### Locke NC

#### I negate and value justice as implied by the resolution. The standard is consistency with Lockean property rights

#### Property rights are a natural extension of the concept of self-ownership- these rights are pre-political

Smith, 15 -- formerly Senior Research Fellow for the Institute for Humane Studies, a lecturer on American History for Cato Summer Seminars, and Executive Editor of Knowledge Products

[George H., "John Locke: The Justification of Private Property," Libertarianism.org, 10-19-15, https://www.libertarianism.org/columns/john-locke-justification-private-property, accessed 6-25-21]

My last essay discussed John Locke’s theory of a negative commons. This was the moral status of natural resources prior to the emergence of private property, a situation in which every person had an equal right to use unowned land and other natural goods. I included this topic in my lengthy series on “Freethought and Freedom” because it was germane to understanding how natural‐​law philosophers during the seventeenth century moved from the traditional Christian doctrine of private property to a more secular approach. But it would be an unwarranted stretch to include additional essays on Locke within my series on freethought, so I hereby begin a new series devoted to Locke’s ideas. This series will discuss not only Locke’s theory of property in more detail but also other features of his political theory, such as his theory of government and his defense of the rights of resistance and revolution against established governments.

The most important source for understanding Locke’s justification of private property is the celebrated chapter “Of Property,” which comprises Chapter V of The Second Treatise of Government. But we also find significant remarks about property in Chapter IV (“Of Adam’s Title to Sovereignty by Donation”) of the First Treatise. Although most of my discussion is based on Locke’s treatment in the Second Treatise, I may occasionally draw upon his comments in the First Treatise.

According to Locke, in the “natural state”—that original condition in which every person had an equal right to use natural resources provided by the “spontaneous hand of Nature”—no one had “a private Dominion, exclusive of the rest of Mankind,” over those resources. But such resources would have been useless for human survival and well‐​being unless they could be appropriated by individuals for their personal use. So how can a transition from unowned resources to private ownership be morally justified? How can one person legitimately claim an exclusive right to use a resource that, in its natural state, could be used by anyone? Locke’s treatment of this problem remains highly controversial among scholars. His theory has been used to justify everything from laissez‐​faire to the welfare state to full‐​blown socialism. Which of these conflicting interpretations should be covered in my survey of Locke’s political ideas is a judgment call, and I frankly remain uncertain about my final decision. I fear that many of my readers will have little if any interest in the fine points of Lockean scholarship, however much those points may interest specialists. Fortunately perhaps, I can delay my decision until a later time. Before we can appreciate the ambiguity in some of Locke’s statements about property, we must first understand his overall approach. Hence the purpose of this essay (and probably the next installment as well) is to provide a barebones account of how John Locke justified private property, while postponing a consideration of the more controversial features until a later time.

There is another reason why an overview is desirable before I delve into more technical matters. Only a relative handful of my readers are likely to have actually read Locke’s Two Treatises of Government. The status of John Locke in the modern libertarian movement is rather like that of Adam Smith. Both figures are widely known to nonacademic libertarians, as are their leading ideas, but it is a safe guess that the major works of these philosophers remain largely unread. This is understandable. The workaday libertarian is more interested in ideas that he can use in the struggle to establish a free society than he is in arcane historical theories and controversies. And if this libertarian believes that he can find adequate justifications of private property in the writings of modern libertarian philosophers, such as Rothbard, Hayek, and Rand, then why should he spend his time reading earlier and quite possibly less satisfactory accounts?

As I have attempted to demonstrate throughout my many Lib​er​tar​i​an​ism​.org essays, the issues discussed by early classical liberals are essential to understanding the origin and evolution of modern libertarian ideas. In addition, many of the internecine controversies among early classical liberals may be found, alive and kicking, in the modern libertarian movement. The fundamental problems attending an adequate defense of individual freedom are perennial; they arise again and again from one generation of libertarians to the next, however much the particular contexts may differ. There is much to be learned from reading the books of John Locke, Adam Smith, and other intellectual giants in the history of freedom—knowledge that is directly relevant to the problems confronted by modern libertarians.

Having presented my preliminary case for the relevance of John Locke, I shall now explain the basic principles that underlay his case for private property.

The key to Locke’s moral transition from common dominion to private ownership was his conception of self‐​ownership, or property in one’s person. As Locke put it in what was destined to become one of the most influential passages in the history of political thought:

Though the Earth, and all inferior Creatures be common to all Men, yet every Man has a Property in his own Person. This no Body has any Right to but himself. The Labour of his Body, and the Work of his Hands, we may say are properly his. Whatsoever then he removes out of the State that Nature hath provided, and left it in, he hath mixed his Labour with, and joined to it something that is his own, and thereby makes it his Property. It being by him removed from the common state nature placed it, it hath by his labour something annexed to it, that excludes the common right of other Men. For this Labour being the unquestionable Property of the Labourer, no Man but he can have a right to what that is once joined to, at least where there is enough, and as good left in common for others.

Locke continued:

He that is nourished by the Acorns he pickt up under an Oak, or the Apples he gathered from the Trees in the Wood, has certainly appropriated them to himself. No Body can deny but the nourishment is his. I ask then, When did they begin to be his? When he digested? Or when he eat? Or when he boiled? Or when he brought them home? Or when he pickt them up?

Locke answered these questions by selecting the last of these options. The acorns became the private property of the owner when he picked them up, for it was in the gathering that labor was first expended. “That labour put a distinction between them and common. That added something to them more than Nature, the common Mother of all, had done, and so they became his private right.” But this raises a crucial question: “Was it a Robbery thus to assume to himself what belonged to all in Common?” Locke replied that to require universal consent would lead to universal starvation. More is involved here than the practical problem of obtaining the permission of every person on earth. Morally speaking, such consent is not required because, according to both reason and revelation, humans “have a right to their Preservation.” Thus if even the right to eat acorns and other natural goods could not be morally justified without first obtaining the consent of every commoner, “Man had starved, notwithstanding the Plenty God had given him.” (It should be noted that self‐​preservation had long been defended as a fundamental right—indeed, as a duty—by natural‐​law philosophers. In the thirteenth century, for example, Thomas Aquinas maintained that “whatever is a means of preserving human life belongs to the natural law, and whatever impedes it is contrary to it.”)

When Locke wrote that “every Man has a Property in his own Person,” he was using “property” in its older meaning to signify rightful dominion over something. (See my discussion in The Philosophy of the Declaration of Independence: Part 2.) Hence it was quite common during the seventeenth and eighteenth centuries to speak of property in one’s conscience, property in one’s freedom, property in one’s labor, property in one’s happiness, and even (as we find with James Madison) property in one’s time. Whereas we might say that “this computer is my property,” earlier philosophers might have said, “I have a property in this computer.” Locke included life, liberty, and estate (i.e., external goods) in his generic conception of property, so when he argued that the primary purpose of government is to protect property rights, he was not merely referring to material objects. Rather, he meant that a government should protect those fundamental rights (including the right to enjoy the fruits of our labor) that are essential to self‐​preservation and happiness.

Locke stressed labor as the foundation of private property because some form of labor is the basic method by which we sustain ourselves, even if that labor consists of nothing more than picking up acorns off the ground. Humans cannot survive without labor, so coercively to expropriate the fruits of another man’s labor is to violate his fundamental right of self‐​preservation. Labor is involved in every life‐​sustaining activity.

#### The only legitimate purpose of a state is to protect property rights

Tuckness, 18 -- Associate Professor of Political Science, Director of the Public Policy and Administration Program, Iowa State University

[Alex, "Locke's Political Philosophy", The Stanford Encyclopedia of Philosophy, Summer 2018 Edition, Edward N. Zalta (ed.), https://plato.stanford.edu/archives/sum2018/entries/locke-political/, accessed 6-24-21]

John Locke (1632–1704) is among the most influential political philosophers of the modern period. In the Two Treatises of Government, he defended the claim that men are by nature free and equal against claims that God had made all people naturally subject to a monarch. He argued that people have rights, such as the right to life, liberty, and property, that have a foundation independent of the laws of any particular society. Locke used the claim that men are naturally free and equal as part of the justification for understanding legitimate political government as the result of a social contract where people in the state of nature conditionally transfer some of their rights to the government in order to better ensure the stable, comfortable enjoyment of their lives, liberty, and property. Since governments exist by the consent of the people in order to protect the rights of the people and promote the public good, governments that fail to do so can be resisted and replaced with new governments. Locke is thus also important for his defense of the right of revolution. Locke also defends the principle of majority rule and the separation of legislative and executive powers. In the Letter Concerning Toleration, Locke denied that coercion should be used to bring people to (what the ruler believes is) the true religion and also denied that churches should have any coercive power over their members. Locke elaborated on these themes in his later political writings, such as the Second Letter on Toleration and Third Letter on Toleration.

#### My contention is that consistency with Lockean property rights negates

#### First, there is no morally relevant difference between space and Earth

Baca, 93 -- Associate at Gallop, Johnson & Neuman, St Louis, Missouri

[Kurt Anderson, Property Rights in Outer Space, 58 J. Air L. & Com. 1041, 1993, <https://scholar.smu.edu/jalc/vol58/iss4/4>, accessed 6-24-21]

The powers necessary to constitute an efficient system of property rights on Earth have been found, by deduction from first principles by political philosophers influential in the development of the Western institutions and from history and practice in the courts, to be the power to exclude, to use, and to dispose. 98 The resulting system is also inherently equitable as it benefits society as a whole and as it protects investments and expectations. This system would remain equitable so long as the initial allocation of any new resource was, and is, not based on mere usurpation of unclaimed property, but is based on investment in the property that adds to its value. 99

This system of property rights relies on the provision of powers to the holder of the property. The source of the power is ultimately in the state that enforces the liabilities of parties corresponding to the powers of owners: the liability to exclusion, the liability for interference with use, and the liability to respect contracts and to refrain from hindering disposition. °0 This implies that sovereign power is essential to any functioning system of property rights, and in the absence of a general sovereign body, sovereignty is to be found in the nation-state.

How does the extension of man's activities into space and onto the celestial bodies change the basic necessities of an efficient and equitable property rights system? The movement of activities into space affects only the place of activities. The nature of those activities and of the actor remain unchanged. The nature of efficiency and equity are likewise unchanged, and the need for certain securities and guarantees to foster productive activity by man is unchanged. The same property rights system that is most beneficial on Earth will be most beneficial on the celestial bodies.

The principles of the Outer Space Treaty do not necessarily contradict these property concepts. It has already been shown that the notion of property rights, including the power to use and dispose, are not incompatible with the general principles of the Outer Space Treaty.20 ' The principle of access in space is also appropriate when properly interpreted. ° But, in regulating access, governing bodies must make proper account for the use of various portions of space and of the rights of the user to be free of harmful interference. 3 Although the provision of Article II against national appropriation contradicts these property concepts, it is inconsistent with the notions of jurisdiction and ownership found elsewhere in the treaty.2 0 4 This provision should therefore be modified and replaced with a concept of reasonable use or investment.20 5 Such a provision should provide for initial allocation of unclaimed property only upon productive use or investment. This would allow for the security of national sovereignty while preventing the non-productive reservation of vast resources by non-users.20 6

#### Second, appropriation of outer space is consistent with the doctrine of res nullius

Butler, 17 -- Staff Attorney with the State of Montana

[Dennison A., Who Owns the Moon, Mars, and Other Celestial Bodies: Lunar Jurisprudence in Corpus Juris Spatialis, 82 J. Air L. & Com. 505, 2017, <https://scholar.smu.edu/jalc/vol82/iss3/3>, accessed 6-24-21]

However, the doctrine of res nullius could apply. Res nullius, or terra nullius, is an international law principle used to describe land or territory that has not yet been subject to the sovereignty of any state or for which a prior sovereignty has relinquished sovereignty over the area.55 Australia was claimed by the British settlement in Cooper v. Stuart56 under the doctrine of terra nullius. Other areas claimed under terra nullius include the Western Sahara,57 Svalbard,58 Greenland,59 Antarctica,60 Scarborough Shoal,61 New Zealand,62 and Guano Islands.63

The doctrine of discovery is another theory implicated regarding property rights on celestial bodies and terra nullis. The doctrine of discovery is an international law principle under which European countries, colonists, and settlers made legal claims against the lands of indigenous peoples all over the world from the fifteenth through the twentieth century.64 Even today, the doctrine of discovery is applied in New Zealand,65 Canada,66 and Australia.67 Examples also include China, which invoked this doctrine in 2010 when it planted its flag to claim sovereignty over the bed of the South China Sea.68 In 2007, Russia also used this doctrine when it laid claim to the Arctic Ocean seabed.69 Similarly, Canada and Denmark each claimed sovereignty over an island off the west coast of Greenland in 2005.70 In fact, the Supreme Court of the United States of America cited the doctrine of discovery as a basis for property ownership as recently as 2005.71 Traditionally, discovery created an:

inchoate title to a territory that must be perfected by its effective occupation. . . . To turn a first discovery into a complete title, a European country had to actually occupy and possess the newly found lands. This was usually done by building forts or settlements. This physical possession had to be accomplished within a reasonable amount of time after the first discovery to create a complete title.72

For an interesting case study, the Scarborough Shoal was claimed by China under the principles of discovery in the thirteenth century, whereas the Philippines claimed the Shoal under the theory of terra nullius. 73

Furthermore, the international doctrine of discovery is consistent with John Locke’s labor theory of property. Locke’s theory famously posits that before government existed, all men had common access to Earth’s resources as given by God.74 In order to survive, individuals had to appropriate resources for themselves.75 Through their own labor and effort, men were able to gain private property rights if they did not waste the resources they claimed.76

The labor of his body, and the work of his hands, we may say are properly his. Whatsoever then he removes out of the state that nature hath provided, and left it in, he hath mixed his labor with, and joyned [sic] to it something that is his own, and thereby makes it his property. It being by him removed from the common state nature placed it in, it hath by his labor something annexed to it, that excludes the common right of other men . . . at least where there is enough, and as good, left in common for others.77

The United States prides itself in and was established under the idea that “all men are created equal.”78 The spirit of entrepreneurship has not only had an influence on America’s economic system but has also directly impacted every aspect of our lives.79 Adam Smith declared, “[l]ittle else is requisite to carry a state to the highest degree of opulence from the lowest barbarism but peace, easy taxes and a tolerable administration of justice.”80 To justify his position he went on to say:

As every individual . . . endeavours [sic] . . . to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value, every individual necessarily labours [sic] to render the annual revenue of the society as great as he can . . . . [While] he intends only his own gain . . . he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention.81

The ability to profit through ones own work has been one of the leading contributors to economic wealth not only in the United States, but also in free trade zones such as Hong Kong.82 This allows individuals to profit from the work of their own labor and to subsequently enjoy the benefits or suffer the losses from those risks.83

One of the best examples that can be analogized to territory in space is the Homestead Act of 1862.84 President Abraham Lincoln signed the bill into law, allowing individuals to acquire a freehold title in fee simple to 160 acres of land if they: (1) filed an application; (2) improved the land; and (3) filed for a deed.85 This right was limited to individuals who were over twenty-one years old or the head of a family and had lived on the land for at least five years.86 Nonetheless, the Homestead Act of 1862 gave individuals a chance to directly enjoy the fruits of their labor. Allowing individuals to profit or suffer from their own sweat is an exemplification John Locke’s labor theory.87 The Homestead Act of 1862 was also imitated, with some modification, by Canada88 in 1872 and by several Australian colonies89 in the 1860s.

Allowing people the ability to profit or loss from their own risk in working land directly allowed the settlement and cultivation of most of the land west of the Mississippi River. Between 1862 and 1938, “almost 1.5 million households were given title to 246 million acres of land.”90 That area is approximately the acreage of California and Texas combined.91 Some have estimated that even today $46.3 billion is generated every year directly because of the industrious pioneers.92

Structuring property ownership laws on the Moon, Mars, and other celestial bodies after the Homestead Act of 1862 would allow companies, individuals, and even countries to claim property if they “improve[ ] the land”93 in some way. This would prevent entities from claiming extraterrestrial property without having first demonstrated a proper use for it.94 On top of that, entities would have an incentive to profit from their own effort. Like President Lincoln encouraging Americans to settle the West, incentivizing entities to claim extraterrestrial property on the Moon and Mars would accelerate space colonization and promote utilization of resources already available.

The desire and profit is great for entities to explore the Moon and outer space. However, the treaties that currently exist, forbidding country and private ownership, destroy any incentive to use the resources found thereon. If the laws allowed people, companies, or countries to claim ownership to what they could manage, it would create significant incentive for both private and government groups to invest the resources necessary to establish ownership and control over the property on Mars, the Moon, and other celestial bodies.95 Furthermore, allowing entities to claim property rights over only what they can manage would pave the way for everyone to profit as lunar exploration and colonization become more feasible and affordable.

### Spacex DA

#### Property rights are key to effective space development- it creates the most efficient system for the development of space

Reinstein, 99 -- JD, Associate, Kirkland & Ellis

[Ezra J., Owning Outer Space, 20 Nw. J. Int'l L. & Bus. 59, 1999, <https://scholarlycommons.law.northwestern.edu/njilb/vol20/iss1/7>, accessed 7-10-21]

IV. PROPOSAL: APPROPRJATIVE OWNERSHIP OF REAL PROPERTY

The ideal legal regime should create maximum incentives for efficient development of space, in recognition of the fact that the potential wealth in space will not drop into our laps.

But as much as commercial development of space would benefit all mankind, it is just as important that the development be controlled. We must learn from mistakes of the past. Any legal regime should guard against inefficient exploitation, waste, and environmental despoliation. Furthermore, space should not become the next Wild West. Destruction and sabotage must be discouraged.

My proposal, which will be developed throughout this essay, is to maximize incentives by giving developers comprehensive property rights. Humanity's welfare demands that we alter the current law to allow real estate ownership -- not just usufructary rights -- to those who would best develop land in space.7 The potential wealth of outer space, in the form of minerals, energy, living space, etc., doesn't do us any good unless we are able to harness it. And, as Jeffrey Kargel, a planetary scientist at the U.S. Geological Survey, has written, "if you want to cross the bridge into the 21st century of space [development], then space must pay its way and give private investors a handsome early return on investment.' 75

What do we mean by "ownership?" Property is commonly recognized as being a "bundle" of disparate rights regulating relations between people with respect to things. The bundle of rights can be unpacked. It includes: the right to possess, the right to use, the right to exclude, and the right to transfer.76 These rights are not on/off affairs; they can each be limited or expanded along a continuum. I use the term "ownership" to describe a state of affairs wherein a person has all four of these rights to their maximum extent with respect to a piece of property.

Current space law ostensibly respects the right to use real property in space and to collect and own its fruits. Historically, this has been known as the usufructary right.77 But the current law doesn't even provide this right freely; it seems to be limited by several clauses of the Outer Space Treaty (e.g. use "for the benefit...of all countries").78

Nor does the OST recognize the right to exclude, as is evidenced by article I's prohibition on appropriating what it recognizes as being "the province of all mankind," the guarantee in the same article of "free access to all areas of celestial bodies," and article XII's requirement that "[a]ll stations [and] installations...shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity." Likewise, as illuminated in the SpaceCorp hypothetical, the prohibition on appropriation seems to negate a long-term right of possession. Without the right to exclude or pos- sess, of course, a legal system need not provide the right to transfer real estate. Anyone else may simply help themselves. In sum, the OST demands that "[n]o State can obtain such possessions as will entitle it to claim ownership or sovereignty over them... There can be no exclusive appro- priation of [celestial bodies] and any part thereof as a result of their 'use'..." 79 Under current law, space cannot be owned.

A new law of space real property must enliven and support all four rights that comprise ownership.

First, there must be a right to permanent possession: barring some ex- traordinary circumstance or the enforcement of a judgment, no one should face dispossession of his real estate on Earth or in space. This rule supplies a needed measure of certainty, in two ways: (1) it's a definite rule and almost any such rule is better than the fogginess of the current regime, and (2) it moves the presumption away from public conversion of private lands, and therefore makes it clear that the OST's statement, that space development must be "for the benefit...of all countries," is a moral exhortation and not a loophole through which the United Nations can dispossess a private party of his site.

Second, I suggest that the right to use be unlimited, except by environmental regulations and the developer's domestic law. This rule is a recognition that humanity's fortune is best enhanced not by a centralized command-and-control system, but by private development making market driven decisions.

Like the right to perpetual possession, the third right -- the right to exclude -- creates the certainty vital to an optimal investment environment. As noted, the current system precludes such a right, for it would certainly run afoul of the prohibition on appropriation and the requirement that there be "free access to all areas of celestial bodies. 80 Without the right to exclude, however, pioneer investors would be at the mercy of free riders. After investing countless hours in (or paying someone else for) a survey of the real estate, after setting up a mining colony at great expense, the pioneer would have no recourse if another party took advantage of the pioneer's research and began a copycat mine on the very same site. So the right to exclude must form a part of the new legal system.

Finally, the right to transfer must accompany the rights of exclusion and perpetual possession. The Coase Theorem of economics tells us that, in a legal environment supportive of bargaining, property rights will be allocated to the party who values them most, i.e. the most efficient user of the property.81 When transaction costs are high enough to prevent bargaining, property rights only end up in the most productively efficient hands if the law happens to initially assign them that way.82 Without any right to transfer, transaction costs are infinite, and no bargaining can occur. In order to avoid the inevitably inefficient solutions of a command-and-control regime of property usage, the right to transfer -- alienability -- must be a part of our system.83

All these rights together -- possession, use, exclusion, and transfer -- make up ownership. And it is ownership that the modem law of space real property needs.

#### Ownership both reduces wasteful use and allows firms to internalize its positive externalities

Reinstein, 99 -- JD, Associate, Kirkland & Ellis

[Ezra J., Owning Outer Space, 20 Nw. J. Int'l L. & Bus. 59, 1999, <https://scholarlycommons.law.northwestern.edu/njilb/vol20/iss1/7>, accessed 7-10-21]

A. Three Arguments for Ownership

Space is an international zone, and so is, in a sense, the heritage of all humanity. We must not forget, when considering the governance of outer space, that the rules should first and foremost attempt to maximize the benefit to all humankind. So, ideally, celestial bodies should be put to the uses most beneficial to humanity. This is guaranteed by a system that puts land in the hands of those for whom the territory is most profitable. It is a matter of elementary economic theory. Whoever can use a site to humanity's greatest benefit will be the one who can profit most from the site; whoever can profit most from the site will be the one for whom the site is most valuable. Thus the person who can put a site to humanity's greatest benefit will be the one willing to spend the most to own the site.84 This is the bargain theory of economics, and will form the basis for all that follows.

1. Ownership will reduce wasteful use

Ownership, and the attendant right of alienability, would promote the efficient use of space resources.

Again, a hypothetical will help illustrate: a Martian site has been identified as being rich with manganese and silicon. Manganese Mining Co. ("M.M.Co."), interested in the manganese and the manganese alone, decides to send up a team of miners. They begin operations, develop shipping routes, and build a sustainable mining colony.

Without the right of ownership, M.M.Co. has no reason not to blast through and obliterate silicon deposits in order to more quickly uncover the manganese. Furthermore, once the manganese is depleted, there is no reason for them to leave the colony's structures and life support systems intact.

If, on the other hand, space law grants ownership to M.M.Co., then M.M.Co. has incentive to act with greater over-all efficiency. There is incentive to preserve the silicon deposits, because silicon will increase the amount for which Silicon Mining Co. ("S.M.Co.") is willing to purchase the site from M.M.Co. Along similar lines, there is also incentive to preserve the shipping routes and the colony structures and life support systems.

So M.M.Co. receives the benefit of the manganese deposits, and is further rewarded for developing the mining colony and transportation routes, and for preserving the silicon deposits and the colony itself when it sells the site. Because M.M.Co. owned the site, there would be reason for it to prospect for silicon and advertise its presence to interested parties, even though M.M.Co. did not itself have an interest in mining the silicon. Thus S.M.Co. receives the benefit of M.M.Co.'s mineralogical research. S.M.Co. also need not waste resources setting up new routes, mines, and colonies; it could purchase them intact.

Under such a system, people are better rewarded for pioneering efforts and pioneers have incentive to research and preserve that which they find and build. The second-comers receive the benefit of the pioneers' efforts; they need not reinvent the wheel. And, in the end, people on Earth receive the benefit of plentiful manganese and silicon, instead of, as would result in a non-ownership system, just manganese.

2. The right to transfer (alienability) would compensate for positive externalities, thereby creating added incentive to productively develop space

Another advantage of an ownership regime over a use regime can be found in the following hypothetical situation. Suppose the bark of a tree found only deep in the Amazon has cancer-curing properties. Whoever first attempts to harvest the tree bark would be required to build a road to the grove, at tremendous expense. All subsequent pharmaceutical harvesters would have use of the road and consequently be able to turn a much larger profit on the harvested bark. The problem arises, then, that no company would want to make the costly first trek.

What problem does this situation present? Because, since no company would rationally sacrifice itself in the quest for bark, the rest of us will have to do without this life-saving cure. The cause of the problem is an uncompensated positive externality. The right of use does not, by itself, reward the first company for the positive externality it produces, i.e., the road.

One way of rewarding that first company's pioneering effort would be to grant it ownership of the grove. So if company A made the first trek to the grove, the right of ownership would let them decide whether to utilize their exclusive rights to the trees in perpetuity, or to sell the grove to company B for a price that accounts for the expense of building the road. Either way, ownership allows company A to internalize the positive externality.

The same problem exists in space development. The early developers will encounter huge costs, many of which will produce positive externalities (e.g. improved site assaying techniques). In space, as in the jungle, ownership rights can help a company internalize its positive external effects.

#### Impact is extinction – try or die

Austen 11 (Ben, citing the Lifeboat Foundation and the Alliance to Rescue Civilization, contributing editor of Harper’s Magazine, “After Earth: Why, Where, How, and When We Might Leave Our Home Planet,” popular science, http://www.popsci.com/science/article/2011-02/after-earth-why-where-how-and-when-we-might-leave-our-home-planet?page=3)

Earth won’t always be fit for occupation. We know that in two billion years or so, an expanding sun will boil away our oceans, leav[e]ing our home in the universe uninhabitable—unless, that is, we haven’t already been wiped out by the Andromeda galaxy, which is on a multibillion-year collision course with our Milky Way. Moreover, at least a third of the thousand mile-wide asteroids that hurtle across our orbital path will eventually crash into us, at a rate of about one every 300,000 years. Why? Indeed, in 1989 a far smaller asteroid, the impact of which would still have been equivalent in force to 1,000 nuclear bombs, crossed our orbit just six hours after Earth had passed. A recent report by the Lifeboat Foundation, whose hundreds of researchers track a dozen different existential risks to humanity, likens that one-in-300,000 chance of a catastrophic strike to a game of Russian roulette: “If we keep pulling the trigger long enough we’ll blow our head off, and there’s no guarantee it won’t be the next pull.” Many of the threats that might lead us to consider off-Earth living arrangements are actually man-made, and not necessarily in the distant future. The amount we consume each year already far outstrips what our planet can sustain, and the World Wildlife Fund estimates that by 2030 we will be consuming two planets’ worth of natural resources annually. The Center for Research on the Epidemiology of Disasters, an international humanitarian organization, reports that the onslaught of droughts, earthquakes, epic rains and floods over the past decade is triple the number from the 1980s and nearly 54 times that of 1901, when this data was first collected. Some scenarios have climate change leading to severe water shortages, the submersion of coastal areas, and widespread famine. Additionally, the world could end by way of deadly pathogen, nuclear war or, as the Lifeboat Foundation warns, the “misuse of increasingly powerful technologies.” Given the risks humans pose to the planet, we might also someday leave Earth simply to conserve it, with our planet becoming a kind of nature sanctuary that we visit now and again, as we might Yosemite. None of the threats we face are especially far-fetched. Climate change is already a major factor in human affairs, for instance, and our planet has undergone at least one previous mass extinction as a result of asteroid impact. “The dinosaurs died out because they were too stupid to build an adequate spacefaring civilization,” says Tihamer Toth-Fejel, a research engineer at the Advanced Information Systems division of defense contractor General Dynamics and one of 85 members of the Lifeboat Foundation’s space-settlement board. “So far, the difference between us and them is barely measurable.” The Alliance to Rescue Civilization, a project started by New York University chemist Robert Shapiro, contends that the inevitability of any of several cataclysmic events means that we must prepare a copy of our civilization and move it into outer space and out of harm’s way—a backup of our cultural achievements and traditions. In 2005, then–NASA administrator Michael Griffin described the aims of the national space program in similar terms. “If we humans want to survive for hundreds of thousands or millions of years, we must ultimately populate other planets,” he said. “One day, I don’t know when that day is, but there will be more human beings who live off the Earth than on it.

#### our impact is trillions of future lives

Bostrom 3 (Nick, Prof of Phil @ Oxford + Existential Risk Specialist, "Astronomical Waste: The Opportunity Cost of Delayed Technological Development," http://www.nickbostrom.com/astronomical/waste.html)

ABSTRACT. With very advanced technology, a very large population of people living happy lives could be sustained in the accessible region of the universe. For every year that development of such technologies and colonization of the universe is delayed, there is therefore an opportunity cost: a potential good, lives worth living, is not being realized. Given some plausible assumptions, this cost is extremely large. However, the lesson for utilitarians is not that we ought to maximize the pace of technological development, but rather that we ought to maximize its safety, i.e. the probability that colonization will eventually occur. I. THE RATE OF LOSS OF POTENTIAL LIVES As I write these words, suns are illuminating and heating empty rooms, unused energy is being flushed down black holes, and our great common endowment of negentropy is being irreversibly degraded into entropy on a cosmic scale. These are resources that an advanced civilization could have used to create value-structures, such as sentient beings living worthwhile lives. The rate of this loss boggles the mind. One recent paper speculates, using loose theoretical considerations based on the rate of increase of entropy, that the loss of potential human lives in our own galactic supercluster is at least ~10^46 per century of delayed colonization.[1] This estimate assumes that all the lost entropy could have been used for productive purposes, although no currently known technological mechanisms are even remotely capable of doing that. Since the estimate is meant to be a lower bound, this radically unconservative assumption is undesirable. We can, however, get a lower bound more straightforwardly by simply counting the number or stars in our galactic supercluster and multiplying this number with the amount of computing power that the resources of each star could be used to generate using technologies for whose feasibility a strong case has already been made. We can then divide this total with the estimated amount of computing power needed to simulate one human life. As a rough approximation, let us say the Virgo Supercluster contains 10^13 stars. One estimate of the computing power extractable from a star and with an associated planet-sized computational structure, using advanced molecular nanotechnology[2], is 10^42 operations per second.[3] A typical estimate of the human brain’s processing power is roughly 10^17 operations per second or less.[4] Not much more seems to be needed to simulate the relevant parts of the environment in sufficient detail to enable the simulated minds to have experiences indistinguishable from typical current human experiences.[5] Given these estimates, it follows that the potential for approximately 10^38 human lives is lost every century that colonization of our local supercluster is delayed; or equivalently, about 10^29 potential human lives per second. While this estimate is conservative in that it assumes only computational mechanisms whose implementation has been at least outlined in the literature, it is useful to have an even more conservative estimate that does not assume a non-biological instantiation of the potential persons. Suppose that about 10^10 biological humans could be sustained around an average star. Then the Virgo Supercluster could contain 10^23 biological humans. This corresponds to a loss of potential equal to about 10^14 potential human lives per second of delayed colonization. What matters for present purposes is not the exact numbers but the fact that they are huge. Even with the most conservative estimate, assuming a biological implementation of all persons, the potential for one hundred trillion potential human beings is lost for every second of postponement of colonization of our supercluster.[6] II. THE OPPORTUNITY COST OF DELAYED COLONIZATION From a utilitarian perspective, this huge loss of potential human lives constitutes a correspondingly huge loss of potential value. I am assuming here that the human lives that could have been created would have been worthwhile ones. Since it is commonly supposed that even current human lives are typically worthwhile, this is a weak assumption. Any civilization advanced enough to colonize the local supercluster would likely also have the ability to establish at least the minimally favorable conditions required for future lives to be worth living. The effect on total value, then, seems greater for actions that accelerate technological development than for practically any other possible action. Advancing technology (or its enabling factors, such as economic productivity) even by such a tiny amount that it leads to colonization of the local supercluster just one second earlier than would otherwise have happened amounts to bringing about more than 10^29 human lives (or 10^14 human lives if we use the most conservative lower bound) that would not otherwise have existed. Few other philanthropic causes could hope to match that level of utilitarian payoff.