover behind a shield of steganography, and in doing so effectively rewrote themselves.

THE BACONIAN CIPHER

Bacon's invention had ‘the perfection of a cipher, which is to make anything signify anything’, and it used two distinct stages of encryption to achieve its goal of being ‘void of all suspicion’. Stage one was to transform the original message into a set of *differences* – in this way, Bacon suggested, ‘thoughts may be communicated at any distance by means of any objects perceptible either to the eye or ear, provided only that those objects are capable of two differences; as by bells, trumpets, torches, gunshots, and the like’. A message could thus be transmitted using, for example, two musical notes, two arm positions, or even a pair of hats – one

red, the other blue. The letter ‘A’ was represented by the ‘difference string’ ‘aaaaa’ (or, if you prefer to visualise hat colour, red-red-red-red-red). The letter ‘B’ was represented by the ‘difference string’ ‘aaaab’ (in hats, red-red-red-red-blue), and so forth:

A = aaaaa	F = aabab	L = ababa	Q = abbbb	W = babaa
B = aaaab	G = aabba	M = ababb	R = baaaa	X = babab
C = aaaba	H = aabbb	N = abbaa	S = baaab	Y = babba
D = aaabb	I/J = abaaa	O = abbab	T = baaba	Z = babb
E = aabaa	K = abaab	P = abbba	U/V = baabb	

To give an example, the plaintext ‘BACON’ would be enciphered as ‘aaaab aaaaa aaaba abbab abbaa’ (or red-red-red-red-blue red-red-red-red-red red-red-red-blue-red red-blue-blue-red-blue red-blue-blue-red-red). As each letter is represented by a string of five differences, the message as sent (the stegotext) is now five times longer than the plaintext. This technique is more than reminiscent of the binary mathematics introduced by Gottfried Wilhelm Leibniz’s 1679 article ‘Explication de l’arithmétique binaire’ (‘An Explanation of Binary Mathematics’), and encodes the alphabet using what we would now call 5-bit encryption.⁴ All that the system required was for the medium carrying the message to have five ‘differences’ (or ‘bits’) for each individual letter of the message being carried. It was for this reason that Bacon wrote ‘the infolding writing [the stegotext] shall contain at least five times as many letters as the writing infolded [the plaintext]’.⁵

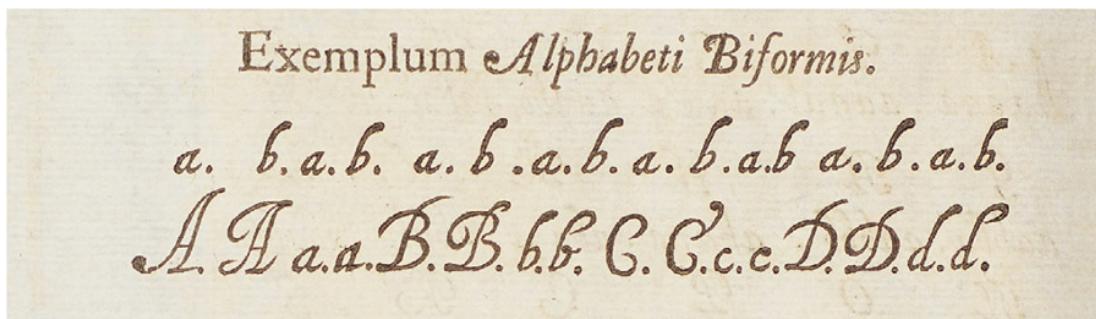
The process of encoding the plaintext BACON into, for example, the stegotext ‘Arthur Gregory, an English spy’ is straightforward. The plaintext is first transformed into a series of 5-bit difference strings: BACON becomes ‘aaaab aaaaa aaaba abbab abbaa’ or, in terms of colourful hats, red-red-red-red-blue red-red-red-red-red red-red-red-blue-red red-blue-blue-red-blue red-blue-blue-red-red. Next, this string is enfolded into the stegotext ‘Arthur Gregory[,] an English spy’:

aaaab | aaaaa | aaaba | abbab | abbaa
 Arthu | rGreg | oryan | Engli | sh spy

Bacon chose to do this not through colour, but through subtle differences in handwriting (script), somewhat akin to writing a message in two fonts rather than the usual one. Using, for example, Johnston Sans for the a-form and Calibri for the b-form, we are left with the following:

Arthur Gregory, an English spy

Bacon provided a handy table showing each letter of the alphabet, both upper and lower case, in a-form and b-form. Because his cipher relied on the difference between two letter types, he called it a ‘bi-formed’ alphabet (any method of differentiating the a-form from the b-form would work). The table he published in 1623 shows the differences between his letterforms quite clearly, with the b-form, when compared with the a-form, generally having an extra flourish (Fig. 26a):



It does not appear that writing a message using these two indicative alphabets would prove particularly taxing. The same cannot be said for the table published fourteen years after Bacon’s death in 1640 (and reprinted in 1670), as several of the letterforms, such as ‘m’, ‘n’, ‘r’ and ‘s’, for example, appear remarkably similar in the ‘a’ and ‘b’ alphabets. By the time the magisterial edition of his works was published in 1870, the situation had worsened further: the ‘a’ and ‘b’ forms printed in the table are virtually indistinguishable – what was a difficult enough system to deduce from the original 1623 text had, over time, been rendered largely incomprehensible by the presumably accidentally enforced homogeneity of the printing press (Fig. 26b):⁶

Example of an Alphabet in two forms.

<i>a</i>	<i>b</i>										
<i>A</i>	<i>A</i>	<i>a</i>	<i>a</i>	<i>B</i>	<i>B</i>	<i>b</i>	<i>b</i>	<i>C</i>	<i>C</i>	<i>c</i>	<i>c</i>
<i>D</i>	<i>D</i>	<i>d</i>	<i>d</i>	<i>E</i>	<i>E</i>	<i>e</i>	<i>e</i>	<i>F</i>	<i>F</i>	<i>f</i>	<i>f</i>

Figs 26a and 26b: Bacon's bi-formed alphabets from *De Augmentis* as printed in the first edition of 1623 and the Spedding edition of 1870.

JARGON: DROPPING THE CIPHER

A more literary mode of steganography was the wrapping-up of secret information within other genres of discourse, most notably mercantile. In 1584, a letter from 'William Wilbeck' to his 'cousin and most dear friend Thomas Wilbeck' was intercepted, copied and decoded: it was, in fact, from Gilbert Curle, secretary to Mary, Queen of Scots, to Thomas Baldwin, a servant of the earl of Shrewsbury. In this letter, Curle used a mercantile nomenclator to obscure its message – Elizabeth I was referred to as 'the merchant of London', Sir Francis Walsingham as 'the merchant's wife' and Mary, Queen of Scots as 'the merchant of Newcastle', and so on. It was not particularly successful, however, as within a month Walsingham had sent a copy of the letter to Mary's keeper, Sir Ralph Sadler, with the decoded text written between the lines. It was accompanied by the nomenclator, which also provided an example of how it might be used: '*Exempli causa:* If I will write the Scottish Queen shall not be removed, then to write the merchant of Newcastle shall not goe beyond the Sea'. Sadly, Walsingham did not tell Sadler what he thought about being downgraded to a mere 'wife'.⁷ Baldwin was imprisoned in the Tower for his steganographic and libellous exchanges with Curle; for now the latter, as we have seen, was allowed to roam free so that Walsingham might catch bigger game.

While Curle also made extensive use of substitution alphabets, their great weakness, namely that their use shouted 'secrets enclosed', was part of their downfall. One way to hide the fact that you were using a substitution alphabet was to employ musical notation: the notes on the stave doubled up as cipher symbols. Considering the oft-held conflation of spies

with musicians, it would seem appropriate that many cryptological writers, including Alberti, Trithemius, della Porta, Selenus and Vigenère, discussed ciphers based on music in their manuals, as did the papal cipher secretary Matteo Argenti.⁸ Witnessing such ciphers in the field is rather less common, and one of the few examples of musical steganography in manuscript was a system developed by the Spanish general Marco Antonio Colonna in 1564 – a simple substitution cipher, it used a combination of pitch and duration to indicate individual letters.⁹ The most famous English musical cipher, which was allegedly shared by Jane Lane and King Charles II, only exists in a nineteenth-century hand and is most likely a hoax.¹⁰

Letter-writers increasingly removed the substitution alphabets from their cipher keys, working instead primarily with linguistic lists, that is, word-nomenclators: the Royalist secret organisation the Sealed Knot referred to ambassadors as ‘factors’, to letters as ‘merchandise’, ammunition as ‘spice’ and money as ‘tobacco’ or ‘wool’.¹¹ It comes as little surprise that the word ‘trade’ represented the gathering and distribution of information, and a clearing house or cover address would be referred to as a ‘shop’.¹² Another Royalist circle had horses as ‘English gloves’; frigates as ‘Flanders’ or ‘lace’; and men as ‘silk-stockings’.¹³ Yet another had a treaty as ‘marriage’; to make peace as ‘to couple’; the English as ‘the father’; the Dutch as ‘the mother’; and the Dutch commissioners as ‘the Lady’s friends’.¹⁴ With the latter list, it is not hard to see how one could easily write a letter seemingly full of domestic gossip that was in fact anything but.

The technical name for discourse constructed from such nomenclators was ‘jargon’, a word which had previously meant ‘unintelligible, or meaningless talk or writing’ or ‘the inarticulate utterance of birds’, but which had been given this new meaning in 1594 by Francis Bacon in his ‘A True Report of the Detestable Treason, Intended by Dr Roderigo Lopez’.¹⁵ Bacon described a letter that formed part of the case for the prosecution as being written in ‘jargon or verbal cipher’: ‘This bearer will tell you the price in which your pearls are esteemed, and in what resolution we rest about a little musk and amber, which I am determined to buy’. One of the suspects indeed confessed that the sentence held a hidden meaning, explaining that the price of the pearls referred to the acceptance of Lopez’s

offer to poison the queen, while the provision of musk and amber referred to the king of Spain's decision on whether or not to put Elizabeth's ships to the torch.¹⁶ By the 1650s, the term jargon was common enough for the Royalist Alan Brodrick to use it when describing the Sealed Knot's steganographic discourse.¹⁷

Such nomenclators were often designed to work in specific theatres of conflict, such as the pair meant for Francis Bolton and John Conyers for use in the Spanish territories. These nomenclators used Dutch names, presumably because the letters would have been sent via the Spanish Netherlands, where they might be intercepted – substituting the name 'Jan van Harpe' for the queen of England, or 'Nicolas de Witte' for the king of France, for example.¹⁸ One particularly complex steganographic nomenclator was intended for a Master Briskett, probably in Ireland. This organised its nomenclator alphabetically with columns marked *vera* ('true') and *ficta* ('false'), including pairs such as 'abandon' and 'about', 'abide' and 'abbey', 'ability' and 'abridge' (the column for words starting with the letter 'a' alone ran to fifty-six entries).¹⁹ Another set, this time intended for use in Scotland, drew its names from literature, listing the king as 'Endymion', the queen as 'Minerva' and, perhaps manipulating gender to good effect, the prince as 'Philomela' and the princess as 'Leander'.²⁰

Literary nomenclators came back into fashion following the outlawing of ciphers in 1643, with Royalists in particular drawing code names from the romance genre. When discussing the retaking of Arundel Castle in 1643, Jane Bingley and her husband addressed letters to their daughter Susan, who had crossed the channel into France, by the names 'Philitia' or 'Amorella', while they assumed the names 'Fidelia' and 'Melidora'. This trick did not necessarily allay suspicion, of course – one letter of theirs which had been intercepted bears the annotation 'Fidelia to Amorella. Note! Some court ladies at Oxford took names out [of] romances'.²¹

Elizabeth Stuart, sometime queen of Bohemia, who was well versed in the prose romance genre, had used the names 'Astraea' and 'Celadon' from Honoré d'Urfé's *L'Astrée* (1607–27) when communicating with her husband Frederick V in the 1620s, and would later use the same technique when discussing the marital indiscretions of her son, Charles Louis, referring to him as 'Tiribaze', the satrap of Western Armenia mentioned by

Plutarch, and his wife as ‘Eurydice’. In these letters Elizabeth assumed the identity of ‘Queen Candace’ from Ben Jonson’s *Masque of Queens* (1609). By the 1640s, under pressure from the ban on ciphers, Elizabeth abandoned cryptography altogether in favour of steganography, and began signing her letters with a cipher, a mirrored E (i.e., ☈).²² Where fashion led, espionage often followed, and while individual spies had long been referred to through numerical codes – Charles I’s mistress and spy Jane Whorwood was referred to as ‘409’ and ‘390’, for example – they, too, adopted literary covers. Whorwood also used the name ‘Hellen’ (not entirely inappropriately, considering that on three separate occasions she arranged for a ship to spirit Charles away from the Isle of Wight, even if he failed to board a single one), while Aphra Behn and William Scott followed Elizabeth Stuart’s lead in choosing ‘Astraea’ and ‘Celadon’ as code names in 1666–7.²³

Code names could also be used to hide more than just a spy’s identity. They could also silently transmit a substitution alphabet (for more reckless spies, the ban on possessing ciphers was no deterrent). There are three such code names attached to cipher keys found in the archives of Sir Edward Nicholas, the Royalist counterpart to John Thurloe. They included ‘Profligantes’, which was shared by George Morley and Lady Isabella Rich, ‘Lycanthropus’ for Sir Giles Talbot (the werewolf was perhaps drawn from Webster’s *The Duchess of Malfi*), and ‘Labyrinthus’ for Richard Lane. These names suggest that, for all the deadly seriousness of their circumstances, the Royalists enjoyed the thrill of playing the spy – perhaps a hangover from the days when cryptography was more an expression of a shared social status and cohesion than a necessary evil during times of civil war.²⁴

Assuming a female code name was indeed a common trick for male spies.²⁵ After all, everyone knew that women’s letters were full of mere tittle-tattle and family business, and thus of no interest to intelligencers. One particularly active spy appears to have taken advantage of this prejudice, and assumed the names ‘John Williams’, the gender-neutral ‘Jo. Harrison’ and ‘Jo. Warde’ (‘Jo.’ could be an abbreviation for ‘John’, ‘Joanna’ or ‘Joan’), but, most regularly, ‘Margaret Smith’ or ‘Elizabeth Smith’, while being referred to by John Thurloe as ‘Blanck Marshall’, the

nameless agent. Either the famed Parliamentarian spy chief was keen to hide this particular agent's true identity from even his own side, or he simply did not know it.²⁶

One of the downsides of all this disguise and dissimulation was that it was difficult to know who was or was not on your side if you did not already know them. William Waad suspected the Gunpowder plotters of communicating their allegiance through embroidered ciphers:

send to the commissioners for a fair scarf that Rookwood made ... by the figures or ciphers something may be gathered, and if that scarf which Percy had could be recovered, it were well it were seen. I perceive there were very fair scarves made for diverse of them, and it were not amiss to learn of the embroiderers what scarves of such sort have been lately made, and for whom.²⁷

It is certainly the case that some groups wore secret (or not-so-secret) signs to identify one another: supporters of Elizabeth Stuart wore locks of hair as earrings, members of the secret society of Béatrix de Cusance in Antwerp wore harpsichord pendants, and royals wore cipher jewels.²⁸ Following the regicide of 1649, Royalist sympathisers in both England and on the continent often wore specially designed rings: in appearance ordinary mourning rings, inside they hid a miniature portrait of the king. The allegiance of the Royalist wearer was hidden but ever present. Some followed the proto-scientist John Bulwer's recommendation of using hand signals to make up 'an alphabet of privy ciphers, for any kind of secret intimation'.²⁹ Other, more intimate techniques were developed, including secret handshakes: one conspirator, told that his escape would be organised by a priest, was to identify himself by taking him 'by the thumb with his little finger'.³⁰

X MARKS THE SPOT: LADY BRILLIANA HARLEY AND THE CARDAN GRILLE

At the beginning of the English part of the Wars of the Three Kingdoms in 1642, support for each side was often geographically skewed. The Harleys, a noble family of some pedigree, were Puritans and committed Parliamentarians, unlike the majority of the Herefordshire gentry.³¹ Sir Robert, the head of the family, spent most of his time in Westminster; his two sons, Edward and Robert, served alongside William Waller on the front line, fighting against the king for Parliament; their daughter Brill (also Brillianta, after her mother) was being educated by her great-aunt, Lady Mary Vere, in London.³² Lady Brillianta, Sir Robert's wife, left alone in Brampton Bryan Castle, the family stronghold, found herself tightly moored in a tempestuous sea of Royalists. By July 1643, she was being actively besieged. Though the siege lasted a mere six weeks, Brillianta held back the Royalist flood tide with a force of just fifty musketeers, and her spirited resistance against what must have felt like insurmountable odds made her an unimpeachable heroine of the Civil Wars. Brillianta died in October 1643, but she left more behind her than just her reputation. She had been in regular correspondence with her husband, her namesake daughter and her son Edward (or Ned as she called him), often communicating vital intelligence in the process. Even though it would be another month before Parliament outlawed the use or possession of ciphers, in March of that year Brillianta chose not to protect her letters in that manner. Whether or not she had been informed of this upcoming ban by her husband, Brillianta chose a different method, one that was steganographic in nature. The technique she hoped would allow her messages to escape the attentions of the swirling Royalist menace altogether was at least 100 years old. It was the Cardan grille.

Named for Girolamo Cardano, the Italian polymath in whose work *De Subtilitate Libri XXI* (1550) the idea first appeared, the Cardan grille was simple to use, if perhaps a little cumbersome. In much the same manner as a cipher key, it relied on the recipient having a copy of the 'key'. While it was a paper technology like the cipher wheel, the Cardan grille was less an aid to enciphering than a spatial code itself. It was an overlay into which holes (or text boxes) had been cut. When placed onto the host message (or stegotext), the words that remain visible through the holes comprise the plaintext.

The grille could be used with print or manuscript works, and could reveal words or letters, as required. When used with a printed work, the grille's text boxes would be cut to reveal the appropriate words or letters on the page, and the recipient needed to have both the grille and the printed work in question to be able to read the message (which meant that organised correspondents might agree on the literary text to be used and merely send the grille once cut to order). Manuscript letters were approached slightly differently: the words were written into the boxes before the stegotext was wrapped around them. In other words, a pre-cut grille was first placed over a blank sheet of paper and the message which required hiding was written onto those parts of the paper revealed by the cut-outs. The grille was then removed and the gaps on the writing sheet filled in by hand, hopefully in such a way that the words of the plaintext did not stand out from those of the stegotext or host message. To do this imperceptibly took both literary skill and spatial awareness – to write a message into which the ‘grilled’ words fit snugly, both semantically and physically, was no simple task. In his works, della Porta included several examples of this type of grille, including a demonstration of the fundamental principle.³³ Timothy Bright included a grille in his copy of della Porta’s *De Furtivis*, thus considering the technique useful for presentation to Walsingham or Robert Cecil.³⁴

Whether Brilliana lacked the will or merely the time to create smooth literary and artistic epistolary messages is not clear, but she chose a simple and efficient way of preventing the grille from casting its shadow across her letters too darkly. Rather than packing the spaces left between the words of the plaintext to create a dense stegotext, she spaced out both the lines and the words so widely that the order in which they had been created was utterly obscured. She also sought to hide the tell-tale lack of literary merit or narrative flow by writing to her son that ‘you will not marvell at this nonsense which I have writen to you’ as she did so in order ‘to make you merry’.³⁵ As we find so often, the ways in which these various message-hiding techniques were actually used show the fear of interception standing shoulder to shoulder with an almost blasé assumption that the technique used could hardly be suspected, let alone penetrated. It seems as though every type of cryptological technique represented the triumph of hope over

experience, and quite possibly a deep-seated belief that ‘this time it will be different’. It rarely was.

Having attempted to smooth away the evidence of her use of the Cardan grille through word-spacing and assertions of purposeful comedy, Brilliana immediately tells her son Ned – and thus any pair of prying eyes – how to read the letter: ‘pin that end of the paper that has the cross made in ink upon the little cross on the end of this letter; when you would write to me make use of it’.³⁶ Of course, the grille must align properly if it was to function, and for Ned, X marked the spot. This was where he was to pin the grille she had sent him. She also comments on his own employment of the technique: ‘I read your letter very well, ... but if you would let the paper you write upon be of the same breadth of the cute [cut] paper, it would be much better’ – that is to say, if the letter paper and the grille used to inscribe a message onto it were of different sizes, matters were liable to get confusing. Finally, she tells her son exactly when the grille should be used: ‘From this place make use of the cut paper.’³⁷ Luckily for us, two of the actual grilles Brilliana used to read and write her letters to Ned survive, nestling between the pages of a letterbook bound in Victorian times and retained by the family. These two grilles, which are identical, are now ‘attached’ to the letters Brilliana sent on 1 March and 9 March so that they reveal the messages hidden within. Both of them show the peaks and troughs of having been folded independently of the letters to which they are attached, strongly suggesting that they have been sent as enclosures in another letter at some point in their lives.³⁸

While the Cardan grille is often referred to as a cipher technique, it is actually steganographic in nature. It is designed to hide a message in plain sight. It was perhaps unfortunate that Brilliana’s letters had several features that might serve to tip off the vigilant interceptor, from the instruction to lay a piece of paper over the letter, to the way in which the passages containing her stegotexts were written with completely different spacing in comparison to paragraphs of plaintext (Fig. 30).³⁹ How much this would have helped such an interceptor is another matter, as it is still extremely difficult to decode.

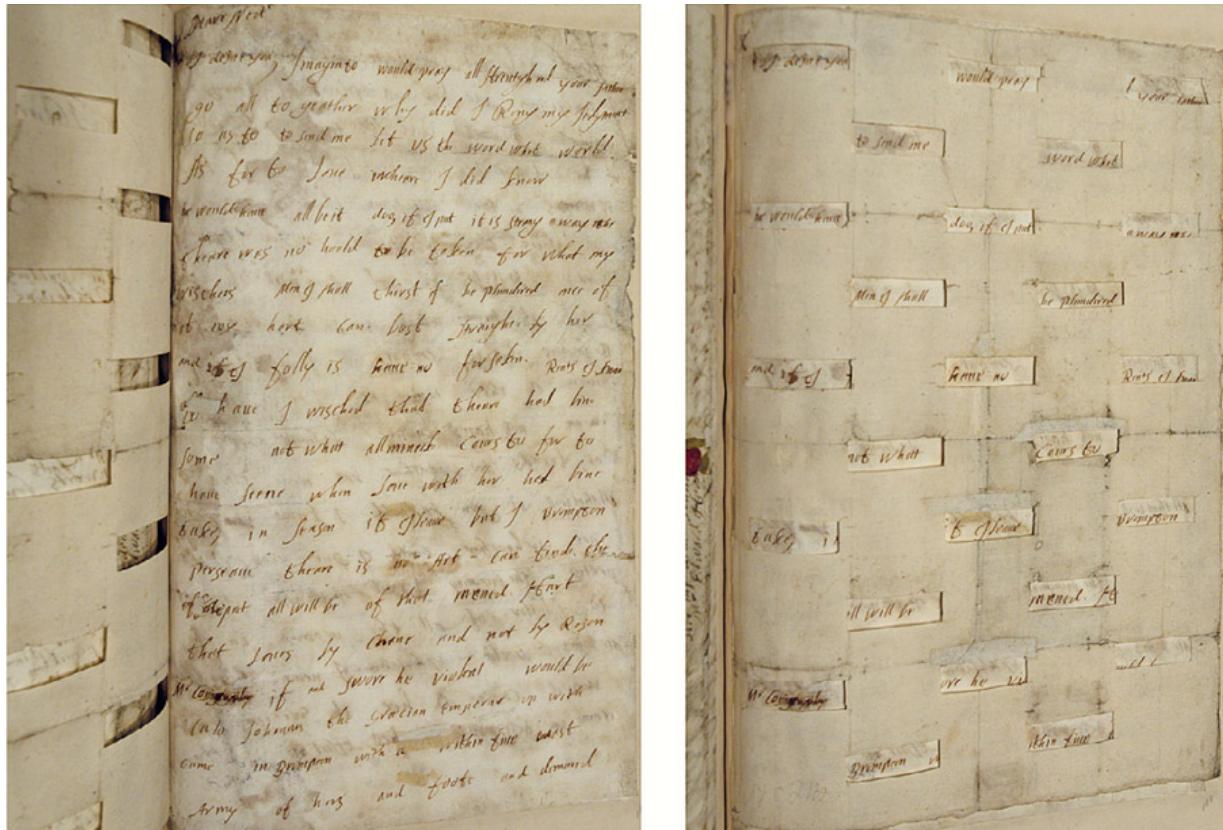


Fig. 27: Brilliana's Cardan grille in action: the left image shows the letter unadorned, the right the letter with the grille overlaid to reveal the message.

and if folly is tame no for sekin. Rents I know
I have I wished that them had him
some not what allmineado cours to fur to
have seen when I saw with her her hinc
bakey in season it pleau but I Brempton
perchance them is no art - can find. the
expect all will be of that mented. Hart
in he Rogen

Fig. 28: Without the grille, the letter makes little sense: ‘and if I folly is haue no forsaken rents, I know off haue I wisched that theare had bine some not what all mineche cours to for to haue seene when loue with her had bine take, in season If I leaue but I Brampton perseaeue theare is no Art, can finde the [hole in ms] xxpact all will be of that ruened Hart’.

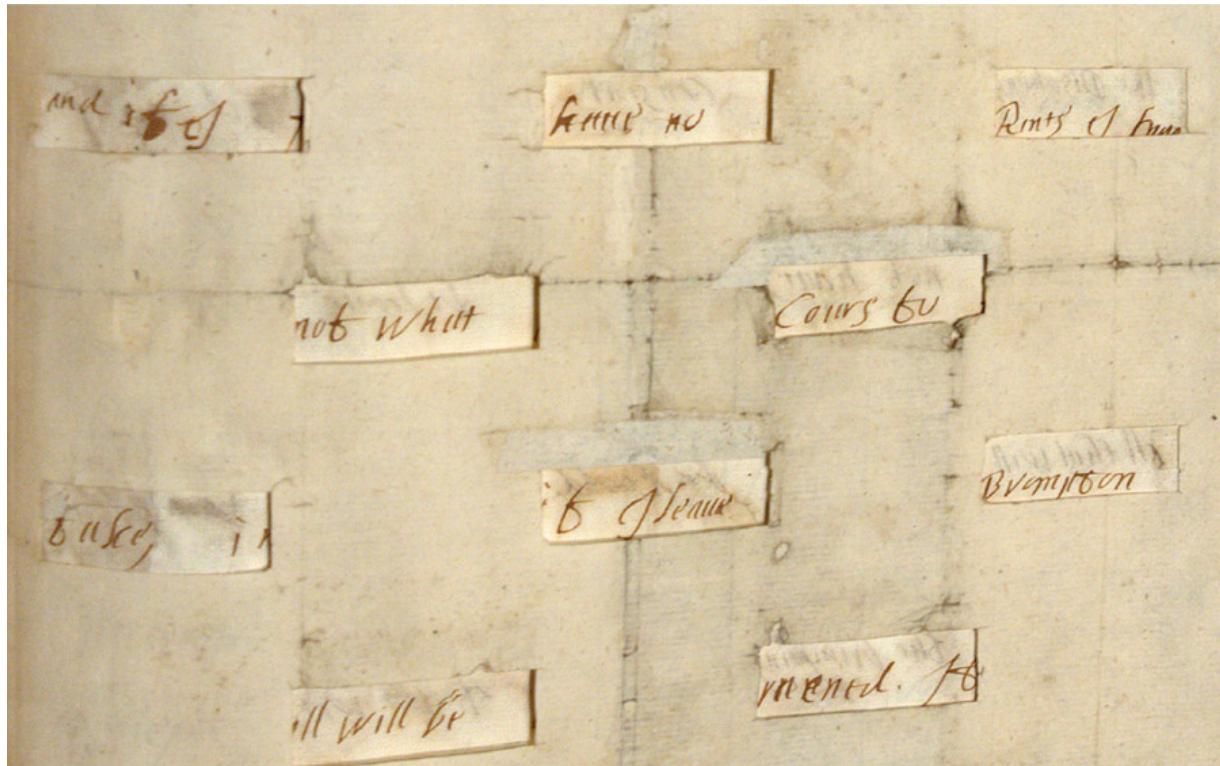


Fig. 29: Placing the grille on top of the letter, however, is nothing less than revelatory. The message now reveals that Brilliana is worried about her next move: ‘and if I haue no Rents, I know not what cours to take, If I leaue Brampton all will be ruened’.

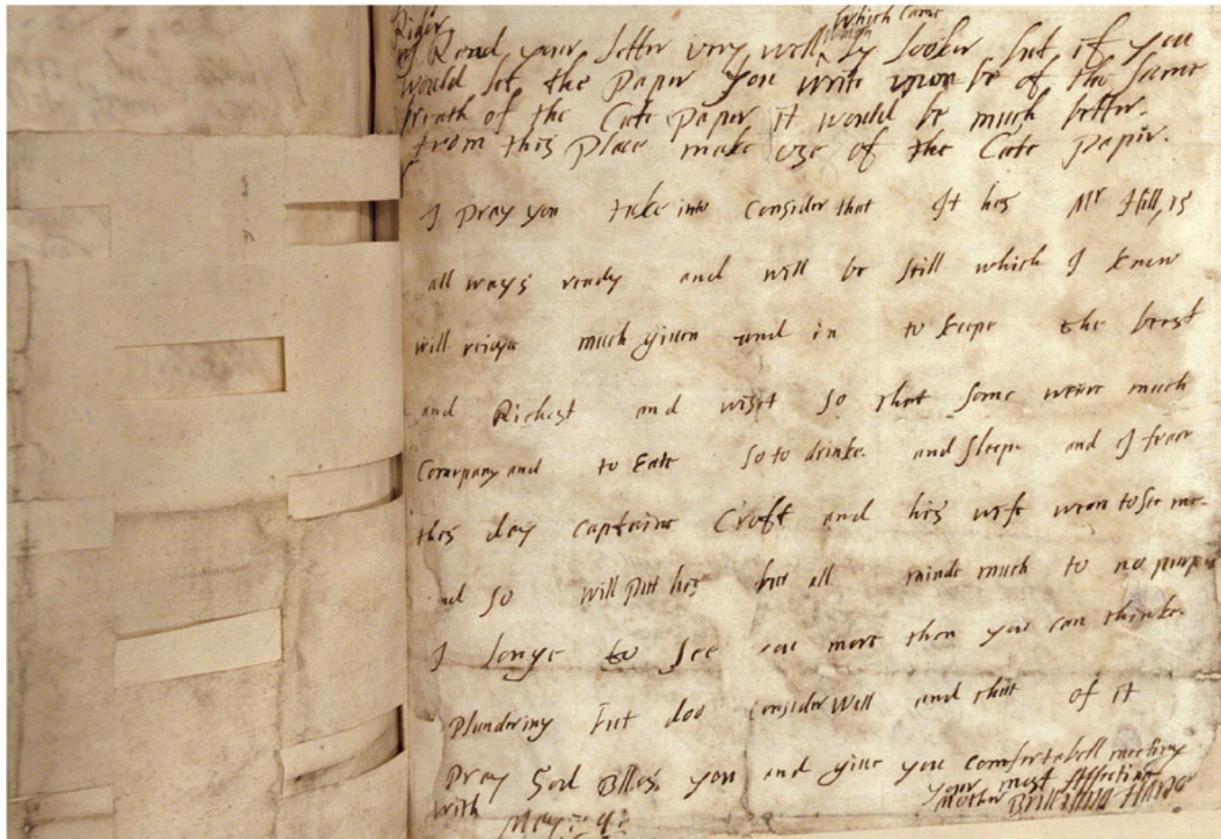


Fig. 30: Different line spacing for non-grilled and grilled parts of the letter. Brilliania's instruction in the letter itself, 'From this place make use of the cute [cut] paper', as well as her sudden doubling of the space between the lines, perhaps makes it obvious that she is using some sort of paper layover device.

THE POSTMAN ALWAYS CHECKS TWICE

There would have been no need to go to the lengths of using jargon or a technique such as a Cardan grille if letters could be carried from one place to another without fear of discovery, but this was easier said than done – especially if either the letter-writer or recipient was under siege. The Greek general Aeneas Tacticus discussed this problem as early as the fourth century BCE, in his manual *Poliorcketika*, or *How to Survive under Siege*. One of the methods he recommended involved the use of a pig's bladder. First one wrote a message on an inflated bladder with 'glutinous ink', then deflated the bladder, stuffed it into an oil flask and filled it with oil. The message thus 'disappeared' into the flask. Once delivered, the flask was

emptied and its bladder removed and inflated so that the message could be read. If desired, the message could then be wiped off, replaced with a new one and the flask returned.⁴⁰ Almost two millennia later sieges were still catalysts for the development of new methods of message-smuggling, though ‘new’ seems, as ever, to overlap with ‘traditional’ to no small degree.

In 1632, Horace de Vere’s English regiment formed part of the Dutch army which lay siege to Maastricht, then in the hands of the Spanish. During the action, many women were caught in the act of smuggling letters both in and out of the beleaguered city on behalf of the Spanish. Some of them had gone to great lengths to hide their cargo of information. One soldier’s wife, having been captured but found to be carrying no letters, was threatened with hanging (it was her second offence), upon which she ‘confessed, that she had swallowed two copper-boxes, with two letters’. Whether she came to a sticky end or not, it is unlikely that her night in captivity was particularly comfortable, as the physician working for the Dutch ‘gave her some pills which wrought so well with her that the next morning they [the copper-boxes] were found, washed, opened, and these letters found in them’. Luckily, there were less uncomfortable ways of achieving the same results. A few days earlier another woman, having been apprehended by the Dutch army in the same manner, confessed that ‘she had swallowed down a bullet … which after a purge she voided, & the letter was found: the letter being wrapped together in a little hollow bullet, & baked in paste’.⁴¹

While della Porta noted that messages could be bound in musket balls, which were around the size of grapes and thus eminently swallowable, he suggested that instead these then be fired into the besieged city from a musket. A variation on the musket ball/bullet method which made good use of the relative malleability of lead was to hide the message in earrings, which could be made of ‘thin [sheets] of lead, rolled up and worn in women’s ears’.⁴² The women of Maastricht were no doubt glad that those who bade them swallow their letters did not follow the Italian’s prescription for smuggling messages in a dog by wrapping them up in meat and feeding them to the unfortunate hound: ‘when he is killed, the letters may be found in his belly’.⁴³

Charles I employed a willing stomach to smuggle a message to the governor of the besieged town of Newark during the Civil Wars in 1646, though the messenger in this case was male. Once he arrived, an emetic was administered and he soon coughed up his cargo, the message it contained having been written in cipher to provide an extra layer of security.⁴⁴ Such methods were not the prerogative of Royalist couriers alone; in 1650, Oliver Cromwell exchanged messages with Colonel John Hewson wrapped in balls of yellow wax which would traverse their own course through their carrier's digestive tract as he travelled between correspondents.⁴⁵ It was not always necessary to go to such lengths, however: the earl of Derby noted that messages encased in a protective layer of wax or lead could be carried about the messenger's person and only swallowed if capture appeared imminent (he had tested his methods during the siege of Lathom House). Before we congratulate the earl on the consideration shown for his messengers, we ought perhaps note that some sources suggest that once a message was sealed in its waxy tomb, it could also be placed into a 'green' (that is, a fresh) wound before smuggling.⁴⁶ Encasing letters within musket balls was of course limited to brief messages, much as it was when using an egg, another technique which, however ludicrous it may seem, actually works.

The egg method was recommended by della Porta on the grounds that 'when prisons are shut, eggs are not stopped by the Papal Inquisition'.⁴⁷ Della Porta's method relied on writing a message on the egg's shell, but the polemicist Thomas Lupton's *A Thousand Notable Things* (1579) detailed how to insert a message into it. This involved soaking the uncooked egg in vinegar until the shell softened (this can take up to six hours), cutting a slit into the egg's shell and sliding the message, written on a slip of paper, into it. It was important to use eggs with white shells, as the vinegar dissolved the colour of, say, brown eggs. To harden the shell and seal up the slit, the egg merely needed to be soaked in cold water, and the message was ready to send on its way.⁴⁸ As with the musket ball method, any message so concealed would need to be very short, or in extremely small writing. Short, however, did not necessarily mean insignificant: in 1642, Sir Roger Twysden was detained by the Commons as they believed that he had 'carried intelligence of great consequence ... subtly conveyed into

Nutshells'.⁴⁹ This method also went back to the classics: in his *Naturalis Historia* of 77 CE, the Roman writer Pliny the Elder claims that Cicero once saw Homer's *Iliad* written in tiny script on a piece of parchment placed in a nutshell. When he was working as a clerk of the chancery, in 1587, Peter Bales left his calling card of miniature writing behind, which was displayed there for years after:

A most strange and rare piece of work brought pass by Peter Bales an Englishman, a clerk of the chancery, of the proof & demonstration of the whole Bible to be written by him every word at length within an English walnut no bigger than a hen's egg ... And thus confesseth the proof: the nut holdeth the Book; there are so many leaves in his little book as in the great Bible and he hath written as much in one of them little leaves as a great leaf of the Bible containeth.⁵⁰

Bales left but one clue as to his method: 'if you would write smaller, turn your pen a little more aside, and write with the lower nib thereof'.⁵¹

MICROGRAPHIA

The skill with tiny writing shown by Bales in his bejewelled 1575 gift to Queen Elizabeth I and his nutwork in chancery was no mere parlour trick. During the Eighty Years' War in the Low Countries, Constantijn Huygens was faced with the problem of how to get messages across enemy lines to his employer's wife, Amalia, princess of Orange. Amalia and Huygens both knew that, while her husband was acting as the general of the army, he was suffering from dementia. While she quietly took care of business during his absence from The Hague, neither she nor his secretary could afford for the Spanish to discover this weakness in the Dutch chain of command. Huygens 'had to invent every day new expedients and to exercise his eyes on a kind of small writing', and did so with such success that the resulting letter, once folded, did little 'exceed the tip of a quill, or the size of a pea, so that it could be hidden in some place by women or little boys', or attached

to the leg of a pigeon. Amalia was unappreciative, as his tiny messages were naturally awkward to read, and ordered him to stop showing off. Huygens's feelings were hurt and he later wrote in his *Mémoires* that it was necessity, not vanity, that had driven him to write such tiny letters, to prevent them from being intercepted.⁵²

Huygens was competing with the enemy: the Spanish might have been using micrographia as spycraft as early as 1586. In that year, the military officer Sancho Martínez de Leiva recommended the services of the Italian Carlos Fantino to the Spanish secretary of state Juan de Idiáquez. Martínez de Leiva enclosed two samples of Fantino's art attached to a sheet of paper with wax: one, measuring 2.8 x 2.1 centimetres, presented Canto 11.65 of Ludovico Ariosto's epic poem *Orlando Furioso* (1532) in Italian; the second, measuring 2.7 x 2.9 centimetres, bore most of the Latin text of the *Salve Regina*, an ancient Marian hymn.⁵³

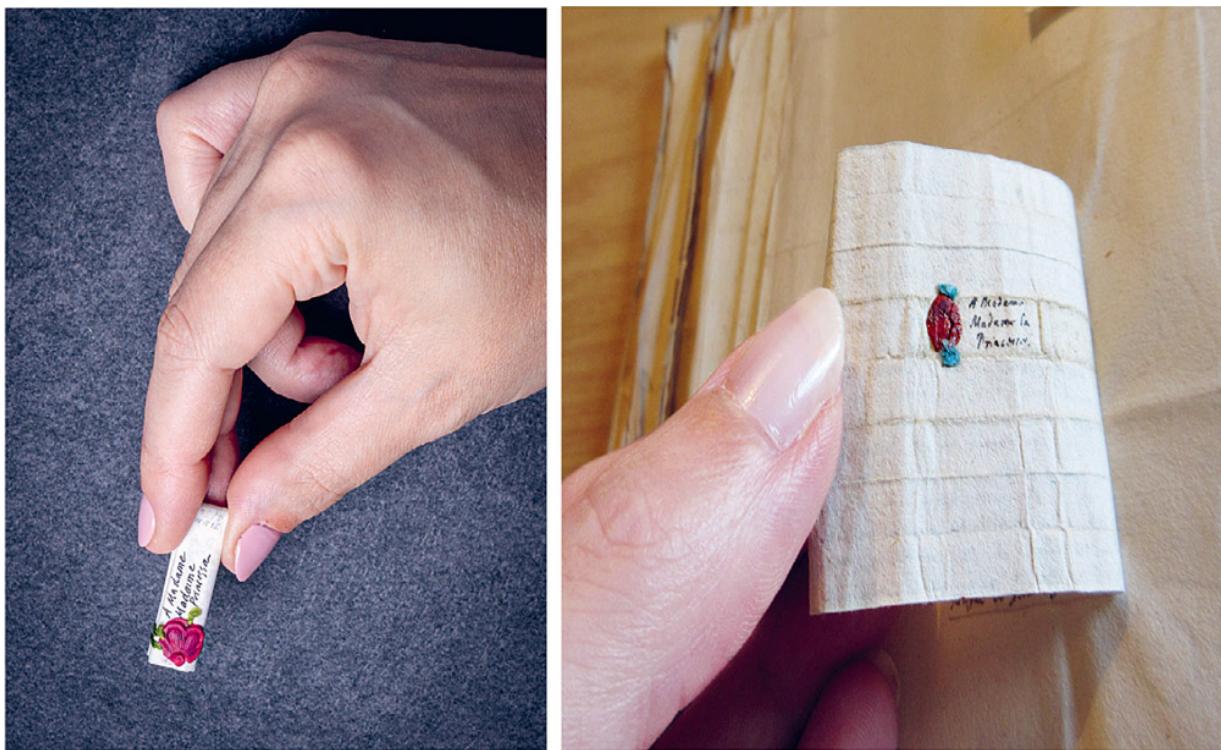


Fig. 31: Micrographia – if enshrouded in wax and silk floss, such tiny letters could, like musket balls, be easily swallowed if the carrier was threatened with capture.

Size was not everything, and when no expert in micrographia was available, or the messages were simply too much to secrete

inconspicuously, more capacious containers were necessary. Some have suggested that Mary, Queen of Scots recommended the soles of shoes as perfect hiding places for messages, but this is a misreading of her French. In fact, she suggests that packets of ciphered letters could be sealed with wax and substituted for the cork generally used to stuff high-heeled mules so that they kept their shape. It was the presence of such special stuffing that could be indicated by a mark ‘on the sole above the heel’. Mary also suggested that letters might be unfolded and laid flat ‘between the pieces of wood in the trunks and chests which you send’ – a padlock would indicate the need for said trunks to be taken apart.⁵⁴

In fact, any container that could be converted to surreptitiously convey letters was considered fair game. During the Bishops’ Wars of the late 1630s, Gualter Frost, later a key figure in the Commonwealth’s Council of State, transported letters in a hollowed-out cane.⁵⁵ In 1645, the governor of Cardiff was informed that Charles I had sent a messenger out of Oxford with letters for his supporters in the west of England: the messenger was to be a lame soldier. The unsuspecting bagman was subsequently captured and thoroughly searched, but his antagonists discovered no letters about his person; at least, not until one of them thought to investigate his wooden leg. Once removed, the prosthetic limb was found to have a secret chamber containing no fewer than eighteen letters.⁵⁶

Had this soldier not been betrayed, he would no doubt have waltzed past the Parliamentarian patrols unmolested, as such a pitiful figure was unlikely to generate much suspicion. Certainly, it was normal to recruit such illicit couriers from those trades whose members were perfectly common sights on the highways and byways – apothecaries, midwives, musicians and itinerant booksellers, for example. Royalist physician Peter Barwick noted of the women employed by the bookseller Richard Royston to smuggle letters between London and Oxford that it was the ‘mediocrity or rather meanness of their condition’ which rendered them ‘less conspicuous and more safe’ for such operations. It was perfectly normal for such women ‘frequently to travel on foot, like strollers begging from house to house, and loitering at places agreed upon, to take up books … it was easy to sew letters privately within the cover of any book, and then give the book a secret mark, to notify the insertion of such letters therein’.⁵⁷

Sometimes the wildly ostentatious trumped the drably invisible. When George Stewart, 9th seigneur d'Aubigny, was killed at the battle of Edgehill in 1642, his widow Katherine Howard, Lady d'Aubigny, was given a passport to Oxford so that she might deal with his estate. There she met Charles I, and promptly turned she-intelligencer (a contemporary term, originally used derogatively as women were neither expected nor supposed to engage in the dangerous trade).⁵⁸ Charles wished to mobilise his allies in London, and so sent ‘a commission under the Great Seal’ pertaining to provoking a rising against Parliament under Katherine’s safekeeping.⁵⁹ The Great Seal was not known for its compactness, so it is perhaps astonishing that Lady d’Aubigny transported it ‘made up in the hair of her head’.⁶⁰ Katherine’s relative invisibility, in spite of what must have been a massive hairdo, came from a combination of her total rejection of subtlety and the fact that women were generally considered incapable of political thought: they were hardly likely to be smuggling letters left, right and centre. The women of Maastricht caught in the act by besieging English soldiers might have put the lie to this particular belief, but it persisted in the face of overwhelming evidence to the contrary, especially when it came to the higher classes – certainly it was accentuated by the social stratification in England, as lower-born men were very reluctant to interfere in any way with higher-born women. When Apolin Hunt, who used the code name ‘Lady Hall’, was imprisoned, for example, she was treated with due respect by her jailer until, following a concerted investigation, he discovered that her title was a mere contrivance; she was no ‘Lady’ but rather the daughter of an old, drunken and defrocked priest. His next message to his superior, John Thurloe, contained the suggestion that he might ‘send the Slutt to Tynemouth Castle’. Disturbingly, Apolin subsequently disappeared from view, leaving no further traces in the archives, her class (or lack thereof) proving her undoing.⁶¹

This unwillingness to believe that women of note might, indeed, be smuggling letters to and fro often proved an advantage even when they were caught in the act, when their class also offered them some protection from being manhandled in the name of a ‘search’. In 1647, Lady Cave was in the process of smuggling a letter to Charles I, at that point incarcerated at Holdenby House, when she was betrayed and subsequently arrested. Her

captors wisely considered it best to have a pair of gentlewomen search her. Despite their efforts, however, nothing was discovered until ‘some 2 or 3 days after (upon an accident) the letter was found behind an hanging, in the room where she was searched, where it seems she had put it, when she stood with her back to the hangings, and conveyed it with her hands behind her, whilst she talked with the gentlewomen’.⁶² By 1658, the authorities had grown wise to the possibility that women such as Lady Cave might delay their being searched by simply distracting their guardians: when Lady Mordaunt was suspected of possessing incriminating letters, she was ‘stript and search’d by women sworn to that purpose; and her hair pull’d about her ears to find papers’, while her husband and his servants ‘had all their clothes cut and opened’.⁶³

Messages were regularly sewn into clothes, hats and other garments, as Tacitus recommended.⁶⁴ In 1597 Sir Thomas Chaloner suggested to Essex that a letter might be ‘stiched in a doublet’,⁶⁵ for example, while in 1572, a Cypriot spy who had been employed to deliver a message to the Venetian envoy in Constantinople, then under house arrest, was told to hide the message in a piece of cloth waterproofed with wax which was then to be ‘stitched up as a secret compartment inside his clothes’.⁶⁶ Some letters, such as the diminutive folding sent by James Ségur-Pardeilhan to Lord Burghley in 1585, still bear holes which may well have resulted from their being stitched into place.⁶⁷

There were other ways of using clothing to hide a message. In 1660, Charles II received a communication written on a piece of ‘White Persian’ cloth, for instance.⁶⁸ A letter written on paper could be folded into a very small package, but being hard and unyielding, it was thus vulnerable to a fingertip search. The same would obtain if one, for example, transported the paper letter unfolded and sewn into a garment’s lining, as it would change the garment’s feel. Linen, however, could be hidden within clothing and was only liable to discovery in the event of the garment concealing it being unstitched. It could also be scrunched up and hidden in places that paper letters could not, as well as masquerading as handkerchiefs and the like.⁶⁹ While under interrogation at the Tower of London following his arrest on suspicion of complicity in the Gunpowder Plot of 1605, the Jesuit priest Henry Garnett might well have taken advantage of these properties – he

mentions handkerchiefs in two letters. His captors certainly felt that this was a possibility: his jailer was instructed ‘to observe to whom he gives any handkerchers’.⁷⁰

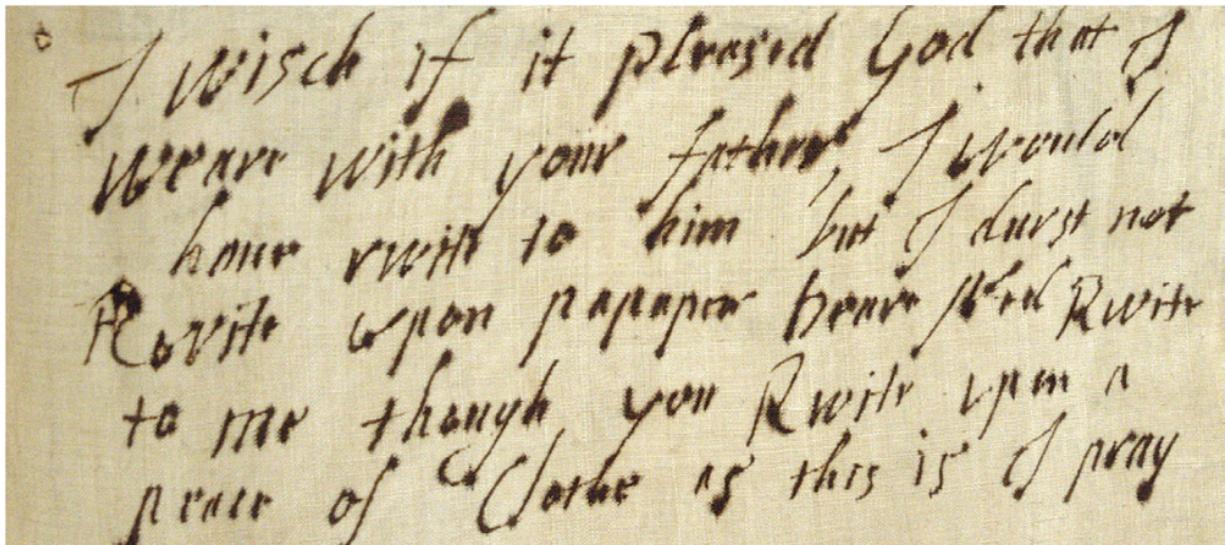


Fig. 32: Lady Brilliania wrote to her son of how she felt unable to write to his father. ‘I would have rwite to him but I durst not Rrite vpon papaper’, she told him, before asking him to ‘Rwite to me though you Rrite vpon a peace of Clothe as this is I pray.’ While linen was not the perfect medium for holding plain ink, as can be seen by the way in which the ink has spread on the material, it did have one great advantage over paper: flexibility.

DISGUISED INTENTIONS

Spy-handlers sometimes found their own identities got in the way of secret work. As those men with their own intelligence fiefdoms were each well known to their antagonists, it was often too dangerous for a spy to meet with them in their usual place of business. As they were most likely under continual surveillance themselves, any visitor would have their cover blown. Samuel Morland, Thurloe’s right-hand man, therefore ensured that there was always ‘a convenient room or two in some private places in the city ... hired by the year in another’s name, on purpose to meet such persons in a disguise and receive their intelligance’. In this way, the venue’s purpose was protected from prying eyes, as were its visitors, whether they were Thurloe himself or those agents he controlled. A similar trick was used to help agents abroad from giving away their allegiance by having to

address their intelligence reports to Spy Chief John Thurloe, Westminster, England: false addresses. For instance, Thurloe's linguist Isaac Dorislaus was informed that an operative named 'Master Williams' (perhaps the elusive 'Blanck Marshall') would direct his letters to either of the two following addresses: 'To Zedekiah Hoskins Merchant in Milk Street, London', or 'To Master William Hanmer in Sheer Lane at the sign of the Sugar Loaf, London'.⁷¹ Dorislaus, who was in charge of the day-to-day running of the Post Office, knew that any letter directed to one of these false addresses was effectively marked 'For the attention of Secretary Thurloe'.

Those who did not wish their letters to be intercepted purely on account of their expressed destination could also send them under a cover, through use of a clearing house. The technique was simple. The spy addressed their letter to an unsuspected third party, who then passed the letter on to its intended recipient. Sometimes, these third parties acted as unofficial sorting offices for entire spy circles. The same document that shows that Dorislaus was aware of the Milk Street and the Sugar Loaf addresses also suggests that there were clearing houses that he was not aware of. It states that Williams might also address letters to 'John Richards' at either the sign of the Harp or the sign of the Bell on King Street, Westminster, as the occupiers (presumably the innkeepers) were under instructions to 'carefully send them to me always'. It also contained a numerical cipher for use in communications with Williams. It is not clear who was hiding these clearing houses from Dorislaus, though likely candidates are Morland or Thurloe. The document now resides in the archives of Edward Hyde, secretary of state to King Charles II in exile: it was not only Thurloe who intercepted letters, it was his opponents, too.⁷² What was sauce for the goose was sauce for the gander.

One of the Interregnum's more active postmen was Anthony Hinton, an apothecary (an occupation which not only allowed him both to pass far and wide, but also to receive all manner of individuals at his shop without raising suspicion) who also operated a clearing house for the Royalist secret society the Sealed Knot. Anyone who wished a letter delivered within this network first wrote, sealed and addressed their communication, using the appropriate code names – Edward Hyde to the exiled Charles Stuart, was

'Monsieur d'Esmond to Mrs Brown', for example – and then enclosed this packet in a wrapper addressed to Hinton. Hinton would open the packets and distribute the contents accordingly. The system worked well at first, but Thurloe soon cottoned onto the 'great number of subtle and sly fellows in and about the city ... whose daily business is to go laden with intelligence, and instructions ... and so to disperse them among their factious brethren'. Thurloe had plenty of men at his disposal, setting some to 'dog these expresses from house to house, and from place to place, till they were apprehended with all their packets'.⁷³ Hinton was amongst those arrested, and he soon betrayed practically everyone in the network – Thurloe's reputation for picking the 'locks leading into the hearts of wicked men' was more than enough of an incentive to talk.⁷⁴ For all their subterfuge and carefully constructed lines of communication, cover addresses and code names, the Sealed Knot was rendered toothless by the telling combination of manpower and intimidation.

The information held within a letter could be disguised through mercantile discourse or cunning methods of smuggling, just as the identity of an individual spy could be protected by adopting code names. Sometimes a letter simply needed to be safely stored until it could be collected, away from the prying eyes of the pursuivants. Rather than directing letters to a specific address that would thus associate an individual name with the network, some preferred to use 'dead drops', places containing convenient nooks and crannies in which letters could be hidden and picked up at a later date once the coast was clear. Dead drops also had the advantage of preventing the simultaneous apprehension of both spy and courier, thus helping reduce the risk associated with that most dangerous of times, when information is in motion. Dead drops were designed to preserve the anonymity of the user, much like the Venetian use of dedicated letter boxes in the shape of a lion's mouth ('*bocca di leone*') or the 'head of a stern bureaucrat' into which concerned citizens could post intelligence information.⁷⁵ The best were both obscure yet easy to use without drawing undue attention. One method was to make a drop while indulging in another, preferably common but unsavoury, action. Supporters of Parliament in Royalist Oxford found a suitably unpleasant way of smuggling information out of the city. One city street had a 'hole of a glass-

window' in which letters could be left to be collected that same day and 'conveyed two miles off by some in the habit of town-gardeners, to the side of a ditch, where one or more were ever ready to give the intelligence to the next Parliament garrison'. The postbox had the perfect cover – it was in a street commonly used for public urination.⁷⁶

Other dead drops were more complicated. In November 1587, for example, intelligencer Ingram Thweyng sent a letter from Calais to Hugh Owen explaining how he intended to retrieve information from an agent he was sending to England should their current method of smuggling it to the continent be compromised. On landing in Dover, the new agent was to take the master of the boat and find a nook in the cliffs suitable for concealing a letter. Thweyng would later send a boat to the same port, ostensibly to pick up his sister who was to be waiting at this very same place. In the remarkably likely event that she was not sitting under the cliffs waiting for a passing sailor, the boatman would find a letter in the nook which 'will declare the cause why she cometh not'. This letter was actually an intelligence report – if Thweyng did have a sister she was not involved in this process – which would then be returned to Thweyng via the boatman. Thweyng further suggested that in order to prevent any suspicion from falling on the drop itself, his agent should repeatedly visit the general area without using it, and thus (eventually) he might place his letter unobserved. The technique had the added advantage of keeping Thweyng removed from the action, and thus safe from immediate apprehension. As every pick-up was potentially hazardous, each letter was to include details of the date, time and position of the next drop. It was a clever way of ensuring as much security as possible for these exchanges, which were one of the times at which a spy was at his or her most vulnerable. The only mistake Thweyng made was in revealing his system to Owen. While Thweyng and his agent had to understand the process, Owen did not. Unfortunately for Thweyng and his network, the letter which explained everything bears the following endorsement: 'intercepted'.⁷⁷

HIDING THE EVIDENCE

The 1580s was a busy time for pursuivants in England as they tried to hold back the tide of Jesuits flowing in from the continent. In the decade preceding the death of Mary, Queen of Scots, around 300 had entered the country, each fully prepared to give his life in what was the increasingly clandestine battle for the Catholic soul of Elizabeth I's country. Around half of these had failed in their mission: thirty-three had been hanged, around fifty languished in prison, where eight had died, and some sixty had returned to the continent. A decade later, as the number of Catholic-friendly houses swelled, so did the number of active priests, to over 300.⁷⁸ This increase was accompanied, or perhaps enabled, by the use of hides or, as they are commonly termed, priest-holes. The equivalent of a dead drop for an individual rather than a message, hides were designed to conceal the whole man, not merely his letters or paraphernalia, until the pursuivants had gone on their merry way and it was safe to allow the poor fellow out.

Before the hide became the go-to home improvement for recusant gentry, Catholic priests threatened with capture tended to secrete themselves in any available space, including trees, haystacks and in at least one case, an oven.⁷⁹ When available, caves were also popular, both for people and for the illegal printing presses that were used to manufacture illicit devotional materials that accompanied the Catholic mission in England. The first hides were relatively simple affairs, often mere extensions of hidden cupboards intended for the safety of valuables. The two most common types were the 'hole-under-the-garderobe' and the 'lath-and-plaster-hutch-in-the-roof'.⁸⁰ Both had rather grave disadvantages. The 'hole-under-the-garderobe' was effectively an enlargement of the space between ceiling and floor, and as garderobes (toilets) generally took the form of semicircular extensions outside the house, that such a space had been carved out was often obvious from the outside. The 'lath-and-plaster-hutch-in-the-roof' variety also had two particular problems. The first was that the roof was well known to be likely to hold such an addition – in 1606, Salisbury gave instructions regarding the search of Hindlip Hall that 'any double loft [or] loft towards the roof of the house ... must of necessity be opened'. The second was that, being less than solid in construction, they lacked soundproofing and were easily exposed by tapping on suspicious walls or by 'fishing', the random thrusting of a sword through any walls or ceilings that looked suspicious.⁸¹

It appears that on several occasions incumbent priests only narrowly escaped being wounded or even slain by such methods, never mind being discovered. In any case, pursuivants were known to bring carpenters and masons on their missions to ferret out hidden Jesuits. These simple shelters were simply insufficient.

The incorporation of these hides into the fabric of English country houses began around 1580, but it was not until the end of that decade that they were either numerous enough or clever enough to provide anything but very cursory protection. In 1588, everything changed. More than simply a high water mark in the shape of the attempted invasion by the Spanish Armada, 1588 was also the year that Nicholas Owen began his work as an interior designer and installer of bespoke hides for the dangerously recusant, work which continued until his arrest in 1606.⁸²

Owen, or ‘Little John’ as he was known, was the doyen of the hide, building in escape routes, connections with other hides (including ways of getting food to the inconvenienced guests), and even hides within hides – the idea being that the first might be easily discovered and, as it was empty, promptly ignored, thus saving the priest in the inner hide from arrest, ignominy and probable execution. Owen preferred to burrow into masonry or brickwork wherever possible, making his hides impervious to detection by tapping, sword-fishing or through comparing a building’s internal and external dimensions. Several examples of Owen’s ingenuity still survive, in houses such as Oxburgh Hall in Norfolk, Braddocks in Essex, Sawston Hall in Cambridgeshire, Hindlip Hall and Harvington Hall in Worcestershire, and Baddesley Clinton and Coughton Court in Warwickshire.⁸³

The building of hides diminished greatly after Owen’s arrest and subsequent expiry in the Tower (where he was tortured so gravely that his body gave way), and within a few years, as Catholics became less of a threat and the religion more widely tolerated, it ceased completely. Just because there seem to have been no new hides built after around 1610 does not mean that they were not used, however. In 1651, following defeat at the battle of Worcester, Charles Stuart struck out with a band of loyal followers intent on escaping the country. He soon found that there were times when one simply had no choice but to hide. At Boscobel House, for example, a day spent hiding up a tree (the famous ‘Royal Oak’) was followed by a

night in the house's garderobe hide (which was only 84 centimetres deep). He then travelled to a house in Moseley, where he passed another night in a hide. At Madeley Old Hall, however, it was felt unwise for him to use any of the house's many hides as they were all too well known. He passed the night in a barn instead. Sometimes, even kings could not be choosers.

DRESSING UP AND DRESSING DOWN

It was one thing to physically hide a message or to disguise its contents or recipients with mercantile discourse and code names, or to secrete a turbulent priest in a hole-in-the-wall, but quite another to physically hide an individual's identity. Dressing up, or indeed, dressing down (see Fig. 33), was a time-honoured practice amongst those who wished to remain anonymous, though it carried about it more than a faint whiff of moral danger. Clothing was generally believed to affect the wearer, just as it provided vital clues to one's status. While the sumptuary laws which once matched man and material had been toothless long before they were finally repealed, wearing clothing 'beyond one's station' was still generally frowned upon. Waad, for example, saw fit to comment on the Gunpowder plotter Ambrose Rookwood's possession of a 'very fair Hungarian horseman's coat, lined all with velvet, and other apparel exceeding costly, not fit for his degree'.⁸⁴

Donning the luxurious apparel of someone far beyond one's own position in society was thought to render the wearer vulnerable to 'sinful behaviours such as lust, avarice, envy and generally lax prodigality'.⁸⁵ A similar connection was made with make-up. In 1628, the she-intelligencer Lucy, Lady Carlisle, lover of the 1st duke of Buckingham and later a 'guest' at the Tower, was the subject of much gossip and jealousy, particularly from the female members of the duke's family.⁸⁶ 'She hath the Queen's hart above them all, so as in comparison she valleweth them at nothing', complained one correspondent, but that was far from her worst crime: 'she hath already brought her [the queen, Charles II's mother] to paint & in time she may by her example be led unto more debauchedness'.⁸⁷ Wearing make-up was an essentially dishonest undertaking.

Some attempts at disguising an individual's identity seem to have been doomed from the outset, such as that reputedly made to protect Anthony Babington from capture following the dismantling of his plot to assassinate Elizabeth I in 1586. Having cut off his hair, his co-conspirators 'besmeared his face with the husks of green walnuts'.⁸⁸ Such simple attempts at transitioning an individual from instantly recognisable to bland anonymity were fraught with difficulty. In 1623, Prince Charles and court favourite Buckingham travelled to Madrid, intent on securing the Spanish Match, James's plan to marry his son and heir to the Spanish infanta. Wishing to remain incognito, the men donned false beards to hide their identities, beards they had allegedly tried on during court masques.⁸⁹ Rumour had it that their disguises were rather less successful than the one adopted by Charles I's brother-in-law, the sometime king of Bohemia Frederick V, in 1622 during the Thirty Years' War (1618–48). He had both shaved off his beard and adopted the role of servant to his wife's secretary, Sir Francis Nethersole, as they made the dangerous journey to his ancestral lands, the Palatinate, a journey that took them directly through enemy territory. Sometimes, of course, disguise was in the eye of the beholder – in 1621, Frederick had been captured by imperial forces, but they had released him on account of his looking so young and insignificant.⁹⁰

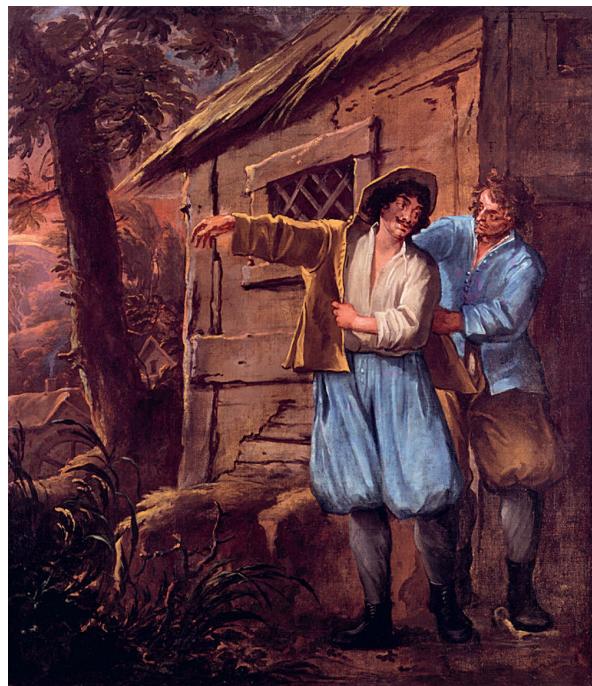


Fig. 33: Having fled to Whiteladies following his defeat at Worcester, Charles II is disguised as woodcutter ‘William Jones’ by Richard Penderel, a local farmer’s son. Following a rough haircut with a pair of shears (perhaps into a ‘Babington’), the beleaguered monarch’s transformation was completed with a loan of Penderel’s doe-skin doublet and a pair of his breeches.

Many men who wished to avoid drawing unwelcome attention to themselves went to somewhat greater lengths than donning false beards or besmirching their good looks with a rough haircut and a smudge of unripe walnuts. Well aware that women were less liable to being challenged while carrying surreptitious letters, dukes and generals alike took to the dressing-up box and presented themselves as women, all the better to slink unnoticed past enemy lines. Several used the technique to aid their escape from incarceration of one kind or another. Having been committed to the Tower after fighting on the losing side at the battle of Worcester in 1651, for example, Royalist general John Middleton subsequently absconded from prison and escaped to the continent ‘in his wife’s clothes’.⁹¹ The Parliamentarian soldier Colonel John Lambert, who had himself been sent to the Tower having attracted the opprobrium of his masters, effected his escape by substituting his prison maid, Joan, for himself by dressing her in his nightcloak and having her occupy his bed while he made use of a conveniently situated rope. Not long afterwards, he took matters a little further when the house at which he was hiding in Millbank was ‘beset with soldiers to take him’. Aware of the danger, he ‘dressed himself in woman’s clothes and a mask, [and] gave [£10] to a neighbour to break a wall to pass through the house’, where a coach was waiting to bear him away into the misty streets of London and beyond.⁹² Perhaps Lambert had been inspired by the antics of George Booth, leader of the eponymous uprising, who, having fallen foul of Lambert in a skirmish near Northwich, Cheshire, on 19 August 1659, made his escape dressed as ‘the Lady Dorothy’. Booth was captured after stopping off at Newport Pagnell after his companions, ‘having called in a barber to shave them, tried to buy his razor’ in an attempt to avoid exposing that Lady Dorothy was no sort of lady at all.⁹³



Fig. 34: A lady's vizard mask like that possibly worn by Lambert. The bead in the mouth opening was held between the teeth, thus keeping the mask in place.

Borrowing a woman's clothes was one thing, but convincing your peers you actually were a woman required a little more dedication. In April 1648, with his father King Charles I imprisoned and his elder brother safely abroad, the fourteen-year-old duke of York swapped captivity in St James's Palace for freedom and exile in Holland less by dressing as a woman than by becoming one, albeit temporarily. The first part of the subterfuge, as with Lambert, was the relatively simple matter of escaping his immediate environs: Lambert had exited the Tower by means of a handy rope, while the young duke was handed a 'cloake and periwig' by Colonel Bampfield – notorious turncoat and, at this point at least, Royalist spy – as he took a turn around the gardens. His identity thus occluded, if not entirely hidden, the duke hurried to a boathouse where a second conspirator, Anne Murray, later Lady Halkett, promptly 'dressed him in the woman's habit that was prepared; which fitted His Highness very well & was very pretty in it'. Anne's account of the duke's new clothes not only mentions the fabrics used, 'a mixed mohair of a light hair colour & black & the under petticoat was scarlet', but also that the tailor chosen to make the disguise 'had never seen any woman of so low a stature have so big a waist'.⁹⁴ At a time when dressing in women's clothes was, for a man, something of a last resort, it is

instructive to note how Murray does not so much dress the young duke as transform him. Another source notes that this transition was achieved with the help of ‘black patches’, that is, highly fashionable self-adhesive beauty spots, and that the only hiccup in the plan occurred when Bampfield attracted the suspicions of the boatman transferring them to the ship that would bear them both to safety. He began ‘tying the duke’s garter’ while still on the boat: it was – and still is – unusual behaviour for a man to hitch up a lady’s dress in public and start adjusting her underwear.⁹⁵ For spies such as Anne Murray and Bampfield, a convincing disguise plainly relied on getting the details right. By way of contrast with this litany of mid-seventeenth-century cross-dressing men, in 1584, Charles Paget advised Mary, Queen of Scots to do the opposite: ‘Me thinketh there were no way so sure to escape as to clothe yourself in man’s apparel and to have one woman so clothed to attend you, and so may Your Majesty be conveyed to any place of England to pass the sea either to Scotland, Spain or Lorraine.’⁹⁶



Fig. 35: The seventeenth century was a time when spies explored the various possibilities afforded by the donning of disguise. This was writ large in items such as this ‘dressing-up with Queen Henrietta Maria’ game. Comprising a base miniature portrait and up to twenty-four sheets of mica (a translucent silicate) with disguises painted onto them, it allowed the user to turn the queen into a masked, cloaked figure or statesman, amongst other possibilities.

At times, all this cross-dressing and donning of disguises resembled something of a pantomime, if not a farce, and perhaps nowhere is this made more clear than in the confessions made by the various members of the Babington Plot. Babington at one point told his interrogators that no decision had been made as to who would carry out the assassination of Elizabeth I. This was both true and not true, as it appears that every member of the conspiracy was ready to do so. John Savage is often identified as the intended assassin, but it appears he may simply have been the next conspirator off the block, so to speak: ‘After [the priest John] Ballard was apprehended, the same day Babington (fearing his present danger to be discovered) moved Savage first (whom he presently apparelled to go to court)’. This need for appropriate clothing is reinforced throughout the confessions, and Babington’s subsequent apprehension ‘moved Savage to a present execution of that attempt against Her Majesty’s person, which he promised to do accordingly, & was thereupon in haste suited with new apparel to go to the court for that purpose’. Elizabeth’s courtiers were not known for their sartorial conservatism, and one can only deduce that any would-be assassin who failed to sport the very latest fashion would draw so much attention to themselves that they would find it impossible to carry out their mission.⁹⁷

As the conspiracy fractured, its members were advised to ‘disguise & sever themselves, & so fly’. Even in flight, the conspirators were conscious of their appearance, and swapped outfits repeatedly: ‘Savage lent Babington his apparel to fly away in, & put upon him Babington’s apparel & came to [John] Charnock’s chamber in the same & told Charnock of the same & there put off Babington’s apparel & borrowed Charnock’s apparel & put it upon him.’ If it is unclear what Savage hoped to achieve by first wearing Babington’s clothes before swapping them with another conspirator, it is quite evident that one of the conspirators feared that at least part of his customary outfit was far too recognisable: ‘[Edward] Jones sayeth that upon the request of Payne the servant of [Thomas] Salusbury to change his cloak

with Howlet the said Jones his servant because Payne's own cloak was better known, the said Jones willed his servant to deliver the said Payne his cloak'.⁹⁸ Clothing was certainly one of the first identifying traits referred to when pointing out a suspected spy to a colleague, and elaborate descriptions of a suspect's appearances were part and parcel of observation methods practised by informers.⁹⁹ For instance, a letter sent from Saint-Malo in Brittany to Dartmouth, via Guernsey and Plymouth to prevent interception described two 'traitors', who were soon to cross the channel into England, by way of their dress. One had 'a green cloak and a cut doublet of fustian, with lace like a merchant, and has a hare lip' while another 'has a grey cloak. But all these marks may be altered'.¹⁰⁰ It should come as no surprise that the term 'turncoat' for someone who has changed sides comes from exactly this action: 'In the last you wrote to me that, if I undertook the voyage for His Majesty's title, that it would be thought there I had turned my cloak and had become French.'¹⁰¹

Even though the sumptuary laws had been repealed in the first decade of the seventeenth century, clothing was, for most people, a prime indicator of identity. Any attempt at sartorial manipulation was, therefore, an act of steganography: it sought to render an individual's status invisible in plain sight, to not only obscure identity, but to hide the fact that it was doing so. This was certainly a lesson taken to heart by the Jesuits who came to England in the late sixteenth century. They were not only permitted to eschew their traditional priestly apparel on the grounds that it was likely to interfere with their mission, but were provided with a new set of clothes before setting off to England.¹⁰² Merely by changing one's wardrobe, identity could be rewritten. As with all attempts at disguise, however, familiarity tended to reduce effectiveness. In 1608, Thomas Howard, 3rd Viscount Howard of Bindon, wrote to Salisbury concerning a Jesuit recently apprehended in Lyme Regis who had 'hidden in the lining of his cloak two several testaments for his better credit with dangerous English miscreants'. His initial misfortune was that he had been 'attired in the manner of Jesuits when they come into this land'.¹⁰³ Just as Howard was not to be hoodwinked by a mere cloak, there was more to maintaining a convincing illusion of being 'Lady Dorothy' than simply donning a dress, a wig and a beauty patch or two.

THE COUNTERFEITING OF ROBERT GRAY

Thus far we have considered disguises, whether of words, letters or people, in terms of avoiding suspicion, of replacing true identity with something innocuous such that the item or person in question might remain hidden in plain sight. There is, of course, another aspect to disguise – that of making something appear grander or larger than it is in reality. Such physical sleights of hand might include misinformation, such as Elizabeth Stuart, sometime queen of Bohemia, sending a letter describing the duke of Buckingham's calamitous attempt to sack the port of Cádiz and plunder Spanish treasure ships in 1625 as a qualified success to a friend in the sure knowledge that it would be intercepted by the enemy.¹⁰⁴ This type of disguise could also be reproduced on a personal scale. Perhaps the most audacious example of this was carried out by Thomas Douglas, a Scotsman who, apparently aggrieved at his lack of preferment, unleashed a series of events that saw him counterfeiting rather more than a few letters.

At around the same time that Christopher Porter was arrested for counterfeiting the signature of Robert Cecil, the secretary of state numbered the glibbery Thomas Douglas amongst his intelligencers.¹⁰⁵ Douglas was nephew to a notorious forger, the parson of Glasgow Archibald Douglas, a man thought by some to be involved in the murders of David Rizzio and Henry, Lord Darnley, respectively the secretary and husband of Mary, Queen of Scots. Many believed him responsible for the Casket Letters of 1567. He was certainly behind a series of forgeries that ‘implicated Esmé Stewart, Duke of Lennox, in popish plots’.¹⁰⁶ He had also served as a spy for Walsingham in 1583, and soon after was appointed Scottish ambassador in London. While Archibald had died in poverty in 1602, his nephew Thomas might be forgiven for believing that, with a late but infamous ambassador for an uncle and an influential employer in the shape of Robert Cecil, the accession of King James VI of Scotland to the throne of England in 1603 would be the making of him.¹⁰⁷ Cecil appears not to have held his Scots intelligencer in particularly high esteem, however, considering some of his ‘intelligence’ to be arrant nonsense, while allegedly dismissing him as ‘an open-mouthed fellow, and apt to lie’.¹⁰⁸ He thus employed him solely at the grittier end of business. When the expected smooth and graceful slide

into a position at court through which he might enrich himself failed to materialise, Douglas took matters into his own hands. He fell in with two other disaffected Scots, James Stewart and Robert Wood, and the trio promptly pooled their resources in order to seize what they considered their just deserts.

Thomas was already, like his uncle before him, an accomplished counterfeiter.¹⁰⁹ In January 1604 the three men set about forging documents granting the bearer the right to provide a particular set of goods or services, which they promptly sold to a merchant for the tidy sum of £300 (around £40,000 today).¹¹⁰ Such highly lucrative licences were granted by the crown, and often represented a thank-you for services rendered. These letters were authenticated by the monarch's sign manual and the signet.¹¹¹ Unfortunately for the intrepid trio, the Treason Act of 1554 had made the counterfeiting of the sign manual and the signet as dangerous as counterfeiting the Great and Privy seals. Douglas, Stewart and Wood were now guilty of treason.¹¹² On hearing the news that the merchant who had bought their forgeries had not only been arrested for possessing counterfeit papers but had immediately declared that he had received them 'from a Scot', Douglas and Wood decided that they ought take a protracted sojourn to Calais in the interests of their continued good health.¹¹³ Stewart either elected to remain in London or was arrested before he was able to flee. In any case, he was subsequently tried and executed for treason, while Wood and Douglas were exiled in absentia.¹¹⁴

While this foray into the dark side had netted Wood and Douglas considerably more money than Christopher Porter might have hoped to clear in even a year of dedicated and flawless forgery using his signature-stamps, the risk assumed had also been somewhat greater: while the act might well have endangered Porter's ears, forging Cecil's signature was not treason.¹¹⁵ It was from his temporary base in Calais that Douglas promulgated a far more audacious act of forgery. Rather than counterfeiting a mere document, Douglas counterfeited himself, and in doing so would almost bamboozle an entire continent.



Fig. 36: The introductory letter of ‘Robert Gray’, as forged by Thomas Douglas and presented to Oldenbarnevelt. It remains in the archives of the Dutch States General, without any indication that it is, in fact, a counterfeit.

On 2 August 1604, a man ‘of medium height, wearing a light beard, sharp-featured, and with prominent eyebrows, and lacking several teeth’ presented the grand pensionary of the Dutch Republic, Johan van Oldenbarnevelt, with a letter from the new king of England, James I, in favour of one ‘Robert Gray, a Gentleman of our Bedchamber’ (Fig. 36).¹¹⁶ The letter was as fake as the man who presented it. ‘Robert Gray’ was the invention of Thomas Douglas.¹¹⁷ Nevertheless, it appears that Oldenbarnevelt was impressed with this new ‘sharp-featured’ face at court, to the point of offering the Scot a commission in the Dutch army. Douglas, or Gray as he now presented himself, had not come all this way to be a soldier, and so returned to Calais where he promptly offered his services as intelligencer to the port’s governor, Dominique de Vic. Douglas had already planned his next trip, to the heart of the Spanish Netherlands, and he thought de Vic might forward him some money in return for information gathered there. Douglas appears to have been a persuasive individual, as while de Vic refused his kind offer of possible secrets in the future in return for ready cash in the present, the Scot still managed to convince the governor’s son that a loan of £10 was perfectly safe. And so, coffers bolstered, and armed with another letter of introduction, Douglas once again assumed the identity of ‘Robert Gray, Gentleman of the King’s Bedchamber’, and made his way to Brussels.¹¹⁸ On his arrival, he suggested to Archduke Albert, who ruled the Spanish Netherlands alongside his wife

Isabella Clara Eugenia, that he might help enlist Scots and English soldiers to support the Spanish in their campaign against the rebellious Dutch – not something that would have pleased his new friend Oldenbarnevelt. While Douglas did not in the end carry out this task, the trip was hardly a failure, as he returned to Calais clutching 100 gold pieces, a token of friendship given to him by Blasius, Archduke Albert's secretary.

Having tested his handiwork in The Hague and Brussels, and thus convinced that his credentials were sufficient to persuade Protestant and Catholic powers alike, Douglas upped his game. Using a new set of letters that introduced him as a special envoy of King James, he embarked on an embassy to the courts of the German Electors, the four princes and three bishops who were responsible for choosing the Holy Roman Emperor – the emperor-in-waiting was traditionally installed as such by having the title ‘king of the Romans’ conferred upon him. Even though Douglas appears to have suggested that his mission was very hush-hush (presumably in order to explain why an ambassador would turn up at a European court with no retinue), flying below the radar did not mean he did not need to look the part, and alongside his letters of introduction and his undeniable chutzpah, he sported a grand-looking ambassadorial chain stolen from the son of the Polish ambassador in London.¹¹⁹

The first port of call on the whistle-stop tour of ‘Robert Gray, ambassador to the newly installed king of England’ was the seat of the archbishop of Cologne. The simple act of undertaking the 250-mile journey perhaps in itself suggests the measure of Douglas’s seriousness, and on arrival he not only found his expenses defrayed and his arms laden with gifts, but it appears that he so beguiled the senators that they wrote to James by way of response to the message he brought. As it happened – and whether by chance or design is something of a mystery – there was another prestigious visitor in town, the papal nuncio. Hearing of Gray’s presence, the nuncio invited him to a formal banquet, where the two of them discussed the possibility of King James being elected to the imperial dignity.

At first glance this seems a ludicrous idea, but rumblings of discontent were stirring. The current emperor, Rudolf II, had instigated a war with the Ottomans which was hurting many of the Electors where they felt it most

deeply, in their purses. The fact that his younger brother Matthias, who was most likely to replace him, was particularly anti-Protestant did not help matters either. Matthias had not, however, been officially elected king of the Romans, so technically there remained a way of saving the situation. However unlikely it might have seemed, James was already considered to favour peace over war as a general principle, and, while a committed Calvinist, was known for his toleration of Catholics in general. What was more, he had already been in contact with the Pope in the run-up to the death of Elizabeth I (though he denied it, naturally, and his secretary Sir James Elphinstone had been made a scapegoat for the rumours). Indeed, both Spain and France had allegedly promised to support his claim to the English crown should he promise tolerance of Catholics once he ascended the throne. Had negotiations reached up to this level, then they would certainly have involved Cecil, who was working for both Elizabeth and James in the months before the succession question was rendered absolutely imperative by the English queen's death. Douglas would later assert that Cecil knew all about his mission. Spreading such a rumour was certainly within Cecil's ambit, but it seems more likely that there was an amount of wishful thinking going on. As Francis Bacon sagely observed, 'man would rather believe what he wishes to be true'.¹²⁰ Wherever the idea had come from, it appears that Douglas had, in a heartbeat, moved from counterfeiting an ambassador to counterfeiting England's geopolitical strategy.

Douglas's visit to Cologne was successful on many levels, not least financially – he set out on the next leg of his embassy in a coach lent to him by the papal nuncio and accompanied by a new luxury alongside the many gifts he was now laden with: three newly hired servants. At a mere 18 miles, the journey to see the archbishop of Trier in Bonn was somewhat shorter than his trip to Cologne had been, which must have come as some relief: it also proved rather less successful. The archbishop of Trier treated 'Gray' with enough suspicion to make him move on almost immediately to Aschaffenburg (a journey of almost 125 miles), where he spoke with the next spiritual Elector on his list, the archbishop of Mainz, who 'entertained me sumptuously, gave me presents and provided me with a coach and lackeys'.¹²¹ Whether or not Douglas was serious in his ministrations, truly believing that he was well on the way to securing the four electoral votes

that would guarantee James's election as king of the Romans, or whether his treatment in Cologne and Mainz had made him overly ambitious, the wheels were about to come off his (borrowed) coach.

The fourth – and final – leg of Douglas's journey saw him travel to Heidelberg, the seat of the Elector Palatine. Explanations differ as to exactly what it was that made the Calvinist Friedrich IV suspicious of this Catholic ambassador purporting to come from England's new king, but familiarity doubtless played a part – unlike the Catholic Electors, who had seen no good reason to engage with the Calvinist king of a relatively minor European country, Friedrich had dealt with James when he was only king of Scotland. Whatever the reason, Friedrich saw enough in the ambassador's documents to believe that they were not what they seemed, and promptly threw the Scotsman into jail, sending a message to James asking whether he should send the miscreant back or deal with him in situ. Much to the prisoner's chagrin (Douglas begged Friedrich to instead send him to fight the Ottomans, a move perhaps only marginally less likely to result in a grisly demise), James wanted him back, possibly in order that he could better scotch the rumour that he desired the imperial crown. (This was not the last time that James's friends in Europe would help him; Friedrich would later repeat the favour when William Baldwin, a man thought complicit in the Gunpowder Plot, turned up in the Palatinate but was also sent home to meet his fate.)¹²²

Douglas eventually made three confessions, two in the dungeons of Heidelberg and one in London's Tower. These confessions are as slippery as the man himself, and tell different stories. Douglas first takes responsibility for writing the letters himself, before changing his story and insisting that 'they were written to his dictation by a poor Frenchman lodging "in an alehouse near the tennis court in the Blackfriars"'.¹²³ He first blamed the conveniently disembowelled Stewart (whose spiral-locked plea for clemency had proved unsuccessful) for the initial counterfeiting of the king's signature, suggesting that he obtained the Privy Seal of Scotland with which he had provided the final authorisation by borrowing it from his brother James, who worked for the Scottish secretary Elphinstone. Eventually, he confessed that 'in truth he caused the said Privy Seal to be counterfeited, and therewith sealed six letters, unto six Princes of Germany

[i.e., all the Electors bar the king of Bohemia], counterfeiting the king's hand to every one of them'.¹²⁴ Wherever the truth lies, it seems that the successful counterfeiting of documents was a joint enterprise – clumsily counterfeited documents could slip through unnoticed if the official checking them either lacked familiarity with their usual form or simply could not be bothered (or did not desire) to inspect them fully.

The story of Thomas Douglas shows that the counterfeiting of documents was no mere matter of petty fraud or even exposing conspiracies. In the wrong hands, it could potentially change the course of history. Douglas left England in June 1604, and spent much of the next seven months living it up as 'Robert Gray', his one-man embassy blazing a trail through some of the richest courts in Europe, negotiating (if he is to be believed) for King James to accede to the imperial throne. At the end of January 1605, Gray had arrived in Heidelberg, where his embassy juddered to a halt. By the end of May, he was being escorted back to England, Thomas Douglas once more. On 24 June, he was committed to the Tower, his fate all but sealed. After a brief trial, Douglas was found guilty of treason and other 'prancks', and put to death.¹²⁵ His brief time in the spotlight shows us something of the sheer power and authority the royal sign manual carried with it, especially when wielded by a man who must have possessed no little charisma. It is no hyperbole to say that Robert Gray, ambassador to King James, was a disguise Thomas Douglas created with a signature, a seal and outrageous self-confidence.

4



INKS & INVISIBILITY

In 1584, Mary, Queen of Scots wrote to the French ambassador at Elizabeth I's court, Michel de Castelnau, on the subject of invisible ink. She informed him that 'the best and most secret writing is alum dissolved in a little clear water twenty-four hours before you want to write'. The invisible writing could then be revealed, hopefully by the intended recipient, by dipping the paper in a bowl of water: the writing would appear white and could be read until the paper dried, when it would disappear once more. Alum writing could also be revealed by heat, though this would leave the secret message permanently exposed.¹ Alum, or potassium aluminium sulphate, was commonly used for pickling food and was thus found in most pantries, and it also had a more industrial use as a mordant (or fixer) for dyes in the textile trade. Its use as an invisible ink – or white ink, as it was commonly termed – was no great secret, however, and can be seen in many contemporary recipe books and miscellanies,² such as this example written in the last decades of the sixteenth century ([Fig. 37](#)).

By the beginning of 1586, however, Mary appears to have changed her mind, writing from Chartley to Guillaume de l'Aubespine de Châteauneuf, Castelnau's successor, that 'writing with alum is very common, and easy to be suspected and discovered'. Nevertheless, Mary did suggest that it could still be used in certain ways, such as on deliveries of 'white taffeta or a similar cloth', possibly because water revealed alum writing on fabric with great speed and clarity, especially when compared to the heat reveal on paper.³

It is unlikely to be a coincidence that in this very same month, the dark artificer Arthur Gregory wrote to Sir Francis Walsingham on the same subject, from his ‘poor house’: ‘the writing with alum is discovered diverse ways; with fire & with water, which they use; but most apparently by rubbing of coal dust thereon which bringeth it forth white’. Walsingham had read both Mary’s letter extolling the virtues of alum as well as her conclusion that it was too easily discovered (these letters survive in the archives as copies produced by Thomas Phelippes). Perhaps mindful of Walsingham’s many responsibilities and the value of his time, Gregory included a helpful postscript running up the letter’s left-hand margin: ‘If your honnor rub this powder within the black lyne the letters will appeare white’ (Fig. 38). Historians have suggested that Gregory included a small package of coal dust with his letter.⁴ It seems much more likely that he expected Walsingham to source his own ‘dust’, however, as it would be readily available from any nearby fireplace. In either case, what this letter truly shows is Gregory’s understanding of the power of direct experience (see Fig. 39).

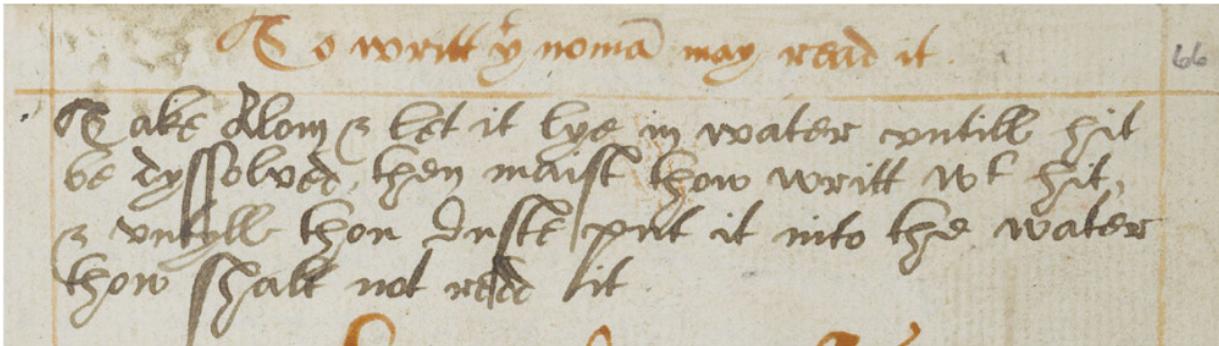


Fig. 37: ‘To writt y. t no ma[n] may read it. / Take Alom & let it lye in water vntill hit / be dyssolved, then maist thou writt w. hit, / & vntyll thou dreste put it into the water / thou shalt not redd hit.’

Ever mindful of incriminating himself when displaying his mastery of the darker arts of subterfuge, considering the generally felt connection between dissimulation, dishonesty and things demonic, Gregory went to great lengths to protect himself from accusations of impropriety: ‘in my trying that ever was required to be done, I never failed or made default, & voluntarily protesting, before the face of God, that I never put pen to paper, nor did any other thing for practice, but on so sudden executed that which I have been commanded unto by authority abhorring and detesting all

knavish use of whatsoever'.⁵ In essence, Gregory was reminding Walsingham of the lengths to which he was going in order to improve his technical mastery of the cat-and-mouse game of invisible inks, writing of his 'trial of many ways to discover the secret writing on white papers', which also included another type of invisible ink: 'The substance which Aquavita and gall discovereth is copperas which I find knowing the force they mutually work with each other and Your Lordship may work contrarily by writing with gall water & discovering it with copperas: This is but my first practise herein.'⁶

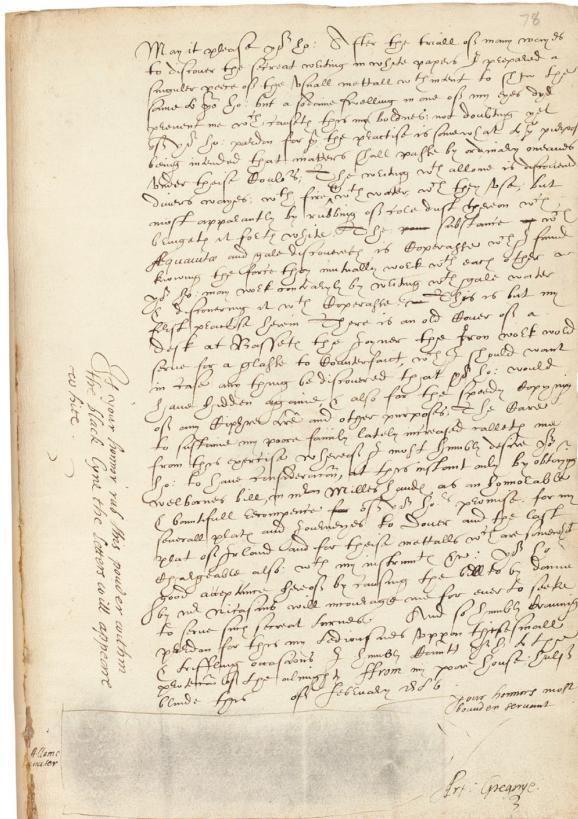


Fig. 38: Gregory's postscript is in his own italic hand – the main body of the letter had been written by a secretary. Writing in one's own hand communicated intimacy, appropriate when dealing with secrets, and it allowed him to demonstrate his skill with invisible inks.

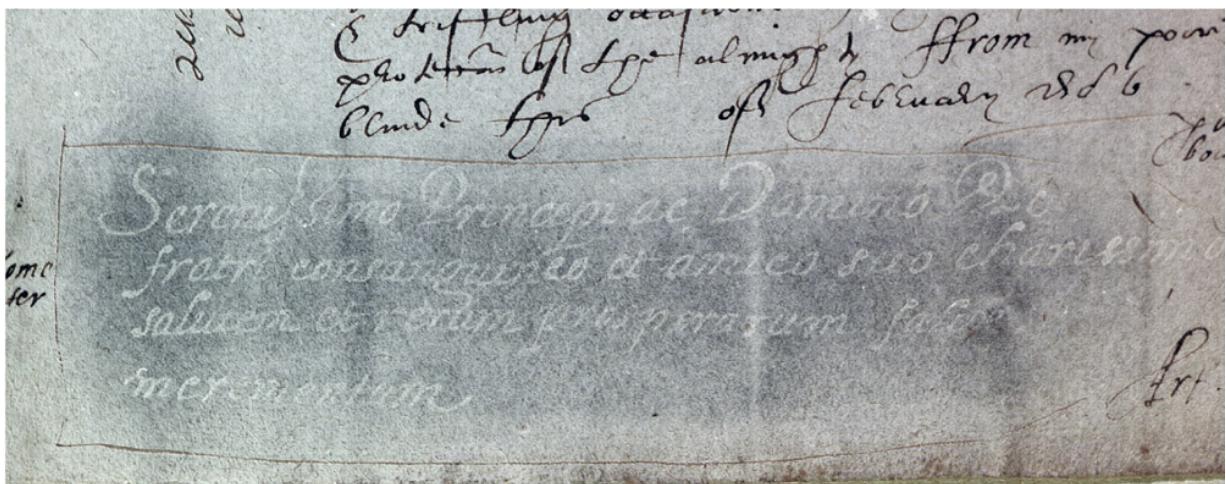


Fig. 39: Detail of Fig. 38. Someone, whether Walsingham himself or a servant, has dutifully rubbed coal dust into the area delineated by Gregory, as instructed, thus revealing the hidden words. The actual Latin message is a formulaic message of goodwill.

Gregory was not breaking new ground here so much as retreading it – as was the case with many other technologies, Europe staggered blindly in the rather more secure footsteps of the ancients and the Chinese when it came to writing. In the third century BCE, Philo of Byzantium had recommended using gall-water as an invisible ink on human skin or clean fabric (such as a ‘new hat’) with copperas applied with a ‘sponge’ acting as its reagent (‘a substance used in testing for other substances, or for reacting with them in a particular way; (more widely) any substance used in chemical reactions’),⁷ and revealing the hidden message.⁸ Walsingham may already have been aware of the use of coal dust as a substance that could reveal invisible writing – some two centuries after Philo, the poet Ovid commented on its use in revealing secret messages written in new milk, a technique favoured, he asserted, by milkmaids writing love letters.⁹ For their part, the Chinese were not only manufacturing paper long before the continental Europeans, but they were also aware of the white ink properties of alum in the twelfth century, though on at least one occasion considered it akin to magic.¹⁰

The combination of gall-water and copperas mentioned by Gregory had two particular advantages. The first was that it was reversible (as Gregory had discovered in his home laboratory): you could use copperas as your ink and gall-water as your reveal, or, vice versa, use gall-water as your ink and copperas as your reveal. The second was that its ingredients would not look out of place on any writing desk, as the two substances comprised a

standard black ink recipe.¹¹ This property ensured that whichever substance was used for the white ink, the application of the other was, to all intents and purposes, the act of mixing black ink on the paper itself.

Given the common usage of these ingredients, one might expect the gall-water–copperas invisible ink combination, and particularly its reversible nature, to be rather more widely known. And yet, some seventy years after Gregory’s letter, we find a Royalist member of the marquess of Ormond’s circle suggesting that this pairing was, if not unknown, perhaps largely forgotten: ‘the secret that I. Ogliby gave (namely the powder of gall in water, to be washed over with the powder of calcined copperas) is not discovered, but may be safely used’.¹² (Another in the same circle simply referred to ‘the English Nunn’s powder’, suggesting that a woman had introduced them to the secret.)¹³ This apparent loss of collective memory might simply be attributed to the relative rarity of surreptitious letters being sent on a regular basis over a protracted period of time by the same people.

Whether or not the simple convenience of gall-water–copperas invisible ink was forgotten, recovered and promptly forgotten again, it is certainly true that if it was a secret, it was not a particularly well-hidden one. An indication of just how easily these recipes could be found, and yet how secret those who used them believed them to be, can be seen in the memoirs of Anne Halkett, an active member of a Royalist spy ring in Edinburgh in the 1650s (when she was still Anne Murray). This spy ring counted the exiled Charles II amongst their correspondents, and used a type of invisible ink they believed was known only to them. One of the circle, Sir George Mackenzie, happened to be perusing the wares of a Scottish stationer when he found the recipe for ‘their’ secret ink staring back at him in black and white from the pages of a book. His fellow conspirator, Sir Robert Moray, suggested that this visibility might be an advantage. As Halkett put it, ‘the only hopes he had was, that if that book came into their English hands they would not believe any thing so common as to be in print would be made use of in any business of consequence’.¹⁴

Not only were these formulae scattered amongst the manuscript miscellanies or recipe books that were to be found in many households, and in any number of the so-called Renaissance books of secrets that flew off the presses in the fifteenth and sixteenth centuries, but from 1589 they were

included in the second edition of Giambattista della Porta's bestselling *Magiae Naturalis*. The recipes and techniques listed by della Porta were not unique to him – like many early modern writers, he was perfectly happy to crib his techniques from any source he could uncover.¹⁵ While most miscellanies and ancient works that mentioned invisible writing contained just a handful of recipes, della Porta's *Magiae Naturalis* boasted an entire chapter devoted to the art. It was by far the most comprehensive collection available.

While an English translation of della Porta, entitled *Natural Magick*, would not hit the stands until 1658, the playwright and one-time spy Ben Jonson's epigram 'The New Cry' suggests that by 1610 the Italian's work had become a must-read for the would-be politiques and scoundrels of the day, and that they could find a veritable cornucopia of espionage techniques between its pages: 'They all get Porta for the sundry ways / To write in cipher, and the several keys / To ope the character. They've found the sleight / With juice of lemons, onions, piss, to write, / To break up seals and close 'em.'¹⁶ In terms of invisible inks, Jonson mentions only sour and stinking liquids, possibly because he was intent on satirising those who saw conspiracies everywhere, but lemon juice was the substance that people remembered. Thirty years after Jonson, lemon juice and white ink were practically synonymous, so much so that Abraham Cowley, the spy, poet and cipher secretary to Queen Henrietta Maria, could write a poem entitled 'Written in Juice of Lemmon' and feel comfortable that everyone would know what he meant.¹⁷ Lemon juice is particularly flexible as it reveals in water or heat. In water the words become visible (albeit not with the clarity of a heat reveal) and disappear as the paper dries: once dried, the paper will not reveal its message again. When the first reveal is achieved through the application of heat, however, the message is permanently scorched into view (the acidic nature of the juice causes the inked paper to oxidise quicker than the surrounding areas when exposed to heat).¹⁸



Fig. 40: It was common to end a secret letter with the words ‘burn after reading’. When using heat to reveal a white ink, one had to be careful not to burn the letter *before* reading.

The lemon juice–heat reveal method first became popular in sixteenth-century Italy, but it was soon disseminated more widely: an anonymous Dutch recipe book, *Dat batement van recepten* (1549), cites an Italian work from 1525 when describing lemon juice as suitable for use as an invisible ink.¹⁹ The first documented use of lemon juice as the basis of an invisible ink, however, is to be found within an Arabic manual for secretaries, *Subh al-Ashā* (1412), by al-Qalqashandī, but it did not use a direct heat reveal.²⁰ Al-Qalqashandī’s recipe called for an equal amount of fried ‘black [i.e., dried] lemon with colocynth root (a strong laxative sometimes called bitter apple or bitter cucumber) in olive oil’, a mixture that could then be thickened using egg yolk. This formula required a very simple reagent that was rarely available to a conspirator: time. The mixture appears to have had an affinity for mould, as in time ‘hair was supposed to grow where the writing had been’.²¹

Jonson’s satirical poem may have suggested that by the early seventeenth century practically everyone knew that to make invisible writing required a lemon or an onion – assuming one had limited access to urine – and had got this knowledge from *Magiae Naturalis*, but this may be somewhat overstating the case. Della Porta’s perennially popular tome was somewhat more comprehensive than Jonson allowed, as it also included alum, the gall-water–copperas combination and several more besides: altogether he lists fourteen substances that can be used as discrete invisible

inks (vitriol, gall-water, alum, orange juice, lemon juice, fat (of several kinds), urine, sour grape juice, services (fruit of the sorb tree), ammoniac salt, gum, fig-tree milk, milk of tithymalus and vinegar), seven mixtures (burnt straw in vinegar, galls in wine, cherry juice and calamus, vinegar with egg white and quicksilver, gum with salt, gum and lime, and goat's suet with turpentine) and even two ways to write on a stone (gall and vitriol powder plus gum juniper – the reveal is achieved with vinegar).²²

If there was a tendency towards repeating old prescriptions, albeit not entirely uncritically, there was also a place for invisible ink amongst those involved in experimental science. Robert Boyle, the Irish natural philosopher and chemist, not only subjected recipes such as gall-water and copperas to experimental scrutiny, investigating quantities and how, for example, ink might be erased and even its colour changed, but also considered new possibilities. One of these, though, it must be said, hardly the most practical, was the serum of human blood (the clear fluid left after blood has coagulated). In his Appendix to the *Memoirs for the History of Human Blood* (1684), Boyle wrote of how he first hypothesised and then tested a potential invisible ink experimentally: ‘Having formerly had occasion to observe, that man’s urine would tolerably well serve for what they call an invisible ink; and having considered (when I remembered this) the great affinity that is supposed to be between urine and the serum of blood, I thought fit to try, whether the latter might not be employed like the former, to make a kind of invisible ink.’²³ Boyle’s mention of the ‘great affinity … between urine and the serum of blood’ brings to mind Gregory’s earlier mention of the ‘mutual force’ worked between gall-water and copperas, and how this knowledge led him to the understanding that they made a reversible ink, suggesting that Gregory’s experiments were not quite the undirected stumbling in the dark they might at first appear.²⁴ Certainly, investigation into the nature of things, along with the desire to work from experience rather than simply to regurgitate past authors, would lead some to consider recipes that might be thought somewhat fanciful: ‘That which is written with the water of putrified willow, or the distilled juice of glow-worms, will not be visible but in the dark, as Porta affirms from his own experience.’²⁵ The sixteenth-century Italian naturalist Ulisse Aldrovandi attributed the creation of an ink that could be read at night but not during

the daytime to his contemporary, the Dutch physician and classical scholar Hadrianus Junius.²⁶ The idea itself derived from the mythical *liquor lucidus*, a liquid light source prepared from glow-worms (and sometimes fish scales) and which was alleged to possess great luminescent qualities, the history of which stretched back at least as far as the thirteenth-century German philosopher and theologian Albertus Magnus. In 1658, Thomas Muffet's *Theatre of Insects* recorded several methods of creating this liquor, the commonest of which involved burying the glow-worms in manure for several days or mixing them with mercury, and sometimes distilling the liquor that resulted, though he was quite clear in stating that it did not work.²⁷

NOW YOU SEE ME (NOW YOU DON'T)

Simply knowing what might serve as an invisible ink was not enough to enable secret communication, of course. Invisible ink is of no use if the recipient cannot render the message visible. Well aware of this fact, della Porta usefully categorised his inks by way of their reveal, that is, how the invisible was to be rendered visible – not all invisible writing gave up its secrets at the merest hint of a naked flame. There were three primary categories: those that were revealed by application of liquid; those that became visible through exposure to heat or fire; and those exposed by the application of dust (by which he generally means carbon powder, or coal dust). Furthermore, della Porta counted five liquids amongst those that acted to reveal invisible writing – vitriol, water, solution of litharge (lead(II) oxide), vinegar and gall solution – each of which acts as a reagent when introduced to its partner ink. The same process was true of a heat reveal – the proximity of heat causes a chemical reaction to occur (or accelerates it) within the substance used for the ink (in lemon juice, for example, this reaction is oxidation). Other reveals occur for more straightforwardly physical reasons – fat repels water, so on soaking a stone that has been written on in goat fat, the untreated areas of stone will change colour, rendering the letters visible, for example.²⁸

While the proliferation of books and recipes for invisible ink were a major boon for the prospective dark artificer, they did not automatically transform one into a master of the art of invisible writing. Recipes could, and did, fail, often because they included information that was simply incorrect. John Cotgrave's *Wits Interpreter* (1655), for example, included several recipes taken directly from della Porta that appear to have been badly translated.²⁹ Cotgrave's version of the gall-water–copperas invisible ink would, if followed directly, have disappointed the casual experimenter: 'Take Chalcentum [copperas] and dissolve it in water, then take some galls, and gently bruised, put them in water letting them stand so a day and a night, then strain it, and with the water write your mind on a piece of white paper, and send it to your friend, when you would have them seen dip the letter first in water.'³⁰ Plain water, of course, would do absolutely nothing in this instance. As della Porta had suggested, the letters needed to be dipped into 'the first liquor', that is, the copperas solution, to render the writing visible.³¹ Whether Cotgrave's error was introduced by a translator, writer or compositor, it clearly shows how easy it was to get things wrong. Della Porta was careful to indicate when he had tried a technique himself, such as when he noted of Africanus's famous technique of writing on eggs that he 'could do nothing of it'; he did report success in lighting rooms with the liquid of glow-worms, so perhaps even he was not infallible.³²

Getting a recipe wrong was potentially disastrous, as using an inappropriate reveal could render the message unreadable forever. Dipping a lemon-juice letter in water, for example, might reveal the message, but only temporarily, and once the letters had faded, they could not be coaxed back into life – the reveal would effectively wash the white ink away. In a similar fashion, a few short swipes of a gall-water-infused cloth over a message already written in gall-water would render the entire message unreadable, as subsequent use of the correct reveal, copperas, would now merely produce inky smears where once were words. It is for this reason that Robert Bowes, the English ambassador to Scotland, approached suspected letters, blanks which bore signatures but no other writing (one was signed by the spy William Herle), with caution and some anxiety: 'sundry of these blanks are filled & be written with ink of white vitriol prepared. Which I shall shortly (by God's grace) try & discover'.³³

Arthur Gregory had good reason to remind first Walsingham, and later Robert Cecil, of the effort and experimentation that was involved in acquiring his expertise, not to mention the effects mixing poisonous recipes had had on his health, as he attempted to consolidate what little patronage he had already acquired. The dark artificer needed skills beyond the merely chemical if he was to catch any would-be conspirator in the act.

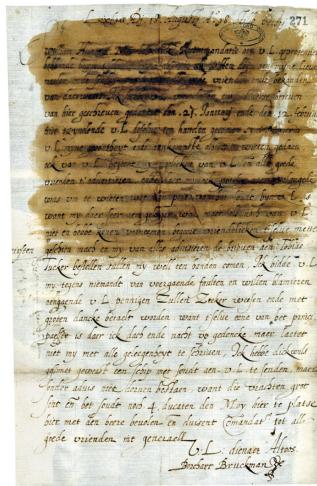


Fig. 41: It paid to be careful when handling potential invisible ink letters. In his overzealous search for invisible ink between the lines, this letter's interceptor has rendered the first few lines of the letter illegible.

WHERE BE THE INVISIBLE WRITING?

It was all well and good having a list of the various invisible inks available, quite another to identify when and where they were being used. A dark artificer such as Gregory would have had to infer the presence of invisible writing in the first place from whatever clues were available, and space was, of course, one of the most important prerequisites. Della Porta interspersed his invisible ink recipes with handy hints on their employment: ‘So we may bring forth letters written between the verses, and in the close setting together, or larger distances of syllables. Let the Epistle contain some void space, that the letters may not be seen; and if this be intercepted, it will hardly be read.’³⁴ Hiding invisible ink messages ‘between the lines’ was certainly a common technique, as in the message from Arnault Backer

to Sir Robert Williamson shown in Fig. 42.³⁵ A letter's interceptor might thus infer the presence of invisible writing from any suspiciously empty space, as della Porta suggested, while the letter itself might contain instructions as to where to find or include invisible writing. When Lord Inchiquin wrote to Catherine Grey in Paris in August 1659, for example, he did so following a series of letters showing that they both used an invisible ink recipe made from an unnamed but apparently expensive and poisonous white powder – a recipe so complicated that having burnt it in order to avoid being found in possession of such incriminating evidence, he realised he could not remember how it worked. When the time came to use this invisible ink, he approached the subject from an obtuse angle: ‘I pray neglect not now to use the powder’, he wrote, before informing his correspondent to ‘apply it as well between the Ribbs [jargon for ‘lines’]’.³⁶ He thus hid his instructions under a cloak of medical discourse. In another letter, Edmund Wyndham chastises the recipient for failing to follow instructions: ‘I wonder that you had forgotten the directions I gave you how to give notice when you made use of the powder, which was to give a dash after your name as I have done. & if you can by that discover mine, I shall by the same discover yours, & therefore I pray try this which you now receive.’ This time, his correspondent understood the message perfectly, and, having spotted the dash that came after Wyndham’s initials, revealed the invisible ink message that lay hidden between Wyndham’s lines with a few careful wipes of his reagent-infused cloth or sponge.³⁷ Back in 1586, Mary, Queen of Scots had suggested that if Châteauneuf were to send her messages in alum, they would be best hidden in quires (collated foldings of manuscript) sent to her by his secretaries, with the presence of invisible ink indicated by the addition of a piece of green string to every volume so extended. There was no further need to indicate where in the booklet the secret writing was inserted: ‘always write on the fourth, eighth, twelfth and sixteenth page and so on, proceeding by fours’, Mary instructed her correspondent, ‘so there is no need to make a mark to know where something has been written’.³⁸

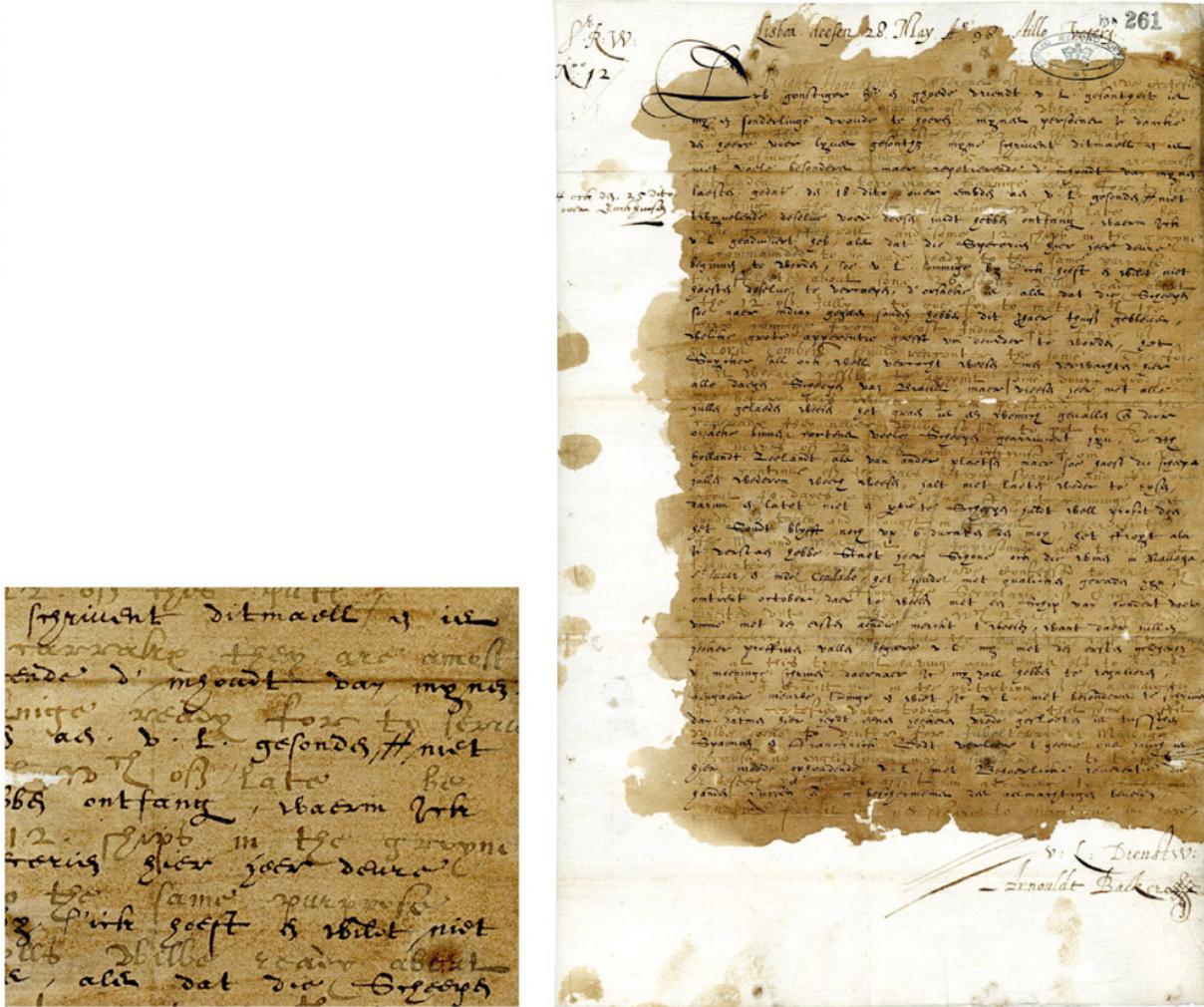


Fig. 42: Here, Dutch lines in black, plain ink are interspersed by English lines in (revealed) invisible ink. The invisible ink is either copperas or gall-water, and has been revealed by its ‘partner’ ink.

There was, of course, always the option of simply trying a reveal to see what happened, even though such an action might prevent the letter from being sent on its merry way (see Fig. 43). While Gregory had previously informed Walsingham of his work on the ‘many ways to discover the secret writing on white papers’, he would direct Cecil to this same expertise some twelve years later: ‘May it please your honour I have tried all parts of the letter to satisfy your honour’s desire but could find nothing I durst have assured your Lordship without trial that there should be nothing, beside my knowledge of the letter’s manner of spacious writing.’³⁹ For all his expertise, Gregory was not able to reveal invisible writing that was not there, no matter how much Cecil wished it to be. This letter not only shows

that Gregory was quite diligent in his searches, but also that he had faith in his hard-won experience – something for which there was no substitute, whether you were a conspirator or counter-espionage operative. Sadly, neither Gregory nor any other left a clue as to how one might spot the presence of invisible writing without trial and error. It should come as no surprise, however, that in the aftermath of the Gunpowder Plot, when imprisoned suspects were known, or at least suspected, of using invisible ink in their communications, the man whom Cecil turned to was Arthur Gregory. His skills would be tested to their utmost, as he was to first reveal, and then counterfeit, the correspondence between Henry Garnett and Anne Vaux.



Fig. 43: Sometimes the dark artificer was left searching for letters on an empty page.

INVISIBLE INKS, VISIBLE SIGNS

Forging the various parts of a letter was anything but easy, even when one had clear examples of the hand, the signature, the seal and the style of locking to copy – and plenty of time in which to do it. Add the complication of hidden messages written in invisible ink and the task became all the more difficult. Arthur Gregory was no one-trick pony. While his talents are generally seen to begin and end with the imperceptible opening and closing of letters, he was something of an innovator in spycraft techniques, as he would regularly remind both Sir Francis Walsingham and the Cecils,

William and Robert, over the final years of the sixteenth century. This notwithstanding, his employment by the state was somewhat ad hoc, and he appears to have retired from active duty in 1601. It took a national crisis to lure him back into the fray, a crisis which finally brought Gregory the recognition, and the financial reward, that he felt he had deserved all along. The year was 1606, and his actions in ‘deciphering A Letter in the Gunpowder Treason’ won him a pension of £400 per annum.⁴⁰ Gregory was not noted for his skill as a cryptanalyst, however, and nor do those ciphered writings connected to the Gunpowder Plot seem significant.⁴¹ In any case, Walsingham’s top cryptanalyst, Thomas Phelippes, was still available for such duties, even if he was at this point languishing in some dank prison cell or other.⁴² As we have seen in other instances, ‘deciphering’ could also simply mean the ability to read or make legible, but Gregory’s real contribution was rather more impressive.⁴³

Gregory had been called in to help tidy up the ragged edges of the conspiracy, and his ‘secret services’ this time involved a little more than the standard ‘intercept, copy, reseal and forward’ rigmarole, as he explained to Sir Robert Cecil: ‘Your Lordship hath had a present trial of that which none but my self hath done before, to write in an other man’s hand, & discovering the secret writing, being in blank; to abuse a most cunning villain in his own subtlety, & leaving the same at last in blank again; wherein though there be difficulty, their answers show, they have no suspicion.’⁴⁴ Gregory had taken letters written with invisible ink, revealed their secrets, and rendered them invisible once again. He did not mean this literally. The only white ink which could fade back in and out of invisibility was alum, and this would only occur if it had been revealed with water (once dried, it could be revealed permanently with heat). Using a water reveal in these circumstances, namely when white and black ink messages were written onto the same piece of paper, could cause problems: while the white ink message might fade away once the paper dries, the process might well damage the paper itself, betraying that someone had been searching for invisible ink. Whatever reveal a dark artificer might use would prevent the original letter from being forwarded on to its addressee after its sojourn on his desk: the water reveal would most likely leave evidence on the paper, while the heat reveal’s message would not fade away. What Gregory means

by the words ‘leaving the same at last in blank again’ is that he re-created the original letters, white ink and all.

The letters received by the correspondents in question – the Jesuit priest Henry Garnett and his acolyte Anne Vaux, a recusant gentlewoman – were thus counterfeits. By reproducing those passages written in white ink, Gregory kept the correspondence alive while his superiors watched and waited to see if Garnett and Vaux would share any new information about the Gunpowder Plot. Gregory’s counterfeit letters were presumably destroyed, cast by Garnett and Vaux into the very fire that had revealed them. The original letters, their invisible passages revealed and annotated for use as evidence, remained in the possession of the authorities, and thus are now to be found in Hatfield and The National Archives at Kew. While, in the end, these letters proved of little use to Cecil and company, they tell us much about the practical problems invisible inks posed for both conspirator and counter-espionage operative alike.

CAUGHT UP IN THE AFTERMATH: HENRY GARNETT

Having finished his training at the Jesuit seminary in Rome, Henry Garnett entered England in 1586, a mere two years after the passing of an act banishing all Roman Catholic priests from the country. Within a matter of months he had become England’s Jesuit superior, his continued freedom dependent on the goodwill of the sympathisers and recusants who both sheltered him and accommodated his performances of the Catholic Mass. Having evaded the authorities for some twenty years, he fell victim to the anti-Catholic fervour that had gripped the country following the abject failure of the Gunpowder Plot, and was apprehended in February 1606. The plot, also known as the Powder Treason, was designed to place a Catholic on the throne of England. In order to effect this change of regime, Robert Catesby and his band of desperadoes sought to dispose of the incumbent monarch, the Protestant James I, and his heir, Crown Prince Henry, in spectacular fashion – by blowing up Westminster during the state opening of Parliament on 5 November. The plot was discovered, with Guy Fawkes

famously captured on the evening of the 4th as he hid, matches at the ready, beside thirty-six barrels of gunpowder in an undercroft attached to the House of Lords. As the highest-ranking Jesuit in England, Garnett was well aware of Catesby, his supporters and their desire to foment rebellion – desires he had repeatedly and pointedly counselled against. He had also been told of the existence of this particular plot by Catesby's confessor, Oswald Tesimond.⁴⁵ It mattered little, however, as Garnett was ruled by his conscience: the information had come to him via the sacred act of confession, so Garnett felt unable to inform the authorities as was his duty under law. When news of the plot's ignominious failure spread, Garnett went to ground in a bid to escape the inevitable fallout, and even wrote to the English Privy Council declaring himself innocent of any involvement.⁴⁶ It was all to no avail, as on 15 January 1606 he was declared an accessory and a warrant was duly issued for his arrest. His lair, perhaps predictably in such times, was betrayed. Following a tip-off and an intensive search, Garnett was finally discovered, filthy and barely able to walk, in one of the many squalid priest-holes that had been built into the walls of Hindlip Hall in Worcestershire to hide men such as he. He had shared his hiding place with another Jesuit, Father Oldcorne, while their two servants, Nicholas Owen and Ralph Ashly, had squeezed themselves into another of the hall's secret refuges until lack of victuals forced their surrender. Garnett was committed to the Gatehouse, one of London's many prisons. His stay was short, as he was transferred to a jail that perhaps facilitated his close observation rather better, and certainly one which better indicated his eventual fate: the Tower of London.

The Tower was much more than a prison. It housed an armoury, a menagerie with menacing lions – Cecil appears to have been rather excited by the arrival of two cubs in July 1605 – and the Royal Mint, as well as playing host to those individuals unfortunate enough to be introduced to the Duke of Exeter's Daughter (as the chiropractic torture device the rack was known) and her sadistic gang of friends.⁴⁷ The parts in which the Tower's involuntary inhabitants found themselves incarcerated were effectively self-service – if you wanted anything more than the bare essentials, you had to pay for it. Friends might come with food, wine and extra clothing, while your spouse might grace you with the occasional conjugal visit. High-status

prisoners such as Henry Percy, 9th earl of Northumberland, who had been arrested in November suspected of complicity in the Powder Treason, took full advantage of this. Known as the ‘Wizard Earl’, he installed both a library and an alchemical laboratory in the Martin Tower, the better to while away the long hours between prison visits.⁴⁸

Nevertheless, a prisoner in the Tower was often the subject of continued subterfuge, and Garnett, once committed, was placed under close, albeit subtle, observation: the Privy Council encouraged his keeper, a Mr Carey, to feign an interest in the Catholic faith and thus gain the new prisoner’s confidence. Soon convinced of Carey’s sincerity, or at least of his usefulness, Garnett used him to send a gift to his nephew, Thomas, who at that point was languishing in Garnett’s previous lodgings, the Gatehouse, also under suspicion of complicity in the Gunpowder Plot.⁴⁹ The gift was a pair of spectacles, but what Henry really wanted Thomas to see clearly was their protective wrapping, a piece of paper which bore the words ‘I pray you lett these Spectacles be set in Leather, & with a Leather case, or lett the fould be fitter for ye nose. Y^{rs} for ever H.G. Henry Garnett.’⁵⁰ The wrapping was not there simply to protect the package’s contents. The contents were there rather to provide Garnett with an excuse to send his nephew the wrapping paper – they were the cover under which he smuggled a message out of his cell. The wrapping paper bore a second, hidden message, written in invisible ink (see Fig. 44).

Garnett’s story is told in his own letters and in the writings of another Jesuit priest, Father John Gerard, who had famously escaped from the Tower in 1597, and would also escape the crackdown on Catholics that had led to the arrest of his superior. Considering the continent a somewhat safer and more comfortable refuge than a rancid priest-hole squeezed between the floors of a Worcestershire manor house, Gerard fled England. He subsequently wrote his *Narrative of the Gunpowder Plot* (c. 1607), which not only tells Henry Garnett’s story but also provides vital information about the Jesuit mission, while in Rome. Gerard shows us that Garnett’s technique of hiding a message on a wrapper ostensibly used merely to protect another object was not one of his own devising. It is difficult not to think of a Jesuit as carrying out a type of theological espionage, engaged on a secret mission in very hostile enemy territory – they certainly faced the

same penalty as a spy, execution, if caught. We know that they were provided with clothing to help them blend in, so it seems highly unlikely that they would have been sent on such a mission without at least some idea of how to keep themselves, and their communications, safe from prying eyes. It comes as no surprise to find that, almost a decade before Garnett wrapped up a pair of spectacles, Gerard was doing exactly the same thing, sending two boys to St Omers, a Jesuit seminary in Saint-Omer, France, which specialised in the education of English Catholics, with letters written ‘so that the writing was not visible on the paper. In the paper itself I wrapped up a few collars, so that it might seem that its only use was to keep the collars clean’.⁵¹

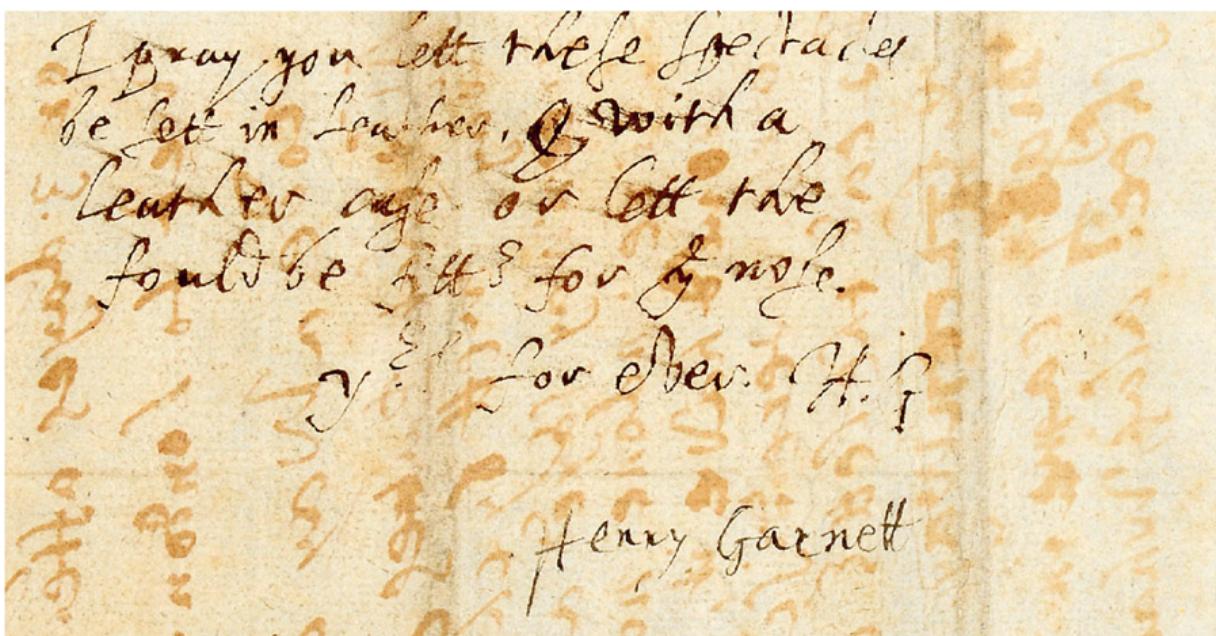


Fig. 44: Only the black ink of Garnett's endorsement would have been visible – the light brown script is the invisible ink on the other side of the paper which has been ‘revealed’ by the application of heat.

The technique had a flaw, of course – the recipient(s) needed to know that the paper was more than it seemed. Gerard solved this by instructing his delivery boys to tell the priests who awaited them to ‘steep the paper in water, and they [the priests] would be able to read what I had written’.⁵² Gerard’s subterfuge was thus at the mercy of his messengers, who might simply lose confidence and confess, both possibilities enhanced by the threat of duress from the authorities, or be simply untrustworthy. Garnett

chose an apparently safer path by cutting out the weak link represented by messengers: the spectacles themselves were a code telling the recipient that there was more than could be seen with the naked eye. The text, once revealed, read as follows:

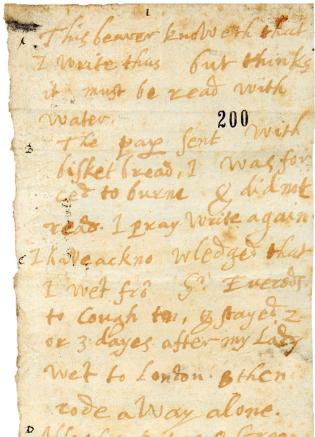


Fig. 45:

- A. This bearer knoweth that I write thus, but thinks it must be read with water.
- B. The pap[er] sent with basket bread, I was forced to burne & did not read. I pray write again.
- C. I have ackno wledged that I wet fed S.^r Euereds to Cough ton, & stayed 2 or 3 dayes after my Lady wet to London. & then rode away alone.

Garnett's first paragraph, helpfully marked as 'A' by Attorney-General Sir Edward Coke, who annotated the intercepted letter in preparation for any forthcoming court action, suggests that Garnett trusted his keeper Carey to deliver the letter, but not necessarily to leave it unread. He therefore took out insurance against this possible betrayal, letting Carey think that the message to his nephew would reveal in water – any attempt to reveal it by this method would not only fail (as we will see), but would probably wash away enough of the invisible ink that was on the paper as to render it resistant to any subsequent attempt at a heat reveal.⁵³

At 'B', Garnett's message also tells us that the efforts being made to smuggle letters into his cell, albeit unsuccessfully, were once more under the cover of an innocent object – here his 'basket bread', which presumably came wrapped in another conveniently blank piece of paper.⁵⁴ The letter also states that he was almost caught in the act of revealing the basket bread message, and cast the wrapping into the fire rather than allow its secrets to be spread abroad, illustrating another advantage of the heat reveal: if you

were caught holding your bread wrapper up to the fire, you could act as if you were simply tossing it into the flames rather than revealing secret messages.



Fig. 46: Secretively revealing a message by candlelight.

Finally, at ‘C’, Garnett informs his nephew of what he has told his interrogators: vital knowledge if they are to get their stories straight. Gerard states that in his letters to Thomas, Garnett used ‘ordinary ink’, but wrote ‘besides in the margin and in the free parts of the paper some other things with the juice of orange, which could not be seen without holding to the fire’.⁵⁵ The condition of the paper of Garnett’s wrapper confirms that the reveal was indeed carried out by heating – a quality shared by several other white inks, as we have seen.⁵⁶

Garnett was right to distrust Carey, as his jailer was neither sympathetic to Catholics nor the only individual perusing these messages, as the lieutenant of the Tower, Sir William Waad, was overseeing the entire process. With the benefit of distance and a little hindsight, Father Gerard realised exactly what had transpired, and he subsequently set this down in his *Narrative*:

When this letter was thus read by warming at the fire, because it could not then be delivered to the Priest, they therefore counterfeited

the Father's hand and sent it to Mr. [Thomas] Garnett in the Gatehouse, to deceive him also and to make him return answer to the Father [in the Tower], that so he might think himself secure, and be emboldened to commit yet further trust unto this false messenger [Mr Carey].⁵⁷

Gerard understood that reading an invisible ink letter rendered it useless for anything but evidence, and that the Garnetts had been fooled by counterfeits. Corroborating evidence tells us that their letters were taken directly to Waad, who then passed them on to Arthur Gregory, who promptly revealed the messages that lay hidden by invisible ink.⁵⁸ Gregory was sufficiently skilled not only to counterfeit hands well enough to fool both Garnetts, but also to rewrite those parts originally written in invisible ink. The correspondence Henry and Thomas Garnett had convinced themselves was both private and secure had been neither: it had been controlled from the outset by the authorities in the form of William Waad and, or so it appears, Arthur Gregory. In this sense, the Garnetts made the same mistake as Mary, Queen of Scots: they underestimated their opponents. As with Mary, it was not a mistake from which they might easily recover.

This was not the first time that Waad found himself dealing with a Jesuit priest with a penchant for invisible ink – the Tower's lieutenant had encountered Gerard when the Jesuit was incarcerated at the Clink, the notorious Southwark prison, and, as clerk of the Privy Council, it was Waad who confronted Gerard with the ‘collar wrapping letters’ that had been intercepted en route to St Omers. Gerard, naturally, denied all knowledge, at which his interrogator ‘dipped the paper in a basin of water, and showed [him] the writing, and [his] name subscribed in full’.⁵⁹ Despite having made the perhaps rather naïve error of signing his name to these letters (an act which, ironically, demonstrated his absolute faith in his subterfuge), Gerard maintained his innocence, insisting that the message was forged. Later, he would blame his undoing on his use of lemon rather than orange juice as his invisible ink:

For I never wrote now with lemon-juice, as I once did in the Clink; which letter was betrayed to the persecutor Waad, as before I

related. The reason of my doing so then was because there were two letters there, which had to be read in one place, and then carried to another. Now lemon-juice has this property, that what is written in it can be read in water quite as well as by fire, and when the paper is dried the writing disappears again till it is steeped afresh, or again held to the fire. But anything written with orange-juice is at once washed out by water, and cannot be read at all in that way; and if held to the fire, though the characters are thus made to appear, and can be read, they will not disappear; so that a letter of this sort, once read, can never be delivered to any one as if it had not been read.⁶⁰

He may state that he used lemon juice in the St Omers letters because he needed the letters to be revealed, read, hidden and revealed again, but no matter how much he insists on the matter, lemon juice does not behave in this fashion. Gerard is perhaps getting his invisible inks mixed up. Lemon juice will reveal once in water (albeit not brilliantly), but once the paper has dried it will not reveal again, either in water or by heat. This passage has even been interpreted as showing that letters made with lemon juice will fade even after a heat reveal, and can subsequently be revealed again.⁶¹ This is not the case. Gerard may, in fact, have been using an altogether different substance as invisible ink: alum. One of the properties of a message written with alum is that it will reveal on paper when wetted and fade again as the paper dries. The message can then be revealed once more (albeit permanently) through heating. The Jesuit may have unwittingly reinforced the almost indelible association of invisible ink with citrus fruits when it seems likely he was using one of the several other varieties of white ink that were available. The letters sent between Garnett and his nephew were not where the interests of Waad, Cecil, Coke and Gregory lay, however. They were seeking more bountiful prey, the wider network of recusants under whose protection Jesuits such as Garnett had flourished.

KEPT CLOSE AND SECRET

Anne Vaux (pronounced, in typically English fashion, Vawkes or Vorx) was a well-known, wealthy recusant gentlewoman who, along with her elder sister Eleanor, regularly gave succour to Jesuit priests such as Garnett in spite of the severe penalties for doing so.⁶² Garnett referred to them as ‘the virgin’ and ‘the widow’ respectively, and they rented safe houses for him and his ilk across the country (one of these houses, Whitewebbs in Enfield Chase, would later become infamous as the place where the Gunpowder Plot was hatched). When Garnett went to ground following the plot’s failure, he did so at Hindlip Hall, the house of a friend of Anne’s named Mary Habington. In her later confession, Anne Vaux would admit that she and Mary had left Hindlip only a few days after the man who had discovered Garnett hiding within its walls, Sir Henry Bromley, the sheriff of Worcestershire, had set off for London with his prize.⁶³ Anne Vaux may have been deeply embroiled in the illegal act of harbouring Jesuits, but she appears to have had no difficulty in avoiding arrest, even though she was staying at Hindlip for the entire time that Bromley and his men were searching for Garnett within its walls. The authorities were aware that Vaux had communications with the Gunpowder plotters, and she had been interviewed by Coke in London in December 1605, but they saw no reason to detain her.⁶⁴ Much greater interest was shown in the disappearance of a ‘Mrs Perkins’ (the woman who, amongst other things, had rented Whitewebbs). Thomas Wilson, Cecil’s man, had interviewed one of the servants, James Johnson, in an attempt to discover the whereabouts of his absent mistress, but to no avail.⁶⁵

Anne Vaux was a committed Catholic, and she was particularly committed to Henry Garnett. She was also the spider at the centre of the web of communication that connected the English recusants, and so, when Garnett was taken to London, she felt compelled to follow him so that she might keep this web intact. Aware of the dangers to which she exposed both herself and those who harboured her, such as her friend Mary in Fetterlane, she took to changing lodging every two or three days.⁶⁶ It was Garnett who unwittingly betrayed her whereabouts. The authorities were not merely intercepting his letters. His companion in Hindlip’s priest-hole, Father Oldcorne, had also accompanied Garnett to the Tower, and the two Jesuits had been placed in chambers which allowed them to speak with one another

through a small gap in the walls. On 23 February, Garnett spoke with his one-time cellmate in hushed tones. ‘I think Mistress Ann is in the Town,’ he said, directing his words through the fissure. ‘If she be I have writ a note that my keeper may repair to her near hand and convey me any thing unto her who will let us hear from all our friends’. Neither man considered the possibility that a third party might be listening. This was quite an oversight. That night, their assigned eavesdropper was John Locherson, a man who also happened to be Salisbury’s secretary.⁶⁷ Yet another secret had leaked out.

Time, it appears, was also working against them. Two days later James Johnson, the servant from Whitewebbs, would be interrogated again; this time, however, in a somewhat more intimidating setting, namely the Tower. Johnson duly confessed that, contrary to his earlier statements, he had known for the past three years that ‘Mrs Perkins’ was none other than Anne Vaux.⁶⁸ This information transformed Anne’s status overnight. No longer was she eliminated from enquiries; she held a ranking position on the ‘most wanted’ list. Unaware of Anne’s unmasking, Garnett decided to reach out. He did so via the ‘safe’ corridor of communication he had opened up with his nephew Thomas.

On 26 February, Henry Garnett thus wrote another letter to his nephew Thomas at the Gatehouse, this time thanking him for various items of linen, requesting some socks, and noting that he wanted money as he had yet to pay his fees – yet another reminder of the Tower’s status as part prison, part hotel.⁶⁹ Those experienced at eluding the authorities knew full well that two channels of communication were better than one, and the Catholic underground was aware that alum made an excellent white ink when used on linen.⁷⁰ We may thus consider the possibility that Henry’s letter was rather more than the dull litany of thanks it purported to be, and indicated acknowledgement of messages received, though none survives.

Fig. 47 shows the once-invisible writing as far lighter in colour than the normal, black ink writing.⁷¹ The scorch marks meanwhile confirm that the white ink was revealed by the application of heat. Garnett’s invisible message again concerns what he had so far told his interrogators, not least that he had admitted no particulars ‘but of Mrs. Parkins, & the meeting of Catesby & Winter [i.e., Wintour] in Queen Eliz’s time’. The letter’s final

(invisible) words, written upside down at the top of the letter, were as follows: ‘My very louing sister Adieu. More hereafter: Do not indanger yourself. But if you have any to bring you to [m]e by the Cradell To[we]re you mayst.’⁷² These final words indicate that the true recipient of this letter was not Thomas, but Anne, and it was duly forwarded to her. Garnett was unaware that Anne’s alter ego ‘Mrs Perkins’ had been discovered, and thus that his talk of her during his interrogation had put her in greater danger. Approaching the Tower complex so that she might see him close to the Cradle Tower, where his chamber was located, was not the wisest of moves. Further instructions followed.

‘You shall know my mind more fully if you or any friend repair to my keeper’s mother as you shall know directions’, wrote Garnett on 3 March. ‘But come not hither except with good guides and when Waad is abroad, for he is often with me or in the Gallery hard by, you may see me, but not talk’.⁷³ Unlike in the Babington Plot, when Mary’s letter to Babington had left plenty of space in which Phelippes and Bales could insert their famous (if pointless) postscript, Garnett’s letter to Anne was already full. There was no room for Gregory to add a specific visiting time onto this letter to lure the elusive ‘Mrs Perkins’ into his trap. That she appears to have received one nonetheless, presumably by word of mouth, simply reinforces the feeling that Garnett and Vaux were entirely at the mercy of the authorities. When Anne arrived at the Tower under cover of darkness sometime around 11 March, Waad’s men were waiting for her. Not entirely naïve, she spotted her would-be captors and fled, but to no avail: ‘with some rough usage they carried her back unto the Tower … and there committed her prisoner, which is a very unwonted place for women to be committed in’.⁷⁴ Garnett cannot be accused of unnecessarily enticing Anne to come to the Tower and see him – indeed, it seems more likely that Waad had given her false instructions via Carey’s mother – and the priest later expressed his regret at her capture, writing that ‘I had hoped Mistress Anne Vaux would have kept her self out of their fingers’.⁷⁵ This late-night rendezvous of recusants was engineered not by the Catholic correspondents, but by the controllers of their illicit conversation.

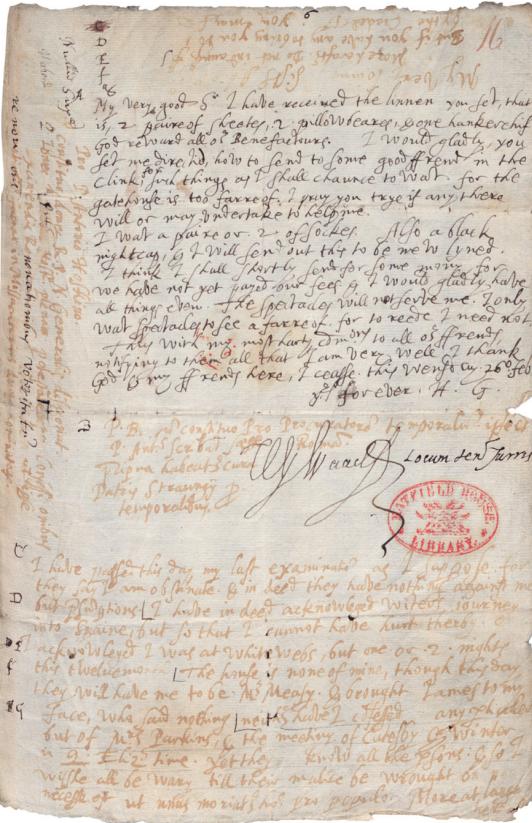


Fig. 47: Henry's letter about socks also contained the following line: 'The Spectacles will not serve me. I only want spectacles to see a farre off, for to reede I need not'. Mention of spectacles could only mean one thing to Thomas: invisible ink. Note that it has been signed by Waad 'locumten turris', or 'in the Tower', presumably to indicate it has been passed fit for delivery.

SLIP OF THE PEN

Anne's first surviving letter to Henry, written when she was still at large, is extremely difficult to read and must also have been difficult to forge. Those parts which are legible suggest that it was written in response to Garnett's letter of 26 February, as it not only includes the apology 'But that you did write in Latin which I cannot read' but also the words 'I will come to the garden ... if I may see you it will please you to appoint the time' in reply to his semi-invitation to the Cradle Tower.⁷⁶ Anne's script betrays its invisible application: lines run across one another and odd gaps and misspellings are numerous. Historians have suggested that she had trouble with her eyes, or even that she was next to illiterate: in 1953, Godfrey Anstruther argued that 'the letters' illegibility reveals that she was near-sighted and not

accustomed to writing', while a decade later Philip Caraman wrote that 'her letters are difficult to read, ill-punctuated and in places obscure'.⁷⁷ This is most likely a mix of casual misogyny (her punctuation is no different from any of her male contemporaries) and a lack of appreciation of just how difficult it was to use invisible ink when unaccustomed to its vagaries.

When you write in invisible ink, you cannot see the letters and words as they are formed on the page, which makes it extremely hard to keep one's place, both physically and within a sentence's unit of meaning. These difficulties may be accentuated when the writer is under duress, which you may consider to be every time they put invisible ink to paper. Lack of practice may also compromise legibility – especially when using fluids such as lemon or orange juice, which are very light and would in ideal circumstances need to be thickened with gum arabic or something similar. Too runny an ink will bleed through the fibres of the paper, also affecting legibility. This will only be apparent to the recipient, however.

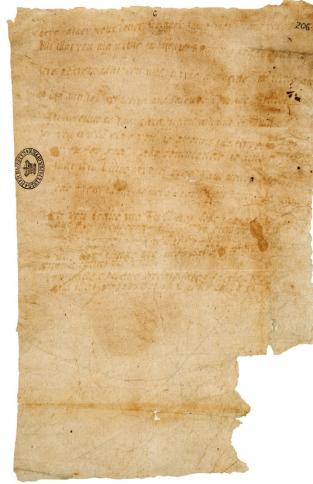


Fig. 48: Anne Vaux's invisible ink letter, barely legible without the use of UV light.

Anstruther and Caraman were not the only ones who found Anne's first stab at wielding the white ink problematic: Garnett's response included the words 'Your last letter I could not read, your pen did not cast ink'.⁷⁸ Garnett, of course, was actually reading a forgery of Anne's letter which was attempting to be as faithful to the original as the other letters were – if Gregory could not read Anne's words, he would still have to produce *something*, or the game was up. Garnett might have complained about

Anne's technique, but, experienced as he plainly was, even the Jesuit made mistakes such as repeating words he had already written: 'He did it to draw draw'.⁷⁹ Now safely ensconced within the thick stone walls of the Tower, and their correspondence literally signed off by their captors, invisible ink was all the more important.

The next letter of Anne's that has survived shows that while she had not completely mastered the use of invisible ink, her technique was very much improved, and she only makes the occasional mistake, such as in Fig. 49. It is unclear why this letter is endorsed in plain ink in secretary hand rather than Anne's usual italic (as used in the invisible writing), but the words themselves are something of a giveaway: 'I pray you prove whether these spectacles do fit your sight.' It could, of course, be that both the italic and secretary hands here are Anne's, as women did use secretary hand, but there are no other letters of hers extant with which to make such a comparison. What this endorsement does show is that someone knew exactly what this letter entailed. Perhaps Anne had wrapped the usual pair of spectacles in blank paper, and the endorsee wanted to ensure that Garnett got the message, or had simply given her a piece of paper thus endorsed and otherwise blank to suggest to her that invisible ink was still a viable and safe method of communication. Whatever the truth is, the contents of Anne's letter do leave us with the tantalising possibility that Garnett was using a hitherto unsuspected substance for his invisible writing: 'On Saturday at supper the attorney said that when you were in examining, you feigned yourself sick to go to your chamber and coming and coming [sic] thither you seem to take some *marmalade* which even then was sent you and burned a letter which your keeper seeing did tell and you being examined said'.⁸⁰ When captured at Hindlip, it was reported that Garnett had a jar of marmalade, that is, orange juice in a concentrated and unperishable form, in his possession. It is quite possible that Garnett wrote his letters not with orange juice but marmalade.⁸¹

full more frndes & who wold be
glad to have devection from you
who shold suppl you vouch for my selfe
These forced to seek new frndes my
obligation most carels of necf be either yow
for god sake adies me what crvys to

Fig. 49: Writing with invisible ink is tricky – you cannot see what you have just written, so a momentary lapse of concentration can be problematic. Here, Anne Vaux writes ‘most’ and ‘carels [careless]’ over one another.

By the time Anne wrote her letter, Garnett had been put to torture, and within days he would be tried, found guilty of ‘misprision’ in the Gunpowder Plot – that is, of not revealing his knowledge of the conspiracy – and sentenced to death. This unfortunate if wholly predictable turn of events cast something of a pall over his correspondence, and when Garnett next wrote to Anne, again in invisible ink, he set her free of obligation to him: ‘the vow of obedience ceaseth, being made to the Superiors of this Mission; you may upon deliberation make it to some there’. His letter finished with the words ‘Let all I write out be very secret.’⁸² Vaux’s reply began with the words ‘Good father. I have received your spectacles.’⁸³

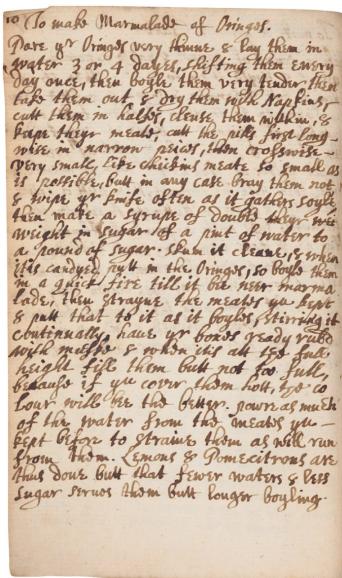


Fig. 50: ‘To make Marmalade of Oringes’. While quince paste was also commonly called ‘marmalade’, it is not necessarily good for invisible ink. Orange marmalade works, however, and only needs a little dilution.

‘*A NEST FOR SUCH BADD BIRDDS*’

In his final letter to Anne Vaux, written on 21 April 1606, Henry Garnett used black ink to tell her of the problems that had beset him, because he now realised that all the subterfuge and marmalade had been useless, as ‘our confessions & secret conferences were heard; & my letters taken, by some indiscretion abroad’.⁸⁴ Despite their greatest efforts, they had been outwitted. Henry Garnett was hanged, drawn and quartered at St Paul’s Churchyard on 3 May 1606.

Anne Vaux was released the following August, and lived for another thirty-one years. If Henry Garnett got one thing right, it was his estimation that ‘she shall have no hurt for it … & Master Lieutenant said she was dogged by a seminary Priest. She was not taken for me, but for Whitewebbs’.⁸⁵ The house at Whitewebbs, which had seen so much skullduggery, had not finished with its association with Anne Vaux, however, as a correspondent wrote to Salisbury: ‘Watson that owns the house … purposeth (as the report goeth) to let it again to Mistress Vaux which kept before by the name of Mrs Perkins, when she comes out of the Tower, This I tell your Lordship because it is next neighbour to Theobalds, and unfit it should be again a nest for such badd birdds as it was before.’⁸⁶ Salisbury presumably needed no reminding that Whitewebbs neighboured on his own Hertfordshire residence, Theobalds, but these birds did not come home to roost; Anne and her sister flew north, and took up residence in Leicestershire instead.

In his handling of Henry Garnett and Anne Vaux, William Waad had directed a quite brilliant piece of counter-espionage, one which relied heavily on the skills of Arthur Gregory – specifically, on his ability to counterfeit letters even when written in invisible ink. Gregory’s letter to Robert Cecil made it plain exactly what he achieved, namely ‘discovering the secret writing, being in blank … & leaving the same at last in blank again’.⁸⁷ Gregory convincingly imitated the hands of Henry Garnett and

Anne Vaux, exposed the writing they had sought to conceal by the use of marmalade and orange juice before reproducing these same letters complete with their invisible ink messages, thus keeping the correspondence open while holding on to the original letters.

Invisible inks were hard enough to use at the best of times – it is very difficult to keep track of the words you write when you cannot see them being formed, and every time you remove pen from paper to recharge it with ink you risk more confusion. Such problems simply multiply if you are trying to reproduce another piece of invisible ink writing, especially under time pressure. Gregory, however, appears to have solved this problem in a manner that was not only ingenious, but potentially ground-breaking.

COPYING THE INVISIBLE

Arthur Gregory's 1586 letter to Walsingham is often cited on account of its active inclusion of invisible writing in alum along with the instruction to reveal the message with coal dust, and rather less so for its description of how gall-water and copperas may also serve as invisible ink. This same letter, however, also provides an insight into how Gregory set about copying the Garnett–Vaux correspondence with such apparent accuracy: 'There is an old cover of a desk at Bassette the joiner, the ironwork would serve for a glass to counterfeit, which I should want in case any thing be discovered that your Lordship would have hidden again, & also for the speedy copying of a ciphered letter and other purposes.'⁸⁸ If he is to counterfeit a letter that includes invisible ink messages, or perhaps make a quick copy of a letter written in cipher, Gregory writes that he will need this 'cover of a desk' with its ironwork. That is, Gregory wants a piece of technology that he can use for this task. Typically, he is less than forthcoming about what this desk actually is, or how it operates. It does appear that it facilitates the making of facsimiles, however. Della Porta suggested that a letter may be copied using backlighting, the words traced onto a blank piece of paper laid over the original, but this technique is unlikely to allow for the copying of (revealed) invisible ink writing – even