

January February Aff Case (Capitalism)

Because I believe that space exploration should be done for the betterment of all humankind, I affirm the resolution: Resolved: The appropriation of outer space by private entities is unjust.

My value for this round will be justice which Cambridge Dictionary, last accessed on December 11, 2021, defines as “fairness in the way people are dealt with.” [accessed at: <https://dictionary.cambridge.org/us/dictionary/english/justice>] MD

My value criterion is reducing exploitation. This criterion is the best way to evaluate the round because to exploit someone is to take unfair advantage of them, or to do injustice to them.

Zwolinski Professor of Philosophy at the University of San Diego, and Wertheimer, professor emeritus of political science at the University of Vermont, 2016.

Matt Zwolinski and Alan Wertheimer, “Stanford Encyclopedia of Philosophy,” August 16, 2016.

[Exploitation, last accessed on December 11, 2021, Accessed at:

<https://plato.stanford.edu/entries/exploitation/>] MD

To exploit someone is to take unfair advantage of them. It is to use another person’s vulnerability for one’s own benefit. Of course, benefitting from another’s vulnerability is not always morally wrong—we do not condemn a chess player for exploiting a weakness in his opponent’s defense, for instance. But some forms of advantage-taking do seem to be clearly wrong, and it is this normative sense of exploitation that is of primary interest to moral and political philosophers. **Exploitation can be transactional** or structural. In the former case, **the unfairness is a property of a discrete transaction between two or more individuals.** A sweatshop that pays low wages, for example, or a pharmaceutical research firm that tests drugs on poor subjects in the developing world, might be said to exploit others in this sense. But **exploitation can also be structural—a property of institutions or systems in which the “rules of the game” unfairly benefit one group of people to the detriment of another.** As we will see below, Karl Marx believed that the economic and political institutions of capitalism were exploitative in this sense. And some contemporary feminists have argued that the institution of traditional marriage is exploitative insofar as it preys upon and reinforces pernicious forms of inequality between men and women (Sample 2003: Ch. 4).

I offer one contention to show how space exploration would be less exploitative without private companies.

Contention 1- Capitalism

Private companies going to space signals an acceptance and spread of capitalism beyond Earth.

Shammas, PhD. In Sociology, and Holen, an independent scholar in Oslo, 2019.

Victor L. Shammas, PhD in Sociology at the University of Oslo, and senior researcher at the Work Research Institute at Oslo Metropolitan University, and Tomas B. Holen, Independent scholar of Oslo, “Palgrave Communications,” January 29, 2019. [One giant leap for capitalistkind: private enterprise in outer space, last accessed on December 11, 2021, Accessed at: <https://www.nature.com/articles/s41599-019-0218-9.pdf>] MD

On 6 February 2018, the California-based Space Exploration Technologies Corp., also known as **SpaceX, launched its first Falcon Heavy rocket**, a powerful, partially reusable launch vehicle, into space from Cape Canaveral Launch Complex 39 in Florida. With its significant thrust and payload capacity, the Falcon Heavy had the ‘ability to lift into orbit nearly 64 metric tons...a mass greater than a 737 jetliner loaded with passengers, crew, luggage and fuel’ (SpaceX, 2018). Multiple reusable parts, including first-stage boosters (and, in later

versions, composite payload fairing)¹ provided a lift capacity nearly twice that of the next-most powerful rocket in operation, the United Launch Alliance's (ULA) Delta IV Heavy, and at nearly one-third the cost. With this first Falcon Heavy test flight, **which produced widespread public enthusiasm and outpourings of support from both politicians and industry observers**.² SpaceX demonstrated that **private corporations were busy redefining the domain of space exploration**. SpaceX seemed to usher in an era differing markedly from that other period of astronautical excitement, the Cold War era space race between the United States and the Soviet Union. Additionally, **visions once restricted to the domain of science fiction now seemed increasingly attainable**, freed from the (alleged) impediments of slow-moving nation-states: with the ascendancy of private corporations like SpaceX, satellite launches, space tourism, **asteroid mining, and even the colonization of Mars** seemed increasingly **achievable** (Cohen, 2017; Dickens and Ormrod, 2007a, 2007b; Klinger, 2017; Lewis, 1996). **In this sense, SpaceX's Falcon Heavy also carried a crucial ideological payload**: the very idea of private enterprise and capitalist relations overtaking outer space.³ The Falcon Heavy conveyed this idea quite concretely. Onboard the rocket was an electric car, a Tesla Roadster (said to be Elon Musk's personal vehicle), which functioned as the rocket's 'dummy load', playing David Bowie's 'Space Oddity' and 'Life on Mars' on repeat on the car's stereo system. An enticing marketing stunt viewed by millions online through **SpaceX's** YouTube live stream—with 2.3 million concurrent views, it was the second biggest live stream in YouTube history (Singleton, 2018)—the Falcon Heavy test flight embraced the logic of 'cool capitalism' (Schleusener, 2014), with in-jokes referencing Douglas Adams's Hitchhiker's Guide to the Galaxy, while heralding the arrival of a commercialized space age, dubbed by industry insiders as the age of 'NewSpace'.⁴ But how are we to understand NewSpace? In some ways, NewSpace **signals the emergence of capitalism in space. The production of carrier rockets, placement of satellites into orbit around Earth, and the exploration, exploitation, or colonization of outer space** (including planets, asteroids, and other celestial objects), **will not be the work of humankind** as such, a pure species-being (Gattungswesen), **but of** particular **capitalist** entrepreneurs who stand in for and represent humanity. Crucially, they will do so in ways modulated by the exigencies of capital accumulation. **These** enterprising **capitalists are forging a new political-economic regime in space**, a post-Fordism in space **aimed at profit maximization and the apparent minimization of government interference**. A new breed of charismatic, starry-eyed entrepreneurs, including Musk's SpaceX, Richard Branson's Virgin Galactic, and Amazon billionaire Jeff Bezos's Blue Origin, to name but a selection, aim at becoming 'capitalists in space' (Parker, 2009) or space capitalists. Neil Armstrong's famous statement will have to be reformulated: **space will** not **be** the site of 'one giant leap for mankind', but rather **one giant leap for capitalistkind**.⁵ With the ascendancy of NewSpace, humanity's future in space will not be 'ours', benefiting humanity tout court, but will rather be the result of particular **capitalists**, or capitalistkind,⁶ toiling to recuperate space and bring its vast domain into the fold of capital accumulation: NewSpace **sees outer space as** the domain of private enterprise, set to become **the 'first-trillion dollar industry'**, according to some estimates, **and likely to produce the world's first trillionaires** (see, e.g., Honan, 2018)—as opposed to Old Space, a derisive moniker coined by enthusiastic proponents of capitalism-in-space, widely seen to have been the sole preserve of the state and a handful of giant aerospace corporations, including Boeing and Lockheed Martin, in Cold War era Space Age.

And this shift means that governments take a smaller and smaller role as the top talent is attracted to the private industry for work. This development allows for unchecked capitalism in space.

Davenport, reporter for The Washington Post, 2021.

Christian Davenport, The Washington Post, February 25, 2021. [As private companies erode government's hold on space travel, NASA looks to open a new frontier, last accessed on December 11, 2021, Accessed at: <https://www.washingtonpost.com/technology/2021/02/25/nasa-space-future-private/>] MD

Within NASA, there is still some resistance to that **paradigm shift. "NASA feels like that's our domain,"** said Phil McAlister, NASA's director of commercial spaceflight. "And my response is, the solar system is a big place. We at NASA should always be doing the next thing, the thing where the profit motive is not as evident and where the barriers to entry are still too high for the private sector to really make a compelling business case." Jan Wörner, the outgoing general director of the European Space Agency, agrees. "I believe space agencies have to change," he said in an interview. "If you are fixed permanently to the same thing that you did in the past, you will lose." But **NASA officials are concerned that much of the future workforce is going to be attracted to a growing number of commercial companies doing amazing things**. There is **Planet**, for example, which is **putting up constellations of small satellites that take an image of Earth every day. Or Relativity Space, which is 3-D**

printing entire rockets. Or Axiom Space, which is building a commercial space station. Or Astrobotic, which intends to land a spacecraft on the moon later this year.

Unchecked capitalism means there can never be peace and we will always be at constant war, and it kills at least millions.

Herod, Social Activist and anarchist since 1968, attended Columbia University and spent a year abroad at the University of Beirut (Lebanon), 2007.

James Herod, "Getting Free, 2007. [Chapter 4- Obstacles, last accessed on December 11, 2021, Accessed at: https://www.jamesherod.info/Getting_Free.pdf] MD

We must never forget that we are at war, however, and that we have been for five hundred years. We are involved in class warfare. This defines our situation historically and sets limits to what we can do. It would be nice to think of peace, for example, but this is out of the question. It is excluded as an option by historical conditions. Peace can be achieved only by destroying capitalism. The casualties from this war, on our side, long ago reached astronomical sums. It is estimated that thirty million people perished during the first century of the capitalist invasion of the Americas, including millions of Africans who were worked to death as slaves. Thousands of peasants died in the great revolts in France and Germany in the sixteenth and seventeenth centuries. During the enclosures movement in England and the first wave of industrialization, hundreds of thousands of people died needlessly. African slaves died by the millions (an estimated fifteen million) during the Atlantic crossing. Hundreds of poor people were hanged in London in the early nineteenth century to enforce the new property laws. During the Paris uprising of 1871, thirty thousand communards were slaughtered. Twenty million were lost in Joseph Stalin's gulag, and millions more perished during the 1930s when the Soviet state expropriated the land and forced the collectivization of agriculture an event historically comparable to the enclosures in England (and thus the Bolsheviks destroyed one of the greatest peasant revolutions of all time). Thousands of militants were murdered by the German police during the near revolution in Germany and Austria in 1919. Thousands of workers and peasants were killed during the Spanish Civil War. Adolf Hitler killed ten million people in concentration camps (including six million Jews in the gas chambers). An estimated two hundred thousand labor leaders, activists, and citizens have been murdered in Guatemala since the coup engineered by the Central Intelligence Agency (CIA) in 1954. Thousands were lost in the Hungarian Revolution of 1956. Half a million communists were massacred in Indonesia in 1975. Millions of Vietnamese were killed by French and U.S. capitalists during decades of colonialism and war. And how many were killed during British capital's subjugation of India, and during capitalist Europe's colonization of Asia and Africa? A major weapon of capitalists has always been to simply murder those who are threatening their rule. Thousands were killed by the contras and death squads in Nicaragua and El Salvador. Thousands were murdered in Chile by Augusto Pinochet during his counterrevolution, after the assassination of Salvador Allende. Speaking of assassinations, there is a long list: Patrice Lumumba, Rosa Luxemburg, Antonio Gramsci (died in prison), Ricardo Flores Magon (died in prison), Che Guevara, Gustav Landauer, Malcolm X, Martin Luther King Jr., Fred Hampton, George Jackson, the Haymarket anarchists, Amilcar Cabral, Steve Biko, Karl Liebknecht, Nat Turner, and thousands more. Thousands are being murdered every year now in Colombia. Thousands die every year in the workplace in the United States alone. Eighty thousand die needlessly in hospitals annually in the United States due to malpractice and negligence. Fifty thousand die each year in automobile accidents in the United States, deaths directly due to intentional capitalist decisions to scuttle mass transit in favor of an economy based on oil, roads, and cars (and unsafe cars to boot). Thousands have died in mines since capitalism began. Millions of people are dying right now, every year, from famines directly attributable to capitalists and from diseases easily prevented but for capitalists. Nearly all poverty-related deaths are because of capitalists. We cannot begin to estimate the stunted, wasted, and shortened lives caused by capitalists, not to mention the millions who have died fighting their stupid little world wars and equally stupid colonial wars. (This enumeration is very far from complete.) Capitalists (generically speaking) are not merely thieves; they are murderers. Their theft and murder is on a scale never seen before in history a scale so vast it boggles the mind. Capitalists make Alexander the Great, Julius Caesar, Genghis Khan, and Attila the Hun look like boy scouts. This is a terrible enemy we face.

Additionally, the focus on space for profit eventually dooms Earth to extinction.

Williams, MS in Physics and Physics instructor at Santa Rosa Junior College, 2010.

Lynda Williams, MS in Physics and Physics instructor at Santa Rosa Junior College, "Peace Review," Spring 2010. [Irrational Dreams of Space colonization, last accessed on December 11, 2021, Accessed at: <http://lyndalovon.blogspot.com/2016/05/irrational-dreams-of-space-colonization.html>] MD

If we direct our intellectual and technological resources toward space exploration without consideration of the environmental and political consequences, what is left behind in the wake? The hype surrounding space exploration leaves a dangerous vacuum in the collective consciousness of solving the problems on Earth. If we accept the inevitability of Earth's destruction and its biosphere, we are left looking toward the heavens for our solutions and resolution. Young scientists, rather than working on serious environmental challenges on Earth, dream of Moon or Martian bases to save humanity, fueling the prophesy of our planetary destruction, rather than working on solutions to solve the problems on Earth. Every space faring entity, be they governmental or corporate, face the same challenges. Star Trek emboldened us all to dream of space, the final frontier. The reality is that our planet Earth is a perfect spaceship. We travel around our star the sun once every year, and the sun pull us with her gravitational force around the galaxy once every 250 million years through star systems, star clusters and all the possible exosolar planets that may host life or be habitable for us to colonize. The sun will be around for billions of years and we have ample time to explore the stars. It would be wise and prudent for us as a species to focus our intellectual and technological knowledge now into preserving our spaceship for the long voyage through the stars, so that once we have figured out how to make life on Earth work in an environmentally and politically sustainable way, we can then venture off the planet into the final frontier of our dreams.

And transference of capitalism to space dooms space too.

Weitzel, PhD. Student in Anthropology at the University of Connecticut, 2021.

Elic Weitzel, "Dissident Voice," March 9, 2021. [History shows privatized space colonization will be disastrous, last accessed on December 11, 2021, Accessed at: <https://dissidentvoice.org/2021/03/history-shows-privatized-space-colonization-will-be-disastrous/>] MD

This exploitation of nature and labor is not a bug, but a feature of privatized, for-profit capitalist ventures. It is inherent in a capitalist economic model, as history has shown time and again. If profit maximization for the benefit of investors and owners is the goal, as it was for the owners of the Mayflower and as it is for SpaceX, the necessary materials and labor must be cheaply obtained. If they are not cheap, earnings will suffer. Colonization is a short-sighted solution to this problem. Colonialist companies and nations incorporate peripheral locations into their global economic system, where resources and labor can be cheaply obtained. The mercantile capitalism of the 17th century Atlantic world reflected this economic structure, with abundant timber, furs, and fish being obtained at low costs in New England and returned to European markets where they had greater value. Whether in the form of colonialist extraction of raw materials or the contemporary outsourcing of jobs, this search for cheap labor and resources is necessary for the perpetuation of capitalism, and remains the structuring force behind the global economy to this day. This same outward expansion in search of cheap raw materials and labor is exactly what will end up driving the colonization of space. The Moon, Mars, and even asteroids may all become the peripheral, privatized, and exploited locations that permit corporations on Earth to profit. Similar to Indigenous understandings of certain land rights in precolonial New England, space is currently viewed as a global commons. This means that all people have rights to it and none should be able to claim exclusive rights over it. The Outer Space Treaty of 1967 prevents any nation from claiming territory in space, although the treaty is known to be vague concerning the power of corporations in space and will certainly be challenged legally in the coming years. The enclosure and privatization of space may therefore lead not only to the direct and immediate exploitation of the environment and of people, but may also lay the groundwork for long-term systems of exploitation and dispossession. Elon Musk intends to colonize Mars as soon as possible. Thankfully, there is no potential for genocide of indigenous Martians as there was for Native Americans and other Indigenous peoples around the world under European colonialism. Yet because the endeavor is privatized and operating under centuries-old colonialist mindsets, exploitation and destruction will assuredly manifest in other ways. Mining and resource extraction is one avenue for profit, although Musk acknowledges that it is unclear if the natural resources on Mars could be extracted for the profit of companies on Earth. Even if the costs of transporting raw materials back to Earth are too great, natural resources extracted in space could be manufactured in space and shipped to Earth. Colonization of Mars may therefore differ slightly from cases of colonization on Earth, but the fundamental exploitative relationship remains. Plus, there are other ways to profit besides the extraction of raw materials. Space tourism by wealthy thrill-seekers is poised to be a cash cow for companies, and a relatively autonomous SpaceX colony on Mars could also have a potentially great degree of freedom to profit from all sorts of business ventures, especially if they are legally independent of the United States government as has been hinted. Musk has also alluded to other "extraordinary entrepreneurial opportunity" on Mars, ranging from

manufacturing to restaurants to tourism. However, it remains to be seen just how the financing, ownership, and taxation of these enterprises will be handled in what may be a semi-autonomous colony. In the case of English colonists arriving in North America, it was often the case that the company financing the colony claimed ownership over all property and all economic products of the settlers for a set number of years. Any colonists on a settled Mars will certainly be exploited as well, in one form or another, for the profit of shareholders and company executives.

More than a colony of Earth, Mars may become a colony of SpaceX, and this is a troubling thought. Resisting exploitation is exceedingly difficult in a privately funded, owned, and operated colony because such a colony is, by its very nature, undemocratic. Private companies like SpaceX are not democracies. CEOs are not elected representatives of the employees and business decisions are not voted upon by all workers. Thus, with a corporation calling the shots, settlers on Mars may have disturbingly little input in decision-making processes concerning their businesses and lives. Fundamentally, the privatization of space exploration is not the beneficial solution that many think it is. It will simply result in a continuation of the colonial exploitation of nature and people as our capitalist global economy transcends our own atmosphere. Exploitation is an inherent part of such for-profit ventures in a capitalist system, and this will carry over into space. Privatized exploration of our solar system will be biased towards profitable ventures instead of those with public benefits and will certainly have numerous detrimental environmental impacts. As private corporations begin to stake claims and enclose the commons of space, the rest of us lose our rights to it. We must avoid this outcome at all costs. Studying the repercussions of historical and contemporary colonialism on Earth permits us to engage with questions of space exploration from a decolonial and democratic perspective. Space cannot be privatized or exploited for profit, but must remain a commons for the benefit of all humanity.

Saving Earth comes first because it is the only home we have, and it is even more hospitable after a nuclear war than space.

Walker, writer of articles on Mars and Space issues and software developer of Tune Smithy and etc., 2014.

Robert Walker, writer of articles on Mars and Space issues and software developer of Tune Smithy and etc., "Science 2.0," April 15, 2014. [No escape from problems in space colonies- Earth is Des Res- Even after nuclear war or asteroid impact, Accessed at: http://www.science20.com/robert_inventor/blog/no_escape_from_problems_in_space_colonies_earth_is_des_res_even_after_nuclear_war_or_asteroid_impact-13427_] MD

So, could we make Earth uninhabitable? Could we make it so uninhabitable that our descendants need to leave the Earth and migrate into space in the near future, as in the science fiction stories by Arthur C. Clarke, Asimov, and others? Well there is no doubt that a nuclear war would cause many problems on the Earth, especially with the nuclear winter. Then there are various other things, for instance, new diseases that could wipe out humanity. There are astronomical events also which could cause problems. A giant impact for instance, like the one that brought an end to the dinosaur era. That sounds pretty dire. But, the first thing to bear in mind is that these events are rare, only every few tens of millions of years for the largest ones. We can expect many smaller meteorites, before one of these monsters, in ordinary course of events. Yes, this is going to happen eventually - if we don't find a way to deflect them first. But - "eventually" here means, most likely a few million years from now. Meanwhile our main priority probably should be tracking the rather smaller city threatening meteorites, which may hit every few centuries. Once we can deal with those, any really large threats should also be easy to spot. We may be able to deflect those also, and at any rate in the not so distant future, with the entire solar system carefully mapped out, right out to the Oort cloud surely if we remain a technological civilization, we will have plenty of warning to decide what to do about them. Even after a global firestorm, and most species extinct, then the Earth would still have its atmosphere and its oceans. It would be far more habitable than Mars or the Moon. If you were in either of those places, then your best chance of surviving is to get back to Earth, if you can make it here. Because here, you won't need to create your own oxygen, water is abundant, you have protection from cosmic radiation, have normal atmospheric pressure. Any humans left on Earth would have a far better chance of surviving than, say, Mars One or SpaceX colonists on Mars with no support from Earth. Even after a nuclear war, there would be uninhabitable places on the Earth for sure, but we don't have the technology to make the entire surface of the Earth radioactive. We can't even make Earth as hazardous to health as the cosmic radiation that bathes the entire surface of Mars. On Mars humans need meters of soil to protect them from cosmic radiation because they don't have the protective atmosphere of the Earth. On Earth even after a nuclear war, you wouldn't need that much protection except at the worst hot spots of radioactivity. If you can somehow survive the event itself (say underground or beneath the sea) then the Earth would remain a far more benign place to live than anywhere else. And it's far easier to go underground or under the sea for survival than to travel to Mars or the Moon to do that.

AT(s)

AT Commercial speeds up Space exploration

Turn- Viruses

Turn- Commercial space travel increases the risk of space viruses. There are no rules and no one regulating private industry. Regulations must come first.

Minter, Bloomberg opinion columnist writes on China, technology, and environment, 2020.

Adam Minter, Bloomberg Opinion, May 22, 2020. [NASA should be aware of viruses from outer space, last accessed on December 17, 2021, Accessed at:

<https://www.yahoo.com/now/nasa-beware-viruses-outer-space-130003780.html>] MD

This summer, the National Aeronautics and Space Administration will launch a rover designed to collect samples of the Martian surface and store them until they can eventually be brought back to Earth. When they arrive, according to a former NASA scientist, they'll be "quarantined and treated as though they are the Ebola virus until proven safe." His statement caused a minor media sensation, and understandably so. In the midst of one pandemic, Americans aren't ready for another imported from outer space. But ready or not, the U.S. and other spacefaring nations need to start updating planetary-protection measures for a new era of spaceflight. In the years ahead, NASA's Mars initiatives will likely be emulated by other countries. Ambitious private space companies are eager to follow with their own robots (and perhaps, eventually, humans). Clearer safety guidelines are essential both for protecting Earth and for ensuring that a wary public is comfortable with humanity's next steps into the solar system. No one knows, of course, if there's life elsewhere in the universe. But as far back as the mid-1950s, scientists were thinking about ways to prevent alien lifeforms from contaminating the Earth (and vice-versa). In 1967, the Outer Space Treaty codified a consensus that member states should avoid "adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter." When the Apollo 11 astronauts returned from the moon in 1969, they were immediately sealed in a decontamination chamber for three weeks, on the off chance that they had conveyed lunar micro-organisms to Houston. In the years that followed, planetary-protection guidelines were gradually updated. The Committee on Space Research (or COSPAR), a global research group, came up with non-binding protocols for various types of missions, and wisely requested that any "non-terrestrial replicating entity" — that is, a lifeform — remain contained on landing. At NASA, the Office of Planetary Protection ensures that these and other guidelines are followed when planning new missions. But while these rules worked well enough when NASA was mostly focused on protecting other planets, they're turning out to be incomplete or obsolete in an era of one-of-a-kind missions like the Mars sample return. In 2018, a review by the National Academy of Sciences found that "there did not appear to be a solid scientific basis" for some of the agency's planetary-protection rules. And even as it prepares to launch the new Mars rover in July, NASA has yet to come up with policies on how to safely distribute any returned samples to scientists. Meanwhile, private space companies increasingly have the technology and ambition to make Mars visits of their own. Elon Musk, founder of SpaceX, says he hopes to send a crewed mission there in 2024. If the company manages to meet that unlikely deadline, it might be able to avoid planetary-protection requirements altogether. At the moment, no federal agency has jurisdiction to authorize and supervise such a mission. Among other problems, that regulatory gap places the U.S. out of compliance with the Outer Space Treaty. Addressing these issues is essential, and not just to avoid a real-life Andromeda Strain. For one thing, steps taken by the U.S. now will be adapted by COSPAR and become a non-binding global standard, which should help ensure that this new space age is a safe one. At the same time, a public scarred by the coronavirus is likely to be wary of any space missions that require Ebola-level containment strategies. If NASA and other spacefarers want to assure people that they shouldn't be worried about Martian Ebola, they need to prove that their safety efforts are as failsafe as their engineering. For a start, NASA should reassess its planetary-protection measures in light of recent technological advances, and make sure it fills any gaps. It should also

establish a standing forum devoted to updating those policies as circumstances warrant. Imposing safety requirements on private space companies is a trickier issue that ultimately will require congressional action. But in the meantime, NASA should link planetary-protection compliance to eligibility for federal contracts. There's no telling when and where the next pandemic will emerge. But with a little care, NASA and its partners can all but guarantee that it won't be extraterrestrial.

Space viruses from exploration risks mass death. Empirically proven.

Crosby, professor emeritus of American Studies at the University of Texas, Austin, 2009.

Alfred W. Crosby, Professor emeritus of American Studies at the University of Texas Austin, "Humans in Outer Space- Interdisciplinary Odysseys," 2009. [Edited by L. Codignola, et. al., Chapter 1- Micro-organisms and extraterrestrial travel, Accessed at:

<http://www.worldtracker.org/media/library/Supernatural/2009%20-%20Humans%20in%20Outer%20Space,%20Interdisciplinary%20Odysseys%20-%20eds.%20L.%20Codignola,%20K.-U.%20Schrogl,%20A.%20Lukaszczyk,%20N.%20Peter.pdf>] MD

This all may sound like science fiction. However, I am not inspired by fiction but by history, by what happened when people first made a habit of crossing the great oceans, i.e., post 1492, establishing commercial and political and therefore biological connections between the continents and with previously remote islands. These lands were all chockfull of plants, animals, and microlife for enriching human visitors and for infecting them with unfamiliar diseases. The latter phenomenon still continues. I point to the spell

out acronym (SARS) scare of a few years back and to the current threat of avian influenza. If today east Asia can produce pathogens to threaten Europe with pandemics, what might Jupiter's moon, Europa – just

possibly juicy with life – provide for our entertainment? One might say that examples of what human ocean-crossers triggered by carrying micro-organisms with them are of no use to us in our considerations of the consequences of space travel. Such as we might call Columbian examples are too simple, too slow in pace, and too slight in magnitude – entirely too earthly – to help us think clearly about interplanetary contacts. I answer that, on the contrary, these examples can be very helpful in leading us to

good questions, which are the prerequisites of good answers. Let us look, for example, at the Hawaiian islands, which are today the crossroads of the Pacific world, but a few human generations ago were biologically and

anthropologically what they still are geographically, i.e., the most remote and isolated major archipelago on the planet. Looking to Hawaii for hints about the possibilities and implications of space travel may strike the reader as absurd. Hawaii is green and hospitable and Mars, to choose what is likely to be the first planet humans will actually visit, is grey and inhospitable. A

comparison of the two seems a waste of time, but we must not let ourselves be misled by technicolor contrasts. The pertinently significant contrast between Hawaii and Mars is not green vs. grey, but the presence of life here on Earth compared with the possible presence of any life at all on Mars. Mars may not be totally barren. If there is life in any form there, our concept of the universe and of ourselves will change instantly and massively and we will be forced to cope with

opportunities and dangers of a magnitude undreamed of in Christopher Columbus's era. The Hawaiian archipelago is geographically remote, not 100 million kilometers away, but 3000 or so away from the nearest continent and several hundred

from the nearest islands capable of supporting more than a handful of humans. It is also remote in its biota. Ninety-six per cent of its native flowering plants occur naturally nowhere else. When Europeans first arrived – Capt.

James Cook and his sailors in 1778 – the only mammals there were the dog, pig, and rat, all brought in by the Hawaiians, and, of course, the Hawaiians themselves, mammalian every one. The only truly native mammal of the Hawaiian islands is a bat. In 1778 William Bligh, one of Cook's captains, estimated the Hawaiian population at 242,000.8 We get our first dependable population counts from the Yankee missionaries who started arriving in the 1820s. These haoles (Hawaiian for outsiders, usually white folks) believed in arithmetic, counted and calculated seriously, not artistically, and stayed on and spent the rest of their lives on the islands. By the 1840s Hawaiian population statistics were among the most respectable in the world. In 1823 the

missionary-demographers estimated the Hawaiian population as 135,000; in 1850, as 84,000. By 1878 there were only 48,000 Hawaiians, even including some of only partly Hawaiian ancestry. That marks a drop of at least

four-fifths in a century. What explains this tragedy? genocide? The Hawaiians were ruled by their own royalty until the latter years of the 19th century and while there were murders and at least one massacre, there was no slaughter to compare to what happened on the American mainland. Slavery? Nothing to be compared to what happened in Africa and America. Emigration? Some men left as sailors, but not many relative to the total population, and very few women left. Gross exploitation of laborers on plantations a-la-West Indies to cultivate products for export? Indeed there was some of that, but later in the century after the worst years of population decline. Cultural dislocation? There must have been plenty, but I doubt that many people die because they are

confused and depressed, though there was a decline in the birth rate and may have been increased infanticide. **Infectious disease?** After 1778 the Hawaiians were in ever increasing contact with people from lands with big human populations, particularly dense in the ports, and large herds of livestock with which humans exchanged diseases. To cite a specific example of what could happen, take the case of King Liholiho and Queen Kamamalu, who sailed to Britain early in the 19th century. Both died in London in 1824 of measles, a disease yet to debark in their islands. Early in the 19th century, 1804 perhaps, there was an epidemic of the semi-mythic oku'u, about which science knows nothing, but which Hawaiian tradition credits as being particularly fatal. In 1824 three epidemics swept the islands – measles, whooping cough, and influenza. The death rate from all three added together was estimated at 10%. In 1853 the most dreadful killer of American Indians, smallpox, arrived. The death rate that year was 105 per 1000. These assaults on the Hawaiian population were accompanied by a steady drumbeat of a new and now constant factor in the islands' demography: sexually transmitted disease (STD). Hawaiians, who may have had little experience with STDs before 1778, found themselves subject to the unwavering attentions of tens of thousands of sexually hungry men – sailors. The Hawaiians suffered from venereal infections, which not only killed many, but must have sterilized a lot of the women. **The Hawaiians' population dropped from no less than 242,000 to 48,000 in one century. Similar death rates afflicted many newly contacted populations – Aztec, Incan, Maori, the indigenes of Siberia – and, I should note, among Europeans as well when they landed on the malarial shores of tropical Africa. Such abrupt explosions and implosions of invading and indigenous organisms may occur on planets and other heavenly bodies we land upon. Maybe there is no life out there to endanger visitors or to be endangered by visitors, but surely we should restrain ourselves from leaping to that conclusion. We have a profound duty to act as if there were** life on or in Mars and elsewhere out there.