# $\star$ Shakespeare atters 

# The Sonnets dedication puzzle (II) 

By Robert R. Prechter, Jr. ©2005

At this point we have seen that the dedication to Shake-spearesSonnets appears to contain some sort of deliberate construct producing a puzzle with at least one solution, THOMAS THORPE, and probably another one, HENRY WRIOTHESLEY. If there are other solutions, then they should derive from the same rules that produced the first one. The rules governing the exercise that it took to derive these two names appear to be that (1) the letters in the solution appear in normal sequence, (2) starting from any point, (3) within a single expression of the text, (4) also in normal sequence (not backwards, for example).Furthermore, any deliberate embedding would have to pertain to the context; even if we were able to derive, say, "Disney World" from the text, we could nevertheless be sure that it was simply an artifact, not an intended solution to the puzzle. Conversely, if an expression that we think should pertain to the puzzle's theme is not there, then we must conclude either that the composer did not know about it or that our presumption is wrong.

The next task was to use contemporary scholarly opinion to make a list of what other names might reasonably be related to the Sonnets to test their appearance in the puzzle.We mustalso test that listagainst a list of names not considered to be related to the Sonnets to compare their frequencies of occurrence. While it appears initially that we are bound by the discoveries of previous scholarly research, that is not so. The research can work both ways. If we decide that the puzzle is legitimate and its method consistent, we can check every


The origins and history of the Prince Tudor theory


By kind permission of His Grace the Duke of Buccleuch and Queensbury, K.T.
The Third Earl of Southampton in the Tower. This is one of the more famous portraits of the Elizabethan era, especially so for anyone involved in Shakespeare studies since Southampton is the dedicatee of Venus and Adonis and Rape of Lucrece, and the putative "Fair Youth" of the Sonnets. But for Oxfordians his significance is doubly important, since he was being pressured to marry Oxford's eldest daughter Elizabeth, and because his identification by some Oxfordians as a possible "Prince Tudor" (with Oxford as his father) places him at the center of the entire Shakespeare author ship mystery.


By Paul H. Altrocchi, MD

Pardon, sweete flower of matchless Poetrie And fairest bud that red rose ever bore ...
Thomas Nashe, Dedication to Southampton ${ }^{1}$

T
Those who conceived the Prince Tudor theory, Percy Allen in England ${ }^{2}$ and Dorothy Ogburn in New York, ${ }^{3}$ were justifiably eminent Oxfordians. Their theory was not triggered by incon trovertible evidence of a hidden Queen Elizabeth pregnancy or that the Third Earl of Southampton was a royal changeling. They derived it as a reasonable interpretation of historical events and powerful allusions in the Shakespeare canon, difficult to explain otherwise.

Shorn of all complexities, the Prince Tudor theory is simply that Henry Wriothesley, the Third Earl of Southampton, was the son of Queen Elizabeth and Edward de Vere and therefore was rightful heir to the Tudor throne. The designation "Prince Tudor" conveys the concept more clearly than "Tudor Rose." ${ }^{4}$

The Prince Tudor theory has been a source of contentious debate among Oxfordians, sometimes with more heat than luminosity. This is unfortunate because of its vital implications for the Shakespeare authorship debate:
(1) Many of Shakespeare's Sonnets were written to the Third Earl of Southampton in the loving terms of a father to a son. If de Vere is Southampton's father, de Vere is

## Dedication puzzle (continued from page 1)

available name from the period to see which others appear in the puzzle, as possible leads for further investigation. We might also eliminate from consideration as characters in the Sonnets people whose names fail to appear. We can use the puzzle, then, to confirm information about "Shakespeare" and challenge any erroneous proposals and assumptions about the Sonnets that scholars might have made in the past.

## A Unique List

Over the centuries, over 60 persons ${ }^{1}$ have been proposed as pertinent to the Sonnets in being the poet, ${ }^{2}$ the Youth or the Dark Lady. Few of these candidates afford more than pure conjecture to support their cases. The list below comprises names of 18 people whom recent scholars have proposed as being linked to the Sonnets.

The Publisher Thomas Thorpe The Patron/Producer(s)<br>William Herbert (also on the Youth list) Philip Herbert<br>Mary Sidney/Mary Herbert (also on the Poet list)<br>William Hall<br>The Printer<br>George Eld<br>The Poet ${ }^{3}$<br>William Shakespeare/Shaksper<br>Edward (de) Vere<br>Francis Bacon<br>Christopher Marlowe<br>Mary Sidney/Mary Herbert<br>William Stanley<br>Roger Manners<br>The Youth<br>Henry Wriothesley<br>William Herbert<br>The Dark Lady<br>Anne Vavasor<br>Emilia Bassana<br>(Queen) Elisabeth (and as herself in Sonnet 107)<br>Elisabeth Vernon<br>Mary Fitton

If a significant percentage of these names were to turn up in the text of the Sonnets dedication, we would have a strong indication that someone had purposely embedded names therein in the manner of Thomas Thorpe's word game. Based on a test of names associated with William Shaksper that we will conduct later in this article, anything above 9 percent would be notable. As it turns out, fully 13, or 72 percent, of the 18 names in the above list appear in the dedication, as shown in bold. The incidence of names on this list turning up in the puzzle is far higher than that for preselected strings of letters from any other source, a strong indication that at least some of them are there on purpose.

## Names Not Appearing Are Bad Candidates

While not every name in bold will prove to be connected to the Sonnets, no names that fail to appear throw any monkey wrenches into good scholarship. Most of the obscure candidates, such as

Penelope Devereux, "Stella" in Philip Sidney's sonnet sequence, Luce Morgan, a courtesan, madam and abbess, and Anne Sackfield, an innkeeper's wife, as the Dark Lady, and William Hatcliffe and William Hunnis as the Youth, do not show up in the dedication, nor are they sensible choices given today's knowledge. (The name of at least one discredited candidate for the Youth, Robert Southwell, appears as a solution, but an investigation into his possible candidacy indicates that it is an artifact appearing by chance, aided by the surely deliberate inclusion of the name Robert Greene.)

Charlton Ogburn ${ }^{4}$ mentions Anne Vavasor's pitch black hair and eyes as reasons to suggest that she could be the Dark Lady. However, Anne's skin, as her portrait reveals, was pale white, while the Dark Lady's (taking the description literally) was brown. By 1594, it had been at least fifteen years since Oxford had first dallied with Anne Vavasor. She was old news to Oxford by this time, so she does not serve well as a new object of intense passion. Furthermore, her husband was Sir Henry Lee, the Queen's Champion of the tournaments, and one can hardly imagine a man this virile putting up for all those years with a wife who slept around as the Dark Lady did. With these disqualifiers, she makes a poor candidate, and her name is not there.

Five of the currently proposed candidates for the identity of Shakespeare do not appear as solutions to the puzzle. The names Francis Bacon, Christopher Marlowe, Mary Sidney, William Stanley and William Shakespeare/Shaksper all fail the test. The fact that so many of these less likely candidates fail to appear in the puzzle is not proof of anything, but it is consistent with our growing case that the puzzle's renditions and (Oxfordian) reality are compatible. Women have twice the odds of appearing in the puzzle because they have both a maiden and a married last name. "Mary Sidney" fails, but "Mary Herbert" is a solution. On the other hand, all of the other women that we find in the puzzle are identified therein by their maiden names (Bassana, Vernon and Fitton), implying that this consistent choice is an aspect of convention or design. Therefore, "Mary Herbert" is a highly suspect solution. It could well be an artifact deriving from a deliberately included William and/or Philip Herbert, as only four additional letters are then required to produce Mary's married name. If Mary Fitton's name is also deliberately included, then the entirety of "Mary Herbert" would simply be an artifact. Nevertheless, to be generous and above reproach, we will give it the benefit of the doubt and investigate any possible connection.

## Names That Were Probably Not Deliberately Included

Given current scholarship, how many of the 13 names from our list that appear as solutions to the puzzle may we eliminate as improbably connected to the Sonnets and therefore likely artifacts of the puzzle? (The answers are dependent upon both our knowledge and our lack of it, so our conclusions here, while strong, are tentative.)

Roger Manners is an impossible candidate for Shakespearean authorship. He was brother to the 3rd Earl of Rutland, Edward Manners, who was Oxford's fellow ward under Burghley, but any further connections to the Sonnets are absent. Manners was born in 1576, which makes him too young to have written the plays. He was also too busy to write them, having left England at age twenty for travel abroad and then to serve under Essex in Ireland. Manners never wrote any literature of which anyone is aware, "nor was there evidence that [he] had ever involved himself in poesy, theatre or players. ${ }^{" 5}$ Investigation into his life provides no reasons that I can
see why he would have had a hand in producing the Sonnets, either, so I cannot even speculate as to another reason for the name's deliberate inclusion. I think it's an artifact. This is good news for Oxfordians, because one of the only two names remaining on the list of possible poets supports the Oxfordian case.

William Hall is an unlikely candidate for having anything to do with the publication of the Sonnets. His name appears in my list only because Sir Sidney Lee, who wrote much of the material in The Dictionary of National Biography, proposed it. Lee was dead set against the idea of William Herbert's involvement in the Sonnets, either as a subject or as a participant in their publication, so he concocted a scenario under which William Hall, a stationer at the time, may have been the W.H. of the dedication, on the conjecture that Hall somehow procured the Sonnets and then gave them to Thorpe. Looney (1920) extended the story by proposing that Hall, a resident of Hackney, stole the Sonnets right out of Oxford's widow's house. Purely invented stories do not make a case in the first place, but this one dies by its contradictions: (1) If the Sonnets had been purloined so illegally, as Looney claims, it would have been insane for Thorpe to have congratulated the thief in his dedication. (2) If the "W.H." who published a poem by Robert Southwell three years earlier in 1606 was William Hall, as Lee proposes, it would have been in keeping with Hall's demonstrated behavior to publish a choice property such as Shake-speare's Sonnets himself rather than to hand it over to another publisher. (3) Can we even imagine one part-time back-alley publisher (as Lee would have it) wishing another "that eternitie promised by our ever-living poet"? (4) Both men would have to have been privy to what that phrase meant, which is unlikely if they were simply opportunistic merchants perpetrating a surreptitious venture. (5) The text may be taken to mean that "our ever-living poet" promised "that eternitie" to Mr. W.H. Surely we are not to entertain the idea that Shakespeare promised eternity to William Hall. The only reasonable candidates for this honor are the front-runners for the role of the Youth, Henry Wriothesley and William Herbert. We thus have a significant case against Hall's being "the onlie begetter" or the producer of the Sonnets project. Hall was a kinsman of Anthony Munday, Oxford's secretary, so Oxford would probably have known who he was. But try as I might, I am unable to conjure up a scenario in which Hall's help is required, nor does any information indicate that he was involved. "William H " was probably embedded purposely in the dedication in order to form "William Herbert." This design dramatically increases the puzzle's chances of producing "William Hall," which requires only three more letters. Its appearance is undoubtedly an artifact.

This discussion leaves 11 names from our original list:

## The Publisher

## Thomas Thorpe

The Patron/Producer(s)
William Herbert (also on the Youth list) Philip Herbert
Mary Herbert (also on the Poet list)
The Printer
George Eld
The Poet
Edward (de) Vere
Mary Herbert
The Youth

## Henry Wriothesley

William Herbert<br>The Dark Lady<br>Emilia Bassana<br>(Queen) Elisabeth (and as herself in Sonnet 107)<br>Elisabeth Vernon<br>Mary Fitton

At this point, we have an interesting list. The only known publisher and printer are there. There are only two names remaining among the candidates for Shakespeare, and one of them fits the Oxfordian case. The two strongest candidates for the Youth are there. Three of the four names remaining for the Dark Lady have been the primary subject of an entire book within just the past 26 years, and the fourth still has it adherents, so these names are consistent with contemporary scholarship.

## A Puzzle Is Not a Cryptogram

Before proceeding with our discussion of the candidates related to Shake-speares Sonnets, we must address the question of probability that necessarily arises in any process of induction. When a cryptographer creates a coded message, the receiver applies a previously arranged key and thereby decodes mechanically and precisely the intended message. A puzzle which is what we have here from our perspective - is something different. Puzzles are to be solved, not decoded. Because there is not a symbol-for-symbol key to a puzzle, it is theoretically possible for parts of a puzzle to allow apparent solutions unintended by its creator. The Dedication Puzzle's payoff is only a probability statement:

Test all the names that you think might be related to Shakespeare's Sonnets. Those that you do not find are either not related to them in any important way or were unknown to the composer. Those that you do find have a certain probability of being so related, with individual odds varying according to the length of the name and external evidence of that person's relevance to the Sonnets.

In order to have a basis for judging the significance of solutions to the puzzle, we need to understand the probability of finding such constructs by chance. Let's discuss how seriously we should take the appearance of the names that we are finding in the dedication.

## A Basis for Comparison

Every so often, an enthusiastic linguistic detective writes a book purporting to reveal encoded messages in a certain text. The most popular sources in this regard appear to be the Bible and the prophecies of Nostradamus. To get their messages, proponents use a great length of text, a variety of "decoding" methods, multiple styles of solutions, and open-ended interpretations of the answers. The result is nothing more than data fitting. To demonstrate how easy it is to generate such messages from so much text and using so many methods, Brendan McKay answered one author's challenge, issued in Newsweek, June 9, 1997, to wit, "When my critics find a message about the assassination of a prime minister encrypted in Moby Dick, I'll believe them." ${ }^{6}$ Using the author's methods, McKay found messages about the assassination not only of a prime minister but of countless other famous figures.

Why is the Dedication Puzzle different? There are six main reasons. The Sonnets dedication is a short text, there is only one
(Continued on page 20)

Dedication puzzle (continued from page 19) proposed method of deriving a solution, the expression of the messages is the same each time (a name), the messages derived pertain to a narrow and specifically relevant subject, and the puzzle's solutions have predictive value.

The final two points are particularly important because brevity and singularity of method and result alone are no guarantee of validity. Even within a short 143-letter sequence, one may extract numerous strings of sequential letters that would be recognized as names. We can even use the Dedication Puzzle to concoct"messages" such as "this is allwrong." Any string of 143 letters can provide the spelling for many things. Even given our otherwise severe restrictions, some "solutions" are merely artifacts, just like the messages in the "Bible Code." The primary limiting qualifier is what names or messages appear. The Dedication Puzzle's validity is not determined by how many words we can derive therefrom but by how many names from a specific predetermined list we can find.

If, for example, we could find 20 embedded names (the approximate number of significant names I have found in the Dedication Puzzle) in a Biblical passage of 143 letters, and all of them pertained to the Bible story in which the passage appeared, we would have another example of what we have in the Dedication Puzzle, and we would be reasonable in postulating deliberate design. The list we have now is the list that an Oxfordian would have made in the first place (though with Mary Herbert only in the list of Producers). All seven names deleted from our starting list with the exception of Anne Vavasor were proposals from nonOxfordian sources, and all remaining names are compatible with the Oxfordian case. On this basis, they constitute a predetermined list.

An important test of a code's authenticity is its predictive value. Had the Allies broken a German code in 1942 and found nothing but texts about past events, they might have been justified in suspecting a hoax. When codes infact predicted the events that they described, such as planned attacks, the code breakers could be sure that the codes were real. The "Bible Code" cannot be a code (or even a puzzle) because it cannot be deciphered with a method that leads to successful predictions of unknown (for example, future) events. As we will see in a separate publication about Oxford's pseudonyms, the Dedication Puzzle does contain information that has led to the discovery of previously unknown historical facts.

The pertinent question we need to answer to determine the puzzle's validity is, "What are the odds of particular sequences of letters showing up?" We can test this question in two ways: (1) by determining the probability of finding all of our particular names in other texts of the same length, and (2) by determining the probability of finding names from any other list in our particular text.

## The Incidence of Other Names in the Dedication Text

What are the chances of finding other names, averaging the same number of letters as the names in our list, in the Sonnets dedication? To answer this question, my statistician took the string of real names used in the tests in the first article (see Endnote 10 therein), divided it into sequences of $9,10,11,12,13,14,15$ and

| \# letters in "name" | \# "names" tested | \# found | \% found |
| :---: | :---: | :---: | :---: |
| 9 | 96 | 50 | 52\% |
| 10 | 86 | 37 | 43\% |
| 11 | 78 | 30 | 38\% |
| 12 | 72 | 25 | 35\% |
| 13 | 66 | 14 | 21\% |
| 14 | 61 | 7 | 11.5\% |
| 15 | 57 | 6 | 10.5\% |
| 16 | 54 | 3 | 5.6\% |
|  |  | Table 1 |  |

16 letters. ${ }^{7}$ and then searched the Dedication Puzzle to see how many of each length appear as solutions. Table 1 shows the results.

To determine the probability of finding ten pre-chosen full names (ignoring Elizabeth the queen for the time being) that are the same length as the ones herein proposed as solutions to the Dedication Puzzle, we must multiply these percentages together according to the length of those names, which are $9,10,10,11,12$, $13,13,14,15$ and 16 letters long. To determine the probability of finding only the five longest names (see next discussion), the numbers are $.21 \times .21 \times .115 \times .105 \times .056=.0000298$, or about 1 in 33,500 . For all ten names, they are .52 x .43 x .43 x .38 x .35 x $.21 \times .21 \times .115 \times .105 \times .056=.0000003813$, or 1 in 2.6 million.

These probabilities might understate the probability of finding our particular ten names by chance, because our names are not independent. Some of them are enough alike that the appearance of one of them will increase the chances that another one appears. Clearly if "William Herbert" appears, for example, the likelihood of "Philip Herbert" or "Mary Herbert" appearing is enhanced. The same is true for "Mary Herbert" and "Mary Fitton" and for "Vernon" and "Vere." Let's test, then, for the appearance of our ten names in other texts comprising 143 letters.

## The Incidence of the Dedication's Names in Other Texts

For this test, I chose (1) the opening portion of the Book of Genesis in the Bible and (2) one page each from 13 stories in The Canterbury Tales by Chaucer. ${ }^{8}$ In the latter work, we took care to choose pages that did not repeat proper names, in order to eliminate any repetition bias on that basis.

Combining the results, we have the following incidence out of 200 143-letter sequences. The ones that appear in fewer than 30 percent of the cases are shown in bold. ${ }^{9}$

| Philip Herbert | $10(5 \%)$ |
| :--- | :--- |
| William Herbert | $25(12.5 \%)$ |
| Henry Wriothesley | $25(12.5 \%)$ |
| Elisabeth Vernon | $36(18 \%)$ |
| Emilia Bassana | $58(29 \%)$ |
| Mary Herbert | $73(36.5 \%)$ |
| Thomas Thorpe | $84(42 \%)$ |
| Mary Fitton | $88(44 \%)$ |
| Edward Vere | $119(59.5 \%)$ |
| George Eld | $132(66 \%)$ |

The individual test results (not shown) confirm that the relative rarity of each name is consistent across texts. In both cases, Philip Herbert, William Herbert, Henry Wriothesley and Elisabeth Vernon are the most difficult names to find. Emilia Bassana is next. The other five names have a higher chance of appearing in the Dedication Puzzle by chance. This is wonderful information because it means that the names that matter most to our research into the key players in the Sonnets are precisely the ones that show up least often as puzzle-type solutions in other texts. In other words, if we were to throw out the five most commonly found names, we would lose no name of consequence, just two extremely doubtful candidates (Fitton and Mary Herbert), two bit players (Thorpe and Eld) and Edward Vere, who is already named as E. Ver in Rollett's code. We would still have the Producers, the two most qualified candidates for the Youth, the most qualified (as we will see later) Dark Lady and perhaps another character as well.

Recall that the publisher, Thomas Thorpe, is the only name in the list to be found from the beginning to the end of the earlyand presumably original-portion of the dedication; this condition raises the probability that his name is there on purpose. To test the probability of finding his name in this manner by chance in other texts, we programmed a computer to count the number of times that "Thomas Thorpe" appears before the end of the sequence in 20098 -letter sequences from the same portions of Genesis and Chaucer. The answer is 5 , which is just 2.5 percent of the time. I think this result bolsters my conclusions about the original text and who composed it.

This leaves us with only four common solutions-Mary Herbert, Mary Fitton, Edward Vere and George Eld, which we could disregard on the mere concern that they might be there by chance. Recall that Mary Herbert appears by her married name, contrary to the puzzle's convention, and (as we will see later) there is no evidence that she is the Poet. As we will also see later, Mary Fitton is an extremely low probability candidate as a character in the Sonnets. Edward Vere is a perfectly valid expression of Oxford's name (see "Veres and de Vere" in the Winter 2002 Shakespere Oxford Newsletter), but if one were nevertheless to object, the name Edward Vere is unnecessary, as we have his name already from the Rollett solution. I would miss George Eld, but he's hardly a major player, and he shows up by chance in $2 / 3$ of our randomly selected, 143-letter texts. Moreover the solution, "George Whetstone," is likely intended as a pseudonym of Oxford's, which increases the chances of George Eld" showing up by chance to nearly 100 percent. So, if we so choose, we could dispense with these names without regret.

To find the probability of multiple pertinent names appearing by chance in the same text, one must multiply the percentages. The probability that every one of the longest five names (averaging 14.2 letters) is in the Sonnets dedication by chance is .00004078 , or about 1 in 25,000 . The probability that every one of the shortest five names (averaging 10.4 letters) is there by chance is .02649 , or 1 in 50 . The probability that they are all there by chance is .00000108 , or roughly 1 in a million.

We checked these results by seeing how many of our 143-letter sequences would contain any combination of $0,1,2,3,4$ or all 5 of the five longest names. If the probability is 1 in 25,000 for all five showing up together by chance, then we should not find many, if any, among our 200 sequences.

Table 2 shows the results:

## Combinations Found from the List of Names

| Genesis (100) |  | Chaucer (100) |  | Both (200) |  |
| :--- | :---: | :--- | :--- | :--- | ---: |
| 0's | 51 | 0's | 42 | 0's | 93 |
| 1's | 34 | 1's | 35 | 1's | 69 |
| 2's | 12 | 2's | 17 | 2's | 29 |
| 3's | 3 | 3's | 6 | 3's | 9 |
| 4's | 0 | 4's | 0 | 4's | 0 |
| 5's | 0 | 5's | 0 | 5's | 0 |

Table 2
As expected, all five names fail to show up even once in our 200 test sequences. In fact, no combination of four of the five names shows up even once. A combination of any three of the five names shows up 9 times in 200 , or 4.5 percent of the time. (These are not a specifically chosen three names but any three out of the five. Combinations from a larger list are far easier to find by chance than the same number in a specific list.) The most common result by far -found in nearly half of the cases -is that none of the names show up. These results support the results of our first test.

We repeated this test for combinations of all ten names. In 180 out of 200 cases, or 90 percent of the time, we find in any 143-letter sequence no more than half of the names on our list, and those are typically among the five shorter names. The average number normally found is three. Again, this is not three out of three names specifically chosen but any three out of our list of ten.

To answer our original question, then, it is a bit less difficult ( 1 in 25,000 vs. 1 in 33,500 ) to find our top five names in a 143letter text than to find randomly selected others. This result is surely due to the fact that we have two Herberts among those names. To find all ten of our particular names in randomly selected 143 -letter texts is $2 / 5$ as difficult ( 1 in a million vs. 1 in 2.5 million).

If we factor in the special way in which Thomas Thorpe appears, the probabilities of deliberate design increase. For the first five names plus Thorpe in his special manner, the probability of chance occurrence is $.00004078 \times .025=.00000102$, or about 1 in a million. For all ten names, using the special case for Thorpe, the ratio is $(.00000108 / .42) \times .025)=.0000000643$, or less than 1 in 15 million.

These are impressive numbers, but when we investigate further, we will find 12 more embedded names, seven of which are the most important among Oxford's pseudonyms apart from "Shake-speare." With this added evidence, the deliberate construction of the Dedication Puzzle becomes nothing less than a certainty.

## Let's Make a Deal

The preceding discussions of statistical probability should be enough to indicate that the Dedication Puzzle is real and intentional. Many people, however, are wary of statistical arguments. They might ask, "Well, couldn't it still be coincidence?" If you are one such person, I invite you to try to make the puzzle work with other solutions. Without using the Sonnets dedication as a guide, create your own list of at least eight names (or any other words or random letters) of at least 9 but no more than 16 letters each and averaging 12.3 letters. Then see how many of those strings of letters show up in one run-through of the dedication, starting at any point. I can guarantee, from the statistics, that you will not be able create any list from which most of the names, much less all of the names, appear. In fact, the inapplicability of your concoctions to the
(Continued on page 22)

## Dedication puzzle (continued from page 21)

dedication will surely impress you. I urge you to repeat this process until you experience what the statistics mean.

Perhaps I should demonstrate with a single example what the result will always be. To that end, join me as we test the puzzle for every human being that orthodox Shakespearean scholars, i.e., Stratfordians, assert is known or rumored to have come into contact with the money lender/grain hoarder from Stratford-Upon-Avon who was christened Gulielmus Shakspere. As detailed in Ogburn's book, various people used at least eight spellings of his first name and 15 spellings of his last name, which produce 120 possible spellings of his full name. If you would like to count them as 120 names, that's great, but I'll play my side with a handicap and allow any one of the possible combinations to stand for our main man. The same goes for the last name of the ten other members of the Shaksper family. Let's meet the entire cast and crew, in no particular order:

William Shaksper (with 120 spelling options, including "William Shakespeare"), the money lender, grain hoarder, possible playbroker and perhaps the greatest writer in all history
Anne Whately, the woman whom on November 12, 1582, Shaksper got a license to marry
Anne Hathwey, the woman named the next day as Shaksper's wife in a bond taken out to protect a bishop from any consquences resulting from the officially insufficient marriage ceremony between her and Shaksper
Anne Hathaway, a woman from nearby Shottery who married William Wilson on January 17, 1579, and whom orthodox scholars nevertheless assure us is Shaksper's wife
William Wilson, the husband of Anne Hathaway of Shottery
Gilbert Shaksper (by any spelling), Shaksper's brother Richard Shaksper (by any spelling), Shaksper's second brother Edmund Shaksper (by any spelling), Shaksper's third brother
Jean Shaksper (by any spelling), Shaksper's sister
Ann Shaksper (by any spelling), Shaksper's other sister
Henry Shaksper (by any spelling), Shaksper's uncle
John Shaksper (by any spelling), Shaksper's father
Hamnet Shaksper (by any spelling), Shaksper's son, who died at age 11
Susanna Shaksper (by any spelling), Shaksper's daughter
John Hall, Susanna's husband, Shaksper's son-in-law
Judeth Shaksper (by any spelling), Shaksper's other daughter
Thomas Quiney, Judeth's husband, Shaksper's other son-in-law
Richard Quiney, Shaksper's friend
Adrian Quiney, Richard's father, who referenced a loan from Shaksper to R. Quiney
John Clayton, whom Shaksper sued in 1600 for a loan of $£ 7$ dating from 1592
Margaret Wheeler, whom Judeth's husband impregnated, causing Shaksper to disinherit him
Abraham Sturley, who wrote to R. Quiney about acquiring a loan from Shaksper
Mary Arden, in connection with whose property Shaksper and his father were named in a legal proceeding
Hamnet Sadler, a neighbor for whom Hamnet Shaksper was named Judith Sadler, his wife, for whom Judeth Shaksper was named (misspelled, apparently)
Henry Carey, the Lord Chamberlain who oversaw the theatre where

Shakespeare acted
Francis Langley, proprietor of the Swan theatre in Southwark, who was named with "William Shakspare" in a "writ of attachment"
Richard Burbage, supposed actor friend of Shaksper
John Heminges, supposed actor friend of Shaksper
Henry Condell (or Cundell), supposed actor friend of Shaksper
Will Kemp, who is on record as having acted with Shakespeare
Edward Alleyn, a prominent actor who presumably would have acted with Shakespeare
Henry Chettle, who wrote the appended letter to Greene's Groatsworth of Wyt that mentions "Shake-scene"
William Dethick, who had to defend himself in 1602 against charges from a heraldry official of granting arms to twenty-three undeserving commoners, including Shaksper; later discharged
Ralph Hubaud, who sold $£ 440$ worth of "tithes" to Shaksper as an investment
Leonard Digges, who wrote verse for the First Folio and is postulated to have known Shaksper
Thomas Russell, stepfather to Digges, who is postulated to have known Shaksper
James Mabbe, who wrote verse for the First Folio and was a friend of Digges
Cuthbert Burbage, who testified in 1635 that "Shakspere" had owned shares in the Globe theatre
King James (or James Stuart), who licensed certain actors to ply their craft, including "Willm Shakespeare"
Augustine Phillippes, one of the licensed actors, whose will left 30 shillings to Shaksper
William Sly, one of the licensed actors who presumably worked with Shaksper
Robert Armyn, one of the licensed actors who presumably worked with Shaksper
Richard Cowly, one of the licensed actors who presumably worked with Shaksper
William Combe, who sold some land to Shaksper
John Combe, who was part of the land deal and who left Shaksper five pounds in his will
Thomas Whittington, a shepherd in the Hathaway household whose will instructed executors to recover a loan of forty shillings made to Shaksper's wife
Thomas Greene, the town clerk of Stratford who recorded one of Shaksper's land deals
J. Greene, someone referenced in the above document

Christopher Mountjoy, Shaksper's London landlord in 1604, whom he sued in 1612
Philip Rogers, an apothecary to whom Shaksper lent two shillings and whom he sued for that amount plus damages, totaling $£ 1,15 \mathrm{~s}$, 10d
William Wayte, who took out "sureties of peace" against Shaksper and three others in 1596
John Addenbrooke, whom Shaksper sued for £6 plus damages
Robert Johnson, who leased a barn from Shaksper in or before 1611 William Johnson, co-signer on an investment property that Shaksper bought in 1613
John Jackson, co-signer on the same property
Francis Collins, the lawyer who drafted and witnessed Shaksper's will

That's 57 people, with 120 spelling options for William

Shaksper, 15 for each of the other 10 people named Shaksper and two for King James. The names in the list (counting each name only once, regardless of the number of renditions) average 12.3 letters, which turns out to be exactly the same as the average for the ten full names found as potentially deliberate solutions to the Dedication Puzzle.

We have already concluded that several of the individual first or last names listed above (Edward, Henry, Mary, Philip, Robert, Thomas, William and Greene) were probably deliberately embedded, so the probability of finding each of the full names that include one of them goes way up. "William" was deliberately embedded for William Herbert, for example, so that helps William Wilson, William Combe, William Johnson, William Wayte, Will Kemp, William Dethick and William Shaksper to appear as a solution. In fact, fully 20 of the above-listed people (i.e., over 1/3 of them) share a name with one of our presumed deliberately embedded names, and one of them shares both of his names with deliberately embedded names. This will significantly raise the number of names that we will find compared to how many would appear were there no deliberate puzzle.

Now, before you read the next paragraphs, take a guess as to how many of these names can be found in the Sonnets' dedication, starting from any point, in a single turn of its letters. Remember, if you think that coincidence plays a determining role in the results from our Sonnets list, you must guess somewhere between half and all of them, i.e., 28 to 57 names.
(Drum roll.) Out of 57 names (with 316 spelling options among 12 of them to make them easier to find), and with the understanding that over $1 / 3$ of them share at least one name with a full name that we have shown to be already there, the number of names in the above list that can be found embedded in the dedication is...

5 (five): Robert Armyn the actor, Thomas Greene, the clerk who recorded one of Shaksper's land deals, Hamnet Sadler, the neighbor after whom Shaksper named his son, Philip Rogers, the apothecary whom Shaksper sued, and Thomas Whittington, the shepherd who lent 40 shillings to Shaksper's wife and was never paid back. This is $8.8 \%$ of the names; $91.2 \%$ of them do not show up.

Think about some of the entries that do not appear. "William" was already embedded for William Herbert, but William Sly, with just three additional letters, isn't there, even though the dedication makes available ten $S$ 's, six $L$ 's and a $Y$. "Henry" is already embedded for Henry Wriothesley, but Henry Carey, with just five additional letters, is not there. "Greene" is deliberately embedded, but J. Greene, which has only a single additional letter, is not. Exceptionally short names such as John Hall, Mary Arden and Will Kemp are not to be found. These results reveal not only the rarity of finding names that fit the rules butalso the importance of having found those that pertain to the Sonnets.

Now consider that the real answer to our question is not 5 but 1 (one). Remember, I dashed off this loose test to satisfy gut feelings, so I did not want to impose any restrictions that would make a doubter suspicious. Among the five names we find, however, four of them were partially or fully programmed in from the start! The "Philip" in Philip Rogers is already intentionally there for Philip Herbert, the "Thomas" in Thomas Whittington is there for Thomas Thorpe, the "Robert" in Robert Armyn is there for Robert Greene, and the entirety of Thomas Greene's name is already there, as Thomas Thorpe and Robert Greene are designed into the puzzle. The fact of deliberate embedding, then, may have
quintupled the number of names that show up in this study.
To conduct a proper test of random appearance, we will make two adjustments to the list. First, we will exclude all but the first "Shaksper," since the name Shaksper itself fails to appear in the puzzle and it might appear biased to count an additional ten of them. Next, we will exclude the 20 names that share one or both components with names considered to be purposefully embedded name, as keeping them skews the results positively. Let's do the test again using the 27 independent names (spotting King James an extra variation) from the above list. Among those, only one full name shows up by chance in our test: Hamnet Sadler. ${ }^{10}$

One name out of 27 is just $3.7 \%$. Fully $96.3 \%$ of the independent names are not there. Although the list of names we have tested has its own biases and commonalities, these results are impressive. They suggest that if we were to create any list of 10 independent names (i.e., names not already embedded in the puzzle on purpose) pertaining to Shaksper (or to Michael Drayton or Mickey Mouse, for that matter), the probability of finding them all in the Sonnets dedication would be $(.037)^{10}$, or $4.8 \times 10^{-15}$, which is 1 in 200 trillion, which is for all practical purposes zero. The conclusion is clear: There is a deliberate puzzle, and it was designed to be exclusive, which is why the chance of a non-embedded name appearing is so low.

## Keys to the Dedication Puzzle's Exclusivity

How did this puzzle get so exclusive? Why are the odds so low of finding solutions by chance from pre-made lists? There are several reasons, but the most important is that missing from the text entirely are the consonants C, J, K, Q, X and Z. This means that we will never find Kings, Queens, Jacks, Shakspers or anything else with even one of these letters in it.

To insure the puzzle's exclusivity, then, the composer may have consciously listed all the letters of the alphabet required for his names and then deliberately excluded all those he didnotneed for that purpose from his composition. This would have been an excellent method of assuring an exclusive puzzle that would admit few bogus solutions. We therefore may have yet another reason why the language of the dedication is so stilted. Its creator composed it without the benefit of six letters of the alphabet.

## The Crucial Matters of Spelling and Eligibility

When I first investigated the possibility of a larger scope to the puzzle, I almost concluded prematurely that Henry Wriothesley was the only embedded name that pertained to characters in the Sonnets. I could not find (queen) Elizabeth, whom I knew was referenced at least once in the Sonnets, I could not find Emilia Bassano, a strong Dark Lady candidate, and I could not find Elizabeth Vernon, whom three of the Sonnets may address. Isoon discovered that modern scholars are using certain spellings for some of the names that in fact were not the ones commonly used in Elizabethan times. When I discovered that Emilia spelled her last name Bassana, it suddenly appeared in the puzzle. When I came across a portrait of Elisabeth with her name spelled with an " $S$ " emblazoned across the top, I found her name in the puzzle, in fact, 23 times, as we will see. When I discovered a book on Elizabeth Vernon and then applied the proper spelling, her long name gloriously appeared. Recall that Anne Vavasor, whom Ogburn had suggested as the Dark Lady, is not there. As I researched the subject, I found that the case for Vavasor as a character in the Sonnets is virtually nonexistent, agreeing with her non-appearance in the
(Continued on page 24)

Dedication puzzle (continued from page 23)
puzzle. Thus, an inapplicable name with only 11 letters did not fit, while the correct name with a whopping 15 letters did.

Repeatedly, the puzzle fit what was true and accurate. When names were incorrect or misspelled, they typically were not there; when they were correctly identified as Sonnets-related and properly spelled, they were. These are the practical results of a deliberately exclusive puzzle that has a low probability of finding any other set of names by chance.

## A Note on Uniqueness

As we saw in the first article, Thomas Thorpe used his method of hiding names in another of his published dedications (to Barnfield), and Ben Jonson used it in the inscription on the Stratford monument. The consistency of the method across associated texts strengthens the case for deliberate intent.

As far as I know, no one has ever described this method of hiding information. That the method is unique surely suited the composer's purposes, as his world was likely limited to a handful of people who would be amused with the game of deconstructing the intended messages or (more likely) applying a decoder (see sidebar in the first article) to reveal them.

This uniqueness served a purpose. Had the composer used a familiar method of hiding his messages, he would have failed in hiding them. The puzzle and its contents would have been public knowledge long ago. People have been looking for types of ciphers already known from other sources throughout Shakespearean literature for a long time, and all efforts have failed. That the composer chose a technique that was not generally employed explains why no one has found it over the years.

I have tested every name seriously considered to be a candidate for the Dark Lady, the Youth and the Poet. This exercise has allowed us to eliminate as viable candidates some of the names proposed for these roles. This result already constitutes a substantial contribution towards furthering our understanding of the people behind the Sonnets. We will examine each candidate more closely in future articles.

## No Rival Poets

Sonnets 78-86 refer first to "another" and soon afterward to "others" who have been writing poetry extolling the Youth. To the annoyance of the poet, the Youth apparently enjoys the verses. Although scholars obsessed with the detail in the Sonnets commonly label this reference as a Rival Poet, the Sonnets refer to writers in the plural, for example, from Sonnets 82 and 83 , "...when they have devised...their gross painting" and "I think good thoughts whilst others write good words...."

The Sonnets' reference to rival poets in the plural pertains to the Dedication Puzzle in an important way. A single Rival Poet might be a character of consequence, one whose name we might expect to find embedded in the puzzle. Yet the bulk complaint about "others" is little different from griping about fleas. "Others" is utterly impersonal; it is not even "the others" or "those others," which could imply personal, specific rivalries. In fact, the Poet's generalized annoyance indicates that he and they were not close. At best, then, the so-called "rival poets" are a minor reference in the Sonnets; at worst, the capitalized label "Rival Poet" is inaccurate as well as an unjustified glorification of bit players in the drama. Nevertheless, if these writers are important to the personal mystery behind the Sonnets, the Dedication Puzzle should tell us who they are. Let's see where an investigation takes us.

As far as I have been able to determine, the following twelve men have been proposed, sensibly or otherwise, as a Rival Poet, under either the Southampton or Pembroke identity for the Youth: Barnabe Barnes, George Chapman, Samuel Daniel, John Davies (of Hereford), Francis Davison, Robert Devereux, Michael Drayton, Ben Jonson, Gervase Markham, Christopher Marlowe and Philip Sydney. ${ }^{11}$ Since the Sonnets text indicates two or more rival poets, we would have to find at least two names to make a case that the names of rival poets are embedded in the dedication.

When we go through the exercise, what do we find? Not a single name among those listed above as a possible Rival Poet is embedded in the dedication. ${ }^{12}$ Obviously the puzzle maker (quite properly, in my opinion) did not consider the rival poets key players; in fact, he probably did not consider them at all. The term "rival poets" does not have the personal status to be placed alongside the Dark Lady, the Youth or even another possible character whom we will investigate as the Shared Love, and the non-appearance of their names in the Dedication Puzzle says as much. It also speaks, once again, to the exclusivity of the puzzle.

## Ubiquitous Elisabeth

There are a whopping 23 E's in the dedication, and the especially long 9 -letter first name ELISABETH can be spelled from every one of them in a single run through the dedication. The modern spelling of Elizabeth exclusively places $a$ " $z$ " in the middle. In the queen's time, though, the name was commonly spelled with an "s": Elisabeth, as shown at the top of the accompanying portrait. ${ }^{13}$ Sir John Davies spelled it this way, too. In his poems, of Astraea and To the spring, from Hymns of Astraea, published in 1599, he spelled the queen's name in Latin, "Elisabetha" Regina. That's the way the composer of the Dedication Puzzle spelled it, too.

The name that appears 23 times is not Jennifer or Kimberly but Elisabeth, a common name in England when the Sonnets were published, making this solution topical. Since $E$ is the most common letter in the dedication, it is impossible for any letter sequence of any length to appear as a solution more times than Elisabeth does.

The puzzle maker seems to have implied that the ubiquitous name Elisabeth is abig key to unlocking the meaning of the Sonnets and that the woman behind the name is a primary driving force behind their story. In discovering this ubiquitous solution to the puzzle, we have two new mysteries. Who is this Elisabeth, and why does her name so permeate the text of the dedication? It probably does not refer to Elizabeth Vernon because - as I will argue later - she is not the Dark Lady and therefore not a key addressee of the Sonnets, and, besides, her name is already embedded in the Dedication Puzzle in full. The name of Oxford's second wife, Elisabeth Trentham, is not in the puzzle, nor is there any known reason why it should be. While the ubiquitous expression of the name could be some other Elisabeth, most considerations point to it being the queen. Scholars agree that Sonnet 107 refers to the death of Queen Elizabeth; line 5 reads, "The mortal moon hath her eclipse endured." As Duncan-Jones explains, "...the only really convincing [date for this sonnet] is also the most obvious. The 'wonderful year,' 1603, saw the eclipse, or death, of the 'mortal moon,' Elizabeth...."14

Expressing only the queen's first name would have been enough in her case, and only in her case. In the Elizabethan context, adding "Tudor" when referring to the queen would have been as superfluous as adding a last name to "Elvis" today, besides which it just wasn't done. Contemporaries referred to her as

Regina or Queen or by way of mythology or astronomy but not as "Elizabeth Tudor." The DNB entry, with equal respect, is simply "Elizabeth." Therefore we should not expect the creator of the puzzle to have included her last name in order to indicate the queen. Indeed, we might expect that the puzzle maker would have chosen to avoid using her last name and even the oftused suffix, "Regina." After all, he was hiding secret messages, which means that they pertained to sensitive matters. If you live in a


Queen Elisabeth totalitarian state andare doing a puzzle because you are afraid to say something out loud, you just might refrain from adding Regina. "The queen? Oh, no, I meant Elizabeth Smith!" Still, we have hardly confirmed this suspicion as a fact, and some other Elizabeth may someday prove more pertinent.

## Testing for "Elisabeth"

My statisticianalso tested for the role of chance in the appearance of "Elisabeth" from every $E$ in the dedication, 23 times. According to our computer test, "Elisabeth" can be spelled from every $E$ in 20 ( 8 from Genesis and 12 from Chaucer) of the 200243 -letter sequences, which is 10 percent of the time. The number of $E$ 's in those 20 texts varies from 12 to 23. Only three of those 20 texts had $23 E$ 's, and none of them had more. So out of 200 texts, we found only three in which "Elisabeth" appeared 23 times, which is 1.5 percent. So depending upon how you conceive the question, the probability of our having found "Elisabeth" spelled 23 times in the Sonnets dedication is between 1.5 and 10 percent, or from 1 in 10 to 1 in 67. This test does not prove that the name is there 23 times deliberately, but it is highly suggestive that it is. Even the larger ratio of 10 percent puts this finding in the same area of probability as our three rarest full names.

This, however, is only one way to look at the question. Elisabeth is a name that, according to HankWhittemore and others, is crucial to the story of the Sonnets. It is right on topic. If we were to create millions of 9 -letter strings of letters from all the names in the world and find out how many of them would appear 23 times among a million random texts of 43 letters, the number would be extremely small. If a name is what we're after, it is interesting that this is the one we find.

## Multiplying the Probabilities

Now, to compute the probability for a chance appearance of all our names showing up as they do, we must add Elisabeth's appearance to the mix. For all ten names, with Thorpe appearing in a special manner, and for "Elisabeth" to show up 23 times as well, we have $.0000000643 \times .015=9.645^{-10}$, or less than 1 in a billion
chance of coincidence.
In other words, if you were to ask all 6 billion people on earth -every man, woman and child-to make a list of nine names of $9,10,10,11,13,13,14,15$, and 16 letters, one separate name of 12 letters and one separate 9 -letter name starting with $E$ (excluding the ten individual names that may have been purposely embedded), the number of those lists in which all nine names would appear as a solution to the Dedication Puzzle, the 12 -letter name would appear from beginning to end of the first 98 letters and the 9-letter name would appear from each $E$ would be 6 .

Even this result greatly overstates the probability of finding randomly selected names this many times, because $E$ is the most common letter in the alphabet, and our conditions covered a 9 letter namestarting with $E$. If we were to allow our 6 billion people to choose any 9-letter name for the final entry, the odds are that no submitted solution would work.

However we compute the probabilities, the fact that they are in the vicinity of these magnitudes implies, and statistically assures, a deliberate puzzle and purpose. However we look at the numbers, we are not dealing here with coincidence. The results of these tests confirm that a deliberate puzzle maker was at work in writing the dedication to Shake-speare's Sonnets.

## A Tool for the Construction of the Puzzle?

To get a visual picture of our whole galaxy of names, I constructed a figure that would display all of the solutions to the Dedication Puzzle simultaneously. Since solutions to the puzzle can begin at any point in the dedication, the most sensible way to present them is in the form of a circle. Figure 10 (see page 26) shows all the names so far discovered in the puzzle, together in one circle figure. In this illustration, each name starts at the point where it is displayed, meets its successive letters clockwise around the circle and ends before reaching the starting point. This figure renders the ten full names as a constellation of bright stars against a Milky Way of Elisabeths. The list of solutions to the Dedication Puzzle now comprises every individual character likely addressed in the Sonnets'text andeveryone likely involved in producing the publication.

Figure 10 may answer the question of how the person who composed the Sonnets dedication went about creating his unusual puzzle. Once he listed all the names that he wanted to include as solutions, it would have aided his task to write some form of an original dedication in the form of a circle. Then he could use that figure as a tool, working into the dedication new words that would serve his purpose of spelling out all the names in a single rendition. In going about his task, he would have needed a method to separate the words, and putting periods between them would have worked nicely. As you can see in the reproduction of the dedication in Figure 1 in the first article, periods separating the words, which serve no other readily apparent purpose, survived to the printing.

## Clearing up Initial Questions about the Puzzle's Construction

Now we can explain why the eight words in the latter portion of the dedication are puzzling as prose: They were chosen for an ulterior purpose. Consider this fact: The proposed original part of the dedication embeds only one full name and just seven spellings of Elisabeth's name out of fourteen E's. With just the eight added words, the composition embeds the full names of at least eight (and as many as ten) key players in the story of the Sonnets and
(Continued on page 26)

## Dedication puzzle (continued from page 25)

their publication as well as the name "Elisabeth" 23 times without a single miss. The complexity of the composer's task in fulfilling that purpose left him little choice but to sacrifice, at some point in the message, pristine sentence construction for his desired end. We can also understand why the dedication includes odd phrases such as "wisheth the well-wishing," with so many of its letters to be found in "Elisabeth."

We may also postulate that even some words in the "original" portion of the dedication may have been changed. The entire phrase, "BEGETTER OF THESE INSUING SONNETS," as well as "ETERNITIE" and "EVER-LIVING" are unnecessary in spelling out Thomas Thorpe's name, which was almost certainly an aspect of the original composition. These words may or may not have been part of it.

The discovery of the puzzle answers critics of the composer's choice of words. When we read condescending things such as, "Thorpe fantastically describes 'W.H.' as being the 'begetter' of the sonnets," ${ }^{15}$ we can understand that the B, E and T in that word are precisely placed to produce many of the 23 renderings of "Elisabeth." Thorpe may have chosen that unusual word initially, but the odds are, given its awkwardness, that he did not. Whoever finished the puzzle probably inserted it to fulfill his larger task. We may not even presume that Thorpe used precisely those words from which his name appears as a solution to the puzzle. They could have been modified or replaced as well while retaining the required letters.

Given these observations, we should applaud the composer's economy and recognize that his success in making the remainder of the dedication sensible enough to qualify as English composition, no matter how strained, was no mean achievement. We may further conclude that while it could have an obscure meaning that we have not yet surmised, "THE FORTH" in the 6-2-4 encryption is almost certainly meaningless, a concession to the larger project.

## Pursuing Thoroughness

The Dedication Puzzle has prompted testing names that scholars had already decided upon. There may be participants in the Sonnets project or a character in the Sonnets whom no one has proposed for the role. A wider investigation would allow us to discover any information that has escaped scholars. To that end, I ran the hundreds of names from Charlton Ogburn's index and half a dozen other sources through the puzzle to see what names would emerge. Omitting those names already investigated from Sonnets scholarship and my investigation into Oxford's pseudonyms (to be presented elsewhere), only 13 Elizabethan-era names ${ }^{16}$ turn up. (They average 12 letters in length). Nearly half of them share a name (Thomas, Henry, Robert or George) with one of the embedded names that are surely there on purpose, increasing the odds of their having turned up by chance, making this list longer than it would have been absent a deliberate puzzle. It is quite a short list given the large database that I searched.

For a number of these people, one might imagine some connection to the Sonnets project, much as Stratfordians imagine all sorts of things about the life of Shakespeare. But (with an admittedly limited search) I could find no evidence linking any of them to it. Thus, we have not a single name to add to the list of Sonnets-related solutions that we have already generated from modern scholarship. This exercise pretty well establishes that scholars over the centuries have successfully winnowed out the


Figure 10
probable candidates for the various Sonnets-related characters.
This result does not mean that we definitely have tested every possible name. Ogburn's 900-page book and my other sources could have inexplicably failed to mention some person important to the Earl of Oxford, or perhaps I am ignorant of a spelling variant for some name that did not make the cut based on its spelling therein. I am hardly an Elizabethan scholar and so remain open to any suggestion or research that pertains to this investigation.

## Are Names Hidden within the Sonnets?

It crossed my mind that perhaps Shakespeare used this type of word game to hide names in the Sonnets themselves. After all, he refers cryptically to hiding his "invention in a noted weed/That every word doth almost tell my name." But this method of hiding letters, to my satisfaction, anyway, is not to be found in the Sonnets, at least not in any way that challenges the probability of chance occurrence. This is bad news and good news. It means that we lack further clues of this kind to the characters in the Sonnets, but it also means that we are not reading a chance occurrence into any text where we might wish it to be.

The next article will begin discussing the relevance-or lack thereof-of the 11 names potentially relating to Shakespeares Sonnets that we have found embedded in the dedication.
© 2000/2005 Robert R. Prechter, Jr.

## End Notes

1 Diana Price names six candidates and adds that there have been "at least fifty others." (Shakespeare's Unorthodox Biography: New Evidence of an Authorship Problem, Greenwood Press, October 2000.)

2 While Sir Walter Raleigh's name is sometimes included in this list, his proponent, Delia Bacon, argued not that he wrote the canon but that he produced it through a circle of literary friends, including Edward (de) Vere, Henry Paget and three people whose names do not appear in the Dedication Puzzle: Francis Bacon, Philip Sidney and Thomas Buckhurst. No one today advocates Raleigh or Paget.
3 This list comprises all candidates for the Poet listed on the Shakespeare Identity website, www.shakespeareidentity.co.uk.
4 Ogburn, Charlton. The Mysterious William Shakespeare. McLean, VA: EPM Publications, 1984. p. 613.
$5 \mathrm{http}: / / \mathrm{www}$. shakespeareidentity.co.uk/roger-manners.htm
6 Newsweek, June 9, 1997.
7 One might argue that "Henry Wriothesley" should be counted as only 15 letters because it is missing the final Y. One might also contend that to create the clever ending required three letters, for a larger total of 18 letters. I am content to let AND stand for Y and count it as a single letter.
8 Chaucer, Geoffrey. (1970). The Canterbury Tales. Penguin Books, pp. $89,108,131,172,174,190,211,237,272,309,355,414$ and 478.
9 In almost every test, names appear more frequently in the Chaucer text than the Bible text. The Chaucer text contains extremely rich language, with longer words and a panoply of differing consonants. My guess is that this feature increases the probability of finding names. One can hardly say such a thing about the Sonnets dedication. Therefore, our Chaucer and combined figures might overstate the probabilities relative to what one would find in the average text.
10 Perhaps as a result of this exercise we will soon see a Stratfordian tome on why Hamnet Sadler holds the key to the Shaksper mystery: "He was a neighbor and would surely have had copies of the plays. His name sounds like Hamlet, so he must be the man behind Shakespeare's most famous character." Etc.
11 Five are listed on p. 65 of Shakespeare's Sonnets. (Katherine Duncan-Jones, 1998. Arden Shakespeare.)
12 I am informed anonymously that Walter Ralegh is also a Rival Poet candidate, although I have not seen him so listed or found poetry in his name praising Southampton or Pembroke. Ralegh's name does appear in the puzzle, but one name does not a group of poets make. If the inclusion of his name is deliberate, his role in Oxford's life is surely as one of Oxford's occasional pseudonyms.
13 Sobran, Joseph. (1997). Alias Shakespeare. New York: The Free Press, p. 139.
14 Duncan-Jones, Katherine. (1998). Shakespeare's Sonnets. Arden Shakespeare, p. 22.
15 Dictionary of National Biography (1917). "Thorpe, Thomas," Vol. 19, Oxford University Press, p. 803.

16 They are Robert Armin, Peregrine Bertie, Robert Bertie, Angell Day, George Delves, George Fanner, Martin Frobisher, Stephen Gosson, Samuel Harsnett, Thomas Heneage, Ralph Lane, Henry Lee and Antoine [de] Lomenie.

# Sidebar: A Review of the Statistical Tests by Richard Fu, PhD candidate, Georgia Institute of Technology 

The validity of Prechter's argument in"The Dedication Puzzle" centers around the question of whether the occurrence of certain names simultaneously in this short text of the dedication to Shakespeare's Sonnets is a mere coincidence or an intelligent design by the mindful author. The question can be framed into a statistical problem as follows:

In statistical terms, we wish to test the null hypothesis that such occurrence is a coincidence against the alternative hypothesis that it is a deliberate design. In order to test the null hypothesis, we need to calculate the probability that such constructs occur naturally in an English text with similar length and grammatical patterns. However, it is extremely difficult to mathematically solve the probability problem, if not impossible. The cause of the complexity is the necessity to incorporate the grammatical and idiomatic constraints imposed on the literary texts around the early $17^{\text {th }}$ century into the probability calculations of a combination of letters in a certain order.

Fortunately, Monte Carlo methods are powerful tools at our disposal to help find probabilities that are hard to assess analytically by conducting repeated random experiments. The existence of numerous English literary works around the Elizabethan time enables us to conduct repeated experiments in a random fashion.

In the sister paper, Prechter has conducted random experiments in accordance with the principles of Monte Carlo methods to assess the probability of the natural occurrence of those names [Henry Wriothesley, Philip Herbert, William Herbert, Elisabeth Vernon and Emilia Bassana] in similar English texts. From the 200 random experiments, "no combination of four of the five names shows up even once. A combination of any three of the five names shows up 9 times in 200 , or $4.5 \%$ of the time." These results demonstrate that the probability of the simultaneous occurrence of those names is extremely low in a natural setting.

The ensuing question is how to interpret the numbers in the context of the problem. In other words, how low is the probability that is sufficient to support Prechter's argument? In most fields of social science, $5 \%$ is a widely accepted rule of thumb to confirm the statistical significance. For example, in empirical economic studies involving regression analysis, a probability value below $5 \%$ of a particular coefficient is considered sufficient to imply a non-random effect. Hence, it is my opinion that the empirical probabilities obtained from the experiments on Genesis and the Canterbury Tales are statistically significant to reject the null hypothesis in favor of the alternative, which is exactly what Mr. Prechter argues in his paper.

