

'Shakespeare' as metaphor; squaring the circle

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Abstract

On the front pages of the Shakespeare First Folio of collected works (1623), contemporary playwright Ben Jonson's tells the reader that 'Shakespeare' rather represents a number than a person and that this number is π , the reconciling principle in the Rosicrucian 'squaring the circle' metaphor. Referring to Da Vinci's Vitruvian man, the number π reconciles the square as representation of the physical-material with the circle of the immaterial-spiritual domain. The many mutually confirming references to the number π , the square and the circle, are made at many levels, both in the enigmatic poem 'To the Reader' and in the as well as enigmatic Droeshout engraving on the opposite page of the frontispiece. These findings allow a single explanation of the many anomalies and curiosities which have been discussed with respect to the First Folio frontispiece over the past centuries.

Introduction

In a study into the more fundamental aspects of sustainability, 'sustainable development' was associated with value orientations (Van Egmond; *Sustainable Civilization*, 2014)¹. This brought about a circular pattern of mutual coherent, but opposing value orientations. Sustainability only can be achieved as long as a dynamic equilibrium can be maintained in between fundamental opposites. In a subsequent search for a better understanding of these value orientations, and in particular its tendency to become one sided, van Casteren² suggested the allegoric literature of the northern European Renaissance to be relevant, as it dates back to the period just before the one sided descent into the euphoric period of materialization and industrialization. Her suggestion referred to the Transformation of Allegory in which Clifford³ states that in allegory 'the energy expended in discovering meaning was justified, because it could lead to an awareness of values worthy of pursuit'. Against this background, van Casteren studied the allegoric works of Shakespeare⁴, in which she found many references to the circular pattern of value orientations. For example in the last scene of the *Tempest*, (almost) all characters enter the circle which the magician Prospero (prosper O) has drawn on the stage, representing the reconciliation of the fundamental opposites. In many of his works, Shakespeare refers to this circular pattern as 'O', for example in 'an O without a figure' (*King Lear*). The objective of the present paper is to explore further confirmations about the position of the circular value pattern in Shakespeare's worldview.

Squaring the Circle

In the Rosicrucian Enlightenment⁵, Frances Yates describes how the northern European Renaissance emerged from its Hermetic and Neo-Platonic roots and in particular was characterized by a revival of the work of the first century Roman architect Vitruvius (85 – 20 BC). Yates points to the influence of Vitruvius work on scholars as Leonardo da Vinci (1452-1519) and Palladio (1508-1580) and later on Shakespeare's contemporaries John Dee and Francis Bacon, who played a very significant role in the European Renaissance. In the *Art of Memory*⁶ she more specifically shows the influence of Vitruvius on the memory systems of Hermetic philosophers like Bruno and Fludd, which at first were directed to the ability to memorize in the ages before printing, but later gradually developed into 'masques' and plays. It demonstrates that architect and philosopher Vitruvius inspired both scholars, playwrights and theatre building. Both the very influential scholar John Dee and play writer Ben Jonson had annotated

copies of Vitruvius in their libraries and frequently refer to him. According to Jonson,⁷ 'poems should be constructed like buildings, according to proportional principles which resemble those in Vitruvian architecture'.

Vitruvius describes how the figure of a man with extended arms and legs fits both into a square and into a circle, saying that Man is simultaneously part of both the physical and the spiritual world, as magnificently drawn by Leonardo da Vinci, later to be shown in Figure 3. It is the metaphor for unifying the physical and spiritual human aspects. In Renaissance, the Vitruvian image of Man within the square and the circle became the favourite expression of the relationship between the physical-material (earth) and the (spiritual) heaven, between microcosm and macrocosm. Maintaining equilibrium between the two would require the square and circle to have the same dimensions. In mathematical terms, this (unsolvable) problem of constructing a circle with the same periphery as the square is described as 'squaring the circle'.

In the words of Palladio, one of the scholars revaluating Vitruvius ideas, 'the most beautiful, and most regular forms, and from which the others receive their measures, are the round and the quadrangular'. Along the same lines, Fludd distinguished 'round art', which was about ideas, the spiritual and the imaginary, and 'square art', about corporeal, physical things. And specific to the work of Ben Jonson, Thomas Greene⁸ concludes his 1970-essay by saying that

'the dual image of circle and centre is an organizing principle of all Ben Jonson's work. The circle (suggesting perfection, harmony, equilibrium in cosmos, society, household, soul) is doubled by the centre (suggesting governor, king, house, inner self). Both images are represented as achieved ideals in the masques; in most of Jonson's other works, the circle appears to be broken, and the centre, if there is one, is associated with solitary and upright independence'.

Elsewhere in his essay, Greene writes:

'Most of the works in Jonson's large canon-including the tragedies and comedies, verse and prose can be categorized broadly in their relation to an implicit or explicit centre. That is to say, one can describe an image or character or situation as durable, as centre-oriented and centripetal (I shall use these terms as more or less synonymous) or one can describe them as moving free, as disoriented and centrifugal, in quest of transformation. To sketch these categories is to seem to suggest absolute poles, ethically positive and negative' (end quote).

It represents an Aristotelian ethics, with the centre as the Aristotelian mean, corresponding to the navel as the centre of an inscribed square and circle in Vitruvian man.

Given the strong relation between philosophy and architecture in Vitruvian thought, this pattern became also dominant in theatre building. In *Theatre of the World*⁹ and the *Art of Memory*, Frances Yates describes how the theatres of the time, like the Globe theatre on the south bank of the Thames, from which the Lord Chamberlain's Men', later renamed as 'the King's Men' operated, and the Fortune theatres at Cripplegate on the north bank were based on the Vitruvian philosophy and architecture. In discussing Fludd's memory theatre and the Globe theatre, she states that the fundamental geometry of square and circle was evidently the preoccupation of the designers of both theatres, which were built with much the same specifications, be it that the Fortune had a square, and the Globe had a circular ground plan. It has been suggested that the circumferences of square and circle were identical, but no confirmation could be found for this.

It is concluded that 'Squaring the Circle' is the central Vitruvian metaphor, running through northern European Renaissance, with parallel manifestations in philosophy, (renewed Aristotelian) ethics, poetry, plays and architecture, certainly also theatre architecture.

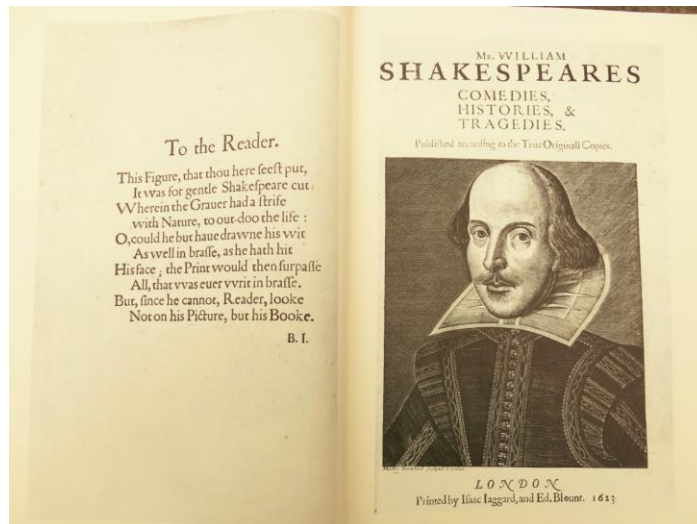


Figure 1 First pages of the First Folio (1623) with Ben Jonson's poem and Droeshout's engraving.

The Frontispiece of the First Folio

In search for the significance of this metaphor as an eventually underlying worldview of Shakespeare, the frontispiece of the First Folio of 1623 was studied. In this First Folio, Shakespeare's collected works were published for the first time, seven years after his death in 1616. The choice to focus on the front page followed from the general understanding as given by Leah S. Marcus (1988)¹⁰:

“The comely frontispiece of the late Renaissance was like a veil covering a book's content and preserving it from vulgar eyes; only those learned enough to ‘read’ the book's visual schematization on the title page had earned the right to enter the text itself.”

The frontispiece of the First Folio contains an enigmatic poem of Ben Jonson, ‘To the Reader’ and, on the opposing page, the associated engraving by Droeshout, apparently showing ‘Shakespeare’ (Figure 1).

Before looking in detail to poem and engraving, the preoccupation of Vitruvianism with numbers has to be recalled, partly related to hermetic-cabalistic backgrounds. Many refer to the work of Francis Bacon, a contemporary scholar, writer, philosopher, musician, mystic, horticulturist and lawyer, who also published on cryptography and invented the binary cipher system. But also Jonson and many other contemporaries employed the meta-languages of architecture and mathematics, using numerical conceits as structural devices in works of literature. W.A. Johnson (1994) reports that Ben Jonson had excess to Neoplatonic number symbolists, like Ficino, Pico della Mirandola and Macrobius¹¹. Against this background, the enigmatic poem ‘To the Reader’ is examined in search for links to the ‘squaring the circle’ theme.

The enigma of the poem; the ‘figure’ π

The poem has a title and 10 line, of which 5 are indented:

To the Reader

*This Figure that thou here seest put,
It was for gentle Shakespeare cut;
Wherein the Graver had a strive
with Nature, to out-doo the life;
O, could he but have drawn his wit
As well in brasse, as he hath hit
His face; the Print would then surpass*

*All, that was ever writ in brasse.
But, since he cannot, Reader, looke
Not on his Picture, but his Booke.*

The first line of the poem starts with 'This Figure' apparently referring to the picture (the engraving of 'Shakespeare' on the opposite page). Several authors have noticed that the word 'figure' has the plural meaning of both 'shape of a person', 'symbol representing a number' and 'drawing / picture, expressing something'. Given the use of the word 'figure' instead of 'picture', Dawkins¹², expects that 'the words of the verse therefore can be read as meaning that there is a figure or number to be found in the verse which was 'for gentle Shakespeare cut'. Dawkins states this 'figure' to be the number 'TWO', formed by the first capital letters of the first three non-indented lines. Although this 'TWO' is expected to play a role in the puzzle, it is unlikely that this is 'This Figure', as the figure (number) '2' does not meet the further specifications which are given by the poem:

- in the first place, this figure (number) 'was cut (for gentle Shakespeare)'; in case of a number, a cut or truncation is only possible in case of decimals;
- 'the graver had a strive with nature to out-doo the life' (number), which is understood to mean 'to surpass the original' or making it better than the original; apparently it is hard to reproduce the number to its full extent; It might also suggest that we are looking for a non-natural number (which cannot be 2, as 2 is a natural number);
- printing the original number would require more (brass) than ever used for engravings; if the 'wit' of the figure (number) was drawn (engraved) in brasse, the print would surpass all that was ever writ in brasse;
- but 'since he (the engraver) cannot' draw the wit of the figure, the original number is apparently too large to draw.

So we are looking for a non-natural number which, if engraved, would require all the copper (brasse) in the world. For gentle Shakespeare this number was cut (truncated). Even without the above described inclination to the circle motif, there is an obvious answer to this enigma from the natural sciences perspective:

The number which meets the specifications given by the poem is the non-natural, transcendental number π .

The number π is the ratio between the circumference πD of a circle and its diameter D . In terms of the radius R , the circumference is $2 \pi R$. We know that π has an infinite number of digits. To out-doo or surpass the life (the real π), so much (so many digits) had to be written that this of course would surpass all that was written before and would require infinite amounts of copper. In the last two lines, the author of the poem tells us that this is impossible.

Given the apparent plural meaning of 'figure', 'this Figure that thou here seest put' is both the figure 'Shakespeare', on the opposing page, and the figure (number) π . Shakespeare and the number π are interchangeable. Jonson considers the 'wit' of Shakespeare as infinite as the information content of this number π , having an infinite number of digits. 'For gentle Shakespeare' the infinite number of digits of the number π ($= 3.14159265358979.....etc.$) is cut to two digits (3.14), given not only the impossibility of writing (or engraving) the real value of π , but also the impossibility of expressing or 'drawing' the real 'wit' of Shakespeare. The reference to the number TWO, as the first letters of the first non-indented lines, suggests that the number π is 'cut' to two digits (3.14

It might be argued that there are more transcendental numbers which meet the requirements, such as the number e , the base of the natural logarithm. But there is an additional hint; the objective is 'to outdoo the life : O'. As mentioned in the introduction, there are strong indications that in Shakespeare's work, the O represents the circle, so it is the graver's intend 'to out-doo the life O', the real circle, which requires the real π .

But since he (the graver) cannot express the real π or the associated knowledge ('wit') of Shakespeare; the full 'wit' of π had to be cut to two digits, which means that his face had to remain hidden. Thus

the 'Reader' is expected not to look *on* (!) the Picture but on 'his Booke'. Johnson¹³ refers to a poem of Jonson from 1621, where he praises King James as 'the book of all perfection':

*Read him as you would doe the booke
Of all perfection, and but looke
What his proportions be;
No measure that is then contrived
Or any motion thence derived,
But is pure harmonie.*

The parallel between the two poems suggest that also in 'To the Reader', 'Booke' has the meaning of perfection. As the reader cannot find this perfection in the necessarily imperfect (truncated) picture (of 'Shakespeare'), the reader has to find this perfect 'wit' in its allegorical form in the 'Booke'.

The Droeshout engraving; the Figure which was cut

This finding raises the question whether the engraving on the opposite page not only shows a person (Shakespeare) but also relates to the number π as well ?

In his influential study on the First Folio, Greg¹⁴ comments that the engraving 'is not pleasing and has little technical merit'. On the other hand Greg describes with how much care and how much efforts the First Folio has been made. Why then accepting a low quality picture of the author on the front page ? Many other authors have studied and commented the Droeshout engraving and they also were far from complimentary. Well-known comments include descriptions such as 'monstrous' and 'ludicrous' and 'a hard wooden staring thing', while the large forehead gave rise to the presumption of representing a 'horrible hydrocephalous development'. Many authors have remarked on:

- the (collar and) head which are 'cut' from the body; the 'collar' seems to separate the two in an unnatural way; the head is floating above the body;
- the garment which has two left arms, according to the judgement of tailors;
- the eyes which are drawn as two right eyes, according to medical specialists;
- the unnatural and asymmetrical side seam, on the person's right-hand side, veering toward the centre row of buttons.
- the long face and the extraordinarily large forehead;
- the asymmetrical hair poufs; at eye level on the right-hand side of the face and way down under the earlobe on the other side;
- the thick non-anatomical line from the left ear to the chin, eventually suggesting a mask mounted to the back of somebody's head;
- the mouth, which floats weirdly to one side, and the asymmetrical lips, centred under the left nostril;

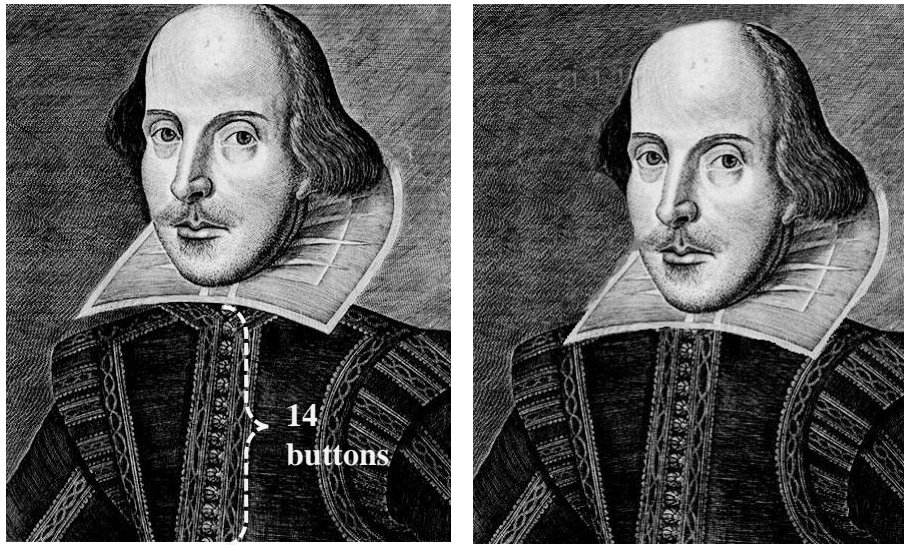
The fact that this picture, which is 'of little technical merit', has been placed on the front page, notwithstanding all these 'not pleasing' features, suggests that these unusual features have been introduced on purpose, 'to cover the content of the book with a veil'. This assumption is supported by the two left arms, which in Rosicrucian and Masonic symbolism indicate hidden meaning.

In the original engraving (Figure 2; left), the head (and collar) is floating above the body, indeed suggesting that 'the Figure was cut', where 'figure' in this case has the meaning of a person ('Shakespeare'). The Droeshout engraving thus confirms the message of the poem:

Both the Figure 'Shakespeare' and the figure / number π are cut.

This brings about the suggestion that further indications might be found in case the 'cut' is undone. So as a first step, this separation is undone by relocating collar and head in the proper position onto the body. The result is shown by Figure 2 right.

But when the 'Figure' is cut, as in the original Droeshout engraving on the left, the number of visible buttons on the garment increases to 14, which most likely hints at the decimal representation of π as 3,14.



*Figure 2. The Droeshout engraving:
the 'Figure' un-cut (right) and
the (original) 'Figure' cut, after which 14 buttons become visible (left).*

This suggests that the collar represents a separator (comma) or divide (slash) in a number. Interpreting the strange 'collar' as the separating comma, the 14 buttons indicate the digits beyond / below the comma. This brings about the question whether the '3' (in 3,14) can be found in the upper half of the picture, above and before the separating collar / comma. Although less subtle and convincing than the poem's enigma and its numerical structure which will be discussed later, it might be speculated that the extraordinary large forehead intends to denote the figure '3', at the right-hand side of the face, stressed by the hairline and also by the curious thick line from the ear to the chin. Such and other extraordinary features in the Droeshout engraving eventually might be related to 'the figure / number π ' as well. There are many reasonable options for this. But given the lower level of certainty in the absence of mutual confirmation of these findings, these results will not be reported here. In the light of the many other confirmations found, they are less relevant.

The Greek symbol π

So far the references to the number π , are all made without referring to the Greek symbol π , which we use today (and in this paper). Although less significant, it should be noticed that the symbol π appears in the garment as soon as the 'Figure' is un-cut (Figure 2 right). The π -symbol then is formed by the lower front side of the collar, together with the seams of the garment. The earlier mentioned 'unnatural and asymmetrical side seam, on the person's right-hand side, veering toward the centre row of buttons' contributes to this effect. As soon as the collar and head of the 'Figure' are 'cut', as is the case in Figure 2 left, the π -symbol is cut as well.

The appearing of the π symbol in the garment in case the cut is undone, is the only case in which reference is made to π as the Greek-symbol, rather than its numerical equivalent 3,14 or the reference to 'pi', in which 'pi' stand for 'perimeter'. Although for this reason less relevant for the general conclusions, this raises the additional question whether the (Greek) π symbol was already known by those who gave Droeshout instructions for the engraving. This very well might be the case.

According to current knowledge¹⁵ the Greek symbol π was introduced at a later date than the First Folio publication in 1623. It is known that William Jones used the Greek symbol π in 1706, most likely as an abbreviation of the word ‘periphery’ (of a circle with unit diameter). However, there are also indications that the English mathematician William Oughtred used the symbol π already in 1647. It is known that the circles around (the mathematicians) Bacon and Dee were in contact, among others, with the mathematician François Viète, who before 1600 already introduced many abbreviation symbols in mathematics. The author of the poem may very well have been aware of the (Greek symbol) notation of π , as he must have been part of the most outstanding intellectual frontrunners of his time.

In any case it is very likely that the engraver Droeshout has been commissioned to draw a picture which represents both the figure Shakespeare and the figure (number) π . Inevitably this resulted in a picture with many artificial, extraordinary features. Most of these features are explained by the finding that the picture refers to both a person and a number, which are both ‘cut’.

The Square and the Circle

As indicated earlier, leading characters in the ‘Shakespeare’ scene like Ben Jonson and John Dee many times refer to the Roman architect Vitruvius. Just like Bruno and Fludd, they stand in the hermetic-cabbalistic tradition, in which measure, geometry and number were thought to be of divine nature. A.W. Johnson reports that ‘Ben Jonson could have gained sufficient knowledge of basic number symbolism to have conceived the numerological conceits by which he structured his masques’. So it might well be that also in the overall numerical structure of the poem a structuring principle can be found with references to (the number) π .

Johnson describes how, more in general and in line with Palladian theory, Jonson positioned words like soul, mind, wit or muse in the centre of his poems¹⁶. Also in the present poem, the word ‘wit’ appears at its centre. Including the title ‘To the Reader’ there are 35 words before and 35 word after the word ‘wit’. Also from the perspective of content, the word ‘wit’ is the core of the poem.

Apparently, Jonson indeed is constructing this poem as a building, and this strongly hints at an underlying, structured pattern.

Given these expectations, the poem is further analysed to find eventual confirmation of the earlier found reference to the number π , and thus the circle, and to look for expected references to the ‘square’ as well:

The analysis starts from the many anomalies, deviations from the expected, in the overall structure of the poem in terms of lines and words:

- the most obvious feature is its overall structure of 5 indented and 5 non-indented lines;
- a second feature is the writing of 8 words starting with a capital letter where one would not be expected. In contrast to this unusual use of capitals, and surprisingly, the fourth line starts with a lower case: ‘with Nature’. Taking into account the very careful production process of the First Folio, including proof reading, it is virtually certain that these anomalies are deliberately introduced, not being the result of random writing errors.

The square

The most outspoken feature results from the 2 x 5 indented and non-indented lines. Both groups of five lines each contain 34 words. These 2 x 34 words for the two groups of 5 lines suggest a 34 x 34 square with its equal sides and a perimeter of 4 x 34. So, the square is formed by the 5 indented and 5 non-indented lines.

Johnson extensively reports the number 34 to be a special number in the works of Ben Jonson. The number appears many times in his masques and plays, although it remains rather unclear why this number was special to him.

However, there is an explanation which links the number 34 to the ‘squaring the circle’ theme: As indicated above, the unification of the material-physical and the spiritual has been interpreted throughout history as the unification of the square and the circle. This is achieved by equating the

perimeter of the square to the circumference of the circle, requiring $4 \times D$ (side of the square) to equal $2 \pi R$ (with R the radius of the circle). This question resonates an old mathematical problem addressed by ancient geometers, meanwhile proving unsolvable because of the transcendental nature of the number π , which cannot geometrically be constructed, as well as its irrational nature, because it cannot be expressed as the ratio between two integers.

....and the circle

The 'squaring the circle' principle requires the perimeter of the square to be equal to the circumference of the circle. From simple calculus, it follows that the circle with a circumference equal to the perimeter of a 34×34 square (4×34) has a radius of (almost) 22. In other words, the circle with a radius of 22 has a circumference of $2 \pi 22 = 4 \times 34$, the perimeter of the square, as indicated in Figure 3.

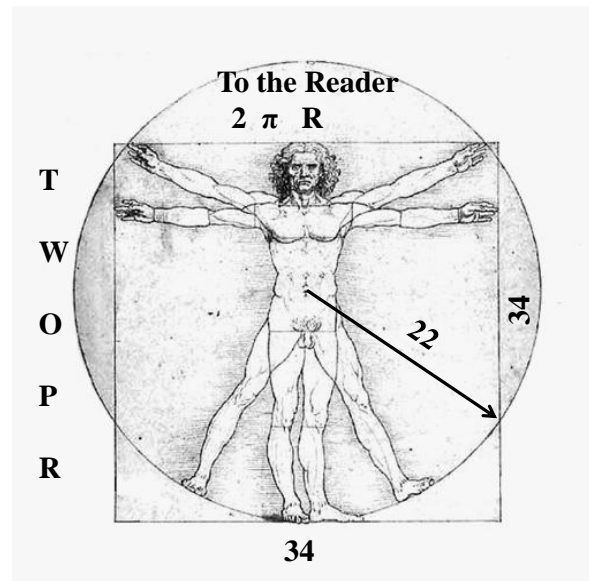


Figure 3 Derived 'squaring the circle' features superimposed on Da Vinci's Vitruvian man

But the number 22 immediately evokes the association with $22/7$, the well-known approximation of the number π by Archimedes. Up to the present day the ratio $22/7$ is used as an acceptable approximation of π . From the annotations in the books in his library, it is concluded that Jonson was familiar with the works of Archimedes. It is likely that the special meaning of the number 34 to Jonson, relates to the 'squaring the circle' radius 22, which in turn is associated to π via Archimedes' approximation of $22/7$. Following the same reasoning the question remains whether within the same 'square', a reference to '7' can be found.

This indeed is the case. Within the 'square' of the 2×5 lines, 7 words start with a capital letter without any grammatical reason to do so (thus called anomaly): Figure, Graver, Nature, Print, Reader, Picture and Book. Thus, the poem represents both the 2×34 word square and the corresponding (squaring of the) circle with a radius of 22, in combination with the 7 deliberately capitalized words referring to the number $\pi = 22/7$, and thus the circle. The numerical structure of the poem very strongly suggests that the square and the circle are the structuring principles of Ben Jonson's poem. The poem indeed appears to be constructed like a building.

A further confirmation that the poem is about the square and the circle is derived from the fact that both equal 'sides' of the square refer to the circle. However this requires some minimal application and explanation of (very simple) cryptography as it was use at the time. Given the poor scientific quality of cryptographic analysis over the last centuries, nowadays scientists generally have an

aversion against ‘hidden meanings’ and ‘cryptography’¹. Nevertheless in ‘the Advancement of Learning’ (1605) and later in the ‘Augmentis Scientiarum’ (1624) Francis Bacon describes the cryptographic systems that were in use at that time, to which he contributed himself to a very large extent. Some of these systems convert the sequence of letters into a sequence of numbers. By imposing a certain shift onto these sequences, other number sequences are obtained. In this way, hidden information can be added to an original text. This is called Caesar cipher after Roman emperor Julius Caesar, who invented or already used this system. In this system, every letter in 24-letter alphabet of that time ($i=j$ and $u=v$), is given a number; $a=1$, $b=2$ etc. By shifting the whole system for example two positions, $a=1$ becomes $1+2=3=c$.

To the Reader

The title of the poem ‘To the Reader’ starts with the phonetically ‘to’. Interpreting this as a (usual) instruction, simple Caesar cipher is applied as a required shift of two numbers/letters in the following word ‘the’. In ‘the’, letter t has the simple cipher value of 19, $h=8$ and $e=5$. The prescribed shift $+2$ then results in the fraction $22/7$:

To	t	h	e	Reader	
	19	8	5		
+2	21	10	7		
		2 2	7		
2		π		R	

In this interpretation the separator between nominator 22 and denominator 7 is the ‘0’ in between: 22 over 7. This means that ‘the’ stands for the number π . In ‘Reader’, the anomalous capital R, stands for R; meaning that the title ‘To the Reader’ thus translates into $2 \pi R$. This is a further confirmation that the whole poem is about (the metaphor of) the circle. It now also becomes clear why the first line starts with ‘This Figure’ where ‘The Figure’ would have been expected. ‘This’ suggests that the figure has already been mentioned earlier in the text. As the (hidden) title appears to be $2 \pi R$ this is indeed the case; this figure (the number π) is already mentioned in the title.

TWOPR

Applying the cipher-shift rule also in the vertical direction should require a $+2$ -shift for the word or letter following the vertical word ‘TWO’ formed by the three first capital letters of the non-indented lines 1, 3 and 5. The first capital letters of the remaining two non-indented lines 7 and 9 are H and B. In the same lines the two anomalies with notable capitalizations are P (Print) and R (Reader) appear. Consequent application of the instruction TWO would mean that the $+2$ shift in capitals has to be understood as shifting to the second next capitals thus P and R, which then results in TWO P R = $2 \pi R$.

The result is the message ‘ $2 \pi R$ ’ in both the horizontal (the title ‘To the Reader’ = $2 \pi R$) and in the vertical direction (TWO PR). This exactly confirms the (‘architectonic’) construction of the square, with equal sides of 34×34 words, both equal to $2 \pi R$, as depicted in Figure 3.

A final confirmation of the squaring the circle principle as the metaphoric meaning of the frontispiece is found in Frances Yates’ Theatre of the World (1969). She points to the fact that John Dee, who most

¹ Under strict scientific conditions¹⁷, cryptography could be relevant given the unambiguous fact that the encoding of messages was the practice of the day. Universal scientists like Francis Bacon and John Dee were counsellors to Queen Elizabeth and while travelling over Europe, they sent encoded messages to the queen about the foreign political and military situation (‘for your eyes only’). After the death of Queen Elizabeth in 1603, the regime under King James was gradually shifting away from the earlier Rosicrucian paradigms and the now heretic teachings were ‘encoded’ into plays and poems. Centuries earlier the builders of the cathedrals had done the same to escape the stake.

likely was the prototype for the magus Prospero in *The Tempest*, suggests his readers ‘to look in Vitruvius and there find Vitruvius’ application of the geometry of the square and the circle to men and to the building of temples which shall reflect the cosmic and human proportions in basis geometrical terms’. So the reader is expected not only to look on the picture of ‘Shakespeare’ or of Da Vinci’s Vitruvian man, but also and in particular on his (Vitruvius’) book. There he will find further references to the squaring the circle metaphor, which was at the core of the northern European Renaissance

Conclusion

It is extremely likely that Ben Jonson’s introductory poem ‘To the Reader’ on the front page of the 1623 First Folio of Shakespeare’s works, refers to the unnatural and transcendental number π (3.14 or 22/7), the ratio between the diameter and the circumference of the circle. The figure of ‘Shakespeare’ is equated to this figure (number) π . The poem is constructed as the synthesis of a square and a circle with the same perimeter / circumference. Jonson herewith indicates the Rosicrucian ‘squaring the circle’ theme, to be the central theme of Shakespeare’s works. This was literally inspired by Vitruvianism of which the ‘squaring of the circle’ was the philosophical core.

The Droeshout engraving shows both the figure ‘Shakespeare’ and the figure π (= 3,14); both are ‘cut’. If the cut is undone, both figures, Shakespeare and π , regain their original shape. The engraving thus confirms the interpretation of the enigmatic poem.

It is concluded that in the Preface of the First Folio of 1623, ‘Shakespeare’ is identified as (the number) π and the Rosicrucian ‘squaring the circle’ principle is found to be the central theme of the work, published under the name of ‘Shakespeare’. The ‘squaring the circle’ theme and the many references to the circle as a metaphor for the immaterial-spiritual domain and the square for the physical-material domain, is central to this philosophy, in which numbers and ciphers were equated with the divine. It is the unnatural and transcendent number π (in the poem stated to be identical to ‘Shakespeare’) which links the material world of the square to the spiritual world of the circle. ‘Shakespeare’ appears to be rather a principle, than a person.

These findings make it less likely that Shakespeare was a single individual. Presenting him on the prominent frontispiece as a metaphor for the Rosicrucian squaring the circle principle, suggests that ‘he’ is the symbolic representative of the Rosicrucian movement, to which many authors might have contributed. After the succession of Queen Elizabeth by King James in 1603 times were changing. As Deacon reports in his book on John Dee¹⁷, ‘the new century saw the beginning of a reaction away from the enlightened, inquiring liberalism of the neo-Platonists and Renaissance Magic and the mounting of a nation-wide drive against all suspected of witchcraft and magical practices’. Spiritual knowledge could not be brought into the open any more. The Rosicrucian ‘chemical wedding’, creating consciousness and self-knowledge by the reconciliation of opposites (the square and the circle), had to remain hidden, only to be revealed indirectly, via metaphors and allegories.

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