

# The Dedication to Shakespeare's Sonnets

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## Part One: "Mr. W. H. Revealed at Last"

One of the most enduring of literary mysteries is the identity of "Mr. W. H.", the man to whom *Shakespeare's Sonnets* were dedicated in 1609. Yet it turns out that his name was recorded, by simple means, for posterity to find, in the enigmatic Dedication printed on the second leaf of the quarto. Commentators for over two hundred years have admitted to being puzzled by its unusual appearance, peculiar syntax, and obscure meaning.<sup>1</sup> If they had only realised it, the key to an explanation of these matters is described in several classical texts, and in books on the shelves of every public library.

The Dedication to the Sonnets is unlike any other literary dedication of the period,<sup>2</sup> quite apart from the mystery of "Mr. W. H.", and some scholars have speculated that it may be a cipher. As Richard Dutton says, "The grammar of the piece is almost sufficient to quell interpretation in itself. How many sentences are hidden within the unusual punctuation (which . . . [may be] essential to some cryptogram . . .)?"<sup>3</sup> Who is "the onlie begetter"? Is he the "Fair Youth", the young man to whom many of the sonnets were addressed (and who is identified with "Mr. W. H." by most commentators), or is he the agent who procured the manuscript? Is "T. T." referring to himself as the "well-wishing adventurer", or is he merely signing off as the publisher, Thomas Thorpe? And, asks Kenneth Muir, "Is there any significance in

the way the Dedication is set out?"<sup>4</sup>

Undoubtedly, as Stanley Wells says, "'Mr. W. H.' provides the biggest puzzle of all",<sup>5</sup> and Samuel Schoenbaum calls it "a riddle that to this day remains unsolved".<sup>6</sup> The mystery is compounded by the difficulty of understanding what the writer of the Dedication was trying to convey by the rest of the text, which Northrop Frye characterises as "one floundering and illiterate sentence".<sup>7</sup> This is the more surprising, in view of the fluency and wit displayed in Thorpe's other dedications (see Appendix A). A student of cryptography might well ask him or her self whether there was more in this piece than meets the eye, since as Helen Fouché Gaines has said, "awkwardness of wording" may be a pointer to a 'concealment cipher', that is, a cipher designed so that superficially it appears innocent of hidden information.<sup>8</sup>

**TO . THE . ONLIE . BEGETTER . OF .**  
**THESE . INSVING . SONNETS .**  
**Mr . W . H . ALL . HAPPINESSE .**  
**AND . THAT . ETERNITIE .**  
**PROMISED .**  
  
**BY .**  
  
**OVR . EVER-LIVING . POET .**  
  
**WISHETH .**  
  
**THE . WELL-WISHING .**  
**ADVENTVRER . IN .**  
**SETTING .**  
**FORTH .**

**T . T .**

FIG. 1. The Dedication page of Shake-speares Sonnets, published by Thomas Thorpe in 1609.

The first person to attempt to decipher the Dedication was the eminent Shakespeare scholar Leslie Hotson, who described it in the following way:<sup>9</sup>

Thorpe's inscription has been termed *enigmatic, puzzling, cryptic*, recalling the Elizabethans' characteristic fondness for anagram,

rebus, acrostic, concealment, cryptogram, 'wherein my name ciphered were'. In these ensuing sonnets Shakespeare declared, *Your monument shall be my gentle verse*, and Thorpe has set out a monumental inscription TO . . . Mr. W. H. Is there possibly something more than initials, hid and barr'd from common sense here in his text, which we are meant to look for?

Hotson's researches had convinced him that the mysterious "Mr. W. H." was a certain William Hatcliffe, who had been admitted as a law student to Gray's Inn in 1586, and a year later chosen as 'Prince of Purpoole', an exalted 'Lord of Misrule' appointed to preside over Christmas festivities. After detailing several peculiarities of the Dedication, suggestive of a cryptogram, Hotson claimed to find the name of his candidate concealed within it. His method (somewhat simplified) was to start with "Mr. W. H." in line three (Fig. 1), move down diagonally one line to another 'H' in the word "THAT", pick up 'HAT' from this word, and then drop vertically down to line seven and pick up 'LIV' from "EVER-LIVING". In this way he arrives at 'HATLIV', a reasonably good approximation to "Hatcliffe". It must be said at once that no cryptologist would place any credence in this procedure, since it involves so many arbitrary steps. Cryptography (speaking generally) is systematic, and often uses simple mathematics, leaving little room for guesswork. And although Hotson's theory attracted a lot of interest when it was first published, William Hatcliffe has now been ruled out by most scholars as a possible "Mr. W. H."

Hotson was apparently unaware that his hypothesis that the Dedication might contain some kind of secret information seems to receive support from an unexpected quarter—Ben Jonson. In 1616 he published his *Epigrammes*, part of his *Workes*, with a dedication to William Herbert, 3rd Earl of Pembroke, which begins:

MY LORD. *While you cannot change your merit, I dare not change your title: It was that [your merit] made it [your title], and not I. Under which name, I here offer to your Lo: the ripest of my studies, my Epigrammes; which, though they carry danger in the sound, doe not therefore seeke your shelter: For, when I made them, I had nothing in my conscience, to expressing of which I did need a cypher.* [clarifications inserted]

According to Edward Dowden, writing in 1881, some critics have supposed that Ben Jonson is here alluding to Shakespeare's Sonnets, because of the words "I dare not change your title".<sup>10</sup> It has always been a puzzle that the dedicatee should be addressed as "Mr." if, as is generally supposed, he was a nobleman (invoked in the sonnets as *Lord, prince, king, sovereign*), especially by or on behalf of one so much lower

in the social scale as the son of a Warwickshire glover and dealer in wool. (Hotson's solution to this puzzle is Hatcliffe's election as a *temporary Prince*, who could be addressed in lofty terms at the time and for some years afterwards.) But the most intriguing aspect of Jonson's remarks is the reference to a cipher. By saying in his dedication that he had "nothing in my conscience, to expressing of which I did need a cypher," he seems perhaps to imply that some other dedication *did* make use of a cipher, and the reference to a change of title may well point to the Dedication to the Sonnets.

### Peculiarities of the Dedication

The peculiarities of the Dedication may be summarised as follows.

(a) The natural order for a dedication of this kind would be, as Hotson stresses: 'To the dedicatee: (1) the dedicator (2) wisheth (3) blessings'. But in this dedication the natural order is inverted, and it has the form 'To the dedicatee: (3) blessings (2) wisheth (1) the dedicator'.<sup>9</sup> Hotson comments that it is the *only* dedication he has seen "which puts the sentence backwards". To "expose its conspicuous peculiarity," he reproduces nine other dedications as examples of normal word order, and goes on to suggest that if Sherlock Holmes' remark that "singularity is almost always a clue" holds, then here is a prime example.

(b) Awkwardness of wording is evidenced further by the close conjunction of "wisheth" and "well-wishing"; surely the writer could have avoided the repetition of the root word "wish" by saying something such as 'well-willing', 'well-disposed', 'benevolent', 'amiable' or 'friendly'? Again, the phrase "these insuing sonnets" jars slightly, at least to a modern ear; one might (with a completely open mind) have expected either 'these sonnets', or 'the insuing sonnets', or perhaps 'these the insuing sonnets'.

(c) It is all in capital letters (apart from the 'r' of "Mr."). As far as has been ascertained, there are only two other lengthy dedications of the period all in capital letters (those to Spenser's *The Faerie Queene* and Jonson's *Volpone*).

(d) The spelling of the word "onlie" is very unusual; the most common spelling of the word at this time was 'onely'. In the First Folio of 1623, the word appears as 'onely' 67 times, 'only' 5 times, 'onelië' twice, and 'onlie' once. (In the sonnets, 'onely' occurs 4 times, 'only' twice, and 'onlie' not at all.)

(e) There are full stops after every word, a most remarkable feature, which is believed to be unique to this dedication; to date, no other example has been reported.

(f) The hyphens joining two pairs of words into compound adjectives are unusual, in that they are lower-case, instead of the expected upper-case hyphens.

The lines of the Dedication are carefully proportioned so as to form three blocks, each in the shape (roughly) of an inverted triangle. The line spacing is subtly increased between the middle five lines, as if to emphasise this feature.

These peculiarities may be the consequence of a badly-worded text and a quirky compositor. An alternative possibility will now be investigated.

### The Dedication as a "Transposition Cipher"

The fact that the Dedication is all in capital letters (apart from the 'r' of "Mr.") suggests the possibility of a 'transposition cipher',<sup>8</sup> a technique familiar in Elizabethan times to scholars such as John Dee.<sup>11,12</sup> The total number of letters in the text of the Dedication (disregarding Thomas Thorpe's initials "T. T." at the end, offset to one side) is 144, which has many factors. It is characteristic of this kind of cipher that information is concealed in arrays of letters which form perfect rectangles, and we therefore examine each of these arrays in turn. If the Dedication is written out in 8 rows of 18 letters, we obtain the perfect rectangular array shown in Fig. 2.

T	O	T	H	E	O	N	L	I	E	B	E	G	E	T	T	E	R
O	F	T	H	E	S	E	I	N	S	V	I	N	G	S	O	N	N
E	T	S	M	r	W	H	A	L	L	H	A	P	P	I	N	E	S
S	E	A	N	D	T	H	A	T	E	T	E	R	N	I	T	I	E
P	R	O	M	I	S	E	D	B	Y	O	V	R	E	V	E	R	L
I	V	I	N	G	P	O	E	T	W	I	S	H	E	T	H	T	H
E	W	E	L	L	W	I	S	H	I	N	G	A	D	V	E	N	T
V	R	E	R	I	N	S	E	T	T	I	N	G	F	O	R	T	H

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FIG. 2. The Dedication as an array having 8 rows of 18 letters.

Inspection reveals the name "WR - IOTH - ESLEY" located in columns 2, 11, and 10, reading out down, up, down. This is *precisely* how the family name of the Earls of Southampton was always spelt officially. It is remarkable then that the candidate favored by many scholars as the "Fair Youth" and "Mr. W. H." is *Henry Wriothesley*, 3rd Earl of Southampton, his initials being reversed in a simple device, occasionally used elsewhere at the time. It was to this man that Shakespeare dedicated the two long poems *Venus and Adonis* and *Lucrece*, in 1593 and 1594 respectively.

Support for the correctness of this decipherment comes from the perfect array with 9 rows of 16 letters, displayed in Fig. 3.

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T O T H E O N L I E B E G E T
E R O F T H E S E I N S V I N G
S O N N E T S M r W H A L L H A
P P I N E S S E A N D T H A T E
T E R N I T I E P R O M I S E D
B Y O V R E V E R L I V I N G P
O E T W I S H E T H T H E W E L
L W I S H I N G A D V E N T V R
E R I N S E T T I N G F O R T H ©
    
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FIG. 3. The Dedication as an array with 9 rows of 16 letters.

The name "Henry" can be found running diagonally down and left from the 'H' of "THESE" to the 'Y' of "BY". In an array with 15 letters in each row (the last being incomplete), the name can be read out vertically in the 7th column, as shown in Fig. 4. (It will be noticed that "Henry" and "Wriothlesley" share the one 'Y' in the text.)

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T O T H E O N L I E B E G E T
T E R O F T H E S E I N S V I
N G S O N N E T S M r W H A L
L H A P P I N E S S E A N D T
H A T E T E R N I T I E P R O
M I S E D B Y O V R E V E R L
I V I N G P O E T          etc ©
    
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FIG. 4. The Dedication arranged in rows of 15 letters.

It is a reasonable deduction (though perhaps not an inescapable one) that the full name "Henry Wriothlesley" was deliberately concealed in the Dedication, in order to record for posterity his identity as "Mr. W. H." and the young man to whom many of the sonnets were addressed, and to whom the poet wrote, "Your monument shall be my gentle verse" (sonnet 81). The odds that this proposed cipher solution might be an accident of chance, and not a deliberate construct, are discussed in Appendix B.

It may be relevant that in February 1601, following the rebellion by the Earl of Essex, in which Southampton played a leading part, he was convicted of treason, attainted, deprived of his lands, stripped of his Earldom, and confined to the Tower, where he signed himself "of late Southampton, but now . . . H. Wriothlesley".<sup>13</sup> Thus during the period up to his release in April 1603 on the accession of James I, and until the restoration of his Earldom in July, he was a commoner, plain "Mr. H. W." The Dedication may have been composed during this period,

when there was no expectation of his being pardoned.

### The Authentication of Concealment Ciphers

In search of guidance on how to judge whether a possible concealment cipher is authentic, we turn to the book by William and Elizebeth Friedman called *The Shakespearean Ciphers Examined*.<sup>14</sup> It is of interest to learn that

... the science of cryptology ... is a branch of knowledge which goes back far into the past – certainly beyond Elizabethan times. In the sixteenth century it was abundantly used. ... The question of course ... is not whether ciphers could have been used, but whether they were used.

In their book (written with a courteous but devastating wit) the Friedmans investigated many such attempts to uncover concealed names or messages, almost all relating to Francis Bacon, and concluded that all were erroneous. They made no mention of the Dedication to the Sonnets, as no decipherment had been proposed before their work was completed.

In the course of their analysis they put forward criteria for assessing whether a solution of a supposed cipher is genuine or not. One of these is that the key to the cipher should be given unambiguously, either in the text or in some other way, and not contrived to fit in with preconceived ideas; another is that the decoded message should make good sense, and have been sufficiently important to have been worth concealing; and a third, that the message should have been hidden where it had a high probability of being found. The last criterion is clearly fulfilled. With regard to the cipher keys, these are factors of 144, the number of letters in the text, and as to the importance of the information concealed, the "Fair Youth" was promised immortality through the Sonnets, although his name has up till now remained a mystery.

Lastly and crucially, it is necessary to assess, on a scientific basis, the likelihood that the supposedly hidden information might have resulted by chance. As a guide to the significance of a probability calculation, the Friedmans state of a cipher solution, in effect, that if "the chances of its appearing by accident are one in one thousand million, [the cryptanalyst's] confidence in the solution will be more than justified."<sup>15</sup>

The assessment of the odds that the name "Henry Wriothesley" might have occurred fortuitously is carried out in Appendix B, and it is found that (very roughly indeed) they are of the order of 1 in 30 billion.<sup>16</sup> (The phrase "of the order of" is used to imply "to within a factor of about 10".) These odds, provided they can be independently

confirmed, would more than satisfy the criterion suggested by the Friedmans as sufficient to justify the cryptanalyst's confidence in the validity of the plaintext solution. Such validation does not exactly amount to certifying that the transposition ciphers are genuine (in view of the fact that very occasionally, in daily life, we experience what appear to be amazing coincidences), but comes very close indeed to doing so. If there were indisputable evidence that the Dedication was a cryptogram (over and above the many striking peculiarities listed in Section 2), or if the name "Wriothesley" were divided into two rather than three segments, then any doubts would vanish. As things are, the interpretation of the odds is up to each individual. If convinced, by the odds or by common sense, the reader now knows the name of the man Shakespeare was so certain he had immortalised by his verse, a name lost to us for nearly four centuries.

### Conclusion

When the Dedication to *Shake-speares Sonnets* is analysed as a transposition cipher, it reveals a hidden name, "Henry Wr-ioth-esley", 3rd Earl of Southampton, regarded by many commentators as the person most likely to have been "the onlie begetter" and the young man to whom many of the sonnets were addressed. A corollary of this finding is that the strange syntax and awkward wording are to be explained as a consequence of the difficulty of selecting and arranging suitable words to provide the right letters in the right locations. There is no longer any point in puzzling over the precise meaning of the text, since its creator had a another consideration uppermost in his mind.

The discovery that the name *Henry Wriothesley* was recorded in the Dedication to the Sonnets will, it is hoped, be welcomed by all Shakespeare scholars, as putting an end to more than two hundred years of speculation about the identity of "Mr. W. H." and the "Fair Youth". It is perhaps the first hard fact concerning England's national poet to emerge for some time.

### Appendix A: Thorpe's Dedications

We give here the opening sentences of four of Thomas Thorpe's dedications. These demonstrate fluency, wit, and a love of word-play, qualities all conspicuously lacking in the Dedication to the Sonnets. They are typical of dedications of the time in the use of somewhat extravagant language, the obsequious tone adopted when addressing the nobility, and the frequent alternation of italic and Roman fonts. Thorpe's special flavor lies in subtle and erudite word-play, involving puns and contrasting pairs of words such as (see below) (1) *Blount* /



*blunt; (2) late imaginary / now actual, most-conceited / almost-concealed, devised Country / desired Citie, testament / testimonie; (3) distressed / fortunate; (4) worthily / unworthy, matter / model.* It seems unlikely that a man with such an exuberant and sophisticated style would have freely composed the barely grammatical and nearly incomprehensible sentence which forms this Dedication. Either Thorpe wrote out of character, or someone else with their own agenda wrote the piece and attached Thorpe's initials to it.

(1) From the dedication prefaced to *Lucan's First Booke*, translated by Christopher Marlowe:<sup>17</sup>

To his kind, and true friend: Edward Blunt.

Blount: *I purpose to be blunt with you, & out of my dulnesse to encounter you with a Dedication in the memory of that pure Elementall wit Chr. Marlowe; whose ghoast or Genius is to be seene walke the Churchyard in (at the least) three or foure sheets. . . .*

(2) From the dedication to *Augustine, or the City of God*, translated by J. H.:<sup>18</sup>

To . . . William, Earle of Pembroke, *etc*

Right gracious and gracefull Lord, your late imaginary, but now actual Travailer, then to most-conceited *Viraginia*, now to almost-concealed *Virginia*; then a light, but not lewde, now a sage and allowed translator; then of a scarce knowne novice, now a famous *Father*; then of a devised Country scarce on earth, now of a desired *Citie* sure in heaven; then of *Utopia*, now of *Eutopia*; not as by testament, but as by testimonie of gratitude, observance, and hearts-honour to your Honor, . . .

(3) From the dedication to *Epictetus etc*, translated by Io. Healey:<sup>19</sup>

To a true favorer of forward spirits, Maister *John Florio*.

SIR, as distressed *Sostratus* spake to more fortunate *Areius*, to make him mediator to *Augustus*. *The learned love the learned, if they are rightly learned:* So this your poore friend though he have found much of you, yet doth still follow you for as much more: that as his *Mecænas* you would write to *Augustus*, *Bee as mindefull of Horace, as you would bee of my selfe:* . . .

(4) From the dedication to *Epictetus etc*, translated by Io. Healey,

another edition of the work above:<sup>20</sup>

To the Right Honorable, William, Earle of Pembroke *etc*

*Right Honorable, It may worthily seeme strange unto your Lordship, out of what frenzy one of my meanesse hath presumed to commit this Sacriledge, in the straightnesse of your Lordships leisure, to present a peece, for matter and model so unworthy, and in this scribling age, wherein great persons are so pestered dayly with Dedications. . . .*

These dedications are signed (respectively): THOM. THORPE, *Th. Th.*, TH. TH., *T. Th.*; none is signed T. T.

### Appendix B: Assessing the Cipher Solution

In this Appendix we determine mathematically the odds that the parts of the name "Henry Wriothesley" might have occurred by chance in rectangular arrays such as those of Figs. 2 to 4. Three further arguments are then presented which provide additional support for the proposition that the Dedication contains information deliberately concealed by means of transposition ciphers.

(1) Examination of the full set of all possible arrays, both perfect and with incomplete last rows, reveals (reading down) just three 5-letter words: 'Henry', 'tress', and 'waste', and also the segment '-esley'; there are no words of 6 or more letters (words found reading up are discussed in Appendix B(4)). The rarity of 5-letter words, and the fact that two out of the four (if the 5-letter segment is included) are to be found in the full name "Henry Wriothesley", strongly suggest that the name could have been deliberately concealed in the Dedication. We now assess mathematically the odds that chance might have produced this result (the null hypothesis).

We shall consider first the name "Henry", and it will be assumed that a good estimate of the odds that it might appear in any 5-letter vertical site in any array can be assessed by imagining 5 letters picked one by one at random out of a notional 'black bag' containing all the letters of the Dedication.

There are 144 letters in the text (disregarding Thomas Thorpe's initials "T. T.", printed in larger type and offset to one side at the end); the number of 'H's is 10, 'E's 23, 'N's 13, 'R's 9, and there is just one 'Y'. The chance that an 'H' is picked first from the bag is thus 10 out of 144, and so on. The fractional likelihood of the name "Henry" being drawn from the bag is therefore the product of these 5 numbers divided by the joint product of 144, 143, 142, 141, and 140 (since the total number of letters remaining in the bag is reduced by 1 after each selection), *ie*:

$$(10 . 23 . 13 . 9 . 1) \div (144 . 143 . 142 . 141 . 140)$$

If we take 30 as the maximum array row size, and 6 as the minimum, the total number of possible vertical sites for a 5-letter word is 1800. (In terms of picking letters out of an imaginary black bag, this means that we may make 1800 trials of extracting 5 letters, since it is immaterial in which site the word is found.) Thus the probability that one of these sites might contain the name "Henry" is:

$$1800 \times 26,910 \div (144 . 143 . 142 . 141 . 140) = \text{ca. } 1 \text{ in } 1192$$

That is, there is 1 chance in about 1192 that the name "Henry" appears by accident anywhere in the Dedication, when it is regarded as a simple transposition cipher.

In a similar way we find that for the segment "-esley" of the name "Wr-ioth-esley" the probability is:

$$1800 \times 30,360 \div (144 . 143 . 142 . 141 . 140) = \text{ca. } 1 \text{ in } 1056$$

This segment occurs in the array with 18 letters in each row, and in the rest of this array there are 85 possible sites for the segment "-ioth-", and, as before, the probability that it is found in one of them is:

$$85 \times 17,920 \div (139 . 138 . 137 . 136) = \text{ca. } 1 \text{ in } 235$$

A similar argument for the segment "Wr-" yields:

$$116 \times 36 \div (135 . 134) = \text{ca. } 1 \text{ in } 4.33$$

To find the overall odds that the name "Wr-ioth-esley" might appear by chance in the Dedication, the separate odds are multiplied together giving (roughly) 1 in 1.1 million. However, since (as we have seen) it would be acceptable if one or two of these segments had to be read upwards (but hardly all three, as the decipherer might then never spot the name), it is appropriate to divide this figure by 4, to give odds of roughly 1 in 270,000. (If the surname had been split into only two segments, the odds that it might have occurred by chance would have been 1 in about 100 million, roughly 370 times smaller than the odds just found for three segments.)

The joint probability of finding the full name "Henry Wriothesley" in the Dedication can thus be assessed as the product of the probabilities of the separate names, resulting in odds of 1 in about 320 million.

These odds would be much the same for finding *any* name consisting of a 5-letter first name and an 11-letter last name (similarly split into three segments). If then we also take into account the fact that this man was already regarded as one of the most likely candidates for "Mr. W. H." and the "Fair Youth", the probability that his name was *deliberately* encrypted into the Dedication is considerably increased,<sup>21</sup> and might be assessed (rather vaguely) at somewhere between 1 in 10 and 1 in 1,000. In order to end up with a definite figure, we shall choose the geometric mean, 1 in 100. This estimate (of the kind which scientists sometimes call "hand-waving") then allows us to say that, as a final assessment, the odds that the name might have occurred by chance are of the order of 1 in (very roughly) 30 billion.

(2) An additional consideration, hard to quantify, is the unusual spelling "ONLIE", rather than the more regular 'onely' or 'onelié', as mentioned in Section 2(d). The final 'E' is required (supposedly) to provide the first letter of the segment "-ESLEY", and it seems likely that the use of the shorter form may have been dictated by the need to lose one letter in order to make the total number of letters 144, which has factors that provide the keys to the arrays of Figs. 2 and 3. It is evident that the peculiar syntax and curious wording, discussed in Section 2, (a) and (b), can now find an explanation in the difficulty of choosing and arranging suitable words to provide the right letters in the right places.

(3) The reader may perhaps be thinking to himself that an 11-letter name could readily be built up from, for example, four segments, three with three letters and one with two, and in this way several names might be found in the Dedication. But no experienced cryptographer would contemplate hiding a name in such a manner. The objective of the cryptographer is not only to conceal a name or message from a casual inspection, but also to ensure that it is recognised when the right approach (or algorithm) is adopted, otherwise the whole point of the exercise, not to mention the labor involved, is rendered null and void. We may credit the cryptographer in our case with knowing that when a text like this is written out in rectangular arrays, the columns abound with 3-letter words, 4-letter words are common, and only with 5-letter words can he signal to the decipherer that he is uncovering a genuine message, and not simply observing random strings of letters. In the Dedication, including all arrays with rows containing 30 letters through to 6, there are, reading down, 180 3-letter words, 42 4-letter words, and three 5-letter words plus the segment "-esley". The statistics for words read out upwards are similar, with three 5-letter words, "peals," "dents," and "tails," but such words carry much less significance. The cryptographer would try as far as possible to hide important words or segments so that they can be found by reading downwards, since words or segments reading upwards are much harder for the solver to spot, and

would therefore only be used as a last resort.

To put it another way, the composer of a concealment cipher has two tasks, hiding the information, and finding some way of giving the decoder confirmation that he has correctly uncovered it (if it is not long enough to be self-validating). In this case, the confirmation is provided by the two 5-letter component parts of the full name, "Henry" and "esley". Anything shorter would have left the cryptanalyst unsure whether the plaintext was authentic.

(4) The analysis given in this Appendix provides strong support for the proposition that the Dedication is indeed a well-contrived transposition cipher, of a simple type which calls to mind the 'skutale' of the Spartans.<sup>22</sup> This technique was described by several classical authors, and hence would have been familiar to many Elizabethan scholars. To make use of it, a Spartan general would roll a long narrow strip of paper spirally around a staff (the *skutale*), and write dispatches across the strip of paper (along the staff). The intervening blank spaces would then be filled up with strings of random letters, and the strip sent out to a distant commander. The strip of paper would be unintelligible to an enemy if it was intercepted, but when wound round a staff of the same diameter by the intended recipient would reveal the concealed messages. In a similar way, one can imagine the text of the Dedication written out in a single line on a long narrow strip of paper, which when wrapped around a rod of appropriate diameter yields "Henry", and round a rod of a somewhat larger diameter brings to light "Wriothesley".

### References

1. Rollins, Hyder Edward, ed. 1944. *A New Variorum Edition of Shakespeare: The Sonnets*. Philadelphia & London: J. B. Lippincott Company; vol. 2, 166-176. Rollins says, "An entire library has been written on the four opening words, *To the onlie begetter*," (166). In the fifty-odd years since 1944 the library has grown considerably.
2. Gebert, Clara, ed. 1933. *An Anthology of Elizabethan Dedications & Prefaces*. Philadelphia: University of Philadelphia Press.
3. Dutton, Richard. 1989. *William Shakespeare; a Literary Life*. London: Macmillan; 41.
4. Muir, Kenneth. 1982. *Shakespeare's Sonnets*. London: George Allen and Unwin; 152.
5. Wells, Stanley. 1987. *Shakespeare's Sonnets*. Oxford: Oxford University Press; 6.
6. Schoenbaum, S. 1970. *Shakespeare's Lives*. Oxford: Clarendon Press; 67.
7. Frye, Northrop, *How True a Twain*, contribution to Edward Hubler,

- ed. 1962. *The Riddle of Shakespeare's Sonnets*. New York: Basic Books; 28.
8. Gaines, Helen Fouché. 1940. *Elementary Cryptanalysis*. London: Chapman and Hall; 4.
  9. Hotson, Leslie. 1964. *Mr. W. H.* London: Rupert Hart-Davis; 145-157.
  10. Dowden, Edward, ed. 1881. *The Sonnets of William Shakespeare*. London: Kegan Paul, Trench & Co.; 45.
  11. Deacon, Richard [Donald McCormick]. 1969. *John Dee*. London: Frederick Muller; 290-1.
  12. Wilkins, John. 1641, repr. 1970. *Mercury, or the Secret and Swift Messenger*. London: Frank Cass & Co.
  13. Charlotte Carmichael Stopes. 1922. *The Life of Henry, Third Earl of Southampton, Shakespeare's Patron*. Cambridge: at the University Press; 226.
  14. Friedman, William F. and Elizebeth S. 1957. *The Shakespearean Ciphers Examined*. Cambridge: Cambridge University Press; xv-xvi. William Friedman is regarded by many as the greatest cryptologist of the present century. For his achievements during World War II he was awarded both Presidential decorations, the Medal for Merit and the National Security Medal. His wife was also a distinguished cryptologist in her own right. Their interest in possible Shakespearean ciphers was a hobby which occupied their leisure for several years.
  15. *Ibid.*, 21.
  16. Odds of 1 in 1 billion may be envisaged, in a homely illustration, as the chance of picking out, blindfold, at the first attempt, the one red grain of sugar in a one-ton heap of white sugar. Such a pile is about six feet across and three feet high, and a pair of forceps is supplied.
  17. Marlowe, Christopher, trl. 1600. *Lucan's First Booke*. London: Thomas Thorpe.
  18. H., J., trl. 1610. *Augustine, or the Citie of God*. London: George Eld.
  19. Healey, Io., trl. 1610. *Epictetus, etc.* London: Thomas Thorpe.
  20. Healey, Io., trl. 1616. *Epictetus, etc.* London: Edward Blount.
  21. Conversely, if the name of someone hitherto unknown had been found, the cipher would be less likely to be judged authentic, a somewhat paradoxical situation.
  22. Liddell and Scott. 1944. *Lexicon*. Oxford: Clarendon Press; 642.

## Part Two: "These. sonnets. all. by. ..."

In Part I it was shown that the Dedication to the Sonnets is carefully worded so that it records the name "Henry Wriothesley", by means of letters regularly spaced, using a technique known as a transposition cipher.<sup>8</sup> The possibility that the Dedication might contain hidden information was suggested by the seven peculiarities listed in Section 2. However, since only the first four of these contribute towards the solution of the transposition ciphers, the remaining three still require consideration, *viz.* the full stops, the lower-case hyphens, and the arrangement of the text into three blocks.

The striking appearance of the Dedication is the first thing to engage the reader's attention. It is sometimes suggested by commentators, including Leslie Hotson,<sup>9</sup> that the Dedication is laid out in capital letters and full stops in imitation of an incised stone monument, such as were common in classical Roman times. But invariably in such inscriptions the stops are symmetrically placed, both at the beginning and end of each line, as well as between words. Moreover, they are nearly always placed mid-way between the printing line and a line defined by the tops of the characters, rather than on the printing line itself. Laid out as a typical Roman monumental inscription with stops, the Dedication would look as shown in Fig. 5.

• T O • T H E • O N L I E • B E G E T T E R • O F •  
• T H E S E • I N S V I N G • S O N N E T S •  
• M <sup>r</sup> • W • H • A L L • H A P P I N E S S E •  
• A N D • T H A T • E T E R N I T I E •  
• P R O M I S E D •  
• B Y •  
• O V R • E V E R - L I V I N G • P O E T •    *etc*    ©

FIG. 5. The Dedication laid out as a Roman monumental inscription.

It is evident from the placing of the full stops that the layout of the Dedication was not modelled on that of a classical Roman inscription. And if the stops were intended as a decoration, the effect was not sufficiently pleasing to attract even a single imitator (as far as is known).

### The Dedication as an "Innocent Letter Code"

We have already found that the Dedication is a cryptogram containing the name "Henry Wriothesley". The remaining peculiarities may point towards yet more concealed information, and we shall now examine this possibility.

The full stops placed after every word are the most unusual of all the oddities listed in Section 2—they immediately suggest *counting words*. One can imagine someone with a pencil touching the point on the paper after each word (or letter) as it is checked off, the small hyphens (hardly distinguishable from full stops) indicating that compound words are to be counted separately. This prompts the idea of seeing whether a message might be found by selecting words evenly spaced, e.g. every third word, starting from the beginning, or maybe fourth or fifth, and so on. No doubt many people have had the same idea down the centuries. The result in every case is nonsense.

The next simplest scheme would be to alternate *two* numbers, and (for example) to take the third word, followed by the fifth word after that, then the third, fifth, third, and so on. But there are so many possible choices of two numbers that trial and error would get us nowhere, and might even generate more than one message. If the scheme were of this kind, the creator of this second cipher, supposing it to be there, *must* have recorded these numbers somewhere or somehow (since what is obvious to us would have been obvious to him, supposing he existed). Yet the page is devoid of other symbols, not even composers' code marks (called signatures) to show the binder how to collate the sheets.

The arrangement of the text into three distinct blocks, each an inverted triangle, is another strange feature, and this (it so happens) provides us with a set of *three* numbers—6, 2, 4—the numbers of lines in each block, something which would be within the control of a possible cryptographer. Counting through the Dedication, using these numbers as the key, we obtain the following sequence of words:

" THESE . SONNETS . ALL . BY . EVER . . . . "

Although they lack a verb, these words appear to point to an author other than Shakespeare. Reference to the *Encyclopaedia Britannica* shows that a leading alternative candidate for the authorship (if the name "Shakespeare" was a pen-name) is one *Edward de Vere*, 17th Earl of Oxford, whose name might perhaps be indicated by "E(.)VER" (see Appendix C). If the supposed message had been deliberately encoded into the text, the need to incorporate these words in the right order, at predetermined intervals, could provide an explanation for the strange



inverted syntax and obscure meaning.

We now come to a crucial point. It might be wondered why the hypothetical designer of the cipher should choose, apparently at random, the set of numbers "6, 2, 4" as the cipher key (coded into the layout). But this set, remarkably enough, consists of the numbers of letters in the three parts of the name "Edward de Vere". Thus, out of perhaps a hundred available choices of sets of two or three small numbers, our cryptographer (and we can now feel more confident of his existence) chose the one set which would serve to confirm the correctness of the decipherment, once it had been carried out.

The question of whether this is a genuine cipher, of the kind known as an "innocent letter code"<sup>23,24,25</sup> or an accident of chance (the null hypothesis), is discussed in Appendix D, where it is shown that (very roughly indeed) the odds are of the order of 1 in 10 billion. These odds, provided they can be independently confirmed, would more than satisfy the criterion suggested by the Friedmans as sufficient to justify the cryptanalyst's confidence in the validity of this cipher solution (Section 4). However (as discussed there), such validation does not precisely amount to certifying that the cipher is genuine, although it comes very close indeed to doing so. If the supposed message were longer (e.g. half as long again) there would be no room for doubt. As it is, the interpretation of the odds is again up to the reader. If convinced, either by the probability calculations or by common sense, he is now in possession of the names both of the author of the Sonnets and of the man he intended to immortalise by his verse, before the indifference of history hid them from us.

Since the topic of our investigation overlaps with that of the Friedmans' book, it is relevant to quote a further passage. After remarking that the kind of cryptosystems they will be dealing with are known as "concealment systems", they say:<sup>26</sup>

We shall not therefore demand any external guide to the presence of the secret texts. We shall only ask whether the solutions are valid: that is to say, whether the plain texts make sense, and the cryptosystem and the specific keys can be, or have been, applied without ambiguity. Provided that independent investigation shows an answer to be unique, and to have been reached by valid means, we shall accept it, *however much we shock the learned world by doing so.* [emphasis added]

### A Hypothetical Reconstruction

We now outline a possible reconstruction of the route a cryptographer might have followed in creating the Dedication as a double

cryptogram. The reader may already have noticed that if the innocent letter key is continued to the end of the Dedication, a longer message is found: "These Sonnets all by E(.)Ver(.) the fo(u)rth". A discussion of the additional information (if that is what it is) will be given elsewhere. For the purposes of this Section it is convenient to assume that the message consisted of these seven words.

We then imagine the cryptographer setting out the seven words in a skeleton schematic diagram, having already chosen the key "6, 2, 4" to correspond to the name Edward de Vere:

6:	_____	THESE
2:	_____	SONNETS
4:	_____	ALL
6:	_____	BY
2:	_____	EVER
4:	_____	THE
6:	_____	FORTH

Certain words are now almost dictated by the requirements of the scheme, e.g. "TO" and "OF", and the compound word "EVER-LIVING". The phrase "ALL HAPPINESS" occurs in the dedication to *Lucrece*, and the word "ETERNITY" arises naturally from one of the recurring themes of the Sonnets; it was often used in other dedications, e.g. Spenser's to *The Faerie Queene*. We thus arrive at the following:

___	TO	_____	OF	_____	THESE SONNETS
_____	Mr	_____	W	_____	H ALL
HAPPINESS	_____	ETERNITY	_____	BY	EVER-
_____	LIVING	_____	_____	THE	FORTH

There is a choice of two or more possible words for each of the blanks, as suggested below:

"TO (the, our) (only, noble, worthy, renowned) (begetter, inspirer) OF THESE (sugared, insuing, polished, following, mellifluous) SONNETS, Mr. W. H., ALL HAPPINESS (and, with) (the, that) ETERNITY (promised, predicted, described, vouchsafed, prognosticated) BY (our, the, England's) EVER-LIVING (poet, maker, author) (wishes, offers) THE ( . . . ) ( . . . ) ( . . . ) ( . . . ) (sets, puts, ventures, setting, putting, venturing) FORTH."

After a time, the Dedication might have begun to read something like this:

"TO THE onely begetter OF THESE (#1) SONNETS, Mr. W. H.,  
ALL HAPPINESS and that ETERNITY (#2) BY (#3) EVER-LIV-  
ING poet, (#4) THE (#5) (#6) (#7) IN (#8-ing) FORTH."

The words in lower case can still be changed to others if need be; the phrase 'onely begetter' is derived from (and a reference to) the words "*onely begotten Sonne*" from St. John's Gospel, Chapter 1, verse 14, (Geneva Bible, 1560). The cryptographer now has to choose the remaining 8 words so as to provide the letters needed to make up the names "Henry" and "Wriothesley" when read out vertically from rectangular arrays. For example, if the 'Y' of 'BY' is the last letter of "Henry", and if the 'R' comes from 'ETERNITY', the 'N' from 'HAPPINESS', the 'E' from 'SONNETS', and the 'H' from 'THESE', then since the 'N' is 15 letters after the 'E', it is necessary to insert an extra letter somewhere between the 'N' and the 'R', resulting in 'HAPPINESSE', and to select a 7-letter word for word (#1) and a 9-letter word for (#2), so that the letters for "Henry" are all spaced 15 characters apart.

At this point, the cryptographer has to decide whether to place the name "Wriothesley" in the same array, and introduce a second letter 'Y', or to use the same 'Y' and go for an array of a different size. The second option has the advantage, from the cryptographer's point of view, that he does not have to search for another usable word containing a letter 'Y', and also that the name will be less obvious, since the presence of two 'Y's in the text might alert someone to the possibility that a name containing two 'Y's was concealed in the text. (The matter of the cryptographer's motivations is discussed in the next Section.)

To make use of the 'Y' of 'BY', the name "Wriothesley" must be broken up into segments, since the letter occurs roughly half-way through the text. (We may deduce from this that the message was composed first, and the two names then built around appropriate letters of the plaintext, though probably in the order 'Wriothesley' and 'Henry', rather than the order we have adopted to illustrate the problems involved.) Now this letter, the first 'E' of 'ETERNITY' and the second 'L' of 'ALL' are all spaced 18 characters apart. This means that the third letter of word (#1) must be an 'S', so 'INSVING' is chosen, and the word 'onely' must be spelt 'ONELIE' or 'ONLIE' (both rare spellings, as discussed in Section 2(d)), since its last letter must provide the 'E' which begins the segment "-esley". To allow the 8-letter word 'PROMISED' to be selected as word (#2), the word 'ETERNITY' was lengthened to 'ETERNITIE'.

The array with 18 letters in each row would now look as shown in Fig. 6, with "ESLEY" in the 10th column.

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**Rollett**

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T	O	T	H	E	O	N	L	I	E	B	E	G	E	T	T	E	R
O	F	T	H	E	S	E	I	N	S	V	I	N	G	S	O	N	N
E	T	S	M	r	W	H	A	L	L	H	A	P	P	I	N	E	S
S	E	A	N	D	T	H	A	T	E	T	E	R	N	I	T	I	E
P	R	O	M	I	S	E	D	B	Y	*	(#3)	E	V	E	R	L	-
I	V	I	N	G	P	O	E	T	*	(#4)	[	T	H	E	]	-	-
(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	(#5)	etc

FIG. 6. Possible intermediate stage in the crafting of the Dedication.

The cryptographer will have observed (if his thought processes were at all similar to ours) the fortunate conjunction of the letters 'TH' in column 11, and found that 'OVR' and 'WISHES' or 'WISHETH' for words (#3) and (#4) would add two more letters to give "IOTH", to be read upwards.

The remaining task for the cryptographer was to get the letters "WR" into the bottom of column 11, in which endeavor he failed; he made up for it by getting them into the bottom of column 2. It seems certain that another vital task was to ensure that the total number of letters was a multiple of 18, so that the decoder would start his analysis by looking at perfect rectangles (as was in fact the case); perhaps the spelling "ONLIE", rather than the more regular 'oneli', was dictated by the need to lose one letter. In this way the array with the most important information (the surname "Wriothesley") would stand the best chance of being brought to the decoder's notice, since it can be read out vertically from a perfect array. If the number of letters in the final text had contained both 15 and 18 as factors (e.g. 90, 180 or 270), then both first name and surname could have been read out vertically from perfect rectangular arrays. In the event, the cryptographer settled for 18 and 16 as factors (i.e. 144), which allows the surname to be read out vertically from a perfect array (8 by 18), and "Henry" diagonally from a perfect array (9 by 16), as shown in Figs. 2 and 3.

The above exposition gives some idea of how the cryptographer might have approached the problems confronting him. In reality his undertaking was far more difficult than may perhaps have been suggested, since he would have started with a blank sheet of paper, while we have the finished and remarkably brilliant result in front of us.

### Discussion

We here discuss various aspects of the Dedication which have a bearing on the question of whether or not it is a genuine cryptogram. Several of these topics have been put to the author privately, by readers of early drafts of the paper. In responding to the matters raised, it will

be assumed for the sake of argument that the Dedication really is a double cryptogram, although this is of course the point at issue. It is the credibility of the answers given which will influence the reader's views. We shall also have to rely largely on speculation as to the history and motives of those involved, in an attempt to arrive at a sustainable reconstruction of past events.

(a) "If, as many writers have commented, the Dedication looks like a cryptogram, how is it that no solution has been put forward before now? Nearly 400 years have elapsed since it was first published."

One answer to this question lies in the publishing history of the Sonnets. To begin with, it seems likely that many of those who bought the original copies would have known the names of the people involved, and therefore would have had no motive for looking for them in the Dedication. Since the names were not displayed on the title or dedication pages, it must be assumed that it was necessary, for important personal or political reasons (which we can now only guess at), for the identities of the protagonists to be suppressed. Thus no-one at the time would have published the solution, even if they had found it.

The facts that so few copies (13) of the original edition have survived to the present time, and that it was not reprinted for 31 years, while during this period *Venus and Adonis* was reprinted 16 times and *Lucrece* 7, have led several commentators (e.g. Frank J. Mathew<sup>27</sup>) to suggest that the bulk of the first printing was called in, and further printings forbidden (there is no other evidence for this). When the Sonnets were first reissued in 1640 by John Benson,<sup>28</sup> the Dedication was omitted, and the next edition to include the Dedication was that published in 1711 by Bernard Lintott.<sup>29</sup> His reproduction was very close to the original, but instead of "ONLIE" has "ONLY", so that the transposition cipher was damaged twice over, the first 'E' of "WR-IOTH-ESLEY" being replaced by 'Y', and the number of letters being reduced to 143 (its factors 11 and 13, if taken as keys, point to rectangular arrays that contain nothing of interest). Not until 1766 was Thorpe's original Dedication reprinted accurately, by George Steevens.<sup>30</sup>

The edition by Steevens (who dropped the Sonnets from all his subsequent editions of Shakespeare) was soon followed in 1780 by Edmond Malone's.<sup>31</sup> This was the first modern scholarly edition of the Sonnets. It repeated the wording of the Dedication, but changed the spelling of three words, reducing the number of letters in each, thereby completely destroying the transposition ciphers (besides making letter changes, viz. 'V' to 'U' and 'I' to 'E', which would not have got in the way of their solution); in addition the layout was altered and the full stops omitted.

Fig. 7 shows how Malone caused the Dedication to be printed.

TO THE ONLY BEGETTER  
OF THESE ENSUING SONNETS,  
MR. W. H.  
ALL HAPPINESS,  
AND THAT ETERNITY PROMISED  
BY OUR EVER-LIVING POET,  
WISHETH THE  
WELL-WISHING ADVENTURER  
IN SETTING FORTH,

T. T.

FIG. 7. Malone's 1780 version of the Dedication.

Thus it had been rendered impossible to decipher either cryptogram. Later editors in the 18th and 19th century mostly followed Malone in perpetrating these or similar 'improvements' (two honorable exceptions were J. Payne Collier<sup>32</sup> and Robert Cartwright<sup>33</sup>), so that anyone suspecting a cryptogram would very probably have been defeated at the start. Not until Thomas Tyler's facsimile of 1886 in photolithography was the reader (and potential cryptanalyst) provided with a Dedication that was self-evidently authentic.<sup>34</sup> Even at the present time, editions of the Sonnets prepared by scholars of international reputation, and issued under the imprimaturs of great universities and august publishing houses, regularly distort the spelling, layout or punctuation in a multitude of different ways. (For example, the Oxford Shakespeare reproduces correctly the layout and full stops, but repeats the four misspellings of Malone;<sup>35</sup> the Macmillan Sonnets gets the layout right, but has the same wrong spellings, omits the full stops, and substitutes lower-case for capitals in the body of the text.<sup>36</sup> Many more examples could be given.) Only those editions of the Sonnets which include a photographic reproduction of the Dedication page offer the would-be decoder any chance of solving the ciphers. As a consequence, during the 388 years since it was first published, and for the 230 years since doubts over the authorship first began to surface in print, corrupted versions of the Dedication have vastly outnumbered accurate copies, and it would be pure chance if one of these last happened to fall into the hands of a possible decipherer.

A contributory factor to its non-solution in the past was a lack of appreciation of the delight the Elizabethans took in word-play and word games, puns, anagrams, acrostic verses, concealed dates on tombs and monumental brasses in churches, and literary puzzles of all kinds. The intellectual climate which produced such simple but effective ciphers had been lost sight of, and only in recent decades has it been

realised how many subtle 'conceits' and personal allusions have been missed by earlier researchers. John Dee in particular would have been surprised that the transposition ciphers evaded detection for so long, since he regarded this kind of cipher as "such as eny man of knowledge shud be able to resolve".<sup>11</sup>

Finally, it would seem that there are very few people, even today, who are simultaneously interested in the identity of "Mr. W. H." and possess some knowledge of elementary cipher techniques.

(b) "The fact that the name "Wriothesley" is split up into three segments tends to cast doubt on the proposition that it was deliberately enciphered. Why did the hypothetical cryptographer not arrange for the whole name to be formed by letters regularly spaced, so that it filled a single column (eg in an array 16 by 9 or 18 by 8)? And why not fit the name "Henry" into the same array, perhaps at the head of the same column? Similarly, the message would be easier to find if it consisted of every fourth word, or fifth or sixth, for example."

A sophisticated cipher argues strong motives; this is no recreational puzzle to while away a leisure hour. If it was important not to print the names of the protagonists on the title or dedication pages, it was equally important not to make the recovery of the hidden names too easy, otherwise the objective of concealment (for perhaps two or three decades, one might suppose) would have been lost at the outset. The cryptographer may have begun by trying to get the name "Wriothesley" into one column, but soon realised that this might prove too easy to solve, since a 'W' near the beginning of the text would have afforded an obvious clue to anyone hearing rumors about the identity of "Mr. W. H." He chose instead to try for two columns (11 and 10 of Fig. 3), and if he had succeeded there would now be no doubt that the cipher was genuine. In the event, he might well have been content to fit the name into three columns, so that it would be that much more difficult to decipher. He would then have been able to argue, if the name was discovered and he was questioned by the authorities, that it was just a coincidence; he might avoid an unpleasant fate thereby.

For the same reason, he might prefer to hide the name "Henry" in a different array, so that again he could rely on coincidence as a defence. If both names were enciphered into the same array, then two 'Y's would have been needed, which might perhaps have alerted someone to the possibility that a name which included two 'Y's had been concealed there. ('Henry Wriothesley' would immediately have come to mind, since the two long narrative poems had been dedicated to him.)

Similar arguments apply to the encoding of the concealed statement. If it had been made up of words regularly spaced (e.g. every fifth word), it would not have remained secret for long, and the consequences for the cryptographer or his patron might have been serious.

Let us suppose, as a possible scenario, that the publication of the Sonnets had been authorised (as was mandatory for all publications in those days) on the express condition that neither the identity of the author nor that of the "Fair Youth" should be revealed. And since the poet wrote in sonnet 81, with unconscious irony, "Your name from hence immortal life shall have"—a name until now erased from the record, what more likely than that someone should ensure that the name would be preserved in the Dedication (where else more appropriate?), to emerge into the sunlight at some future date. And similarly for the author.

(c) "The supposed message is only five words long, and ends two-thirds of the way through the text, at the 20th word. If the message had occupied the whole of the text, or if the text had been shorter, it would be easier to accept the proposition that the message had been deliberately encoded there."

There are two reasons why the text had to be longer than 20 words (or thereabouts). Firstly, the text had to be long enough to allow the three segments of the name "Wriothesley" to be satisfactorily enciphered. Secondly, it had to be sufficiently long to provide enough lines of text to set out in three inverted triangles, in order to record the key "6, 2, 4".

(d) "Granted that the Elizabethans were deeply interested in codes and ciphers, how is it that no examples of innocent letter codes or of transposition ciphers have survived from that era? Can we be sure that these techniques were known to them?"

There can be no doubt that the techniques of transposition ciphers were well-known in Elizabethan times, as evidenced by John Dee<sup>11</sup> and John Wilkins<sup>12</sup>; the latter collected together all the methods that were common knowledge in 1641. The use of the *'skutale*, a transposition technique employed by the Spartans,<sup>22</sup> outlined in Appendix B(4), had been described by several Latin and Greek authors, and would have been known to many educated Elizabethans.

As regards the innocent letter code, it is the first technique that springs to mind to anyone shut up in prison wanting to communicate secretly with the outside world, and is usually regarded as so obvious as hardly to be worth mentioning in elementary books on codes and ciphers (but see Paul B. Thomas, who also records various simple methods of indicating the key number or numbers<sup>23</sup>). Sophisticated versions of it were used to good effect by prisoners of war in World War 2.<sup>24,25</sup>

The fact that no examples of Elizabethan innocent letter codes have been reported to date may simply mean that they await discovery, or were rarely committed to print. Some interesting examples of Renaissance concealment ciphers based on other techniques are given in the Friedmans' book.<sup>14</sup>



(e) "The ciphers can only be interpreted by someone having background historical knowledge of the period, and such knowledge would tend to encourage wishful thinking to read preconceived meanings and names into what are in actuality random sequences of words or letters (the *Gestalt* effect)."

It may be worth recording that when the 5-word message was found, I took it for granted that the author of the Sonnets was William Shakespeare of Stratford-upon-Avon, had never heard of Edward de Vere, and in any case, prompted by Leslie Hotson,<sup>9</sup> was (like him) looking for a clue to the identity of "Mr. W. H." At the time of its discovery the message appeared to be meaningless and was promptly forgotten. It was two or three years later that a chance reading of the article on Shakespeare in the *Encyclopaedia Britannica* revealed the fact that a leading candidate for the authorship (if the name "Shakespeare" was a pen-name) was a certain Edward de Vere, whose name might well be indicated by "EVER" (see Appendix C). Although the message now acquired a possible meaning, it was dismissed as a curiosity of no significance. Wishful thinking can therefore be ruled out in the case of the hidden message. It was not until a further 20 years or so had elapsed that a second reading of Charlton Ogburn's landmark work<sup>37</sup> suggested that it would be worth investigating the odds that an accident of chance might have produced the hidden message, with the results presented here.

The finding of the supposedly hidden message only added to the mystery, for the original enigma—the identity of "Mr. W. H."—still remained unresolved. The fact that the Dedication is all in capital letters then suggested the possibility of a transposition cipher (perhaps because, in elementary treatises on codes and ciphers, examples of transposition ciphers are nearly always given in capital letters). The name 'Henry Wriothesley' is well-known to anyone interested in Shakespeare's poetry, since his two long narrative poems are dedicated to this nobleman. As a check, a number of other texts of roughly the same length have been set out in all possible arrays, to see whether words or names turn up accidentally, and the chief finding is that words of five letters (or more) are exceedingly rare. (The reader might like to try this for him or her self.)

It is hardly surprising that the two names found are those of prominent Elizabethans, both associated today with the author Shakespeare (in rather different ways). It would have been more remarkable if names of obscure or unknown people had turned up.

### Conclusion

When the Dedication to *Shakespeare's Sonnets* is analysed as a

cryptogram, a hidden name and a hidden statement are brought to light. Only four of the peculiar features described in Section 2 are involved in the solution of the transposition ciphers which provide the name "Henry Wriothesley", regarded by many commentators as the person most likely to have been "the onlie begetter". The remaining three, notably the full stops uniquely placed after every word, contribute to the solution of the innocent letter code which yields the statement "These Sonnets all by EVER". The possible identification of "EVER" with *Edward de Vere*, 17th Earl of Oxford, is greatly strengthened by the fact that the key to the innocent letter code consists of the numbers of letters in the three parts of his name, having been coded into the layout of three inverted triangular blocks, which contain in order 6, 2, and 4 lines.

The discovery that the name *Henry Wriothesley* was recorded in the Dedication to the Sonnets will surely, as anticipated in Part I, be welcomed by all Shakespeare scholars, as ending over two hundred years of speculation about the identity of the "Fair Youth" and "Mr. W. H." The apparent indication that the Sonnets were written by someone other than the man from Stratford may contribute to the debate on the authorship controversy, now entering its third century.

### Appendix C: Edward de Vere, 1550 - 1604

(1) The Dedication to the Sonnets repeats the layout pattern of an acrostic poem addressed to Edward de Vere in 1579 by Anthony Munday (his then secretary):<sup>38</sup>

E xcept I should in freendship seeme ingrate,  
 D enying duty, where to I am bound;  
 W ith letting slip your Honour's worthy state,  
 A t all assayes, which I have Noble found.  
 R ight well I might refrayne to handle pen:  
 D enouncing aye the company of men.

D owne dire despayre, let courage come in place,  
 E xalt his fame whom Honour doth imbrace.

V ertue hath aye adordnd your valiant hart,  
 E xampled by your deeds of lasting fame:  
 R egarding such as take God Mars his part,  
 E che where by prooffe, in Honnor and in name.

(2) The words "ever" and "Ver" (spring) were used on several occasions by Edward de Vere in his early published poetry to refer to

himself. Those who support his authorship of the works of Shakespeare point to sonnet 76, where lines 5 and 7 appear to employ the same device:

*Why write I still all one, ever the same  
And keep invention in a noted weed, [well-known guise]  
That every word doth almost tell my name*

The first publication of *Troilus and Cressida* in 1609 was prefaced by an address "From a never writer to an ever reader". This has been glossed as "From an E. Ver writer to an E. Ver reader".

Richard Barnfield, in 1598, addressed a verse to Shakespeare which included the line:<sup>39</sup>

*Live ever you, at least in Fame live ever*

Further examples have been cited.

(3) In 1589, the author of *The Arte of English Poesie* wrote:<sup>40</sup>

And in Her Maiesties time that now is are sprong up an other Crew of Courtly makers [poets], Noble men and Gentlemen of Her Maiesties owne servauntes, who have written excellently well as it would appeare if their doings could be found out and made publicke with the rest, of which number is first that noble Gentleman Edward Earle of Oxford.

In 1920 it was suggested by J. Thomas Looney<sup>41</sup> that the Earl of Oxford's works had in fact been subsequently published under the pen-name of "William Shakespeare". The authorship question is discussed by Charlton Ogburn,<sup>37</sup> Richard Whalen,<sup>42</sup> and Joseph Sobran.<sup>43</sup>

### Appendix D. Assessing the Hidden Message

Here we estimate the odds that chance might have produced the hidden message, and also relate the message to the hidden name spelt out by letters regularly spaced.

(1) The stimulus which prompted the attempt to decode the Dedication was the force of Hotson's arguments that it might be a cryptogram,<sup>9</sup> coupled with a conviction that his solution was untenable. Finding a 5-word message, "These Sonnets all by EVER", was a shock, since (like Hotson) I was looking for a clue to the identity of "Mr. W. H.", had never doubted that a man from Stratford-upon-Avon by the name of William Shakespeare was the author, and had never heard of Edward

de Vere, whether or not he is indicated by "EVER" (see Discussion (e)). That following a simple train of thought to its logical conclusion should yield a totally unexpected (and initially unintelligible) result is the first piece of evidence to suggest that the cipher solution is genuine. However, it is unquantifiable, and we therefore move on to more scientific modes of argument.

As a first step, we investigate how often a key such as "6, 2, 4" might extract from published material a grammatical statement of five (or more) words in length. Tedious experiments made by taking books at random and going through them paragraph by paragraph suggest that the frequency lies between 1 in 1000 and 1 in 10,000. (The reader is urged to try this for himself, in order to obtain a feel for this important statistic, which is essential to the probability assessment.) Next we need to estimate how often such a statement (once found) might have some bearing on some significant matter treated in the book, rather than being completely irrelevant. These combined odds may be very conservatively assessed as being of the order of 1 in 100,000.

The odds just estimated would apply to any statement which had some bearing on the Sonnets, whatever its precise meaning. We now consider the likelihood that the message in the Dedication should appear to (i) focus on the problem of the apparent authorship, which has a 230-year-old history, (ii) name the person regarded nowadays as the most probable author, if the name "Shakespeare" was a pen-name, (iii) be found in a text which has been regarded as a puzzle for over 160 years. Without commenting on the authorship question (which many people today still regard as unresolved), we observe only that the more closely the information conveyed by the supposed message corresponds to existing theories based on circumstantial evidence, the more likely it is that the cipher solution is genuine (and conversely, if the supposed message appeared to indicate someone hitherto unknown, it would be less likely to be judged authentic, a similar situation to that discussed in Appendix B(1), footnote 21).

In view of these considerations, the odds that chance could have produced (a) in the Dedication a message (b) pointing to this particular person as (c) the real author of the Sonnets might be assessed (rather vaguely) at somewhere between 1 in 100 and 1 in 10,000. For the sake of arriving at a definite final figure, we shall therefore settle for a geometric mean of 1 in 1000. This estimate (also in a "hand-waving" sense, as in Appendix B(1)) allows us to say that, very roughly, the odds that the 5-word message might have occurred by chance are of the order of 1 in 100 million.

There is one additional matter to discuss. The set of numbers "6, 2, 4" which forms the cipher key (coded into the layout) consists of the numbers of letters in the three parts of the name "Edward de Vere". It

seems that the cryptographer made this choice, out of perhaps a hundred available sets of two or three small numbers, in order to give the decipherer confidence that he had correctly decoded the hidden message.

This last consideration increases the odds by another factor of 100, and puts the chance of the message appearing by accident in the approximate area of 1 in 10 billion. Even if this figure is out by a factor of 10 or 100, it might still be regarded as good evidence for the proposition that the Dedication was designed as an innocent letter code, which was intended to be solved at some time in the future, when it was no longer important to conceal the author's identity.

(2) Before leaving the question of the authenticity of the innocent letter code, there is a further observation to be made. In Part I it was shown that the name "Henry Wriothesley" had been recorded in the Dedication by a choice of words which contained letters spaced regularly, in such a way as to spell out the parts of the name. No doubt a great deal of trial and error went into crafting the text to achieve this end. But nothing in this endeavor necessitated the *inversion* of the normal syntax, such as is followed by every other dedication ever written, so far as is known (see Section 2(a)). It would surely have been possible for the cryptographer to have found words arranged in the natural-sense order—"To the dedicatee: (1) the dedicator (2) wisheth (3) blessings"—which would have spelt out the letters of the hidden name. The conclusion is that the cryptographer was constrained by an extraneous consideration, for example the fact that several words of his text had already been fixed. This would have obliged him to proceed (more or less) along the lines suggested in the Section on a Hypothetical Reconstruction.

Although the difficulty of creating the transposition ciphers could easily have resulted in awkwardness of wording, it did not necessitate the inverted syntax, which (we may infer) must therefore have resulted from some other requirement—that is, the objective of hiding the chosen message by means of the innocent letter code technique. To sum up: the transposition ciphers do *not* account for the inverted syntax; the innocent letter code does.

### References

(References 1 to 22 are given at the end of Part I.)

23. Thomas, Paul B. 1929. *Secret Messages: How to read and write them*. New York & London: Alfred A. Knopf; 9.
24. Foot, M. R. D. and J. M. Langley. 1979. *MI9*. London: The Bodley Head; 322-324.
25. Green, J. M. 1971. *From Colditz in Code*. London: Robert Hale.
26. Friedman, William F. and Elizebeth S., *ibid.*, reference 14; 26.

27. Mathew, Frank J. 1922. *An Image of Shakespeare*. London: Jonathan Cape; 114.
28. Benson, John, ed. 1640. *Poems: Written by Wil. Shake-speare. Gent.* London: Tho. Cotes.
29. Shakespeare, William. [1711] *A Collection of Poems, etc.* London: Bernard Lintott.
30. Steevens, George, ed. 1766. *Twenty of the Plays of Shakspere*. London: J. and R. Tonson, T. Payne, W. Richardson.
31. Malone, Edmond, ed. 1780. *Supplement to the Edition of Shakespeare's Plays Published in 1778 by Samuel Johnson and George Steevens*. London; vol. 1, 579.
32. Collier, J. Payne. 1843. *The Works of William Shakespeare*. London: Whittaker and Co.; vol. VIII, 472.
33. [Cartwright, Robert], ed. 1859. *The Sonnets of William Shakspere*. London: J. R. Smith.
34. Tyler, Thomas, intro. [1886] *Shakspere's Sonnets*. London: C. Praetorius.
35. Wells, Stanley, ed. 1988. *William Shakespeare: the Complete Works*. Oxford: Clarendon Press; 750.
36. Rowse, A. L., ed. 1984. *Shakespeare's Sonnets*, 3rd edn. London: Macmillan Press; 2.
37. Ogburn, Charlton. 1992. *The Mysterious William Shakespeare: The Myth and the Reality*, 2nd edn. McLean, VA: EPM Publications (1st edn., 1984).
38. Munday, Anthony. 1579. *Mirroure of Mutabilitie*. London: J. Alde.
39. Barnfield, Richard. 1598. *Poems in Divers Humors*. London: J. Jaggard.
40. Anon. [Lord Lumley?] 1589. *The Arte of English Poesie*. London: Richard Field.
41. Looney, J. Thomas. 1920. *'Shakespeare' Identified in Edward de Vere, Seventeenth Earl of Oxford*. London: Cecil Palmer. 3rd edn. edited, revised and annotated by Ruth Loyd Miller, 1975. Port Washington, NY: Kennikat Press.
42. Whalen, Richard F. 1994. *Shakespeare: Who Was He?* Westport, CT: Praeger Publishing.
43. Sobran, Joseph. 1997. *Alias Shakespeare*. New York, NY: The Free Press.