

Alien Architecture

The Building/s of Extra-terrestrial Species
- Pre-twentieth Century

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Chapter One - Introduction

The extra-terrestrial has become a familiar archetype. The alien in literature flourished in the last century as never before with over one quarter of the top rating science fiction books of 2004 containing extra-terrestrials.¹ Popular films like *Star Wars* feature a complex environment filled with both aliens and architecture. Yet the development of extra-terrestrial literature before the twentieth century spans at least one thousand, eight hundred and twenty five years. Just how did these early examples deal with the architecture of other worlds?

But why study the architecture of extra-terrestrials as imagined by humanity in the first place? Unlike extrapolations of humanity, future or past, the creation and depiction of extra-terrestrial beings is not bound by the constraints of reality or history. Unlimited potential exists to create beings of any aspect. It follows therefore that unlimited potential also exists to create architecture of any aspect. But in actuality what kind of architecture is portrayed? Is architecture pushed to the limits in alien narratives? Is it different from the architecture of Earth or is it the same? These questions are interesting in themselves but more interesting is the potential for the study of alien architecture to reveal something about how we humans think about architecture on Earth.

To allow an intelligible interpretation of the species in question and to facilitate any understanding of meaning, the physical depiction of the alien and its milieu must be readable. This study will postulate that architecture is one of the means by which an alien species is defined and made comprehensible - that architecture is a tool for understanding. This thesis will also consider how architecture helps us to understand the relationship between ourselves and an alien species, proposing that architecture is one of the means by which the character of an alien species is read.

¹ Using the Using Peter Sykes web-based Sci-fi Lists compiled from a number of critical and popular sources. Of the two hundred books listed, one hundred and seventy four were read prior to this thesis and of those sixty contained aliens. Peter Sykes & Sci-Fi Lists 2001-2004, <http://home.austarnet.com.au/petersykes/topscifi/index.html>

This thesis will also look for any changes that have occurred in the depiction of extra-terrestrial architecture antecedent to the twentieth century. This potentially charts the growth of a symbolic exploitation of architecture within the field of literature about other worlds. It will ask if there are any architectural conventions commonly used to represent alien-ness or if there are trends in how the architecture of aliens is portrayed.

Yet the feasibility of a study of this kind, concentrating only on depictions of extra-terrestrial architecture prior to the twentieth century, is open to question. Alien architecture in text, by the very nature of its premise, is often classified as science fiction. As a genre science fiction is critically acknowledged as a twentieth century phenomenon.² The literary figures that are most often credited as progenitors of the genre all worked immediately prior to the twentieth century.³ But many critics also recognise a large body of work that exists in prior centuries, the antecedents of science fiction.

Part of this study is intended to question whether there are architectural conventions established by these early works. It is clear that many twentieth century science fiction authors have been demonstrably aware of the work of their predecessors. Given the intertextual nature of science fiction in general,⁴ the study of this earlier work should be invaluable to anyone interested in studies of architecture in twentieth century science fiction. By concentrating on the early evolution of alien architecture a richer and deeper understanding of later works is made possible. Beyond the field of architecture this study may also be of interest to people looking at studies in popular culture, history, utopian/dystopian dialogues, literature and science fiction in general.

The determination of a division between the pre-twentieth and the twentieth century literature is justified on several grounds. The recognition of science

² Science fiction is generally considered to have reached genre status with the introduction of the pulp magazines of the 1920's though the origins of the genre are hotly contested amongst science fiction critics, with some establishing a pedigree back to Lucian in the second century AD and others arguing that it is purely a 20th century phenomenon. In the context of examining alien architecture this debate is irrelevant, the texts analysed are clearly on extra-terrestrials, whether they are science fiction or historical precursors.

³ In particular Mary Shelley, Jules Verne and H.G. Wells

⁴ Overt references to other science fiction texts are common within the genre of science fiction.

fiction as a purely twentieth century genre is again relevant here. With the establishment of the genre, the significant works of earlier centuries were overlaid and overshadowed by the works of those immediately prior to the twentieth century. The twentieth century would also see the architectural revolution of the Modern movement, with its extensive impact on civilisation and its environs. The widespread adoption of film as a medium would change not only the genre but also the social consciousness. Finally the separation between alien architecture of the pre-twentieth and the twentieth century relates to the technological and societal changes that came out of the industrial revolution.

This is not a study of architectural fact or plausibility, but a study in architectural imagination. Based on textual research, it looks at literary examples of alien architecture before the twentieth century, focusing on examples within the western literary tradition. The scientific progress of the west, particularly in cosmology, inspired the greatest number of texts on other planets. Extra-terrestrials in fiction do occur in other literary traditions, such as Japanese texts,⁵ yet references to them are sparse.

As no chronology of works important in the study of alien architecture exists,⁶ studies on the plurality of worlds debate, the pre-history of science fiction and the history of spaceflight in fiction were researched to find appropriate works. Works from this broad archive of potential works were studied and appropriate works selected for inclusion in the thesis. It includes both fiction and non-fiction and draws on a range of narrative and scientific works, including utopian, satirical, comedic, philosophical and adventure texts. Thus this thesis will also provide a survey of pre-twentieth century extra-terrestrial architecture. Given the constraints of this paper this is necessarily not a comprehensive study, though every work that significantly featured in all three associated fields has been included.

⁵ Such as *The Old Bamboo Cutter's Story* written circa 900 A.D. by an anonymous author in which a moon maid is brought up on Earth before being summoned back to the Moon. Matthew Richardson (ED). *The Halstead Treasury of Ancient Science Fiction*, Halstead Classics, Halstead Press, Sydney, 2001. p117

⁶ This author could find no significant body of work in this field, it may of course exist.

As secondary analysis on the architecture of pre-twentieth century texts on other worlds is minimal or non-existent, the primary texts are often the only relevant source. Some analysis was found in works on the plurality of worlds debate, rather less within the fields of science fiction pre-history and spaceflight in fiction. This study then relies on an examination of the primary texts. Translations of the original texts from French, German, Italian and Latin were used. Some works were not readily available in translation and hence were not included in this thesis.⁷

This thesis will follow a chronological format which is well suited to the study of pre-twentieth century alien architecture. Historical contexts, thematic fashions and trends in the textual style are made evident by using a sequential timeline. The influential nature of the earliest cosmic voyages, many of which were continually read and referred to by later authors, is also complemented by a consecutive order. Works important to the timeline have been included even if their architectural content appears to be insignificant. Their inclusion relates to the study of changes in architectural representation.

This thesis identifies a gap in architectural literature. It forms a ground-work study of the representation of extra-terrestrial architecture. It does not supply a definitive answer. This thesis then forms a prequel to the study of alien architecture in the twentieth century and beyond.

Chapter Summaries

Chapter Two, Building Neighbours, will look at the earliest examples of alien architecture and the context in which they arose, starting with the concept of a plurality of worlds in ancient Greece. The first detailed example used is *A True Story* by the Roman citizen Lucian of Samosata. Moving to the Renaissance and the new science of Copernicus, the chapter will end in an examination of Johannes Kepler's *Somnium*.

⁷ Though all of the primary examples mentioned in the associated fields were available, more obscure works such as Carl Ignaz Geiger's *Reise eines Erdbewohners in den Mars* (1790) remain elusive.

Chapter Three, The New Found Frontier, will cover the development of the otherworldly literature and its associated architecture in the seventeenth century. The first major work examined will be Bishop Godwin's novel of a moon adventure, *Domingo Gonsales*, followed by Cyrano De Bergerac's seminal satire, *A Voyage to the Moon*. In addition to these narrative works a number of popular scientific works are examined including Fontanelle's *A Conversation of the Plurality of Worlds* and Christian Huygen's *Cosmotheoros*.

4. A Century of Satire will trace the predominately satirical conventions of the eighteenth century under the aegis of the eighteenth century Enlightenment. Samuel Brunt's *A Voyage to Cacklogallinia* is the primary example here. This century also witnessed the emergence of the colonial attitude in depiction of other worlds, particularly notable in Ralph Morris' novel *John Daniel*. Interspersed with these examples are more fantastical elements including the drawings of the *Raccolta* by Fillipo Morghen and the spiritual journeys of Emanuel Swedenborg in *De Telluribus*.

5. Evolutionary Adventures will bring us to the nineteenth century where the narrative adventure reigns supreme. Dealing in particular with the notions of a superior culture on Mars, evolution and the depiction of urban spaces, the texts will include Percy Greg's *Across the Zodiac* and Robert Cromie's *A Plunge into Space*. Voyages to Venus are also represented by *A Columbus of Space* by Garrett P. Serviss.

6. Alien Futures looks at only two novels in detail. The first, *Auf Zwei Planeten* by Kurd Lasswitz, leads on from concepts introduced in the texts of the last chapter. The second, *The First Men in the Moon* by H.G. Wells, brings us the first detailed aliens of non-human appearance.

Chapter Two - Building Neighbours

There are infinite worlds both like and unlike this world of ours.⁸
(Epicurus, 341-270 B.C.)

The creation of extra-terrestrial architecture is inexorably linked to the creation of extra-terrestrial terrain. As far back as the 6th century B.C. philosophers speculated on the existence and nature of other worlds.⁹ Emphasis however was not on what kind of life may exist on these other worlds but on whether other worlds existed at all.¹⁰ The Atomist school of thought favoured an infinity of worlds but this concept was eclipsed in history by the single cosmos of Aristotle's universe.¹¹

Early speculation about extra-terrestrial life focused on the Moon, sidestepping the plurality of worlds debate.¹² The notion that the Moon was similar to the Earth is attributed to Orpheus and Thales in the 6th century B.C., while in the next century Philolaus is reputed to have believed the moon was inhabited. The earliest text of any significance on the subject comes from the Greek biographer, Plutarch (ca. 46-120). His treatise, *Concerning the Face which Appears in the Orb of the Moon*, is in essence a conversational summation of contemporary scientific knowledge of the moon. Late in the discussion Theon asks about the moon "*not whether any do inhabit it but whether habitation there is possible*".¹³ Lamprias answers at length, contending that no argument has been put forth that eliminates life from the moon. He goes on to suggest that:

⁸ Quoted in Steven J. Dick, *Plurality of Worlds*, Cambridge University Press, 1982. p10

⁹ Notably the Atomists Leucippus and Democritus in the 4th century B.C. and thence to Epicurus and Lucretius, though both Guthke and Dick note the existence of the questioning of plurality of worlds in some guise back to Thales, Anaximander and Anaxagoras in the 6th century B.C. and the early Pythagoreans in the 6-4th century B.C.

¹⁰ Dick notes that the original concept of other worlds is that of other *kosmos*, in effect a world comprised of earth, sky and heavenly bodies in a single unit.

¹¹ Aristotle (384-322B.C.)

¹² Dick views this "as an intermediate concept between the atomist and the Aristotelian views in the sense that it proposes not a single world or an infinite number of worlds, but two worlds – the Earth and the moon – within a single cosmos." Steven J. Dick, *Plurality of Worlds*, Cambridge University Press, 1982. p20

¹³ Plutarch, *Plutarch's Moralia in Fifteen Volumes*, Volume XII, The Loeb Classical Library, William Heinemann Ltd, London 1968. p157

Those who demand that living beings there be equipped just as those here are for generation, nourishment, and livelihood seem blind to the diversities of nature, among which one can discover more and greater differences and dissimilarities between living beings than between them and inanimate objects.¹⁴

Finally Lamprias proposes that our damp, cloudy earth might equally be viewed as uninhabitable by these moon dwellers. The themes that Plutarch introduces, a possibility of life on the Moon, human or otherwise, the prospect that these creatures may hold alternate views to ours and the notion of their adaptation to their environment, would continue to resonate through many later cosmic voyages. But the question of the shape and subsistence of these non-human inhabitants, let alone their architecture, remained unasked and unanswered.

The first literary description of extra-terrestrial life comes from the second century AD when the Roman citizen Lucian of Samosata wrote an admittedly spurious tale of a sailor's accidental journey to the moon.¹⁵ A strange mix of bizarre inhabitants, fierce battles and wildly improbable sexual practices, *A True Story*¹⁶ lampoons the philosophers and literature of his day. But there is little reference to the architecture of the strange races encountered. Building types are mentioned only in passing - palace, house, monument, stables. Nor does Lucian write about what his protagonist might have experienced in the spaces of his journey, though a stable for a giant three-headed bird would surely be most extraordinary.

Only once does Lucian describe a lunar scene in detail, anticipating the surveillance wishes of earthly nations two millennia removed.

Another marvel I saw was in the royal palace. Here there is an enormous mirror suspended over a rather shallow well. If you stand in the well, you hear everything said on earth; if you look at the mirror, you see each city and nation as clearly as if you were standing over it.¹⁷

¹⁴ Plutarch, *Plutarch's Moralia in Fifteen Volumes*, Volume XII, The Loeb Classical Library, William Heinemann Ltd, London 1968. p177

¹⁵ Lucian exhorts his readers to not believe a word of his tale.

¹⁶ Written between A.D.165-175.

¹⁷ Lucian of Samosata, *A True Story*, AD 165-175, Lionel Casson (translator), contained in its entirety in *The Road to Science Fiction*, Scarecrow Press Inc, Lanham, Maryland and Oxford, 2002.

At first this account appears to be an architectural oddity within the text. The idea is not developed and appears to have little relevance to the rest of the story. It is only when you look at it in conjunction with Lucian's subsequent work, *Icaromenippus*,¹⁸ that its significance becomes apparent. Aaron Parrett notes about Lucian's later tale, in which the moon features only as a interplanetary rest stop on the way to the heavens, "*This is the first instance in the history of the translunar narrative of the moon's offering the traveller a privileged vantage point from which to observe human activity on earth*".¹⁹ In this context the viewing apparatus in *A True Story* is revealed as an external viewpoint to the Earth. But only in *Icaromenippus* is this concept of removed perspective taken to its didactic end, where the Earth is seen as a whole and the petty squabbling of its inhabitants revealed to be laughable provincialisms.

It would then seem that beyond the virtue of being the first account of a journey to the moon, Lucian's *A True Story* is an unlikely example to begin with. But even the absence of architectural fancy is in itself significant. It contains an inherent assumption that the architecture is so ordinary as to be unremarked, even though the beings that inhabit the Moon are themselves remarkable. The absurdities are physical and social, not architectural. This then is an ideal place to start an exploration into the depiction of extra-terrestrial architecture for it marks a kind of introductory negative. Somewhere over the next two thousand years architecture would become an important method in the defining of an alien species.

It would take until the seventeenth century before another descriptive text on extra-terrestrial beings would appear. During the ensuing centuries the question of otherworldly beings was not entirely forgotten. Nicholas of Cusa²⁰ wrote in the late middle ages:

¹⁸ *Icaromenippus* contains no aliens though its main protagonist, Menippus, does land on the moon which is inhabited only by an earthly philosopher Empedocles who was carried there by the smoke of Mt Etna

¹⁹ Aaron Parrett, *The Translunar Narrative in the Western Tradition*, Ashgate Publishing Ltd, England 2004. p20

²⁰ Nicholas of Cusa (1401-1464)

It may be conjectured that in the area of the sun there exist solar beings, bright and enlightened intellectual denizens, and by nature more spiritual than such as may inhabit the moon - who are possibly lunatics – whilst those on earth are more gross and material.²¹

Neither was the Moon forgotten as a site for extra-terrestrial inhabitants. Ludovico Ariosto's epic poem of 1516, *Orlando Furioso*, contains a Moon of vast proportions to which the poem's characters ascend in a chariot. Though populated with stately cities, towns and castles, the Moon fulfils a more mythical role. All that is lost on the Earth finds its way to the Moon which acts as a vast repository. Reputations, the sighs of lovers, a vast pile of brains or wit, the Moon holds it all. Yet the architecture is only a undescribed backdrop, mentioned briefly.

In the interim between cosmic journeys, the Christian Church had adopted the world view of Aristotle whose geocentric cosmos featuring Earth as the only planet and centre of the universe, suited religious views of man's supremacy. The plurality of worlds debate became inextricably linked with religious theology. Until this worldview was challenged the concept of extra terrestrial life was marginalised. The cosmic journey was on hold. Almost no literary examples are mentioned by chroniclers of interplanetary voyages prior to the sixteenth century, with the exception of Dante's transcendental voyage.²²

Two renaissance scientists would trigger the rejection of the Aristotelian cosmos and the popular acceptance of a new system of cosmology, an astronomical revolution that would ultimately create an immeasurable tract of fertile worlds for new imaginings to settle.²³ The first was Copernicus who in his manuscript of 1543, *De revolutionibus Orbium Coelestium*, detailed a cosmology dominated by the revolution of the planets around the sun. Differentiated from earlier, similar beliefs by its mathematical proof, the manuscript had immense implications. As Steven J Dick explains:

²¹ Nicholas of Cusa quoted in Steven J. Dick, *Plurality of Worlds*, Cambridge University Press 1982. p42

²² Including Guthke, Nicolson, Lancelyn Green, Gunn, Montgomery and Parrett

²³ While Copernicus and Galileo's research is universally recognised as important, Karl S. Guthke's book, *The Last Frontier*, in particular takes the Copernican revolution as significant in the development of science fiction.

By conferring the same kinetic status upon the Earth and the planets, it implied that there might also be similarities in their composition and function. Indeed, there was no longer any physical basis for supposing that the Earth should be different from the other planets.²⁴

The second scientist to invalidate the archaic cosmology was Galileo whose *Sidereus Nuncius* of 1610 revealed telescopic observations of the Moon, showing it to have a surface similar to that of the Earth. Galileo's observations of the sky provided empirical evidence of not only an earth-like Moon but of the new order of cosmology proposed by Copernicus.

Copernicus and Galileo directly influenced the author of the next most significant literary lunar work.²⁵ Early in the seventeenth century Johannes Kepler wrote an astronomical exposition disguised as fiction. In it a young man, Duracotus, is spirited to the Moon by a demon. Written in 1610 and published posthumously in 1634,²⁶ much of the *Somnium* or *The Dream* belies the supernatural nature of the opening sequence. Instead it details the conditions of the moon and their consequences for the lunar inhabitants. It is essentially a scientific study of the different hemispheres of the moon, termed by Kepler as the "Privolva" and the "Subvolva". In the final section Kepler populates the land with inhabitants, extrapolating their size and way of life from their environment.

But it is in the later *Geographical Appendix to the Dream*, written after Kepler became familiar with Galileo's work and after his own experiments with the telescope, that Kepler takes the story into architectural fantasy. Offering it up as "*literary enjoyment*",²⁷ Kepler depicts the moon spots as fortified hollows inhabited by moon-dwellers, used for defence and shelter from the sun. Kepler goes as far as describing how the moon dwellers make those mounds before dismissing the comments as playful remarks.

²⁴ Steven J. Dick, *Plurality of Worlds*, Cambridge University Press, 1982. p62 (Dick also points out that this marks the transition from a debate about plurality of *kosmoi* to a focus on worlds as other Earth-like planets.)

²⁵ Kepler's *Somnium* and earlier works are based on Copernican theory. Kepler credits both Copernicus and Galileo in the notes to the *Dream*. Interestingly Lucian's *True Story* and Plutarch's treatise are also acknowledged.

²⁶ The climate for those espousing views disparate to official church beliefs was dangerous. In 1600 Giordano Bruno was burnt at the stake by the Inquisition for heretical beliefs, including that of an infinite number of earth-like worlds.

²⁷ J. Kepler, E. Rosen (translator), *Kepler's Somnium*. University of Wisconsin Press, Milwaukee and London, 1967. p150

They drive a stake down in the center of the space to be fortified. To this stake they tie ropes which are either short or long, depending on the size of the future town. The longest I have detected in five German mile. With the rope fastened in this way, they move out to the future ramparts circumference, as defined by the ends of the ropes. Then the entire population assembles to do the digging for the rampart....²⁸

Yet these are obviously not frivolous remarks and in his extensive notes to the geographical appendix, Kepler reveals serious scientific intent, ending with the statement: "*In this way, therefore, I believe that everything in the letter has been proved*".²⁹ Kepler obviously believed in the validity of his deductions but while the observations were backed with empirical evidence the extrapolations are pure conjecture.

Kepler's speculation contains a number of interesting assumptions related to architecture. The first is the linking of regularity and geometry with intelligence. Applying the reasoning that natural forces³⁰ could not have been responsible for the perfect roundness of the moon spots, or their arrangement, Kepler concluded that the moon spots were "*artificial and produced by some architectural mind*".³¹ The existence of civilised beings is thus revealed to Kepler by the seemingly artificial artefacts of the moon.

The second assumption is that although the beings of the moon are different to us in appearance, of monstrous size and serpentine aspect, they are sufficiently human in reason and ability to share our architectural characteristics. Kepler even acknowledges this directly when discussing the construction of the moon spots, noting "*This, too, is recommended to us by our terrestrial mechanics and architecture*".³² Guthke notes for every question that Kepler's observations raise, he has only to consult his own reason for an answer. From the one assumption that the moon spots are

²⁸ J. Kepler, E. Rosen (translator), *Kepler's Somnium*. University of Wisconsin Press, Milwaukee and London, 1967. p151

²⁹ Ibid. p174

³⁰ By natural forces Kepler predominately means the forces of erosion and water.

³¹ J. Kepler, E. Rosen (translator), *Kepler's Somnium: Notes on the Geographical Appendix*. University of Wisconsin Press, Milwaukee and London, 1967. p160

³² Ibid. p172-3

fortified hollows Kepler deduces that the Lunar race is intelligent, cooperative and numerous in population.

Kepler develops the size of the inhabitants from their architecture. Having committed himself early on to their massive dimensions,³³ he finds his justification in the sizing of the moon spots. Noting the dimensions of the ditch adjacent to the rim to be no less than one German mile, Kepler then asks rhetorically “*But on this basis estimate the size of their bodies*”.³⁴ Assuming an earth-like ratio of building size to occupant size, Kepler, while avoiding an exact measurement, finds the Lunar dwellers to be “*still much greater than the size of our bodies*”.³⁵

But even more extraordinary in Kepler’s text is the extrapolation of alien behavioural patterns from their architecture. Basing his work on the extreme diurnal patterns of the moon discussed in the *Somnium* and his surmise that the inhabitants would need to hide from the extremes of heat and cold, Kepler applies the same mix of empiric observation and rational guesswork to what he saw as architectural evidence. Writing about the vast lunar spots Kepler states:

In those affairs which are managed rationally, it is the regular practise that nothing is done without a purpose. In this instance rational creatures, whose existence is taken for granted in the letter, have constructed a ditch fit to receive water, and a circular ditch at that. What would be the purpose of making water travel in a circle if not to sail on it? ³⁶

In order to protect themselves from the sun, Kepler’s Moon dwellers travel around these vast enclosures, seeking the shade. When the ditch is full they sail, when it has dried up they walk and when the sun is overhead they hide in caves excavated out of the ramparts. Despite their different physiognomy

³³ In the initial component of the Dream, written before Kepler obtained a telescope and observed the moon spots, Kepler notes that the land dwellers obtain a “monstrous size” J. Kepler, E. Rosen (translator), *Somnium*, University of Wisconsin Press, Milwaukee and London, 1967. p27

³⁴ Ibid. p171

³⁵ Ibid. p171

³⁶ Ibid. p172

they build as we would, behave as we would in that situation. Or as Guthke puts it they are “*clearly formed in the image of earthly man*”.³⁷

Kepler goes on to make a moralising judgement about the different areas of the moon, differentiating between those areas where architecture showed the influence of civilisation and those bereft of such amenities.

Once a comparison is instituted between the populations of the moon and of the earth, the judgement about similar things is the same. Since we see that the moon’s spotted parts are civilised, we shall assign to the surrounding rough and mountainous regions wild and savage bands of thieves. Let these be the enemies of the more civilised people, who build their fortifications against them.³⁸

Here we see for the first time, in regard to extra-terrestrials, the association of architecture with social character. Those with architecture are more civilised, those without, more primitive and aggressive. Architecture indicates status on a cosmic stage.

Yet the architecture of Kepler’s more advanced plain dwellers is still primitive in comparison with the architecture of the seventeenth century Renaissance. While Kepler makes no claims for the level of society sustained by the Lunar dwellers, beyond co-operative endeavour in construction and defence, there is a discrepancy between the primitiveness of the Lunarian architecture and their more advanced social actions. Kepler suggests the presence of more complex assemblies such as boats but has the moon dwellers hide in caves at the peak of the day. It seems that Kepler felt this dissonance in some manner for in his notes he attempts to justify their construction materials, commenting “*Perhaps they lack stone for constructing shelters against the sun*”.³⁹ Architectural status in Kepler’s day is literally set in stone.

³⁷ Karl S. Guthke, *The Last Frontier*, Cornell University Press, 1990. p102

³⁸ J. Kepler, E. Rosen (translator), *Kepler’s Somnium*. University of Wisconsin Press, Milwaukee and London, 1967. p169

³⁹ *Ibid.* p169

Both Kepler and Lucian reveal important trends that would continue to invade alien cultures in literature through the development of the interplanetary voyage in the following centuries and beyond. The notions that the architecture of aliens can be significant or remain unremarked, that it could be an architecture indicative of earthly reason and usage, and that architecture can indicate both intelligence and status would be frequented by later authors. But subsequent literature would also reveal a more deliberate usage of architecture in alien literature as well as elaborate on humankind's position in the universe.

Chapter Three - The New-Found Frontier

Seventeenth Century

That there should be Antipodes was once thought as great a Paradox
as now that the Moone should be inhabitable.⁴⁰
(Bishop Francis Godwin, 1562-1633)

The seventeenth century would see the literary planetary voyage become increasingly popular. It would also introduce a variety of literary modes tackling the interstellar topic. The plurality of worlds debate was finally resolved with the publication of Newton's *Principia* in 1687 providing conclusive proof of Copernican theory.⁴¹ The means of travel to those distant planets, the nature of their inhabitants and the reflection on man's place in the universe would become the predominant questions of the new textual travels.

By no means were all the authors inspired by the revolution in cosmology so earnest and serious as Kepler. Sly humour and wit were in abundance in Ben Jonson's masque, *News from the New World Discovered in the Moon*. Performed at the court of King James in 1620 it contains a trio of news gatherers whose fervent need for saleable news is still recognisable today. Waylaid by two heralds, who hold new news from the Moon recently delivered by moonshine, the printer, chronicler and factor are all agog. The heralds proclaim:

| | |
|-------------------------|--|
| 2 nd Herald: | Certain and sure news |
| 1 st Herald: | Of a new world. |
| 2 nd Herald: | And new creatures in that world. |
| 1 st Herald: | In the orb of the moon. |
| 2 nd Herald: | Which is now found to be an earth inhabited. |
| 1 st Herald: | With navigable seas and rivers. |
| 2 nd Herald: | Variety of nations, policies and laws |
| 1 st Herald: | With havens in't, castles, and port-towns |
| 2 nd Herald: | Inland cities, boroughs, hamlets, fairs and markets. |

⁴⁰ Francis Godwin, *The Man in the Moone*, University Microfilms, Ann Arbor, Michigan. piii, Preface

⁴¹ Though Copernicus' work remained indicted by the Catholic Church until 1757.

1st Herald: Hundreds and wapentakes! Forests, parks, coney-ground⁴²,
meadow – pasture, what not?⁴³

The second herald ends the run with the ironic disclaimer “*But differing from ours*”.⁴⁴ Then in a masterpiece of oft-quoted comic commentary the eager factor wishes to know “*What inns or ale-houses are there?*”.⁴⁵

Jonson is more intent in parodying journalism and praising the king than in any real exploration of possible life on the moon. Beyond the preposterousness of replicating to the smallest detail the conventions of earth, the architecture exists only to make absurd the responses of those eager for any news. Jonson was perfectly capable and knowledgeable enough to have included architectural parody in his masque. The architect Inigo Jones often worked with Jonson on the set designs for his plays and during one dispute became the target of Jonson’s ire, earning the title of “*Assinigo*”.⁴⁶

The relevance of this small play lies instead in the lampooning of public expectation and reaction. It foreshadows the gullible reaction to later astronomical hoaxes, such as the 1835 Moon Hoax by Herschel.⁴⁷ In the character’s willingness to believe the new, and in their need to appear conversant with the new technology, the play remains acutely topical. It expresses beautifully, in comic form, the relationship and the dichotomy between the strange and familiar and their correspondence with public perception. Jonson’s satirical rendering of another world, the same but different, is highly prophetic of later literary extra-terrestrial societies.

In 1638, only four years after the publication of *Somnium*, the hugely popular *The Man in the Moone: or, A Discourse of a Voyage Thither, by Domingo Gonsales* was printed. Written by Bishop Francis Godwin, it contains the first post-Copernican literary encounter between man and alien. Domingo

⁴² Wapentakes are English county subdivisions. Coney refers to rabbits.

⁴³ Ben Jonson, *The Works of Ben Jonson, Vol XII*, W. Bulmer and Co, London 1816. p356

⁴⁴ *Ibid.* p356

⁴⁵ *Ibid.* p356

⁴⁶ This was in Jonson’s vituperative attack *An Expostulation with Inigo Jones*, in which he also called Jones’ work “*Architectonice*”. Ben Jonson, *The Works of Ben Jonson, Vol XIII*, W. Bulmer and Co, London 1816. p117

⁴⁷ See Chapter Five for an account of the Great Moon Hoax.

Gonsales trains a flock of strange swan-like birds to pull a flying machine and then is accidentally transported to the moon when his “gansas” migrate there for winter.⁴⁸ Like Kepler, Godwin associated the moon with giant inhabitants, thirty times as tall and as long as a human. To match them giant architecture was needed:

It was such a building for beauty and hugeness, as all our world cannot shew any neere comparable to it. Yet afterwards I saw elsewhere, as this might seeme but a Cottage in respect of them. There was not a doore about the house, that was not 30 foote high, and twelve in breadth.⁴⁹

Godwin uses earth-like buildings rationalised to alien dimensions or, as he put it succinctly, buildings with all “*proportions answerable*”.⁵⁰ Like Kepler, Godwin assumes the relationship between an alien body and its architecture to be comparable to an anthropometric relationship, though for Godwin it is a literary device not a scientific estimate.⁵¹

Yet size does more than signal a different planet. Bigger is better in Godwin’s earth-like Moon; the Lunarians are superior in size and morality.⁵² They commit no offences and thus need no lawyers. The bigger the stature of a Lunarian, the longer its life and the more refined its intellect, with the smallest being little more than brute beasts. In comparison with the giants of Lunarian culture, the earthling Gonsales is minuscule, closest in size to the inferior diminutives. Status is supported in a very human manner by the architecture. From the humble cottage of the lesser being to the stately palace of the Prince Pylonas,⁵³ the grander the architecture the more eminent the personage.

Like Alberti, who differentiated society into social groups and determined that “*each requires a particular Kind of Building*”⁵⁴ in his fifteenth century thesis *The Ten Books of Architecture*, Godwin also assumed an architectural

⁴⁸ It was known that birds migrated seasonally, but their destinations were a mystery.

⁴⁹ Francis Godwin, *The Man in the Moone*, University Microfilms, Ann Arbor, Michigan. p74

⁵⁰ Ibid. p74

⁵¹ Though Godwin was writing in the context of the new cosmology.

⁵² Partly due to the fact that if any flaw is found at birth the infant is conveyed to Earth, most often to North America.

⁵³ Alas, Godwin describes it not, intending to in the “second part of this work” which never eventuated. Francis Godwin, *The Man in the Moone*, University Microfilms, Ann Arbor, Michigan. p75

⁵⁴ Leon Battista Alberti, *The Ten Books of Architecture*, Dover Publications Inc, New York 1986. p65

reflection of social standing. Yet it is clear that architecture also distinguishes rank on a planetary level. The meanest dwellings of the Moon are vastly bigger and more beautiful than the “*Mean huts of the poor People*”⁵⁵ that Alberti used as an example of low architectural status. Godwin’s superior society is matched by a superior architecture of size and splendour. Earth’s inferior status is only reinforced by the meeting of Godwin’s Earthman with the greatest Lunarian, who Gonsales notes “*would not admit me into his presence, but talked with me through a Window*”.⁵⁶ In this manner the architecture acts as a mediator or filter.

Yet not only is the moon society superior and the architecture magnificent, the Lunarians also have the benefit of a new colour, “*never seen in our earthly world and therefore neither to be described unto us by any, nor to be conceived of one that never saw it*”.⁵⁷ The Earth is again revealed as inferior in comparison. The *Man in the Moone* is sometimes read in the context of utopian dialogues,⁵⁸ though Guthke contradicts this, citing the “*unbridgeable quantifiable gap between ourselves and the moon dwellers*”⁵⁹ as a reason to fit it not into a utopian dialogue but instead into the theological and scientific debate surrounding the plurality of worlds. He argues that Godwin delineates not a model society for humanity, but a superior happier version of humanity in the context of the new cosmology.

The Man in the Moone is also significant in its drawing a parallel between Columbus’ discovery of the new world of the Americas and the new worlds of lunar travel. Or as Aaron Parrett puts it “*an extension of the colonial exploration of previously unimagined territory*”.⁶⁰ Though Godwin’s new world is seemingly unripe for conquest with its superior architecture and superior culture.

⁵⁵ Leon Battista Alberti, *The Ten Books of Architecture*, Dover Publications Inc, New York 1986. p66

⁵⁶ Francis Godwin, *The Man in the Moone*, University Microfilms, Ann Arbor, Michigan. p97

⁵⁷ Ibid. p71

⁵⁸ Robert Appelbaum notes however that the innovations of the moon are so “vaguely rendered” and attributed to “natural causes” that “modern critics find it disappointing.” He notes that “many recent historians of early modern utopias ignore it altogether.” Appelbaum himself sees it not as a satire, or a comment on the actual, nor as a new social model but as a reconfiguring of humanity and a way of challenging our aspirations. Robert Appelbaum, *Literature and Utopian Politics in Seventeenth-Century England*, Cambridge University Press, 2002. p90

⁵⁹ Karl S. Guthke, *The Last Frontier*, Cornell University Press, 1990. p158

⁶⁰ Aaron Parrett, *The Translunar Narrative in the Western Tradition*, Ashgate Publishing Ltd, England 2004. p52

In Godwin the science is subsumed in the fiction.⁶¹ For John Wilkins it was science that took precedence over fiction. *The Discovery of a World in the Moon* was published in 1638, the same year as Godwin's novel. *Discovery* was a "popular science" summation of current theory on the possibility of the Moon being a habitable planet. If *Somnium* represented a united approach to science and art, *The Man in the Moone* and *Discovery* represent a divide between the two methodologies.

Wilkins detailed arguments from the ancients such as Plutarch and Anaxagoras, through to the recent work of Johannes Kepler in his search for life on the moon. Concluding that it is possible and probable that the Moon is a habitable planet, Wilkins was not willing to speculate on its inhabitants. Asserting that for now any conjecture is unprovable for "*We have not now any Drake or Columbus to undertake this voyage*",⁶² Wilkins also related the moon with the new territories overseas before assuring us that ultimately time will reveal the truth of any speculation.

Discovery would prove to be immensely popular and was highly influential on later authors of moon voyages. The third edition, published in 1640 would refer to Godwin's moon voyage which Wilkins had encountered in the interim. Yet it is the voyage to the Moon via the migratory birds which interests Wilkins. The encounters of Domingo Gonsales with the inhabitants of the Moon remain unremarked.

Most of the work is concerned with such topical issues such as whether a plurality of worlds contradicts any principle of religion, the nature of the Moon spots and the existence of an atmosphere surrounding the Moon. Wilkins added to the revised sections of *Discovery* the difficulties confronting man in a journey to the moon⁶³ and enumerated the various means of interplanetary

⁶¹ Parrett notes that the "subtlety of Godwin's nonchalant incorporation of scientific detail" belies its scientific framework. Aaron Parrett, *The Translunar Narrative in the Western Tradition*, Ashgate Publishing Ltd, England 2004. p51

⁶² John Wilkins, *The Discovery of a World in the Moone* 1638, Scholars Facsimiles and Reprints, Delmar, New York 1973. p107

⁶³ Wilkins saw three objections to man's ascendance to the moon, the natural heaviness of his body combined with the distance to the moon, the thinness of the atmosphere and coldness of the air. To this he adds somewhat humorously the lack of lodgings on the way and the problem of luggage.

travel available.⁶⁴ It is this final speculative emphasis on the voyage, not the destination, which reveals that although Wilkins is anticipating as scientific reality the travel to other worlds, the encounter with their inhabitants and hence their architecture is still in the realm of fiction.

Later in the century Cyrano De Bergerac would produce a witty and subtle fiction on the planetary voyage and man's place in the universe. Embedded in the scientific understandings of his day and armed with a knowledge of his literary fore-bearers, Cyrano's *Voyage to the Moon*⁶⁵ published in 1657, contains aliens who are emphatic in their superiority to man and yet reveal all of the flaws of mankind. In the context of plurality of worlds it is a forceful critique on religious anthropocentric thinking. Like his protagonist who, on his lunar voyage, has the "*impudence to philosophise upon it*",⁶⁶ De Bergerac impudently satirises the theological and social notions of his generation, amidst generous reams of more philosophical musings.

The central character, Drycona,⁶⁷ is propelled to the moon by the thrust of an accidental explosion⁶⁸ and by the attractive influence of the moon upon bone marrow.⁶⁹ Once again the Moon is populated with giant beings of human countenance but in this instance the lunar beings move about on all four appendages. Owing to the comparatively diminutive size of Drycona and his peculiar means of walking on two legs, the lunar beings do not believe him to be a man and decide instead he must be the "*Female of a little Animal, belonging to the Queen*".⁷⁰ In the hope of breeding some new specimens, the narrator is confined with the Queen's animal who turns out to be a reference to none other than Domingo Gonsales.⁷¹

⁶⁴ The 1708 edition I used mentions three means of interstellar travel; by the help of fowls, by wings fastened immediately to the body or by a flying chariot. Marjorie Hope Nicolson uses a quote (Alas without attributing the exact source) that mentions four, wherein, by spirits or angels, is added. See - Marjorie Hope Nicolson, *Voyages to the Moon*, The Macmillan Company, New York 1960. p41

⁶⁵ Titled in the original: *Les estats et empires de la lune*. Also known as *L'autre monde* or *Histoire comique* when paired with De Bergerac's journey to the Solar empire.

⁶⁶ Cyrano De Bergerac, *A Voyage to the Moon*, Mr Derrick (Trans), London, 1754 - Eighteenth Century Research Publications Inc. p26

⁶⁷ An anagram of Cyrano D.

⁶⁸ Upon finding the narrator's flying machine, a group of soldiers decided to set it alight with squibs to give it the appearance of a flying dragon, at which moment the narrator appearing on the scene is caught in the explosion.

⁶⁹ With which the narrator had anointed his bruises following a earlier failed flight.

⁷⁰ Cyrano De Bergerac, *A Voyage to the Moon*, Mr Derrick (Trans), London, 1754 - Eighteenth Century Research Publications Inc. p42

⁷¹ While not mentioned by name he is described as a Spaniard who ascended to the moon with the help of birds.

While incarcerated, Drycona is charged with the lunacy of calling the lunar moon (the earth) a world. In due course he is liberated with the help of a learned demon of the solarian world. The demon argues that if Drycona is an animal then his reasoning cannot be indicted for then he is capable only of instinct not reason. However, the demon continues, if the judges declare he has sinned in his reasoning, then he is not an animal and should be released. Reckoned a man, Drycona undergoes his punishment, is humiliated by being forced to wear magnificent clothes and compelled to declare in public:

Listen, O you People, while I say that this Moon is not a Moon, but a world; and that the World from whence I came, is not a World, but a Moon: Thus have the Council decreed that I should believe.⁷²

As might be expected in a satirical novel, in which it is necessary for the reader to recognise himself in the polemic, the architecture is ordinary and human. The aliens live in houses and villages, townhouses and regal palaces, depending on their status. Only one detail of these commonplace locations is revealed. The regular beds of the dwellings are closets filled to a depth of at least three foot with flowers, one day strewn with Orange blossoms and another day with Violets and Lilies. Even as an animal Drycona is accorded the use of these facilities, an architectural play on the overall theme of superiority, where the Lunar beings treat their animals better than we treat ours.

But just when we lose hope of seeing any construction of extravagance we encounter the most unexpected contraption architecture. During a conversation between the newly made man, Drycona, and his host we hear of two sorts of buildings; the Moveable and the Sedentary.

The Moveable, in one of which you are now, I am about to describe. They are composed, as you see, of very light Wood, and at the Building of them the Architect places four strong Wheels under the Foundation of the Walls; six large Pair of Bellows are placed with their Noses horizontal to the Wings of the upper Story; so that when a Town is to be removed (which is always done as the Seasons change)

⁷² Cyrano De Bergerac, *A Voyage to the Moon*, Mr Derrick (Trans), London, 1754 - Eighteenth Century Research Publications Inc. p94

several large Sails are unfolded before the Nose of these Bellows, which, being set at work, discharge the Wind so very strongly upon them, the Houses are set in Motion; and, by the Violence of the Gust, which drives them forward, they are enable to travel upwards of an hundred Leagues in eight days .⁷³

In comparison with the Moveable buildings, the Sedentary “*are built much in the Manner of a Tower, except that they are composed of Wood, a large screw passing from the Garrett, all through, to the Cellar*”.⁷⁴ Thus the house can be rotated down into a pit under the house, where the inhabitants can dwell out the cold and inclement winter till the gentle spring invites its ascent. This is both an ingenious architectural solution to the seasonal extremes of the Moon and a parody of utopian dialogues.

Marjorie Hope Nicolson notes in *Voyages to the Moon*; “Cyrano followed Campanella in *The City of the Sun* and Bacon in the *New Atlantis* in prophesying all sorts of inventions “*for the benefit and use of man*”.⁷⁵ Precedents for contrivances fitted with sails also exist. Looking at the history of flying machines Nicolson describes both an imaginary device, the wagon fitted with sails in *City of the Sun*, and an actual device, the 1606 sailing chariot of Stevinus.⁷⁶ Whether or not Cyrano is explicitly referring to these examples he remains indicative of the increasing technological awareness that would permeate later examples. One of the first technophiles to marry alien architecture and machinery, he foreshadows the later obsession with mechanical paraphernalia. Looking at the lunar architecture of Cyrano in this context, the mechanical houses are symbolic of the rise of the machine.

The notion of other worlds potentially being inhabited by man-like beings gained ground as the Enlightenment developed. If Wilkins popularised the notion of space travel, two later works would help popularise the idea that the planets are inhabited. The first was Fontenelle’s *A Conversation on the*

⁷³ Cyrano De Bergerac, *A Voyage to the Moon*, Mr Derrick (Trans), London, 1754 - Eighteenth Century Research Publications Inc. p120-121

⁷⁴ Ibid. p121

⁷⁵ Marjorie Hope Nicolson, *Voyages to the Moon*, The Macmillan Company, New York 1960. p164

⁷⁶ “Exhibited in 1606 by the Dutch mathematician Simon Stevinus, a great carriage , operated by sails, designed to carry twenty-six passengers. One of the first horseless vehicles, it went at seeming incredible speed over the flat, hard sands of the Dutch seacoast.” Marjorie Hope Nicolson, *Voyages to the Moon*, The Macmillan Company, New York 1960. p150

Plurality of Worlds,⁷⁷ published in Paris in 1886. It is a charming scientific treatise rendered as a conversation between the narrator and the feminine Marchioness. Over the course of six moonlit strolls the doctrine of the plurality of worlds is dispensed and debated. It covers similar ground to Wilkins but under the umbrella of the new Newtonian physics.

On the third evening as they talk of the conditions of the world in the Moon, the narrator refers to the lunar spots as great cavities or wells where the inhabitants might hide from the sun. Fontenelle goes on to conjecture;

perhaps, they live no where else, and it is there that they build them cities, for we still see in the ruins of old Rome that part of the city which was under ground, was almost as large as that which was above. We need but take that part away, and the rest would remain like one of these lunar towns; the whole people reside in wells, and from one well to another there are subterraneous passages for the communication of the inhabitants.⁷⁸

After this tantalising glimpse, the conversation swings back to less architectural and more astronomical topics. Yet even this snippet of architectural inference is interesting. Like Kepler, Fontenelle takes as his starting point the need for intervention between the lunar dwellers and their environment. But the different interpretation of the lunar spots leads to a very different view of lunar society. Fontenelle conjures up a vision of interconnected subterranean cities. Using archaeological evidence to justify his extra-planetary speculation, Fontenelle substantiates his underground metropolis by the reference to the Roman catacombs, rediscovered in 1578.⁷⁹

Perceiving that the Marchioness was laughing at the concept of underground cities, the narrator gently rebukes her, saying the joke is as much on her for believing that because we live on the surface the Lunar dwellers must as well. The gentle Marchioness's response is anthropomorphic. "*It is no matter*"

⁷⁷ Originally published in French as *Entretiens sur la Pluralité des Mondes* by Bernard Le Bovier De Fontenelle.

⁷⁸ Bernard Le Bovier de Fontenelle, *A conversation on the plurality of worlds*, 1769. Eighteenth Century Collections Online. Gale Group. p75

⁷⁹ After the initial rediscovery of the Catacombs by digging labourers in 1578, Antonio Bosio's work on the catacombs, *Roma sotterranea*, was published in 1632 and a Latin translation was published in 1651 by Paolo Aringhi.

replies the lady, “*I can never suffer the inhabitants of the Moon to live in perpetual darkness*”.⁸⁰

In 1698 the reputable astronomer Christian Huygens had his say on the subject of extra-terrestrials in his work *Cosmotheoros*. After supposing it is only reasonable for other planets to have their inhabitants,⁸¹ he goes on to suggest that perhaps they might have all the accoutrements of our civilisation. His chief argument is that if we could have it, make it or use it, why then it is silly to suppose that others could not. For Huygens the obviously superior human way is so sensible that for others not to have been similarly blessed is unthinkable. In this manner the beings of the galaxy are potentially equipped with anthropomorphic reason, intelligence and utility.

Although Huygens scoffs at those who believe that the physical form of these hypothetical beings should be identical to ours, he again finds the human way to be best. Taking an architectural bent to his arguments he argues for the possession of hands:

For suppose instead of them they had hoofs, like horse or bullocks, given them, they might have laid indeed the model and design of cities and houses in their head, but they never would have been able to build them.⁸²

Such a terrible curse! Huygens cannot imagine so cruel a universe as to deny a society the possibility of architecture. Yet more intriguing is the notion that a society that could not build would still want to, or even be able to, design a metropolis. Nor does this vision contain the concept of the evolution of architectural form. In these limitations Huygens reveals just how imbedded the notion, that architecture is necessary to civilisation, was to him.

The underlying sense that architecture is an anthropomorphic prerequisite to culture underlies the *Cosmotheoros*. Huygens goes on to wax lyrical on behalf of other galactic inhabitants, arguing for their possession of

⁸⁰ Bernard Le Bovier de Fontenelle, *A conversation on the plurality of worlds*, 1769. Eighteenth Century Collections Online. Gale Group. p75

⁸¹ Huygens is talking here within the context of a religious anti-anthropocentric teleological argument.

⁸² Christian Huygens. *Cosmotheoros*. A new edition - 1762, Eighteenth Century Collections Online, Gale Group. p56

architecture. In the context of the observable winds of Jupiter, Huygens elaborates;

To protect themselves from these, and that they may pass their nights in quiet and safety, they must build themselves tents or huts, or live in holes of the earth. But why may we not suppose the planetary inhabitants to be as good architects, have noble houses, and as stately palaces as ourselves? unless we think that everything which belong to ourselves is the most beautiful and perfect that can be. And who are we, but a few that live in a little corner of the world, upon a ball ten thousand times less than Jupiter or Saturn? and yet we must be the only skilful people at building: and all other must be our inferiors in the knowledge of uniform symmetry; and not be able to raise towers and pyramids as high, magnificent, and beautiful, as ourselves. For my part I see no reason why they may not be as great masters as we are. ⁸³

While anti-anthropomorphic in his justification of other beings possessing the virtues of architecture, Huygens' notions of superior architecture are decidedly anthropocentric. Guthke finds this kind of thinking permeates the *Cosmotheoros*, in which "*Cosmic egalitarianism*" ⁸⁴ is revealed as an imperialistic urge on the behalf of human reason, proved by its universal ascendance.

Curiously the building forms Huygens uses to illustrate the potential for aliens architecture to equal ours are ancient in form. Huygens starts with tents and holes in the ground as a bare necessity for the inhabitants of Jupiter. Next it seems only sensible that they might indeed have noble houses and stately palaces. But when Huygens expands this point, he uses pyramids and towers as examples of the most superlative of buildings. It seems that bigger is still better, the achievements of mankind are measured in magnitude not appearance. Huygens never doubts that we are masters of architecture; the thought that we might be inferior to other beings never occurs to Huygens.

In the introduction Huygens talks of his work as a "*probable guess*". ⁸⁵ But the inclusion of astronomical charts and data makes it clear that Huygens thought of it as an informed and credible guess. Like Kepler he not only finds

⁸³ Christian Huygens. *Cosmotheoros*. A new edition - 1762, Eighteenth Century Collections Online, Gale Group. p64

⁸⁴ Karl S. Guthke, *The Last Frontier*, Cornell University Press, 1990. p240

⁸⁵ Christian Huygens. *Cosmotheoros*. A new edition - 1762, Eighteenth Century Collections Online, Gale Group. p11

his inspiration, but also his justification, at hand in our world. The chains of conjecture form paths to advanced skills. Allowing that cosmic inhabitants might easily possess astronomy leads to the certainty that they would have tools and hence need hands. Huygens leapfrogs his way to a galaxy populated with beings of human sensibilities and skills. Architecture, for Huygens, is the natural end resulting from the acquisition of civilization.

Chapter Four - An Age of Satire

Eighteenth Century

If we do not find anything very pleasant, at least we shall find something new.⁸⁶
(François Marie Arouet Voltaire, 1694 – 1778)

The popularity of the moon as a destination further increased in the eighteenth century despite an increasing scientific certainty that the Moon, airless and waterless, could not viably support life. Many lunar voyages in literature relied on the assumption that the Moon was lifeless, recognising a perfect place to set a satire or utopia, conveying what Guthke notes as another non-scientific sort of truth where “*one could be certain that from the outset that what was depicted was unthinkable*”.⁸⁷

One work that used the implausibility of life on the Moon to make implicit its satirical content was *The Consolidator* by Daniel Defoe. Eschewing science, *The Consolidator* was pure political satire musing on the vagaries of English parliament, foreign policy and the Spanish succession. The flying machine or consolidator by which the narrator is transported to the moon is in itself an allegory for the English House of Commons. But in terms of alien encounter the story is negligible. The narrator sleeps all the way to the moon where the land and inhabitants correspond almost entirely to their earthly counterparts. Their architecture is barely mentioned, even in a cursory manner. Instead a range of fantastical machines are the engines of difference, the Cogitator- to help thinking, the Elevator- for elevating thought, the Eye Glass which can turn state policy into shapes and can look into a man’s soul, and my favourite, the Ecclesiastical Engine of Alarm.

The most interesting of these in architectural relevance is the eye glass which converts, in the words of Defoe, non-entities into perceptible items. Furthering Defoe’s satirical intentions, the Eye Glass was able to render state polity into form, occasioning dispute as to its ideal shape.

⁸⁶ Unsourced quote attributed to Voltaire, <http://www.brainyquote.com/quotes/authors/v/voltaire.html>

⁸⁷ Karl S. Guthke, *The Last Frontier*, Cornell University Press, 1990. p283

Some were of the Opinion, it ought to be an Irregular Centagon, a figure with an Hundred Cones or Angles: Since the Unaccountables of this State–Science are hid in a Million of undiscover'd Corners...⁸⁸

Others thought the form “*ought to be Circular, and in a Globular Form, since it was on all sides alike*”⁸⁹ and therefore in accordance with the circular motion of all Court-Policies. Another set of glasses also reveals things unseen on Earth such as taxes due but not collected and taxes collected but misused. The external viewpoint is magnified and the observer duly made aware of the petty nature of Earthly squabbles.

Samuel Brunt's⁹⁰ classic moon voyage from 1727, *A Voyage to Cacklogallinia*, was another satirical work that achieved popular success in its day. However most of the satire occurs not on the moon but here on Earth. Captured by rebel Negroes and then by pirates, Brunt's English protagonist is finally shipwrecked on the shores of a unknown island. In every respect it is a land much like ours with the exception of being populated by giant intelligent chickens who display every flaw of mankind. Ending up in the service of the most avaricious avian of all, the chief minister, the human becomes mired in the treacherous Cacklogallinian politics. Under the influence of a court impoverished by war, a scheme is hatched to fetch gold from the moon. The main satirical thrust of the novel is contained in the rampant share speculation and behind the scenes political manipulation engendered by the Moon voyage.⁹¹

The Cacklogallinians fly to the moon towing the human in a palanquin. Despite its satirical character, this portion of the novel clearly reflects advances in science. The vast distance between the Earth and the Moon is taken into account. The Cacklogallinians use wet sponges to counteract the extreme coldness and tenuity of the air. They spend time acclimatising to the

⁸⁸ Daniel Defoe, *The Consolidator*, Garland Publishing Inc, New York 1972. p73 -74

⁸⁹ Ibid. p74

⁹⁰ This is commonly recognised as a pseudonym. This work has at times been attributed to both Swift and Defoe.

⁹¹ This is well-known as a satire on the South Sea Bubble. Marjorie Hope Nicolson in her introduction to the novel notes that the Cacklogallinian exchange mirrors faithfully the real fluctuations and crash in share prices of 1720.

atmospheric rarefaction and make warm suits for the journey. Yet the prospect that awaits them on the moon harks back to a more mythic concept.

When they arrive on the Moon, the prospectors find a beautiful verdant land. They spy a large palace, indeed the narrator notes he “*could term it no other, from the Largeness and Beauty of its Structure*”.⁹² But even as they approach, it vanishes in flame and smoke. The enormous occupants writhe and change shape incessantly, leaving the explorers to fear that the moon is occupied by evil spirits. Soon however they meet one of the real inhabitants, or Selenites, who explains that these evil spirits are the souls of sleeping humans indulging in the passions and fears of their waking hours.

The beautiful Selenites provide the final foil to the greedy Cacklogallinians. They are idealists who have no interest in trade and absolutely no interest in gold. Living in a tranquil society free of vice, they exist in a state of ease and happiness where no one wants for anything. Communal effort helps to ensure this. Should one Selenite need to build a house, all others would offer their help with alacrity.

Displaying as much architectural modesty and simplicity as their society, the Selenites live in houses both “*regular, neat and convenient*”.⁹³ Even the eldest Selenite lives in an abode with no special distinction. Unlike the tortured spirits of earth they need no palaces to impress others. With a classless society, their architecture is free from social anxiety, remaining pleasant and functional. This architecture supports the contrast from earthly desires and the obnoxious results whether they be human or Cacklogallinian.

Not only do the dwellings reinforce utopian notions of moon-life by being unpretentious, they also help promulgate the ease of the utopian life. Brunt’s voyager also encounters bedding of a superior kind. Reminiscent of Wilkins who declared “*we cannot desire a softer Bed than the Air*”⁹⁴ the weary traveller takes his rest in a handsome and commodious room with bedding

⁹² Samuel Brunt, *A Voyage to Cacklogallinia*, Columbia University Press, New York 1940. p139

⁹³ Ibid. p146

⁹⁴ John Wilkins, *The mathematical and philosophical works of the Right Reverend John Wilkins*, London, 1708, Eighteenth Century Collections Online. Gale Group. p127

“so very soft, that I seem’d to lye on a Couch of Air”.⁹⁵ Other inspiration for the superior society of Selenites comes from Bishop Godwin with Brunt indicating that even the Selenites have read Domingo Gonsales. Like Godwin’s superior moon dwellers, Brunt’s Selenites live in an unattainable utopia, yet this is an utopia of modest proportions.

Many cosmic journeys of the eighteenth century were unoriginal. Heavily influenced by the earlier moon voyages, they also drew on the fantastical earthly voyage of *Gulliver’s Travels*⁹⁶ by Jonathan Swift and Defoe’s later classic novel *Robinson Crusoe*.⁹⁷ Murtagh McDermot was so impressed by Swift that he ended his narrative with a dedication to Gulliver. His derivative novel, *A Trip to the Moon* written in 1728, features an accidental trip to the moon by whirlwind. This means of transport is entirely appropriate as breaking wind and other bodily functions are topics that frequently amuse the author. McDermot’s moon is a land of intelligent beasts who walk upright. After acquiring knowledge by eating books his protagonist spends a total of two years, three months and twenty one days on the moon before blasting back to earth via the use of 7000 barrels of gunpowder. But there is no mention of architecture beyond a cursory reference to commonplace architectural entities of the era, such as rooms, temples and coffee houses.⁹⁸

Some works combined to marry the fantastic and the cosmic. The baroque/rococo engravings of Filippo Morghen, a designer and printmaker from a large family of artists, bestow a whimsical vision onto the moon. The *Raccolta*, subtitled *delle cose più notabili veduta dal cavaliere Wilde Scull, e dal sigr: de la Hire nel lor famoso viaggio dalla terra alla Luna*, contains no text other than its extensive heading, roughly translated as a “*collection of the most notable things seen by Cavalier Wild Scull and Signor de la Hire on*

⁹⁵ Samuel Brunt, *A Voyage to Cacklogallinia*, Columbia University Press, New York 1940. p146-147

⁹⁶ First Published 1727

⁹⁷ First Published 1719

⁹⁸ Yet even in this limited novel there is some architectural amusement. In a land where failing to complete a project is punishable by death at least one scientist architect had learned to take advantage. Proposing to make an apartment for the king out of rays of light made palpable to the hands, the scientist describes it amusingly whilst making it indecipherable with mathematics. This project, it is explained to the visitor, would go on for so long and at such great expense, that it would outlive the man while in the meantime providing him with a pleasant pension.

their famous voyage to the moon".⁹⁹ Dedicated to William Hamilton, an envoy to the court of Naples, the *Raccolta* is unusual in its depiction of life on the moon. Most engravings accompanying volumes of interplanetary voyages focused on the various contraptions used by the intrepid adventurers to reach the moon.

From the moment Morghen's be-frocked gentlemen step from their bizarre flying apparatus we enter a world with a strange mix of contraptions and organic elements, a kind of *Wunderkammern* in space. A savage man hunts from a flying snake, another man lures a wild beast within range of his machine, a carriage with sails is propelled by the wind, a boat tows a set of giant bellows to blow its own wind and yet another boat is made from a set of giant bellows.

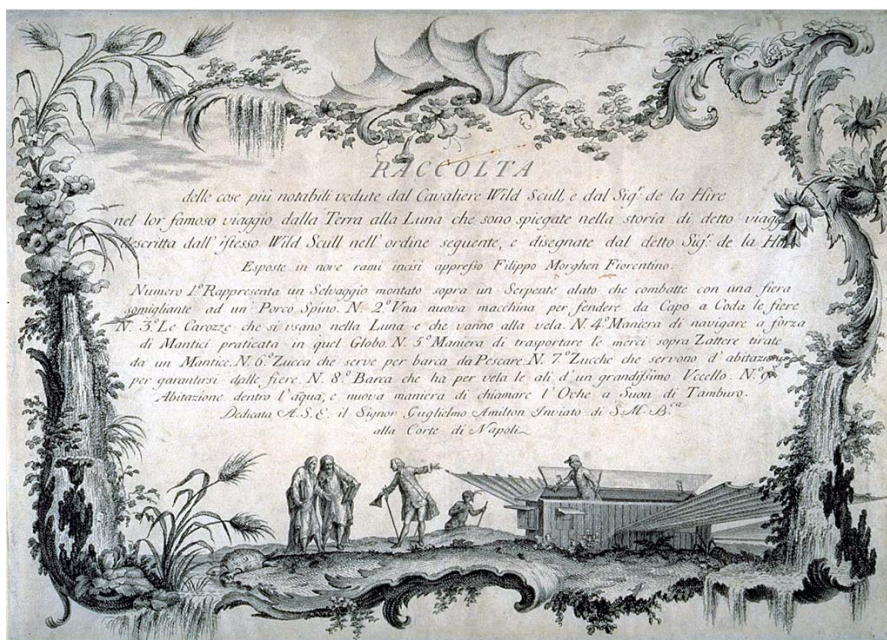


Fig 1. Filippo Morghen, *Raccolta*, Title Page¹⁰⁰

⁹⁹ Marjorie Hope Nicolson, *Voyages to the Moon*, The Macmillan Company, New York 1960. p211. Nicolson also points out the removal of Hire's name in later editions and its substitution with Giovanni Wilkins (John Wilkins), probably due to Morghen discovering that Hire vehemently opposed the idea of life on the moon.

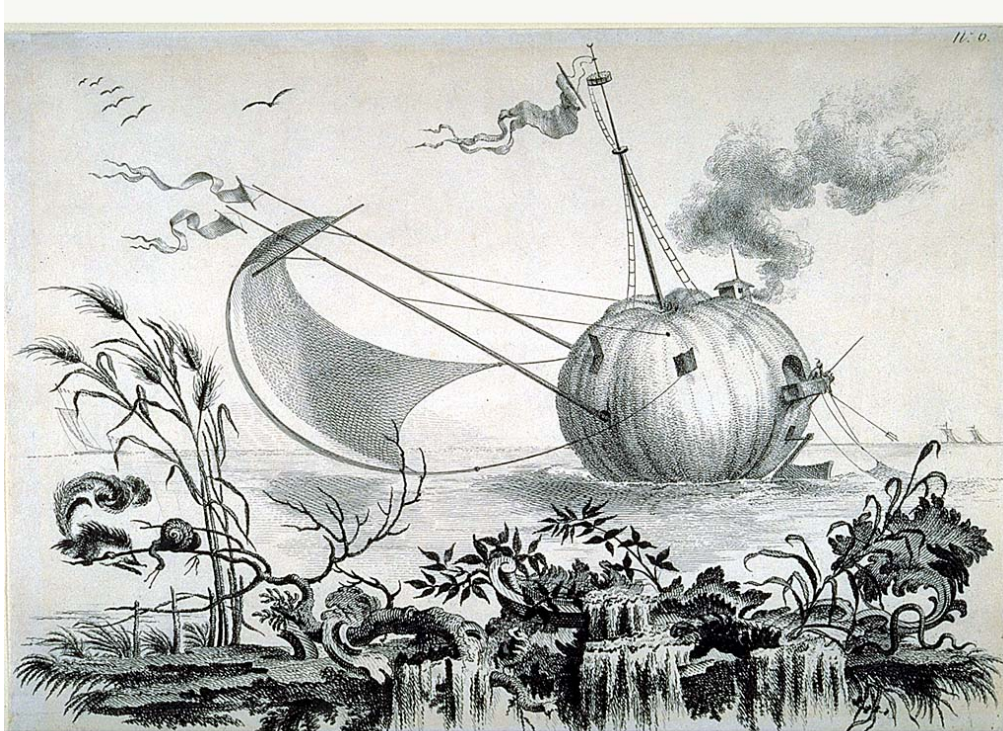
¹⁰⁰ Filippo Morghen, *Raccolta delle cose più notabili veduta dal cavaliere Wilde Scull, e dal sigr: de la Hire nel lor famoso viaggio dalla terra alla Luna ...Etchings*, ca. 1764-72 (first edition), Spencer Museum of Art, University of Kansas, <http://www.ukans.edu/~sma/morghen/morghen.htm>



Fig 2. *Fillipo Morghen, Raccolta, Drawing Entitled n^o.5. Maniera di trasportare le merci sopra Zattere tirate da un Mantice*¹⁰¹

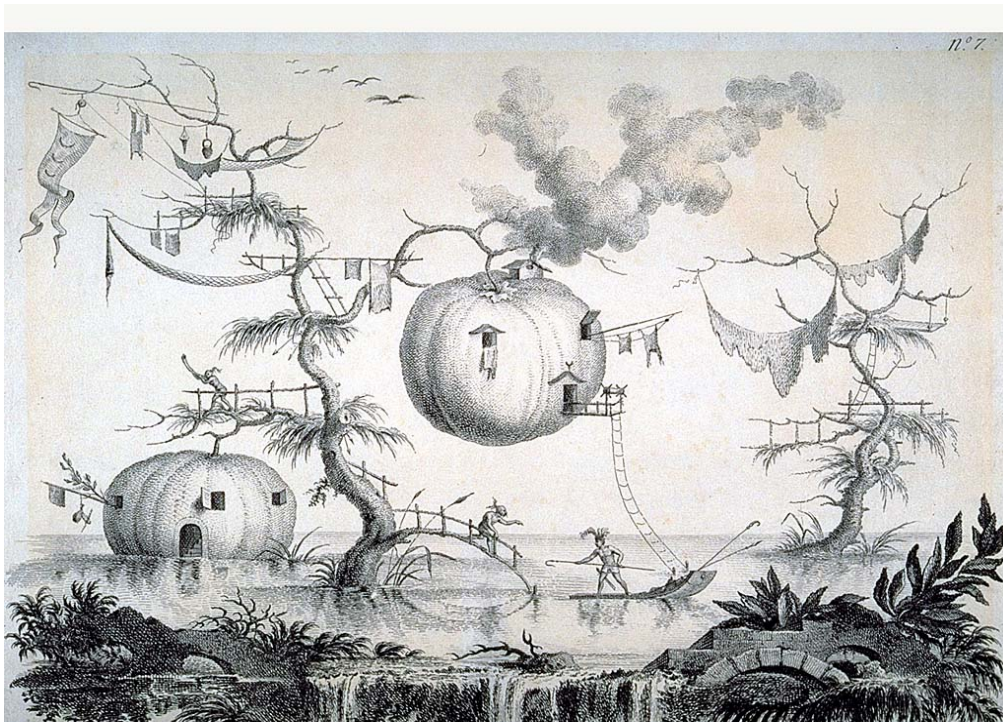
The final four prints out of the nine in total are the most architecturally interesting. In them we see two varieties of architecture. The first is a series of gourd houses, looking like giant inhabited pumpkins. One is fashioned as a rotund sailboat, the others remain attached to their parent tree. Familiar styles of doors and windows ornament the exterior, some arched, some shuttered. Platforms swathed in grassy foliage hang in the trees, connected by ladders. In other drawings a more familiar architecture features with one print featuring a floating platform on which sits a barn-like house, while another print features the same barn-like house boat moored to a giant reed.

¹⁰¹ Fillipo Morghen, *Raccolta delle cose più notabili veduta dal cavaliere Wilde Scull, e dal sigr: de la Hire nel lor famoso viaggio dalla terra alla Luna ...Etchings*, ca. 1764-72 (first edition), Spencer Museum of Art, University of Kansas, <http://www.ukans.edu/~sma/morghen/morghen.htm>



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Fig 3. *Fillipo Morghen, Raccolta, Drawing Entitled n° .6. Zucca che serve per barca da Pescare*¹⁰²

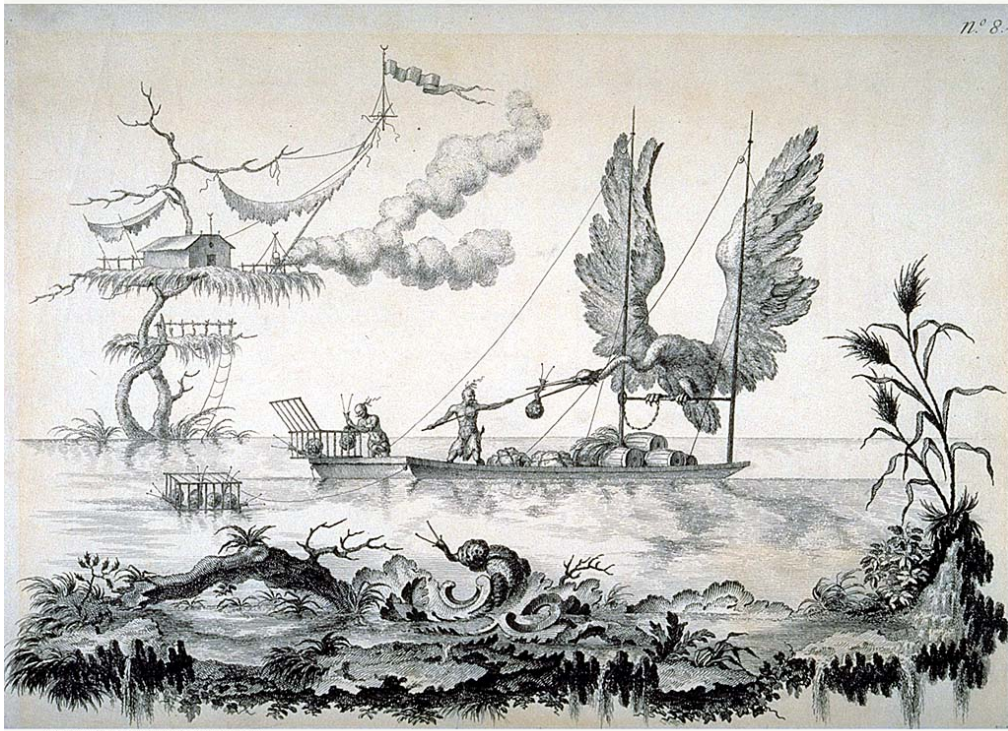


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Fig 4. *Fillipo Morghen, Raccolta, Drawing Entitled n° .7. Zucche che servono d'abitazione per garantirsi dalle fiere*¹⁰³

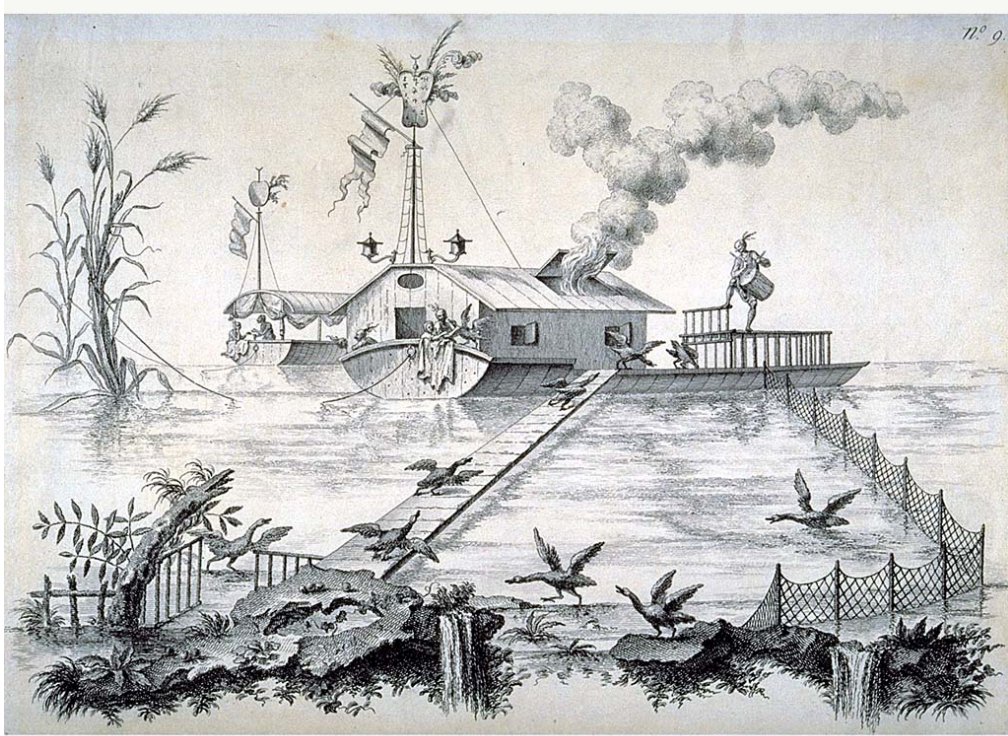
¹⁰² Fillipo Morghen, *Raccolta delle cose più notabili veduta dal cavaliere Wilde Scull, e dal sigr: de la Hire nel lor famoso viaggio dalla terra alla Luna ...* Etchings, ca. 1764-72 (first edition), Spencer Museum of Art, University of Kansas, <http://www.ukans.edu/~sma/morghen/morghen.htm>

¹⁰³ *Ibid.*



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Fig 5. *Fillipo Morghen, Raccolta, Drawing Entitled n.º .8. Barca che ha per vela le ali d'un grandissimo Vcello.*¹⁰⁴



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Fig 6. *Fillipo Morghen, Raccolta, Drawing Entitled n.º .9. Abitazione dentro l'acqua, e nuova maniera di chiamare l'Oche a Suon di Tamburo*¹⁰⁵

¹⁰⁴ Fillipo Morghen, *Raccolta delle cose più notabili veduta dal cavaliere Wilde Scull, e dal sigr: de la Hire nel lor famoso viaggio dalla terra alla Luna ...* Etchings, ca. 1764-72 (first edition), Spencer Museum of Art, University of Kansas, <http://www.ukans.edu/~sma/morghen/morghen.htm>

¹⁰⁵ *Ibid.*

Yet for all its strangeness this is a land of devastating domesticity despite its population with outlandish beasts and peculiar architecture. Laundry hangs from washing lines and houses dispel puffy clouds from their chimneys, amidst the swampy environs. Flags flutter in rococo swirls from each high point whilst the inhabitants fish. The birds are pressed into employment and the trees fashioned into buildings. Nature has been tamed in the service of Lunar man in a mode characteristic of enlightenment thought.

The gourd architecture and its fantastical surrounds play with the sense of scale. Are the Lunar dwellers Lilliputian? Miniature men living in earth-sized pumpkin trees? Or are they the same size as earthly men living in and amongst a oversize vegetation? Either vision is captivating. As an example of the whimsical eighteenth century tradition of the capriccio or perhaps the vedute ideate,¹⁰⁶ the Raccolta is not meant as a serious interpretation of conditions on the moon. Morghen's visions of Amerindian-like natives living in a vast swamp with baroque decorated gourd houses and house boats is nothing if not capricious.

The interplanetary voyage as an exciting exploit continued to be popular in the eighteenth century. A very different sort of alien encounter, where the inhabitants of the moon were entirely inferior to ourselves, would be encountered in an intra-planetary voyage, published in 1751 in London. A *Narrative of the Life and Astonishing Adventures of John Daniel*, written by Ralph Morris, was a first and foremost an adventure story. Fleeing the amorous advances of his step-mother, the young John Daniel undergoes many exciting incidents until in chapter XV he ascends with his son in his flying machine to the moon.

The travellers again find a vast land of "*prodigious mountains, extensive plains and immense lakes*".¹⁰⁷ The small copper coloured natives are wary and shy, till at last one is captured. Once the native understands their request

¹⁰⁶ Terms used particularly in reference to 18th-century Italian paintings and prints. Vedute ideate are scenes realistically rendered of imaginary elements while the capricci or capriccio are scenes of accurately rendered buildings grouped in an arbitrary and imaginary arrangements.

¹⁰⁷ Ralph Morris, *The life and Astonishing Adventures of John Daniel*, Robert Holden and Co Ltd, London 1926. p170

for food he is transformed into an enthusiastic admirer of the earthmen. In the words of John Daniel the native “*would bound like a doe to the wood, and bring me samples of several fruits, and was highly delighted when I expresses satisfaction at any of them*”.¹⁰⁸ As Guthke points out scathingly, the natives act “*with the demeanour of colonial peoples toward the conqueror in the wishful thinking of the official version of the ‘white man’s burden’*”.¹⁰⁹ The inferiority of the natives is further reinforced by Morris when the travellers discover their religion is a form of sun worship. To this the travellers show a condescending pity, unsuccessfully trying to enlighten the primitives.

The architecture of the native Lunarians can only support their inferior status. Their dwellings are primitive, described as holes dug into the natural mountainside:

all around the valley ,as I call it, which was it may be a furlong diameter, were holes, either natural or artificial, in which were several passages, of greater and lesser dimensions, wherein they had their residence.¹¹⁰

Even as far back as Vitruvius, ancient man was thought to have dwelt in caves before he began to build rudimentary shelters. The dwellings in *John Daniel* have not even the status of a primitive hut or lean-to. The fact that the narrator can not pick the origin of the caves, natural or artificial, lends an air of crudity to the dwellings. Not only is the religion of the Lunarians inferior, we are left in no doubt that their dwellings are also inferior.

The travellers take their leave at the end of the chapter to embark on further adventure, having not found “*any great cities of inhabitants*”.¹¹¹ Even as they are leaving they see “*not one inhabitation*”,¹¹² leaving the impression that what they have encountered is of no consequence. This dismissal of the Lunar civilisation is characteristic of an ethnocentric imperialist belief of superiority. The architecture of the Moon in no way countered this belief. If

¹⁰⁸ Ralph Morris, *The life and Astonishing Adventures of John Daniel* , Robert Holden and Co Ltd, London 1926. p173

¹⁰⁹ Karl S. Guthke, *The Last Frontier*, Cornell University Press, 1990. p287

¹¹⁰ Ralph Morris, *The life and Astonishing Adventures of John Daniel* , Robert Holden and Co Ltd, London 1926. p175

¹¹¹ Ibid. p178

¹¹² Ibid. p181

the Moon had become the new frontier, then in *John Daniel* it was ripe for exploitation.

Voltaire would carry on the satirical tradition established by De Bergerac and turn the genre upon its head by having the extra-terrestrials visit Earth in his comic novel of 1752, *Micromegas*. In it the eight leagues tall inhabitant of the giant star Sirius, Micromegas, voyages first to the tiny planet Saturn and thence to the Earth. Mightily amused at its miniature size Micromegas and his companion conclude that the earth is not inhabited. But when Micromegas breaks his diamond necklace and discovers that the gems function as a magnifying glass they are delighted to find themselves mistaken.

Finding firstly a whale, they then chance upon a ship of philosophers. Perceiving that the minute atoms on the ship could speak, Micromegas forms an ear trumpet from one of his nails and converses with them. He is amazed that such "*invisible insects*"¹¹³ can possess rational thought. In a final piece of irony Voltaire has the Sirian compose for the philosophers "*a choice book of philosophy*"¹¹⁴ which was taken to the academy of science in Paris. Upon opening it was found however to contain nothing but blank paper.

While not architecturally interesting, Voltaire's volte-face is relevant in a number of ways. It moralises on the bigger is better school of thinking that permeates other-world literature. From the moment that Micromegas discovers that such minutiae have intelligence he vows to "*Judge nothing by its external magnitude*".¹¹⁵ In addition *Micromegas* changes the external viewpoint of the moon to the external viewpoint of the alien. When he learns of our wars, Micromegas is astonished to find that the subject of the dispute was "*Some pitiful mole hill no bigger than his heel*".¹¹⁶ Voltaire places man in the midst of creation, between microscopic animals and the immensity of the cosmos.

¹¹³ Voltaire, *Micromegas*. London, 1753. Eighteenth Century Collections Online. Gale Group. p27

¹¹⁴ Ibid. p40

¹¹⁵ Ibid. p30

¹¹⁶ Ibid. p33

One of the most unusual writings on the subject of inhabitants of other planets was considered by its author not to be a work of fiction. The visionary spiritualist Emanuel Swedenborg believed he was granted by the Lord the ability “*to discourse and converse with Spirits and Angels who are from other Earths*”.¹¹⁷ In 1758 he published *De Telluribus in Mundo Nostro Solari* or *Concerning the Earths in the Universe* which detailed those discourses with the spirits of the other planets. In it he talks both with the spirits of the planets of our solar system and of other more distant planets in the starry heaven.

Swedenborg is more intent on delineating various philosophical and religious truths such as their way of thinking, their government and mode of worship, than material matters. Religion dominates, all revere the human god in his earthly form. Yet occasionally Swedenborg strays into the corporeal, describing the physical form of these other worldly dwellers and on a few occasion their architecture.

Swedenborg’s idiosyncratic vision spent more time with the spirits and angels of the planet Jupiter, allowing a more in depth coverage. The beautiful and modest inhabitants are humanlike but walk on all fours. They live free from greed and want, desiring only the necessities of life and abhorring violence. Disagreements are materialised in radiant form and soon adjusted. The architecture of Jupiter is modest and religious like the inhabitants;

Their habitations were also shewn me; they are low, and constructed of Wood, but within they are coated over with a Bark of a palish blue Colour, the Walls and Ceilings being spotted as with small stars, to represent the Heavens; for they are fond of thus picturing the visible Heavens and Stars in the Insides of their Houses, because they believe the Stars to be the Abode of Angels. They have also Tents, which are rounded above, and stretched out to a considerable length, spotted like wise within with little stars in a blue Plane; into these they betake themselves in the Middle of the Day, to prevent their Faces suffering from the Heat of the Sun: They are very attentive to the Construction, Neatness, and Cleanliness of these their Tents: They have also their Meals in them.¹¹⁸

¹¹⁷ Emanuel Swedenborg, *De Telluribus in mundo nostro solari*, Printed and Sold by R. Hindmarsh, 1787, The Eighteenth Century Research Publications. p1

¹¹⁸ *Ibid.* p63

Simple and provincial, the dwellings are shelter and religious icon in one. Morning and night they worship the Lord in their tents. The homes of Jupiter help Swedenborg to illustrate that the citizens of Jupiter live as they believe.

More is said on the sacred Temples of the Third Earth in the Starry Heaven than on the inhabitants who were uninterested in things corporeal and material. Yet contradictorily when shown the most magnificent terrestrial palaces of Kings, they were most willing to think on the issue. Their own superior temples they explained were not such "*Marble Images*" and although still material were considered celestial, "*because in beholding them they conceived not a terrestrial but a celestial Idea*".¹¹⁹ The sacred temples of the Third Earth were built not of stone but of living wood:

They are constructed of Trees not cut down, but growing in the Place where they were first planted; on that Earth, it seems, there are Trees of an extraordinary Size and Height; these they set in Rows when young, and arrange them in such Order, that they may serve, as they grow up, to form Porticos and Galleries; in the mean while, by cutting and pruning the tender Shoots, they fit and prepare them to entwine one with another, and join together, so as to form the Ground-work and Floor of the Temple to be constructed, and by a Side-Elevation to serve as walls, and being bended into an Arch above, to make the Roof.¹²⁰

By contrasting between an architecture of stone and one of living wood, Swedenborg seeks to describe a religious structure free of materialistic association. He seeks an architecture of celestial inclination. The use of growing plants as architecture is more about contrasting them to the stone edifices of earth than of any spiritual association with nature.

It is curious that Swedenborg choose to show to the denizens of the third realm the architecture of monarchy and not our terrestrial places of worship. Yet the churches of our Earth are just as much about the embodiment of a religious idea. It serves only to highlight the extraordinary spirituality of the Starry Heaven. Holier than thou, the architecture of the Third Earth forces even the plants into worship.

¹¹⁹ Emanuel Swedenborg, *De Telluribus in mundo nostro solari*, Printed and Sold by R. Hindmarsh, 1787, The Eighteenth Century Research Publications. p169

¹²⁰ *Ibid.* p169

Swedenborg also uses a simple hierarchy to make evident the relationship between God and humanity. The inhabitants live in low places because “*high places are for the Lord who is in Heaven*”.¹²¹ Just as in gothic churches height is associated with heaven. The oblong cottages of the Third Earth are similar to earthly cottages. The interiors are plain with beds along the sides and an alcove containing table and fireplace at the end. The didactic message is of humility and restraint.

There is no particular rhyme or reason to Swedenborg’s depiction of people of the various planets. Utopian elements are not didactic and his earnest depiction is free of satire. Guthke notes of Swedenborg’s bizarre yet banal universe;

The fact that Swedenborg sees man on whatever planet as the same creature, made by god, means that the situation where terrestrial man meets his counterpart and is defined by the encounter hardly arises. He is already defined, and the extraterrestrials are almost identical reflections of that definition.¹²²

Swedenborg’s universe is anthropomorphically sanctimonious and the architecture a pious reminder of it.

¹²¹ Emanuel Swedenborg, *De Telluribus in mundo nostro solari*, Printed and Sold by R. Hindmarsh, 1787, The Eighteenth Century Research Publications. p170

¹²² Karl S. Guthke, *The Last Frontier*, Cornell University Press, 1990. p274

Chapter Five - Evolutionary Adventures

Nineteenth Century

I do not know if the worlds are inhabited or not,
and since I do not know I am going to see!¹²³
(Jules Verne, 1828 –1905)

In 1835 *The New York Sun* published astronomical discoveries of a truly astonishing nature. Sir John Herschel, the well-known British astronomer, had through advances in telescropy found life on the Moon. The response was outstanding and thousand of copies were sold. But not only was life discovered, there was evidence of intelligent life: architecture.

The first construction seen was that of the biped beaver, which looked exactly like the beaver of Earth except for having no tail and walking upright. The fire-using beaver lived in primitive huts that were “*constructed better and higher than those of many tribes of human savages*”.¹²⁴ The message was clear: construction equals intelligence. The biped beavers with superior and higher dwellings to primitive human societies could take their place on the evolutionary scale with confidence.

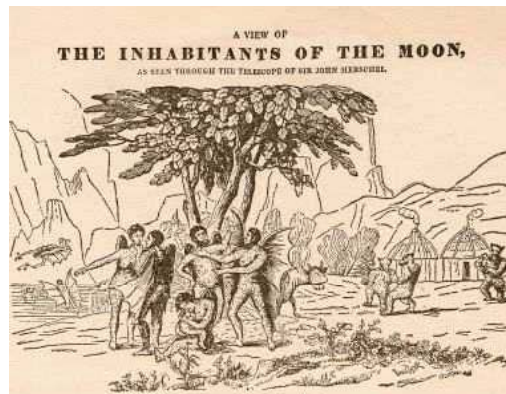


Fig 7. Illustration from an 1836 English pamphlet, publisher unknown, showing the biped beavers & their huts on the right. In the foreground the man-bats cluster.
<http://www.museumofhoaxes.com/moonhoax.html>

¹²³ Jules Verne, *From Earth to the Moon*, quoted in Marjorie Hope Nicolson, *Voyages to the Moon*, The Macmillan Company, New York 1960. p245

¹²⁴ Attributed to Richard Locke, 'Great Astronomical Discoveries', *New York Sun*, August 27, 1835.
<http://www.museumofhoaxes.com/moonhoax.html>

But more spectacular discoveries awaited. On the fifth day a lofty temple standing nearly one hundred feet high was observed and soon after two more were found. Nearby in this “*Vale of the Triads*”¹²⁵ the man-bats or *Vespertilio-homo*, a sort of flying ape, lived. Happy and polite, the winged simians, as far as the observers could judge, did nothing but spend “*their happy hours in collecting various fruits in the woods, in eating, flying, bathing, and loitering about on the summits of precipices*”.¹²⁶

The triangular temple was made of scintillating blue sapphire or a similar gemstone. The planes of its resplendent yellow metal roof curved and separated into flame-like waves. Plain undecorated columns supported a metal cornice that was;

...quite new in any order of architecture with which we are acquainted, but nevertheless exceedingly graceful and impressive. It was a half-opened scroll, swelling off boldly from the roof, and hanging far over the walls in several convolutions.¹²⁷

Open on all sides, light and airy, the temple was complete except for worshippers. The only intelligent inhabitants of the valley were the indolent man-bats who used the triangular symbol in their social gatherings but were never seen using the temples. The temple was an architectural mystery. What did it mean? Where were its devotees? Did it record a past calamity or predict one of ours? The article raised more questions than it answered.

Entitled *Great Astronomical Discoveries lately made by Sir John Herschel*, the article was of course an elaborate hoax, attributed to Robert Adams Locke, a reporter on *The New York Sun*. While the florid excess of superlatives and turgid prose, detailing such wonders as monstrous hills formed of amethyst, and blue unicorn-like animals, tipped some people off to the fictitious nature of the article, many believed it wholeheartedly. Though inconsistencies in the article eventually revealed it as a fraud *The New York Sun* never admitted that it was a hoax.

¹²⁵ Attributed to Richard Locke, ‘Great Astronomical Discoveries’, *New York Sun*, August 31, 1835.

<http://www.museumofhoaxes.com/moonhoax.html>

¹²⁶ *Ibid.*

¹²⁷ *Ibid.*

The means by which a credulous population were deceived would become the hallmark of the space literature to follow. The use of overwhelming detail to build a world appealed to the imagination. The apparent scientific verisimilitude of the account, extrapolated from existing technology, along with the incorporation of true facts gave credibility to the story. All these elements would be taken up by later writers.

In the same year Edgar Allan Poe wrote a story about a moon voyage inspired partly by the real Herschel's work and published only a fortnight before the Great Lunar Hoax. In *The Unparalleled Adventures of One Hans Pfaall*, a man hounded by his creditors and seeking to escape from them, sets out to the Moon in a balloon he learned how to construct from books.¹²⁸

Aaron Parrett notes that Poe included "*scientific elements which lend coherence to the narrative, but which are patently ridiculous and would have appeared so to discriminating and knowledgeable readers*".¹²⁹ Like the Moon Hoax, *Hans Pfaall* contained both legitimate and ludicrous aspects. The two texts set a criterion for later novels and indicate as Parrett puts it "*the evolution from pure fancy to eventual reality*"¹³⁰ for the genre.

Yet Hans Pfaall differs from the Moon Hoax and its predecessors in one significant way. After a lengthy journey which comprises most of the tale, the balloon tumbles towards the moon and Hans is flung downwards:

I barely had time to observe that the whole country, as far as the eye could reach, was thickly interspersed with diminutive habitations, ere I tumbled headlong into the very heart of a fantastical looking city, and into a vast crowd of ugly little people¹³¹

Though minimal in its extent, this description offers an entirely new view of an alien culture. The envelopment of the entire visible surface of the moon with a swathe of dwellings creates a disturbing new urbanised vision for alien

¹²⁸ Now it would be the internet

¹²⁹ Aaron Parrett, *The Translunar Narrative in the Western Tradition*, Ashgate Publishing Ltd, England 2004. p86

¹³⁰ Ibid. p88

¹³¹ Edgar Allan Poe, *The Science Fiction of Edgar Allan Poe*, Penguin Books, England 1978. p81

societies. During Poe's lifetime the industrial revolution was changing the way in which the western world lived. More and more people were moving into urban areas and cities were transforming into manufacturing slums. The urban environment was becoming the primary space in which people lived.

The moon was by now almost washed up as a destination. A vast number of satires had been perpetrated on the barren globe. Jules Verne, who strived for scientific verisimilitude, now made of it a derelict husk. The protagonists of *Around the Moon*, Verne's novel of 1865, failed to find any life as they orbited the moon in their rocket ship. Though one of the men onboard thinks he can see a ruined fortress and town in a mound of stones, Verne's prose clearly incriminates the fellow with an overactive imagination. Had the moon supported life? Verne's astronauts cried "yes". Was the moon still inhabited? The answer was a resounding "no". The verdict was out, a new frontier was needed.

In 1877 the astronomer Schiaparelli, taking advantage of the perihelion in the fifteen years cycle of Earth and Mars separation, observed faint linear marks of the surface of the distant planet. He called these strange markings *canali*. An Italian word, it could mean either channels, grooves or canals. But it was the third term that was most often used in translation and it was "canals" that captured the popular imagination.¹³² For canals meant water and water meant life. The new destination was Mars.

Two theories in particular would influence the novels of Mars and the portrayal of Martian society. Based on the nebular hypothesis¹³³ of LaPlace and Darwin's Theory of Evolution, an advanced culture located on an evolutionary scale became obligatory for civilisation on Mars.

¹³² His most enthusiastic convert, Percival Lowell, would increasingly popularise these concepts, starting with his publication of *Mars* in 1895, in which the canals became the impressive work of a Martian civilisation.

¹³³ First proposed by Emmanuel Kant in 1775 and detailed by LaPlace in 1796, the Nebular Hypothesis proposed the solar system was created by a sequential condensation of the gas nebula surrounding the Sun. It suggested that the progressive formation of the planets meant the outer planets would have formed first and the inner planets last. The implication was that life on an older planet would be more evolved than on the Earth, whereas on younger planets, life would be less evolved. Mars is older than the Earth, so a more advanced civilisation was indicated.

English historian and scientist Percy Greg envisioned an ancient Martian society that was technologically advanced but dystopian. The small but human-like Martians of *Across the Zodiac*¹³⁴ live in a state of material wealth and physical ease. Machines and trained animals do most of the work. Yet the Martians live in a state of moral degeneration where selfishness is enshrined. Relationships are impersonal, women do not have equal rights and are kept in harems, while children are usually brought up by the state.

Discovering the secret power, Apery, an Earthman builds a spaceship and travels to Mars. The voyage is described in careful, exacting and sometimes excruciating detail. Upon arriving on a verdantly vegetated Mars the travellers search for signs of inhabitation. Evidence of civilisation is confirmed by the view of a distant city:

... and upon the shores of this lay what was unquestionably a city. It had nothing that looked like fortifications, and even at this distance I could discern that its streets were of remarkable width, with few or not buildings so high as mosques, churches, State-offices, or palaces in Tellurian cities.....More immediately beneath me, and scattered at intervals over the entire plain, clustering more closely in the vicinity of the city, were walled enclosures, and in the centre of each was what could hardly be anything but a house, though not apparently more than twelve or fourteen feet high.¹³⁵

Every house sits amidst gardens enclosed by colourful walls. Ranging from six to sixty acres, the size indicates the status of the dwelling's owner. Accessible flat roofs with small parapets top the houses which are all low. City dwellings range from two to four storeys high. Electric three-wheeled metal carriages, likened to a "*velocipede*",¹³⁶ transport the inhabitants on polished concrete, tree lined avenues. Factories are external to the city to protect it from "*unpleasant vapours*".¹³⁷ Commercial enterprises occur in the front rooms of private houses. The effect is not of an urbanised city but more of an aggregation of manor houses or an Arcadian garden city.

¹³⁴ First published 1880 in London.

¹³⁵ Percy Greg, *Across The Zodiac*, Hyperion Press Inc, Connecticut 1974. p84

¹³⁶ A primitive bicycle. Percy Greg, *Across The Zodiac*, Hyperion Press Inc, Connecticut 1974. p91

¹³⁷ Percy Greg, *Across The Zodiac*, Hyperion Press Inc, Connecticut 1974. p198

For much of the novel, the earthman stays with one family, members of a secret society that preserves the “humanity” lost by the rest of the race. Before the second half of the novel descends into male wish fulfilment¹³⁸ Greg goes on to describe every facet of the domestic architecture in unprecedented detail. In this he is the descendant of Locke and Poe’s drive for believability. *Across the Zodiac* abounds with this sort of environmental detail.

Greg employs a colourful exoticism to differentiate the Martian dwellings from his English sensibilities. One room has walls of “*bright emerald green, with all the brilliant transparency of that jewel*”,¹³⁹ while another is lustrous pink. Crystalline doors, luxurious chairs of metal and tables of silver and gold add to the overtones of mineralogical wealth. Greg exploits the harem analogy with beautiful women reclining on opulent cushions, rich fabrics and Islamic style gardens.¹⁴⁰

While most of the house is similar to dwellings on Earth, small differences convert familiar features into the foreign. Greg predominantly favours doors to depart from the ordinary. Martian doors bifurcate, “*not turning on hinges, but, like every other door I had seen, dividing and sliding rapidly into the walls to the right and left*”.¹⁴¹ Martian doors are opaque from the exterior, but completely transparent when viewed from inside. Martian doors open automatically. On Mars internal doors go from ceiling to floor in the same material as the wall. Finally all Martian doors are windows and all Martian windows doors.

Yet despite these differences Martian architecture is essentially ordinary. Though it is built from a hardened viscous material able to take any shape or texture, the rectangle is the favoured shape of domestic dwellings.

¹³⁸ After marrying the sweet, submissive daughter of his host, described by Greg as the size of a twelve year old girl, the unfortunate man is later forced to marry a whole harem of beautiful Martian girls. In between he goes hunting.

¹³⁹ Percy Greg, *Across The Zodiac*, Hyperion Press Inc, Connecticut 1974. p97

¹⁴⁰ An example of this in Greg is an internal courtyard, divided into four gardens by concrete paths. Each garden is turfed with minute flowering plants planted in intricate patterns, with a central fountain.

¹⁴¹ Percy Greg, *Across The Zodiac*, Hyperion Press Inc, Connecticut 1974. p97

Technology enables indolence, not difference. Despite its role in the “*over-cultivation*”¹⁴² of the Martian race, technology is ancillary to the architecture. *Across the Zodiac* is held to be a dystopia, yet this Luddite view of an advanced Martian society pays homage to an Arcadian dream. It is precisely this strange mix of dystopian society in urban utopia that makes this novel interesting.

Robert Cromie’s novel, *A Plunge into Space*, had obvious similarities to *Across the Zodiac*. Published in London 1890, Cromie’s novel also depicted an advanced civilisation on Mars. But although there is no disease, no suffering and no war, though each citizen works only minimal hours and all onerous tasks are performed by electricity, their culture is strangely stagnant. Having reached the pinnacle of civilisation, only an evolutionary decline awaits them.

The basic plot is simple. A scientist discovers the origin of force. Stimulated by his famous explorer friend, he builds a spherical spaceship. Rub a dub, dub, seven men in a tub, they set out for Mars with a financier, a novelist, an artist, a politician and a journalist. Arriving on Mars they find the Martians are almost identical to humans, if a little smaller. Pithy drama occurs on their return to Earth, when the beautiful daughter of their host stows away on the spaceship, compromising their life support system.

For one Martian year, the men stayed as guests with their Martian host. His house is a palace of opulent riches and technological marvels. There are marble doors, deep carpeting, richly draped corridors and walls adorned with pictures. The villa is climate controlled at the touch of a knob. Unseen lights illuminate the interior. Umbrella racks and table service are automated. But the technology is only ancillary to what is in effect a mansion of Earth. The technology may change the view on the ceiling but that ceiling is a lofty vault supported by pillars of marble.

¹⁴² Percy Greg, *Across The Zodiac*, Hyperion Press Inc, Connecticut 1974. p136

Only one major change to the construction of the house is effected by the advanced science of Mars. The front door opens off a balcony twenty feet high, with no visible means of ascent. The Martians simply fly up, aided by their technology and astonishing their visitors. While this allows the entrance of the house into the story to be atypical, the house itself is more familiar.

It is clear the Earthmen soon weary of the utopian life. The food is bland, the wine weak and the entertainment tame. The men are anxious to see the city and an excursion is promptly arranged. Travelling in a private air yacht, the city is soon reached:

They were now passing over the outskirts of the city. For an enormous town there was a strange absence of straggling suburbs. The country ended as abruptly as the city commenced. This was because no one lived in the immediate neighbourhood of the city. It was a mere workshop, but a charming one. Time and distance were of no importance to the Martians.¹⁴³

But the “City of Delight”, as Cromie names it, is baffling to the visitors. It “*was beyond their grasp. They could not comprehend its true significance. They could only wonder at its beauty and marvel at its magnificence*”.¹⁴⁴ Cromie contrasts the city with an earthly metropolis and its attendant chaos.

There were no screeching trains overground or underground, no lumbering buses, nor wrangling cabmen, nor jostling crowds, nor -best of all- no slums. But instead, there were many beautiful gardens surrounded by vast villa-like buildings and grand squares enclosing woodland groves.¹⁴⁵

It is all made possible by the “*bound giant*”¹⁴⁶ of electricity, which works cleanly and tirelessly for the Martians. The notion of effortless transport is also integral to the divide between city and Arcadian surrounds. Fixed routes from every private dwelling allow rapid travel to the city.

Superiority for Cromie is freedom from the excesses of industrialised life. The Martians live in a kind of upper-class English Elysium, with electricity taking

¹⁴³ Robert Cromie, *A Plunge into Space*, Hyperion Press Inc, Connecticut 1976. p167

¹⁴⁴ *Ibid.* p168

¹⁴⁵ *Ibid.* p168

¹⁴⁶ *Ibid.* p169

on the role of the lower class servant. The extensive gardens of the villas from which birds flit in and out of the house are transposed vistas of English nobility and economic wealth. As a final touch to an English paradise, even the weather is tamed. Leisure, space and greenery are the riches of an utopian aristocracy, fed by the slave of clean unlimited energy.

In Gustavus Pope's *A Journey to Mars* published in 1894, the superior Martian culture had already entered into a decline. In a now familiar plot, an American¹⁴⁷ travels to Mars, marries a beautiful Martian woman, has grand adventures and survives various plots. *Journey to Mars* contains a masterful superfluity of superlatives; everything is more beautiful, larger, more jewelled, more gracious or grander than its counterpart on Earth.

Guthke notes that this would be a straightforward adventure story were it not for the "*schema of cosmic and biological evolution that forms the background to the story*".¹⁴⁸ In keeping with the nebular hypothesis, Venus is new, Earth is young, Mars is old and Pluto dead. The races of these planets match the status of their planets. Venus is inhabited only by gigantic beasts. The remnant of the mostly debauched Plutonian population shelters on Mars. The Martians are technologically advanced and masters of electro-magnetic energy, yet are diminishing in stature with the dissolute and decadent amongst them ultimately gaining power.

The most interesting architectural features of Pope's Mars are the cities inspired by Schiaparelli.¹⁴⁹ Twelve great linear strip cities criss-cross the continents. One vast city is two thousand miles long by twenty miles wide. The city contains an Arcadian paradise of buildings and towers, streets and canals, country houses and villas, gardens and orchards. The entire city is covered by a vast lattice on pillars to which can be attached metal plates to protect the city from meteor showers. Travel within and between the cities is primarily by fantastically shaped private airships. But except for the immense

¹⁴⁷ At one point upon learning that the Martians have never heard of America, Hamilton replies "*Good Heavens! What stupendous ignorance!*" Gustavus Pope, *Journey to Mars*, Hyperion Press Inc, Connecticut, 1974. p60

¹⁴⁸ Karl S. Guthke, *The Last Frontier*, Cornell University Press, 1990. p373

¹⁴⁹ One of Pope's spurious footnotes tells us that the great linear cities are the true explanation for the lines that Schiaparelli observed.

framework of the cities the wealth of detail is reserved for areas un-architectural. Glossing over the lack of description with ease Pope merely says they are “*all in a style of architecture unknown on Earth*”,¹⁵⁰ while in other areas he circumvents explanation by saying “*magnificence defies description*”.¹⁵¹

Later Pope seems to forget the strip cities and spends two pages describing a quadrangle city. His nineteenth century version of superior magnificence involves, like Cromie’s novel, lots of marble and parkland. The few buildings that are described are a blend of classicism and exoticism. Columns, capitals and entablatures compete with minarets and Moorish arches. Gothic windows follow columned porticos. True to form, Pope lets his imagination run riot in an overflow of marble, crystal, statuary and mosaics. Leisure, greenery and excessive embellishment are the traits of Popes superior society.

Not all cosmological novels were set on Mars. Garrett P. Serviss took the astronomical adventure further into the solar system to Venus. In *A Columbus of Space*, also published in 1894, it is a spaceship running on atomic energy that propels the explorers through space. Landing on the dark side of Venus the explorers search for inhabitants. The first clue to the existence of intelligent life on Venus is a shaft of light beaming out from a hole in the ground.

Rough steps lead down into the deep hole and to a rough cavern in the interior of the planet. While the steps are clearly artificial, the shaft looks like a natural formation, perhaps a limestone cavern. It gives the impression of a society too primitive to do more than adapt an existing fissure in the ground. It takes signs of iron working to convince the men that the species has any intelligence. In a stunning case of colonial conceit the scientist Edmond remarks that he would be surprised if the creatures were not “*as intelligent as our African or Australian savages*”.¹⁵² It is a case of primitive architecture for

¹⁵⁰ Gustavus Pope, *Journey to Mars*, Hyperion Press Inc, Connecticut, 1974. p192

¹⁵¹ Ibid. p289

¹⁵² Garrett P. Serviss, *A Columbus of Space*, Hyperion Press, Westport 1984. p53

a primitive species, semi-intelligent ape-men who communicate primarily by signs.

In contrast, the bright side of the planet is host to a more advanced species who live under an immense dome of permanent cloud. The Venusians are almost identical to humans except more refined and telepathic. The explorers are captured by them and taken to their capitol city.

The first view of the Venusian city resembles enormous spider webs glistening with dew. But these are just the anchorage device for a floating city of “*airy architecture*”.¹⁵³ These aerial lattices soar to an astounding height, swaying gently in the breeze, while behind them:

began to loom an immense number of floating towers, rising stage above stage, like the steel monsters of New York before they have received their outer coverings, but incomparably lighter in appearance, and more delicate and graceful; truly fairy constructions, bespangled with countless brilliant lights.¹⁵⁴

Held aloft by vertical screws acting on the air, these aerial towers are made from a kind of light but strong bamboo formed into hollow beams and trusses. Chromatic light displays ornament the towers. Elevators run up and down, servicing the towers. Aerial cars fly to and fro, the only form of transport other than by foot. Underneath the floating towers lies a magnificent city of narrow winding streets and thronging crowds.

This vista of Venusian spectacle is truly an urban city. The verticality of New York is dissected from the horizontal and transposed over a more ancient form of city. Serviss pinpoints the difference from a modern city with the surrealism of city streets rendered quiet by the lack of ground transport and where even the footwear seems to absorb sound.

But even in this departure from Arcadian cities of the previous novels contains familiar themes. The importance of energy to an advanced society is

¹⁵³ Garrett P. Serviss, *A Columbus of Space*, Hyperion Press, Westport 1984. p136

¹⁵⁴ *Ibid.* p136

again crucial, with the Venusians relying on giant waterfalls as a source of hydroelectric power. Status is still revealed by size. The Queen's tower is the largest of all the towers. Finally despite the external differences, the interior is familiar territory, all magnificence and marble.

Ultimately the beautiful city is revealed to have a fatal flaw when the advanced Venusians are exposed as sunworshippers. The sun is briefly revealed through a rent in the clouds and the immense towers catch on fire, their construction materials proving to be the undoing of the Venusians. The travellers can leave with their self-esteem intact amidst the destruction and chaos.

It is curious that in none of these last four stories was the city remotely like the industrial city of the nineteenth century. Superior society was freedom from the dirty, polluted and noisy, overpopulated and under serviced city of the nineteenth century. Advanced civilisations lived in the city of the anti-slum.

Chapter Six - Alien Futures

Nineteenth Century

We passed near a great number of worlds very different from my earthly home. ...Terrestrial life being in no sense the type of life outside the earth. ¹⁵⁵
(Camille Flammarion, 1842-1925)

In the previous examples of the nineteenth century, Guthke comments that all “*the travellers conformed to the type of the Victorian conqueror, journeying through the solar system and emerging from the encounter with extraterrestrials with their self-esteem and sense of superiority triumphantly confirmed*”. ¹⁵⁶ Out of the end of the nineteenth century a new breed of alien would emerge - the invader.

Written by Kurd Lasswitz, *On Two Planets* ¹⁵⁷ is considered to have introduced one of the two great themes of alien encounter prevalent in the twentieth century - the alien invader as saviour. Instead of mankind exploring the stars, the technologically and morally superior Martians, called the *Nume* by Lasswitz, voyage to Earth’s pole, seeking resources.

The story gradually unfolds through the eyes of a party of human travellers, exploring the North Pole via balloon, who discover the Martian installation. The initial meeting is peaceful but the *Nume* are soon brought into conflict with the military by a misunderstanding. Horrified at the savagery and willingness to kill of the human species, the Martians declare Earth as a protectorate of Mars. Taking over the government of Earth for its own welfare, the Martians seek to teach the humans a quality known as *Numedom*, a kind of autonomous personal morality. While mainly enforcing this through compulsory education, the Martians also bestow a technology that fosters equality amongst mankind, including advanced use of solar energy and the creation of food from inorganic material such as rocks and

¹⁵⁵ Camille Flammarion, *Uranie*, <http://eserver.org/fiction/uranie/default.html>

¹⁵⁶ Karl S. Guthke, *The Last Frontier*, Cornell University Press, 1990. p382-3

¹⁵⁷ Lasswitz was a German historian and philosopher. *On Two Planets* was first published in German as *Auf Zwei Planeten* in 1897.

soil. Yet some of the benevolent Martian rulers on Earth are corrupted by “*earth-fever*”,¹⁵⁸ becoming despots. Appropriating the Martian anti-gravity technology in secret, the humans are able to liberate Earth and peace is established between the two planets.

The Mars of the *Nume* is bisected by lengthy strip cities and canals, consistent with Schiaparelli’s vision. Significantly Lasswitz chooses to begin his detailed urban description with the transport system. A dense network of moving roadways runs through all inhabited areas. Variable speed strips run progressively faster in the centre, while low speed edges allow open access by foot or sleigh. Not only is the population moveable but the houses are as well:

By the way, you know that moving from one place to another does not demand packing and rearranging. We move our entire house. We just inform the next transportation office when and where we want to be moved, we lie down and sleep, and the next morning we are at the place where we want to be.¹⁵⁹

Coexisting with the roadways is the industrial and business area. Deliberately choosing terminology far removed from the dingy factories of the late nineteenth century, Lasswitz depicts this work zone in an utopian light.

Mammoth buildings for manufacture and business spanned the roadway’s entire width in bold arches. Low gravity and light, yet stable, building material permitted these magnificent vaults and masses of pillars to rise to a hundred metres. Like palaces and domes, in delicate forms and lively colours, these graceful and strong buildings towered in the clean air, gathering on roofs everywhere energy from sunrays, which powered machines.¹⁶⁰

Gigantic trees border the industrial roadways, also reaching a hundred metres in height. Under the canopy and extending into the forest for a thousand metres on either side were the domestic dwellings, surrounded by gardens. Small and of a single storey, the houses are sometimes grouped

¹⁵⁸ Kurd Lasswitz, *Two Planets, Auf zwei Planeten*, Southern Illinois University Press, USA 1971. p292

¹⁵⁹ *Ibid.* p175

¹⁶⁰ *Ibid.* p178

together but are more often scattered in isolation. Further into the forest the gardens come to an end and wilderness prevails.

While this appears similar to the Arcadian visions of Lasswitz's nineteenth century predecessors there are subtle differences that signify a very different perception of advanced civilisation. Minimalist in contrast, the houses of the Martians are small, one-storey constructions, that disregard status. Glowing descriptions are reserved for the clean green manufacturing zones. Travel is not by private carriage harnessed into a network but a continually operating free access system.

Many aspects are described in ecological terms. The tree canopy filters solar radiation, reduces heat loss at night and protects the soil against evaporative loss of moisture. Three-fifths of every district is protected as a natural park by law. The industrial buildings gather solar energy, the clean energy source for all of Mars. It is notable that on Mars money is calculated as energy credits.

The layout of the cities changes according to the character of the environment. The low land cities bisect the land into hundred kilometre quadrants. The strip cities of the high plateaus run parallel with the immense canals bringing water from the poles, creating huge strips of habitation. The desert areas are reserved for the mineral mines and a vast array of solar power stations. Each biome has its own use and character.

While the notions of ample power, transport and abundant greenery are enshrined by Lasswitz as they were by Cromie and Greg, *Two Planets* is more a vision of ecological balance than of a grandiose Arcadian life. Each citizen is amply provided for, without excess and opulence. For Lasswitz, Arcadia is only reached by a balance with the environment.

Martian architecture is essentially human, a ordinary architecture. Difference is supplied primarily by the inclusion of technological wonders. Houses are simply houses with strange domestic appliances that the polar explorers have trouble in using. Transport, power generation and anti-gravity are all

facets of superior Martian technology which transforms Martian architecture from its more human manifestations.

The architecture is also a consequence of *Numedom*. In a culture of personal freedom, tempered by a strong awareness of social responsibility, the architecture of Mars is analogous to the social structure. The modest private dwellings are “*scattered throughout the landscape*”¹⁶¹ in a kind of environmental autonomy, yet are built around a core of industry. Each house may be moved where its owner wishes, but this can only be effected within the civil structure. The personal travel system is coexistent with industry. The physical construction of Martian civilisation equates with its social structure. Society, energy and environment combine to form Lasswitz’s ecological utopia of balance.

It is significant that the advanced Martians of *Two Planets* were human in appearance. With a token difference of larger eyes and frailer bodies,¹⁶² they embodied Lasswitz’s vision for a better humanity. But another type of interplanetary being was being popularised by the French astronomer Camille Flammarion. Disparaging the biological chauvinism of the anthropomorphic alien, Flammarion believed that aliens, in their evolutionary adaptation to their environment, would be different to humanity. Flammarion himself wrote a number of verbose and quasi-spiritual speculative novels¹⁶³ but the new alien extra-terrestrial would be used with much greater effect by H. G. Wells. While Lasswitz’s benevolent aliens were mammalian, Wells’ aliens were disturbing, separated from the human species with insectile or reptilian attributes.

H. G. Wells, along with Jules Verne, would eclipse earlier interstellar classic. Introducing the other most significant theme of alien encounter in the twentieth century – the alien invader as destroyer, Well’s most well-known work was *The War of the Worlds*, first published in 1898. The aliens were quivering, slaving, tentacled beasts invading the earth in their tripod

¹⁶¹ Kurd Lasswitz, *Two Planets, Auf zwei Planeten*, Southern Illinois University Press, USA 1971. p179

¹⁶² Mandated by their physical environment.

¹⁶³ Despite his scientific rejection of any speculation on alien appearance.

machines with a deadly heat-ray. But to look at an envisioning of an alien architecture we need to turn to another of Wells' novels. *The First Men in the Moon*, published in 1900, would populate the moon with an intelligent species of insect-like appearance and an insect-like social order.

Inventing an anti-gravity material, the scientist Cavor and his companion Bedford travel to the moon. Upon landing, the narrator views the vegetated planet with some hope of it being inhabited. The evidence he looks for is telling: "*I looked about me again. I retained even then a clinging hope of some quasi-human evidence, some pinnacle of building, some house or engine*".¹⁶⁴ When at last signs of life appear the men retreat in terror, in their haste they stumble onto the discovery of a vast subterranean domain. Starving and lost the men feast on a fleshy fungus and succumbing to its intoxicating effect, they are captured by the Selenites and taken prisoner.

Taken underground by the lunar dwellers, the prisoners are brought into a cavern full of noise, artificially lit by a cool blue luminescent liquid and filled with immense machinery in constant movement. Bedford is respectfully amazed and "*Cavor's blue-lit face was full of an intelligent respect*".¹⁶⁵ From that moment Cavor believes in the intelligence of the Selenites and the possibility of communicating with them in a reasonable manner. Technology is not the assisting marvel that it was in *On Two Planets*, yet is still essential in supplying proof of the intelligent nature of the Selenites. For Cavor the existence of machinery is proof of intelligence.

Continually descending, the tunnels the men travel through are lit with the same cool blue incandescent liquid as the cavern. Branches lead off into darkness. Eventually the men come to an immense dim hole into which the liquid falls. Baulking at venturing into the cavern on a narrow plank the men resist their captors. After Bedford kills the natives, he and his companion escape upwards.

¹⁶⁴ Wells H.G. *The First Men in the Moon*, Phoenix Paperbacks, Orion Books Ltd, London, 2004. p56

¹⁶⁵ *Ibid.* p88

Presently we saw that the cavern before us opened on a hazy void. In another moment we had emerged upon a sort of slanting gallery, that projected into a vast circular space, a huge cylindrical pit running vertically up and down. Round this pit the slanting gallery ran without any parapet of protection for a turn and a half, and then plunged high above into the rock again. ¹⁶⁶

Negotiating what would be on earth an impossible steepness with the aid of the lighter gravity the men reach the surface.

The experiences of Cavor and Bedford represent opposing views. Bedford wants only to escape the hideous Selenites, seeing them only as an impediment to the acquisition of lunar gold. His answer is to “*come back in a bigger sphere with guns*”.¹⁶⁷ Cavor the scientist, surprisingly the more humane of the two characters in light of Wells distrust of technological solutions, wants to communicate with them. Approximating the outer spaceward caverns to remote pastoral districts with the inhabitants akin to ignorant peasants, Cavor supposes that further in must lie the mighty cities and the intelligentsia who would be capable of understanding the significance of beings from another planets. He assumes that the spatial order is also the social order.

Cavor gets his wish to learn more of the lunar world when he is recaptured by the Selenites, while Bedford returns to earth. When another scientist intercepts radio signals from Cavor, we learn more of the Selenite civilisation. In a move reminiscent of the wells of Fontenelle, Wells paints a picture of giant shafts descending into the moon and connected by transverse tunnels. Balloons drift up and down the voids. Labyrinthine passageways and vast caverns lead through a hundred miles of hollowed moon to a radiant blue central sea.

The insect-like nature of the Selenites is underscored by their architecture. Cavor is quartered in hexagonal apartments, prompting readers to think of a bee’s cell. Long dark tunnels and rough caverns promote comparisons with

¹⁶⁶ Wells H.G. *The First Men in the Moon*, Phoenix Paperbacks, Orion Books Ltd, London, 2004. p115

¹⁶⁷ *Ibid.* p104

terrestrial insect nests. The stygian depths contain a vast entomological world of specialized varieties of Selenite. As one of Cavor's messages says: "*The moon is, indeed, a sort of vast ant-hill*".¹⁶⁸

Wells would also employ architectural bias in his depiction of the Selenites. More often in space-literature, underground dwellings form a substrate of architecture that implies inferiority, used to illustrate lesser civilisations. But the vast subterranean world of the Selenites contrasts with their obviously advanced and intelligent nature. The Selenites are unquestionably on an equal footing with humanity but earthly architectural prejudice confronts and undercuts this standing.

Finally deep in the caverns, Cavor meets the supreme ruler of the Moon who is essentially a giant brain with an atrophied body. The Grand Lunar resides over an environment of alien splendour, his meeting hall is described in detail:

Imagine the largest hall you have ever been in, imperfectly lit with blue light and obscured by a grey-blue fog, surging with metallic or livid-grey creatures of such a mad diversity as I have hinted. Imagine this hall to end in an open archway beyond which is a still larger hall, and beyond this yet another and still larger one, and so on. At the end of the vista, dimly seen, a flight of steps, like the steps of the Ara Coeli¹⁶⁹ at Rome, ascend out of sight. Higher and higher these appear to go as one draws nearer their base. But at last I came under a huge archway and beheld the summit of these steps, and upon it the Grand Lunar exalted on his throne.¹⁷⁰

The succession of ever enlarging rooms and the gradual revealing of the final chamber is akin to the power displays of earthly kings. Deep in the interior of the moon, height and size are still used as a symbol of status. Yet the display of power seems incongruous with Selenite culture. When social status is inculcated from birth, leaving every Selenite totally contented with their respective positions, and when caste is biologically mandated, there is no need for a ruler to impress their subjects. Neither could the display be calculated to impress the unknown and unanticipated arrival of the earthmen.

¹⁶⁸ Wells H.G. *The First Men in the Moon*, Phoenix Paperbacks, Orion Books Ltd, London, 2004. p160

¹⁶⁹ This refers to the 124 steps which lead up to the 14th century church of Santa Maria on the Capitoline Hill, Rome.

¹⁷⁰ Wells H.G. *The First Men in the Moon*, Phoenix Paperbacks, Orion Books Ltd, London, 2004. p175

Rather it is the earthmen reading the novel that need impressing. Thus the unique status of the Grand Lunar is architecturally revealed to the reader.

Almost at the end of the novel, Cavor's conversation with the Grand Lunar returns to a concept first brought up by Plutarch. Like Lamprias, the Grand Lunar had always regarded the Earth as uninhabitable.

For a long time I had great difficulty in making him understand the nature of a house. To him and his attendant Selenites it seemed, no doubt, the most whimsical thing in the world that men should build houses when they might descend into excavations

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The solidity of our world is perceived as a barrier to a species that only knows architecture as excavation. The very concept of building on the surface is unknown to the Selenites. Not only is their architecture different, the Selenites think differently about architecture.

If Lasswitz vision was of humanity improved, Wells' vision was of the non human. The *Nume* were our conspirators in an intergalactic race towards a technological "*nirvana*" but the Selenites are our competitors with a nasty invertebrate architecture of their own.

¹⁷¹ Wells H.G. *The First Men in the Moon*, Phoenix Paperbacks, Orion Books Ltd, London, 2004. p179

Chapter Seven - Conclusion

From its negligible beginnings architecture became increasingly important in the depiction of other worlds. By the start of the twentieth century it had moved from an incidental role to being an essential means of establishing the attributes of an extra-terrestrial species. Yet despite this development it can also be seen that architecture is consistently employed in this context in a number of ways.

Architecture is almost universally used to reveal the presence of intelligent life on other planets. From a distance geometric forms and artificial structures reveal to the observer the existence of civilisation. To many people the regularity of the Moon spots and the lines on Mars were indisputably evidence of civilisation on those planets. Even after science proved that these planets were barren, the power of this vision was such that many stories of hypothetical societies continued to be set on those worlds. In pre-twentieth century fiction architecture is a pre-requisite for an alien race to be admitted into the ranks of intelligent beings.

In early examples of space fiction architecture would often emerge in the course of travel but from the nineteenth century on travellers in space would actively look for buildings to reveal the existence and location of aliens. Even for the author most concerned with scientific verisimilitude, Jules Verne, architecture is the indicator for which his astronauts search in vain.

Literature about extra-terrestrials draws a balance between the known and the unknown, the strange and the familiar, the fantastic and the believable. Space literature required not so much a suspension of disbelief but rather an extension of belief. Early authors used the scientific knowledge of the day to lend credibility to their depictions of civilisation on other worlds while in the nineteenth century the development of societies extrapolated from existing technologies allowed more complex visions of other worlds. Architecture was

used to further the believability of the story or to extend the narrative beyond the known into the unfamiliar. When stories about other planets extend beyond the familiar, the narrative requires links to the known in order for the strangeness to be identified. That link can be, and often is, architectural.

Unfamiliar territory could be immediately related to the known by the inclusion of ordinary architecture. Strange beings and unusual societies were often placed within architectural settings no different from common earthly environs. The environmental setting is assumed and referred to only minimally. This approach is often exploited in satirical texts, particularly where there is a didactic message to be conveyed about social behaviour. The use of a recognisable or familiar architecture allows the reader to recognise herself or a society in the text. Architecture grounds reality.

When some aspects of architecture are unusual and different, some aspects will remain ordinary. Hence the doors of difference in Percy Greg's *Across the Zodiac* are placed within an ordinary structure. The architecture is strange and familiar at the same time. It is this juxtaposition of the two elements that both promotes the new experience and allows it to be read and understood. Architecture both separates the narrative from reality and links it to the familiar.

Even utterly unfamiliar and alien forms of architecture still retain links to the familiar. By relating the subterranean dwellings of the Selenites in *The First Men in the Moon* to the dwellings of common insects Wells makes the architecture both unfamiliar and understandable. The association with invertebrate construction makes the architecture seem less human yet the architecture is still readable due to the reader's familiarity with the insects of earth and their habitations.

The attributes of alien architecture are also used to reveal facets of the civilisation that built it. One of the most significant links exists between architecture and status. A hierarchical relationship between the form and size of building and status is evident. In the simplest terms, big is better while a

lack of architecture connotes primitiveness. An association between architectural finishes and status also exists, with magnificent dwellings the province of advanced societies.

This differentiation by architecture often operates on societal level so that within a given society status is revealed by the size and grandeur of the dwellings involved. Both Bishop Godwin and H.G. Wells used architecture to indicate an individual's status. On a global level architecture reveals status between societies on a planet. The clearest example of this occurs in *A Columbus of Space* where the two opposing Venusian societies are placed on an evolutionary level according to the quality of their architecture.

Status is also revealed on a galactic level by a civilisation's architecture. The level of architecture supports the standing of otherworld species in relation to mankind. The primitive holes of the Lunarians in the eighteenth century novel, *John Daniel*, do nothing to combat the imperialist superiority felt by the explorers. But while architecture indicates a level of intelligent life, increasingly technology is used to provide the standard by which other species are judged. It is technology that proves to the travellers in H. G. Wells' *The First Men in the Moon* that the Selenites possess intelligence, in spite of the fact that they live in subterranean dwellings.

The architectural theme often functions on a symbolic level. Beyond acting as a metaphor for intelligence and hierarchy, architecture is used to link extra-terrestrials to certain qualities and to moralise. In a reversal of the normal link between buildings and status, the superior morality of the Lunarians in *A Voyage to Cacklogallinia* is revealed not only by their control of the supernatural but also by their modest dwellings, which symbolise freedom from avarice. In contrast the decadent societies of Pope and Greg lived amidst extravagance and excess while for Swedenborg architecture was a way in which to define spirituality.

The external viewpoint of space is also used to moralise about and inform the human condition. While functioning like a panopticon, where an individual

surveys the masses, the external viewpoint reverses the effect. Instead of the masses controlled by the individual, the masses influence the individual. The viewer is changed by his experience, rising above what is revealed as the petty squabbles of humanity.

Consistently the architecture of alien beings has been the architecture of humanity with the wholesale transfer of architectural assumptions. The application of anthropometrics to alien forms, assuming a relationship between dimensions of an extra-terrestrial and their buildings, was made evident in novels such as *Domingo Gonsales*. The relationship between a building and the environment was important. Many authors adopted an architectural response to the climatic extremes of the Moon, including the Moon spots of Kepler and the underground caves of Wells. Most often the assumption of an entirely ordinary human architecture sufficed for the representation of an extra-terrestrial civilisation.

Yet changes did occur in the architectural depiction of other worlds. The differences between Godwin and later writers like Lasswitz are pronounced. By far the most significant changes occurred between the eighteenth and nineteenth centuries. The industrial revolution and the massive alterations to cities as a result of industrialisation were the motivating forces of change. The new urban vision of extra-terrestrial societies matched the increasing urbanisation of western society. The same polluted noisy slums that would inspire the garden city movement of Ebenezer Howard prompted a vision of Arcadian cities for superior cultures.

The change in the depiction of advanced cultures is marked. Previously in the seventeenth and eighteenth centuries, superior cultures were indicated by domestic dwellings whether modest like the Moon Dwellers found by the Cacklogallinians or palaces of superior size and grandeur such as Domingo Gonsales encountered. In the nineteenth century it was no longer enough for private displays of superiority. A culture was judged as a whole. Personal wealth transposed to societal wealth. The city became the standard by which civilisation was evaluated, allied with nineteenth century ideas of progress.

Yet there is a contradiction between the city as a definition of alien culture and the cities of the superior Martians portrayed in the nineteenth century. Their advanced city was typically a green parkland of clean energy and wealth for all. The superior aliens could do what nineteenth century cities could not and reconcile nature and the city, aided by their technology.

Technology would become an increasingly important facet in the nineteenth century both in its delineation of advanced societies and in the role it played within the narrative. Some earlier authors in their obsession with machinery, like Cyrano De Bergerac and Defoe, foreshadow this increasing technological dependence even though their technology functions in a different manner.¹⁷² Technology's ultimate role was in the production of energy and its clean application to the urban fabric. Technology is also the new standard of wealth. The Martians of Lasswitz's Mars are secure in their modest dwellings because of the vast standard of technological wealth that saturates the planet. Technology dissipates the need for ostentatious displays of wealth.

As a facet of technology, transport would also feature significantly in later works. From the 1880's onward transport would help to define alien cities. Each writer had his own distinctive version of transportation devices. Initially these featured as tacked on elements but writers like Lasswitz would include transport as an integral feature of the city that both shaped its layout and dictated its use.

Extra-terrestrial civilisations grew increasingly detailed prior to the twentieth century with a matching increase in architectural detail. Comprehensive descriptions of interiors, furniture, building methods, domestic housing and public spaces were all part of the new drive for plausibility. Escalating attention was also paid to the materials out of which the architecture was built. Metal began to feature in alien constructions. Associated with the

¹⁷² The difference almost defines the two terms. The machinery of the earlier literature functioned as an independent unit whereas the technology of the nineteenth century novel was integral both to the functioning of alien society as a whole and its urban fabric.

innovative technology and styles introduced in the nineteenth century, metal was the new building material without a past history that could be used to support an otherworldly civilisation. Yet contradictorily marble would also feature, its connotation of wealth firmly entrenched.

Other materials were chosen to create a sense of exoticism to the architecture of another world. Crystalline and jewel-like materials gave off-world sumptuousness an alien flavour. Other elements of exoticism came from closer to home. Contrasting the habitual architectural materials and forms of western civilisation with the colours and styles of the east, authors sought to impart a foreign glamour to extra-terrestrial buildings.

Differentiating the new planets from earth by the application of cultural differences that originated on earth, alien exoticism flourished at the height of colonial power.

Extra-terrestrial civilisations began to respond to their environment in new more complex ways. Earlier writers had written architectural responses to the challenging climate of the Moon. The mechanical houses of *Voyage to the Moon* were a solution to extreme weather. But, inspired by the astronomical revelations of Schiaparelli, depictions of extra-terrestrial civilisations began to craft a grander societal response to environment. This would reach new heights in Lasswitz's novel *On Two Planets* where the *Nume* both used fully and were in ecological balance with their environment.

In one way the architecture of extra-terrestrial civilisation has remained the same but different, to refer to Ben Jonson's concept. The conventions of earthly architecture are repeated in space though changing and transforming over time. The twentieth century would see an explosion in the quantity of other worldly literature and new media, with the advent of film and television, through which extra-terrestrial cultures would be portrayed. In the process many of these conventions would be reused and reinvented. Yet some of the most significant conventions arose prior to the twentieth century.

Extra-terrestrial architecture moved from representation at an individual level to a portrayal of society, as a whole, integrated with its urban fabric in this period. Architecture was used to create difference and to link to the familiar. Architecture and technology were confirmed as definitive evidence of an intelligent civilisation.

Kepler referred to the “*architectural mind*”¹⁷³ possessed by the denizens of the moon while talking of the artificiality of the moon spots. The inculcation of architecture in the portrayal of extra-terrestrials makes it clear that it is we humans who have the “*architectural mind*”.

¹⁷³ J. Kepler, E. Rosen (translator), *Kepler's Somnium: Notes on the Geographical Appendix*. University of Wisconsin Press, Milwaukee and London, 1967. p160



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