

This was originally written with Sarah Fowler and published as "Space by Design: Aesthetic and Moral Issues in Planning Space Communities," in *The Monist*, 70/1 (October 1987), 72-87. Reprinted in Arnold Berleant, *The Aesthetics of Environment* (Philadelphia: Temple University Press, 1992), 99-113.

## Chapter Seven

### DESIGNING OUTER SPACE

We live in an age in which outer space has changed from a theme for flights of science fiction to the actual locus of exploration and travel.<sup>1</sup> Space no longer has merely speculative significance for thinking about possible worlds; it has become a real factor in understanding the nature and conditions of the human world that we are constantly refashioning. Our entry into outer space brings with it changes in conditions and experience that require us to rethink the concepts through which we comprehend environment and act environmentally. Even the pervasive spatial metaphors by which we order things lose their earthbound meaning in the context of space exploration, metaphors found in speaking of the ground of an argument or in thinking of hierarchical arrangements as going from lower to higher or bottom to top. Terrestrial space is dominated by a gravitational field, and when we escape its force, expressions like foundation (and foundationalism), levels, superstructures and the like become relics of a geocentric era. Cartesian coordinates have gone the way of Archimedean fixed points.

---

<sup>1</sup> This chapter was originally written with Sarah Fowler and published as "Space by Design: Aesthetic and Moral Issues in Planning Space Communities," in *The Monist*, 70/1 (October 1987), 72-87. My thanks to Professor Fowler for permission to adapt it here.

Just as modern physics has transformed our concept of space, modern technology has made possible a new experience of space. The human entry into outer space has forced us to consider a great number of practical matters, challenging our ingenuity as well as our imagination.

Studies

have been going on for several decades on the design of extraterrestrial communities, but this research usually devotes little attention to the aesthetic aspects of such uncustomary environmental conditions. It is important, however, to consider not just how we can carry on human life under such circumstances, but to recognize and direct the qualitative conditions of those lives. Such communities place in question the nature and role of art, and more generally the aesthetic, in future human environments, specifically those in outer space. These environments will use space-age technologies to construct almost totally self-sufficient physical and social units, units that constitute entire environments in the form of orbiting or fixed space stations or colonies on other planets.

What is the normative character of such an enterprise? How do moral and aesthetic factors figure in the design of any community, in particular, one that is extraterrestrial? What would art objects and events in outer space be like, and how will changes in these affect the very meaning of art?

In any age, physical communities originate and develop as the product of human choices and actions, whether conscious or not. With increasing frequency, especially in the past century, communities have been fully designed before they were built. Yet extraterrestrial communities are different from these. For one thing, they must be entirely self-contained and self-sufficient. Moreover, their construction and operation rely on a highly complex and sophisticated level of scientifically developed materials and technology. Such communities have been the subject of serious planning efforts by NASA and similar organizations, and the

technical means are near at hand by which they can actually be constructed. Design decisions here do not lie in the realm of fictional imagination; they are specific and necessary.<sup>2</sup>

To speak of art as a factor in such discussions might seem superfluous but for two considerations. One is that every social group, whatever its historical period or social organization, displays artistic activity and an aesthetic sensibility that are an integral part of that community's life. There is no reason to suppose or to desire that a space-age community would be any different. What is novel here, however, is the kind of contribution art can make to an environment that is wholly fabricated.

A very different reason for regarding art as more than a casual addition to such a community is that a creative factor is inherent in the very act of fashioning any human habitat. A fortiori, to shape a community as a total and self-sufficient social, physical, and perceptual entity is to undertake a fundamentally artistic process. It is redundant, then, to talk of introducing art into such communities: Its design will determine the experience of those who are to inhabit it, and to create a realm of experience is the basic artistic act.

Now the responsibility for fashioning the conditions of experience rests with those who make the design decisions. Economic and technological resources determine their opportunities as well as their limitations, to be sure, but all creative activity proceeds within a network of possibilities and restrictions. Yet when designers are free from the constraints of gravity, geocentric temporal cycles, and other preconditions that have influenced architectural design before the space age, the choices are radically different. How, then, should designers of

---

<sup>2</sup> National Aeronautics and Space Administration, "Space Settlement: A Design Study," NASA Publications, SP-413.

extraterrestrial communities make their decisions? Should they follow their stylistic proclivities, private intuitions, or theoretical allegiances in fashioning the forms and qualitative experiences of these communities? Will space-age communities be equally satisfactory when shaped by the sensibility of a Gropius or a Gaudí, a Léger or a Monet? The answer to this question is, moreover, not only technical or aesthetic: The design of a total community raises the moral issue of what constitutes a good, a just, a humane, or simply a proper community. It forces us to recognize that designing a human environment fuses the aesthetic and the moral.

When we look at other cultures we find very different ways of organizing, understanding, and using space. Magoroh Maruyama illustrates this variety by identifying four distinguishable patterns in design which he finds exemplified in different cultural and historical periods. One pattern is homogenistic, its organizational principle the ordering of units into a formal structure. Geometrical and symmetrical configurations are common, while space, mass, and volume are used to separate the perceiver from the space and the inside from the outside. Permanence and order are reflected in specialized rooms and furniture and in uniform units and hierarchical structure. A second pattern is isolationistic, where space is an amorphous expanse divided in random fashion into separate unrelated units, sometimes specialized for individual needs, that are largely insulated and self-contained. Maruyama calls the third spatial type homeostatic. Here heterogeneous elements interact in a steady or cyclic pattern that persists in harmonious equilibrium and is maintained despite internal changes. Objects and space are not opposed but support one another in a continuity of inside and outside, while the perceiver grasps the whole simultaneously. The final design type is morphogenetic, in which different elements interplay harmoniously in changing but open patterns. There is a sense of locality, each with its own distinctive quality yet connected with others. Like some Japanese gardens, perceptual experience is sequential and may move in many directions. Fluidity, alteration, growth, and the

interplay of objects and places reflect the sense of space as movement.<sup>3</sup>

While there are exceptions and variations in any cultural group and historical period, Maruyama's framework is helpful in several ways. First, his analysis shows that different cultures and ages have very different ways of organizing spatial experience, and it identifies some of the alternatives in spatial organization. Second, these different ways of understanding space serve as a warning to be sensitive to different cultural needs as we develop space communities for varied populations. Last of all, this framework offers an opportunity to reexamine our own use of space in the light of significant alternative organizational patterns. While Maruyama considers these patterns to be between essentially Western and non-Western cultural values and forms, their larger significance lies in the recognition that fundamental choices are possible.

With the technical ability to control environmental conditions totally in wholly planned communities, determining their spatial characteristics, temperature, humidity, weather, atmospheric pressure, length of day, and gravity, we have the opportunity to fashion experience to a degree that was once inconceivable. There seem to be relatively few technical constraints on designers. Yet should technological and economic considerations alone determine the nature

---

<sup>3</sup> Magorah Maruyama maintains that understanding these basic contrasts between European and non-European, especially Japanese, patterns of thinking and ways of viewing the world can affect the use of space in extraterrestrial community design. Magorah Maruyama, "Art and Technology in the Future," in Art and Technology, ed. Rene Berger and Lloyd Eby (New York: Paragon House, 1986), pp. 357-381. See especially pp. 374-376.

of our environment? Is what we are able to do the only limit on what we should do?

Technology offers options without answers, but are there moral requirements that make certain choices preferable? And if aesthetic and ethical factors are unavoidably joined to technological ones, how can we combine their constraints and opportunities into a creative synthesis? The possibility of setting cultural, aesthetic, and ethical goals in advance raises basic questions about their choice. What should serve as a guide? Fundamental philosophical questions arise here in a setting that compels an answer.

The wide range of technological choices might lead one to think that the same limitless possibilities for community design apply as well to the people who will inhabit them. Are human beings infinitely malleable by controlling sensory stimulation? Some of the most dramatic findings in the psychology of perception come from studies on sensory deprivation. These experiments show that people have an extremely low tolerance of environments that reduce or virtually eliminate perceptual stimulation, and that such conditions quickly lead to hallucinatory and even psychotic states.<sup>4</sup> Granting the need for sensory stimulation, it is possible that aesthetic perception, whatever else it may be, is a consequence of this requirement. Perhaps a case can be made for art as the satisfaction of aesthetic needs that are an extension of just such a perceptual necessity. This would ground aesthetic experience in human biology and psychology, with important implications for an understanding of aesthetic value and its relation to the moral sphere.

---

<sup>4</sup> Early work by research groups at Princeton and McGill is summarized in Functions of Varied Experience, ed. Donald W. Fiske and Salvatore R. Maddi (Homewood, Ill: Dorsey Press, 1961). See Ch. 5, "Effects of Monotones and Restricted Stimulation."

When this perceptual requirement is implemented by the deliberate purpose of the designer, it means that the development of variety and interest becomes a central concern. Community design, especially the design of space-age communities, creates the conditions for perceptual awareness. Hence the forms of spaces and of masses, the distribution of colors and textures, the presence and character of sound, the intensity, quality, and direction of light, the determination of diurnal and other cycles that give shape and regularity to time--all these decide the character of that human world. Their choice is at the same time both an aesthetic and a moral act. In creating such conditions, these decisions fashion a total realm of experience that is remarkably similar to the imaginative realms of the cinema and the novel. The space community has made tangible what once had been an entirely fictional world. The apotheosis of the film maker or the novelist into a designer reveals environmental design as an artistic act.

There is a counterpart to the role of art in satisfying some basic human perceptual necessities. This results from the potential for crowding and sensory overload in a space community. Economic limitations will create severe restrictions on space, and it will be important to develop designs that make human society viable in limited space. These designs, moreover, will be affected by different cultural constructions of space. What is crowded for a Westerner may not be crowded for a Japanese; what is entirely tolerable for an urban dweller may be unendurable for someone from a rural area. There is also the possibility of overstimulation not only from crowding but from insensitive design decisions. Both psychological and aesthetic reasons, then, encourage the diversity of individual and cultural styles and promote different designs and arts for different communities.

In what ways can we give these spatial and environmental configurations precise and concrete form in space communities? There are a number of possibilities. Unless we consider the design process critically, mother cultures may tend to replicate themselves and reflect their

own conception of the order of things in the design of the communities that they spawn. In these cases space-age communities will simulate selected earth environments and duplicate the customary materials, spaces, qualities, and temporal patterns of the cultures that produced them. However, there are other, more desirable directions in which the designer can move, freed from the stringencies of the earth's environment, imaginative possibilities unencumbered by the exigencies of gravity, weather, climate, and time. Are there primordial needs that must somehow be supplied, such as accessibility to bodies of water, to fire, to open spaces, and to organic materials, or are these merely acquired tastes that can be replaced by substitutes that are technologically more convenient? Research in the planning process is essential in order to help us grasp the human and humane limitations on extraterrestrial design that will set the moral parameters of the process. And these parameters cannot help but join the moral with the aesthetic.

A designer's aesthetic concerns appear at the other end of the spectrum of human perceptual needs, as well, by encouraging aesthetically positive environments as well as preventing harmful ones. This aspect of the aesthetic in extraterrestrial communities includes art in the conventional sense. Art can contribute both to community design and through fashioning specific objects and events, works of art. How might this be?

The arts could serve a complex function in space communities. By means of artifacts and performances, they could become an adaptive and socializing force, aiding people in adjusting to one another and in accommodating themselves to the particular conditions of living in outer space. Certain arts might create the illusion of space or recreate familiar earthscapes through holographic imaging, easing the transition to a new mode of existence. In Ursula K. LeGuin's science fiction story, "The Eye Altering," a group of space settlers debates whether to construct a room to remind them of earth. The room's illumination would produce the effect of



sunlight and the walls would be covered with pictures of the pioneers' former home, Earth.

"There had been some discussion about the pictures, twenty years ago when Avram had started putting them up: Was it really wise? Should we look back?" In LeGuin's fictional world, the room and its pictures provided a haven for the earthborn, while those born in the space colony, New Zion, found little use for them.<sup>5</sup> More darkly, art could be used to facilitate the adaptation of the space community residents by seducing them into accepting difficult or even intolerable conditions.

But there is yet another option, that aesthetic experience become a part of the process of understanding existence in a vastly changed environment. Art would be a major mode of coming to terms with life in outer space. For the tabula rasa of the designer contains, as a starting point, some very different parameters: darkness, silence, zero or markedly different gravitational fields and, on nonterrestrial surfaces, immediate surroundings that are alien to those on Earth. The thoughts of one of the original pioneers on New Zion are a plausible reaction to such differences:

The sky outside the ward window was dulled with haze....You never saw the color of the sky. You never saw the stars. And through the haze the sun, no, not the sun, but NSC 641 (Class G) burned swollen and vaporous, warty as an orange--remember oranges? The sweet juice on the tongue?...NSC stared like a bleary eye."<sup>6</sup>

---

<sup>5</sup> Ursula LeGuin. "The Eye Altering", in The Compass Rose (New York: Harper and Row, 1982), p. 159.

<sup>6</sup> "The Eye Altering," pp. 154-155.

In an extraterrestrial setting, the forms and objects of art would quickly break loose from the constraints imposed by the earth's environment and develop in ways that are difficult to imagine. Given the history of artists' responses to new technologies and needs, the question is not whether new kinds of artistic expression will develop in outer space but rather what making and experiencing these arts will be like, what forms they will take, and what sorts of meanings they will have for those who participate in them. In the past century artists have not hesitated to explore new technologies and ways of thinking and to extend the range of traditional media and expression. It is possible to conceive an artistic renaissance developing out of the rich resources of space technology and materials, combined with the conditions of a new environment, such as the expanded range, color, and vividness of light, reduced gravity and gravity-free modes of human locomotion, and the need to provide sensory and imaginative stimulation.

These considerations lead us "out of this world," not just to what might be possible at the technical level, but to what technological advances and environmental changes might mean for the artistic imagination itself. Set free from customary constraints, imagination will predictably work in unpredictable ways. Here the art of community design and traditional object-oriented art may combine when the artist begins to suggest the forms and the conditions that space-age communities might assume. Out of this fusion may emerge the embodiment of the goal for many avant garde artists of this century, the full joining of art and life. Perhaps in speaking of art and space-age communities we can talk in new terms of "lived art."

The philosopher Maurice Merleau-Ponty recognized the central importance of space and pursued the notion of art as lived. His ideas on the unity and interconnectedness of the senses are useful in responding to the altered parameters of space in extraterrestrial communities. Merleau-Ponty argued that the unity of our senses in perception grounds our spatiality and motility. He applied the phenomenological principle of the intentionality of consciousness to

perception: To sense is to sense something. But what we sense stands out from the rest only if it is "put into perspective and coordinated by space." Our understanding of space, in turn, is constituted by moving through it. Without experience through movement, tactile, auditory, and visual distance lack context. The unity of sensory experience comes from experiencing our motility in space rather than from adding sensory data together in a secondary operation. To assume that the loss of one sense, for example sight, would merely eliminate visual data without resulting in a reorganization of the structure of our sensory experience ignores the interconnectedness of the senses that is constituted by spatial motility.<sup>7</sup>

For Merleau-Ponty, movement is understood as a "certain way of giving form or structure to our environment." Our own movement is not understood in the same way we understand the movement of objects outside ourselves. Ours is "a project towards movement or 'potential movement' [that] forms the basis for the unity of the senses." Experiencing the world thus involves a "tending towards the world" through our bodies. This leads him to claim that "the unity of the senses...cannot be understood in terms of their subsumption under a primary consciousness, but of their never-ending integration into one knowing organism."<sup>8</sup>

I do not translate the "data of touch" into the language of seeing or vice versa--I do not bring together one by one the parts of my body; this translation and this unification are performed once and for all within me; they are my body itself....Our own body acquaints us with a species of unity which is not a matter of

---

<sup>7</sup> Maurice Merleau-Ponty, The Phenomenology of Perception (London: Routledge and Kegan Paul, 1962), p. 217.

<sup>8</sup> The Phenomenology of Perception, pp. 115, 234, 233.

subsumption under a law....The body is to be compared, not to a physical object but to a work of art.<sup>9</sup>

As the meaning of every work of art is accessible by one's direct perceptual contact with it, so our body is "a nexus of living meanings."<sup>10</sup>

The usefulness of Merleau-Ponty's position for this discussion is clear: Since our senses are interconnected, and since the radically different environment of space will affect at least some of our senses, it is certain to affect all of them, changing in significant ways the organization of perceptual experience and hence both the making and the experiencing of art. But Merleau-Ponty's understanding of the body's relationship with the world is helpful in yet a more immediate way: The body does not simply tend towards the world; there is a reciprocity between our bodies and the world.

Motility...is not, as it were, a handmaiden of consciousness, transporting the body to that point in space of which we have formed a representation beforehand. In order that we may be able to move our body towards an object, the object must first exist for it....We must therefore avoid saying that our body is in space or in time. It inhabits space and time.<sup>11</sup>

Through our body and its motility, then, we know our projects and direct ourselves

---

<sup>9</sup> The Phenomenology of Perception, p. 150.

<sup>10</sup> The Phenomenology of Perception, p. 151.

<sup>11</sup> The Phenomenology of Perception, pp. 139.

towards them. We do not grasp our activities conceptually, we grasp them literally through our lived body, through inhabiting our spatiotemporal world. Obviously the kind of world that forms the reciprocal term of our sensory experience will make possible as well as limit the projects toward which we tend.

Of the changed experience in outer space, weightlessness is the most striking. If Merleau-Ponty is right about the unity of our senses as a "never-ending integration into one knowing organism," and if he is correct in what he claims this means for the operation of our senses, then our perceptual experience will be challenged and realigned, individually and collectively, as we live and work in space. And if our perceptual field is reordered and interconnected in new ways, then making and experiencing art, which rest on a perceptual base, will alter, as well. The condition of weightlessness is fascinating precisely because it challenges the traditional philosophical "shaggy dog" of the ocular image, the presumption of vision as the preeminent and organizing sense. Coping with weightlessness would require a reconceptualization of our spatial and motile engagement with the new environment, and this will profoundly affect how we make and experience art.

Outer space will also suggest new materials for art. What these might be is in one sense trivial, in another, unknowable at present. Space exploration has already produced new materials and instruments for conventional art, and the traditional uses of these materials would be likely to continue in the space environment. However, different atmospheric pressure and the special clothing this requires will affect the physical process of making art by changing and perhaps limiting the artist's movements. Weightlessness would create problems in getting paint on canvas, particularly for a Jackson Pollack or a Morris Louis, the former known for dribbling his paint onto the canvas, the latter for pouring. In zero or dense gravity, the struggle to produce a painting in a traditional manner would be immense and possibly ridiculous. We can even

imagine schools of art being divided on a gravitational basis rather than a geographical or diachronic one.

Space age art will certainly begin its explorations from present possibilities, but the more interesting question concerns the kinds of art that will develop. How, for example, would paintings work in outer space, where light would certainly be different? This is not just a question of seeing works without light, although infrared sensors and future technology could extend that ability. Qualities of light, as well as of shadows and darkness, must be deliberately chosen, and light may well come to possess qualities we now label as eerie, ghostly, or harsh. In addition, if Merleau-Ponty is right about optical perception, our very conception of what counts as color will alter with changes in the other senses, for there is no experience of color apart from an entire perceptual situation. The complete transformation of the color palette of traditional easel painting under fluorescent light is a precursor of the consequences of the vastly greater range of illumination available in a space age community.

And what of the scale of works in outer space? The size of paintings has grown larger in this century, and art itself has escaped museum walls in ways unimagined by the patrons of nineteenth century park statuary. This is partly a consequence of changing views of the function of art and of the appreciator's relation to art objects. One has only to think of Christo's pink polyethylene "aprons" around islands off the Florida coast to realize that viewing an art object from above is one possible position.<sup>12</sup> In our galleries and museums we have become used to sculpture that we can walk around, through, or even climb upon. In zero gravity, however, we could walk with equal ease over and under art and in every other direction. Furthermore, in

---

<sup>12</sup> John Beardsley, Earthworks and Beyond: Contemporary Art in the Landscape (New York: Abbeville Press, 1984), p. 121.

weightlessness these directions would lose much of their actual force, and their metaphorical significance would alter profoundly.

Given the expansiveness of space, is there any reason to restrict paintings to a canvas confined by customary standards? Couldn't artists use materials that would allow a painting to be several light years wide? In a state of weightlessness, paintings would not require canvas or other backing, and might turn into strings, globs, streams of paint, opaque or translucent, suspended in three-dimensional space. Perhaps so traditional a material as paint would itself be replaced by other technologies of which we now have but a glimpse. Lasers powered by solar cells could utilize the most freely available perceptual material in space--light--to create holograms of enormous size and complexity, perhaps even entire holographic landscapes through which we could pass. In addition to various kinds of "light art," artists could develop art out of substances too diffuse to employ in the earth's atmosphere. Free-floating, three-dimensional sculptures might be made of gases with various refractive properties that would be sprayed and then shaped more finely by hand or with robotic assistance. Moreover, the need for economy of materials could encourage a synthesis of the aesthetic with the practical, such as fashioning agricultural areas into gardens and parks.

Art in outer space has further implications that could force a major recasting of other traditional aesthetic assumptions. The planned impermanence of objects in a space environment with limited resources would allow a recycling of artistic as well as utilitarian materials, returning to the practice of many preliterate cultures where art is ephemeral, a constant creative activity integrated into the normal patterns of daily life. This would likely lead to deliberately cultivating transitory modes and media, much as performance artists are doing today, and undermine the Western convention of artistic permanence. Indeed, a variety of performance arts might largely replace the material arts, with profound effects on human behavior in other

spheres. Especially in those circumstances where the aesthetic is integrated into practical activities, it would extend into the domain of the moral, overcoming another traditional separation. New media and new modes would require new categories to describe their works. Would they be paintings? Sculpture? Poetry? Dance? In fact, does it really matter what we call them? These musings raise still other issues, practical as well as theoretical ones, concerning the maintenance, ownership, control, and security of such new forms of artistic production.

Environmental art here on earth suggests interesting questions for art in outer space. During the 1970s, artists began to produce "earthworks," which either altered the surface of the earth or placed human-made elements in juxtaposition with the environment so as to comment on the relation of people and their activities to their environments.<sup>13</sup> The most famous instance of the first sort is Robert Smithson's Spiral Jetty (1970), a rock construction that extended into Great Salt Lake. Examples of the second include Ant Farm's Cadillac Ranch (1974), a work made up of a line of nine Cadillac automobiles stuck nose downwards into the ground, and Dennis Oppenheim's Poison, consisting of the word 'poison' spelled out in phosphorus flares.

For many earthworks the expectation is that the erosive effects of wind and rain and other natural forces will gradually alter and eventually destroy them. This has happened to Spiral Jetty, where the rise in the water level of Great Salt Lake has covered it and made it visible only from the air. Deterioration made another Smithson work controversial. With help from vandals, Partially Buried Woodshed, at Kent State University, quickly fulfilled its title, and an uninformed maintenance person, believing that it was merely a pile of rubble, removed it,

---

<sup>13</sup> Earthworks and Beyond, pp. 20-24 ("Spiral Jetty"), 31 ("Cadillac Farm").



causing consternation in the art department.<sup>14</sup> In some extraterrestrial environments, however, such works could last forever. Someone might still haul away a future Partially Buried Woodshed, but it would not be because the elements had caused it to disintegrate. Or it could remain in place in suspended disintegration as an ironic commentary on the unalterability of that environment. Humans, moreover, have already permanently marked outer space, not only with footprints on the moon but with dead satellites still orbiting the earth, together with large amounts of debris discarded from earlier space voyages. Perhaps an interplanetary dadaist or conceptual artist need only rename such objects.

If the contribution of environment is important to the notion of an earthwork, then what might be the function of, say, "moonworks"? For moonworks to have a similar force, they would have to interact with the lunar environment and comment on the relation of people to it. One possibility would be works made of lightweight and wind sensitive materials that would remind us of how different the moon environment is. Paper footprints on the moon might remind us of the permanence of the first steps and the fragility of other ecospheres. Environmental art designed to self-destruct would require materials that would disintegrate under the conditions of their distinctive extraterrestrial environments.

Science fiction suggests ways in which the different conditions in outer space can affect artistic creation. In "Stardance," Spider and Jeanne Robinson describe a dancer struggling to master the challenges of weightlessness and creating new forms in the process. Shara Drummond's problem was not to replicate earth dance forms in zero gravity but to unlearn the gravity-based forms of earth dance in order to let a new kind of dance emerge. The issue is not

---

<sup>14</sup> "Rotting 'Woodshed' is Art Puzzle for KSU," Cleveland Plain Dealer, May 2, 1984.

just new movement skills but changes in the forms and execution of dance. For Drummond the contrast between earth and zero-gravity dance was between weight and mass. Her space dance, "Mass Is a Verb," demonstrated that "mass and inertia are as able as gravity to supply the dynamic conflict essential to dance."<sup>15</sup> In LeGuin's "The Eye Altering" a situation occurs in which where some of the first native-borns of the planet of New Zion see their dusty, haze-dulled landscape quite literally in a different light from the way those born on Earth perceive it. "Miriam looked and she saw. She saw what the light of NSC 641 had hidden from her, what the artificial daylight of the room revealed to her. She saw what Genya saw: the beauty of the world." And the hanging of a painting of New Zion in the room devoted to pictures of Earth became a moral statement.<sup>16</sup>

What we call art relies on a series of conventions about materials, objects, and meanings. These conventions will surely change with the needs and changes in human perception under the conditions of space colonization. It is possible that the new material resources and the perceptual abilities that will result from sharply different environmental conditions will make the art appreciator more sensitive to what is experienced. If the range of what one perceives increases or if the cues are substantially altered, one would have to become both more aware and more thoughtful.

Furthermore, changed conditions of perception would affect both audience and artist in similar ways. In a new environment our senses would be likely to acclimate in different ways

---

<sup>15</sup> Spider and Jeanne Robinson, "Stardance," Analog (March 1977), pp. 12-65, 77, 78.

<sup>16</sup> LeGuin, pp. 166-167.

and at differing rates. It is possible to imagine environments where, for reasons of survival, a sense other than the visual or a different combination of senses would predominate. Touch, for example, might have to fill some of the functions abandoned by a sense of sight that, by earth standards, had deteriorated. What would sculpture become under those conditions? On the other hand, sight might become much more acute. And what kinds of art objects would fulfill the needs resulting from such changes in our sense experience if, as Merleau-Ponty claims, no sense is independent of any other and the organization of our sensory experience depends on our movement in the world we inhabit?

As we reshape the conditions of experience and develop different perceptual capacities, not only will new kinds of art appear but patterns of conduct will also change. By intimately fusing art with daily living, we join the aesthetic with the morality of actions and consequences, as well. This confers on the planner of extraterrestrial communities an additional responsibility that cannot be kept separate from the artistic opportunities. A different environment entails a different art, a different moral understanding, and a different aesthetic. In a human world in outer space, it is not only art that must change. So, too, must its theory.

NOTES TO CHAPTER SEVEN

Chapter Eight