Brian Durrans

Space is the place

Overview

My argument is that both public and scholarly understanding of space is poorly served by technological bias. To advance such understanding, social context needs to be brought into the picture. By 'social context' I mean not just the setting in which space science is practised – its funding, organisation, personnel, and so on – but also how space and related concepts are used in the practice of most people's everyday lives. By 'related concepts' I indicate those ideas, principles or points of reference, such as God or heaven or spirit world or fate, which space partly incorporates or overlaps with, but which it never completely or even remotely displaces. In this looser, operational sense, space resembles much that has preceded it and that continues alongside it. This sort of space is as much about 'in here' as about 'out there'. It is also as implicit in action as explicit in thought.

Although trained scientists are a social minority, there is widespread adherence to certain precepts taken to be scientific. Trained scientists may have custody of scientific traditions, but not everything they do is scientific. In any setting, some people are more concerned than others to explain things, and some are more relaxed than others about inconsistency, cheerfully adapting their behaviour and (when they can be bothered to provide them) explanations to different or changing contexts. Such disparities can parallel those between indigenous peoples and their Western counterparts. None of these contrasts is final or fixed, however, and what people have or do in common is often more interesting than their differences.

The key conclusion is that museum presentations about space need to break the spell of technological enchantment if they are to promote genuine and widespread understanding in this field.

The enchantment of technology

In 2002, on a visit to the Rose Center at the American Museum of Natural History (AMNH) in New York, I sat through a show in the Hayden Planetarium called *Are We Alone?*. This was written by Ann Druyan and narrated by Harrison Ford, both well qualified for their roles. Ann Druyan adapted the late Carl Sagan's novel *Contact* into the movie of the same name, and was earlier involved with him in the Voyager project.[1] Harrison Ford in the *Star Wars* series played the same sort of risk-taking entrepreneur as in the *Indiana Jones* films, although not so committed to the enlargement of knowledge. Such

credentials raised expectations for the Planetarium show, but the result was disappointing.

The problem with the show epitomises how space science itself has been represented, not just in the media and in museums, but also in wider discourse, at least since the advent of space travel. The problem is the enchantment of technology, which has drained the field of social content.

Any planetarium screening involves impressive technology. But when your theme is hypothetical life beyond the Earth, there is nothing much for the impressive technology to show except places where life may be possible. In our own Solar System, two options seem to be Mars (at least below the surface) and Europa, one of the moons of Jupiter. For both of these places some striking images are available. For more distant stellar systems, where there may be a better chance of life, we just don't have good pictures, so in this case the less interesting photos were jazzed up with graphics. Those responsible for the programme were presumably so enthralled by their subject and the means for presenting it that they couldn't imagine it might get boring.

The interest in the search for ET is its *human* interest, which raises questions such as how to justify expenditure on a search that might not be successful, and what actual contact might mean for us or our successors in theory and in practice. Part of the human aspect of the story is what human beings imagine alien beings to look like.

In 1997, Kurt Andersen in *The New Yorker* identified from movies and TV exactly six types of space creatures:[2]

1. More or less normal-looking people (*Starman, 3rd Rock from the Sun*)
2. Hulking humanoids with enormous bald heads (*Star Trek, Mars Attacks*)
3. Small, grey, hairless, chinless, big-eyed waifs (*Close Encounters of the Third Kind, The X-Files*)
4. Comic-relief plush toys (Chewbacca and Ewoks from *Star Wars*)
5. Swamp creatures (ET, Yoda from *Star Wars*)
6. Really, really big shellfish and insects (*Predator, Men in Black, Starship Troopers*)

He also identified a trend towards hybrids and other combinations of these types, and a growing wetness or sliminess of extraterrestrials: it seems that cinema audiences flock in to be grossed out.

It might have been interesting to hear Harrison Ford tell us why aliens might not look like any of these or how media representations are often followed by reports of similar entities being seen, and

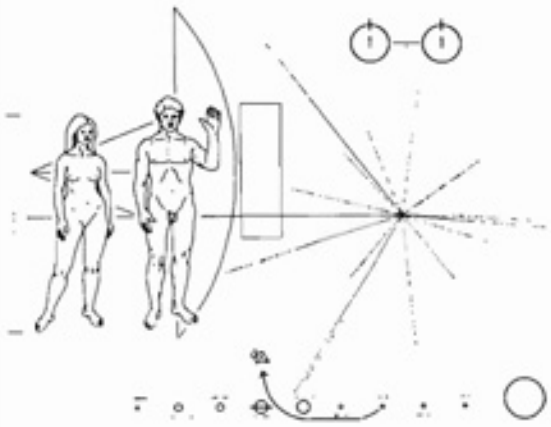

Figure 1 The graphic message to alien intelligences designed by Carl Sagan and Frank Drake for Pioneers 10 and 11, launched in 1972 and 1973 respectively. (NASA/Science & Society Picture Library)

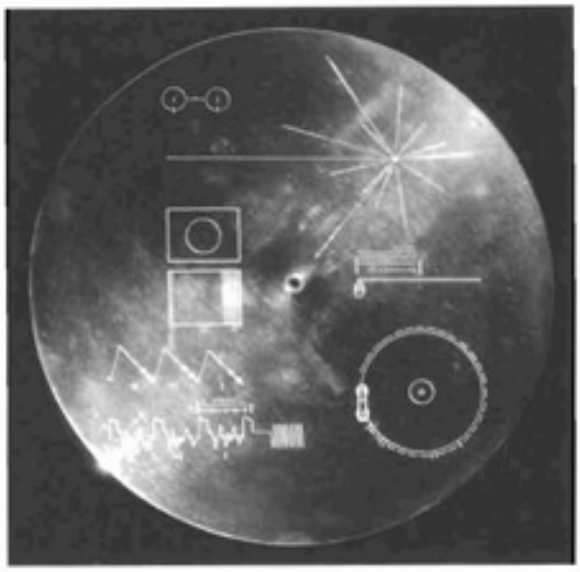

Figure 2 The more ambitious message carried by Voyagers 1 and 2, both launched in 1977, took the form of phonograph discs containing images, spoken greetings and other sounds. (NASA/Science & Society Picture Library)

sometimes abducting Americans, but again the opportunity was missed. (I'll return to space aliens again at the end of the chapter.)

The Planetarium might have shown good images of several spacecraft launched in the 1970s which, if not designed to seek out intelligent life, at least carried deliberate messages for any intelligence that might chance upon them. The Pioneer 10 and 11 and Voyager 1 and 2 space probes are by far the most travelled man-made objects in the universe. Each of them carries information that tries to explain who we are (Pioneers 10 and 11 bear a simple graphic panel, Figure 1; Voyagers 1 and 2 carry a phonograph record, Figure 2). Pathetically inadequate though such messages may be for their intended purpose, they nevertheless speak of human achievements, fears and aspirations. The *Are We Alone?* show is not alone in ignoring such human elements in its scientific presentation. In the superbly-illustrated Time-Life book on *The Far Planets*[3] – part of a series called *Voyage Through the Universe* – mention is made of the spacecraft that took many of the best pictures included, but there is not a word on the quirky messages they carried along with their cameras.

In August 1989, Voyager 2 was drawing close to Neptune, 12 Earth years away from home. To celebrate the occasion, the team of scientists and engineers who had designed and controlled the vehicle from Pasadena threw a party at the Jet Propulsion Laboratory. Chuck Berry (the only – then – living American composer represented on the

phonograph record Voyager took with it) gave a live performance of 'Johnny B. Goode', a song now headed for the stars. Following that, Carl Sagan delivered what was called a 'benediction', referring to the event as a 'rite of passage' for Voyager 2. He did not speak of searching for extraterrestrial intelligence, but only of the possibility of 'beings who might encounter [the spacecraft]' in 'the great, dark ocean of interstellar space' (note the humanising 'who').

Sagan's main emphasis, however, was on the importance of overcoming problems we have on Earth, of using an outside perspective to help focus on home. There is something of the same idea in much of the message-sending that he and many others have organised, whether locked onto the distant future or deepest space. Like the prospect of death, the idea of a distant destination concentrates the mind wonderfully on here and now.

Perhaps the SETI (Search for Extraterrestrial Intelligence) lobby has become wary of ridicule, just as the space-science community is having to adapt to an increasingly militarised budget and policy. This could help explain the uninspiring character of the *Are We Alone?* show. No technology needs enchantment more than military technology – enchantment in the sense of obscuring its dependence on socially-framed decisions about the ends and means of production, and to that extent evading criticism. What is interesting about all this, however, is hearing, in the context of scientific activity, not simply terms such as 'benediction' and 'rite of passage', but others like 'the future' or 'deep space', used to focus attention on immediate or proximate concerns. Such metaphorical usage comes very close to how people in most parts of the world handle ancestors or spirit beings or gods of various kinds, which is to say pragmatically and through engaged activity rather than being overly theoretical about it.

This is the sort of stuff to pack them into the Hayden Planetarium: science as human endeavour, warts and all, and with technology itself as part of the story but not as the whole of it. Short of such a large-scale improvement, what else might the *Are We Alone?* show have included to be a bit more inspiring?

Perhaps something about SETI?[4] We could have had a summary of the history of this interest, such as the founding of the Planetary Society in 1980 and perhaps NASA's adopting the SETI programme in 1992 only to abandon it a year later, and the reasons for that. SETI had made progress of sorts since the 1970s and has continued, though with reduced funding, following the NASA cold shoulder.

NASA adopted SETI on the 500th anniversary of Christopher Columbus's discovery of the Americas. In his 1989 'benediction' for Voyager 2, Carl Sagan anticipated, as many other protagonists for the manned space programme have done before and since, an eventual colonisation of other parts of the Solar System and ultimately beyond. Especially in the world's leading space nation (though less so

among Native Americans), the European conquest of the Americas which Columbus set in motion endorses contemporary 'new frontier' thinking. How can the negative as well as the positive lessons of that experience serve an interplanetary endeavour? Possible life on Mars or Europa might not be 'intelligent' (assuming it takes one to know one), but what kind of intelligence are we talking about? The intelligence of beings capable of developing powerful technologies? The intelligence of HAL or Deep Blue? The intelligence of people with an intimate understanding of their local ecosystems? The wisdom of children or of sages? If there is no sign of life, or of intelligent life, then do we assume it's acceptable to visit, and possibly stay?

Why should anyone care whether there is life elsewhere in the universe? Why should we be encouraged to think of it as, of all possibilities, a kind of person? These questions can't even be framed outside a concern about the social context of science. They have to do with responsibilities and relationships, and are therefore about morality. A line-up of both benevolent and malevolent aliens on our TV and cinema screens may imply not only that there is a market for both, but also that people are anxious about others, whether co-citizens or from further afield. What did the Planetarium show imply about the value of space exploration and its current level of funding? The lead sponsor of the show is the risk- and capital-management transnational Swiss Re, whose guiding principles include '[anticipating] the nature of risk' and [combining] 'global perspectives with local forms'.

These are questions to engage lively minds. For school students, space science could even be integrated with the English curriculum. From *Star Trek* we have the celebrated split infinitive, 'to boldly go'; from Sagan's benediction, the grammatically traditional 'to venture forth' – but the latter is prefaced by an injunction to 'cherish the Earth'. Or it could be linked to the politics or history curriculum: which view is more in tune with the twenty-first century, or at least with the leading space nation of the twenty-first century? Discuss.

The Planetarium show might also have featured the beautiful Arecibo radio telescope in Puerto Rico and perhaps a dramatised reconstruction of the spine-tingling moment, memorably recounted by Frank Drake,[5] when the assembled scientists and technicians first heard – not the intelligent signal all these people are trying to find – but simply the background mush against which they hope one day to distinguish it. Something might have been said about the SETI@home project in which at least one million computers, in offices, labs or homes, are hooked up to flash on their screensavers the very iconography of contemporary science – shifting, vivid-hued, jagged peaks and troughs – in a collective number crunch to catch that first, elusive, deliberate signal among the background noise coming in from Alpha Centauri or wherever by way of (when I last looked) the

University of California at Berkeley. Twice during the show, however, Harrison Ford asked us to imagine whether there might be someone (that was precisely the word used) on another planet in another galaxy wondering, as we were, whether there was any other life in the universe. The idea was that if we were thinking of them, they might be thinking of us. That much, at least, was an echo of Carl Sagan from 1989 in the very different setting of 2002. Such reflections on the often eccentric career of space science are not only part of its story, and interesting; they are also reminders that science does not stand outside emotion or controversy or human values, and as such they can help attract new audiences to what scientists have to say about the world – or about other worlds.

The Rose Center by any other name

Despite the literal and symbolic transparency of its glass-box architecture, for the Rose Center the human dimension of space as a resource for a multitude of uses, rather than as somewhere to see and understand only in physical terms, is evidently a closed book. I wonder whether most visitors left as glazed over as I did?

This was just a particular instance of a larger museological truth. Transmitters don't always consider receivers – provided they exist and are switched on, that's all that matters. The main business is to refine the message, to make it as accurate as possible. The problem here is another kind of technological enchantment, this time an obsession with communication technology. If you are still failing to engage with audiences, there is a whole arsenal of further technological or at least presentational solutions available: go for maximum impact – a striking architectural flourish (such as the Rose Center, the Wellcome Wing at the Science Museum in London, or the Great Court in the British Museum); or for son et lumière, multimedia, IMAX, 3D movies, installation art, audio guides, gallery talks, work-in-progress sessions with curators, audience participation, hands on, movement, aromas, argument and debate, surprise. Run the risk of critics calling your museum 'dumbed down' and of a significant proportion of your interactive equipment being out of commission at any given time.

There is nothing new in any of this, of course, but none of it begins to address the real issue. A display on the theme of space has to find some way of referring to space in human terms. That means grasping contemporary popular attitudes towards space – not necessarily approving of them, nor playing down to them, but taking them into account, and knowing that such attitudes have changed in the past, are inconsistent now, and will probably be no less so in the future. This implies an awareness of fragmented or reconfigured mindsets, of the compartmentalisation of experiences which elsewhere and in the past tend or tended to be more integrated and differently valued than they are among most contemporary museum-goers. It means (of course)

teaching new things, and helping people reject false information and misunderstanding; but also encouraging them to recognise as valid much of what they already know or are familiar with from their own experience. I have no formula for how to do this – I only suggest that it should be done.

Space as a cultural resource

Not only is space a theme with almost limitless connotations of novelty and the future for all of us currently living in technologically-complex societies – and indeed most strikingly for many millions of people elsewhere – but it is not a new theme at all.

First we should dispose of the trivial, naive or stock-evolutionist sense in which the history of interest in space tends to be expressed in textbooks and in some museum displays: space displaces heaven; theology makes way for astronomy or cosmology, or whatever it is called; the cosmos is a screen on which we and our ancestors have always projected hopes and fears for other worlds, better or worse. This formula is invalid in two respects. First, it doesn't describe what space actually means to most people now, and, second, it doesn't describe what space meant to almost everyone in the past.

Instead, we should be thinking of space as a cultural resource, part of the cultural world 'in here', whatever it is discovered to be 'out there'. Space is a product of the Space Age, of the exciting era that began with Sputnik and ended (if it did end) – when? With the moon landing? Are we still in that era, although largely preoccupied with other things? But space is a label attached to something – a category – that existed for people to think about and operate with, long before the Space Age, and this category still exists across the world as a familiar non-technological point of reference. How scientists work and what and how they think tends to be richer and messier, more dynamic, interactive and imaginative than is suggested by its outcome in a more accurate description of some aspect of the world. And this is as true of space scientists as of any others. In the same sense, how anyone or everyone lives and thinks is never quite captured by generalisations of how they do so. Such generalisations deteriorate easily into unchallenged fact or stereotype. No history book is ever completely free of such guff.

One widespread popular use of space exploits the immunity from empirical verification which it offers to certain unusual claims or experiences, which may seem plausible by virtue of their sincerity. Some spirit possession cults, for example, provide marginalised individuals with a socially-sanctioned medium through which obliquely to express their needs and concerns when overt declarations would offend prevailing values. UFO sightings and alien encounters may fall into a similar category. What is at stake here is not necessarily truth but appropriateness.

Because of its characteristic rings, Saturn is the most familiar of the model planets to be seen from well outside the glass-walled architectural statement of the AMNH's Rose Center. This more than anything else signals that the business of the Rose Center is astronomy. A recent bestselling book uses a classical Mediterranean metaphor for an essentialist assertion about human gender difference: *Men Are from Mars, Women Are from Venus*. Attractive though it is, very few people claim to be from Saturn (what gender would they be?), but one who did was Herman Poole 'Sonny' Blount, a.k.a. Sun Ra, a prolific and remarkable pianist and leader of the Arkestra, who died in 1993 aged 79. I want to use the example of Sun Ra briefly to explore the useful fuzziness of space as a concept.

From an output of over 100 records, one issued in 1972 was called *Space is the Place*. This could have been an alternative name for the Rose Center, and many of Sun Ra's tracks and albums refer, as his own name does, equally to space as a place in the sense of a *physical location* and as a place in *the socialised, but heavily imaginative, sense of home* – in this case, narrowing the familiar African reference of black America to a conventionalised ancient Egypt in particular. As well as being a master musician, Sun Ra also had a sense of humour, but his take on space as an exotic theme or metaphor in some ways calls to mind the place of other worlds in the cosmological systems of tribal and non-Western peoples. Some critics are reported to have been 'uncertain about his seriousness', as travellers to other countries might have been unable or unwilling to take local people's world-views seriously, to the extent that they engaged with them at all.

To literate outsiders, and especially to Westerners, other people's ideas of what is question-beggingly called 'the supernatural' often appear not so much bizarre as *indeterminate*. People are rarely rigorous about what they believe, or at least they can be inconsistent in how they convey this to others. Yet such schemas provide a rationale for living meaningful lives, and the one which underpinned Sun Ra's career and reputation was not only meaningful in its own right but was perhaps also a mockery of naive criticism. Claiming a Saturnian origin might even have been a tax dodge if he were better off, but he was less wealthy than his talents deserved. Compare Harrison Ford. Here is a man who over many years and for huge audiences has pretended to fly spacecraft. Not only has his career not suffered from uncertainty about his seriousness, but he has made a fortune out of it. Or take Steven Spielberg, who according to at least one of his collaborators (quoted by Kurt Andersen) is an alien himself. Sun Ra was a professional musician and, like Ford and Spielberg, a space entrepreneur. More than either of them, he imaginatively exploited the indeterminacy of space, but in the end got less out of it than they did. Asking why confronts a socially-embedded value system and associated issues of taste, production and social division.

Professionals and amateurs

While the history of European exploration of the rest of the world is being rewritten in the light of increasing knowledge of the earlier movements and explorations of non-Europeans themselves, and of their role in the mutual encounters which European 'discovery' always entailed, on several continents auxiliary travellers also made tracks for others to follow. Exploring tended to be subsidiary to their main line of business. Such individuals or small groups tended to be remote in social terms from the more 'noble' explorers officially recorded in history books (and from belatedly-recognised indigenous leaders). This parallels the contribution of lay people in earlier phases of scientific endeavour from which they are now excluded largely by the need for expensive training and equipment, but also by an image of 'big science' as inaccessible because it is professionalised.

One of the main exceptions to this image is astronomy as democratic participation: the idea that more or less anyone can contribute something through systematic observation of the night sky, or through good luck, using inexpensive equipment. Such activity doesn't of course dilute or criticise the hi-tech infrastructure of professionalised astronomy; on the contrary, it reinforces and draws inspiration from it. It is also clear that SETI plays very differently for its 'big science' and amateur enthusiasts.[6] Parallels from the cultural domain include those amateur contributors (or would-be contributors) to the Royal Academy's Summer Exhibition in London, who imitate their more famous professional counterparts; or – perhaps a closer parallel – the more ambivalent case of amateur metal-detectorists in the context of professional field archaeology. All categories of amateurs, whether in sport, art, archaeology or astronomy, are internally differentiated. Professionals respect and patronise the more serious among them while finding more marginal groups embarrassing, annoying or simply a waste of time. For 'big science', including space science, one reason for these attitudes is a growing recognition that it continues to depend, if problematically, on public opinion. Another may be that across the world, and back through history, it is more closely allied with lay enthusiasm and prejudice than its present self-image can comfortably admit.

Space aliens again

Whatever else they might be about, space aliens or UFOs are a site of convergence between professional and amateur (or perhaps high and low) science practices. The equivalent category for high or big science is called exobiology or bioastronomy. Another, non-congruent but overlapping, category is what might be called the critical practice of science, which of course has adherents across many fields. In all such domains, ideas of what science can't explain, or what political control of science prevents it from explaining – and therefore any number of

discourses about freedom, constraint and imagination – find powerful metaphorical expression. Some professionals, among them a number of eminent public figures, pursue serious research in exobiology, the legitimacy of which, in the eyes of at least some of their colleagues, is subverted by its attractiveness to an easily-dismissed (but less easily interpreted) 'lunatic fringe'. This might not be cutting-edge space science but, because it is where values and contradictions are often conspicuous, it is certainly at the cutting edge of a historically-informed understanding of space science as an inescapably cultural phenomenon.[7]

Consider what is involved: projection or recognition beyond normal experience/appearance; a conceptually-rehearsed unification of humankind against an imagined external threat, or at least its calibration against an external point of reference; a challenge to existing assumptions and authority structures where 'big science', like 'big government', may be too myopic or rigid to react appropriately. Such hypothetical encounters need not necessarily be with volitional beings; consideration continues to be given to assessing the risk posed by interplanetary material approaching the Earth (anxieties exploited by, for example, the two 1998 movies *Deep Impact* and *Armageddon*). Nor did the Hale–Bopp comet pass by safely for everyone. Because extraterrestrial intelligence is an imaginative projection before (and hypothetically also after) its potential, empirical, confirmation, the SETI enterprise raises not only philosophical issues[8] but also sociological ones, such as why such concerns arise where and when they do, and take some forms rather than others. This plays into more nebulous nervousness about future fortunes and survival itself: a compelling domain with enormous potential to engage public attention and help make a difference in a world that needs just that.

But for explicitly alien encounters, there are basically two models that unfortunately don't fit Kurt Andersen's six-pack schema of alien types. In the first model, there is a large-scale or apocalyptic invasion for which advance warning is possible and to which response is hi-tech and from centralised authority. The second model, which obviously has wider appeal, is a personalised or random encounter with one or more isolated aliens, or a succession of them, to which the response is low-tech and local, and typically invisible to, or disbelieved or even repressed by, central authority.

While model 1 views all aliens as hostile, the second comes in two forms, what we might call 2a, involving malevolent beings, and 2b, with benevolent ones. Both 1 and 2(a+b) would be recognised by most indigenous communities, for example, in a wide arc from northeast India through Indonesia into the northern Philippines, where the good and bad spirits that affect people's lives are manipulated, collectively or individually, through ritual offerings which for us might be paralleled by sitting in the dark with lots of other people eating popcorn. This, by the way, is a perfectly serious suggestion. Leisure analysts cannot

explain why the cinema is so popular when home entertainment is so widely available, of constantly improving quality, and cheaper. And why is popcorn favoured in cinemas?

The issue for us is not whether model 1 or 2 is more plausible than the other, nor whether 2a is more popular than 2b, nor indeed whether there are any further models we might devise. Neither, on the basis of the more popular model 2, does it matter much whether changes in the pattern of what reported aliens are supposed to look like, or the timing and scale of reported UFO sightings themselves, match fluctuations in climate, social trends or media coverage of such phenomena or anything else. In late 2004, Harrison Ford was reported to have signed up for a movie on the taking of Falluja, Iraq, by US Marines, another reminder that *Star Wars* was never just a film title, and making it still more difficult for visitors to the Rose Center who might be interested in hypothetical life in space to dissociate the narrator's voice from all-too-definite death on Earth.

Museums need note only that space serves as a medium for expressing a range of social, corporate and personal interests, and that this happens both despite and because of space science, and always in close association with it.

Notes and references

1 Sagan, C *et al.*, *Murmurs of Earth: The Voyager Interstellar Record* (New York: Random House, 1978)

2 Andersen, K, 'The origin of alien species', *The New Yorker* (14 July 1997), pp38–9. See also Weinstock, J A, 'Freaks in space: "extraterrestrialism" and "deep-space multiculturalism"', in Thomson, R G (ed.), *Freakery: Cultural Spectacles of the Extraordinary Body* (New York: NYU Press, 1996), pp327–37.

3 *Voyage Through the Universe: The Far Planets* (Amsterdam: Time-Life, 1990)

4 Drake, F and Sobel, D, *Is Anyone Out There? The Scientific Search for Extraterrestrial Intelligence* (London: Pocket Books, 1997)

5 Drake, F and Sobel, D, note 4

6 Fricke, A C, 'Professional, amateur, commodity: instruments of identity in SETI, the Search for Extra-Terrestrial Intelligence', paper presented at the American Anthropological Association annual meeting, Chicago, IL, 18 November 1999; 'Information, technology, noise: cultures of/by design in SETI, the Search for Extra-Terrestrial Intelligence', paper presented at the Society for the Social Study of Science annual meeting, San Diego, CA, 30 October 1999

7 The Science Museum's 'The Science of Aliens' exhibition, which opened in October 2005, sets scientific speculation on the possibilities for extraterrestrial life against popular narratives that dominate the subject, but never quite escapes cultural associations. It does, however, eclipse the Rose Center's choice of environments: instead of 'red planet' Mars we get the 'golden' Aurelia; and much better than pallid Europa is Blue Moon ('now I'm no longer alone'), a welcome touch of human awareness.

8 For example, Baird, J C, *The Inner Limits of Outer Space* (Hanover, NH/London: University Press of New England for Dartmouth College, 1987); Fricke, A C, 'Philosophical perspectives on the problem of extraterrestrial signal detection', paper presented at the San José meeting of COSETI, 2001, abstract available at http://www.coseti.org/4273-14.htm.