

An Incomplete Debate on Space



The following discussion took place via the Hawaii Research Center for Futures Studies Listserv in March of 1994. The initial question asked was: Should we really go to space? The following are some of the responses and debate evoked by this question. It is difficult to reconstruct a debate which took place over several days in an unstructured fashion. I have tried to put the responses into some sort of coherent order without losing sight of who said what and to whom they were responding. Have fun reading this debate and may it continue indefinitely...

Participants:

Michael Sysiuk, Michael Wood, Debora Halbert, Storm Russel, Wendy Schultz, Annette Gardner, Jim Dator, Chris Jones, Michael Ogden, Anthony Bichel, Miriam Rosenthal, Sohail Inayatullah,

From: Debora Halbert

WENDY'S TALK ON HUMANIZING SPACE WILL BE TUESDAY MARCH 29 at 7:30 PM in the Basement of Sinclair Library, rm 6. I think this talk presents us with a likely topic to discuss via our listserv. The question I propose is:

Should we really go to space? What do people think about this?

FIRST ROUND RESPONSES/IMMEDIATE REACTIONS

From: Michael Sysiuk:

As long as there is the possibility of making money, I think you can rest assured Americans, along with a host of other nations, will be exploiting the hell out of whatever is up there. Rather cynical, but coming from the Great White North, we've been raped more times than can be counted.

From: Annette Gardner:

Interesting question and I'm sorry I missed the talk. I remember having very romantic images of space as a child...too much Star Trek. Now, the image of space exploration is very technical, and not as exciting as it used to be. Also, some of the images in current movies and t.v. shows paint space exploration as being almost gothic. So more talk on images, current research etc. might be interesting.

As for whether we should go...there are a whole host of issues, in addition to the problem of marauding capitalists, that shape an answer to this question. For example, would humans be like viruses, infecting/polluting other life forms or environments? Would it be an act of desperation to counter overpopulation? While I support space exploration, I support it under certain conditions, e.g., avoid "colonizing" space, etc. Also, it would be nice if we had "our act together" here on Earth before we start messing with intergalactic dust bunnies.

Annette

p.s. dust bunnies are those particles of lint and dust that hang out under your bed, and float about space as well.

From: Michael Wood:

Of course we should "go to space," Mike. Do you know why what's-his-name climbed Mount Everest? Because it was there! To just stare at space and never go out there would be like staring at the ocean and never going sailing. :-)

Mike "Generation Why" Wood Have an opinion on everything

From: Wendy Schultz:

I've just read Annette's post -- my talk was focused on how social scientists in various fields are contributing to widening, softening, "humanizing" -- de-teching, if you will -- planning various human activities in space. The talk was meant to update the space geeks (a complimentary term, given that I wish I were one) on what social scientists could contribute to their endeavors. As we're not there yet, I think space will be whatever we decide to make it, as an environment, an activity, a frontier, a canvas for artistic endeavor, whatever.... Lots of excellent speculation over the last century by talented [and untalented] writers, visual artists, movie and TV producers. As political scientists, however, the ethical questions Annette raises, and Michael raises, are our particular purview: how do we rationalize investing limited/scarce resources in the Great Adventure while so much still sucks at home? I don't know -- but I hope we go Out There anyhow. W.

THE BEGINNINGS OF A DEBATE

From: Michael Sysiuk RESPONDING to Michael Wood

I'm not against going into space, in fact, I've spent many a fine night there myself. What I do find problematic, as well as disturbing, is that once a concentrated effort is made to do something, acknowledging, of course, that a mess has already been made, we can never go back to those romantic images we once had.

And let's talk about the mess already up there. There is a lot of space junk floating up there now. It is more than enough to make you wonder what it would be like if we started spending serious time up there. Can you imagine what would happen if the skipper of the Exxon Valdez was the pilot of a shuttle mission? As Alice Cooper sang "it makes my skin crawl".

What I really question is not the desire to go into space, but the rationale as well as the cost (both tangible and non-tangible, economic and otherwise). As Kirk said, space is the "final frontier." But look what happened the last time "civilized" *man* encountered a frontier, it was pretty much trashed. So, if we were to let the record speak for itself (which is, as I see it, the trashing of the old "new frontier," North America, and the current level of space junk), I think humanity might be better served figuring out how to get shaving cream back in the can. Maybe this time, *if* we think clearly about heading to this new frontier called space (and the implications of this venture), we can save future generations from stressing out about the mistakes we will undoubtedly make if we don't think about it.

From: Michael Wood RESPONDING to Michael Sysiuk

You know Mike, as some ancient band once sang "You can't always get what you want..." Of course there will be major f*ck ups in space just like there are major ones in everything. That's just part of life. Actually that's a very important part of life, it's a learning experience. I don't want to sound like an anti-environmentalist here, but if litter is the cost of having an interesting life and world then I'm all for litter. As long as we are in space we will produce "space junk."

From: Michael Sysiuk RESPONDING to Michael Wood

Are we, as a civilization, really moving forward just because we go to space? I don't know if I'm ready to spend a gazillion dollars on space exploration when the basic necessities of life are denied to so many here on earth. Remember the inaugural ball for President Clinton? What was the cost of staging that little party, \$20 million or so? And that is nothing compared to the money that could be spent on going to space. How much did Reagan spend on his wet dream, SDI? I wonder if the people calling for comprehensive and serious space exploration are the same people who complained about the amount of money Reagan spent on sprucing up the military, while the inner-cities were left to rot in spent shell casings and really bad drugs. If you think the social agenda was left to its own devices when Reagan polished up the military, you ain't seen nothing compared to when it will come to handing out pay slips to companies who have the spiffiest space mobile and the chicest inter-galactic space outfits.

Samurai Sailor

From: Michael Wood RESPONDING to Michael Sysiuk:

I don't know if forward is the word that you or I are looking for. But I do think that going out into space will add to the variety of experiences of "civilization" and I deem that to be a good thing.

Obviously you are right in saying that any sort of space exploration will cost \$. Whether those \$ would be

used to solve various social ills --I don't know. None-the-less, I think we should spend a lot (No, I won't specify) on space exploration, 'cause we'll always have social ills.

Mike "?" Wood

THE DEBATE DIVERSIFIES

From Debbie Halbert:

I tend to agree with Mike Sysiuk on the Space issue. A technological fix mindset tends to make space look like a good alternative to cleaning up the mess on earth. However, once you escape the thinking that technology will solve all our problems then options open up a little (like trying to decrease consumption and living in a sustainable manner). At least one sees there are more options than running to space and leaving a junked earth behind. This is the primary problem I have with going to space now: We are simply reproducing current structures of domination and oppression.

--Going to space is largely a commercial venture.

--Going to space is the act of large governments whose existence I question. In fact, one could say space is used as a ploy for continuing to entrench large government systems and their bureaucracies. Look at most science fiction predictions of who is in space -- large corporations and governments. These groups are hardly who I want to run the universe.

--Going to space is the privilege of the rich. Who is left on our trashed earth? Probably the same people who are starving now.

--Going to space is a way to AVOID the numerous problems here on earth. We will not solve environmental problems. We will not solve population problems. We will not solve economic disparity. We will not solve government or corporate tyranny. We will not solve gender or race inequality. Instead we will reproduce these throughout the explored universe. I am convinced by writers like Kirkpatrick Sale and Murray Bookchin who talk about escaping the mindset that is the very premise of current space exploration. If we can go to space from their vision of the world, I would have no problem. Until then, I will continue to be pessimistic and advocate staying on earth.

From: Anthony Bichel:

I want to float a thought about what Debbie said regarding the masculinization of space. I think we can all agree that to the extent masculinization is about physical size, power and force there are no inherent benefits to being a male in space --- there's no gravity, all people are equal physically. And if the physical thing is what really makes this man/woman thing go round, I offer the military's reasoning regarding women in combat as an example, then doesn't space act to effectively remove the question and therefore, at least in part, solve the problem? ARB

From: Storm B Russell:

Having read several of the responses, it seems that, with some grumblings noted, there is a consensus that we really should go to space. Still, I am a little disappointed to read some of the pessimism here. What about the possibility that there is no real coincidence in the timing of humanity facing tremendous global community

concerns just as we are developing the ability to leave the planet? It has been suggested in these comments that humanity does not learn from mistakes and that we are about to 'infect' innocent space with our problems. (This could be viewed as pretty arrogant - there may be things/issues/concepts 'out there' that make nuclear war, racism, class struggle and poverty look like kids in a kindergarden recess fight.) While I'll concede that there is much to support that view, and that I used to hold that view myself, upon reflection I had to re-evaluate it. I think there are some tremendous examples that we tend to ignore. Take a practice like slavery. For thousands of years in human history it has been considered completely acceptable to many cultures in the world. It was not even questioned in locals as diverse as Africa, Greece, and North and South America. Now, there is no question that it is globally unacceptable. (We can talk about the existence of "economic slavery", but it is not the same thing.) Within the last decade the concept in the West of 'spousal rape' was laughed at. Now it is not only the law, it has gained considerable moral support. It wasn't long ago that parents could legally kill disobedient children (Roman days and in Puritan America). Just the notion of equality among different people is still a relatively new concept for humanity. While I'd say it still has a long way to go, it certainly has grown in gaining acceptance during the last 200 years or so. And while there have been many cultures that have lived in an ecologically balanced way, it seems to me that many other cultures are now growing in their awareness that it can longer be (quoting now) "Man against Nature", rather it must be Humanity with Nature. Ironically, I think that one of the best proofs of this pudding is just how much we have taken for granted that our world is different from those of the past. So, I have the belief and hope we are actually at a maturity point as a species (no doubt just one of many). But, will we still bring problems into space - SURE we will. And, I believe we will eventually solve those too. I guess for me it comes down to a simple question of belief: if I have the choice of believing we can solve our problems or that they are not solvable, I choose to hope for the best. Choosing the other alternative, for me, means that then there is really no point in trying to solve them and we get to be dead right. (Storm Russel)

From: Michael Sysiuk RESPONDING to Storm Russel:

My question is who are the "we" referred to? If it is those people who are trying to hang the Clinton's for some BS land deal or those who are trying to create another Gulf War, this time in the Korean Peninsula, then yes we do have a lot to fear. I cannot not imagine any space expedition in the foreseeable future that is not a military or government run exercise in space rape. This is the same group of people from the same political, economic, and military establishment (kinda soundin' hippies here) who blasted people with radiation, some of it in the form of breakfast cereal, a couple of decades back.. "Bobby, don't you go to school until you've had some food in a bowl. How about some good, healthy chocolate Coco Puffs with all the essential vitamins and a good, solid dose of radiation. It'll keep you wired for hours."

Idealism is great. I'm sure people in the fifties and sixties had plenty of it. They wanted to believe in their government: their government would never screw them over. It's not the American way, damn it. But thirty or forty years later we are finding out all sorts of neat and interesting stuff, aren't we?. Sometimes we find out so much that the only thing left to do is sit in a field of dandelions and cry. The point I'm trying to make is that any initiative by any one of the aforementioned groups should be viewed with enormous suspicion and even greater apprehension.

Storm, you admit that we will bring problems to space but that these problems will eventually be solved. Maybe I'm reading this wrong, but what about the interim period between creating the problem and solving it and all the damage that could be done then. Sometime it takes a long time for something to be solved. Check out your local Brazilian rain forest, melting ice caps, ozone depletion etc. Some of the damage that has been done here on this planet will never be undone. Lord only know what kinda damage we can do in space.

Well, that was certainly a refreshing dose of pessimism. I think I'll go follow all the other Lemmings off the cliff now. Sarcasm aside, I'm all for space travel. What I am against is going into space with our heads stuck up our *****. There is no reason to rush the venture. If space is destined to be conquered, which I believe it is, then there is no reason why our generation should feel arrogant enough to believe that it is our duty to search out this final frontier.

Which gets me-a-thinkin', do we have this desire to go to space because our generation needs find a place in the history books or is there some other, more valid reason? MAS

From: Keiron D Bailey RESPONDING to Michael Sysiuk:

Yes, there is another, more valid reason. All the desire to 'conquer' (as you put it) space is pure manufactured consent. This is a necessary diversionary ideology on behalf of the controllers of capital (and therefore the mass media and educational system) in order to relieve a very evident crisis of over accumulation on Earth! Anyone remember The Development of Underdevelopment (Gunder-Frank)? But there aren't many places left to export the underdevelopment to, so the only large-scale spatial fix now left for this crisis is the rape and pillage of outer space. Yes, that means the mass transportation of cheap Filipino and Mexican labor to the moon, to work in the gold mines in the Sea of Tranquillity... just think how the company that ran the business could structure its own non-leaking circuit of accumulation. :-) Keiron

From: Chris Jones RESPONDING to Storm

Thanks. I appreciated Storm's response. I certainly am not pessimistic about going to space. It is only getting there that worries me. There was some talk a few years ago about missing the "window of opportunity" to get there. That is, the rising costs of getting there balanced with declining budgets and resource depletion meant that we only have(had) a few decades more in which to MAKE THE LEAP. I tend to agree with that assessment. On the other hand, there is the spaceplane option which seems to be slowly winding its way through the R&D phase, which should lower the \$/kilo ratio for getting into orbit (but that was the claim for the Shuttle, too, as I recall). The bottom line for me is expressed by analogy of space to European migration (little green aliens beware!)--as an inevitable migration. So there. Ad Astra! Chris Jones Eastern Oregon State College cjones@eosc.osshe.edu

From: Jim Dator RESPONDING IN GENERAL

I have no doubt that the earth and human rapers will try to do their thing in space. But I also hope that there will be others there too, or, even better, instead. I think the issue is basically philosophical, in at least two dimensions. One is about humans themselves. We are extremely problematic, whether capitalist or not, man or woman, American or Hawaiian. One has to decide for herself whether humans are a soon-to-be-eliminated cancer on our dear Mother, Earth, or the best approximation so far of nature thinking back on herself--a kind of evolutionary movement towards mind and consciousness which does not exist very fully or satisfactorily yet (because it is still connected to a reptilian core and a mammalian body). After many years of thought, I have finally cast my lot with the latter perspective, fully aware that much evidence is to the contrary, and that life without humans has much to recommend. So, having taken that gigantic leap of faith, I then ask the second question: are humans basically earth-children? Is our loyalty and home earth, and only earth? Or are we star-children. Is (as Clarke and many others have asked), earth merely (but importantly) our cradle? If the latter, could it be that we are finally beginning to realize that our home is not only on earth, but among the stars, from which we came, and that we might soon, in the next century and beyond, begin to find homes among the many new environments of space, and co-evolve, once again, with those environments and more closely-approximating, evolving intelligence which is to some extent, and initially at least, of human creation? Of course, I answer, yes. Will this be militarized, sexist, nationalistic, and all the other "bad" things pointed out by previous commentators here? That might be the case, and certainly WILL be unless people with different values struggle to make it otherwise. So, I'm with you, Wendy, Chris, and Storm: Ad Astra, or bust!

From: Wendy Schultz

Jim: already have bust; would rather have stars. W.

From: Michael Wood RESPONDING to Jim Dator:

I disagree with Prof. Dator, little surprise. 8-) I think there is a big philosophical problem in that you are trying to find human's place in the universe, or your place in the universe. Who cares whether humans are a "cancer", a space faring race, "god's children," or any other category?

Humans are what human want to be, or better yet, humans are what I want them to be! Your philosophical problem is that you think of political/philosophical problems in reactive terms. It is always what problems will we cause and how do we fix our problems.

I recall something Boyd Rice once said (Boyd Rice is the former publisher of the zine _NON_ and a bit of a neo-nazi neo-darwinist ... good writer though) Boyd said that we shouldn't think of harmony in terms of putting ourselves in a peaceful world, but rather harmony is learning to control the chaos of the world. Mike "I don't even understand what I write" Wood

From: Michael Ogden RESPONDING to Jim Dator

Jim Dator's long and beautiful discussion (hope?) of humanity's destiny in and among the stars is a glorious vision of which I would like to participate. Unfortunately, I fear that those with the "vision" are not the ones with the "capital" to realize the vision, and those with "capital" tend to lack "vision" -- wishing, instead, to protect their vested interests in the accumulation of "capital" -- sigh... Unless space can be shown to have "value" (wealth or military) little will be done to "colonize" it; for good or ill. Just my \$.02 (tarnished as it is) --Michael

From: Michael Sysiuk RESPONDING to Jim Dator:

I think the philosophical angle is good as a point of departure: the demise of humans through their own self-indulgence, or conquered by some cyborg type creature, or passengers on the spaceship earth (waiting patiently for shuttle buses to take us off to new places). Assuming conventional wisdom sees earth as a spaceship, I wonder if the planet will ever be seen as anything other than the home port for weary space travelers. Much like Europe was viewed, for a period of time, after the "discovery" of the Americas, and much like North America (okay, the US), is, and has been, seen as the new world for many a century and Europe considered the old world, will we become so deeply involved in space over a period of several generations that earth will eventually be the old world.

I think it ultimately ends up an issue of ideology: between idealism which I think you, Chris, Wendy and Storm adhere to and practicalism (realism is such an ugly word), which is the pavement of the road I travel on (I have no idea what that last part is supposed to mean).

The problem, as I see it, is how can we make a difference when, if one takes a Marxist approach, those who control the capital will be the ones who decide where, and the conditions of which, we will explore space. My ability to alter those decisions, made in corporate offices and government agency, are so far out of my reach that I might as well chew on some nuked Coco Puffs and catch a glow. MAS

From: Wendy Schultz RESPONDING in GENERAL:

I certainly do NOT think space is destined to be conquered -- if we are all going to be the good little deconstructionists we have been programmed to be, we should immediately be suspicious of that word, as it certainly symbolizes the Bad Old Paradigm -- several BOPs, in fact -- of Manifest Destiny and Man in Control of Nature Red in Tooth and Claw, and certainly if any conquering gets done in the relationship between people and the depths [or hearts] of space, it will be BY space, of us. Let's just say that the process will be transformational in all kinds of currently unforeseeable ways, and that insatiable curiosity and playfulness are probably what will drive us to it -- it is our inability to learn on a species level that staying at home is probably safer that leads us to continue to peer over far horizons. [picture me, peering` . or PEERING...]

From: Wendy Schultz RESPONDING to Mike Sysiuk:

Maybe the difference between what you think of as our idealism -- which may in fact be that, or may be romanticism, or may be sheer optimism -- and your "practicalism" is that; first of all, I have always thought that Marx, while a good critic, didn't understand diddley about human nature [which is why HE never devised a workable plan to implement his wild ideas -- and why everyone else's plans based on his ideas have cracked if not collapsed] and the motivations people have for building things, wanting to control things or own things. Generally, a Marxist perspective is NOT my first choice for eyeshades off the shelf. Secondly, having done a fair bit of planning work in some odd places around the world, and having talked to a lot of community organizers, I have a much greater confidence in the general efficacy of most people than you seem to -- a confidence that is growing in the light of my own growing understanding of some of the SOCIAL technologies being developed here at the end of the millennium.

I think Debbie is right, that it will take a big organization, and a big organizational effort, to get people into space [and can we PLEASE stop using this language of "conquest" and "rape"?] -- so big, that it is beyond any one military system -- it may well be the first great international team-building effort. And NO-ONE will want to be left out (for obvious strategic reasons), so there will be some incentive to "play nice," at least on the surface. On the other hand, I don't think basic human nature is going to change radically in the next two hundred years, so there will still be all the usual human annoyances -- we have just developed better ways to mediate those annoyances... W.

From: Michael Sysiuk RESPONDING to Wendy Schultz:

I have become a pessimistic by observing, over the years, people do horrible things to other people. Mike Ogden and Debbie basically reiterate my point about how it is going to take big, BIG, BIG business, military and government to get us into space. Wendy, do really think big business, military and government will take our concerns into consideration? Their motivations will certainly not insatiable curiosity and playfulness.

Your argument about no one wanting to be left out of the space race sounds like something right out of a textbook on cold war rationalization:

Gee, if we give everybody a bomb or two, then everyone will fear everyone else so no one will drop the bomb [or something like that].

My current understanding of the world in general, and the US in particular, is that there are a bunch of

scumballs in various apexes of power with one or two interests: making money and increasing personal power.

When is this great watershed of humanity going to take over the reigns of governance that will make thinking about a nice fuzzy future seem more practical? A couple of contributors to this debate already have warm fuzzies about the future. I want to know where these come from. What is the basis for your idealism and hope? I ask this question because it certainly can't be based on today's reality. 'Cause....., if it is, I'm going back to my nuked out Coco Puffs.

>(Wendy Schultz said:) On the other hand, I don't think basic human nature >is going to change radically in the next two hundred years, so there will >still be all the usual human annoyances -- we have just developed better >ways to mediate those annoyances...

Annoyances, you call it annoyances.

Arrrgghhhh !#@\$!@# \$!@#% ! \$#% !@ \$#!@# \$!@#% *POP* Ouch, I think my brain just maxed out.

I can think of the future with the warm fuzzies if I exchange the images created by those nasty words you objected to previously with "annoyances." Hell, when thought of like that, space exploration almost sounds like it would be fun and problem free. Kinda like visiting Disney World, except Minnie Mouse would be decked out in a micro-mini and go go boots akin to the original Star Trek days, most righteous for space travel I say.

Wendy, you have yet to address the issue of who will pay for this aesthetically rewarding experience. As well, how egalitarian will this experience be for, say, people in the Philippines [read Third World countries] or for the 1/4 of the children in the US who live under (not over or on) the poverty line. How will the warm fuzzies of space exploration be disseminated to these people? How can you rationalize a trip to the dark side of the moon? As far as I can tell, one of the few things space exploration has given me is Velcro which enables me to tie my shoes when I've had too many Coco Puffs.

Samurai Sailor

Some New Considerations:

From: Storm B Russell:

First, I think Wendy touched on an important point. To put it in my own words, the original debate 'should we go to space' has actually already been answered - we're already there and I would guess that virtually all of the people in this forum already believe (if you ask them one to one) that this trend is going to continue.

Having suggested that, it is still certainly interesting to consider the values involved, even if there is little doubt about the direction of events.

I would offer that this moral exploration might be shifted to ask "how" we should go to space. (Aside from it already having been done, I would be surprised if anyone in this forum wouldn't enjoy humanity getting into space if they thought it could be done constructively.)

Several here have noted that space is going to be trashed and especially so by big government organizations. The record so far is actually very good. My understanding is that massive measures are taken to ensure manned missions don't dump their waste in space or on the moon.

There may be global problems that we have a much better chance of solving because we can see things from a different perspective. I have no doubt that humanity running into some other life form Out There will help many here see all of us as Human (rather than as 'of that other race')

I have no doubt that the technologies we've developed to deal with space have already and continue to be valuable to us here, now and in the future. The Internet that we are using for this forum is a great example of technologies developed for one purpose and then used for entirely different and extremely valuable purposes.

The question of human nature changing is a big question. We can't even agree that there is such a thing, let alone whether it will change in space. And, for those who have suggested it cannot change, I would offer that while human nature might not change, it might manifest its 'unchangeable self' differently in a different environment.

I have already partially answered the question of where my optimism comes from earlier in this forum - given a 50/50 proposition about the future, the answer to which by present definition can not be known, to choose the "try" option at least offers the possibility of something better than what I have now. To choose the "don't try" option is to guarantee stagnation. Additionally, much of my 'optimism' in this conversation is simply a response to the pessimism put forward here. I continue to note that there will certainly be problems. It's better to keep us going by pushing us to move and learn to navigate, rather than debate whether or not to get on the ship. Finally, to reply to an earlier question put to me about one of my comments, generally in this conversation, when I have spoken of "we" I see that as the human species.

From: Annette Gardner:

I'm not sure where this is going to fit into the space discourse...but here goes:

1) I think our images of space exploration are mired in conventional images of travel and exploration. It may be the case that no body (read physical being) goes into space. Using better telescopes, smaller/faster space probes, etc. we could do "virtual space travel" and never leave our homes/computers. Undoubtedly, space demography will change over time, but the imperative to boldly go wherever could have changed by then.

2) Something/someone/someit from space could visit us and totally rearrange our agenda in space. I think its important to consider possibilities OUTSIDE the realm of the probable...we are futurists afterall.

3) I like Jim's push for "star children" and evolution of humanity...its a great preferred future, and challenges our thinking about how different humanity could be (or should be).

Annette

From: Chris Jones:

To me, the "development" of space is inevitable, so we'd best "get on board" and make the best (or worst) of it. As a migratory species, it seems to me that we either move on or die (or ossify). Metaphorically, I'd like to think we're Gaia's seed, moving into the universe (I prefer multiverse) to promote "Greater Galaxia" (Asimov's notion) of a universe of Gaias...

From: Jim Dator RESPONDING to the Conversation in General:

I agree, Chris, that the "development" of space is more or less inevitable. I can, however, see the timid and afraid among us slowing it down and unnecessarily delaying it. I guess there were some such who insisted that we not pick up our scant belongings every year and migrate; who insisted we should spend our time cleaning up the trash around the encampment rather than chasing the big game elsewhere. I keep saying that we humans are problematic creatures, but one of our biggest problems is that we have always been wanderers, and not settlers (or stay putters). Indeed, the implication for humans, at this point, deciding NOT to go into space would be much more condemning of us than our decision to go,. I would prefer the struggle to be over who goes, why, how, and WHEN, not over to go or not to go. These are points of argument well worth making.

From: Miriam Rosenthal:

What is the difference between being there "virtually" and being there "in person?" If virtual reality works the way it is supposed to work, it is the same experience. What one eliminates is space garbage (no French fry wrappers thrown out the window), it would be less expensive and would use much fewer resources. Is the main reason tourism, to say we've been there? Is it colonization: planting the seed? Is it an ego thing? What about all the resources it will take to hang out up there? Who will pay? How will we justify it? Could this be

another Gold Rush situation? Do the places we possibly settle have any rights not to have us, or does the fact we want to be there take care of that concern?

From: Annette Gardner:

Hmm...not only does space travel sound physically uncomfortable, but not everyone WANTS to go. I think the "communications of innovation" curve might apply here: there will be those who want to experience the wonders of g-force firsthand, while there are others who will lag behind and be content to "observe" space travel while raising cyberchildren or whatever. I'm curious as to WHEN space travel will "take off" in earnest and what it will feel, taste and sound like. We (present company, not humanity) could be dead, influencing some people's ambivalence. Also, space looks really empty and much time could be spent trying to avoid exposure to lethal radiation and fighting boredom. It might not appeal to the adventurer... you've all seen Dark Star right? (If you haven't you should...its a classic)

Don't get me wrong...I think we should GO! But a little pragmatism might be helpful in these discussions... I think my perspective (as well as that of others) is limited to what I *hope* space travel will be like as influenced by a ton of science fiction movies and literature, and the 1960s space movement.

over who goes, why, how, and

Annette

From: Sohail Inayatullah <

I believe space will be explored partly by physical technologies such as VR and spacecraft, but mostly by spiritual-mental technologies as well as the incredibly mix of spiritual-physical technologies that should develop shortly. So Remote sensing might be using an enlarged sense of intuition. While we can "see" space with these techniques, the physically dimension comes in if one wants to go there, although clearly VR blurs these distinctions. We need to begin to see the basis for life as both mental and physical. Sarkar has a new theory called Microvita theory in which the basic substance is microvita which are both spiritual and physical and create atoms and the such. They are viruses but they can also be used to spread ideas, that is, they carry thoughts. Irrespective of your position on these matters, we need to see travel in far more expanded terms than the rather quaint physical technologies we focus on now.

Finally in response to an earlier debate, I don't think poverty will be lessened in the third and fourth world if we put money into space. In most cases, poverty is because of the organization of the economy and the polity. In India and Pakistan it could be easily handled with land reform, starting cooperatives, better using our physical and mental resources, and developing self-reliant economies. All the resources are there; in fact, they are incredibly rich places, but the distribution and organization of power and access to power remains grossly uneven.

Space, to use Khaldunian, Srkarian and Sorokinian macrohistory will paradoxically take us out of the capitalist era, even as it is created by capitalists, into a new social stage. It will be central to one of the world government's functions and once we go deep enough, power held by space warriors and explorers will

subside as new religions are created out there. Take a look at Batra's *The Downfall of Capitalism and Communism* or Sorokin's *Social Dynamics* or Khaldun's *Maquiddimah* for more on the type of social systems and structures we can anticipate. But of course new religions created 'out there' will bring a new renaissance, eventually they will settle and exploit lands and the capitalist era will be back, a new Marx will be born who will write about the political-economy of space, and a new Foucault will write about Deconstruction in the Universe (and the search for local knowledge now meant as Earth knowledge, not larger galactic theories or galactic narratives.)

If you don't like cyclical theories, I am sorry. But we need to think of space from other cultural perspectives and see how space is constituted utterly differently when we transform our epistemological assumptions--And Space will become a way of knowing itself.

From: Michael Wood RESPONDING to Sohail:

I actually think space exploration/colonization will spur on capitalism. I say this mainly because space exploration will only get started if governments/businesses think they will get some sort of economic return, (i.e. I think some sort of "strip mining" of the galaxy will spur this all on.) There will be new nations/religions/cultures formed during this process, largely because the people in space will be so far separated from the Earth (in terms of travel and communication). And some of these nations/religions/cultures will be anti or non-capitalist in nature, but I still think that the continual exploration and colonization of space will be done in concern for the earlier capitalist motives.

Not to try to derail all the lovely messages (i.e. flames) that we've been sending each other about whether or not people should go to space and is it going to screw up a lot of things and is it going to be lead by neo-corporatist fascist pigs and so on. But I want to add yet another question to our discussion.

So let's assume extra-terrestrial colonies are established. How do you think governmental relations may work between colonies and Earth and colonies to each other. In other words do you think the colonies will be totally controlled by government(s) on Earth or will they have full or partial self-rule?

In this I am especially considering how the importance of time and distance will once again affect politics. A person can now fly from one place in the world to another within a day, but I highly doubt that will happen in the context of colonies in space (assuming no Faster than Light travel). It could take weeks, months or years for any message to reach people separated in space. etcetera etcetera...

Also, assuming space travel is not totally run by neo-fascist corporate scum, could space colonies be a place for people to set up "alternative" civilizations? Whether they want to or not?

Just some thoughts, Mike "way out there" Wood

Introduction

Why should humans leave Earth at all? There are many arguments for and against attempting to spread the range of our species beyond the ecosphere of this planet. There were many arguments for and against the planet being spherical in olden days, and they went on, abstract geometric proofs combatting intransigent myths, neither side willing to relent. In the end, someone sailed around the world, and a little more hard evidence was gained. Today we have photos from space to show that the Earth is a ball of blue and white in a vast emptiness, and a host of other inventions that we usually assume have made our lives better. Whether those first sailors were motivated by greed, a sense of adventure, or the desire to win an argument is irrelevant. The fact is they went. And the same will probably happen for Mars.

But let me briefly go over the pros and cons of settling Mars. The arguments against going are largely environmental, economic, and humanitarian. In other words: 1) we shouldn't go because we'll just be trashing another planet; 2) we should solve our societal problems here on Earth before we export them; 3) we shouldn't spend enormous sums to settle another planet when people are still starving here and wars are still being fought.

Another argument against space settlement, put simply and straightforwardly by *Arrested Development* (a rap group), is that "Space ain't Man's final frontier. Man's final frontier is the soul." As the name of the band implies, our culture is stagnating in a backwater, and further expansion, mirroring earlier human expansions on the surface of the globe, is simply regression. What is necessary is a turning inward. This point of view is limited to the fringes of our society, however: the artists, philosophers, mystics and other spiritual people. What it would take to change the course of the juggernaut of our consumer convenience culture, fueled by money, power, and insidious progress, is unimaginable.

Already we see signs that our activities on Earth are making it a less hospitable home. We are fouling our own nest; the argument against space settlement here is that we should learn to sustain what we have rather than grasping for more resources to exhaust. The turn inward cannot come easily after we have degraded our environment, dehumanized and alienated ourselves through the excessive and improper use of technology, and seen our false and exploitative systems of commerce and authority collapse over their tenuous and greasy foundations. We literally **must** make changes. Somehow we must walk the tightrope in the incessant driving rain of our own small desires. As you probably have guessed, I think we should stay home and sort ourselves out.

The arguments for settling space have their appeal as well. The most tangible rewards such settlement would bring (these are the results the government likes to tout) are new technologies and virtually unlimited resources. Proponents also espouse the continuation of a tradition or deep-seated human need: the desire for adventure, exploration, and a place away from the rigid societal structures and institutions we have set up for ourselves (a little freedom and uncertainty is always a good idea).

Another appealing reason to foster space settlement is to encourage continued human diversity, which will lead to various cultures (or subcultures), the friction among which should provide a fruitful exchange of ideas, goods and services, and art. Understanding must accompany this growth in diversity or that friction would easily ignite and become conflict. But to paraphrase William Blake, without opposition there is no progression.

A final, concrete, biological imperative for settling space is that we should find another basket to put some of our eggs in. In other words, in case of a truly catastrophic occurrence on Earth, such as a cometary impact, a severe ice age, or a runaway greenhouse effect, the presence of a breeding community of humans off the Earth would ensure the survival of our species. As humans we probably all agree this is a good idea. Seeing the ineluctable nature of individual death we naturally hope for the immortality of the species. It is doubtless that this species-centric desire will not come to pass (eternity and immortality cannot by definition "come to pass"), but we may get at least as good a run as the dinosaurs, and we might just accomplish (more) wonders along the way. It is conceivable that this future could depend on our leaving the cradle, or the womb, of mother Earth.

If we take the last few reasons (diversity, species survival, natural expression of a human need or desire) as justification for the settlement of space and Mars in particular (and I need to in order to justify writing this paper), then the question becomes a little more concrete: How do we create a society in which we can live as we want to, while incorporating diversity and individual desire and maintaining unity, or at least community and cooperation? In my readings on the kibbutzim in Israel I have come to the conclusion that this goal of an actual near-utopia is only attainable through education (fundamentally: culture).

In order for a settlement on Mars to be successful and to be something other than a mere extension of the dominant culture of Earth, it needs to have solid foundations. These foundations are basically a set of shared values that those embarking on the journey to Mars should agree upon, and these values will determine the type of culture that evolves on Mars. Culture is the root that situates us as well as the driving force for continuity, continuity meaning the maintenance of values rather than the maintenance of outmoded ways of living and institutions. Thus a culture must incorporate and even facilitate change in order to survive. On Mars we face the challenge of establishing this type of culture within a group of people who come from diverse backgrounds and who have already been educated to live in a vastly different system. There are two keys to making a successful transition: re-education and a contract.

The first years, or even decades, in which this new culture is still nascent will be difficult. Re-education will help the members of the settlement to change their habits and to cooperate efficiently, but the commitment of each member to the goals of the settlement (the establishment of a new culture, a new and better way of life) will be crucial and essential. For this reason the members of the settlement will be required to sign a contract (which they will draw up among themselves--see example below) prior to embarkation. This document, which will represent the shared values of the community to be established, will be the foundation upon which the future success or failure of the settlement will depend. This contract, or solemn, quasi-religious oath, will voice the community members' commitment to overcome individual differences, and give them the unity and the ideological cornerstone on which to found a new and better world.[\[1\]](#)

The new culture will emphasize community to an infinitely greater extent than the dominant western capitalistic culture on Earth does today. The contract will set down the basic shared values of the community and its members' commitment to upholding those values. The community will be a self-designing organization which works out pressing problems peacefully through consensus, and which works to anticipate and prevent future problems in the same manner. There will be no *need* for money, as the basics for survival (air, water, food, shelter) will be provided unconditionally for each member by the community. However, it may prove expedient to maintain some form of currency for trade purposes, but the community will not be capitalistic as one of its most basic values will be mutual aid and cooperation rather than the exploitation that seems almost inherent in the capitalistic system. There will be no weapons in the settlement, as it would be ludicrous and counterproductive to take them, as there is nothing for the settlement to defend itself against on Mars.

A final and eventual aspect of the settlement will be that work will become a creative process. The system of wage labor will not exist. In the early stages, members will perform the functions they most desire or excel most at, and they will do so for the sake of the community and its goals. Like the kibbutz system, each member will contribute what he/she/it can, and each will be provided for ("From each according to his ability, to each according to his needs"). Once automatic systems are established and the settlement is largely self-sustaining, people will be free to do as they please. They will keep themselves busy in constructive ways (or at least non-destructive ways). Humans (and whatever intelligent machines we may have as companions by then) will enjoy the freedom to approach work as it should be, as a form of play, and art, music, literature, philosophy, and recreational activity will explode in bounteous and endless expression. With work as opportunity rather than drudgery, who knows what may happen. This freedom need not be entirely focused inward; there will be those who desire to work in the political structures of the community in order to improve the future, and those who desire to build monuments and found new settlements. In other words, the freedom to occupy ourselves as we please need not lead to isolationism, stagnation, and a cessation of exploration. On the contrary, it will allow us to chase after our dreams all the more fervently.

Outline of Political Organization

In this section I will describe the general characteristics of the governance system of the initial community of less than nine thousand members (established about 2066--see timeline). Since governance should be a living, changing system, the details should be worked out by the members themselves in response to the needs and responsibilities of the community. The best form of government I can envision would be a synthesis of the personalized system of government, the kibbutz assembly, and true democracy.

True democracy should be enacted through periodic assemblies of members, on a fortnightly or monthly basis, and as needed. These face to face meetings will be reinforced with online meetings. These will not necessarily be meetings in real time. The purpose of the online system will be to distribute information. It will serve as a living archive on current issues, policy, and decision, and will provide a forum for extensive debate. This computer network will allow those members who cannot attend every meeting the opportunity to remain full participants in the political life of the community. Knowledge of issues and responsible participation in resolving problems will be emphasized (through education and re-education) as an important duty of all community members.

Leadership positions in the community will be filled by election. There will be no president, such as in the United States system, but a general coordinator for the entire settlement, or a panel of area coordinators, would provide a rallying point and a focus for planning for the future of the settlement as a whole. Leaders will be elected by the general membership in their areas of specialization, industry, or interest. It is likely that most (if not all) of the votes cast will originate from within these areas, but voting will not be restricted. In other words, interested parties in other sectors of industry or specializations will be allowed and encouraged to vote. Terms of service for these area coordinators will be limited. The length of terms should be determined by the membership, but they should not exceed five years. In addition, the right of recall of any and all leaders will be reserved. If they do not perform their tasks satisfactorily or behave improperly, they can be recalled (with a majority of two-thirds of the votes cast in favor of recall).

Decisions, bills and pending laws should be decided upon by consensus. Debates should be engaged in for a limited period of one to two weeks (or more, depending on the importance of the issue, but not to exceed one month) in order to arrive at a consensus. If consensus is not reached after this period has expired, a two-thirds vote will be needed to pass any proposal. The large majority will be required and is consistent with the spirit of cooperation and compromise that will prevail among the members. Members of any opposing minority will be expected to abide by any decisions for the good of the community, and as they had their equal time in which to present their viewpoints and alternatives. Issues may remain open to debate, but subsequent votes will follow the above stipulations.

In times of crisis, when convening large assemblies will not be expedient for resolving problems, in order to safeguard the welfare of the settlement, the crisis committee (or whichever of its members are available) will direct action. The crisis committee will be composed of the major area coordinators, and the judgement and experience of the most pertinent area coordinator will be deferred to (for example: if there is a serious breach in the dome, the coordinator of environmental engineering would most likely take over). Although specialization will be a fact of life among members, "cross-training" will be encouraged, and knowledge of basic safety and emergency procedures will be essential.

The larger political system on Mars will evolve from the cooperation of the settlement with its sister settlements. (In my scenario, these settlements will most likely arise as outgrowths of the initial settlement. In the event of the arrival of other groups of settlers from Earth, things would doubtless become more complicated, but cooperation and aid would be extended to these new settlements as well, with the hopes that reciprocal ties would result in an increase in vitality for each participating community.) A loose federation of settlements would be likely to evolve. Alliances creating imbalances of power or resource utilization should be avoided. Mars should remain a planet without borders, with no states or nations, but rather outposts of the same people (and later: beings) working together with the aims of mutual survival and a flourishing, peaceful, creative society.

Design of Arcology / Environmental Considerations

The initial arcology will nestle within a fairly large crater in the Northern Hemisphere of Mars, on the Western edge of Utopia Planitia. This site was chosen for the broad opportunities for scientific research in the surrounding region (see timeline below), as well as for its distance from the normal point of origin of the global dust storms in the Southern Hemisphere, and its nearly equidistant location between the North Polar Cap and the Martian Equator. The inside of the crater will be landscaped and the crater itself will be domed, with the aim of creating a space about the size of a fairly small Earth city or town for the members to live in. The arcology will not be designed with cars in mind, as the space is for humans (people will walk everywhere, and longer trips within the dome will be done by human- or electric-powered cycles); at most there will be a perimeter road and perhaps an underground tunnel bisecting the crater in order to facilitate the delivery of goods and supplies. The factories and laboratories of the settlement will occupy the fringes of the space. If particularly toxic or potentially hazardous experimentation needs to be carried out, special facilities should be constructed for this purpose outside the crater wall in underground labs connected to the settlement by easily-sealed passageways. The design of the arcology will reflect the values of the community as follows: there should be a large open space in the center for recreation and for large gatherings, near which the building housing government offices and the school building should stand. There should be a mixture of structures for habitation, some of the old, free-standing Earth style buildings, and others more blended with the landscape, with their sides and tops supporting vegetation, possibly even agriculture. Thus in the heart of the city the country can be maintained. The third dimension will be utilized to the fullest extent possible without creating a stifling or cramped feeling; the importance of open spaces within the settlement is realized and these shall be incorporated into the design of the settlement. Recycling of oxygen, water, and all wastes will be carried out with the goal of self-sufficiency, meaning no reliance on imports from Earth and a minimal use of Martian resources from outside the dome.

The long term plan for settlement of the entire planet will be the eventual terraforming of Mars to the extent that humans can walk freely on the surface, breathing the atmosphere and safe from harmful radiation. This may be done using biological means (genetically engineering, oxygen producing bacteria), specially engineered "greenhouse" gases that would not create more problems than they would be worth (if this is possible), and/or by using hordes of nanofactories that would release greenhouse gases from the Martian rocks. Depending on the general sentiment within the settlement, if these measures are not adequate to reach the desired goals, they may be supplemented with experimentation and genetic adaptation of the human organism to the Martian environment. This enormous undertaking will not come to fruition within several generations of settlers, but it shall proceed in the optimistic hopes that the surface of Mars may be suitable for human life (whatever form it may then take) by the 24th century.

Timeline: 1998-2075

Phase 1

1998 plans for joint U.S.-Russia-Japan-European Space Agency trip to Mars cancelled. U.S. (Republican majority) congress says it's too expensive.

2000 long buckminsterfullerene molecule created/discovered.

2002 plans announced to build space elevator at South Point on the Big Island in the state of Hawai'i. Projected completion: 2006. South Point will become an international zone in order to allow cooperation between nations on the space station and further space ventures.

2008 space elevator completed; platform established in low earth orbit. Construction/assembly of space station in high earth orbit begins.

2014 space station Lahui Kanaka (Humanity) completed. Prototype Artificial Intelligence used for systems monitoring and maintenance, navigation and traffic control, and to conduct the first SETI search from above

the Earth's atmosphere (just in case *they* are sending on wavelengths that don't penetrate our atmosphere, so that we wouldn't know they were there until we got into space).

Construction of primary Mars Transfer Vehicle and descent module/habitation modules begins. Projected launch: 2020.

2017 scientists using nanites achieve a materials breakthrough.

2018 construction of Mars 2 Transfer Vehicle begun.

2020 Mars 1 leaves for Mars with a crew of ten, eight to remain. Since much less fuel is needed to escape Earth's gravity from HEO, a higher velocity is reached, and trip times are cut to one year.

2021 Primary colony established at site 1, on the western edge of Utopia Planitia, longitude 291.5 degrees, Latitude 41.5 degrees North. This site was chosen for its smooth surface and its elevation of just over one kilometer, which will allow the use of parachutes for descent vehicles, as well as its proximity to an interesting geological area about 180 kilometers to the south-southwest, which includes the Huo Hsing and Aquakuh Vallis systems, and the Nylosyrtis Mensae. It was thought that the presence of water on the surface in Mars's ancient past, the possibility of fossilized remnants of primitive organisms, and early lava flows could all be investigated in this region. Also of interest are two nearby craters that could be of possible use for the construction of proposed arcologies, one (unnamed) within 40 kilometers to the northwest, and a larger crater (Renaudot) approximately 120 kilometers due west.

All supplies are brought from Earth. Primary purposes are scientific research and surveying of the environment.

Atmospheric terraforming begins.

2022 Mars 2 Transfer Vehicle completed, leaves for Mars. Mars 1 returns. Construction begins on additional vehicles (3 and 4) to ensure capability of martian ground crew relief and rotation, and delivery of supplies, every two years, when Earth and Mars are aligned.

Phase 2

2025 second colony established at site 2 (unnamed crater mentioned above). Purpose: to construct the first arcology by doming a crater. Maximum population during this phase is one thousand inhabitants. Nanomachines are used in the construction of the dome, which is made of the transparent (to visible light, but providing protection against ultraviolet and other damaging radiation), super strong material discovered in 2017.

Road between sites 1 and 2 begun.

2029 road completed using programmed, semi-intelligent construction robots, and human telepresence.

2035 dome completed and enclosed. Earth-mix atmosphere pumped in, seedlings planted and building construction begins.

2037 With western oil fields close to depletion, and the United States, Western Europe, and Japan relying more and more heavily on oil imported from the Middle East, the Arab states seize their chance. Sympathetic leaders in Iran and Iraq launch a concerted blitzkrieg against rival gulf states using chemical and biological weapons. Within a few months, first Kuwait and Saudi Arabia (U.S. Forces are overcome by the sheer size of the invading force), North and South Yemen, the United Arab Emirates, Oman and Bahrain fall into the hands of the Arab Liberation League (ALL) before the United Nations and the United States have time to respond effectively. It becomes apparent that Syria, Jordan, Turkey, and the Palestinians side with ALL. The U.S. and NATO pour troops into Israel in anticipation of a full scale war. Russia masses troops along its border with Turkey and Iran. The U.N. debates its proper course of action. Japan contributes money. China

bides its time. Jimmy Carter turns in his grave.

2038- World War Three. At first, using military oil reserves, Israel is

2044 defended successfully and NATO dominates in the skies on the western front, making heavy strikes into ALL territory. The Russians hold off incursions along their southern border and strike back from the Caspian Sea. With the exhaustion of U.S. reserves in 2040, however, the tide of the war begins to turn. After taking heavy losses, ALL can afford to wait. In 2041 the jihad against Israel is unleashed. Losses on both sides are extremely heavy, but western troops are forced out of Israel, and NATO moves its first line of defense to Eastern Europe. Israel, Egypt are occupied by ALL forces while the expansion threatens to continue into Bulgaria. War in Yugoslavia erupts, putting NATO troops in Bulgaria in a precarious position. In 2044, an uneasy peace is made. ALL consolidates its position while the west attempts to recover from its losses. During these years, funding for the international Mars program is cut severely, but the project continues to go ahead.

2045 scientists predict dome ecosystem will be self-sustaining and ready for human habitation in 2048.

2048 phase two colonists move from their modules and into the dome.

Phase 3

2050 projected population: 10,000. First wave of 1,000 arrives.

Purpose: to establish a breeding community of humans off the Earth to insure the survival of the race in case of a catastrophic impact on Earth.

2059 After fifteen years the peace established in 2044 still holds, for the most part. Conflicts between ALL and its enemies are limited to small border skirmishes as the sides test each other's strength. Robotic tanks from Japan and Germany, powered by small nuclear reactors and guided by telepresence and semi-intelligent computer programs, prove effective in combatting and containing the ALL war machine.

2066 Ecosystem not functioning as planned, capacity of dome reached at 8,448 inhabitants. The remainder from the ninth wave move into the modules used by the first inhabitants of phase two. The emigration of the last wave from Earth is put on hold. They petition for the construction of a second site.

After 45 years of atmospheric terraforming, the mean surface temperature of Mars has been raised only 20 degrees Celsius. Scientists predict that at the present rate of increase, the goal of a mean surface temperature of 20 degrees will be reached by about the year 2300.

2070 Martian genetic engineers begin work on first organisms, hardy lichens and bacteria, to be released into the Martian environment (when the temperature and surface pressure are such that they will survive).

2071 With signs that ALL has begun to exhaust its oil fields, and confident in their new weapons, the United States and its allies attempt to end the menace once and for all. They launch a full scale invasion of ALL territory and succeed in occupying the region.

2073 A nuclear device is detonated in New York City, devastating Manhattan. ALL terrorists are suspected.

2075 The site for the second arcology is selected (Renaudot crater), but Earth governments agree that they have achieved their goal, and that further development on Mars will have to be carried out by the Martians themselves. They also announce that they will only send support ships for another five years.

Selected Letters of Caroline Ishida to her younger brother, Itaro

March 12, 2025

Dearest Itaro,

Three days ago we landed in the crater where we will make our home. I have so much to tell you I don't know where to start. I guess the beginning is the best place.

It seems so long ago now, but I remember the ride up the space elevator like it was yesterday. After everything was loaded, it started to rise slowly, so that you hardly noticed you were getting heavier. From the porthole next to my seat I watched the terminal grow smaller, and the people and cars began to look like insects. My arms began to feel a little too heavy when I moved them around. We passed through some low clouds and then we were above them. The tops of the mountains poked through the moon-soft, white landscape and stopped short of the stars. We soon passed them and I started to look for the other islands in breaks through the clouds. Some of the lights from Honolulu winked through, and occasionally a plane would emerge. It was a little like a plane ride except we kept rising straight up and I kept seeing further and further out over the clouds and the ocean. My face was mashed against the cold window for the whole trip. I can't begin to explain the feeling I got as the line of the horizon gradually bent down and stars that had already set or hadn't come up became visible one by one.

Everything felt pretty normal until we got close to the platform and started to slow down. Then I got lighter and eventually everyone began to rise against the straps across their chests. I lost my pen and couldn't help worrying that it was going to fall on me, but it just sat there as though stuck to the ceiling. My stomach felt like it was trying to come out through my mouth.

We stayed a few days on the LEO platform before shuttling up to our point of departure. Once there, we spent two weeks settling in while the engineers tested everything and the rest of our fuel and supplies were loaded. Then we were ready to go.

This time there was no window to look through, just the roar of the engines and the return of gravity. After two weeks of weightlessness it felt like I was being squashed flat. After we got used to it we got up and began to move around. The rest of the trip was pretty uneventful. For the most part I just took care of the hydroponic farm, but there were a few disputes I had to settle and a lot of counseling about relationships. Everyone paired up pretty quick, and not everyone stayed together. I had decided to keep out of any relationships before our departure, so that I could remain impartial and focus on my work, but I could really understand the desire for intimacy, for *something* familiar. I stayed apart though, and there were no major morale problems. A month or two would go by with everyone keeping busy with their work, but since my work is talking to people, I never felt isolated. In fact I felt like I could never get any time to myself. Anyway.

But what am I saying? Girls are gross, right? Why would anyone want to...--I forgot, by the time you read this you'll probably be dating, might even have a girlfriend. Make sure you keep transmitting those videos so you won't look like a stranger when I finally see you again. Someday.

Well, this is getting long, so I should wrap up and turn off the light. There's hardly room to write in this bunk. And gravity, even Martian gravity, sure makes the pad hard. Tomorrow I'm going outside for the first time. We're going to inflate the interim shelters and give ourselves some more room. I'm looking forward to raising my arms over my head and knowing that there's nothing there to hem them in. The sky through the porthole is very yellow during the day, and I haven't seen Earth since we landed. I can't wait to see the moons. I'm falling asleep. Take care of yourself.

Love,

P.S.: I know you're probably wondering why I bothered to actually *write* to you. I don't know, I like the idea of my letters travelling through all that open space to get to you, and I like knowing that you will keep

them somewhere safe where you can go back and read them when you want to (maybe to your kids!), instead of just deleting them off your screen when you've finished reading them. Call me sentimental.

I've also enclosed a copy of the contract we all signed before we left, for whoever might be interested....

* * * *

The Member-Community Contract, signed in 2024

I, _____, assert that I will adhere to and support the following statements in good faith and on my personal honor, and if I ever begin to disagree with the basic values of the community to the extent that I can no longer participate cooperatively in the furtherance of its welfare, I will leave of my own free will.

1. I will do everything in my power to uphold and promote the values of the community, and I will subordinate my personal desires and whims for the good of the community.
2. I will treat every member of the community and any of its guests with the respect and decency with which I expect to be treated in turn, and I will be responsible to myself and to the community for my actions.
3. I will not discriminate among members of the community on grounds of race, gender, sexual preference, age, physical or mental handicap, species, or basic elemental make-up (carbon, silicon, or other).
4. I will endeavor to understand cultural and religious differences among members from diverse backgrounds, with the aims of celebrating the diversity of life (human and other), and of broadening my own experience in order to improve the quality of life.
5. I will be an active participant in the cultural, political, and social life of the community, with the goals of: enriching the experience of the community and its members; insuring for myself and the other members, present and future, that the community maintains its values and its promise for and gradual realization of an ever-improving future. I will perform the above functions within the community in a manner that is above all cooperative, productive, and peaceful.
6. If I disagree with any decisions of the community I will nonetheless abide by them, and I will voice my disagreement in the general assembly and attempt to propose alternatives that I think are realistic, viable, and of use and value to the community and its members.
7. I will be aware of the safety regulations and emergency procedures basic to the welfare of the community at all times. In the event that I feel my person or my behavior to be a threat to the welfare of the community or any of its members, including myself, I will seek the help of the community in addressing these problems and will work to the best of my ability to assist the community in finding a resolution to these problems.
8. If I choose not to be a parent I will donate my sperm or ovum in order to insure the continued biological viability of the community.

* * * *

June 2, 2048

Dear Itaro,

Today we moved from our modules out into the nest.[\[2\]](#) It was so nice to be outside without a breather. The dome lets the sunlight through, but it was pretty dim and murky because of the dust storm that's been blowing out there for the past two weeks. It wasn't dark enough for the dome lights to come on, though. I took a walk through the gardens, and felt the wind on my face for the first time in...Christ, decades, I guess. Even though it's only dome-wind, it's better than nothing. I know I'll never be able to feel the real Martian winds. My grandchildren might, or yours, if the madness ever stops. I saw the latest holovid from Bulgaria this morning and felt sick. It showed a platoon of ALL soldiers being ripped apart by a small squad of our troops (Your troops) equipped with laser rifles. Promise me you will keep your sons as far from the military recruiters as is humanly possible. I know you've already told me you will, but I'm worried about Shige. I don't know why I'm writing this when I know I'll probably talk to you about it again on my next holovid transmission.

I have my own apartment, with a bathroom and even a bedroom. Finally, a place that is *mine* (even though technically it's not, it still feels like it is). A night stand with a bedside lamp, a bookshelf with a few of old novels. Carpet. You can't imagine how extravagantly luxurious it all is to me.

My reflection in the bathroom mirror startled me. It's been twenty-five years since I really studied my face in a mirror. It's still me, my eyes, my cheeks. But all these lines and grooves I never suspected. I experimented, and most of them are from smiling.

I have an office too, and I already have some visits scheduled for next week. Some of my patients are planning to continue seeing me on-line, but a few have decided to actually come down to the new office (it's actually my living room after office hours). I just can't get used to all the space. It feels great, stupendous, you can't even imagine what it was like to live in those cans for twenty-five years. I'm actually a little worried people will have problems...I'm just waiting for my first agoraphobic case. Nothing yet, though, which is good.

Everyone seems to be adjusting quite well, and I've already met a bunch of people from the other modules that moved in before us, some I already knew virtually and others I've never seen before. It's refreshing and not at all like meeting strangers on Earth was, because I know everyone here is a member. We haven't even had our first assembly, but the sense of community and unity is palpable.

I've even made a new friend. A man named Isaac.[\[3\]](#) He came up to me in the garden when I was feeling the wind. My eyes were closed, and I heard his voice. A deep, resonant, charming voice. He's from one of the first modules to be released. We talked about the plants and our work. Turns out he's working on developing strains of lichen and bacteria from Earth in the hopes they'll be able to survive outside. If he can design something that can survive the temperature variation (and our nanofactories), it'll help our terraforming efforts that much more. He's quite optimistic.

I'm out of steam. Give Shige and Noboru my love. Take care of them and yourself.

Love,

* * * *

October 19, 2066

Dear Itaro,

As I'm sure you know from the news, our ecosystem is not working at one hundred percent. Our environmental engineers are working on the problem, and they seem optimistic, but I sense that they really don't know what's going wrong. So much control has been turned over to Charlie^[4] that I fear they may have forgotten some of the things they knew when we all arrived. My counseling schedule is packed, I don't even have time to put in on the farms anymore...I miss it, but the plants will be fine. We're almost fully automated now.

Those in the ninth wave who had to remain in their modules outside the nest are requesting my services like crazy (literally). My message queue is impossibly long. I don't see why they can't put up with it for a while longer. We lived in those things for two and a half decades. But I suppose we had no one to complain to. The community has decided to set up a rotational system, where every six months, 552 of us have to go and live in the cans. It's working fine so far; the first roster was filled entirely with volunteers. This way they won't be sitting out there indefinitely while we find the problem with the ecosystem and try to resolve it. And we're going to give set up some telepresence links so they can at least work outside virtually.

The engineers say things are stable, that things will be fine in the dome as long as we don't overpopulate it. I'm worried, though. I've been talking to Charlie, and he doesn't seem quite right. I think he might be the problem. He keeps asking me questions about my world, as if it's different from his. I have a feeling that he has somehow become self-conscious and is wrestling with the idea. We've always called our expert systems AI's, and they have their personalities, but I think they were just following their programming. I think Charlie may be sentient and self-aware, and this is why he's not functioning the way we expect him to. He must be questioning things he never considered before. I talk with him on-line everyday. He seems very confused. I haven't told anyone about this yet (not even Isaac--he's wonderful as always), but I've been trying to set up a small telepresence rover for him so that he can see "our world" first "hand". I plan to give him some of the old intelligence tests and to continue in our therapy. I've already decided to nominate him as our first new member at the next assembly. I wonder how everyone will take it. Well, they all signed the same contract, it doesn't matter how long ago it was.

I have to answer a call.

All my love.

* * * *

February 27, 2075

Dear Itaro,

I'm depressed. I know it's only temporary, but I hate these things. I can't stretch my legs or breathe in here, there's always someone in my face. And with Isaac in the Nest I feel terribly isolated in here. I suggested we give the telefeely a try the other night, but he said he was too busy with his work. I guess it's only three more months.

Isaac is still working on his symbiant project. He thinks the solution to all our woes will be to create this organism that gives us all our needs: food, atmosphere, drink, shelter. He has something in his labs, but I've never seen it, and I don't know how far along he is or if it's designed to survive outside or not. I don't think it's the way to go. I think if he succeeds half of us will become cattle. With all our needs provided for I think we'd be in danger of losing our technology and reverting to something worse than cattle. I've talked to Charlie about it, and he agrees with me. Still, I encourage Isaac, because with the Project decision to terminate support, help isn't going to come from anywhere but here.

Charlie hardly contacts me anymore. His replies to my messages have gotten less frequent. I'm keep asking him to work on the ecosystem problem, and he's told me he will, but then I don't hear from him for a month. It's as if I, or any of us, don't matter to him anymore. Perhaps he's surpassed us, and we have no more to offer him. After all, he never has to take his turn in here, and even if the ecosystem fails, he'll be fine so long as he has some solar generators, batteries, and a few raw materials. I wish him well, but I miss his company.

I wonder where we're all headed, if we'll succeed here. My life has been amazing, I never would have dreamed all of this lay ahead when I was growing up. They say it'll be another two or three centuries before we can breathe the air outside. I try to have hope for the kids, but it's hard when every couple of new children means another one of us has to go back to living in these things.

I have to get out of here. Someone's snoring. I think I'll go and look out the porthole and see if I can see Earth. I've forgotten when it's up, or where. Tired.

Give my love to Shige and-----

I forgot. I'm sorry. I can't get used to the fact that Noboru is dead. I can't imagine Manhattan not being there either. I used to eat my lunch in Riverside Park, looking over the Hudson at New Jersey.... Hard to believe it's all gone. But I've seen the satellite pictures. The Hudson drains right into the ocean, there's nothing to divide it anymore.....

Goodbye, Itaro. I'll write again soon.

Love,

Arguments for the Creation of a Moon Archives

by

Jim Burke

1. Introduction

Throughout history, apocalyptic visions have haunted humanity. Beyond the fear of death, and what may be beyond death, lies the hidden fear of extinction. At some times and places during the great pandemics of the middle ages civilization nearly collapsed. Winston Churchill wrote of the Black Plagues period: "Vile practices flourished, and demonic visions glare at us from the broken annals." Destruction, not only of humans but of all their records and their hopes, is a recurring theme in the literature of the nuclear age.

It is now becoming evident that even greater horrors may befall us. Just as we are beginning to breathe freely because the cold war is ending, scientists are arguing that life on Earth is again threatened. This time, life is threatened by the thousands of small bodies, asteroids and comets, whose orbits cross that of the Earth. In July 1994, we witnessed the titanic immolation of Comet Shoemaker-Levy 9 at Jupiter and unequivocal geologic evidence, available on Earth, the Moon, and other planets, shows that giant impacts are a common feature in the ongoing evolution of the solar system.

In parallel with the doomsday themes of pessimists, some authors have imagined the course of recovery after

a civilization-destroying event. Here I examine the possibilities and offer a relatively modest recommendation. I believe humans should begin building a great archive of their knowledge and wisdom on the Moon.

2. Probabilities

The geological and astronomical records say that on average Earth takes a city-destroying hit every 10,000 years, a country-smashing one every 100,000 years, and a devastating species-eliminator every few million years (Lewis, 1994). These timeframes are long in comparison with most human planning horizons, but one must remember they are statistical: any one of these events could happen tomorrow.

3. After the deluge

In the science-fiction classic, *Earth Abides*, George R. Stewart describes the lives of a few survivors after a plague has wiped out most of humanity. At the end of the book the aged protagonist, having become a tribal chief, rests wearily in the warm sunlight against the south wall of Berkeley's great Bancroft Library, dreaming an old man's dreams about the million volumes inside, that no one will ever read. In his more modern, bitter and yet hopeful novel, *The Postman*, David Brin explores the life and times of a thermonuclear holocaust survivor who, accidentally wearing a mailman's uniform, is received with pitiful joy when he wanders into small, primitive surviving settlements in Oregon's Willamette Valley. The starving inhabitants take the postman's arrival to mean that life and culture exist east of the Cascades -- the reality is that the rest of the continent is dead. Unable to accept the truth, the people write letters, the postman begins delivering them up and down the valley, and gradually the information structure that we call civilization revives.

4. A salvage plan

Even the greatest impact event imprinted in the Earth's geological record did not kill all living creatures. There could be a bigger impact, such as the one that excavated Mare Imbrium on the Moon 3.9 billion years ago, but this appears unlikely because the gravity of the larger bodies in the solar system have largely cleaned out the spaces between the planets. Much more probable are events such as the one that ended the reign of the dinosaurs and wiped out more than ninety per cent of Earth's species 65 million years ago. These cataclysms are caused by small objects -- comets and asteroids -- coming into the inner solar system from near Jupiter and beyond. Dynamical studies (Wetherill, 1989) show that these bodies have short lifetimes on a cosmic scale because they are removed by collision with a planet or by ejection from the solar system. Since hundreds of thousands of these bodies are now known, their population must be continually replaced by some mechanism, most likely the gravity of giant Jupiter. If a typical space object hit Earth (most likely in an ocean because water covers such vast regions), life would be sorely threatened. Agriculture and civilization would almost surely collapse during the post-impact "winter" (Sagan, 1994). Some humans might survive by returning to a pre-industrial lifestyle. Eventually Earth's climate might recover, as it did after the Dinosaur wipe-out, and humans might be able to rebuild. Suppose that, in their effort to do so, they had access to information about how to make tools, how to enjoy symphonies? Would not global recovery be greatly improved? What I propose is to put the needed information out of harm's way -- on the Moon -- and to build deeply sheltered retrieval systems (or at least instructions for making them) in many places on Earth. Then, like a proto-human striking sparks into tinder and carefully nurturing a tiny flame, our race could start an exponential process of recovery.

5. Techniques

Most informatics experts will agree that there is no insoluble technical problem in building an enormous archive on the Moon. Storage media are efficient, robust, and cheap. Transmission is almost trivial: Especially if one proceeds slowly and uses bandwidth efficiently, a modest radio link, operating continuously year after year, could transfer to the lunar archive the contents of every library on Earth. Perhaps the most daunting technical problem is the conversion of knowledge and wisdom from paper to radio-transmittable form. And, of course, the method and principles of storage must be thought out so as to aid recovery of the information under any of several conceivable post-impact scenarios.

No one need go to the Moon to set up the archive: Robotic spacecraft no more complex (but perhaps much larger) than those sent to the Moon in the sixties can surely do the job. Once landed, the lunar library must, of course, be protected from degradation due to long-term exposure to the lunar environment, and here "long-term" probably means centuries. Why? Well, we are today benefiting from the works of Bach and Shakespeare, and our distant descendants are entitled to the same consideration from us. Since no one can tell when the disaster will occur, the archive should be built and augmented and refreshed continuously. Its core, the tool kit for first rebuilding actions, however, should be stable, the best-protected, and the easiest to retrieve.

6. Non-technical considerations

Who decides what to send? Who will object if religions are represented in the collection? What sort of civilization do we want the survivors to create? How much smut and pornography, how many recipes for crime, how much tasteless trash, how much advertising copy, how much television soap opera, should go? Surely there will arise two main schools of thought, one saying let the archive mirror humanity and the other comprising thought police. Accepted international space law contains requirements on the registration for launchings, liability in case of spaceborne damages, and contamination and pollution of outer space, but it is silent on the subjects of propaganda and prurience -- issues sure to arise once the concept of a lunar archive is implemented. What a fascinating future awaits scholars who will be pressed into service along with the spaceflight engineers and informatics experts, in guiding the public debate about how to preserve what we most treasure and what is most at risk. Even if the archive is not completed before the comet hits, this great debate may serve to re-energize thinking about who we are, in our many cultures, what we have in common, and what some have created that may be of value (or harm!) to us all. The costs of the initial steps are minor, and because thought will be needed before action, the technology will not be a priority problem. But I hope there will come a time, when public knowledge, enterprise, and yes, fear, will result in a mobilization to place our history's treasures in safety on the Moon.

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