

Space Flight in Literature

Pennsic 50 - Dani of the Seven Wells - dani@pobox.com

Certain and sure news – of a new world – and new creatures in that world – in the orb of the moon – which is now found to be an earth inhabited!

- Ben Johnson, “News from the New World Discovered in the Moon”

Preface and Apology

Before 1550, the moon had a role in popular culture as a symbol, a star, a harbinger of fortune or misfortune – but seldom as a place to which one might actually voyage. By 1650, the concept of space travel had entered the popular culture. A literary voyage to the moon could be expected to consider the means of travel, problems (realistic or frivolous) of surviving the journey, and some implications of conditions on the moon being different from those on Earth. This class covers works from both before and during this transition, though in doing so it stretches past the Society’s sixteenth-century boundary.

Plutarch and Lucian – A Classical Foundation

[If] it is not possible for the moon to be inhabited, it is also unreasonable to say that she is earth; otherwise she would have been created in vain and to no end....

....

Her distance from us contains six and fifty of the earth’s semidiameters, that is, she is six and fifty times as far from us as we are from the centre of the earth; which is forty thousand stadia... Therefore the sun is above forty million and three hundred thousand stadia distant from the moon.

- Plutarch, “In the Orb of the Moon”



Borrowed Wings and Borrowed Chariots

Menippus: ...[It] was Daedalus's wing trick that I tried.

Friend: Well, talk of foolhardiness! Did you like the idea of falling into the sea, and giving us a *Mare Menippeum* after the precedent of the *Icarium*?

Menippus: No fear. Icarus's feathers were fastened with wax, and of course, directly the sun warmed this, he moulted and fell. No wax for me, thank you.... I caught a fine eagle, and also a particularly powerful vulture.

- Lucian of Samosata, "Icaromennipus", 2nd C.

The next fourteen centuries saw little new in the way of lunar science – or literature.

Ptolemy, moreover, in the fifth section of the *Almagest*... [It] is therefore evident that the thickness of the sphere of the moon is 99,504 miles... Since, then, the nearer distance of the sphere of the moon is 109,037 miles and half a mile, if half of the diameter of the earth is subtracted, that is 3250, from the number of whole miles stated above, omitting the half mile, the remainder of the distance of the sphere of the moon will be 105,787.

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Roger Bacon, "Opus Majus", 1287

Astolfo has borrowed Elijah's chariot, but his science has firmly-pagan roots:

The horses rise; first, like a hoverer,
The chariot rotates, then they approach
The sphere of fire, and by a miracle
They are not burned or singed, and all is well.

When they have left the ring of fire behind...

Ludovico Ariosto, "Orlando Furioso", Canto 34, 1516

A century later, the same durable cosmology of a moon embedded within elemental and celestial spheres would suffice to inform the learned Don Quixote during his own abortive flight:

Don Quixote at last feeling the Wind, Sure, said he, we must be risen to the middle Region of the Air, where the Winds, Hail, Snow, Thunder, Lightning, and other Meteors are produc'd; so that if we mount at this rate, we shall be in the Region of Fire presently....

- Miguel Cervantes, "Don Quixote", 1605/1615

A New Cosmology

Accordingly, since nothing prevents the earth from moving, I suggest that we should now consider also whether several motions suit it, so that it can be regarded as one of the planets. For, it is not the center of all the revolutions. This is indicated by the planets' apparent nonuniform motion and their varying distances from the earth. These phenomena cannot be explained by circles concentric with the earth.

- Nicolaus Copernicus, "De Revolutionibus Orbium Coelestium", 1543

I am sure that there are no rains on the moon, because if clouds collected in any part of it, as around the earth, they would hide some of the things on the moon that we see with the telescope. Briefly, the scene would alter in some respect; an effect which I have never seen during long and diligent observations...

- Galileo Galilei, "Dialogue Concerning the Two Chief World Systems"

Actual sight testified that there is a certain bright heavenly body which we call the Moon. It was demonstrated from the laws of optics that this body is round; also Astronomy, by some arguments founded upon optics, had built up the conclusion that its distance from the earth is about sixty semi-diameters of the earth.

- Johannes Kepler, "Dioptrice", 1611

[You] may see this proved by *Plutarch*, in that delightful Work which he properly made for the Confirmation of this particular. With him agreed *Alcinous* and *Plotinus*, later Writers. Thus *Lucian* also in his Discourse of a Journey to the Moon, where though he does speak many things out of Mirth and in a jesting manner: yet in the beginning of it he does intimate that it did contain some serious Truths concerning the real Frame of the Universe....

But the Opinion which I have here deliver'd was more directly prov'd by a) *Maeslin*, b) *Keplar*, c) *Galileus*, each of them late Writers, and famous Men for their singular Skill in Astronomy. *Keplar* calls this World by the Name of *Levania*, from the Hebrew Word [levana], which signifies the Moon...

...

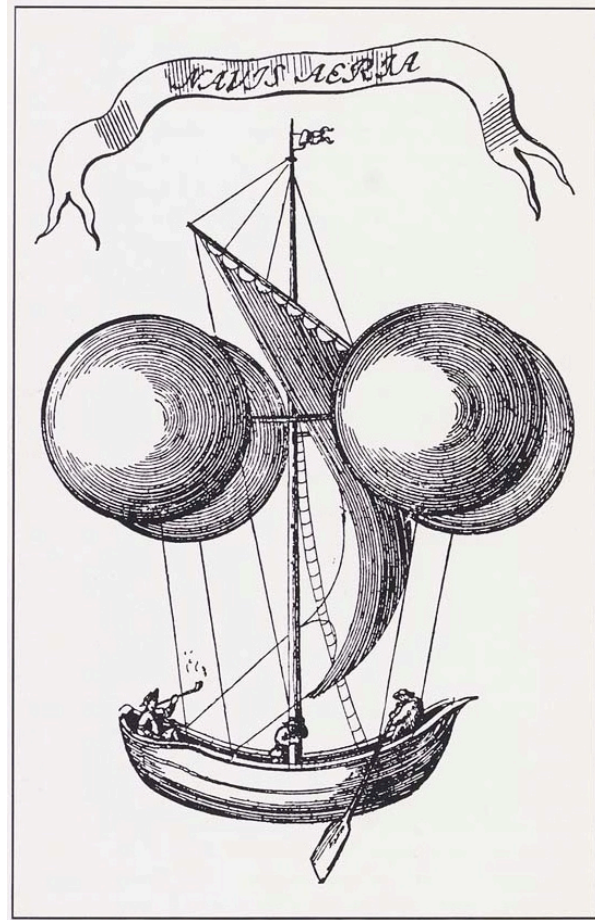
- Proposition 1, That the strangeness of this opinion is not sufficient reason why it should be rejected, because other certaine truths have been formerly esteemed ridiculous, and great absurdities entertained by common consent.
- Proposition 2, That a plurality of world doth not contradict any principle of reason or faith.
- Proposition 3, That the heavens doe not consist of any such pure matter, which can priviledge them from the like change and corruption, as these inferiour bodies are liable unto.
- Proposition 4, That the Moone is a solid, compacted, opacous body.
- Proposition 5, That the Moone hath not any light of her owne.
- Proposition 6, That there is a World in the Moone, hath beene the direct opinion of many ancient with some moderne Mathematicians, and may probably be deduced from the tenents of others.
- Proposition 7, That those spots and brighter parts which by our sight may be distinguished in the Moone, doe shew the difference betwixt the Sea and Land in that other World.
- Proposition 8, The spots represent the Sea, and the brighter parts the Land.
- Proposition 9, That there are high Mountains, deepe Vallies, and spacious Plaines in the body of the Moone.
- Proposition 10, That there is an Atmosphere, or an orbe of grosse, vaporous aire, immediately encompassing the body of the Moone.
- Proposition 11, That as their world is our Moone, so our world is their Moone.
- Proposition 12, That tis probable there may be such Meteors [weather, climate] belonging to that world in the Moone, as there are with us.
- Proposition 13, That tis probable there may be inhabitants in this other World, but of what kind they are, is uncertaine.
- Proposition 14, That tis possible for some of our posteritie, to find out a conveyance to this other world; and if there be inhabitants there, to have commerce with them.

...

So likewise it is probable, that this Magnetical Vigor does remit of its degrees proportionably to its distance from the Earth, which is the cause of it: and therefore though the thicker Clouds may be elevated no higher, yet this Orb may be continued in weaker degrees a little beyond them. We will suppose it (which in all likelihood is the most) to be about Twenty Miles high. So that you see the former Thesis remains probable, that if a Man could but fly, or by any other means get Twenty Miles upwards, it were possible for him to reach unto the Moon.

John Wilkins, "A Discovery of a New World", 1638

New fiction, grounded in the new science



Less-probable conveyances: On the left, Domingo Gonzales's goose-powered flyer. On the right, Francesco Lana's lift is provided by vacuum balloons¹.

One of the better early novels was written by Kepler himself. His actual voyage to the moon was low-tech – carried by lunar demons – but even there he considers the effects of high acceleration, lack of air, the cold of outer space, and removal from the Earth's gravity. The rest, however, is travelogue – with copious footnotes – as Kepler speculates on lunar conditions in light of what is known about the moon and about (sorry) Kepler's Laws.

For in those very deep layers of the water, they say, the cold persists while the waves on top are heated up by the sun; whatever clings to the surface is boiled out by the sun at noon, and becomes food for the advancing hordes of wandering inhabitants.... Those for whom breathing is more essential introduce the hot water into the caves through a narrow channel in order that it may flow a long time to reach the interior and gradually cool off....

Johannes Kepler, "Somnium", 1611/1634

¹ Lana's vehicle dates to 1670, which is beyond even the extended period covered by this class, but I couldn't resist including this picture.



Solar-Powered Flight: Cyrano de Bergerac on his way to the moon (left) and sun (right).

Cyrano de Bergerac is an equal-opportunity thief. His methods of reaching the moon include spring-driven wings, rockets, dew, bone marrow, swimming (at the time of Noah's flood, when the waters were higher), the odor of sanctity, demons, magnets (such as those powering Elijah's chariot), and will power.

When the fire had consumed one row of the rockets, which had been arranged six by six, the device of a fuse, fixed at the end of each half dozen, set off another layer, and then another, so that the saltpeter caught fire and gave me a fresh lease of life, at the same time as it carried me farther into danger.

However, when the supply was all used up, the contrivance failed and I was resigning myself to leaving my crown upon that of some mountain when (without my making any movement at all) I felt my levitation continuing. My machine took leave of me and I saw it falling back towards the earth...

When, according to the calculations I have since made, I had traveled much more than three quarters of the way from the earth to the moon, I suddenly found myself falling head first, although I had not somersaulted in any fashion...

Cyrano de Bergerac, "The States and Empires of the Moon", 1648/1657

Bibliography

And here, one that had a strong Fancy, were better able to set forth the great benefit and treasure to be had from such a Journey. And that whether you consider the strangeness of the Persons, Language, Art, Policy, Religion of those Inhabitants, together with the new Traffick that might be brought thence, In brief, do but consider the pleasure and profit of those later Discoveries in America, and we must needs conclude this to be inconceivably beyond it.

- John Wilkins

For historical sources, these are the translations I used. (There tend to be numerous options.) Most of the historical sources are available online in one translation or another.

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<https://articles.adsabs.harvard.edu/full/1969Moon....1...59K/0000060.000.html>. For entertainment value - A map of the moon, based on naked-eye observations⁴.

² The Turner translation, which I used in this essay, is badly over-modernized. However, the Hickeys translation is more difficult reading for modern readers.

³ An excellent [modern] history of literary flight. This book focuses upon the literature. An earlier book by Nicolson, “A World in the Moon”, 1935, focuses upon the intellectual background of that literature.

⁴ Published 1651, but William Gilbert died 1603, so this would have been drawn before that.