

Private Space Exploration: Ethics, Policy and Governance
Edited by Jai Galliot

The Moral Philosophy of Space Travel: A Historical Review

Nicholas Campion
School of Archaeology, History and Anthropology,
University of Wales Trinity Saint David
n.campion@tsd.ac.uk

Abstract. The space programme is driven by many imperatives, of which the most overt are economic and geopolitical. However, psychological factors are also present, in particular an underlying narrative within many cultures, including western, in which space is represented as a source of wisdom and morality. This is evident in traditional views of heaven as existing beyond the stars and more recently in the ‘Overview Effect’, the name given to the experiences reported by many astronauts when seeing the Earth from space. This chapter will consider the philosophical background to concepts of space as related to wisdom and morality with reference to debates in western culture and theories and practices from ancient and traditional cosmologies, especially classical thought and the notion of the soul’s ascent to the stars, and the sky as a source of wisdom. Drawing on recent work on ‘Green’ theory, it will suggest that debates in environmental and ecological ethics can be utilised in the construction of an effective space ethics policy.

Introduction: Space Ethics

In 2003 Mark Williamson published a paper in *Space Policy*, in which he argued (2003, p. 52) that, compared to other issues, ‘space demands a somewhat different [ethical] philosophy, based on detailed knowledge of the space environment’, and must progress from the ‘philosophical and academic’ and ‘be targeted towards the design of an ethical code or policy’ to be of any practical use. However, as Williamson also states, we have to consider ‘who is asking [ethical] questions and who is answering them?’ (2003, p. 49): no question is ever asked without the prior assumption of a context, or a set of assumptions about the way the world works. For the purposes of this chapter I will adopt the same definition of ethics as Williamson (2003, p. 48) from the *Collins Concise English Dictionary* (1992, p. 439): ‘the philosophical study of the moral value of human conduct, and of the rules or principles that ought to govern it’, and ‘a code of behaviour considered correct, especially that of a particular group, profession or individual’. Williamson had in mind a number of such groups and professions: chiefly space scientists and those who stand to exploit space commercially, whose respective interests may be diametrically opposed. It is in order to reconcile these that, he argues, it is necessary to formulate an ethical policy to which rival parties can agree. As Henry and Taylor (2009) demonstrate, the need to develop such a policy is of immediate concern.

Williamson (2003, pp. 47-8) summarised popular views, at least amongst scientists, of space as valueless: ‘a limitless, alien void populated by huge and indestructible stars, a handful of barren planets and swarms of potentially dangerous comets’; he added that, to such people, ‘The space environment is hardly in need of protection’. He added that what needs preserving from the scientist’s point of view is the ‘relative purity’ of the space environment; that is, the legacy of development in an environment that is entirely separate to the terrestrial. Williamson highlighted the core problem of a successful space ethics policy, if success is

defined by practical implementation: how is it possible to persuade people who see space as either empty or dangerous that it needs protecting?

Dualism in Space

The question I raise in this chapter is what value is put on 'outer space' - defined as the realm beyond the Earth's atmosphere - and what is the background in the discussion of such values in the historical literature, particularly in the western tradition? The issue is complicated by a double use of the word 'space': one is space as outer space, while the other is space defined as the physical location that humans occupy, whether the immediate environment or the larger one. My use of each should be clear from the context, but I will try to use the term 'outer space' where necessary. In some cases the two uses of the word may be indistinguishable. We need to consider how space was, and is, conceptualised and imagined as a place: in this sense I mean 'space' as the general area beyond the earth, while 'place' is endowed with identity and quality.

Little has been written about the relationship between 'sky' and 'place', but it can be useful to draw on the literature on landscapes. For example, Belden Lane (2001, pp. 37 & 58) argued that 'The human spirit is inexorably drawn to the appeal of place, whether real or imaginary. Landscape, after all, is a constructed reality – a form which is given to nature by a particular human perception'. Lane's point of reference is the landscape, but we could equally consider the extension of the same principle to the skyscape, defined as the ways in which we experience and conceptualise the sky (Silva 2015). We could, then say that 'Skyscape, after all, is a constructed reality - a form which is given to nature by a particular human perception'. Lane added, (2001, p. 59) 'the poet also reminds us that sacred places are, first, of all, "storied" places - elaborately woven together on a cultural loom that joins every detail of the landscape within a given community of memory'. As I shall argue, outer space, then, is a 'storied' place. In particular, and of relevance to this chapter, there is a persistent narrative in western culture which portrays space as pristine, in contrast to the relative corruption of the Earth.

One important feature of western scholarship is the distinction which is widely made between 'sacred' space on the one hand and 'profane' space on the other. As Mircea Eliade (1959, p. 20) wrote,

For religious man, space is not homogenous; he experiences interruptions, breaks in it; some parts of space are qualitatively different from others... There is, then, a sacred space, and hence a strong, significant space; there are other spaces that are not sacred and so are without structure or consistency, amorphous...

He added,

For profane experience, on the contrary, space is homogenous and neutral; no break qualitatively differentiates the various parts of its mass. Geometrical space can be cut and delineated in any direction; but no qualitative differentiation and, hence, no orientation are given by virtue of its inherent structure. (Eliade 1959, p. 22)

The dichotomy between one kind of space which is inherently sacred and value-laden, and another which is inherently profane and value-free, has been critiqued by recent scholars, for who it is no longer seen as useful (see for example Tilley [1994] and Lane [2001]). Nevertheless, the dichotomy observed by Eliade, and which he believed to be a fundamental feature of human experience, is such a central narrative in western philosophy and theology,

that it cannot be ignored. In particular it is rooted in classical cosmology, particularly in the Aristotelian (1921) conception of a fundamental break between the sub-lunar world (the space below the Moon, including the Earth) and the space beyond the Moon, up to the stars: for Aristotle, the sublunary world was inherently imperfect, and subject to a perpetual cycle of growth and decay while, beyond the Moon, one entered a realm of increasing perfection, including moral perfection, until one reached the stars. Aristotelian ethical cosmology (Aristotle 2004) can therefore also be located in the soul's relationship with the cosmos (Aristotle 1986, Campion 2010).

A parallel dualism occurs in the Abrahamic faiths in which a distinction is drawn between a perfect realm, 'Heaven' which is 'up there', and an imperfect world, the Earth, which is 'down here'. This is considered below.

The Ascent to the Stars

While physical space travel is just over half-a-century old, the idea of a journey to other planets or stars is almost as old as recorded history. Indeed, Aristotle's idea of ascending stages of perfection through the stars was, in part, a codification of much older ideas that the soul ascends to a more perfect condition in the stars. Such ideas were current in Old Kingdom Egypt, and were set out in the *Pyramid Texts*, the literary foundation of all celestial journey literature, probably beginning around 2400-2300 BCE. Such ideas may have existed much earlier in oral form, but the Egyptian texts initiated the written record. Central to the texts was the Pharaoh's post-mortem ascent to heaven on the rays of the sun. For example, Pyramid Text Utterance 508 reads 'I have trodden those thy rays as a ramp under my feet whereon I mount up to that my mother, the living Uraeus on the brow of Re', while Utterance 523 asks 'May the sky make the sunlight strong for you, may you rise up to the sky as the Eye of Re' (Faulkner 1993, 606.1688-9, 523.1231). It appears that the same ascent was available to commoners either during the Old Kingdom (Smith 2009) or, at the latest, in the New Kingdom, after 1500 BCE (Morenz 1992, p. 204). The celestial journey, though, did not exist without morality, measured by the weighing of the soul after death (Stilwell 2005): the success of the ascent to the stars was dependent on virtue.

The concept of the relationship between soul and stars finds its fullest expression in the early fourth century BCE in Plato's psychological theory (his view on the nature and function of *psyche*) which, in turn, may be understood in terms of his theory of the soul's origin in the stars. Each soul, Plato wrote in *Timaeus*, has its own star (1931, 41E-42A). He was speaking metaphorically but, in his view, metaphor was often the most effective means of revealing truth. The theory of the soul's origin in the stars was elaborated in the *Republic* (1937, X.614-621) in which the precise mechanics of the soul's incarnation into human form were set out: it originates in the sphere of the fixed stars, to which it later returns, first descending through the planetary spheres at birth, and then ascending at death. Again, morality is key to the whole question of the journey: the virtuous and those who have loved the philosophical life go to heaven after death, 'raised up into a heavenly place by justice', while the others go to the 'places of correction under the earth' (Plato 1914, 249A-B). As the Vedas put it 'the seers, thinking holy thoughts, mount him (Time)' (*Hymns of the Atharva-Veda* 2000 [1897], p. 224). The shift of the immortal soul's home from the underworld to heaven survived in written form for the first time in Plato's works and represents one of the most dramatic innovations of Greek philosophy. As Plato said, the 'soul...traverses the whole heaven' (Plato 1914, 246B-C) There may also be some correspondence with Indian beliefs about salvation in the sky: 'That I do know of thee', the Atharva-Veda intones, 'O immortal, where thy march is upon the sky, where thy habitation is in the highest heaven' (*Hymns of the*

Atharva-Veda 2000 [1987], p. 212). The other consequence of the soul's connection with the stars, aside from salvation, was wisdom. Plato described how the creator 'showed them [the souls] the nature of the Universe, and declared unto them the laws of destiny' (1931, 41E-42A). It follows, then, that the journey to the stars is a means of gaining both salvation and wisdom. Plato's ethical theory (Irwin 1995) can be seen as a function of the soul's journey to the stars as a quest for knowledge.

There is no firm dividing line between the human and the divine in Platonic theory and, significantly for the understanding of Plato's astronomy, none between humanity and the stars: all are embedded in the world soul, of which individual souls are, in turn, a part (1931, 41D-E). There is a profound significance in this view, for the whole universe, being animated by soul, is alive. The Cosmos, for Plato, was a 'Living Creature endowed with soul and reason owing to the Providence of God' (1931, 30B-C).

The idea that the entire cosmos was alive and animated by soul, and that the individual soul might ascend to the stars became a commonplace in the classical world, and in cultures, such as the Islamic 'Golden Age' and Renaissance Europe, which adopted classical ideas (Couliano 1991). The soul's journey to the stars was theorized in the *Corpus Hermeticum* (Scott, *Hermetica* 1982), composed mainly in Hellenistic Egypt in the last two centuries BCE, ritualized in the Roman World in the Mysteries of Mithras (Beck 2006) and, in Gnostic Christianity (Jonas 1963), provided a means for the soul to escape from the oppressive influence of the planetary 'archons'. *Nousanodia*, defined by Idel (2005, p. 42) as 'the NeoAristotelian spiritualisation of the [soul's] ascent' also entered Jewish practice in the classical period; the Jewish celestial ascent is described in the various works belonging to the literature attributed to the prophet Enoch, dating from the 3rd century BCE through late antiquity. Later Enochian texts, from c. the third to the eighth century CE, belong to the literary genre known as *heikhalot* literature, so-called 'because it describes heavenly *hekhalot* (temples or palaces), in which the heavens as a whole constitute a single temple containing a varying number of shrines composed of firmaments, angels, chariots, legions, hosts, and other wondrous phenomena and beings' (Maggness 2005, pp. 7-8). The individual adept attempted to travel to the seventh heaven (that of the planet Saturn) in order to achieve a vision of God's glory, which lay beyond the eighth sphere, that of the fixed stars. In each case, Hermetic, Mithraic, Gnostic and Jewish, every of the ascent was equated with increasing degrees of moral perfection and purification. The ascent to the stars was psychic, but no less real for that, in a world in which the soul was a vital part of individual existence and identity. Such ideas were carried into medieval and Renaissance Europe through one text in particular, Macrobius' fifth century *Commentary on the Dream of Scipio* (1990), from which text it was easy for Dante (c. 1265-1321) to dramatise the celestial journey in the *Paradiso*, the final book of the *Commedia* (1971). A separate route of transmission of the celestial journey trope from the classical world to Renaissance Europe was via Jewish Kabbalah (Unterman 2008), which was formulated in literary form in tenth century Spain, and made its way into Christian thought in the fifteenth-sixteenth centuries, at the same time as the *Corpus Hermeticum*, newly translated into Latin, was shaping Renaissance cosmology. A separate and more orthodox Christian form of celestial ascent drew on the Biblical story of Jacob's Ladder (Genesis 28.10-19), which was used widely in Christian imagery: a notable example is found in the facade of Bath Abbey, in southern England.

The idea of the soul's celestial journey and ascent to a more perfect place was, then, deeply embedded in the western imagination up to the seventeenth century. It fell out of orthodox intellectual favour with the eighteenth century European Enlightenment, but remained

familiar to all students of the classics, which included all educated people until the late nineteenth century, and popular in mystic, esoteric and magical world views, beginning with the influential Swedish visionary Emmanuel Swedenborg (1688-1772), who documented his visits to the spiritual beings who inhabited other planets (1894). Space travel, seen as a spiritual or psychic exercise was therefore historically, usually associated with the quest for wisdom and the moral or ethical condition of the traveller.

Concepts of Heaven

The Greek word *ourania* is usually translated either as 'sky' or 'heaven', words which have radically different meanings in English. 'Sky' is the space above us, normally regarded as neutral and valueless, whereas 'heaven' is a paradise; it is the realm of God in the Abrahamic faiths, the home of angels and saints, and the destination of the virtuous. *Psalms* 19.1 clearly associates what would now be distinguished as 'space', 'stars' and 'heaven' as what we might call blended utopian concepts, located 'up there' in a zone which is effectively physically unreachable for human beings, but represents a source of power, wisdom or morality: 'The heavens are telling the glory of God, and the firmament proclaims his handiwork'. The celestial bodies were placed in the sky to measure divine time and reveal his wishes, as *Genesis* 1.14 made clear: 'And God said "Let there be lights in the firmament of the heavens to separate the day from the night; and let them be for signs and for seasons and for days and years."'

The notion of a divinity set apart from, and above the world, tends to reinforce both Aristotelian dualism and Eliade's sacred-profane dichotomy. Spatially, both morality and wisdom are, then, ultimately located in the 'up there', rather than in the 'down here'. The alternative tradition, though, finds divinity, and therefore morality and wisdom, more evenly distributed through the entire world. China occupied something of a middle position between the two options. The metaphysical structure of the Chinese cosmos was vertical, with heaven above and earth below, the two locked in a value-laden power relationship in which heaven is exalted, honoured and powerful, while earth is lesser and lower. The way of heaven (above) was round, the way of earth (below) square, *chi* (energy) passed between them, and the task of the ruler, living in the square, was to grasp the round - to understand heaven - in order to benefit the square (Lai 2008, p. 209). As the opening section of the *I Ching* puts it, 'Heaven is high, the earth is low' (Wilhelm 1968 p, 280). Yet, the distinction between high heaven and low earth was moderated by the flow, as in classical Greek physics, of energy between them: thus 'macrocosm and microcosm became a single manifold' (Sivin 1995, p. 6). As Xiaochun Sun put it, in China, 'The universe was conceived not as an object independent of man, but as a counterpart of and mirror of human society' (2000, p. 425). Similar ideas are found elsewhere, and Native North American cosmology, for example, has been described as depending upon a 'patterned mirroring' between sky and earth (Griffin-Pierce 1995, p. 63). In many cultures the relationship between sky and earth should be considered as closer than the existence of intimate links between two different worlds suggests. In sub-Saharan Africa, for example, no distinction between the world down here and the world up there should be discerned, any more than it should between the world of the living and that of the dead, or that of visible beings and that of invisible ones: all occupy the same world (Zahan 1979). This is same as the animist, or pantheist, 'lifeworld', discussed by David Abram (2010). To complicate matters, Platonic cosmology (1931) can also be represented as monist, in view of the soul's permeation of the entire cosmos. It can also be represented in terms of Green politics, as I shall discuss below, as either anthropocentric and environmentalist, in that the welfare of the human soul is seen as paramount, or ecological, in that the human soul is seen as entirely embedded in nature, that is, the cosmos.

The most persistent ethical-cosmological scheme in western thought is Stoicism, in which the purpose of life is to live in agreement with nature. Zeno of Citium's fourth century BCE work, *On the Nature of Man*, known only from later accounts, argued that human nature is identical with the nature of the universe, virtue is the goal to which nature guides us, and a virtuous life is therefore a natural life and vice versa. Stoic ethical cosmology was best defined by Zeno's biographer, Diogenes Laertius:

as Chrysippus says in the first book of his *De finibus*; for our individual natures are parts of the nature of the whole universe. And this is why the end may be defined as life in accordance with nature, or, in other words, in accordance with our own human nature as well as that of the universe, a life in which we refrain from every action forbidden by the law common to all things, that is to say, the right reason which pervades all things, and is identical with this Zeus, lord and ruler of all that is. And this very thing constitutes the virtue of the happy man and the smooth current of life, when all actions promote the harmony of the spirit dwelling in the individual man with the will of him who orders the universe (Diogenes Laertius, VII.88)

In Stoicism, then, there is nothing but nature, and all parts of nature are potentially equally valuable. There is no Heaven which is more sacred than the Earth, and hence there is no excuse for the devaluing or commercial exploitation of Earth, and neither is there any excuse for exploitation of other planets.

Modern theorists are tending to react against dualist models. Christopher Tilley, for example, has argued that there is no essential distinction between the polarities of sacred and profane, or heaven and earth, upper and lower. But he parts company from traditional animism and pantheism, by emphasising that space has no inherent value or context beyond the activities of the individuals within it. He argues that

The alternative view starts from regarding space as a medium rather than a container for action, something that is involved in action and cannot be divorced from it. As such space does not and cannot exist apart from the events and activities with which it is implicated. Space is socially produced, and different societies, groups and individuals act out their lives in different spaces. Space in itself no longer becomes a meaningful term... Space has no substantial essence in itself, but only has a relational significance, created through relations between peoples and places. (Tilley 1994, pp. 10-11)

Tilley is not arguing that space has no value, but that it has the value which human beings give it as a result both of their conceptualisation of it and their engagement with it and participation in it as actors in the wider environment.

From the above discussion a number of models of the value-structure of space then emerge. First, there is a dualist version, rooted in both classical philosophy and the theology of the Abrahamic faiths, in which the upper, more distant regions have more value, both spiritually and intellectually, than the lower, closer zones. Then there is a monist version, evident in traditional societies in which there is no distinction between water, air, earth and stars, or between different kinds of life or, for that matter, between life and death: all is potentially of equal value.

Tilley's phenomenology, which has great respect for traditional monist views, represents another kind of monism still, in which all space is potentially of value, but only because the relationships between the people and places which occupy it, not because of its inherent, or essential, quality. Williamson himself bemoans the monism which sees all space as valueless - the profane space of Eliadian dualism - while he himself sees the relative purity, as he calls it, of outer space, as of great scientific value: his inference is that the Earth, by contrast, is relatively impure. There is, though, no absolute distinction between monist and dualist positions. Instead, they exist on a spectrum and Platonism can be read as both or either, depending on whether we prioritise the dualist distinction between soul/psyche and matter, or emphasise the centrality of soul/psyche to the entire cosmos, including the material world.

The discussion of pure or pristine environments links the space debate to traditions of utopian thought in which the perfect realm generally exists in terms of their distance from the present place and time (Levitas 1990, pp. 1-8). Utopias tend to exist in a place which is either far away in space, lost in distant past, or anticipated in a perpetually receding future.

In the past many Utopias occupied a physical location, even if one which could no longer be entered, the Biblical Garden of Eden being a prime example (Eco 2013). For many centuries, especially during the European voyages of discovery, Europeans searched for a new Eden, and sometimes thought they had found it, the apparent paradise of Tahiti being a prime example. Some have argued that such undiscovered physical Utopias can no longer exist. Ben Macintyre, in *The Times*, expressed the view that 'Legendary lands are all but gone now. In the age of Google Earth and GPS, there is no terra incognita left' (Macintyre 2013, p. 11). Yet the astronomical discoveries of the last century have opened up areas of terra incognita - or, to coin a phrase, 'stellar incognita', if we prefer - which replicate the vast areas - the Australian deserts, African savannah, Amazonian forests and North American plains - once defined as unknown and uninhabited by European conquerors. In so doing the same ethical dilemmas which have arisen in recent times are also replicated. For example, only recently has it been acknowledged that Australia, when the Europeans arrived, was neither empty nor unknown, but occupied and known. By the same token, to regard outer space as empty and unknown will always raise the risk of an ethical blunder.

Ethics

The relationship between ethics and space can be traced back to the recorded origins of human speculation on the nature of the sky. However, whereas the two major strands of traditional cosmology, the dualist and the monist, both see the sky as included in the ethical and moral order, modern environmental and ecological thought of all shades focuses on nature narrowly defined as life on planet Earth. To that extent environmental and ecological thought is heir to the Cartesian split between mind and matter, and life and death, which runs through post-Enlightenment western thought. In this case the split is between Earth on the one hand, which is seen as valuable and coincident with nature, and space, and the sky, on the other, which is ignored. For example Dobson (2007), Eckersley (1992) and Jardins (1997) all review environmental and ecological theories, from those which prioritise preservation and conservation to those which advocate radical solutions, from those which prioritise human welfare to those which subordinate humanity to nature as a whole, and from anti-capitalist socialists to those willing to work with business. Yet, environmentalists and ecologists generally have nothing to say about space, confining their theories to terrestrial nature.

A fundamental distinction in current 'Green' ethical thought distinguishes 'environmentalism', which depends on a managerial approach to environmental problems, from 'ecologism', which argues for 'radical changes in our relationship with the non-human

natural world, and in our mode of social and political life' (Dobson 2007, pp. 2-3). For ecocentrics, mainstream environmentalism is an inferior activity concerned with saving the planet on behalf of humanity, while ecocentrism subsumes humanity within the ecological system. As Stan Rowe (1994, pp. 106-7) put it:

Because "environment" means that which encircles something more important, literal "environmentalists" are willy-nilly anthropocentric, placing less value on the surrounding world than on humanity and self. If that causes uneasiness, the central position of the self can be retained painlessly by redefining it as a broad field-of-care embracing Earth. But this is an ineffectual gesture if, when push comes to shove, humanity is always accorded top billing. The question of priorities is critical.

Rowe (1994, pp. 106-7) goes on to discuss the consequences of this argument:

Should our loyalty embrace the entire "field-of-care" or does sympathy fasten first and always on the starving family metaphorically ploughing the "field" into oblivion? The whole field should command our allegiance, say I. It is time to eschew human self-interest and recognize the inherent worth and surpassing values of Earth's miraculous ecosystems whose workings we do not understand. *Anthropocentrism says we know how to control and manage them; ecocentrism says "not yet; maybe never."* (original emphasis)

Ecocentrism is, then, in classical terms, a restatement of Stoicism, in which humanity is completely embedded in nature, itself conceived as a single entity, to the extent that the possibility of effective human action is limited.

Patrick Curry (2011, p. 45), extending the debate, identified three major ethical schools of thought; two are modern, one 'deontology' concerns duty and a second, 'consequentialism', of which the major form is utilitarianism (equivalent to environment managerialism), and the third, 'virtue ethics', is rooted in classical philosophy'. Classical ethics has a number of characteristics. First, it is teleological, assuming a goal which already has a kind of existence in the future and which lends existence in the present a purpose. It also, significantly for the traditions of thought which I have summarized, equates ethics with wisdom. As Francesco Varela (1992, pp. 3 & 4) wrote, ethics 'is closer to wisdom than to reason, closer to understanding what is good than to correctly adjudicating particular situations ... [A] wise (or virtuous) person is one who knows what is good and spontaneously does it'. This would have made perfect sense to Aristotle (Urmson 1998, p. 11), but begs the question of who is to judge what is right if there is no common source of revealed wisdom.

Curry's interest is in developing an ecological ethics. Extending classical 'virtue ethics' he proposes a Green Virtue Ethics (GVE) - which escapes the anthropocentrism which prioritises human interests alone, and which, instead, sees humanity as embedded in nature ('nature takes its proper place at the heart of all things, not merely an ad-on extra to make us better humans') and which must therefore include nonhumans (Curry 2011, pp. 51 & 55). Curry's inspiration is drawn partly from those traditional cosmologies which locate all nature as valuable, challenging dualist cosmologies, but also derives from those elements of classical philosophy which embed humanity in nature, and modern writers, such as Abram. Curry (2011, p. 51), who is no fonder of exclusive ecocentrism than he is of anthropocentric environmentalism concludes that 'we are beings not only on, but of the Earth'. As Rowe (2006, p. 21) said, 'We are Earthlings first, humans second'. To adapt Curry and Rowe, I

propose that ‘we are creatures not only in, but of space’ (and of outer space), and ‘we are Spacelings first, humans second’. In a recent influential discussion of sacred space Thorley and Gunn (2006) rely heavily on the testimony of indigenous people. Yet, taking the Earth as whole, situated in outer space, the entire human population is indigenous. Thus, whether Earthlings or Spacelings, humanity exists on this tiny planet and its interests as a whole depend on the welfare of both Earth and space. My point here is that, to follow Tilley on space as relational, the Earth does not exist in isolation, but in terms of its relationships with other celestial bodies. It is actually in outer space, surrounded by it, part of it. In that sense, the boundary between space on earth and the ‘outer space’ beyond the Earth’s atmosphere, disappears. Organic life is only sustained on the Earth by its relationship with the Sun and Moon and, in turn, our solar system only exists in relation to the Milky Way, our galaxy, and our galaxy is part of a greater structure which underpins our entire universe.

The Overview Effect: An Ethical Impulse

Williamson (2003) identified the key task of a space-ethics policy as reconciling the competition between capitalist, commercial and industrial interests on the one hand, and scientists on the other. However, his arguments have no emotional component, only an appeal to all to respect science. However, emotional support for space ethics comes from the ‘Overview Effect’, named by Frank White in 1987 in order to describe the experiences reported by some astronauts when seeing Earth from space for the first time (White 1987). Cosgrove (2001) documented the cultural impact of the first photographs of a spherical Earth taken by Apollo astronauts, and their impact in galvanising the political push for environmentally sustainable economics. However, White focuses on the even more profound experience of those whose vision of the Earth in space is direct - the astronauts themselves.

Interviewed on BBC Radio 4’s *IPM* programme on 25 May 2013, the astronaut Geoff Hoffman spoke about the ‘Effect’. He described his own experience beginning with the launch, in which for the first time on a solo mission, he waited in the capsule completely alone, without the army of technicians who had been present on previous days, the shaking produced by the temperature fluctuations in super-cooled fuel, a lurch to left and right at ignition, and then an awesome shaking at lift-off. The vehicle, he said, in an unintended evocation of premodern pantheism, ‘is alive’. A period of transition followed as noise and blue sky gave way to silence and black sky. Hoffman described the shocking beauty of the sun set in a black sky, a black unlike any black he had witnessed before, the profound sense of dislocation from the body that results from weightlessness, and the strange sensation of looking down at the earth, watching the terrestrial sky from above instead of from below, witnessing the flash of lightning storms and meteors plunging into the atmosphere. He saw the world as one, drawing salutary ecological lessons from the visible deforestation of tropical areas. Inspired by the ethereal nature of the earth’s halo, Hoffman hesitated to use the word ‘spiritual’, put to him in a leading question, but was happy to describe the condition that he experienced on his mission as being a ‘state of grace’, words which he said had been suggested to him by a Jesuit priest.

The ‘Overview Effect’ has been institutionalised in the ‘Overview Institute’ (Planetary Collective 2013; OI 2012a). The Institute’s environmental agenda is clearly spelled out on its website (OI 2012b):

We live at a critical moment in human history. The challenges of climate change, food, water and energy shortages as well as the increasing disparity between the developed and developing nations are testing our will to unite,

while differences in religions, cultures, and politics continue to keep us apart. The creation of a 'global village' through satellite TV and the Internet is still struggling to connect the world into one community. At this critical moment, our greatest need is for a global vision of planetary unity and purpose for humanity as a whole.

Actually, such views are closer to ecologism than they are to environmentalism, with their implicit plea for a radical revision of humanity's relationship with the entire planet. For some astronomers, experiences such as Hoffman's provide a radical step into a 'new' politics. As formalised by the Overview Institute and placed into a historical context, they are reminiscent of dreams of new worlds and journeys into space that have characterised western thought since the ancient world. In particular, the Overview Institute sees the Overview Effect as a source of wisdom and a possible path to salvation for an Earth under threat, narratives which are recognisable from classical sources.

Williamson's solution to the ethical problem was to adopt environmental managerialism, or consequentialism, seeking pragmatic solutions to ethical questions. But a successful ethical policy can only be enforced if its supporters have an emotional commitment to it. Otherwise a series of pragmatic and ad-hoc arrangements are unlikely to preserve space for scientific research by minimising the polluting excesses of such commercial activities as mining the Moon. There are direct comparisons with terrestrial debates such as that over national parks in the USA (Sachs 2013) and the importance attached to 'wilderness' (Jardins 1997, pp. 149-57). Does wilderness have value in itself, is it required for humanity's aesthetic and spiritual well-being, or should local environments be preserved and protected because of their value as part of wider ecological systems? And are wider ecological systems of value in themselves because nature is inherently 'good', as ecologism would claim, or because they are necessary for human survival as anthropocentric environmentalists would argue? And what happens when those who wish to mine the Moon argue that it is necessary to alleviate poverty on Earth?

Conclusion

Williamson argued that 'philosophical and academic' discussions are inadequate to the task of developing a space ethics policy, when faced with immediate practical problems. The solution proposed in this paper is that there are a variety of perspectives within existing western philosophy which can be conscripted to the debate. One is modern environmental and ecological theory, and the other is the long tradition in which outer space - the realm of the stars - is seen as special. I have identified dualist cosmologies, in which the realm of the stars is seen as a source of wisdom and salvation, and monist cosmologies, in which humanity is seen as embedded in nature, humanity's welfare therefore being dependent on nature's. To extend this principle, humanity's welfare is dependent on the welfare of space - and outer space. Both monist and dualist cosmologies have something to bring to the debate and are evident in modern 'Green' philosophy: I have drawn particular attention to Curry's Green Virtue Ethics which refers explicitly back to classical and other traditional cosmologies, especially emphasising humanity's integration in nature, with its consequences for morality, wisdom and salvation, and hence, I argue, with space. In turn, both environmental and ecological wings of Green politics have intellectual ancestors in traditional and classical cosmologies. In this sense, the universe, as Lane reports is 'storied', and the value we place on it is inseparable from the stories we tell about it. While, therefore, we may support Williamson's plea for a practical space ethics policy, I conclude that philosophical and academic input is essential.

Bibliography

- Abram, D. 2010, *Becoming Animal: An Earthly Cosmology*, Pantheon Books, New York.
- Aristotle 1921, *On the Heavens*, trans. W.K.C. Guthrie, Harvard University Press, Cambridge Mass., London.
- Aristotle 1986, *De Anima*, trans. Hugh Lawson-Tancred, Penguin, London.
- Aristotle 2004, *The Nicomachean Ethics*, trans. J.A.K. Thomson, revised Hugh Tredennick, Penguin, London.
- Beck, R. 2006, *The Religion of the Mithras Cult in the Roman Empire: Mysteries of the Unconquered Sun*, Oxford University Press, Oxford.
- Campion, N, 2010, 'Astronomy and Psyche in the Classical World: Plato, Aristotle, Zeno, Ptolemy', *Journal of Cosmology*, Vol. 9, 2179-2186.
<http://journalofcosmology.com/AncientAstronomy118.html>
- Collins Concise English Dictionary*, 1992, Collins, London.
- Cosgrove, D. 2001, *Apollo's Eye: A Cartographic Genealogy of the Earth in the Western Imagination*, John Hopkins University Press, Baltimore.
- Couliao, I.P. 1991, *Out of this World: Otherworldly Journeys from Gilgamesh to Albert Einstein*, Shambhala, Boston.
- Curry, P. 2011, *Ecological Ethics: An Introduction*, rev. edn, Polity Press, Cambridge.
- Dante A. 1971, *The Divine Comedy*, 3 Vols, trans. Mark Musa, Penguin, Harmondsworth, Middlesex.
- Dobson A. 2007, *Green Political Thought*, 4th edn, Routledge, London.
- Eckersley, R. 1992, *Environmentalism and Political Theory*, UCL Press, London.
- Eco U. 2013, *The Book of Legendary Lands*, Thames and Hudson, London.
- Eliade M. 1959, *The Sacred and the Profane; the Nature of Religion*, Brace and World Inc., Harcourt.
- Faulkner, O.R, 1993, *The Ancient Egyptian Pyramid Texts*, 2 Vols., Oxford: Oxford University Press 1969, 2nd edn., Aris and Philips, Warminster.
- Griffin-Pierce T. 1995, *Earth Is My Mother, Sky Is My Father: Space, Time and Astronomy in Navajo Sandpainting*, University of New Mexico Press, Albuquerque.

Henry, H. & Taylor, A. 2009, 'Re-thinking Apollo: envisioning environmentalism in space', in D. Bell & M. Parker (eds), *Space Travel and Culture: From Apollo to Space Tourism*, Blackwell, Oxford, pp. 191-203.

Hermetica: the Ancient Greek and Latin Writings which contain Religious or Philosophic Teachings ascribed to Hermes Trismegistus 1982, trans. W. Scott, 4 Vols, Shambala, Boulder.

Hymns of the Atharva-Veda 2000 [1897], trans. M. Bloomberg, Motilal Banarsidass, Delhi.

Idel, M. 2005, *Ascension on High in Jewish Mysticism: Pillars, Lines, Ladders*, Central Europe University Press, Budapest.

iPM 2013, audio podcast, BBC Radio 4, London, 25 May. Interview with the astronaut Geoff Hoffman, accessed 5 July 2014, <http://www.bbc.co.uk/programmes/b01sjn9l>.

Irwin, T. 1995, *Plato's Ethics*, Oxford University Press, Oxford.

Jardins, J.R.D. 1997, *Environmental Ethics: An Introduction to Environmental Philosophy*, 2nd edn, Wadsworth Publishing, Belmont CA.

Jonas, H. 1963, *The Gnostic Religion: The Message of the Alien God and the Beginnings of Christianity*, 2nd edn, Beacon Press, Boston.

Laertius, D. 1925, 'Zeno' in *Lives of Eminent Philosophers*, trans. R.D. Hicks, William Heinemann, London: pp. 110-263.

Lai, K.L. 2008, *An Introduction to Chinese Philosophy*, Cambridge University Press, Cambridge.

Lane B. 2001, *Landscapes of the Sacred: Geography and Narrative in American Spirituality*, expanded edn, John Hopkins University Press, Baltimore MD, London.

Levitas, R. 1990, *The Concept of Utopia*, Allen Lane, Hemel Hempstead.

Macintyre B. 2013, 'A guided tour from Avalon to Eden', review of Umberto Eco, *The Book of Legendary Lands*, Thames and Hudson, *The Times*, Saturday Review, 9 November 2013, p. 11.

Macrobius, 1990, *Commentary on the Dream of Scipio*, trans. W.H. Stahl, Columbia University Press, New York.

Magness, J. 2005, 'Heaven on Earth and the Zodiac Cycle in Ancient Palestinian Synagogues', *Dumbarton Oaks Papers*, Vol. 59, pp. 1-52.

Morenz, S. 1992, *Egyptian Religion*, Cornell University Press, Ithaca, New York.

Planetary Collective 2013, *Overview*, online video, n.d., viewed 05 July 2014, <http://vimeo.com/55073825>.

Plato 1914, *Phaedrus*, trans. H.N. Fowler, Harvard University Press, Cambridge Mass.

- Plato 1931, *Timaeus*, trans. R.G. Bury, Harvard University Press, Cambridge Mass.
- Plato 1937, *Republic*, 2 Vols, trans. P. Shorey, Harvard University Press, Cambridge Mass.
- Rowe, S. 1994, 'Ecocentrism: The Chord that Harmonizes Humans and the Earth', *The Trumpeter*, Vol. 11, no. 2, pp. 106-7, viewed 19 May 2014, <http://www.ecospherics.net/pages/RoweEcocentrism.html>.
- Rowe, S. 2006, *Earth Alive: Essays on Ecology*, NeWest Press, Edmonton.
- Sachs, A. 2013, *Arcadian America: the Death and Life of an Environmental Tradition*, Yale University Press, New Haven.
- Silva, F. c. 2015, 'The Role and Importance of the Sky in Archaeology: an introduction', in N. Campion & F. Silva (eds), *Skyscapes*, Oxbow, Oxford.
- Sivin N. 1995, 'State, Cosmos, and Body in the Last Three Centuries B.C.', *Harvard Journal of Asiatic Studies*, Vol. 55, no. 1, pp. 5-37.
- Smith, M. 2009, 'Democratization of the Afterlife', in J. Dieleman & W. Wendrich (eds), *UCLA Encyclopedia of Egyptology*, pp. 1-16, Los Angeles, viewed 3 July 2014, <http://repositories.cdlib.org/ncl/uee/1147>.
- Stilwell, G.A. 2005, *Afterlife: Post-Mortem Judgments in Ancient Egypt and Ancient Greece*, iUniverse Inc., New York.
- Swedenborg, E. 1894, *The Earths in the Solar System and the Earths in the Starry Heavens*, Swedenborg Society, London.
- The Overview Institute 2012a, OI, viewed 05 July 2014, <http://www.overviewinstitute.org/>.
- The Overview Institute 2012b, *Declaration of Vision and Principles*, viewed 25 May 2013, <http://www.overviewinstitute.org/index.php/about-us/declaration-of-vision-and-principles>.
- Thorley, Anthony, and Celia Gunn, *Sacred Sites: an overview*, Gaia Foundation, 2007 <http://www.earthskywalk.com/SacredSiteReport.pdf>
- Tilley, C. 1994, *A Phenomenology of Landscape*, Berg, Oxford.
- Thorley, Anthony, and Celia Gunn, *Sacred Sites: an overview*, Gaia Foundation, 2007 <http://www.earthskywalk.com/SacredSiteReport.pdf>
- Unterman, A. (ed.) 2008, *The Kabbalistic Tradition*, Penguin, London.
- Urmson, J.O. 1988, *Aristotle's Ethics*, Blackwell, Oxford.
- Varela, F. 1992, *Ethical Know-How*, Stanford University Press, Stanford.

- White F. 1987, *The Overview Effect - Space Exploration and Human Evolution*, Houghton-Mifflin, Boston.
- Wilhelm, R. 1968 [1951], *The I Ching or Book of Changes*, 3rd edn, Routledge and Kegan Paul, London.
- Williamson, M. 2003, 'Space ethics and protection of the space environment', *Space Policy*, Vol. 19, pp. 47-52.
- Xiaochun S. 2000, 'Crossing the Boundaries between Heaven and Man: Astronomy in Ancient China', in H. Selin (ed.), *Astronomy Across Cultures: the History of Non-Western Astronomy*, pp. 423-54, Kluwer Academic Publishers, Dordrecht.
- Zahan, D. 1979, *The Religion, Spirituality and Thought of Traditional Africa*, University of Chicago Press, Chicago.