### 1AC: Plan

#### Plan - Private entities ought not appropriate lunar heritage sites

Harrington 19, Andrea J. "Preserving Humanity's Heritage in Space: Fifty Years after Apollo 11 and beyond." J. Air L. & Com. 84 (2019): 299. (Associate Professor and Director of the Schriever Space Scholars at USAF Air Command and Staff College)//Elmer

The issue of humanity’s cultural heritage in space has arisen as one of many unanswered questions in space law, with no international agreements specifically addressing it. With the beginning of the space age fifty-six years ago and a series of remarkable achievements in space exploration behind us, it is necessary to determine what should be done regarding the “artifacts” of this exploration. NASA has promulgated their recommendations for spacefaring entities with the goal of protecting the lunar artifacts left behind by the Apollo missions.8 These recommendations establish “keep-out zones” of up to a four kilometer diameter with the aim of protecting the artifacts, particularly from dangerous, fastmoving particles that arise as a result of craft landings.9 Experience has shown that even artifacts that are sheltered by craters can be significantly sandblasted and pitted as a result of the moving particles.10 These recommendations, supposedly drafted in conformity with the Outer Space Treaty, however, are completely nonbinding.11 Legislation that has passed the U.S. Senate and is under consideration by the House of Representatives as of July 2019 would make these recommendations binding on U.S. entities seeking to land on the Moon.12 Accidental damage from unrelated missions, however, is only one of many threats to space artifacts. With the impending return to the Moon, it is likely that individuals and corporations will be looking to turn a profit from space heritage, without concern for the protection of such heritage. Tourists may disrupt sites with careless expeditions and landing sites may be desecrated so that the items can be sold. A Russian Lunakhod lunar rover has already been sold at auction to a private party, though it has not yet been moved from its original position on the Moon.13 While national heritage legislation can protect space artifacts from citizens of their own countries, there is currently no effective means in the present space law regime by which a country can protect its heritage from other countries.14 Both California and New Mexico have added Tranquility Base to their list of protected heritage sites.15 However, this solution, and those proposed in the bill put forth to the U.S. House of Representatives, only serve to restrict the activities of a small subset of the potential visitors to the Moon. Though the Senate bill calls for the President to initiate negotiations for a binding international agreement, there is still a long road from this bill to a potential agreement.16 A solution is needed to prevent the damage, destruction, loss, or private appropriation of our cultural heritage in space.

### 1AC: Lunar Heritage v3

#### The Advantage is Lunar Heritage:

#### Global Moon Rush by private actors is coming now.

Sample 19 Ian Sample 7-19-2019 “Apollo 11 site should be granted heritage status, says space agency boss” <https://www.theguardian.com/science/2019/jul/19/apollo-11-site-heritage-status-space-agency-moon> (PhD at Queens Mary College)//Elmer

But protecting lunar heritage may not be straightforward. On Earth, the United Nations Educational, Scientific and Cultural Organisation (Unesco) decides what deserves world heritage status from nominations sent by countries that claim ownership of the sites. Different rules apply in space. The UN’s outer space treaty, a keystone of space law, states that all countries are free to explore and use space, but warns it “is not subject to national appropriation by claim of sovereignty”. In other words, space is for all and owned by none. Wörner is not put off and sees no need for troublesome regulations. “My hope is that humanity is smart enough not to go back to this type of earthly protection. Just protect it. That’s enough. Just protect it and have everybody agree,” he said. A no-go zone of 50 metres around Tranquility base should do the job, he added. Martin Rees, the Cambridge cosmologist and astronomer royal, said there was a case for designating the sites so future generations and explorers were aware of their importance. “If there are any artefacts there, they shouldn’t be purloined,” he said. “Probably orbiting spacecraft will provide routine CCTV-style coverage which would prevent this from being done clandestinely.” Beyond the dust-covered hardware that stands motionless on the moon, Lord Rees suspects future activity could drive calls for broader lunar protection. The Apollo 17 astronaut and geologist Harrison Schmidt has advocated strip mining the moon for helium-3, a potential source of energy. The proposal, which Rees suggests has raised eyebrows in the community, could potentially provoke a backlash. “There might be pressure to preserve the more attractive moonscapes against such despoilation, and to try to enforce regulations as in the Antarctic,” he said. Fifty years on from Apollo 11, the moon is still a place to make statements. In January, the Chinese space agency became the first to land a probe on the far side. On Monday, India hopes to launch a robotic probe, the delayed Chandrayaan-2 lander that is bound for the unchartered lunar south pole. Far more is on the cards. Major space agencies, including ESA and Nasa, plan a “lunar gateway”, described by Wörner as a “bus stop to the moon and beyond”. His vision is for a “moon village”, but rather than a sprawl of domes, shops and a cosy pub, it is more an agreement between nations and industry to cooperate on lunar projects. The private sector is eager to be involved. Between now and 2024, at least five companies aim to launch lunar landers. In May, Nasa selected three companies to design, build and operate spacecraft that will ferry scientific experiments and technology packages to the moon. The coming flurry of activity may make protection more urgent. Michelle Hanlon, a space lawyer at the University of Mississippi, co-founded the non-profit organisation For all Moonkind to protect, preserve and memorialise human heritage on the moon. While she conceded that not all of the sites that bear evidence of human activity needed protection, she said many held invaluable scientific and archaeological data that we could not afford to lose. “These sites need to be protected from disruption if only for that reason,” she added. The protection should be far wider, and more formal, than Wörner calls for, Hanlon argues. “It is astounding to me that we wouldn’t protect the site of Luna 2, the very first object humans crashed on to another celestial body, and Luna 9, the very first object humans soft-landed on another celestial body,” she said. The Soviet Luna programme sent robotic craft to the moon between 1959 and 1976. “The director general has a much more optimistic view of human nature than I do,” Hanlon said. “I completely agree that the entities and nations headed back to the moon in the near future will take a commonsense approach and give due regard to the sites and artefacts. However, that is the near future. We have to be prepared for the company or nation that doesn’t care. Or worse, that seeks to return to the moon primarily to pillage for artefacts that will undoubtedly sell for tremendous amounts of money here on Earth.”

#### Corporate development, tourism, and looting will destroy scientifically rich Tranquility base artifacts.

Fessl 19 Sophie Fessl 7-10-2019 “Should the Moon Landing Site Be a National Historic Landmark?” <https://daily.jstor.org/should-the-moon-landing-site-be-a-national-historic-landmark/> (PhD King’s College London, BA Oxford)//Elmer

When Neil Armstrong set foot on the moon on July 20, 1969, the pictures sent to Earth captured a historical moment: It was the first time that any human set foot on another body in our solar system. Fifty years later, experts are debating how to preserve humankind’s first steps beyond Earth. Could a National Park on the moon be the solution to saving Armstrong’s bootprints for future archaeologists? Flags, rovers, laser-reflecting mirrors, footprint—these are just a few of the dozens of artifacts and features that bear witness to our exploration of the moon. Archaeologists argue that these objects are a record to trace the development of humans in space. “Surely, those footprints are as important as those left by hominids at Laetoli, Tanzania, in the story of human development,” the anthropologist P.J. Capelotti wrote in Archaeology. While the oldest then known examples of hominins walking on two feet were cemented in ash 3.6 million years ago, “those at Tranquility Base could be swept away with a casual brush of a space tourist’s hand.” Fragile Traces Just how fragile humankind’s lunar traces are was seen already during Apollo 12. On November 19, 1969, Charles “Pete” Conrad and Alan Bean manually landed their lunar module in the moon’s Ocean of Storms, 200 meters from the unmanned probe Surveyor 3, which was left sitting on the moon’s surface two years earlier, in 1967. The next day, Conrad and Bean hopped to Surveyor 3. As they approached the spacecraft, they were surprised: The spacecraft, originally bright white, had turned light brown. It was covered in a fine layer of moon dust, likely kicked up by their landing. Harsh ultraviolet light has likely bleached the U.S. flag bright white. Without Apollo 12 upsetting the moon dust, Surveyor 3 would likely have remained stark white. Unlike Earth, the moon has no wind that carries away the dust, no rain to corrode materials, and no plate tectonic activity to pull sites on the surface back into the moon. But the moon’s thin atmosphere also means that solar wind particles bombard the lunar surface, and harsh ultraviolet light has likely bleached the U.S. flag bright white. The astronauts’ first bootprints will likely be on the moon for a long time, and will almost certainly still be there when humans next visit—unless, by tragic coincidence, a meteorite hits them first. Had LunaCorp not abandoned the idea in the early 2000s, the company’s plan to send a robot to visit the most famous sites of moon exploration could have done a lot of damage. And with Jeff Bezos’ recent unveiling of a mock-up of the lunar lander Blue Moon, it is only a matter of time before corporate adventurers and space tourists reach the moon. Historians and archaeologists are keen to avoid lunar looting. Roger Launius, senior curator of space history at the National Air and Space Museum in Washington, D.C., warned: “What we don’t want to happen is what happened in Antarctica at Scott’s hut. People took souvenirs, and nothing was done to try to preserve those until fairly late in the game.” On the other hand, there is a legitimate scientific interest in investigating how the equipment that’s on the moon was affected by a decades-long stay there.

#### Private entities are a unique threat---universal rules key.

* Private Key Card – AT: Alt Causes
* AT: Unilat CP
* AT: Adv CP
* AT: Generic DA
* AT: OST DA
* Solvency Advocate

Hertzfeld and Pace 13 (, H. and Pace, S., 2013. International Cooperation on Human Lunar Heritage. [online] Cpb-us-e1.wpmucdn.com. Available at: <https://cpb-us-e1.wpmucdn.com/blogs.gwu.edu/dist/7/314/files/2018/10/Hertzfeld-and-Pace-International-Cooperation-on-Human-Lunar-Heritage-t984sx.pdf> [Accessed 18 January 2022] Dr. Hertzfeld is an expert in the economic, legal, and policy issues of space and advanced technological development. Dr. Hertzfeld holds a B.A. from the University of Pennsylvania, an M.A. from Washington University, and a Ph.D. degree in economics from Temple University. He also holds a J.D. degree from the George Washington University and is a member of the Bar in Pennsylvania and the District of Columbia. Dr. Hertzfeld joined the Space Policy Institute in 1992. His research projects have included studies on the privatization of the Space Shuttle, the economic benefits of NASA R&D expenditures, and the socioeconomic impacts of earth observation technologies. He teaches a course in Space Law and a course in microeconomics through the Economics Department at G.W. Dr. Hertzfeld has served as a Senior Economist and Policy Analyst at both NASA and the National Science Foundation, and has been a consultant to many U.S. and international organizations, including a recent project on space applications with the OECD. He is the co-editor of Space Economics (AIAA 1992). Selected other publications include a study of the issues for privatizing the Space Shuttle (2000), an analysis of the value of information from better weather forecasts, an analysis of sovereignty and property rights published in the Journal of International Law (University of Chicago, 2005), and an economic analysis of the space launch vehicle industry (2005). Dr. Hertzfeld has also edited and prepared a new edition of the Study Guide and Case Book for Managerial Economics (Sixth Edition, W.W. Norton & Co.). Dr. Scott N. Pace is the Deputy Assistant to the President and Executive Secretary of the National Space Council (NSpC). He joined the NSpC in August 2017. From 2008-2017, he was the Director of the Space Policy Institute and a Professor of the Practice of International Affairs at George Washington University’s Elliott School of International Affairs. From 2005-2008, he served as the Associate Administrator for Program Analysis and Evaluation at NASA. Prior to NASA, he was the Assistant Director for Space and Aeronautics in the White House Office of Science and Technology Policy. From 1993-2000, he worked for the RAND Corporation’s Science and Technology Policy Institute, and from 1990-1993, he served as the Deputy Director and Acting Director of the Office of Space Commerce, in the Office of the Deputy Secretary of the Department of Commerce. In 1980, he received a Bachelor of Science degree in Physics from Harvey Mudd College; in 1982, Masters degrees in Aeronautics & Astronautics and Technology & Policy from the Massachusetts Institute of Technology; and in 1989, a Doctorate in Policy Analysis from the RAND Graduate School.)-rahulpenu

International Cooperation on Human Lunar Heritage The U.S. Apollo Space Program was a premier technological accomplishment of the 20th century. Preserving the six historic landing sites of the manned Apollo missions, as well as the mementos and equipment still on the Moon from those and other U.S. (e.g., Ranger and Surveyor) and Soviet Union (e.g., Luna) missions is important. Some of the instruments on the lunar surface are still active, monitored, and provide valuable scientifi c information. But recent government and **private**-**sector** **plans** to explore and potentially use lunar resources for commercial activity raise questions about the use of the Moon and potential accidental or purposeful threats to the historic sites and scientific equipment there. Although some steps to protect these sites have been proposed, we suggest a better way, drawing on international, not U.S. unilateral, recognition for the sites. Less than 2 years before the fi rst footsteps on the lunar surface on 20 July 1969 (see the image) , the United Nations Outer Space Treaty (OST) was drafted, ratifi ed, and came into force ( 1). Article II of the OST reinforced and formalized the international standard that outer space, the Moon, and other celestial bodies would not be subject to claims of sovereignty from any nation by any means, including appropriation. The OST prohibits ownership of territory or its appropriation by any state party to the treaty, which includes the United States, Russia, and 126 other nations. It does not prohibit the use of the Moon and its resources. In fact, the treaty emphasizes the importance of freedom of access to space for any nation and the importance of international cooperation in space exploration. These principles of the space treaties have enabled gains in science and technology and have contributed to international stability in space. New attention is being focused on the lunar surface. China has an active Moon exploration program and is considering sending astronauts (taikonauts) to the Moon. **Private** **firms** are contemplating robotic **missions** that could land in the vicinity of the historical sites of Apollo and other missions. Although we might assume the best of intentions for such missions, they could **irreparably** **disturb** the **traces** **of** the first **human** **visits** to another world. NASA has taken **steps** **to** **protect** the lunar landing **sites** and equipment and to initiate a process to create recognized norms of behavior. In July 2011, guidelines were issued for private companies competing in the Google Lunar X Prize that established detailed requirements for avoiding damage to U.S. government property on the Moon ( 2). H.R. 2617, The Apollo Lunar Landing Legacy Act, was introduced into the U.S. Congress on 8 July 2013 ( 3). In essence, it proposes to designate the Apollo landing sites and U.S. equipment on the Moon as a U.S. National Park with jurisdiction under the auspices of the U.S. Department of the Interior. Although the bill acknowledges treaty obligations of the United States, it would create, in effect, a unilateral U.S. action to control parts of the Moon. This would **create** a **direct** **conflict** **with** **i**nternational **law** and could be viewed as a **violation** **of** U.S. commitments under the **OST**. It would be an ineffective way of protecting historical U.S. sites, and it fails to address interests of other states that have visited and will likely visit the Moon. It is **legally** **flawed**, **unenforceable**, and **contradictory** **to** our national **space** **policy** and our international relations in space ( 4). There is a better way for the United States to protect its historic artifacts and equipment on the Moon. The fi rst step is to clearly distinguish between U.S. artifacts left on the Moon, such as fl ags and scientifi c equipment, and the territory they occupy. The second is to gain international, not unilateral, recognition for the sites upon which they rest. Aside from debris from crash landings (by Japan, India, China, and the European Space Agency), there are only two nations with “soft-landed” equipment on the lunar surface: the United States and Russia. China has plans to soft-land Chang’e 3 on the Moon in December 2013. All three nations (and any others wishing to participate) have much to gain and little or **nothing** **to** **lose** **from** a **multinational** **agreement** based on mutual respect and mutual protection of each other’s historical sites and equipment. Legal Issues Although ownership of planets, the Moon, and celestial bodies is prohibited, ownership of equipment launched into space remains with the nation or entity that launched the equipment, wherever that equipment is in the solar system. Under the OST, that nation is both responsible and liable for any harmful acts that equipment may create in space. There are no prescribed limits on time or the amount of damage a nation may have to pay. The U.S. government therefore still owns equipment it placed on the Moon. Ownership has the associated right of protecting the equipment, subject to using necessary and proportional means for protection. But, because no nation can claim ownership of the territory on which equipment rests, there is an open issue of how to control the spots on the Moon underneath that equipment, because the site is **integral** **to** the **historical** **signifi** **-** **cance**. In H.R. 2617, establishment of Apollo sites as a unit of the U.S. National Park System could be interpreted as a declaration of territorial sovereignty on the Moon, even though ensuing paragraphs specify the Park’s components as the “artifacts on the surface of the Moon” at those sites. This problem needs international legal clarifi cation, achievable via a formal agreement among those nations that have the technological ability to directly access the Moon ( 5). Section 6(a) raises another legal issue. The bill proposes that the Secretary of the Interior shall administer the park in accordance with laws generally applicable to U.S. National Parks. It also requires the Secretary to act in accordance with applicable international law and treaties. The U.S. National Park System Act states that the Parks are “managed for the benefi t and inspiration of all the people of the United States” ( 6). The OST clearly emphasizes that the exploration and use of space by nations is to benefi t all peoples. The laws and space policies of the United States have always emphasized peaceful uses of space and the benefi ts of space for humankind. It may not be possible to implement and execute provisions of this Bill without raising important and fundamental questions about these contradictions between the language of the treaty and the mandates of our National Park Service. A third legal issue is raised in section (6) (c)(2) that allows private donations and cooperative agreements to “provide visitors centers and administrative facilities within reasonable proximity to the Historical Park.” This **implies** **future** **private** **use** of the Moon **under** **rights** **granted** **by** the **U.S.** government. **Unilateral** **granting** **of** lunar territorial **rights** to private individuals and implicit sovereign protection of that territory **violates** the **OST**. Finally, section 8 of the bill requires the Secretary of the Interior to submit the Apollo 11 lunar landing site to the United Nations Educational, Scientifi c, and Cultural Organization (UNESCO) for designation as a World Heritage Site. This violates Article II of the OST. All current World Heritage Sites are located on sovereign territory of nations. The only exception is a separate treaty that allows UNESCO to designate underwater sites (such as sunken ships) as protected cultural sites ( 7). These designations are very limited, and although the convention has been ratifi ed by 43 nations, the United States, Russia, and China are not among them. Thus, any new treaty of this type specifi cally for outer space would have little chance of being ratifi ed by the major space-faring nations. A Proposal to Protect Lunar Sites Although a new U.N. treaty for space artifacts of signifi cant cultural and historic importance may be reasonable someday, this would start a very long process with unknown outcomes. Such a treaty could be delayed to a point beyond the time when nations and/or companies may be active on the Moon ( 8). Our suggested alternative is to create a bilateral agreement between the United States and Russia, offered as a multilateral agreement to other nations with artifacts on the Moon. This would be more legally expedient, politically sustainable, and would more likely meet and exceed the stated goals of the bill. It would also emphasize the important role of national laws to implement and enforce these international space agreements. **Any** **nation** **with** **assets** on the lunar surface will **endeavor** **to** **protect** those assets. This creates a situation where those nations have a **timely**, **current**, and **common** **interest** incorporating important implications for peaceful uses of outer space; **scientific** **research** and the advancement of **knowledge**; and **cultural** **and** **heritage** **value**, either presently or in the foreseeable future. The United States, Russia, and China all engage in multilateral cooperative space programs. They share many economic and trade dependencies adding to the international importance of promoting cooperation in space and commerce. In spite of today’s charged political environment, an **agreement** of the type we propose may still be possible to negotiate because it **focuses** **on** the **culture** **of** **space**, the use of space to benefit humankind, and the **archaeological** **record** of our civilization. It specifi cally would not touch sensitive issues of real property rights, export controls, human rights, or the weaponization of outer space. **Cooperation** on recognizing and protecting each other’s interests in historical sites and on equipment and artifacts also has no signifi cant security, prestige, or technological impediments. It reinforces the basic principles of the existing space treaties, avoids declarations of sovereignity on the Moon, and encourages multilateral cooperation resulting in a more stable and predictable environment for private activities on the Moon. The best mechanism for implementing a new agreement would be direct negotiations at highest levels of government in the United States, Russia, and China, with priority to include Russian sites in a proposal that protects U.S. sites. It could be included in meetings of heads of state of those nations, either jointly or sequentially among the three nations. Such an agreement could be executed in a relatively short period of time, setting precedents for peaceful and coordinated research, exploration, and exploitation of the Moon ( 9). An international agreement on lunar artifacts among the United States, Russia, and China would be a far superior and long-lasting solution than the unilateral U.S. proclamation in H.R. 2617. Enforcement of the agreement would be through each nation’s national laws, applying to those entities subject to the jurisdiction or control of the agreement members. Each nation’s property would be protected and preserved. Other nations should be free to join the agreement, and particularly encouraged to do so if they have the ability to access the Moon. An important result would be to develop a new level of trust among nations that could then lead to more **comprehensive** **future** cooperative agreements on **space**, **science**, **exploration**, **commerce**, **and** the use of the Moon and **other** **celestial** **bodies**.

#### Heritage Sites are critical for science research around Dust.

OSTP 18 Office of Science and Technology Policy March 2018 “PROTECTING & PRESERVING APOLLO PROGRAM LUNAR LANDING SITES & ARTIFACTS” (The Office of Science and Technology Policy is a department of the United States government, part of the Executive Office of the President, established by United States Congress on May 11, 1976, with a broad mandate to advise the President on the effects of science and technology on domestic and international affairs.)//Elmer

The Moon continues to hold great significance around the world. The successes of the Apollo missions still represent a profound human technological achievement almost 50 years later and continue to symbolize the pride of the only nation to send humans to an extraterrestrial body. The Apollo missions reflect the depth and scope of human imagination and the desire to push the boundaries of humankind’s existence. The Apollo landing sites and the accomplishments of our early space explorers energized our Nation's technological prowess, inspired generations of students, and greatly contributed to the worldwide scientific understanding of the Moon and our Solar System. Additionally, other countries have placed hardware on the Moon which undoubtedly has similar historic, cultural, and scientific value to their country and to humanity. Three Apollo sites remain scientifically active and all the landing sites provide the opportunity to learn about the changes associated with long-term exposure of human-created systems in the harsh lunar environment. These sites offer rich opportunities for biological, physical, and material sciences. Future visits to the Moon’s surface offer opportunities to study the effects of long-term exposure to the lunar environment on materials and articles, including food left behind, paint, nylon, rubber, and metals. Currently, very little data exist that describe what effect temperature extremes, lunar dust, micrometeoroids, solar radiation, etc. have on such man-made material, and no data exist for time frames approaching the five decades that have elapsed since the Apollo missions. While some of the hardware on the Moon was designed to remain operational for extended periods and successfully telemetered scientific data back to the Earth, much of what is there was designed only for use during the Apollo mission and then abandoned with no expectation of further survivability. How these artifacts and their constituent materials have survived and been altered while on the lunar surface is of great interest to engineers and scientists. The Apollo artifacts and the impact sites have the potential to provide unprecedented data if lunar missions to gather and not corrupt the data are developed. These data will be invaluable for helping to design future long-duration systems for operation on the lunar surface. NASA has formally evaluated the possible effects of the lunar environment and identified potential science opportunities. For example, using Apollo 15 as a representative landing site, the crew left 189 individually cataloged items on the lunar surface, including the descent stage of the Lunar Module, the Lunar Roving Vehicle, the Apollo Lunar Surface Experiments Package, and a wide variety of miscellaneous items that were offloaded by the astronauts to save weight prior to departure. The locations of many of these items are well documented, and numerous photographs are available to establish their appearance and condition at the time they were left behind.

#### Moon Dust Research key to Moon Basing.

Smith 19 Belinda Smith 7-18-2019 “Who protects Apollo sites when no-one owns the Moon?” <https://www.abc.net.au/news/science/2019-07-19/apollo-11-moon-landing-heritage-preservation-outer-space-treaty/11055458> (Strategic Communications Advisor at Department of Education and Training at University of Victoria)//Elmer

It's not just about history Alongside heritage value, the bits and pieces left on the Moon have enormous scientific significance. Take moon dust. It's a real problem for moon-bound equipment because it's made of fine, super sticky and highly abrasive grains, which have a habit of clogging instruments and spacesuits. But as Armstrong and Aldrin trotted across the surface, the footprints they left behind gave us valuable information into the properties of moon dust, Flinders University space archaeologist Alice Gorman said. "The ridges on the boots were meant to measure how far they sank into the dust. "Then they used the light contrast between the ridges to measure the reflectance properties of the dust." A boot print in grey dust. This iconic photo of Buzz Aldrin's footprint is also a science experiment. (Supplied: NASA) It's data like this that will help if we want a long-term base on the Moon — we need to know how our gear will stand up to lunar conditions. Apart from the sticky, gritty dust, the lunar surface is also peppered with meteorites and cosmic rays. So, Dr Gorman said, one of the very few reasons to revisit a moon site is to collect some of the equipment left behind and see how it fared. "What has happened to this material in 50 years of sitting on the lunar surface? "This is going to be really interesting scientific information because it will help planning for future missions and get an understanding of long-term conditions." And NASA has already done this. The Apollo 12 mission, which landed on the Moon four months after Apollo 11, collected parts from the 1967 Surveyor probe and brought them back to Earth. An astronaut standing next to a piece of equipment on the lunar surface Along with rocks and soil samples, Apollo 12 astronauts collected pieces of the Surveyor 3 probe for analysis back on Earth. (Supplied: NASA) Another reason to preserve the equipment left on the Moon is to prove we really went there, Professor Capelotti said. "There's a lot of people out there who still don't believe it happened. "The stuff on the Moon is a testament to what we did and when we did it."

#### Scenario 1 – Warming:

#### Lunar observatory solves warming adaptation.

Ding et al. 17 (, Y., Liu, G. and Guo, H., 2017. Moon-based Earth observation: scientific concept and potential applications. [online] Volume 11, 2018. Available at: <https://www.tandfonline.com/doi/full/10.1080/17538947.2017.1356879> [Accessed 22 January 2022] Yixing Ding - Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, People’s Republic of China Guang Liu - Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, People’s Republic of China Huadong Guo - Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, People’s Republic of China.)-rahulpenu

4. Scientific goal of moon-based earth observation A basic question for moon-based Earth observation is, ‘What to see?’ According to the characteristics of moon-based Earth observation, the phenomena suitable for Moon-based Earth observation may have at least one of the following features: long-lasting, related to Sun–Earth–Moon motion, requires stable baseline observation, large-scale and describes multiple parameters. In the following sections, we will present several observation objectives to discuss in detail. 4.1. Solid earth dynamics Solid Earth tides, continental plate movement and glacier isostatic adjustment (GIA) are three typical large-scale solid Earth movements (Jiang et al. 2016), the measurement of which is a basic task of geodesy. For a uniform layered Earth, accurately predicting tidal movement can be done theoretically, but complex ocean tides and the inelasticity and heterogeneity of Earth’s interior material make the solid tide of the real Earth difficult to research theoretically. For GIA studies, prior knowledge about ancient ice cover evolution and a large amount of observational data are needed. Plate tectonics theory is a quantitative description of Earth plate movement (Ni et al. 2016). It may well explain the movement of most oceanic plates, but still have some problems to explain the mechanism of strong continental earthquakes, large-scale continental deformation, as well as the movements of other oceanic plates (Bird 2003). Accurately **measuring** solid **Earth** **dynamics** is **beneficial** **to** **understanding** solid Earth **tides**, **continental** **plate** **movement** and **GIA**, and provides further support for geodynamics and seismology. Devices such as a superconducting gravimeter and global navigation satellite system are currently used to measure small deformations of solid Earth, but these point-by-point methods are spatially limited to certain regions. Spaceborne InSAR measures deformation continuously, but the swath is not wide enough for mapping large-scale solid Earth movement. The Moon is a vast and stable platform that can provide sufficiently long and stable baseline interferometry. Its movement is easier to predict and the time interval of repeat-pass interferometry could be reduced to one day (Fornaro et al. 2010). In addition, the Moon is one of the main sources of tides on the Earth; so if we compare two measurements at different times, the lunar tide portion can be subtracted, leaving only the solar tide portion. After proper processing, it may help us learn more about the interior structure of Earth’s crust. To measure the large-scale deformation, a Moon-based repeat-pass InSAR system needs to be carefully designed. Except for the general SAR parameters, the critical baseline is a key factor that impacts its performance. The critical baseline Bc leading to a complete spatial decorrelation is given by Bc = BlDem tan ui c . (7) In this equation, the incidence angle ui is related to the observational geometry, while l and B are optional. When the bandwidth is 100 MHz and the incidence angle is 25°, the critical baselines are 14,000, 3300 and 1770 km at the L-band, C-band and X-band, respectively. In order to keep the correlation between two repeat passes, a practical baseline must be smaller than Bc. Therefore, from a practical point of view, the L-band is better than the C-band or X-band. Figure 4 shows the simulation results of one-day interval interferometry, but the side-looking constraints are not involved. In this case, the temporal decorrelation is highly reduced. It is obvious that the interferometric area is larger in the L-band than in X-band. Meanwhile, when the declination of the Moon is near the extremes, the interferometric area becomes larger. When the declination of the Moon is near the equatorial plane, one-day interval repeat-pass interferometry is not feasible, but a half month or one month interval repeat-pass interferometry is available. The magnitude of the solid Earth motion is not large. For example, the typical solid Earth tide amplitude is dozens of centimetres in one day. A resolution of hundreds of metres or even coarser will be enough if the wave is stably scattered. 4.2. Energy budget of earth Fundamentally, **climate** **change** **depends** **on** Earth’s **radiation** **balance**. **Observation** **of** both the solar **radiation** **and** Earth’s **reflection** and emission will **depend** **on** **accurate** **measurement** with space technology. Since the late 1970s, the United States and Europe have launched a number of missions to measure solar and terrestrial radiation, such as NASA’s Active Cavity Radiometer Irradiance Monitor Series programme (ACRIM1, 1980–1989; ACRIM2, 1991–2001; ACRIM3, 2000–present), Earth Radiation Budget Experiment (ERBE, 1984–1994), Clouds and Earth’s Radiant Energy System (CERES, 1997–present), Solar Radiation and Climate Experiment (SORCE, 2003–present) and the French Megha-Tropiques satellite on the Scanner for Radiation Budget (ScaRaB, 2011–present). These missions have greatly improved our understanding of Earth’s energy system. The Deep Space Climate Observatory (DSCOVR), placed at the earth–Sun first Lagrangian point, has been designed to measure the outgoing radiation of the sunlit Earth disk with a constant look angle. But in the outgoing radiation, the reflected shortwave **radiation** is **highly** **affected** **by** **albedo** **and** **atmospheric** **conditions**, showing obvious anisotropy. **Lack** **of** **sampling** in space and time is **vulnerable** **to** **uncertainties**. The **lunar** **observatory** **provides** **large**-**scale** **observation** **with** continuously **changing** **angles**, enabling it to calibrate the **data** of satellites in different orbits at different times. Its most important property is that it can provide a **very** **long**-**term** time series from a single orbit platform. In a year, the time series covers all local times, all seasons (different weather pattern) and all Earth phases for all underlying surfaces (Pallé and Goode 2009; Karalidi et al. 2012). The diversity of the **surface**-**weatherphase** combination is beneficial to improving the quality of global energy budget data and to the study of regional energy redistribution and its multi-layer coupling effects. The Moon-based data will also provide a direct connection between the data from space technology and the data from ground-based earthshine measurement series, which span almost one hundred years. The system design can consult the DSCOVR satellite, a radiometer measuring irradiance of the Earth phase and an imaging camera taking images of the Earth phase for various Earth sciences purposes. In order to take into account the needs of observing the Earth’s environmental elements, 1 km spatial resolution and 20–30 channels of the camera are suggested. 4.3. Earth’s environmental elements Vegetation is an important part of the global carbon pool and a key element of global carbon cycle. Most vegetation is distributed in middle- and low-latitude regions. A Moon-based optical camera can image global **vegetation** almost every day. SAR maps not only the horizontal distribution of vegetation, but also extracts forest morphological structure through tomography. The Moon provides multi-baseline **accessibility** within a single pass to eliminate the tomographic temporal decorrelation, but the imaging temporal decorrelation within a long synthetic aperture time hampers the focusing of forest. Therefore, to validate the feasibility of Moon-based **3D** **mapping** of forest, more imaging methods for unstable scatterer, for example, the time reversal imaging method (Jin and Moura 2007), need to be tested and new methods are also expected. Glaciers are sensitive variables of climate change. The monitoring of glacier area, surface velocity and mass balance plays an important role in understanding the status of glaciers and their response to global change. Remote sensing techniques, such as optical sensors, SAR and altimeter data, provide regular observations of key glacial parameters. A lunar platform would provide continuous three- or four-day temporal coverage per month at the polar regions, but the observation incidence angle would typically be larger than 40° (see Figure 5) due to the relatively small inclination angle of the lunar orbit. For the High Asia area, the average coverage is about 4 h per day with proper incidence angle. The challenges may be the cost of high-resolution mapping for the optical sensor, and the layover problem (Tilley and Bonwit 1989) in heavy gradient area for SAR. Moon-based altimetry faces the same problems as LiDAR mentioned before, and is not recommended. An **atmospheric** **observatory** on the Moon can be used to evaluate the cloud fraction in an unambiguous manner, **determine** the **composition** in terms **of** the major **trace** **gas** and aerosols (Hamill 2016), and shed light on the relationship between lunar phases and **cloudiness** or **precipitation**. Particularly, the Moon offers a good place for **occultation** observation, which means observing the light or microwave changes emitted by stars or satellites when they are obstructed by atmosphere around the Earth. The Global Ozone Monitoring by Occultation of Stars (GOMOS) instrument on board the Envisat satellite is a typical system using the stellar occultation measurement principle in monitoring ozone and other trace gases in Earth’s stratosphere (Kyrola et al. 2004). Moon-based occultation was proposed in Link (1969), and was considered promising in Moon-based Earth atmosphere monitoring (Hamill 2007, 2016; Guo et al. 2014). The advantage of Moon-based occultation is that a star descends several times slower through the atmosphere than when viewed from a LEO satellite. This helps by increasing the SNR and resolution to some extent, but the practical performance also relies on the system design and the probability of finding an appropriate occultation geometry. 4.4. Earth-space environment Observing the environment of outer space surrounding Earth requires much larger FOV than only observing the solid Earth. The Moon is an ideal place to monitor the interaction between the solar wind and the magnetosphere. Moon-based observation combined with high near-polar Earth orbit or Molniya orbit observations can help us construct the three-dimensional structure of the magnetosphere by X-ray and EUV remote imaging. Images in all meridian planes of the whole plasma layer have already been captured by the EUV camera on the Chang’e 3 lander. Some initial results reflect the basic features of the plasmasphere, and also verified the accessibility of high-quality data of magnetosphere from the Moon (Feng et al. 2014). 5. Conclusion In this paper, we propose the Moon as a platform for Earth observation with long-term, dynamic capabilities, mainly focusing on large-scale geoscience phenomena. The characteristics of a lunar platform, the sensors and the scientific objectives of Moon-based Earth observation are discussed in detail. A lunar platform could observe Earth in quite a different way, and give a long-lasting disk view, a stable baseline and a unique perspective. The proposed sensors include some optical sensors and SAR. LiDAR, altimeters and scatterometers may not be functional on the lunar surface mainly because of the long viewing distance, and Moon-based radiometers may not be necessary if spaceborne radiometers are effective enough. Though the cost is not discussed in this paper, a Moon-based SAR would be extremely expensive and face too many specific technical difficulties to be implemented at the present time. On the contrary, passive optical sensors, such as spectrographs and panchromatic cameras, are much easier to realize. The scientific objectives of Moon-based Earth observation include measuring solid Earth dynamics and the global energy budget, and monitoring Earth’s environment and the surrounding environment of outer space. Moon-based Earth observation will be effective in measuring solid Earth tides, detecting outgoing radiation, and monitoring the magnetosphere and some of Earth’s environmental elements. Finally, we suggest that numerical simulations are indispensable to validate the proposals and to address specific problems.

#### Moon Base is the only option and outweighs Satellites.

Ding et al. 17 (, Y., Liu, G. and Guo, H., 2017. Moon-based Earth observation: scientific concept and potential applications. [online] Volume 11, 2018. Available at: <https://www.tandfonline.com/doi/full/10.1080/17538947.2017.1356879> [Accessed 22 January 2022] Yixing Ding - Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, People’s Republic of China Guang Liu - Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, People’s Republic of China Huadong Guo - Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, People’s Republic of China.)

There are several characteristics of Moon-based Earth observation as listed below. (1) Longevity The life cycle of artificial satellites is generally several years, while the Moon has already existed for billions of years, and will not go extinct in the foreseeable future. It is a longstanding, essentially permanent platform. The revisit cycle is quite different from LEO satellite. Except for the polar regions, the revisit period is one day, the same as Earth’s rotation period. The revisit period in the same geometric condition is one month, the same as the moon’s revolution period. The temporal sampling of the lunar platform is not systematically biased. It covers all local times in a month and all seasons in a year. This will be very useful for long-term time series analysis in climate change research. Furthermore, the lunar platform can also provide time series data to calibrate the remote sensing data from other platforms. (2) Integrity The whole Earth disk facing the Moon, both the sunlit portion and dark portion, is always observable from the near side of the Moon, with a field angle of only about 2°. This allows an observer on the Moon to view the whole Earth disk at any given time and Earth’s entire surface in a day, both in dark and sunlit conditions. (3) Stability Studies show that the lunar crust lacks plate tectonics; so the quantity and degree of moonquake activities are much less than earthquakes (Jaumann et al. 2012). Compared to satellite platforms, the Moon has vast spaces on which to install a set of sensors to form a long, stable baseline of large observational networks for precise measurement. Moon also moves stably, which enables repeat-pass interferometry. (4) Uniqueness Moon exerts influences on precipitation, ice nuclei concentrations, diurnal pressure changes, hurricanes, cloudiness, thunderstorm and surface temperature (Balling and Cerveny 1995). The tidal force of the Moon is also considered as a trigger of earthquakes (Cochran et al. 2004) and a resource generating internal waves (Simmons et al. 2004). For those Moon-related terrestrial phenomena, the lunar platform provides such a unique perspective that any place on the Earth can be continuously monitored at different Moon–Earth phase angles each day. A Moon-based sensor can dynamically trace the whole process covering their occurrence, development and dissipation. It will help the understanding of the relationship between the tidal phases and the evolution of the phenomena. 3. Sensors for moon-based earth observation For most of the history of lunar exploration, the United States, China and Japan have been taking a few pictures of Earth with cameras both on the lunar surface and in lunar orbit. This proved that it is possible to observe Earth utilizing Moon-based optical sensors. However, except for observing Earth’s magnetosphere, these photos had no specific scientific objective. Few works about the sensors for Moon-based Earth observation have been published by previous missions. So, in this section we discuss the feasibility and the key parameters of various traditional remote sensors, including both the optical sensors and the microwave sensors. 3.1. Optical sensors for moon-based earth observation One important parameter of most remote sensing systems is the spatial resolution. The detection range of Moon-based optical sensors is much further than spaceborne sensors. The diffraction limited resolution of optical sensors r is given by = 1.22lR/d, (1) where l is the wavelength, d the telescopic aperture and R the distance from the sensor to the target. In the visible band, the limiting resolution is 0.17–0.36 km, when d is 1 m. In short, if the telescopic aperture is 0.5 m, the spatial resolution can be less than 1 km in the visible band and several kilometres in the near-infrared and thermal infrared bands, which satisfies the needs of climatologic models and global mapping for oceans, clouds and land use (Ding, Guo and Liu 2014). LiDAR is an example of an active sensor. To place a LiDAR on the Moon, many technological challenges must be taken into consideration, such as the echo power, the size of the laser beam on earth’s surface and the coverage performance. If the scattering solid angle of a homogeneous scatterer is p, the received power of this system falls within the square of the distance from LiDAR to scatterer R (Wagner et al. 2006): Pr = PtrD2 r 4R2 , (2) where the received power and transmitted power is Pr and Pt, Dr the receiving aperture and r the reflectivity. The power needed for Moon-based LiDAR would be a hundred thousand times greater than that of satellite-based LiDAR, which is at the megawatt level. The footprint of the laser beam on Earth’s surface is proportional to the laser divergence angle. Under a divergence of 0.1 m/rad, the beam of Moon-based LiDAR would be 36–40 km, two orders of magnitude larger than the beam width of spaceborne LiDAR. Such a large beam would stretch the length of the echo signal and complicate its waveform, and will lead to a difficulty to determine the exact echo position of the target in measuring the altitude of sea surface and the thickness of vegetation.

#### Adaptation solves Climate Change’s worst effects – it’s the Silver Bullet.

Rood and Gibbons 21 Richard B. Rood and Elizabeth Gibbons 9-11-2021 "After a summer of weather horrors, adapting to climate change is an imperative" <https://archive.is/VKac8#selection-391.0-413.1> (Richard B. (Ricky) Rood is a professor of climate and space sciences and engineering at the University of Michigan. Elizabeth (Beth) Gibbons is executive director of the American Society of Adaptation Professionals.)//Elmer

This summer, the extraordinary heat in the Pacific Northwest, floods across the Northern Hemisphere and Hurricane Ida’s swath across the country have awakened more people to the dangers of climate change. As professionals working on climate change, we receive many requests for comments and interviews. More telling, perhaps, have been panic-tinged personal letters from family and friends as well as colleagues working in the field awakening to the real-world consequences of our warming climate. Public messaging on climate change is dominated by the discussion of reducing carbon dioxide emissions to limit the warming and to stop the “worst effects” of climate change. This is the mitigation of global warming. Headlines range from declarations of climate despair to the measured voices of those who insist that there is still the time and wherewithal to limit warming to the goals aspired to by the United Nations. Amid this cacophony of mitigation panic and sought-after patience is another discussion that has been going on for more than a decade. Namely, that we are not likely to meet emission-reduction goals such as those of the Paris agreement. This is complemented by the fact that we live in a rapidly changing climate, rapid change will continue, and we are not going back to the climate of our childhoods. When we consider how we will address our climate future, it is worth considering our past behavior and choices. We have had the ability and the roadmap to make major strides in reducing carbon dioxide emissions and mitigating climate change for many years. In many cases, these mitigation tactics are “no regrets,” with very quick monetary payback for expenditures — the insulation of houses and choosing fuel-efficient vehicles, for example. Yet we have not taken these steps at the scales that are required for effective intervention. Mitigation is one response, but adaptation can be framed as the other response. Adaptation is responding to the effects of warming or perhaps coping with the consequences of the warming Earth. With the public conversation focusing overwhelmingly on mitigation, adaptation has been a neglected topic. Compared with mitigation, adaptation is relatively easy. Effective mitigation requires changing human behavior, ingrained geopolitical and economic power structures, and built infrastructure on a global scale. It requires convincing people to invest for the common good of other people, often decades into the future. At its simplest, adaptation can be carried out by an individual. You can sell the house next to the ocean and move to northern Michigan. You can reinforce your roof and put your oceanside house on stilts. There is a concrete value proposition. Although adaptation can be carried out by individuals, it is better and certainly more equitable to plan on the larger scales of a community, a city or a region. As the geographical scale increases and more individuals, organizations and local governments are involved, it does get more difficult. However, the threats to life, property and the local environment often serve as motivation to challenge the barriers of cooperation and shared beneficial outcomes. For example, a region threatened by rising seas is motivated to come together to find solution strategies. Indeed such efforts are underway, for example, in the Southeast Florida climate compact, the Puget Sound climate collaborative, and efforts across Southeast Virginia’s Hampton Roads region. When a region successfully implements adaptation plans, communities are likely to have wins when the next storm is not as destructive and costly. These wins help people cope with global warming and realize some ability to take control of what has been often stated as an existential threat. There have been those calling for adaptation policy for many years. However, it has been difficult to get adaptation on the policy agenda. This is ascribed to many reasons, including the persistent, spurious argument that if we talk of adaptation, then we will decide that we do not need to mitigate our emissions. However, we are at the point that, even if we were to meet all of the emission reduction goals of the United Nations’ Paris agreement, adaptation will still be required. In the end, the most important aspect of adaptation is fundamentally human. If individuals and communities can see adaptation as a way of sustaining their well-being in the face of rapidly changing weather, then it is a step of moving past the narrative that we must, between now and 2030, solve an existential threat to our survival. We can see successful adaptation strategies spreading, scaling, and bringing planetary warming into the mind-set and the behavior of more and more people. We must entrain dealing with the weather of a warming Earth into all that we do. And that, we assert, will make the need for mitigation more real and urgent.

#### Missing Data holds back Adaptation efforts.

Barrios et Al 18, Alonso, Guillermo Trincado, and René Garreaud. "Alternative approaches for estimating missing climate data: application to monthly precipitation records in South-Central Chile." Forest Ecosystems 5.1 (2018): 1-10. (Graduate School, Faculty of Forest Sciences and Natural Resources)

The effects of climate on natural resources have become highly relevant (Cannell et al. 1995). In forestry, there is an increasing interest to study the influence of climate on forest productivity (Álvarez et al. 2013), forest hydrology (Dai et al. 2011), soil water availability (Ge et al. 2013), and wood quality (Xu et al. 2013). Nowadays, climate data are also required for parameterizing process-based simulators of tree growth (Sands and Landsberg 2002) and for studying forest water balance (Huber and Trecaman 2002), phenology processes (Caveside et al. 2005) and to carry out pest and disease research (Ahumada et al. 2013). To perform these studies, complete and homogenous climate data that covers a sufficiently long period of time is required (Teegavarapu 2012; Khosravi et al. 2015). Climate data often have missing information that limits their use (Alfaro and Pacheco 2000). Missing values in climate series affects parameter estimation when applying regression and multivariate analysis techniques (Ramos-Calzado et al. 2008). In most cases, some techniques must be applied to estimate missing data. In forestry, there are few studies that have compared the accuracy of different approaches. Furthermore, factors that might affect their precision have not been studied in detail. The simplest approach for imputing missing values involves the data being filled-in. The main limitation is that these approaches are suitable for small gaps and can only be applied to climate variables with a high degree of autocorrelation (Khosravi et al. 2015), which is not the case for annual mean temperatures or precipitation values. A more common approach to complete missing data is to use information from neighboring meteorological stations (Vasiliev 1996), using techniques such as inverse distance weighting (IDW). Nonetheless, horizontal distance is not a measure of spatial autocorrelation (e.g., Ahrens 2006; Ramos-Calzado et al. 2008), especially when the region contains prominent topographic features or major water bodies. Indeed, two relatively close stations can feature substantial differences in their mean climate and climate variability if they are located at opposite sides of a mountain range. Spatial correlations could be quantified by calculating the correlation coefficient between time series obtained at different locations. Teegavarapu and Chandramouli (2005) found that replacing distances with correlation coefficients as weights improved estimation of missing precipitation data. The resulting method is known as a coefficient of correlation weighting (CCW), reported by Teegavarapu (2009).

#### Prevents extinction.

Sears 21 (, N., 2021. Great Powers, Polarity, and Existential Threats to Humanity: An Analysis of the Distribution of the Forces of Total Destruction in International Security. [online] ResearchGate. Available at: <https://www.researchgate.net/publication/350500094> [Accessed 22 November 2021] Nathan Alexander Sears is a PhD Candidate in Political Science at The University of Toronto. Before beginning his PhD, he was a Professor of International Relations at the Universidad de Las Américas, Quito. His research focuses on international security and the existential threats to humanity posed by nuclear weapons, climate change, biotechnology, and artificial intelligence. His PhD dissertation is entitled, “International Politics in the Age of Existential Threats”)-re-cut rahulpenu

Climate Change Humanity faces existential risks from the large-scale destruction of Earth’s natural environment making the planet less hospitable for humankind (Wallace-Wells 2019). The decline of some of Earth’s natural systems may already exceed the “planetary boundaries” that represent a “safe operating space for humanity” (Rockstrom et al. 2009). Humanity has become one of the driving forces behind Earth’s climate system (Crutzen 2002). The major anthropogenic drivers of climate change are the burning of fossil fuels (e.g., coal, oil, and gas), combined with the degradation of Earth’s natural systems for absorbing carbon dioxide, such as deforestation for agriculture (e.g., livestock and monocultures) and resource extraction (e.g., mining and oil), and the warming of the oceans (Kump et al. 2003). While humanity has influenced Earth’s climate since at least the Industrial Revolution, the dramatic increase in greenhouse gas emissions since the mid-twentieth century—the “Great Acceleration” (Steffen et al. 2007; 2015; McNeill & Engelke 2016)— is responsible for contemporary climate change, which has reached approximately 1°C above preindustrial levels (IPCC 2018). Climate change could become an existential threat to humanity if the planet’s climate reaches a “Hothouse Earth” state (Ripple et al. 2020). What are the dangers? There are two mechanisms of climate change that threaten humankind. The direct threat is extreme heat. While human societies possesses some capacity for adaptation and resilience to climate change, the physiological response of humans to heat stress imposes physical limits—with a hard limit at roughly 35°C wet-bulb temperature (Sherwood et al. 2010). A rise in global average temperatures by 3–4°C would increase the risk of heat stress, while 7°C could render some regions uninhabitable, and 11–12°C would leave much of the planet too hot for human habitation (Sherwood et al. 2010). The indirect effects of climate change could include, inter alia, rising sea levels affecting coastal regions (e.g., Miami and Shanghai), or even swallowing entire countries (e.g., Bangladesh and the Maldives); extreme and unpredictable weather and natural disasters (e.g., hurricanes and forest fires); environmental pressures on water and food scarcity (e.g., droughts from less-dispersed rainfall, and lower wheat-yields at higher temperatures); the possible inception of new bacteria and viruses; and, of course, large-scale human migration (World Bank 2012; Wallace-Well 2019; Richards, Lupton & Allywood 2001). While it is difficult to determine the existential implications of extreme environmental conditions, there are historic precedents for the collapse of human societies under environmental pressures (Diamond 2005). Earth’s “big five” mass extinction events have been linked to dramatic shifts in Earth’s climate (Ward 2008; Payne & Clapham 2012; Kolbert 2014; Brannen 2017), and a Hothouse Earth climate would represent terra incognita for humanity. Thus, the assumption here is that a Hothouse Earth climate could pose an existential threat to the habitability of the planet for humanity (Steffen et al. 2018., 5). At what point could climate change cross the threshold of an existential threat to humankind? The complexity of Earth’s natural systems makes it extremely difficult to give a precise figure (Rockstrom et al. 2009; ). However, much of the concern about climate change is over the danger of crossing “tipping points,” whereby positive feedback loops in Earth’s climate system could lead to potentially irreversible and self-reinforcing “runaway” climate change. For example, the melting of Arctic “permafrost” could produce additional warming, as glacial retreat reduces the refractory effect of the ice and releases huge quantities of methane currently trapped beneath it. A recent study suggests that a “planetary threshold” could exist at global average temperature of 2°C above preindustrial levels (Steffen et al. 2018; also IPCC 2018). Therefore, the analysis here takes the 2°C rise in global average temperatures as representing the lower-boundary of an existential threat to humanity, with higher temperatures increasing the risk of runaway climate change leading to a Hothouse Earth. The Paris Agreement on Climate Change set the goal of limiting the increase in global average temperatures to “well below” 2°C and to pursue efforts to limit the increase to 1.5°C. If the Paris Agreement goals are met, then nations would likely keep climate change below the threshold of an existential threat to humanity. According to Climate Action Tracker (2020), however, current policies of states are expected to produce global average temperatures of 2.9°C above preindustrial levels by 2100 (range between +2.1 and +3.9°C), while if states succeed in meeting their pledges and targets, global average temperatures are still projected to increase by 2.6°C (range between +2.1 and +3.3°C). Thus, while the Paris Agreements sets a goal 6 that would reduce the existential risk of climate change, the actual policies of states could easily cross the threshold that would constitute an existential threat to humanity (CAT 2020).

### Framing

#### The standard is maximizing expected wellbeing.

#### 1– No intent-foresight distinction – if I foresee a consequence, then it becomes part of my deliberation since its intrinsic to my action

#### 2 – Actor spec – governments lack wills or intentions and inevitably deals with tradeoffs – outweighs because agents have differing obligations.

#### Extinction is a distinct phenomenon that requires prior consideration

**Burke et al 16** Associate Professor of International and Political Studies @ UNSW, Australia, 2016 (Anthony, Stefanie Fishel is Assistant Professor, Department of Gender and Race Studies at the University of Alabama, Audra Mitchell is CIGI Chair in Global Governance and Ethics at the Balsillie School of International Affairs, Simon Dalby is CIGI Chair in the Political Economy of Climate Change at the Balsillie School of International Affairs, and, Daniel J. Levine is Assistant Professor of Political Science at the University of Alabama, “Planet Politics: Manifesto from the End of IR,” Millennium: Journal of International Studies 1–25)

8. Global ethics must respond to mass extinction. In late 2014, the Worldwide Fund for Nature reported a startling statistic: according to their global study, 52% of species had gone extinct between 1970 and 2010.60 This is not news: for three decades, conservation biologists have been warning of a ‘sixth mass extinction’, which, by definition, could eliminate more than three quarters of currently existing life forms in just a few centuries.61 In other words, it could threaten the practical possibility of the survival of earthly life. Mass extinction is not simply extinction (or death) writ large: **it is a qualitatively different phenomena that demands its own ethical categories.** It cannot be grasped by aggregating species extinctions, let alone the deaths of individual organisms. Not only does it erase diverse, irreplaceable life forms, their **unique histories** and **open-ended possibilities**, but it **threatens the ontological conditions of Earthly life**.

IR is one of few disciplines that is explicitly devoted to the pursuit of survival, yet it has almost nothing to say in the face of a possible mass extinction event.62 It utterly lacks the conceptual and ethical frameworks necessary to foster diverse, meaningful responses to this phenomenon. As mentioned above, Cold-War era concepts such as ‘nuclear winter’ and ‘omnicide’ gesture towards harms massive in their scale and moral horror. However, they are asymptotic: they imagine nightmares of a severely denuded planet, yet they do not contemplate the **comprehensive negation** that a mass extinction event entails. In contemporary IR discourses, where it appears at all, extinction is treated as a problem of scientific management and biopolitical control aimed at securing existing human lifestyles.63 Once again, this approach fails to recognise the reality of extinction, which is a **matter of being and nonbeing**, not one of life and death processes.

Confronting the enormity of a possible mass extinction event requires a total overhaul of human perceptions of what is at stake in the disruption of the conditions of Earthly life. The question of what is ‘lost’ in extinction has, since the inception of the concept of ‘conservation’, been addressed in terms of financial cost and economic liabilities.64 Beyond reducing life to forms to capital, currencies and financial instruments, the dominant neoliberal political economy of conservation imposes a homogenising, Western secular worldview on a planetary phenomenon. Yet the **enormity, complexity, and scale** of mass extinction is so huge that humans need to **draw on every possible resource in order to find ways of responding**. This means that they need to mobilise multiple worldviews and lifeways – including those emerging from indigenous and marginalised cosmologies. Above all, it is crucial and urgent to realise that extinction is a **matter of global ethics**. It is not simply an issue of management or security, or even of particular visions of the good life. Instead, it is about staking a claim as to the goodness of life itself. If it does not fit within the existing parameters of global ethics, then it is these boundaries that need to change.

9. An Earth-worldly politics. Humans are worldly – that is, we are fundamentally worldforming and embedded in multiple worlds that traverse the Earth. However, the Earth is not ‘our’ world, as the grand theories of IR, and some accounts of the Anthropocene have it – an object and possession to be appropriated, circumnavigated, instrumentalised and englobed.65 Rather, it is a complex of worlds that we share, co-constitute, create, destroy and inhabit with countless other life forms and beings.

The formation of the Anthropocene reflects a particular type of worlding, one in which the Earth is treated as raw material for the creation of a world tailored to human needs. Heidegger famously framed ‘earth’ and ‘world’ as two countervailing, conflicting forces that constrain and shape one another. We contend that existing political, economic and social conditions have pushed human worlding so far to one extreme that it has become almost entirely detached from the conditions of the Earth. Planet Politics calls, instead, for a mode of worlding that is responsive to, and grounded in, the Earth. One of these ways of being Earth-worldly is to embrace the condition of being entangled. We can interpret this term in the way that Heidegger66 did, as the condition of being mired in everyday human concerns, worries, and anxiety, to prolong existence. But, in contrast, we can and should reframe it as authors like Karen Barad67 and Donna Haraway68 have done. To them and many others, ‘entanglement’ is a radical, indeed fundamental condition of being-with, or, as Jean-Luc Nancy puts it, ‘being singular plural’.69 This means that no being is truly autonomous or separate, whether at the scale of international politics or of quantum physics. World itself is singular plural: what humans tend to refer to as ‘the’ world is actually a multiplicity of worlds at various scales that intersect, overlap, conflict, emerge as they surge across the Earth. World emerges from the poetics of existence, the collision of energy and matter, the tumult of agencies, the fusion and diffusion of bonds.

Worlds erupt from, and consist in, the intersection of **diverse forms of being** – material and intangible, organic and inorganic, ‘living’ and ‘nonliving’. Because of the tumultuousness of the Earth with which they are entangled, ‘**worlds’ are not static, rigid or permanent. They are permeable and fluid**. They can be **created**, **modified** – and, of course, destroyed. Concepts of violence, harm and (in)security that focus only on humans ignore at their peril the destruction and severance of worlds,70 **which undermines the conditions of plurality that enables life on Earth to thrive.**

#### Methodological pluralism is a necessary aspect of critique.

Bleiker ’14 [Roland, professor of international relations at the university of Queensland. “International Theory Between Reification and Self-Reflective Critique” International Studies Review, Volume 16, Issue 2. June 17, 2014]

This book is part of an increasing trend of scholarly works that have embraced poststructural critique but want to ground it in more positive political foundations, while retaining a reluctance to return to the positivist tendencies that implicitly underpin much of constructivist research. The path that Daniel Levine has carved out is innovative, sophisticated, and convincing. A superb scholarly achievement. For Levine, the key challenge in international relations (IR) scholarship is what he calls “unchecked reification”: the widespread and dangerous process of forgetting “the distinction between theoretical concepts and the real-world things they mean to describe or to which they refer” (p. 15). The dangers are real, Levine stresses, because IR deals with some of the most difficult issues, from genocides to war. Upholding one subjective position without critical scrutiny can thus have far-reaching consequences. Following Theodor Adorno—who is the key theoretical influence on this book—Levine takes a post-positive position and assumes that the world cannot be known outside of our human perceptions and the values that are inevitably intertwined with them. His ultimate goal is to overcome reification, or, to be more precise, to recognize it as an inevitable aspect of thought so that its dangerous consequences can be mitigated. Levine proceeds in three stages: First he reviews several decades of IR theories to resurrect critical moments when scholars displayed an acute awareness of the dangers of reification. He refreshingly breaks down distinctions between conventional and progressive scholarship, for he detects self-reflective and critical moments in scholars that are usually associated with straightforward positivist positions (such as E.H. Carr, Hans Morgenthau, or Graham Allison). But Levine also shows how these moments of self-reflexivity never lasted long and were driven out by the compulsion to offer systematic and scientific knowledge. The second stage of Levine's inquiry outlines why IR scholars regularly closed down critique. Here, he points to a range of factors and phenomena, from peer review processes to the speed at which academics are meant to publish. And here too, he eschews conventional wisdom, showing that work conducted in the wake of the third debate, while explicitly post-positivist and critiquing the reifying tendencies of existing IR scholarship, often lacked critical self-awareness. As a result, Levine believes that many of the respective authors failed to appreciate sufficiently that “reification is a consequence of all thinking—including itself” (p. 68). The third objective of Levine's book is also the most interesting one. Here, he outlines the path toward what he calls “sustainable critique”: a form of self-reflection that can counter the dangers of reification. Critique, for him, is not just something that is directed outwards, against particular theories or theorists. It is also inward-oriented, ongoing, and sensitive to the “limitations of thought itself” (p. 12). The challenges that such a sustainable critique faces are formidable. Two stand out: First, if the natural tendency to forget the origins and values of our concepts are as strong as Levine and other Adorno-inspired theorists believe they are, then how can we actually recognize our own reifying tendencies? Are we not all inevitably and subconsciously caught in a web of meanings from which we cannot escape? Second, if one constantly questions one's own perspective, does one not fall into a relativism that loses the ability to establish the kind of stable foundations that are necessary for political action? Adorno has, of course, been critiqued as relentlessly negative, even by his second-generation Frankfurt School successors (from Jürgen Habermas to his IR interpreters, such as Andrew Linklater and Ken Booth). The response that Levine has to these two sets of legitimate criticisms are, in my view, both convincing and useful at a practical level. He starts off with depicting reification not as a flaw that is meant to be expunged, but as an a priori condition for scholarship. The challenge then is not to let it go unchecked. Methodological pluralism lies at the heart of Levine's sustainable critique. He borrows from what Adorno calls a “constellation”: an attempt to juxtapose, rather than integrate, different perspectives. It is in this spirit that Levine advocates multiple methods to understand the same event or phenomena. He writes of the need to validate “multiple and mutually incompatible ways of seeing” (p. 63, see also pp. 101–102). In this model, a scholar oscillates back and forth between different methods and paradigms, trying to understand the event in question from multiple perspectives. No single method can ever adequately represent the event or should gain the upper hand. But each should, in a way, recognize and capture details or perspectives that the others cannot (p. 102). In practical terms, this means combining a range of methods even when—or, rather, precisely when—they are deemed incompatible. They can range from poststructual deconstruction to the tools pioneered and championed by positivist social sciences. The benefit of such a methodological polyphony is not just the opportunity to bring out nuances and new perspectives. Once the false hope of a smooth synthesis has been abandoned, the very incompatibility of the respective perspectives can then be used to identify the reifying tendencies in each of them. For Levine, this is how reification may be “checked at the source” and this is how a “critically reflexive moment might thus be rendered sustainable” (p. 103). It is in this sense that Levine's approach is not really post-foundational but, rather, an attempt to “balance foundationalisms against one another” (p. 14). There are strong parallels here with arguments advanced by assemblage thinking and complexity theory—links that could have been explored in more detail.

#### ] Debate is valuable for racial liberation – social groups used debate’s process to refine argument and advocacy skills to push for structural change

LBS 18 Leaders of a Beautiful Struggle 2018 "History" <https://www.lbsbaltimore.com/about-us/history/> //Elmer

The organizational focus on public policy stems from the unique experience many of its founders had with the rigorous academic activity of policy debate. The founders of LBS ignited their passion for debate as high school students of the local urban debate league; however, it was their **collegiate debate** experience at Towson University that **catapulted them** **into** the **world of activism** and advocacy. In a community which has traditionally favored a dispassionate C-SPAN style of debate, LBS founders proliferated a style that was rooted in the cultural and intellectual resources of people of African descent. Antecedents to the style of debate LBS founders practiced were the Black students of the University of Louisville’s debate program, directed by Ede Warner and Daryl Burch. Their unique policy debate arguments challenged the norms and procedures of collegiate debate, which was usually mired in structural racism. The success of Louisville debaters, Elizabeth Jones and Tonia Greene – a quarterfinalist in two prominent national debate competitions, set a path for **challenging white supremacy by utilizing** the **pedagogical practices and research methodologies** **that** policy **debate required**. Deven Cooper and Dayvon Love, both from Baltimore City, transformed the college debate community as Towson University students when in 2008 they won the CEDA National Debate Championship. This was the first time a team of Black college debaters had accomplished such as feat in the history of policy debate. As Towson University student debaters, LBS founders consistently defeated teams from powerhouse debate schools such as Dartmouth, Harvard, and Northwestern University. Their unique racial justice lens and analysis of issues ranging from Supreme Court Statutory Law to Federal Agricultural Policy has led to successful experiences both as debaters and coaches. While matriculating through college, the founders of LBS collectively decided to create an organization that would export their policy debate and student organizing experience to the Baltimore community. Leaders of a Beautiful Struggle was formulated and legally constituted as a Limited Liability Corporation in August of 2010. The decision to establish LBS as an LLC was a tough strategic question addressed via several internal, critical analysis sessions. While establishing the organization as a non-profit organization would have more easily allowed for short-term financial contributions from foundations, the founders recognized that it also would have hindered an ability to exercise the economic, political, and social freedom that is now experienced. It was of utmost importance to establish a politically independent organization from inception. This decision has necessitated a significant level of sacrifice, both as individuals and collectively as an organization. Nevertheless, the founders remained steadfast in their commitment to establish an organization that could make a profound impact in the Baltimore community. Simultaneously, Governor Martin O’Malley was attempting to construct a multi-million dollar prison for youth charged as adults. LBS’ early grassroots organizing work centered on mobilizing Black youth in Baltimore City to help stop the planned construction of a youth jail. This climate culminated in a large series of protests called Youth Justice Sunday. It was a multi-organizational, Black grassroots effort aimed to voice opposition to the jail. This led to a statewide conversation, amongst local and state officials, about youth incarceration. We were successful in our efforts to lead the halting of the construction of the youth jail. Since then, LBS has forayed in electoral politics, challenged the equitable practices of the non-profit sector, levied public criticism of state agencies and elected officials, and participated in several coalitions aimed at Black self-determination and community empowerment efforts.

#### 2] Debate is imperfect, but only our interpretation can harness legal education to understand the law’s strategic reversibility paired with intellectual survival skills.

Archer 18, Deborah N. "Political Lawyering for the 21st Century." Denv. L. Rev. 96 (2018): 399. (Associate Professor of Clinical Law at NYU School of Law)//Elmer

Political justice lawyers must be able to break apart a systemic problem into manageable components. The complexity of social problems, can cause law students, and even experienced political lawyers, to become overwhelmed. In describing his work challenging United States military and economic interventions abroad, civil rights advocate and law professor Jules Lobel wrote of this process: “Our foreign-policy litigation became a sort of Sisyphean quest as we maneuvered through a hazy maze cluttered with gates. Each gate we unlocked led to yet another that blocked our path, with the elusive goal of judicial relief always shrouded in the twilight mist of the never-ending maze.”144 Pulling apart a larger, systemic problem into its smaller components can help elucidate options for advocacy. An instructive example is the use of excessive force by police officers against people of color. Every week seems to bring a new video featuring graphic police violence against Black men and women. Law students are frequently outraged by these incidents. But the sheer frequency of these videos and lack of repercussions for perpetrators overwhelm those students just as often. What can be done about a problem so big and so pervasive? To move toward justice, advocates must be able to break apart the forces that came together to lead to that moment: intentional discrimination, implicit bias, ineffective training, racial segregation, lack of economic opportunity, the over-policing of minority communities, and the failure to invest in non-criminal justice interventions that adequately respond to homelessness, mental illness, and drug addiction. None of these component problems are easily addressed, but breaking them apart is more manageable—and more realistic—than acting as though there is a single lever that will solve the problem. After identifying the component problems, advocates can select one and repeat the process of breaking down that problem until they get to a point of entry for their advocacy. 2. Identifying Advocacy Alternatives As discussed earlier, political justice lawyering embraces litigation, community organizing, interdisciplinary collaboration, legislative reform, public education, direct action, and other forms of advocacy to achieve social change. After parsing the underlying issues, lawyers need to identify what a lawyer can and should do on behalf of impacted communities and individuals, and this includes determining the most effective advocacy approach. Advocates must also strategize about what can be achieved in the short term versus the long term. The fight for justice is a marathon, not a sprint. Many law students experience frustration with advocacy because they expect immediate justice now. They have read the opinion in Brown v. Board of Education, but forget that the decision was the result of a decades-long advocacy strategy.145 Indeed, the decision itself was no magic wand, as the country continues to work to give full effect to the decision 70 years hence. Advocates cannot only fight for change they will see in their lifetime, they must also fight for the future.146 Change did not happen over night in Brown and lasting change cannot happen over night today. Small victories can be building blocks for systemic reform, and advocates must learn to see the benefit of short-term responsiveness as a component of long-term advocacy. Many lawyers subscribe to the American culture of success, with its uncompromising focus on immediate accomplishments and victories.147 However, those interested in social justice must adjust their expectations. Many pivotal civil rights victories were made possible by the seemingly hopeless cases that were brought, and lost, before them.148 In the fight for justice, “success inheres in the creation of a tradition, of a commitment to struggle, of a narrative of resistance that can inspire others similarly to resist.”149 Again, Professor Lobel’s words are instructive: “the current commitment of civil rights groups, women’s groups, and gay and lesbian groups to a legal discourse to legal activism to protect their rights stems in part from the willingness of activists in political and social movements in the nineteenth century to fight for rights, even when they realized the courts would be unsympathetic.”150 Professor Lobel also wrote about Helmuth James Von Moltke, who served as legal advisor to the German Armed Services until he was executed in 1945 by Nazis: “In battle after losing legal battle to protect the rights of Poles, to save Jews, and to oppose German troops’ war crimes, he made it clear that he struggled not just to win in the moment but to build a future.”151 3. Creating a Hierarchy of Values Advocates challenging complex social justice problems can find it difficult to identify the correct solution when one of their social justice values is in conflict with another. A simple example: a social justice lawyer’s demands for swift justice for the victim of police brutality may conflict with the lawyer’s belief in the officer’s fundamental right to due process and a fair trial. While social justice lawyers regularly face these dilemmas, law students are not often forced to struggle through them to resolution in real world scenarios—to make difficult decisions and manage the fallout from the choices they make in resolving the conflict. Engaging in complex cases can force students to work through conflicts, helping them to articulate and sharpen their beliefs and goals, forcing them to clearly define what justice means broadly and in the specific context presented. Lawyers advocating in the tradition of political lawyering anticipate the inevitable conflict between rights, and must seek to resolve these conflicts through a “hierarchy of values.”152 Moreover, in creating the hierarchy, the perspectives of those directly impacted and marginalized should be elevated “because it is in listening to and standing with the victims of injustice that the need for critical thinking and action become clear.”153 One articulation of a hierarchy of values asserts “people must be valued more than property. Human rights must be valued more than property rights. Minimum standards of living must be valued more than the privileged liberty of accumulated political, social and economic power. Finally, the goal of increasing the political, social, and economic power of those who are left out of the current arrangements must be valued more than the preservation of the existing order that created and maintains unjust privilege.”154 C. Rethinking the Role of the Clinical Law Professor: Moving From Expert to Colleague Law students can learn a new dimension of lawyering by watching their clinical law professor work through innovative social justice challenges alongside them, as colleagues. This is an opportunity not often presented in work on small cases where the clinical professor is so deeply steeped in the doctrine and process, the case is largely routine to her and she can predict what is to come and adjust supervision strategies accordingly.155 However, when engaged in political lawyering on complex and novel legal issues, both the student and the teacher may be on new ground that transforms the nature of the student-teacher relationship. A colleague often speaks about acknowledging the persona professors take on when they teach and how that persona embodies who they want to be in the classroom—essentially, whenever law professors teach they establish a character. The persona that a clinical professor adopts can have a profound effect on the students, because the character is the means by which the teacher subtly models for the student—without necessarily ever saying so— the professional the teacher holds herself to be and the student may yet become. In working on complex matters where the advocacy strategy is unclear, the clinical professor makes himself vulnerable by inviting students to witness his struggles as they work together to develop the most effective strategy. By making clear that he does not have all of the answers, partnering with his students to discover the answers, and sharing his own missteps along the way, a clinical law professor can reclaim opportunities to model how an experienced attorney acquires new knowledge and takes on new challenges that may be lost in smaller case representation.156 Clinical law faculty who wholeheartedly subscribe to the belief that professors fail to optimize student learning if students do not have primary control of a matter from beginning to end may view a decision to work in true partnership with students on a matter as a failure of clinical legal education. Indeed, this partnership model will inevitably impact student autonomy and ownership of the case.157 But, there is a unique value to a professor working with her student as a colleague and partner to navigate subject matter new to both student and professor.158 In this relationship, the professor can model how to exercise judgment and how to learn from practice: to independently learn new areas of law; to consult with outside colleagues, experts in the field, and community members without divulging confidential information; and to advise a client in the midst of ones own learning process.159 III. A Pedagogical Course Correction “If it offends your sense of justice, there’s a cause of action.” - Florence Roisman, Professor, Indiana University School of Law160 In response to the shifts in my students’ perspectives on racism and systemic discrimination, their reluctance to tackle systemic problems, their conditioned belief that strategic litigation should be a tool of last resort, and my own discomfort with reliance on small cases in my clinical teaching, I took a step back in my own practice. How could I better teach my students to be champions for justice even when they are overwhelmed by society’s injustice; to challenge the complex and systemic discrimination strangling minority communities, and to approach their work in the tradition of political lawyering. I reflected not only on my teaching, but also on my experiences as a civil rights litigator, to focus on what has helped me to continue doing the work despite the frustrations and difficulties. I realized I was spending too much time teaching my students foundational lawyering skills, and too little time focused on the broader array of skills I knew to be critical in the fight for racial justice. We regularly discussed systemic racism during my clinic seminars in order to place the students’ work on behalf of their clients within a larger context. But by relying on carefully curated small cases I was inadvertently desensitizing my students to a lawyer’s responsibility to challenge these systemic problems, and sending the message that the law operates independently from this background and context. I have an obligation to move beyond teaching my students to be “good soldiers for the status quo” to ensuring that the next generation is truly prepared to fight for justice.161 And, if my teaching methods are encouraging the reproduction of the status quo it is my obligation to develop new interventions.162 Jane Aiken’s work on “justice readiness” is instructive on this point. To graduate lawyers who better understand their role in advancing justice, Jane Aiken believes clinics should move beyond providing opportunities for students to have a social justice experience to promoting a desire and ability to do justice.163 She suggests creating disorienting moments by selecting cases where students have no outside authority on which to rely, requiring that they draw from their own knowledge base and values to develop a legal theory.164 Disorienting moments give students: experiences that surprise them because they did not expect to experience what they experienced. This can be as simple as learning that the maximum monthly welfare benefit for a family of four is about $350. Or they can read a [ ] Supreme Court case that upheld Charles Carlisle’s conviction because a wyer missed a deadline by one day even though the district court found there was insufficient evidence to prove his guilt. These facts are often disorienting. They require the student to step back and examine why they thought that the benefit amount would be so much more, or that innocence would always result in release. That is an amazing teaching moment. It is at this moment that we can ask students to examine their own privilege, how it has made them assume that the world operated differently, allowing them to be oblivious to the indignities and injustices that occur every day.165 Giving students an opportunity to “face the fact that they cannot rely on ‘the way things are’ and meet the needs of their clients” is a powerful approach to teaching and engaging students.166 But, complex problems call for larger and more sustained disorienting moments. Working with students on impact advocacy in the model of political lawyering provides a range of opportunities to immerse students in disorienting moments. A. Immersing Students in “Disorienting Moments”: Race, Poverty, and Pregnancy Today, I try to immerse my students in disorienting moments to make them justice ready and move them in the direction of political lawyering. My clinic docket has always included a small number of impact litigation matters. However, in the past these cases were carefully screened to ensure that they involved discrete legal issues and client groups. In addition, our representation always began after our outside co-counsel had already conducted an initial factual investigation, identified the core legal issues, and developed an overall advocacy strategy, freeing my students from these responsibilities. Now, my clinic takes on impact matters at earlier stages where the strategies are less clear and the legal questions are multifaceted and ill- defined. This mirrors the experiences of practicing social justice lawyers, who faced with an injustice, must discover the facts, identify the legal claims, develop strategy, cultivate allies, and ultimately determine what can be done—with the knowledge that “nothing” is not an option. This approach provides students with the space to wrestle with larger, systemic issues in a structured and supportive educational environment, taking on cases that seem difficult to resolve and working to bring some justice to that situation. They are also gaining experience in many of the fundamentals of political lawyering advocacy. Recently, my students began work on a new case. Several public and private hospitals in low-income New York City neighborhoods are drug testing pregnant women or new mothers without their knowledge or informed consent. This practice reflects a disturbing convergence between racial and economic disparities, and can have a profound impact on the lives of the poor women of color being tested at precisely the time when they are most in need of support. We began our work when a community organization reached out to the clinic and spoke to us about complaints that hospitals around New York City were regularly testing pregnant women—almost exclusively women of color—for drug use during prenatal check ups, during the chaos and stress of labor and delivery, or during post-delivery. The hospitals report positive test results to the City’s Administration for Children’s Services (“ACS”), which is responsible for protecting children from abuse and neglect, for further action.167 Most of the positive tests are for marijuana use. After a report is made, ACS commences an investigation to determine whether child abuse or neglect has taken place, and these investigations trigger inquiries into every aspect of a family’s life. They can lead to the institution of child neglect proceedings, and potentially to the temporary or permanent removal of children from the household. Even where that extreme result is avoided, an ACS investigation can open the door to the City’s continued, and potentially unwelcome, involvement in the lives of these families. These policies reflect deeply inequitable practices. Investigating a family after a positive drug test is not necessarily a bad thing. After all, ACS offers a number of supportive services that can help stabilize and strengthen vulnerable families. And of course, where children’s safety is at risk, removal may sometimes be the appropriate result. However, hospitals do not conduct regular drug tests of mothers in all New York City communities. Private hospitals in wealthy areas rarely test pregnant women or new mothers for drug misuse. In contrast, at hospitals serving poor women, drug testing is routine. Race and class should not determine whether such testing, and the consequences that result, take place. Investigating the New York City drug-testing program immersed the students in disorienting moments at every stage of their work. During our conversations, the students regularly expressed surprise and discomfort with the hospitals’ practices. They were disturbed that public hospitals— institutions on which poor women and women of color rely for something as essential as health care—would use these women’s pregnancy as a point of entry to control their lives.168 They struggled to explain how the simple act of seeking medical care from a hospital serving predominantly poor communities could deprive patients of the respect, privacy, and legal protections enjoyed by pregnant women in other parts of the City. And, they were shocked by the way institutions conditioned poor women to unquestioningly submit to authority.169 Many of the women did not know that they were drug tested until the hospital told them about the positive result and referred them to ACS. Still, these women were not surprised: that kind of disregard, marginalization, and lack of consent were a regular aspect of their lives as poor women of color. These women were more concerned about not upsetting ACS than they were about the drug testing. That so many of these women could be resigned to such a gross violation of their rights was entirely foreign to most of my students. B. Advocacy in the Face of Systemic Injustice Although the students are still in the early stages of their work, they have already engaged in many aspects of political justice lawyering. They approached their advocacy focused on the essence of political lawyering— enabling poor, pregnant women of color who enjoy little power or respect to claim and enjoy their rights, and altering the allocation of power from government agencies and institutions back into the hands of these women. They questioned whose interests these policies and practices were designed to serve, and have grounded their work in a vision of an alternative societal construct in which their clients and the community are respected and supported. The clinic students were given an opportunity to learn about social, legal, and administrative systems as they simultaneously explored opportunities to change those systems. The students worked to identify the short and long term goals of the impacted women as well the goals of the larger community, and to think strategically about the means best suited to accomplish these goals. And, importantly, while collaborating with partners from the community and legal advocacy organizations, the students always tried to keep these women centered in their advocacy. In breaking down the problem of drug testing poor women of color, the students worked through an issue that lives at the intersection of reproductive freedom, family law, racial justice, economic inequality, access to health care, and the war on drugs. In their factual investigation, which included interviews of impacted women, advocates, and hospital personnel, and the review of records obtained through Freedom of Information Law requests, the students began to break down this complex problem. They explored the disparate treatment of poor women and women of color by health care providers and government entities, implicit and explicit bias in healthcare, the disproportionate referral of women of color to ACS, the challenges of providing medical services to underserved communities, the meaning of informed consent, the diminished rights of people who rely on public services, and the criminalization of poverty. The students found that list almost as overwhelming as the initial problem itself, but identifying the components allowed the students to dig deeper and focus on possible avenues of challenge and advocacy. It was also critically important to make the invisible forces visible, even if the law currently does not provide a remedy. Working on this case also gave the students and me the opportunity to work through more nuanced applications of some of the lawyering concepts that were introduced in their smaller cases, including client-centered lawyering when working on behalf of the community; large-scale fact investigation; transferring their “social justice knowledge” to different contexts; crafting legal and factual narratives that are not only true to the communities’ experience, but can persuade and influence others; and how to develop an integrated advocacy plan. The students frequently asked whether we should even pursue the matter, questioning whether this work was client- centered when it was no longer the most pressing concern for many of the women we met. These doubts opened the door to many rich discussions: can we achieve meaningful social change if we only address immediate crises; can we progress on larger social justice issues without challenging their root causes; how do we recognize and address assumptions advocates may have about what is best for a client; and how can we keep past, present, and future victims centered in our advocacy? The work on the case also forced the clinic students to work through their own understanding of a hierarchy of values. They struggled with their desire to support these community hospitals and the public servants who work there under difficult circumstances on the one hand, and their desire to protect women, potentially through litigation, from discriminatory practices. They also struggled to reconcile their belief that hospitals should take all reasonable steps to protect the health and safety of children, as well as their emotional reaction to pregnant mothers putting their unborn children in harms way by using illegal drugs against the privacy rights of poor and marginalized women. They were forced to pause and think deeply about what justice would look like for those mothers, children, and communities. CONCLUSION America continues to grapple with systemic injustice. Political justice lawyering offers powerful strategies to advance the cause of justice—through integrated advocacy comprising the full array of tools available to social justice advocates, including strategic systemic reform litigation. It is the job of legal education to prepare law students to become effective lawyers. For those aspiring to social justice that should include training students to utilize the tools of political justice lawyers. Clinical legal offers a tremendous opportunity to teach the next generation of racial and social justice advocates how to advance equality in the face of structural inequality, if only it will embrace the full array of available tools to do so. In doing so, clinical legal education will not only prepare lawyers to enact social change, they can inspire lawyers overwhelmed by the challenges of change. In order to provide transformative learning experiences, clinical education must supplement traditional pedagogical tools and should consider political lawyering’s potential to empower law students and communities.

#### 3] Only the aff makes the alt effective – speaking the language of power to redirects state policy against itself whereas their tactic fails and is coopted.

DeLeon 12 (Associate Professor & Assistant Dean for Curriculum and Programming Educational Leadership and Policy Studies @ UTSA (Abraham P, “Chapter 17: Against the Grain of the Status Quo: Anarchism behind Enemy Lines,” in Anarchist pedagogies : collective actions, theories, and critical reflections on education, edited by Robert H. Haworth, Published: Oakland, CA : PM Press, ©2012, p. 312-15)

Infiltration: a word that may evoke a host of thoughts and fantasies from soldiers operating behind enemy lines, police informants gaining access to criminal organizations, or to scenarios of radicals inserting themselves into corporations or research labs. Whatever the scenario, infiltration can be tactic that anarchists pursue when thinking about operating within current institutional realities, especially if interested in teaching in public schools. Although this claim is entangled within complex relationships of power and privilege, struggle arises wherever domination coalesces, especially within institutional structures and settings (Sharp, Routledge, Philo & Paddison, 2000). Power conjures, “the threadings, knottings and weavings” of social relationships through a intertwining of the social, political, moral, educational, and historical realities of a given society. In this way, power is “crucially and unavoidably spun out across and through the material spaces of the world” (Sharp, et al., 2000, p. 22). This chapter thus looks to situate itself and build radical pedagogy within the threads and knots of contemporary relationships of power; inbetween what Holloway (2010) has called the “cracks” of capitalism, trying to “desperately find . . . faults beneath the surface, or to create cracks by banging the walls” (p. 8). Cracks have emerged through environmental disaster, economic collapse, psychological alienation, a crisis of identity, and decades of war and imperial aggression conducted by the West. It is under these historical conditions that resistance needs to be conceptualized. Creating, finding and exploiting “cracks” within a diffused and networked capitalism demonstrates that dated narratives of revolutionary struggle are no longer viable and there is “no guarantee of a happy ending” (Holloway, 2010, p. 9). Unfortunately, although these narratives may provide comfort amid an onslaught of capitalism, war, death, terror, and alienation, they do not open up, nor allow, alternative possibilities of resistance to form outside the boundaries they construct. In some ways, these may only help to reproduce the current order we find ourselves in. This does not mean that we should resign ourselves to the throngs of nihilistic defeat, as there is indeed potential for radical hope within the cracks of Empire. The multitude, with its potential for infinite possibilities, can build a complex and dispersed resistance through the breaks, tears, and folds of our social order (Deleuze, 1992), and the tactics and pedagogies that we envision as radicals can attempt to capture this spirit. Although the manifestations of these cracks and folds is yet to be seen, I leave the reader to their own radical imaginations in devising ways to subvert a networked and diffused machine (Shukaitis, 2009). Evoking the metaphor of a “machine,” as I describe the multifaceted nature of contemporary capitalism, harkens to Trotter’s (1990) claim that colonialism operated in a very similar way, divorced from individual interactions and operating abstractly through “official” and “unofficial” discourses, forms of knowledge, ways of knowing, the morality of a given era, and the reproduction of knowledge to name a few. The analogy of a machine also challenges that human agency is solely at the center of how social system operate, because machines, “create, distribute, and organize populations and impose regimes of conduct, agency and effectivity” outside of individual actors and agency (Grossberg, 2010, p. 36). Radicals (within and outside the labor movement) had ingenious ways in which to deal with the machines of capitalism, occurring through tactics that spanned strikes, sit-ins, walking out, and subversion to even more direct forms like sabotaging machinery, bringing production to a halt. Sabotage is a tactic that anarchists need to rethink in light of how labor is now dispersed among a wide variety of institutional realities (factories, banks, corporations, and public institutions, for example), as well as the contemporary knowledge and abstract economies. The machines of capitalism that produced goods during the height of the Industrial Revolution of the nineteenth century provide us a way in which to think of societal machines and tactics that can be adapted for current conditions. How do we as anarchists, who want to teach and work with students, deal with the contradictions of being located within the same institutions that seek to discipline bodies and coerce us? How do we sabotage these machines and build a radical pedagogy from this perspective? Sabotage provides a provocative conceptual framework in which to think about building alternative forms of resistance and aligns with ways in which anarchists have historically conceptualized direct political action. This is even more interesting when we think of how this will emerge through educational practice, as teaching allows us to directly engage ideology, challenging students’ conceptions about the world around them. With this type of important, dare I say political work, why do some anarchists shun the world of public teaching and service? Education is at the “front lines” of the contemporary ideological war conducted by corporate media, official organs of the State, and influential economic institutions. Whether that emerges through corporate textbooks that omit subaltern experiences and worldviews, standardized testing that stress rote memorization, or a curriculum that reproduces Eurocentrism and Western ways of knowing, education is invested in reproducing dominant conceptions of the world. However, sabotage can take myriad forms, and this chapter will build on the conceptual idea of building politics of infiltration. It has been well established that police and other State agents have infiltrated radical political movements, especially with the rise of anarchist praxis over the past two decades (Borrum & Tilby, 2004). Anarchists should think about assuming this same tactic, using the idea of infiltration as a guiding way to think about our praxis within institutional realities and as a way to think about diffused forms of sabotage. Although anarchism is rife with identity and lifestyle politics that detests any signs of “selling out,” this has only proven to further marginalize us in the eyes of the larger society that we must work at convincing how terribly oppressive the current social arrangement is. In the end, our movement is going to have to be broadbased and span multiple identities, social locations, political affiliations, and a renewed sense of politics that seeks to look at how, “the contemporary world has been made to be what it is [and] make visible ways in which it can become something else” (Grossberg, 2010, p. 1). Stoler (2010) discusses the idea of reading and analyzing “against the grain” of archival documents to unearth new interpretations and voices. This chapter urges radicals to think of our social actions along these same lines of thought: against the grain of dominant ideologies that serve to support historically oppressive realities. In this chapter, I will attempt to propose a politics of infiltration through a peculiar anarchist lens that seeks to subvert capitalism and its accompanying institutional realities through a diffused resistance stemming from bodies; bodies immersed in oppressive institutional realities. I dance through theoretical traditions to demonstrate how infiltration can be conceptualized as not only a physical practice (such as our work in classrooms), but also can be a theoretical framework in which to situate our practice, always looking for cracks, weaknesses, and oppor- tunities to sabotage dominant conceptions of the world that demonstrates another world is possible. Although radicals may think of this action as “selling out,” I want to reframe teaching and working within institutions as a potential form of infiltration, inserting other ways of knowing and being into the academy to challenge systemically oppressive realities. Shannon (2009) reminds us that cooptation lurks around every corner and Shukaitis (2009) warns us of the recuperative nature of capitalism. Both of these realities are firmly acknowledged as risks, however, it should not immobilize us into inaction. Nor should this resign us to “ghettoizing” ourselves into intellectual enclaves where conversations are more about nodding our collective heads in agreement rather than challenging our own practices with alternative voices and tactics. Indeed, tensions can be the basis for a critical reflection about what we are actually doing in our practice and engaging a wide variety of techniques and approaches to explore these, such as writing and political organization. Communities of practice, whether in activism or through qualitative research, are an essential feature of building bridges with other like-minded activists and scholars (Rossman & Rallis, 2003). Cooptation and recuperation are indeed challenges we will face but should not stop us from doing something, keeping in mind the question that Lorde (2003) had when she struggled with the tools of the master (p. 25). This chapter will hopefully allow the conversation to continue about the role of anarchist theory in building alternative forms of praxis, pedagogy, and direct action, especially within the context of public education and the contradictions that anarchists face within hierarchical and coercive institutions.

#### 4] Hope is good for mental health

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Discussion The current study investigated the relationships between hope, suicidal ideation, and the interpersonal risk factors of suicidal desire (Joiner, 2005) in a sample of African American college students. Consistent with previous literature, hope was negatively correlated to symptoms of depression, thwarted belongingness, and perceived burdensomeness. Hope was not significantly correlated to suicidal ideation in this sample. However, the agency subscale of hope was negatively correlated to suicidal ideation. To expand on the simple associations between hope and suicidal ideation previously established in the literature, the current study took a contextualist approach. More specifically, through the use of moderation analyses this study sought to better understand the circumstances of the established relationship between hope and suicidal ideation in an African American sample. It was hypothesized that levels of hope would moderate the relationship between feelings of perceived burdensomeness and thoughts of suicide. As hypothesized, the relationship between perceived burdensomeness and suicidal ideation was moderated by hope. High levels of hope weakened the relationship between perceived burdensomeness when statistically controlling for symptoms of depression. In other words, at high levels of hope, the relationship between perceived burdensomeness and suicidal ideation was no longer strong and positive as seen with low levels of hope. These results suggest that those who are naturally more hopeful are buffered against deleterious effects (i.e., suicidal ideation) when experiencing feelings of perceived burdensomeness. Individuals who feel comfortable setting goals and are motivated to achieve them may be better equipped to cope with feelings of perceived burdensomeness. Those who are more hopeful but feel as though they are a burden on others may be better equipped to cope with these feelings, as they may be able to naturally identify ways they can contribute to the well-being of others and are motivated to achieve these goals.