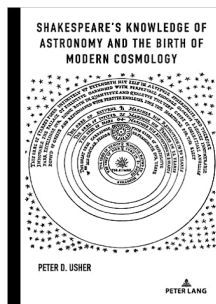


**BOOK  
REVIEW**

# Shakespeare's Knowledge of Astronomy and the Birth of Modern Cosmology

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ISBN-13: 978-1433191701

<https://doi.org/10.31275/20233119>

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Peter Usher's book joins the recent genre of scientific evidence gleaned from their own profession and is now aimed at shedding fresh light on a man who lived a literary life in the shadows. An entire library might be needed to house the books that have since been written in a vain attempt to provide the light missing between the resident wool merchant of Stratford-upon-Avon and the 884,647 words written by William Shakespeare. With close to 7,000 books already occupying the shelves in the Library of Congress in Washington, it is clear that literature abhors a vacuum no less than nature does: especially when faced with the absence of any substantial record existing between Shakespeare's work and the genius who wrote them.

Lord Dacre of Glanton, Hugh R. Trevor-Roper, Regius Professor of History at Oxford, made this clear when referring to Shakespeare. "[P]articularly in the last century (i.e. 19th), he has been subjected to the greatest battery of organized research that has ever been directed upon a single person. Armies of scholars, formidably equipped, have examined all the documents which could possibly contain at least a mention of Shakespeare's name . . . And yet the greatest of all Englishmen, after this tremendous inquisition, still remains so close to a mystery that even his identity can still be doubted"<sup>1</sup>. To which one internationally best-selling author, Bill Bryson, added in his *Shakespeare*. "By the time he is first mentioned in print as a playwright, in 1592, his life was already more than half over. For the rest, he is a kind of literary equivalent of an electron – forever there and not there."<sup>2</sup>

It is against this background that Peter D. Usher, Emeritus Professor at Pennsylvania University and author of three books on Shakespeare and astronomy, has explained in his own words: "The central thesis of this book is that Shakespeare knew of the various cosmological models of the Universe extant during his writing career, which contradicts the common belief that he fails to take account of contemporary developments in astronomy and cosmology" (p. 21).

The book commences by introducing readers to an efficient primer on the early state of astronomy when studies of the night sky were made by the naked eye from Earth's position at the center of the Universe. Although this was backed by common sense, astrology, the universities, Aristotle and the clergy, it was interrupted by Nicholas Copernicus' heliocentric system, *De Revolutionibus*; published in 1543 by the Lutheran mathematician G. J. von Lauchen (Rheticus) of Wittenberg University; having dedicated it to Pope Paul III. Two years later, the Pope convened the Council of Trent to condemn Protestant heresies and confirm Catholic doctrine. By 1563, this had become the cornerstone of Catholic doctrine and, later, an obstacle to Galileo's telescopic discoveries at the turn of the new century.

The author's quest is, therefore, to look back in time and seek evidence of Shake-



spere having embraced this 'New Astrology' as it filtered into the poet's life and his contemporaries. To what effect did it have, if any, upon his mind so as to suggest it as relevant vocabulary for a play he had in mind? By the closing decades of the 16th century, it had certainly become a legitimate exercise to seek for possible references to these celestial advances in the traditional way people were beginning to think about the sun and the stars. And so Usher has commenced his search in earnest with *Hamlet*, Shakespeare's major tragedy, for which he devoted four chapters.

Most interesting is the supernova SN 1572, which became visible in the November night sky that year. It would certainly have drawn attention to English astronomers: such as John Dee and especially the Digges' family, which enjoy an important place in the evidence accumulated by the author. Usher associates several of their members with *Hamlet*. It is, therefore, this star, he believes, that is referred to by watchers on the ramparts of Elsinore when Bernardo reports: "When yond same star that's westward from the pole / Had made its course t'illumine that part of heaven / Where now it burns." (p. 36, Table 3.2). Usher then joins with James Joyce, whom he credits with uniting this "New Star" with SN 1572 in his 1922 novel *Ulysses*.

Shakespeare's interest in nature is well known as a means of analogy to human events, and November 1572 makes a good choice for dating Hamlet's encounter with the ghost of his father, since it falls in line with the approach of Advent. "Wherein our Saviour's birth is celebrated ... And then, they say, no spirit dare stir abroad." (p. 29)<sup>4</sup> Shakespeare does indeed slip in occasional words to describe mundane events with astronomical language. He did this when referring to Hamlet having traveled from Wittenberg University to Elsinore and his intention to return as "most retrograde". Added to this, Claudius complains that Hamlet's stubbornness shows "a will most incorrect to heaven" (p. 31)<sup>5</sup> which he repeats as "a fault to heaven".<sup>6</sup> The fault being a reference to the imperfection of the perfect circles around which the planets are meant to travel according to Aristotle's philosophy and its influence on the Church. So far, this provides good evidence for Shakespeare's interest in astronomy, but notwithstanding the fact that these words are also found in astrology, which caused Elizabeth I to summon Thomas Allen, a mathematician and astrologer, for his advice concerning the appearance of SN 1572.

One must also remember that the Star of Bethlehem came under the heading of astrology when it made a similar appearance at the birth of Jesus, with ramifications for King Herod. Thus, five years later, when the Great Comet of 1577 passed close to Earth, it caused a prolific outburst of literature and argument. But Peter Usher's aim is to

advance Shakespeare into the community of those persuaded by the 'New Astronomy', for which Copernicus's heliocentric planetary system was gaining support in England, although not without dissent from the Church and its own astronomers. In particular, Christopher Clavius, a Jesuit mathematician attached to the Vatican. He was also Director of Advanced Instruction and Research at the Academy of Mathematics until 1610. Although doubting the heliocentric system, he acknowledged the flaws in Ptolemy's geocentric explanation. But the social, political, and religious unrest in England at that time, during which Shakespeare's patriotic *Histories* played their part in generating national support for both monarchy and country, is not touched upon in the book. It thus tends to leave a noticeable gap between Shakespeare's illiterate family background and Peter Usher's attempt to raise him to the educated level of discussing the 'New Astronomy' with members of the Digges family. The difficulty becomes more acute with Usher's display of the day-by-day diary of events in *Hamlet* (p. 36). This matches perfectly with the first appearance of the "New Star" SN 1572. The snag is, however, the time gap. Shakespeare was only eight years old in 1572. Whereas unlike Mozart at that age, who by then was an accomplished pianist with compositions to his name, Shakespeare had yet to become acquainted with a pen. No doubt Usher, having realized this potential weakness himself, sought to resolve the situation by adding to the questions that surround Shakespeare as having been the play's author. To achieve greater support for his thesis, he turns to the reputation of Leonard Digges (father of Thomas) as the author of *Hamlet* (p. 148). This, of course, redirects attention of the book away from explaining how Shakespeare came to know so much about astronomy, when having lived in a rural environment, divorced from any known connexion with men of letters. If Digges were the author of the Shakespeare canon, it would certainly explain any references that were made to the new astronomy. The book, therefore, becomes one in which the author's aim has become twofold. By seeking quotations from the plays of Shakespeare that appeal to an acquaintance with the heliocentric system put forward by Copernicus, it would also provide a salient step towards promoting Leonard Digges as a person qualified in astronomy to have been Shakespeare.

There is certainly no doubt that Shakespeare looked to the heavens for analogy, for he refers to it in excess of twenty times. It especially occurs in the analogy made to Digges' illustration (p. 16): when Lorenzo says to Jessica: "how the floor of heaven is thick inlaid with patens of bright gold: / There's not the smallest orb which thou behold'st / But in his motion like an angel sings"<sup>7</sup>. This certainly has the making of a contender for the author's

aim. Then again, when Hamlet remarks to Horatio. “There are more things in heaven and earth, Horatio, / Than are dreamt in your philosophy”<sup>8</sup> he may have had the new astronomy in mind; even though the topic was a reference to the ghost of his father. But Shakespeare does, more than once, refer to the stars and even the cosmos. *Hamlet* is again the source with his response to Rosencrantz (p. 50). “O God, I could be bounded in a nutshell and count myself a king of infinite space, were it not that I have bad dreams”<sup>9</sup> (p. 50). This reference to ‘infinite space’ became (and still is) a contentious issue that was promoted by Giordano Bruno, a contemporary of Shakespeare. Bruno had proposed that stars were centers of their own solar systems. For teaching this, he was eventually accused of blasphemy by the Inquisition; it having contradicted Roman Catholic doctrine, and he died at the stake in 1600.

Leonard Digges’ son Thomas, a mathematician and cosmologist like Bruno, had also promoted the idea of an infinite universe in 1576 by extending Copernicus’ orbit of stars to infinite space. Shakespeare refers to Digges’ vision of infinite stars in *Julius Caesar*, which is exemplified by: “The skies are paint’d with unnumber’d sparks, / They are all fire and every one doth shine”<sup>10</sup> But it is another of the author’s several choices from *Cymbeline*; which he treats as a characterized version of astronomical events that occurred between 1537 and 1612 (p. 104). One can understand the familiarity retained by celestial events in a professional astronomer’s mind and how they can be personalized into characters of a play according to favorable circumstances. But the comparison Usher makes is not unique. For this Shakespearian drama has the potential of greater appeal to those familiar with William Cecil, Lord Burghley. In many respects, he was as powerful as Cymbeline, and with a storyline to match on a one-to-one basis. This presents a problem to an astronomical simile.

Burghley had married twice, with children by both wives: two sons who left home and a virtuous daughter whom he wished to marry to a young man of his choosing. Burghley was also the guardian of three boys whom he brought up in his household. One of these young men he chose to become the husband of his daughter. But she refused her father’s choice and instead fell in love with another of the trio, whom she quickly married: much to the annoyance of her father. Before their marriage was consummated, her husband took leave and sailed away, but was spied upon during his absence abroad. Upon returning, he was told his wife had been unfaithful to him. This brief *précis* forms the background for Shakespeare’s *Cymbeline*. Burghley is *the King*; Anne Cecil is *Imogen*; Philip Sidney, Edward Manners, and Edward de Vere are the adopted trio; Sidney is *Cloten*, spurned by Imogen; de Vere is *Leonatus Posthumus*, whom she marries.

In the heavily censored world of Shakespeare’s England, it would be naïve to believe these comparisons would go unnoticed. Writers of anything considered anti-establishment were quickly punished: either by torture, imprisonment, mutilation, or even banishment. The author of *Cymbeline* – not to mention other of Shakespeare’s plays where similar comparisons are made: especially *Hamlet* – managed to live a charmed life having escaped these punishments. It has therefore been inferred by many that any search for the poet and dramatist who used Shakespeare as a pen name has only one solution; namely Lord Burghley’s son in law and the father of his grandchildren: Edward de Vere. Who but he could have repeatedly violated, without redress, the censorship imposed by the most powerful man in England?

This is not to deny Peter Usher’s excellent command of the New Astronomy’s relationship with Shakespeare, nor the evidence that exists to pursue this line of thought. His book is furnished with tables and illustrations, and a glossary to reinforce his argument. It is also well researched by orthodox literature relating to Shakespeare. There is little room for doubt that England’s greatest dramatist was sufficiently versed in the ideas of Copernicus, as well as Thomas Digges’ expansion of the heliocentric system to include ‘infinite space’, and quite possibly evidence from ‘spy glasses’ as an early form of the telescope. Although the evidence for Digges as the author Shakespeare, while being necessary to pursue as evidential, it is not sufficient; and falls some way short of other names worthy of Shakespeare’s laurels.

Usher’s discomfort with having complimented Shakespeare with up-to-date knowledge of the New Astronomy, yet without the assurance of who he was actually addressing, is given thought in his final chapter. There, he correctly cites the puzzle that surrounds Shakespeare’s original monument in Stratford as that of a merchant, with pen in hand. Presumably, to write his next invoice for the supply of wool resting beneath his pen. There is also his tomb beneath his bust, cursing anyone who dares move his body. (Someone certainly did, for his grave is empty). Both the monument and the tombstone contain a united cryptogram, initialed by Ben Jonson, confirming Shakespeare as a “scamp”, and vowing de Vere was the true poet. Usher also refers to Sonnet 80 (in fact 76), in which the poet admitted: “every word doth almost tell (fel in the original) my name.” It does! Because that word ‘every’ almost spells E Vere. Oxford had also encoded: “Lo E de Vere” between “My name” and “My argument”; which was endorsed by his secretary: “I, T. Nashe”. This information, together with the same message and much more by different writers, including Leonard Digges, appeared in Vol. 31 No. 4 in 2017 of the J.S.E. It also appeared

alongside another thoroughly researched appraisal using Bayesian probability theory by Emeritus Professor Peter Sturrock. This discredited 'Shakespeare the man' as a writer by a probability value of "one chance in 100,000." Were it not for the *cancel culture* that prevails against the 17th Earl of Oxford at university level, where fear of admitting the truth safeguards the reputations of those who would otherwise be discredited. It also acts as an impasse. Those affected understandably prefer to remain entranced by the passion of their devotion to the 'Bard of Stratford-upon-Avon': lest they awake as *Titania* did from her *Mid-Summer Night's Dream*; where she too had fallen passionately in love; only to discover upon opening her eyes that her love had been directed at an ass.

In conclusion, Peter Usher's book makes an interesting read. But I came away thinking his change of direction midway as he began to gather his evidence and entertain second thoughts about how Shakespeare's identity had tended to overshadow the importance of what he first set out to achieve.

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- <sup>3</sup> Hamlet, *The Alexander Shakespeare S.* 1985, Wm. Collins Sons and Co. Ltd. (1, 1. 36-38).
- <sup>4</sup> *Ibid.* (1.1. 158-61).
- <sup>5</sup> *Id.* (1.2. 95).
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- <sup>7</sup> *The Merchant of Venice*, 1964, Arden Shakespeare paperbacks, Methen & Co Ltd, (5.1. 58-61).
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