

Landscape by Moonlight: Peter Paul Rubens and Astronomy

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Abstract. In the last years of his life, Rubens (1577–1640) lived happily with his wife and children on his Het Steen estate. During this period he worked and reworked a painting that had special meaning to him—*Landscape by Moonlight* (1635–40), now at the Courtauld Gallery in London. After a highly successful career painting religious and secular portraits, allegories, and occasional landscapes, Rubens put an extraordinary amount of effort into this final landscape. He was well known as a person who would commit to memory ideas and themes that he would use in future works. This paper reviews Rubens’ attention to the visualization of nature, his personal connections to Elsheimer, Galileo, and Peiresc, and explores his possible depiction of constellations recalled from memory and placed within the cloudy skies in his *Landscape by Moonlight*.

1. Introduction

The merging of landscape painting and astronomy might be said to have started with the earliest cave art in France and Spain approximately thirty thousand years ago. Mesmerizing scenes of galloping bison are occasionally accompanied by hints of skyscapes, including images of possible constellations (see review by Pásztor 2011). For the modern era, there is a tantalizing milestone in the merging of astronomy and art to note in 1609—the year Galileo turned his telescope to the heavens in Italy and Adam Elsheimer (1578–1610) painted *The Flight into Egypt* in Germany (Figure 1). Paintings on the theme of the Holy Family escaping King Herod’s assassins are plentiful in western art, with virtually every big name of the Renaissance having at least one version of note. What distinguishes Elsheimer’s version is that he portrayed the sacred parents and child resting at night—with the background sky full of celestial details (Andrews 1977; Klessmann 2006). Most intriguing are the features that can best be seen using a telescope—an instrument not yet in use by astronomers of the day.

This was Elsheimer’s second approach to the subject—his earlier attempt with the same title (dated 1605–1608 and now in the Kimbell Art Museum in Fort Worth) was a daytime scene. The version in Figure 1 has a bright full Moon, complete with a reflection of the lunar disk in a pond of calm water. The Moon is not a clear crystalline body in the Platonic-Aristotelean tradition, but somewhat mottled in appearance. It has more than a mere hint of the light and dark markings that Galileo would publish in *Sidereus Nuncius* in 1610. There is also the Milky Way composed of many stars, just as Galileo would show pictorially in *Sidereus Nuncius*. Finally, there are even renditions of the Big Dipper (Ursa Major) and the constellation Leo. Taken together, and with assumptions about the local horizon, the astronomical combination of Moon, Milky Way, and constellation associated with the polestar can be dated to near the June solstice



Figure 1. *The Flight into Egypt* by Adam Elsheimer (1609), oil on copper, 31 × 41 cm. (bpk, Berlin / Alte Pinakotek, Munich / Art Resource, NY)

in 1609 (Howard & Longair 2011). This is nine months prior to the appearance of Galileo’s book, and thus Elsheimer clearly did not rely upon Galileo’s publication for the astronomical content of his work.

The simple guess is that Elsheimer did what so many others did during the summer of 1609—he (and perhaps accompanied by a friend) looked through one of the new spyglasses being sold in various cities to see distant buildings, hilltop homes, and people down the street. On clear nights, he spied on the sky and included his impressions of celestial scenery as extra touches of realism into his painting. The more practical view—one known to professional and amateur astronomers alike (Andrews 1977)—is that when the Moon is full, there is scant chance of seeing many stars (or any other faint objects) in the night sky. Historians of science and art have argued that a Milky Way composed of many stars and a moon with a structured surface were sufficiently known in 1609, and that the content of *Sidereus Nuncius* was not a prerequisite for this painting. The most likely conclusion is that Elsheimer assembled his astronomical content from several sources, and that he used it to achieve a most remarkable painting. As the foremost scholar of Elsheimer’s career stated in 1977, “In short, what Elsheimer intended to convey was an evocation, not observable scientific facts” (Andrews 1977).

Elsheimer’s *The Flight into Egypt* is often said to be the first moonlit scene with background sky realism in European art. This might be a dubious claim, unless qualified by “a painting” versus “a fresco” or by “the first possible use of telescopic information” to achieve celestial realism in an image—for Piero della Francesca (1415–1492)

had surely included naked-eye sky patterns in his fresco depicting the night sky in *The Dream of Constantine* in Arezzo about 150 years earlier (Valerio 2011). There are also additional reasons for adjusting the claim. The arrangements of Elsheimer's stars in the Big Dipper and other groupings are only approximations to known constellations, and their angular extents are not accurate. Elsheimer was not painting a star chart. He was striving to understand the interplay of darkness and light afforded by celestial sources that augmented the glow of a fire. *The Flight into Egypt* by Elsheimer had a profound influence upon Peter Paul Rubens, and it is that legacy that is the focus of this paper.

2. The Elsheimer-Rubens Connection

The great Dutch master Peter Paul Rubens (1577–1640) spent five years, on and off, working on his *Landscape by Moonlight* (1635–1640). As the title suggests, the Moon is prominent in the painting (Figure 2). Yet, it is a cloud-filled sky—and perhaps a bit too cloudy for so much moonlight. The lunar surface is not a uniform bright disk—it has some structure from the brush, but none of the “Galilean details” found in Elsheimer's painting. Yet, just as Elsheimer did, there is a prominent reflection of the Moon in the water of a well-crafted stream. There are also stars in the sky—a rather startlingly large number of stars for such a cloudy and full-moon night. The stars pierce through opaque clouds and shine with little obstruction by trees densely covered with leaves. We could well imagine that the master left such starry details to a studio assistant who exercised more enthusiasm than realism about what could be seen on a routine cloudy night in Holland. One might even be tempted to think that all of the white dots were snowflakes falling on a cold night. Yet these dabs of white are curiously all above the horizon with no accumulation on the ground—too odd an occurrence for a painted snow scene. The painting, once owned by Sir Joshua Reynolds, is now at the Courtauld Gallery in London—appropriately in a city where stars are rarely visible. A closer inspection invites speculation on what Rubens might actually have been striving to accomplish.

While Rubens is known primarily for his art dealing with religious and classical themes, his portfolio is equally rich in portraits and landscapes. His style was extravagant, even for the Baroque period. His famous portraits of affluent public personages, loving family members, heroic saints, and allegorical topics rarely required that he pay much attention to the natural settings behind his subjects. He employed a large group of assistants that were supervised closely, including the young Anthony Van Dyke (1599–1641). While many artists had studio assistants, Rubens had a veritable painting factory staffed by very capable artists that he deployed to fill in the portions of pictures he considered secondary to the central theme. Many times in his early career, Rubens collaborated with established colleagues when significant help was needed for scenes with landscapes. He and Jan Bruegel the Elder produced *The Feast of Acheloiis* (circa 1615, now at the Metropolitan Museum of Art) with about a 50-50 split between well-fed Rubenesque nudes within a lush Bruegelesque setting. In a laudable display of full disclosure, Rubens priced all of his works in proportion to the amount of effort he had personally devoted to them.

Rubens was forty-one years old when he turned to landscapes himself and—as is typical for him—his scenery was lush in color and style, and remarkable for his use of light and shadow. In 1630, at age fifty-three, Rubens married for the second time. His wife (Hélène Fourment) and their children appeared regularly in his works. During this last decade of his life, Rubens became particularly fond of the country



Figure 2. *Landscape by Moonlight* by Peter Paul Rubens (1635–1640), oil on panel, 64 × 90 cm. (The Samuel Courtauld Trust, The Courtauld Gallery, London)

house he had acquired. He must have enjoyed walking about the grounds of his Het Steen estate, surrounded by natural beauty, and particularly so when strolling with his beloved H  l  ne. *Landscape by Moonlight* was done during this happy period in his life. No assistants were involved—it was his personal painting.

The information carried by light is of equal importance to the artist and the astronomer, and thus it is not difficult to find connections to astronomy in Rubens' life. In another of his collaborative paintings with Jan Brueghel (1568–1625), *The Sense of Sight* (1618), now in the Museo del Prado (Madrid), this very connection is the fundamental theme. In rich allegory, a typically Rubens nude is seated next to a small telescope in an extravagant salon packed with astronomical devices and tools. Yet, Rubens' introduction to astronomical issues occurred well before this particular painting. In 1600, at age twenty-three, Rubens moved to Italy to study art in Venice and to seek a position with the Duke of Mantua. In 1601, he made his first visit to Rome where he met Elsheimer, who resided there from 1601 until his death in 1610. Rubens admired Elsheimer's paintings enormously, making copies of many of them until his departure from Italy in 1608 to return to Antwerp. There can be no doubt that Rubens was intimately familiar with Elsheimer's attempts to add realism to paintings of the night sky. In contrast to Rubens' use of oils in large format works, Elsheimer painted upon small copper plates to achieve an extra measure of luminance. Their circle of friends and acquaintances included luminaries of science and art, such as Count Cesi, founder of the Roman Academy of Science (Accademia dei Lincei). The Cesi group also included the artist's brother, Philip Rubens, and this circle had collectively shared

correspondence with such astronomical giants as Tycho Brahe and Johannes Kepler in Prague, and later with Galileo in Padua and Florence.

3. Rubens and Galileo

The Galileo connection offers perhaps the strongest evidence known between Rubens and astronomy—for Rubens painted Galileo into a group portrait years before the Italian scientist became known for his telescopic discoveries. In her description of their relationship, Reeves (1997) speculates that Rubens may have first met Galileo when the two Rubens brothers visited Padua in 1602. This was early in Rubens' extended sojourn in Italy (1600–1608) to view, copy, and study the masters of Italian painting. Whether or not they actually met in 1602 while traveling in the Veneto, it has long been assumed that they surely did so in 1604 when both brothers traveled to Mantua. Their goal was to visit the House of Gonzaga and to seek the support and hospitality of Duke Vincenzo Gonzaga. To commemorate this period of his life and travels, Rubens painted (in 1605 or 1606) *Self Portrait in a Circle of Friends from Mantua* (Figure 3). This painting of a group of six male figures has a fascinating history—it was missing for more than 300 years! The art world was simply unaware of its existence until 1932. Moreover, the specification of the group's membership was not made definitively until 1983.



Figure 3. *Self Portrait in a Circle of Friends from Mantua* by Peter Paul Rubens (circa 1604–05), oil on canvas, 78 × 101 cm. (Location: Wallraf-Richartz-Museum, Cologne)

In the very center of the painting are Galileo and Peter Paul Rubens, with brother Philip in the background. A famous philosopher, Justus Lipsius, appears on the right. At the left are two former students of Lipsius from prominent Portuguese and Dutch families. Galileo has a hand upon Ruben's cloak, apparently in animated discussion. Rubens looks out directly toward the viewer to make sure he is identified properly—artists were, after all, of a lower social class than scholars and thus including himself in such a learned circle might have been the ultimate reason behind the painting.

There is a scientific issue in the painting discussed in detail by Reeves that goes to the heart of the Rubens-astronomy connection. At the time of the group scene in Mantua portrayed by Rubens, Galileo was still five years or so away from making his telescope in Padua and the excitement it would cause. His research was focused on the accurate description of the pendulum and motions in general—bodies sliding down inclined planes, in free-fall, or as projectiles following parabolic paths. Reeves points to a possible display of the aurora borealis in the group portrait, and wonders if this might represent a connection to Galileo's views on the Copernican Hypothesis during this pre-telescopic period of his life. *Self Portrait in a Circle of Friends from Mantua* indeed has areas of reddish glow in the sky to the north—a direction identified by the known locations of bridges and buildings in the painting. Low on the horizon, between the faces of Galileo and Philip Rubens, there are two red horizontal bands of light; a second diffuse red glow is above Galileo's head.

Galileo's name is usually linked to auroral phenomena at a time much later than the 1604 period of this painting. In 1619, in his *Discorso sulle Comete*, Galileo discussed the types of transient events that can appear in the night sky—comets, meteors, and novae—and it was then that he used the phrase *aurora boreale* (northern dawn) to describe the luminous regions of sky occasionally seen after sunset but prior to dawn. Reeves argues that his thoughts about aurora date to the time much earlier than his *Discourse on Comets*—in fact to a time prior to 1604. Galileo's speculations were driven by a desire to find evidence in support of Copernicus. Galileo postulated that aurora were “exhalations” from the Earth that rise into the heavens beyond the terrestrial domain—and thus we see them by the sunlight they reflect towards us. If true, this would have been a way to falsify Aristotelean teachings on the separation between the corruptible material of our world and the sublime material of the celestial domain. Aurora produced by Galileo's mechanism would have been an intrusion of earthly stuff into the space of heavenly hosts. As it turned out, Galileo was not a successful auroral physicist. Aurorae are emissions from gases (e.g., red light from oxygen) in our upper atmosphere excited to glow by the impact of electrically charged particles flowing along Earth's magnetic field lines at high latitudes. Auroras are a downward coupling aspect of solar-terrestrial physics, not an upward propagating meteorological effect.

Physics aside, we can still ask if the red portions of the sky in Ruben's painting might actually be a rendition of observable aurora. There is certainly no convincing evidence to think so. And strong evidence is needed since an aurora at a mid-latitude site such as Mantua is a very rare event. The solar outbursts that ultimately cause the aurora were not particularly plentiful during the early years of the seventeenth century. But rarity is not exclusivity, and Rubens may have seen an aurora or heard about Galileo's then current ideas about aurora. There are, nevertheless, other ways to make a sky red. As the Sun sets in the west every evening, there can often be a reddish glow extending far from the actual setting point. If there are bands of clouds to the north, red light can be reflected off them towards a viewer. Redness seen from the north on a cloudless

night, with the sky full of stars, would make a far better case for aurora—but that is not the scene within this painting. The painting, in fact, has ample evidence of clouds, and thus the auroral interpretation seems less likely than a rendition of an interesting post-sunset glow on a partially cloudy night. Finally, aurorae are best seen near midnight and Galileo was legendary for wanting a good night's sleep. It is easier to imagine that the portrait commemorated a post-sunset gathering, not a post-midnight discussion.

4. Paintings with Contrived Content

Self Portrait in a Circle of Friends from Mantua is now understood to be a painting that Rubens assembled from his memory. It is not a painting done of an actual scene on a specific night in Mantua. As pointed out by Reeves (1997), one of the most important men in the painting was not even there! Rubens simply must have felt that Justus Lipsius should have been with the group on that night. This is as pure a form of “artistic license” as exists, and thus one should not be hesitant to suggest that Rubens added astronomical components to his paintings in order to achieve the right effect or intended message. If including Lipsius enhanced the message, why not an interesting sky as well?

Rubens' *Landscape by Moonlight* was done many years after Elsheimer's death, and at a time when the master was getting old and in pain with a severe case of gout. In such a mood, we can speculate that he might have contemplated incorporating a personal tribute to a fellow artist he much admired by placing the Moon and so many stars in the nocturnal sky. Rubens' written testimonial (dated 14 January 1611) about Elsheimer's death certainly gives evidence of his high regard for a friend and talented artist:

Surely, after such a loss, our entire profession ought to clothe itself in mourning. It will not easily succeed in replacing him; in my opinion he had no equal in small figures, in landscapes, and in many other subjects. He has died in the flower of his art, while his corn was still in the blade. One could have expected things from him that one has never seen before and never will see. Fate had only shown him at his very beginning. For myself, I have never felt my heart more profoundly pierced by grief than at this news. (translation from Andrews 1977)

Scholars at the Courtauld Institute have conducted the definitive study of *Landscape by Moonlight* (Braham & Bruce-Gardner 1988). They described its complex path to completion, diverse ownerships, restoration attempts, and reviews of its place in western art. For the present study, their treatment of the painting's sky components are the ones of central interest. Over a period of several years, Rubens added extensions to the physical size of the painting to enlarge the field of view; he also removed previously painted components to add fresh subject matter (Bruce-Gardner 1988). Most interesting was his decision to delete a depiction of The Holy Family in the lower portions of the painting—the very topic of Elsheimer's work. Rubens had already produced an extraordinary number of paintings featuring the Holy Family, often with individual saints included to satisfy a sponsor. He also painted a very specific version of *The Flight into Egypt* in 1614—one featuring the Christ child as a young boy, not an infant. These were hardly the types of commissions he could have avoided in the past, but now he did not feel he had to include a religious component in this particular landscape. It was a time in Rubens' life when he did not have to take commissions unless he wanted to;

he could paint what was important to him. Contentment was his goal, and the glowing Moon, its glistening reflection in a body of water, and copious stars in the sky—with H el ene nearby—offered solace and happiness. Even for a Catholic who started each day at mass, there was no need for yet another religious theme in a painting.

Separate from the fact that Rubens placed high value on Elsheimer’s paintings, there is also the interesting point that, starting in 1621, Rubens carried out a long series of correspondence with Nicolas-Claude Fabri de Peiresc (1580–1637), the French amateur astronomer and all-around Renaissance man of Provence. Peiresc greatly admired Galileo, and in 1610 he purchased a telescope and established a house-top observatory. This led to his discovery of a fuzzy group of stars in the constellation Orion—located where the sword is usually depicted. He coined the term “nebula” for such a “cloud” of emissions. Today, the Orion Nebula is known as a region of dense gases from which stars (and surely planets) are forming. Given that the Rubens-Peiresc correspondence discussed a remarkably broad range of topics, Peiresc’s association with astronomy must have been known to Rubens. Perhaps, in addition to Elsheimer’s influence, the Peiresc connection further prompted the creation of a nocturnal painting with serious celestial components.

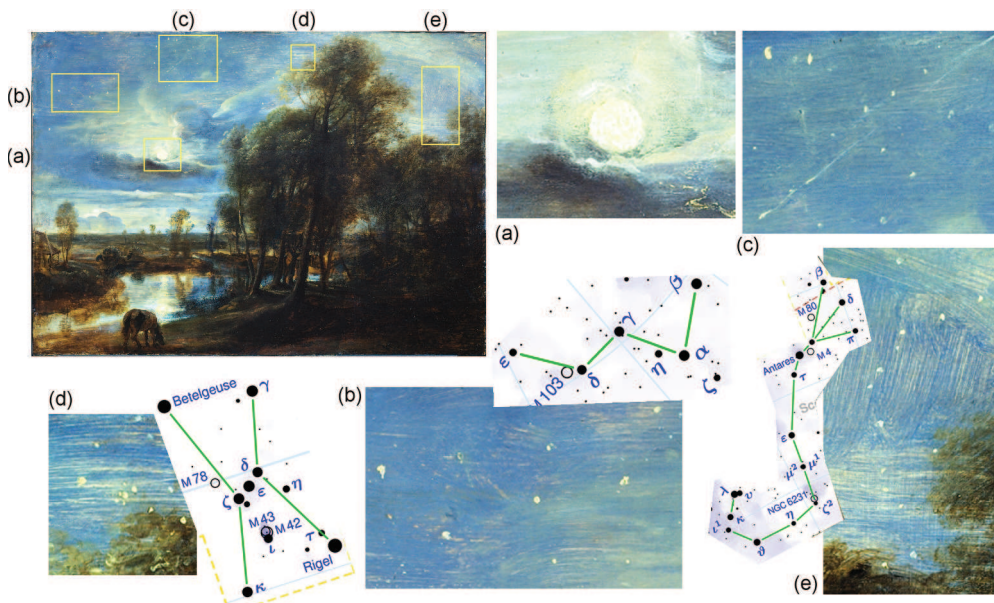


Figure 4. Details from Rubens’ *Landscape by Moonlight*: the Moon, a meteor, and proposed correlations of star patterns with constellations (d) Orion, (b) Cassiopeia, and (e) Scorpious.

Such speculation encourages a much closer inspection to *Landscape by Moonlight*. There are five regions of the sky selected for detailed view, and these are shown in Figure 4. Is the seemingly random pattern of stars in the painting really so random after all—are constellations present? In the center (top), there are three bright stars in a line—could this be Orion’s belt? The stars above and below are not in the correct positions to be Betelgeuse (the red giant star in the warrior’s shoulder) or Rigel (the bright star in his foot)—but they are in the right neighborhoods. Below the belt, a few stars fall approximately where Peiresc found the great nebula in Orion—but again somewhat

out of place. We can imagine that the winter constellation of Orion had been seen many times by Rubens over the years, and perhaps even more so if Peiresc had written to him about his discovery of the Orion Nebula. Rubens had a somewhat legendary reputation about his memory—adding compositional elements to his paintings using items he had earlier filed away in his mind’s eye for later use. For *Landscape by Moonlight*, he might have simply painted Orion from memory, not intended as an accurate mapping of the stars on a given night, but rather as a touch of realism for this rare nighttime painting.

In addition to the Moon itself (with its hints of Elsheimer’s non-uniform disk), there is also a lunar halo in the sky. Again, as Elsheimer had done, there is a spectacular lunar reflection in the water below. In a country where landscape paintings rarely, if ever, show a clear sky, this was an unusual touch of reality. And then, just to add his own personal touch (and again perhaps from a recollection of a past nocturnal experience), Rubens added to the painting a celestial event that would be his own—something neither in Elsheimer’s painting nor in Peiresc’s observations—a faint shooting star streaking down from the left of center (Braham & Bruce-Gardner 1988). If Giotto could add a comet to his Nativity fresco in the Scrovegni Chapel in the early 1300s, surely a Dutch Master of the seventeenth century had the right to add a burning meteor to the sky above his own home.

Carrying speculation further, one finds hints of a few other constellations in *Landscape by Moonlight*. For example, to the left is a possible W-shaped group of stars that resemble the constellation Casseopoeia, while to the right the curving pattern of Scorpius might be envisioned. Yet, all three constellations (Orion, Scorpius, and Casiopoeia) are not visible from the latitude of Flanders on the same night. Again, they might have been representational of patterns seen throughout a year at Het Steen. Figure 4 shows these weak correlations with the actual patterns of stars in these three constellations. No single one is terribly convincing, but taken together they suggest an attention to the astronomical elements of the sky not previously attributed to Rubens. At Het Steen, he had the opportunity, motive, and means to do so.

5. Conclusions

In the world of art, Peter Paul Rubens was, and remains, a force of nature to be recognized, appreciated, and studied. In this brief presentation, the force of nature itself upon the master’s work was examined and explored. It was specifically the astronomical content in his works that was examined via personal connections in his life and via his correspondence. Previous studies had touched upon his images of the Sun (Olson & Pasachoff 2011), a portrait of Galileo (Reeves 1997), and the astronomy (Moon, meteor, and Milky Way) in his most famous landscape painting (Braham & Bruce-Gardner 1988). To this I added the possible inclusion of constellation imagery in *Landscape by Moonlight*. Rubens had seen his close friend and fellow artist Elsheimer add components to the sky in *The Flight into Egypt* that are not actually visible on a night of full moon. Rubens had previously added an absent person into a group portrait to enhance its message. The accepted view that Rubens’ occasional use of “assembled content” in his paintings is pushed, perhaps, to its limit in my interpretation of classical asterisms added to his *Landscape by Moonlight*.

Finally, aside from celestial devices, there is still ample evidence that Rubens paid serious attention to dramatic portrayals of the sky. Far less controversial are the series of rainbow paintings Rubens produced. These do not document specific histori-

cal events—but embellished impressions added to achieve his message. At the Wallace Collection in London, one can see *The Rainbow Landscape* (circa 1636) with its brightly colored arc above Rubens’ Het Steen estate late in the afternoon. An earlier rendition at sunrise, *Landscape with a Rainbow* (1630–1635), at the Hermitage in St. Petersburg, clearly features a double rainbow. Almost certainly in response to that painting, two centuries later the great British artist John Constable (1776–1837) painted his *Landscape with a Double Rainbow* (1812) that is now at the Victoria and Albert Museum. Rainbows in art are a form of astronomy in the atmosphere, a topic explored in detail by Lee & Fraser (2001).

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