

A Critical Study of Various Theories on the References to Astrology and Cosmology in the Plays of Shakespeare

Alana Merritt Mahaffey, M.L.A. Candidate

Mentor: Dr.
Clint Atchley



Painting by H. Fuseli

William Shakespeare (1564-1616) lived and wrote during a period when the dynamics of English thought were in flux due to both the Renaissance and the Reformation. Discoveries made during that time, bolstered by the theories of a few independent thinkers and scientists, began to dismantle, and subsequently

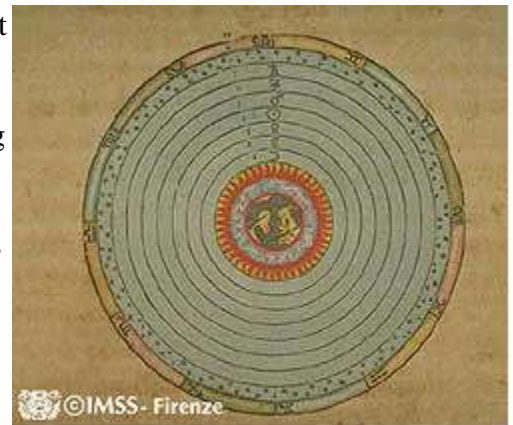
rebuild, ideas of order and human place in the Chain of Being. References in Shakespeare's works to astronomy, astrology, and cosmology reflect the popular ideas of his day, which were steadfastly opposed to the scientific ideas surfacing at that time. With an impressive understanding of astronomy and cosmology, it is very likely that Shakespeare was familiar with the new scientific explanations of the heavens, but his use of astronomy in his plays adheres to the popular, albeit flawed, beliefs to which Elizabethans held fast.

For the purposes of this paper, astronomy will refer to the science of the constitution and rotation of the planets, their moons, and the Sun and stars; astrology will refer to the belief system that evolved from the scientific study of celestial bodies which was utilized to explain and predict the influence of the stars, planets, Moon, and Sun on humans and human events. Cosmology, a branch of astrology, will refer to the collective ideas of the origins and structure of the solar

system. By reviewing the astronomical and cosmological theories and discoveries during his time, and by comparing them to the established beliefs of most Elizabethans, it will be shown how masterfully references to the heavens were used by Shakespeare to further theme, metaphor, and character and not, as some have speculated, to further his own opinions on the popular theories of astronomy and cosmology of his day. To the contrary, Shakespeare not only drew from the common knowledge of stars in the late 1500s, but also sometimes distorted facts in order to add to the richness of his plays.

Some critics, disregarding the author's poetic license to create and/or change known events to fit the circumstances of a particular play, have used Shakespeare's references to the heavens to discredit him. Previous inspection of the occurrence of astronomical and cosmological references in Shakespeare's works have yielded arguments that Shakespeare, for chronological reasons, may not have been the man he was purported to be, and that he was more likely Edward de Vere, the 17th Earl of Oxford. It is more likely, however, that the man who has been called Shakespeare was who he claimed to be, and that his knowledge of astronomy enriched his plays. Instead of giving proof to the argument that the Earl of Oxford wrote the Shakespearean plays, an objective study of astronomy references in the plays shows that several plays were most likely written after the Earl of Oxford's death in 1604.

The astrology of the Renaissance had roots in the ancient Greek culture. Ptolemy's *Tetrabiblos*, written sometime in the second century, contributed much to the organization of basic Greek concepts in this area. During Shakespeare's lifetime Neptune, Pluto, and Uranus had not yet been discovered, and the Sun and Earth's moon were considered planets. The astrology of Shakespeare's time was taken seriously and was employed by commoners, clergy, and nobility. Even physicians were expected to know concepts of astrology. By referring to long-established astrological terms and ideas in his plays, Shakespeare hoped to successfully convey themes and symbols that could be understood by a wide audience. In *All's Well That Ends Well*, the play's heroine, Helena, quips that Parolles, a coward and liar who purports himself to be a great man skilled in fighting, was born "when [Mars] was retrograde" rather than "when he was dominant" as Parolles earlier asserts (1.1.200-208). Knowing that Helena is well-schooled in astrology, she makes a very slicing criticism against Parolles. A retrograde Mars would signify deception and cowardice and, as Helena asserts, Parolles goes "backward when [he] fight[s]" (1.1.211).



Ptolemaic model of the universe

Retrograde motion, as alluded to in *All's Well That Ends Well*, was a concept that evolved from the geocentric model of the universe. In essence, it was an optical illusion. Planets, which seemed to move in one direction around Earth, their apparent center, would "reverse" their direction temporarily in the sky. Retrograde motion of Mars occurred approximately once every two years. It is important to note here that the concept of "retrograde motion" was not only confusing to men of Shakespeare's period, but, more importantly, was a seeming perversity because it was in direct contrast to cosmic order.

Copernicus, the Polish astronomer, had set forth his theory of a heliocentric universe in *The Revolutions of the Heavenly Spheres* only a few decades before the birth of Shakespeare. Galileo, born the same year as Shakespeare, would lend credibility to Copernicus' theory via observations made with his telescope. Copernicus' theory insinuated that the Earth was not fixed, but was a spinning, rotating mass, contradicting all religious and scientific beliefs of that time. Even though Copernicus' theory was known in Shakespeare's time, it was largely ignored in favor of the old geocentric model set forth in Ptolemy's *Almagest*, written nearly fourteen centuries earlier. The Ptolemeic model was agreeable because it preserved the hierarchy of outer space and seemed to be the most reasonable. This Elizabethan egotism is present in *Troilus and Cressida*, when Ulysses states that "[t]he Heavens themselves, the Planets, and this centre [Earth] / Observe degree, priority, and place" (1.3.82-83).

In "Hamlet and the Infinite Universe," a 1997 paper published in *The Elizabethan Review* Penn State astronomy professor Peter Usher argues that Shakespeare's *Hamlet* is an allegory of the opposing Copernican (or Digges) and Ptolemeic (or Tyconic) models. Usher's argument is grounded in his belief that "as early as 1601, Shakespeare anticipated the new universal order and humankind's position in it" (Usher online). Digges was a disciple of Copernicus, who believed the universe to be infinite, an opinion that philosopher Giordano Bruno publicly agreed with and for which he was burned at the stake. In Digges' model, the last of the spherical shells in which planets were contained was expanded into the infinite, and was filled with stars. Tycho Brahe, responsible for the Tyconic model of hybrid geocentrism, designed a model in which the planets orbited the Sun, and the Sun and Earth's moon orbited Earth. This did not explain retrograde motion, however. The Tyconic hybrid model appears in his book, *Recent Appearances in the Celestial World*, published in 1588, when Shakespeare was 24 years old.

In a letter written to Thomas Savile, a friend to whom Tycho sent his book, Tycho suggested that English poets use his work to compose "witty epigrams in praise of [Tycho]" (Usher online). In that letter, Tycho asked Savile to give his regards to Digges, a man known to the Shakespeare family. The letter also contained a portrait of Tycho standing under an arch that displayed the family shields of the Gyldenstiernes and the Rosenkrantz. If, as Usher asserts, Shakespeare had come into contact with that letter, and assuming Shakespeare was knowledgeable in the conflicting cosmological theories of the day, then his argument that Hamlet is an allegory of scientific controversies of the time begins to congeal. Two of the many other items that could support his claim that are put forth in the paper are: 1) Claudius is named for Claudius Ptolemy; 2) "Elsinore" is named for the King of Denmark's castle "Helsingor," under construction a short distance away from Tycho at the time of his letter to Savile. Usher adds to these arguments the following:

Shakespeare pinpoints Tycho's island of Ven when he has Hamlet speak the line: "I am but mad north-north-west. When the wind is southerly, I know a hawk from a handsaw." Thus madness is associated with Elsinore, where Claudius resides and which lies almost exactly north-north-west of Ven, while Wittenberg (where Copernicus had studied) lies in a southerly direction from Ven. It is from Wittenberg that appearances are correctly interpreted ... The royal couple express their desire that Hamlet not return to Wittenberg saying that such a course is "most retrograde to our desire." (Usher)

In a play so concerned with what “seems” and with what is “reality,” the contrasting models of cosmology, in addition to the problematic retrograde motion, would work well metaphorically. It is conceivable that Shakespeare uses Tycho’s letter, portrait, and theories from *Recent Appearances in the Celestial World* to his advantage in plays like *Hamlet*. It is more likely, however, that instead of veiling an elaborate allegory within a play, that Shakespeare would use the conflict between Tycho and Digges, and the popular ideas of spherical shells and retrograde motion to enhance his plays, not build his plays around these ideas.

Usher fails to realize that Shakespeare had no vested interest in affirming any scientific theory in play form; rather, Shakespeare’s concern was to entertain masses of Elizabethans. That is not to say Shakespeare was not interested in the theories themselves. Shakespeare would not need to study the works of these men in depth to know their surface arguments, for during the Elizabethan Era these arguments would have been circulating in the public, but only in the more educated circles, and Shakespeare would likely have at least been familiar with the men and their experimental math in relation to the structure of the universe. Men and women would find out on a general level why thinkers like Bruno were burned at the stake, even if they did not understand fully the scientific theories that warranted executions. Beyond that, the general public would have possessed little insight into the actual theories of the day. “[It] must be remembered that only a handful of thinkers contributed to [these] scientific changes, [and] that the vast majority of the populace remained unaware of their findings, and that they could not have understood them even if they had been informed of them” (Matthews 390).

What Elizabethans did know was that both the Catholic Church, and the Protestants who had broken away from it, claimed that all such new findings related to heliocentrism were false and dangerous. For the average Elizabethan, there was no need to explore new notions when the old notions sanctioned by his church were easier to understand and made more sense. It is unlikely that Shakespeare would risk his playwrighting career to write a play concerned with such a controversial topic as the shape of the universe, nor would he bother to enact such a play for a Globe audience, who for the most part would not have understood the “allegory.” As Levi Fox explains in *The Shakespeare Handbook*, “[Elizabethan] playwrights ... sometimes complained about the ignorance of their audience, but ... Shakespeare was not one to complain about his audiences, ... he had no need to; he was an extremely shrewd judge to his market” (Fox 86).

Usher’s argument begins to fall apart in his pronouncement that Hamlet’s pun, “I am too much with the sun” (1.2.71) is an allusion that associates the Prince with the reference point for planetary alignment. In this instance, Usher does not entertain how this simple line lends to the play’s plot, which is a king (often paralleled to the Sun) who has unlawfully and unethically achieved the throne. This, and other “supportive” lines and scenes, detract from Usher’s argument. Usher bends the plot and lines of *Hamlet* to the point of absurdity to bolster his allegory theory. In fact, at no point in Usher’s paper does he refer to the fact that *Hamlet* is built upon a standard, long-standing plot. Shakespeare’s *Hamlet* is known to be predated by other “tragedy of blood” plays, including Thomas Kyd’s *The Spanish Tragedy* and a first *Hamlet*, likely Kyd’s as well. *The Spanish Tragedy* “initiated a vogue which was to extend far into the 17th Century” (LaMar xiv).

It is important to note that *The Spanish Tragedy*, which was highly successful in the 1580s, was a

catalyst for what would become the “standards” for a revenge tragedy. Both *Hamlet* and *The Spanish Tragedy* utilize supernatural forces to spur a hero to revenge, the problem of delayed revenge, and both feigned and real madness. Since it is believed that Kyd wrote both *The Spanish Tragedy* and the pre-Shakespearean *Hamlet*, and, secondly, since it is known that Shakespeare’s style is heavily influenced by Kyd (Levi 218), and, thirdly, since it is known that Kyd was writing these tragedy plays just years prior to Tycho Brahe’s publication of his theories, it is almost impossible to draw the conclusion that Shakespeare’s *Hamlet* is based alone on Tycho’s hybrid model of the universe, the theory presented by Usher.

This assertion is supported by *The Cambridge History of English and American Literature, Volume V*, in which it is written,

The assumption that Kyd is the author (of the pre-Shakespearean *Hamlet*) rests on these main bases: that the first quarto of the Shakespearean *Hamlet* (1603) carries over some sections of an original play, and that there are many parallelisms between the Shakespearean play and *The Spanish Tragedie*, in construction, in phrase and even in metre, and between it and Kyd’s other works, in respect of sentiment. (Cambridge)

The best conclusion to make, without further evidence, is that Shakespeare drew his plot and theme from Kyd, but then drew his imagery from the scientific notions of his day and his own imagination.

For every critic recognizing that Shakespeare made great use of his extensive (but sometimes flawed) knowledge of astronomy, astrology, and cosmology, there is another critic arguing that Shakespeare’s use of such elements may reveal that he is not, indeed, Shakespeare at all.

Eric Altschuler notes that several of Shakespeare’s plays mention exploding stars and a magnetic Earth (Antia online). These facts were known prior to 1604. However, well-known discoveries made after 1604, but during Shakespeare’s life, included the discovery of “sunspots” and the moons of Jupiter, discoveries made by Galileo in 1609 and 1612. Altschuler believes the fact that Shakespeare makes no mention of these momentous, post-1604 discoveries in his plays lends credence to the theory that the true author of the Shakespearean plays was the 17th Earl of Oxford, Edward de Vere, who died in the year 1604. Altschuler cites that Shakespeare mentions in the play *Henry VI, Part 1*, dated before 1604, that the orbit of Mars was not well understood by astronomers of the time. (Since Altschuler does not clarify that statement, signifying whether he means Shakespeare’s time or Henry VI’s time, it is assumed in this paper that he means Shakespeare’s time, since his argument remains close to the actual knowledge of the playwright, not of his characters.) In 1609, Johannes Kepler of Germany put forth his theory of Martian orbit in his book *Astronomia Nova*. Altschuler argues that if the author known as Shakespeare were still alive in 1609, he would have made mention of Kepler’s important theory. Daniel Wright, professor of English at Concordia University in Portland, Oregon, agrees with Altschuler’s assertions, stating, “Why Shakespeare, if he were the Stratford man, would have neglected to include the astonishing discoveries of 1604 and beyond is unaccountable” (Antia).

Why Shakespeare would neglect to mention sunspots and new moons *is* evident. Both discoveries were made by Galileo, who knew too well that these discoveries, especially the

discovery of Jupiter's moons, would chip away at the already-crumbling geocentric theory. "At the same time Galileo was conducting the experiments that would make him a hero of modern science, he ran afoul of the religious authorities, who brought his career to a humiliating end" (Matthews 385). There are now three reasons why Shakespeare may have decided to avoid mention of the "astonishing discoveries of 1604 and beyond." Again, the first reason is that few Elizabethans had enough knowledge or understanding of these discoveries to interpret them when encountered in a play. Those witnessing Shakespeare's plays would not have the luxury of close textual analysis and so a complex allegory would be lost on them. Second, these discoveries were deemed dangerous by both Catholics and Protestants, and would not have served Shakespeare well. Third, these discoveries were still, in essence, "theories" of very few men and in his plays it is only the well-established ideas of astronomy and cosmology that Shakespeare utilizes.

Neither Altschuler nor Wright mention in their arguments that, by 1604, the bulk of Shakespeare's plays had been written. The plays that most often incorporate celestial events and astrology for thematic purposes were published before 1604. In the years between 1604 and his death in 1623, Shakespeare helped found the Blackfriars Theatre (1608), testified in the Belott-Mountjoy suit (1612), witnessed the burning of the Globe Theatre (1613), and spent his last year in ill health. Events such as these necessarily left Shakespeare less time to write (Levi).

Aside from ignoring the particulars of the playwright's life, there are, in addition, two major flaws in Altschuler's theory that the critic has not yet answered. First, several post-1604 events, including celestial events, *are* mentioned in the later plays of Shakespeare, although the discovery of sunspots and the moons of Jupiter are not among them. For example, it is widely held that a 1609 shipwreck resulting from a storm near Bermuda, which details St. Elmo's Fire, was used as a source for Shakespeare's play, *The Tempest*. Second, it should be remembered that Shakespeare was, at core, a poet and playwright, not an astronomer and, therefore, had no obligation to render truth in poetry as it applied to the science of stars.

In *Julius Caesar*, Caesar claims to be "as constant as the northern star, / Of whose true-fix'd and resting quality / There is no fellow in the firmament. / The skies are painted with unnumber'd sparks, / They are all fire and every one doth shine, / But there's but one in all doth hold his place" (3.1.61-66). During the time of Shakespeare, the star referred to here, Polaris, would have been merely two degrees from the north celestial pole and, therefore, would be close enough to appear fixed to naked eyes. But in the time of Caesar, 44 B.C.E., it was well known that Polaris was not a fixed star since it was a full ten degrees from the pole. The Greek Hipparchus discovered the phenomenon of precession (slow gyration of the rotation axis of a spinning body) in the 1st century, and Shakespeare proves in other plays that he is knowledgeable in Greek astronomy, for example, referring to comets in *Julius Caesar* as "exhalations whizzing the air (2.1.44), a popular belief during the time of Hipparchus, when Greeks believed comets to be exhalations of the atmosphere. This reference to exhalations depends upon at least a cursory knowledge of ancient Greek astronomy, and even a cursory knowledge would yield information to the writer regarding Polaris. It is likely, then, that Shakespeare's reference to Polaris as a "fixed star" is a stretching of the truth in order to lend to the metaphorical cohesion of *Julius Caesar*, a metaphorical cohesion that employed images that could be relevant to, and appreciated by, his Elizabethan audience.

With this in mind, one finds in the plays of Shakespeare continuous attention to stars, planets, the Sun, Moon, and Earth, which predict and direct the events and courses of dramatic characters, and which are used as metaphors for the human condition. Putting aside Usher's theory that Shakespeare used his plays to veil philosophies regarding the sciences of stars, and ignoring criticism that suggests references to the heavens be scrutinized on a literal level, it is important to view the references in the context of the plays for the sake of expanding the meaning within those plays.

The remainder of this paper takes a deeper look into Shakespeare's use of astronomy as a tool to bolster imagery, metaphor, and character in his canon of plays, using as prime examples the historical play, *Henry IV, Part I*, and the tragedies *King Lear* and *Hamlet*. All three plays depend upon solar and lunar imagery, and on references to heavens that are chaotic or out of order to emphasize chaos within each play. Before looking at these plays, it is important to review briefly the popular notions of cosmology and astronomy between the years of 1597 and 1605, the eight years containing the conception of these plays.

When Shakespeare was born in 1564, the Italian Renaissance had just ended several decades before (Matthews 305). Renaissance ideals governing art resulted in well-balanced paintings, unified and balanced architecture, and a return to classical Greek ideals of harmony, order, humanity, and symbolism. Renaissance ideals fit the notion of the heavens perfectly, which had evolved little from the Greek astronomer Eudoxus, who lived in 400 B.C.E. Working with age-old observations that there were "fixed" stars and seven "moving objects," Eudoxus theorized that Earth was a fixed body, enclosed by concentric spheres which rotated around the Earth. "He supposed that all of the fixed stars were attached to the inside of the outermost, and largest sphere, so people saw [fixed stars] move across the sky as this starsphere turned on its axis" (Gallant 14). Inner spheres each contained one "moving object." These included Saturn, Jupiter, Mars, the Sun, Venus, Mercury, and the Moon. In the mid-1500s, discoveries made by Copernicus and Tycho (previously discussed) and built upon by Kepler and Galileo, seemed to dismantle the seemingly organized, balanced, ordered universe with theories of elliptical orbital paths, nova, and heliocentrism.

Even though Copernicus' book, *The Revolutions of the Heavenly Spheres*, was published at least 20 years before the birth of Shakespeare, Elizabethans held firmly to the idea of geocentrism, which placed humans at the center of the universe, making the earth the focal point of God's design. After all, Copernicus' book had been condemned as false, dangerous and "contrary to scripture" by the Catholic Church (Matthews 384). As late as 1610, Pope Paul III, to whom *Revolutions* is dedicated, included it in the Index, and the Catholic Church consistently denounced its ideas until 1822. Although Copernicus had also explained retrograde motion as the Earth passing outer planets at certain points in its elliptical path around the Sun, it was not understood by common men, and consequently was ignored in favor of the long-established, flawed system. What was believed by Elizabethans was that God moved the universe, that the universe moved around Earth, that it was perfect and surely predictable (although man may not at all times have enough understanding to predict the motions of planets, especially when retrograde motion is in action), and that the universal distribution of heavenly bodies had purpose and could be used as a model for human hierarchy. For example, in the book *Practicum musica*, published in 1493, "the whole mystery of the nine muses and the three graces [is

depicted] in relation to the Ptolemaic sequence of the planets—Earth (center and stationary), Moon, Mercury, Venus, Sun, Mars, Jupiter, Saturn, and the fixed stars” (Campbell 202-3). Each planet in this sequence corresponds to a muse. At the top of the picture, Apollo (who is paralleled to the Sun) is seated and “fixed.” Around him are the “moveables,” which are the graces and the muses. Translated, the text above Apollo reads, “The radiance, the bliss, of the Apollonian mind moves everywhere the muses” (204). These are the accepted ideas of Shakespeare’s day. This is the structure from which it was safe for him to draw his imagery and metaphor.

In *Henry IV, Part I*, the title character admonishes his son, Prince Hal, for his un-royal behavior in taverns and in public, where he spends time with lower men, ignoring his duties as prince and figurehead. King Henry tells his son that at his age, he was “...seldom seen, I could not stir / But, like a comet, I was wondered at; / That men would tell their children, ‘This is he!’” (3.2.47-48). Comets, during Shakespeare’s day, defied logic as they seemed to fly through the spherical shells in which the moveable bodies were contained. That kind of power was seen seldom, and so King Henry is right to compare himself to such a magnificent celestial event. On the other hand, the prince is “daily swallowed by men’s eyes” (3.2.70) and “sick and blunted with community, / Afford[s] no extraordinary gaze / Such is bent on sunlike majesty / When it shines seldom in admiring eyes” (3.2.77-80).

Already, however, Prince Hal has suggested that he will “imitate the sun, / who doth permit the base contagious clouds / to smother up his beauty from the world, / That, when he please again to be himself, / Being wanted, he may be more wondered at, / By breaking through the foul and ugly mists / Of vapours that did seem to strangle him” (1.2.181-87). Prince Hal suggests to us that he will have all the power of the Sun and his true self, once revealed, will have the same effect on the subjects of England as did his father’s comet-like reclusiveness.

As we come to know Prince Hal as a future Sun temporarily concealed behind “base clouds,” it becomes clearer that he will soon take his place in the hierarchy, leaving his low tavern-friends to their base excesses. A particularly telling exchange occurs between Bardolph, a tavern friend, and the prince, when Bardolph asks, “My lord, do you see these meteors? Do you behold these exhalations” (2.4.299-300). Bardolph, of course, is referring to his reddened, scarred complexion on a literal level. Shakespeare, here, is referring to the disorder and chaos of these wilder days, when referring to meteors and “exhalations” as the ancient Greeks had called them, for in Shakespeare’s day meteors symbolized disorder and self-destruction. Why would Shakespeare refer to the King as a “comet” and Bardolph as a “meteor?” Keeping in mind Ptolemy’s geocentric theory, the comet (now known to orbit the Sun) was thought to be a moveable body not confined to a particular sphere, but not self-destructing as were meteors. Meteors enter Earth’s atmosphere, and to come from outer space toward Earth is to stray further from the divine order of God and closer to chaos. A meteor, entering our atmosphere, finally burns up, fueling its own destruction. Meteors, for that reason, were deemed more chaotic and more frightening than comets.

The spherical shells were the keepers of order. What ranges outside those shells, such as comets and meteors, were either wondered at, or feared, or both. King Henry references the disorder brought about by Hotspur and his rebels when he asks Worcester to deliver this message to his

rebel men:

“Will you again unknit / This churlish knot of all-aborred war, / And move in that obedient orb again / Where you did give a fair and natural light, / and be no more an exhal’d meteor, / A prodigy of fear, and a portent / Of broached mischief to the unborn time?” (5.1.16-21)

In a climactic battle scene between Harry Hotspur and Prince Harry, the imagery of dueling doubles is extended with Prince Harry’s pronouncement, “Two stars keep not their motion in one sphere, / Nor can one England brook a double reign / Of Harry Percy and the Prince of Wales” (5.4.65-7).

In *Hamlet*, where “time is out of joint,” and disorder pervades, the play opens with Horatio’s reminder that chaos on Earth is often preceded by chaos in the skies. He tells witnesses to the ghost of the former king, that

A little ere the mightiest Julius fell,
The graves stood tenantless, and the sheeted dead
Did squeak and gibber in the Roman streets;
As stars with trains of fire, and dews of blood,
Disasters in the sun; and the moist star
Upon whose influence Neptune’s empire stands
Was sick almost to doomsday with eclipse.
And even the like precursor of fierce events,
As harbingers preceding still the fates
And prologue to the omen coming on,
Have heaven and earth together demonstrated
Unto our climates and countrymen. (1.1.126-140)

It is Horatio, here, who foreshadows the swift and chaotic events about to take place which lead to the self-destruction of Hamlet, his uncle-king, and of Laertes. When all three are dead it is Horatio who is left standing to explain to Fortinbras the sad events. “And let me speak to the yet unknowing world / How these things came about. So shall you hear / Of carnal, bloody, and unnatural acts” (5.2.409-11). The unnatural acts begin with the murder of Hamlet’s father, the former King Hamlet, by his brother. The two are consistently compared by Hamlet, the father being like Hyperion (the Sun) and the treacherous uncle like a satyr, the mythological hybrid of half man, half goat. In Gertrude’s bedroom scene, Hamlet bestows great praise on his father, who has “Hyperion’s curls; the front of Jove himself” (3.4.65). Hamlet’s profound love of his father is present throughout the play. Without the established order of a rightful king and father, Hamlet perceives the world around him as a “sterile promontory.” When the father-ghost visits, he warns Prince Hamlet that to tell what occurs past death would be cause enough to “make thy two eyes, like stars, start from their spheres” (1.5.22). This particularly striking simile gives proof that Shakespeare was a master of imagery. It does not matter that the notion of sphere-fixed stars was falling away in educated circles for Shakespeare’s purpose was not, as Usher, Altschuler and Wright state, to push science or fact to the front but was, as is the purpose of all good poets, to move the audience with imagery. Wright had questioned why Shakespeare would not utilize the most up-to-date discoveries in his plays. For Shakespeare’s plays, the idea of geocentrism adds

to the beauty of the play when it adds to the poetry of the play, for example, these opening lines from “The Mousetrap” in *Hamlet*: “Full thirty times hath Phoebus’ cart gone round / Neptune’s salt wash and Tellus’ orb’d ground,” (3.2.166-67). These lines add to the imagery of permanence of the play king’s and queen’s love for each other, that the years of their love are counted by the rotations of the planets (which the Sun and Moon were considered to be at this time). To put them at the center of all is to focus everything on their “permanent” love, making the irony much greater when the play king is murdered, a scene which parallels the affair of Gertrude, King Hamlet, and Claudius.

In the Ptolemaic theory, the concentric spheres containing the moveable orbs (planets) and stars (with fixed stars taking their place in the most outward sphere), it is impossible that two moveable stars be contained within the same sphere, an image just discussed with Henry Hotspur and Prince Henry. In *Hamlet*, Shakespeare leans on this idea again, only this time it parallels the forbidden love of Hamlet and Ophelia. In explaining to Claudius and Gertrude the cause of Hamlet’s madness, Polonius explains that he forbade Ophelia to consort with Hamlet, telling her, “Hamlet is out of thy star. / This must not be” (2.2.151-2). Their class differences mimic the spherical separations of the heavens, and by Ophelia and Hamlet trying to bend the laws of Polonius, self-destruction of both Hamlet and Ophelia occur as an indirect result. Ophelia allegedly commits suicide as a result of her father’s murder by Hamlet, and Hamlet is killed by Laertes to revenge the murder of Polonius.

One problem with criticisms made by those knowledgeable in literature, but not so knowledgeable in sciences is that a play like *King Lear*, is stretched across the grid of 20th century thought, with little or no attention to the context in which the play was written. A more comprehensive study of the astronomy and cosmology of Shakespeare’s era is necessary to correctly identify his purpose in some astronomy allusions.

In *Henry IV, Part I*, Falstaff makes an allusion to the seven stars, when he explains to Prince Hal that, “we that take purses go by the moon and seven stars, and not by Phoebus, he that wand’ring knight so fair” (1.2.12-15). It is clear in this instance that Falstaff means the Pleiades, or “Seven Sisters,” the most visible part of a 200+ star cluster. By Henry IV’s time, “seven stars” could have referred to one of two groups—either the aforementioned visible Pleiades or the seven “moveable stars” or planets. Because Falstaff names the moon and excludes the sun, it is to be assumed he refers here to those seven most-visible Pleiades. However, in *King Lear*, a play set in pre-Christian Britain, another reference is made by the Fool to “seven stars.” In Shakespearean plays, the author often uses the word “stars” to mean either stars (fixed) or the seven planets (Sun, Moon, Mars, Mercury, Jupiter, Saturn, and Venus).

In *King Lear*, when the Fool asks the king why there are no more than seven stars, the king replies, “Because they are not eight” (1.5.37). A footnote in the Bantam Classics edition, edited by Shakespeare scholar David Bevington, explains that the seven stars here refer to the Pleiades. The *Folger Book of Shakespeare Quotations* admits that “seven stars” could also refer to the seven planets, but nearly all critics attribute the reference to the Pleiades (498). At this point, one must take into consideration the context of the play (pre-Christian), and the theme of blind Fortune and the effects of the heavens on men’s lives. First, unlike *Henry IV, Part I*, in which the word “planets” is used, in *King Lear* the words “star” and “stars” are used synonymously for

planets, although the word “planetary” is used once in reference to the influence of the Sun, Moon, and stars in men’s fortunes. The word “star” or “stars” is used throughout *King Lear* in reference to the heavens, both fixed and moving, which direct men’s lives.

With such an attention to Fortune and the movement of stars in relation to men’s lives, it should be assumed that the Fool can only be referring to the seven planets upon which astrology is based. To refer to the Pleiades would be a wasteful metaphor, since there is no parallel between the sisters of the Pleiades (fictional or physical) and the sisters in *King Lear*. Unfortunately, many footnotes and criticisms insist that King Lear’s Fool is making reference to a group of fixed stars that have little or nothing to do with the course of life.

That literary men as famed as David Bevington can be so careless in their assumptions is evidence that Shakespeare is not being read critically enough with respect to the physical sciences. He is the antithesis of Usher, who has too much science-based and not enough Shakespeare-based knowledge. Unfortunately, the advances in astronomy made since the time of Shakespeare have left modern readers less able than the Globe groundlings to appreciate the astronomy and cosmology metaphors in the Shakespearean plays.

Works Consulted

Antia, Meher. “Tempest Over Shakespeare.” *ABC News*. 12 Dec. 1998.
<<http://abcnews.go.com/sections/science/DailyNews/shakespeare981202.html>>

Cambridge History of English & American Literature, Volume V. “Kyd and the Early Hamlet.”
<<http://www.bartleby.com/215/0718.html>>

Campbell, Joseph. *Transformations of Myth Through Time*. New York: Harper & Row, 202-204.

Folger Book of Shakespeare Quotations. Comp. Burton Stevenson. New York: Folger, 1979.
498.

Fox, Levi. *The Shakespeare Handbook*. Boston: Hall & Co., 1987. 85-86.

Gallant, Roy A. “Beginnings: Sun Gods to Gamma Rays.” *Our Universe*. Washington D.C.:
National Geographic Book Service, 1-34.

LaMar, Virginia and Louis B. Wright. Introduction. *Hamlet*. By William Shakespeare. New
York: Washington Square, 1957. vii-xliii.

Levi, Peter. *The Life and Times of William Shakespeare*. New York: Holt & Co., 1988. 218-220.

Matthews, Roy T., and Dewitt F. Platt, eds. *The Western Humanities*. Vol II: Renaissance to the
Present. 3rd ed. Mountain View: Mayfield, 1998. 305-391.

Shakespeare, William. “All’s Well That Ends Well.” *Globe Illustrated Shakespeare*. Third
Edition. Ed. Howard Staunton. New York: Park Lane, 1979. 751-808.

- - -, *Hamlet*. Ed. Virginia LaMar and Louis Wright. New York: Washington Square, 1957.
- - -, *Julius Caesar*. Ed. David Bevington. New York: Bantam, 1988.
- - -, *King Henry IV, Part One*. Ed. George Lyman Kittredge. New York: Wiley & Sons, 1968.
- - -, *King Lear*. Ed. David Bevington. New York: Bantam, 1988.
- - -, "Troilus and Cressida." *Globe Illustrated Shakespeare*. Third Edition. Ed. Howard Staunton. New York: Park Lane, 1979. 1785-1850.

Usher, Peter. "Hamlet and the Infinite Universe." *Elizabethan Review*. 20 June 2000.
<http://www.elizreview.com/articles/usher.htm> .

Biographical Sketch

Alana Merritt Mahaffey earned her B.A. in English (cum laude) from the University of Central Arkansas in 1996 and will receive her M.L.A. from Henderson State University in May 2001. She has been editor of *Sheriff and Deputy* magazine, and is founder and editor of the *Arkansas Inmate Collective*. In 1997, she received the Mark of Excellence Award from the Society of Professional Journalists for editorial writing. Currently she is the president of the [Arkansas Literary Society \(WORDS\)](#) and associate editor of the [Arkansas Literary Forum](#).

Disclaimer: Henderson State University and the Office of Computer and Communication Services assume no responsibility for any information or representations contained in the student/faculty/alumni web pages. These web pages and any opinions, information or representations contained therein are the creation of the particular individual or organization and do not necessarily reflect the opinion of Henderson State University or its Office of Computer and Communication Services. All individuals publishing materials on the Henderson State University Web Server understand that the submission, installation, copying, distribution, and use of such materials in connection with the Web Server will not violate any other party's proprietary rights.