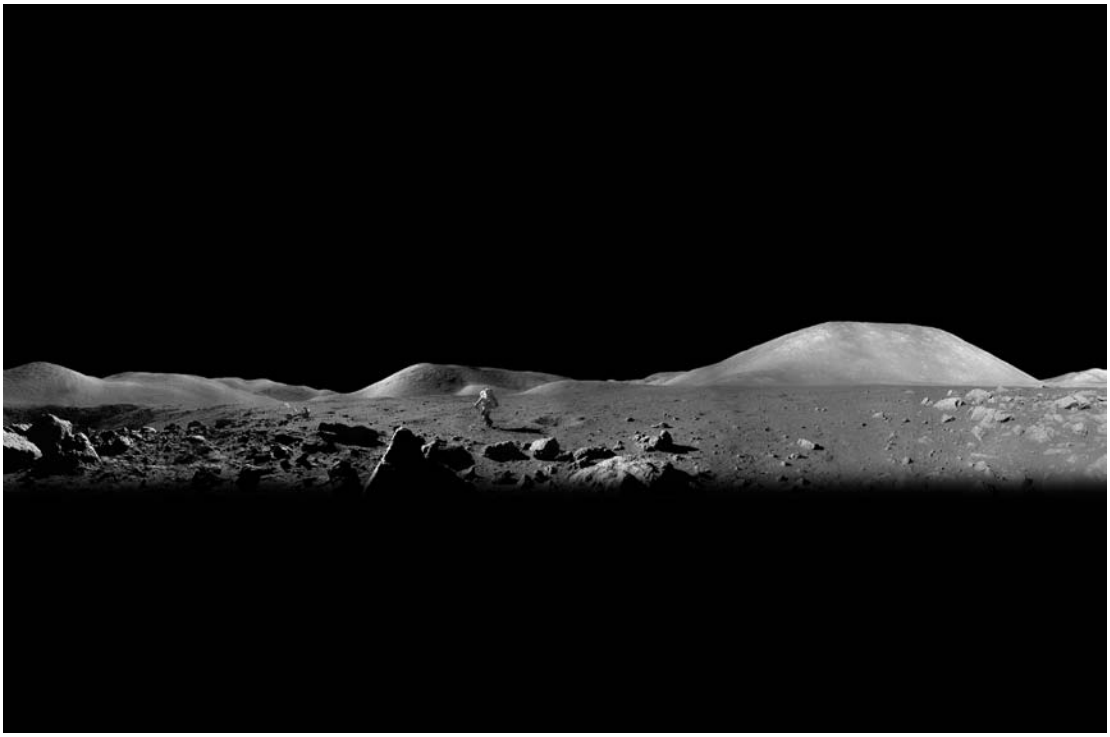
cabinet

A QUARTERLY OF ART AND CULTURE
ISSUE 50 MONEY
US $12 CANADA $12 UK £7

32
0 56698 98536 5



IT'S ALL DARK

JUSTIN E. H. SMITH

All that you touch / All that you see. The English graphic designer Storm Thorgerson, speaking of his career's most iconic album cover, told the BBC in 2009: "Refracting light through a prism is a common feature in nature, as in a rainbow. I would like to claim it, but unfortunately it's not mine!" In its title and in the color prism now eternally associated with it, *The Dark Side of the Moon*, Pink Floyd's 1973 magnum opus, elides the distinction between two very distinct chapters in the history of science. One is Isaac Newton's discovery, spelled out in the 1704 *Opticks*, that the prism does not so much produce color from light as it separates out the colors that are already in light. If refraction is a common occurrence in nature, nonetheless for 269 years, until Thorgerson's appropriation of it, the image of the prism belonged to the Newtonian legacy. The other chapter, the history of that side of the earth's sole natural satellite that, as a result of so-called "tidal locking," remains in its orbit perpetually occluded from terrestrial view, is rather more difficult to trace back through all of its pre-Floydian instances.

Waters, Gilmour, et al. had been hoping, in this particular lunar allusion, to draw on millennia of speculation about a place that, precisely to the extent that it lay beyond our view, had long served as a field for the projection of possibilities, for science-fiction scenarios well before that genre had a name. Yet the penultimate chapter of this lunar hemisphere's history, prior to its occupation by rock music, was played out against the background of the Cold War, and represented a victory not for youth or imagination or trippiness but for the advance of reason and the unstoppable juggernaut of Soviet techno-scientific domination. On 7 October 1959, the USSR launched its "interplanetary station" *Luna 3*, which circled around the far side of the moon and successfully transmitted vivid photographic images back to Earth. These were published by the Russian Academy of Sciences the following year in the magnificent *Atlas of the Opposite Side of the Moon*.[1]

The enthusiasm provoked by this achievement was in its way no less intense than what the rock band would inspire a little more than a decade later. Thus a certain E. Riabchikov writes in an article entitled "Hail Reason!" in the magazine *Znamia* toward the end of 1959:

Rocket! There is no country, there is no city, not even a tiny settlement, in Europe or America, in Asia or in

Wish you were here. *Apollo 17* Astronaut Harrison Schmitt running toward the dark side of the moon, December 1972. Courtesy NASA.

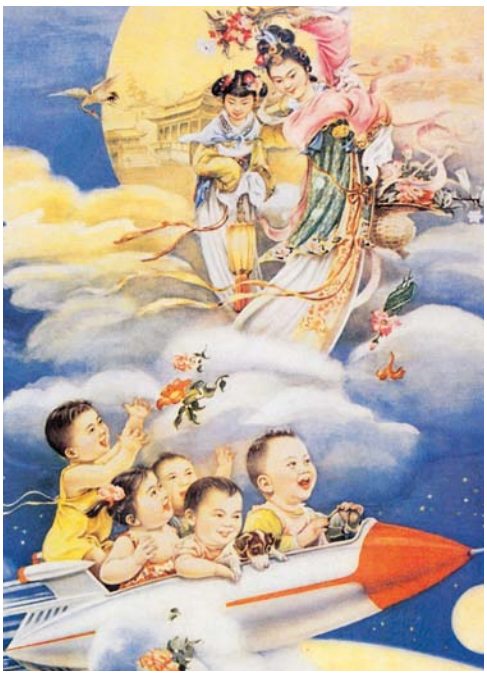
Africa, in Australia or in the tiniest Arctic wintering, where they do not speak of you with lively interest, o rocket![2]

Riabchikov compares the launch of *Luna 3* to the salvo from the battleship *Aurora* that triggered the October Revolution. The same year, B. Danilin wrote in an article entitled "The People Are Storming the Skies":

The launch of space rockets to the moon and around the moon promotes the pursuit of the positive goals of the discovery of the secrets of nature and of the opening up of her powers for the good of humanity. It is a new contribution to the development of world science from the first country in the world to have attained socialism.[3]

Danilin underlines that what the photographs sent back from *Luna 3* reveal is nothing less than "the true form of the lunar composition on the opposite side of our natural satellite."

Got to keep the loonies on the path. While generally dismissive of bourgeois contributions in this field, especially those made before 1959 in the absence of hard evidence, Soviet authors seem to have been struck by an irrepressible fondness for the autodidactic Welsh selenographer H. Percy Wilkins, who in 1953 had attempted to map out at least that 9 percent or so of the far side of the moon that is occasionally visible as a result of its so-called librations, the oscillations typically observed in orbiting bodies. Like his Soviet counterparts, Wilkins denounces those who make "all manner of curious speculations" about "the further side," and promises that his own sketch of it, "although of necessity imperfect and incomplete, does indicate that the same characteristic features, although with differences of detail, are found on the entire lunar globe."[4]

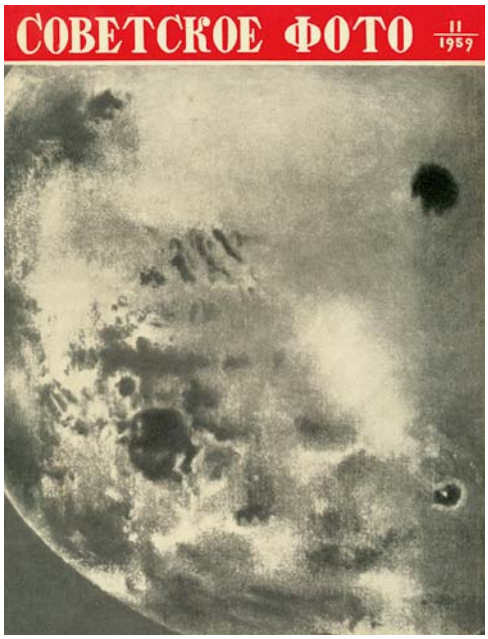


Early 1960s Chinese poster featuring the moon goddess Chang'e guiding a cadre of young rocketeers.

Wilkins is particularly contemptuous of the hypothesis that the moon is "oval or egg-shaped, the pointed end being directed towards us," and that the visible face "is a sort of gigantic mountain sticking up out of the atmosphere and water, which [are] supposed to be confined to the relatively low-lying other side."[5] Here, Wilkins is referring principally to the theory proposed by the Danish astronomer Peter Andreas Hansen, who in 1856 had argued that the moon is not a sphere at all but an ellipse, with a mountain rising from the visible part of the moon toward the earth, so high that it cannot sustain any life and therefore assures that the part of the moon we see will always be rocky, sterile, and lifeless. Hansen inferred that this could mean the other side compensates with lush vegetation and animal life.[6]

All that is now / All that is gone. We have been zigzagging across the European continent, working our way back in time, and while there is no place to properly start this history (we might also have mentioned the Great Moon Hoax of 1835, in which the *New York Sun* featured stunning lithographs of the lunar man-bats purportedly spotted by a telescope), now may at least be a good moment to take stock of its broad pattern. The moon, and *a fortiori* its far side, have served since antiquity as a field for the projection of ideas about the knowability and dominability of nature in general. Establishing that the moon is fundamentally like the earth, that the far side is fundamentally like the near side, that it is governed by the same laws, that there is nothing peculiar going on there—these are all part of a centuries-long process of rationalization of the cosmos whose core conviction is summed up in the motto of the lunar emperor Harlequin in Nolant de Fatouville's 1683 comic opera *Arlequin, empereur dans la lune*: "Always and everywhere, it's just as it is here."[7]

While it may not be evident at first glance, and while Nolant de Fatouville may not himself have been aware of it, Harlequin stands here as a sort of hero of the scientific revolution. Though its very happening remains a subject of controversy, this shift might in part be described as the sum of those conceptual changes



A *Luna 3* image of the dark side of the moon gracing the cover of the November 1959 issue of *Sovetskoe Foto*.

between the fifteenth and the eighteenth centuries that made it possible to study the arcs of cannonballs and the orbits of planets as instances of the same general natural processes, that did away with the ancient presumption of a categorical difference between the way things happen on Earth and the way they happen in the heavens. Harlequin's motto effectively condenses what Descartes, Pascal, Kepler, and so many others had been arguing in their own ways: that everything everywhere is governed by the same laws, that there is no center of the universe, and so no such thing as the heavens, no sector of the cosmos that we would find unfamiliar if we were to arrive there.

Up and down / But in the end, it's only round and round. According to the old scheme, the moon played a crucial role as a boundary: Aristotle, for example, divided the world into the "sublunar" and the "superlunar," with everything below the moon subject to the terrestrial cycles of generation and corruption, while everything above was composed of one element alone, the quintessence, and so could not come apart through separation. To which side of this divide the moon itself belonged was a matter of controversy. Thus, in the first century CE we find Plutarch, in his *De facie quae in orbe lunae apparet (Concerning the Face which Appears in the Orb of the Moon)*, describing that orbiting body as either a very impressive terrestrial object or a very sorry excuse for a celestial one:

Regarded as earth the moon has the aspect of a very beautiful, august, and elegant object; but as a star or luminary or a divine and heavenly object she is, I am afraid, misshapen, ugly, and a disgrace to the noble title.[8]

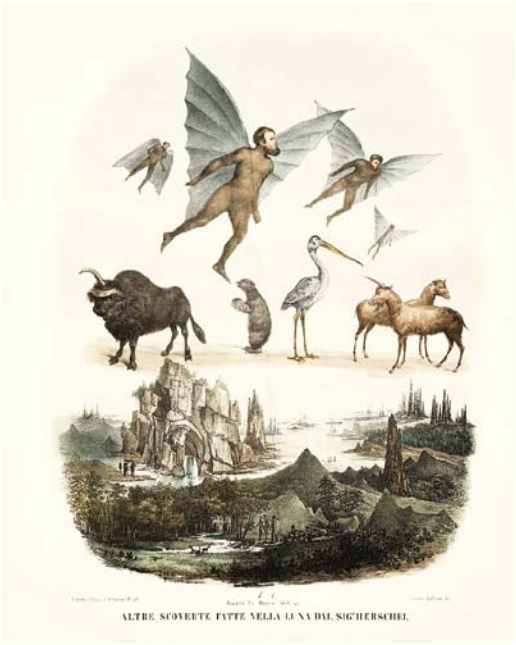
Plutarch's splitting of the moon in this way elaborates on its primordial separation into a known and an unknown hemisphere. One may suppose, in fact, that the moon's divided legacy in the history of human fantasy—as a twin to Earth, our one true *semblable*, and as the gateway to the unknown heavens, the realm of the angels and the aliens—flows as a direct consequence of the natural situation of the two orbiting bodies in question. The moon's rotational period is exactly the same as its orbital period, and so it remains perpetually fixed in relation to us: one side a smiling mirror, the other side (at least until *Luna 3*) a dark abstraction; a place that can play, except by its absence, no real role in terrestrial affairs.

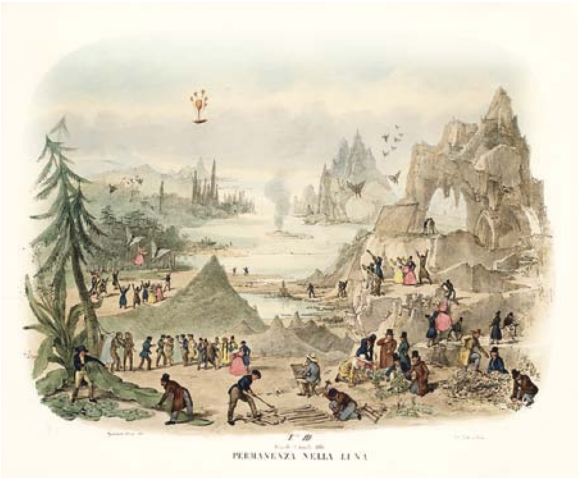
For long you live and high you fly / But only if you ride the tide. The near side of the moon is often imagined familiarly in the long history of proto-science fiction as a sort of island. Thus in his emphatically untrue *True History*, the second-century satirist and fantasist Lucian relates his own trip to the moon, which began in the middle of a sea voyage, when

a whirlwind suddenly arose, spun the boat about, raised her into the air about three hundred furlongs and did not let her down into the sea again; but while she was hung up aloft a wind struck her sails and drove her ahead with bellying canvas. For seven days and seven nights we sailed the air, and on the eighth day we saw a great country in it, resembling an island, bright and round and shining with a great light.[9]

The narrator and his crew are wrecked there, seized by vulture dragoons (*hippogypoi*), taken to Endymion the moon king, and enlisted to fight alongside the stalk-mushrooms (*kaulomuketes*) against the ant dragoons (*hippomurmekes*) of the sun.

In another remarkable passage from his lunar tale, Lucian describes a large looking glass that is "fixed above a well, which is not very deep. If a man goes down into the well, he hears everything that is said among us on earth, and if he looks into the looking-glass he sees every city and every country just as if he were standing over it." He reports trying it, and seeing "my family and my whole native land, but I cannot go further and say for certain whether they also saw me."[10] At the beginning of the *True History*, Lucian had warned that what he has to say "should on no account be believed."[11] Yet the story





above and left: Illustrations from Leopoldo Galluzzo's 1836 book ***Altre scoverte fatte nella luna dal Sigr. Herschel*** (Other discoveries made on the moon by Mr. Herschel). Galluzzo's book capitalized on the famous 1835 moon hoax perpetrated by the ***New York Sun***.

A "normal lunar crater" sculpted and photographed by Victorian astronomy hobbyist James Nasmyth. From his 1874 book ***The Moon: Considered as a Planet, a World, and a Satellite***.

of the looking glass is simply too wonderful to remain bracketed in the realm of fiction, and so he adds to it: "Anyone who does not believe this is so will find, if he ever gets there himself, that I am telling the truth."[12]

True or not, Lucian has laid out a number of the standard elements of lunar voyages that would remain more or less unchanged for a few millennia: blown off course in a storm, wayward voyagers end up on a special sort of floating and luminescent island, from which they are able to investigate the place from which they come, the earth, as itself a sort of island. Long before the destabilizing effect of the collapse of geocentrism, fantasies about the moon served to relativize the place of the earth in the cosmos.

If you can hear this whispering you are dying. It is Johannes Kepler's 1630 *Somnium*, a sort of ecstatic vision recounting the voyage of a certain Duracotus to the moon with the aid of Icelandic spirits conjured by his witch mother, that most vividly revives the tropes of ancient lunar fiction in the early modern period—and it does so in the service of the new anti-geocentric cosmology. In contrast with Plutarch and Lucian, moreover, one of the German astronomer's central preoccupations is with the difference between the near and the far sides of the moon, and in particular with the way the universe might appear looking out from the side that remains occluded from our view on Earth. In Kepler's dream, the earth is called Volva, while the moon, renamed Levania, is divided into two hemispheres: the Subvolvan, or the part that lies directly under the earth, and the Privolvan, which is to say the far side. The most striking difference between the two regions is that the Privolvans are "completely deprived of the sight" of Volva, which is "the most beautiful of all of the sights on Levania."[13] The far side never receives any of Volva's rays, and is consequently much darker, and therefore in turn covered with frost for much of the lunar year. It is not entirely dark, since at certain times of the year it receives near-constant illumination from the sun, but either way it is a region of extremes.

Fortunately, Privolva is "perforated with caves and grottoes everywhere," and "these recesses are the inhabitants' principal protection from heat and cold." Kepler's primary concern is astronomical and not astrobiological, yet as if in deference to the conventions of the genre he adds, somewhat hastily, a description of Privolvan life forms:

Whatever is born on the land or moves about on the land attains a monstrous size. Growth is very rapid. Everything has a short life, since it develops such an immensely massive body. The Privolvans have no fixed abode, no established domicile. In the course of one of their days they roam in crowds over their whole sphere, each according to his own nature: some use their legs, which far surpass those of our camels.[14]

And next, in a remarkable contrast, Kepler concludes his survey of Levania's regions as follows:

In general the Subvolvan hemisphere is comparable to our cantons, towns, and gardens; the Privolvan, to our open country, forests, and deserts.[15]

It is unknown whether Kepler's description of the sylvan far side would influence Hansen's speculation in the nineteenth century, and whether it did or not, the contrast that each of the authors wishes to make is different: the German opposes the savage and uncultivated far side to the urban and civilized near side, while the Dane opposes the verdant far to the barren near. But what remains constant is the belief that there must be *some* difference between the near side and the far side, between two cosmic realms whose official boundary, so to speak, is the solstitial colure between the two hemispheres. This is the difference that Wilkins denied and that the Soviets finally thought they had lain to rest in 1959, effectively hoping to have brought to completion the core project of modern science: to establish, as Harlequin put it, that everything is the same as here, that there are no ruptures in the cosmos.

The final words on Pink Floyd's album are spoken rather than sung: "There is no dark side of the moon, really," Gerry O'Driscoll, the doorman at Abbey Road Studios, is heard to say. "Matter of fact it's all dark." O'Driscoll presumably meant to point out that the moon is not itself a luminescent body, but only reflects light from elsewhere. Whose light it is reflecting, the sun's or the earth's, was long another source of controversy, as was the nature of the unevenness of the visible lunar surface. The simple fact that it was uneven already meant that it could not be a properly heavenly body, for (and this is why Galileo's sunspots triggered such a crisis) heavenly bodies are quintessential and therefore pure. The moon's shining is uneven, impure, and borrowed. It sucks up light, it sucks at the tides; it sucks the hair out through the lycanthrope's skin, and sucks the moon-calf prematurely from his mother's womb. It even sucks the blood of women, and the marrow from our very bones. In his 1655 *Histoire comique des états et empires de la lune*, Cyrano de Bergerac imagines his protagonist setting out on a lunar expedition by eating a hearty meal of *os à moelle* and waiting for the moon's attractive force to lift him.

The moon sucks, and smiles incessantly, and cannot even turn to face away from us to enjoy its sucking in private for a spell. As the title of his work on the face in the moon suggests, Plutarch had wanted to know why it smiles so: why there is, or appears to be, a man in the moon. Is he a reflection of terrestrial features, or is his appearance due to the relief of the moon's own surface? Is he in truth a man, or at least a telling indicator of the presence in the moon of some sort of conscious, perhaps rational, being? It might have helped Plutarch to know that in Chinese and Indian astrology, the relief in the near surface of the moon is not a man at all, but a rabbit, banished there for some earthly malfeasance in some versions, sent as a sacrifice in others. *Run, rabbit, run*.

The historical record attests, across continents and centuries, that the moon sucks up not just marrow and blood, but spirits, and once they arrive there they become as if part of the moon itself, collectively ensouling it, making it not just a body but a being. The stars, properly speaking, were always held to be ensouled, indeed divine, but only the moon had its share of soul through traffic with the earth. There is Chang'e, the Chinese moon goddess who floated there after consuming an elixir, and for whom Buzz Aldrin was instructed to watch out for by ground control in Houston during the *Apollo 11* landing. And there are the souls of the dead philosophers, Plato and Aristotle and the rest, who were discovered to dwell on the moon and whose names graced its caves, craters, and other features in the French Jesuit Gabriel Daniel's 1690 satire, *Voyage du monde de Descartes*.

It goes against centuries of traditional belief to accept that the moon is barren, that it is indifferent, that it is innocent of any role in monthly spikes in the crime rate or in the cycles of menstrual unreason. When telescopic observation had found nothing on the near side (Roger Boscovich had established by 1753 that it lacks even an atmosphere), the far side still remained a site for the projection of fantasies of a different, neighboring world. It was the *coup de grâce* of the men behind the Soviet space program to go to the other side and see for themselves, and while they could not have said as much, what they were in fact doing was checking to make sure that there was no atmosphere there, no vegetation, no seas or grottoes or beasts with legs like camels, no spirits. Again, this final verification was meant to seal the coffin on a certain old way of thinking, to show that it's all the same everywhere, and that simply being hard to reach does not make a region of the cosmos special or peculiar, nor charge it with any unusual powers, nor populate it with unusual beings.

But enchantment was declared dead too soon, and if the blunt minds behind *Luna 3* hoped to bring the Enlightenment to completion by shining the light of their shuttle on the dark side of the moon and broadcasting it back to Earth with their new "cosmic television," still, rock was lying in wait, with its counter-Enlightenment sensitivity to the darkness that lingers where the light of science and progress shines most brightly. In *The Changing Light at Sandover*, another magnum opus of the 1970s, James Merrill sees the same rockets hailed by Riabchikov two decades earlier as the very congelations of reason, and warns that the "Powers / We shall have hacked through thorns to kiss awake / Will open baleful, sweeping eyes, draw breath / And speak new formulae of megadeath."[16] Here the heavy metal allusion is off by a vowel, yet not entirely coincidental. The poet, like the band whose name is derived from the technical term for one million fatalities by nuclear explosion, sees that rockets are launched by unreason too. It's all dark, said the Abbey Road doorman. *The sun is eclipsed by the moon*.

1 N. P. Barabashov, A. A. Mikhailov, Yu. N. Lipskiĭ, eds., *Atlas obratnoĭ storony Luny* (Moscow: Akademiia Nauk SSSR, 1960). All translations from Russian are mine.
2 E. Riabchikov, "Da zdravstvuet razum!" *Znamia*, no. 11 (1959), p. 174.
3 B. Danilin, "Liudi shturmuiut nebo," *Zhurnal Tekhnika-Molodezhi*, no. 11 (1959), p. 7.
4 H. Percy Wilkins, "The Other Side of the Moon," *Journal of the British Interplanetary Society*, vol. 12, no. 1 (January 1953), p. 5.
5 Ibid., p. 1.
6 See P. A. Hansen, "Sur la figure de la lune," *Memoirs of the Royal Astronomical Society*, vol. 24 (1856), pp. 29–90.
7 "Toujours et partout, c'est tout comme ici." See Nolant de Fatouville (credited anonymously as Monsieur D***), *Arlequin, empereur dans la lune* (Troyes: Garnier, between 1765 and 1814). Nolant de Fatouville was identified as Anne Mauduit de Fatouville.
8 Plutarch, *Concerning the Face which Appears in the Orb of the Moon*, 16.1, in Plutarch, *Moralia*, trans. Harold Cherniss and William C. Helmbold, Loeb Classical Library, vol. 12 (Cambridge, MA, and London: Harvard University Press and William Heinemann, 1957), p. 99.
9 Lucian, *A True Story*, in *The Works of Lucian in Eight Volumes*, trans. and ed. A. M. Harmon (London and New York: William Heinemann and Macmillan, 1913), vol. 1, p. 259.
10 Ibid., p. 281.
11 Ibid., p. 253.
12 Ibid., p. 281.
13 Johannes Kepler, *Somnium; or, Posthumous Work on Lunar Astronomy*, trans. and ed. Edward Rosen (Mineola, NY: Dover Publications, 1967), p. 21.
14 Ibid., pp. 27–28.
15 Ibid., p. 28.
16 James Merrill, *The Changing Light at Sandover* (New York: Atheneum, 1982), p. 55.