

PROSPECTS FOR COLLABORATIVE POWER IN A BRUTAL UNIVERSE

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Abstract

This dissertation shows a way to instill in institutions the cognitive habits necessary to prevent human extinction from forces within, on and outside Earth. In particular, these forces include uncharted asteroids and comets on Earth-crossing orbits, rapid pandemics of disease and super volcanoes. Prospects for collaborative power among nations, corporations, academe and indigenous peoples are presented through traditional political science literature and popular media. Instead of advocating for greater international bureaucracy to meet global threats, a decision-making pedagogy, *3x3 Global Drills* is designed to redirect the foci of existing power structures into a wider framework to better integrate, evaluate and improve the diversity of current human perception. This nine-nexus global drills process fuses three broad disciplinary perspectives, 1) Cosmic 2) Individual and Societal and 3) Environmental, with three broad regional perspectives, 1) Americas 2) Africa-Europe and 3) Asia-Pacific.

The pedagogy is intended to foster social justice, social promotion and social cohesion among individuals worldwide through increased human and robotic presence on the moon, Mars and new space stations as well as sustained launches of space satellites and space probes. Through these means, the human race can better observe geophysical dynamics from low-Earth orbit, do medical research in zero gravity and prepare asteroid and comet defenses for Earth across the solar system. By mobilizing the global war economy against global threats within, on and beyond Earth, the human race can begin to increase its resiliency in a brutal universe.

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Introduction

Redirecting Global Power to Avert Human Extinction

Never, ever trust to luck. Anonymous World War II navigator, Royal Air Force, October 1993

This dissertation contributes a new paradigm of political power based on the insight that the human race has always been significantly in danger of extinction. Earth is an unstable point in an expansive universe, vulnerable to brutal forces within, on and beyond the planet. This multitude of global threats includes but is not limited to super volcanoes, pandemics of disease and uncharted asteroids and comets on Earth-crossing orbits. All such challenges can be met through increased human and robotic presence beyond Earth in various capacities, making use of advanced technologies gained from modern warfare. Still, the paradigm of maintaining the global balance of power through armed intervention and/or treaty is given as dysfunctional.

If the human race intends to continue living in a brutal universe, it cannot continue dividing its forces. In time, this practice can only result in one or more of the unforgiving natural forces of nature eliminating it forever without a fight. In the world system today, alliances are formed, international institutions created, contracts signed and boundaries set based on mistrust - justified to build trust,¹ which is forever broken. The dissertation draws from traditional political science literature and popular media to construct a new paradigm of *global collaborative power* for use across the policy

¹ A presentation of authors that heroically represent this justification in regard to the weaponization of outer space can be found in David A. Koplow, "ASAT-Isfaction: Customary International Law and the Regulation of Anti-Satellite Weapons," *Michigan Journal of International Law* 30 (2009): 1187-1272. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1372737##. Koplow's own body of work in addition to his past service with the U.S. Department of State and U.S. Department of Defense applies this same justification to many if not all areas of international law and arms control. http://www.law.georgetown.edu/faculty/facinfo/tab_faculty.cfm?Status=Faculty&ID=277. Both retrieved March 19, 2012.

sciences. It is comprehensive in its perspective so that leaders can identify new questions that need to be asked by fusing Singer's level of analysis as explained at the beginning of Chapter 3, 3x3 Global Drills: Prototyping Collaborative Power. Through a nine-nexus planning process, *serendipity by design* results from interactions among three broad disciplinary perspectives, 1) Cosmic 2) Individual and Societal and 3) Environmental, with three broad regional perspectives, 1) Americas 2) Africa-Europe and 3) Asia-Pacific. Users of this drills process, not limited to global leaders, can systematically scan and respond to the many physical threats to the human race, posed by a brutal universe - from the slow and large (tectonic plate movement) to the fast and large (comets), to the slow and small (disease), to the fast and small (quantum mechanics). Chadwick noted a generation ago that the human race lacks in its governments and corporations the organizational sensitivity and formal responsibility to respond to dangers and opportunities from the microscopic to the telescopic levels of analysis, extrapolating Singer's levels to their natural conclusion.² This absence of responsibility remains. Making up for this deficiency is the ultimate purpose and design of the drills process as articulated in this dissertation.

The global collaborative power paradigm is not inconsistent with maintaining U.S. power in the interests of her national security. In fact, U.S. power (soft, hard and smart) is understood as a precious asset or engine, but only if it is synergized with the rest of the major and minor powers and peoples of Earth and expedited to the fullest extent possible through a common sense of duty - *peace on Earth through endeavor in space*.

² See Richard W. Chadwick, "Social Justice and the Politics of Democracy," in *Distribution of Power and Rewards: Proceedings of the International Conference on Democracy and Social Justice East and West 1988*, eds. James C. Hsiung and Chung-ying Cheng (New York: University Press of America, 1988), 68-70.

Otherwise, U.S. power is understood as a net liability in the same manner as a gifted but selfish athlete is to any sports team.

The presentation of this new paradigm is not mired in re-explaining problems of the day and political maneuverings needed to address them to maintain a classic form of political stasis. Known formulaic and mechanistic responses in the study of politics are not retreaded. Rather, the dissertation emphasizes the open-system impulse of the human race as a latent, evolving and self-organizing political entity, inclusive of infinite sub-entities, principally at the level of the individual. The uncharted territory that this dissertation begins to survey is in the area of political possibilities for global collaborative power. By isolating positive intents that are embedded within cultural realities based on war and greed, normative possibilities are presented. A hypothetical specific global response that represents this new paradigm of thought is offered in Chapter 3, illustrated in its most condensed form in Figure 10, 3x3 Global Drills.

Though inspired by historical figures such as Dwight Eisenhower, as detailed in Chapter 4, Global Collaborative Power Illustrated through Literature and Film, the global collaborative power paradigm does not augment traditional approaches to political history (genealogy). While this dissertation is being written within the confines of political science, it breaks free of its limitations while remaining tethered to core questions of the discipline involving the distribution and use of power.

Power has many conventional definitions, understandings and connotations but few modern political scientists have considered political and military power from the "territorial" perspective of the solar system. Lasswell, the originator of the term policy

sciences is one of them, drawn from in respect to prototyping in Chapter 3.³ Social scientists Finney and Jones and White also peer into the galactic realm as a fundamental parameter into which all else conceptually fits.⁴ Despite these and other prominent contributions, when outer space is approached as a topic of social science, it is frequently treated as a luxury separate from current experiential realities of the human race, even though hard scientists know otherwise as a fundamental tenet of their disciplines. Feminist theory receives similar treatment in many textbooks in the field of international relations.

Neither is the paradigm of global collaborative power bound by political philosophy. As is the case with more traditional political science and political history (genealogy), political philosophy is fundamentally concerned with the nature of that which is. The distinguishing normative characteristic of the global collaborative power paradigm presented here is that it is driven by how best to prevent the extinction of the highly vulnerable human race. Another aspect of the global collaborative power paradigm is that it pursues how extinction avoidance can be achieved in ways that redress and prevent acute social injustice, exclusion and further mismanagement of environments on Earth. It approaches these concerns by taking a proactive and multi-

³ See Harold D. Lasswell, "Men in Space," *Annals of the New York Academy of Sciences* 72, no. 4 (April 10, 1958): 180-194. Lasswell's article in this volume was one of a series of papers including a preface by Margaret Mead resulting from a symposium, *Man in Space: A Tool and Program for the Study of Social Change* held by the Section on Anthropology of the New York Academy of Sciences on October 28, 1957 in the wake of the Sputnik launch on October 4, 1957.

⁴ See Ben Finney and Eric Jones, eds., *Interstellar Migration and the Human Experience* (Berkeley: University of California Press, 1985). See also and Frank White, *The Overview Effect: Space Exploration and Human Evolution*, 2nd ed. (Reston, Virginia: American Institute of Aeronautics and Astronautics, 1998). First published by Houghton Mifflin in 1987.

global planning approach, inclusive of considering the retroactive, short, medium, long, intergenerational and millennial time frames.⁵

An indispensable part of the 3x3 Global Drills process is the persistent refinement of existing categories of analysis and identification of new categories to represent the World Problematique Plus (Figure 9), presented in Chapter 3. This also holds for redefining appropriate planetary regional divisions for when the human exploration of other celestial bodies becomes as routine as robotic space probe missions of these bodies are now. Awareness of the spatial orientation shown in Figure 8, *A wider box of thought* in Chapter 3 is meant to expand the possibilities for individual human lives in a brutal universe so as to help individuals better define their life purposes. "Grabbing power" through force or other machinations by human societies and individuals, as this notion is understood today within scarcity-based mentalities could become inconceivable, at least in the drills process to be detailed in Chapter 3. Given technological breakthroughs from the "space age" so far achieved; that which is plausible in terms of physical exploration far surpasses that which used to be regarded as impossible or fantastic in the years before the moon landing of July 20, 1969. This principle is applied to global, domestic and interpersonal politics.

Informed by Rancière, as selected from below, this dissertation substitutes the term "human race" for "humanity" or "humankind," except when the term humanity is used in the sense of losing or developing "our humanity" as a force of solidarity for the human race.

⁵ See also Peter Schwartz, *The Art of the Long View: Planning for the Future in an Uncertain World* (New York: Doubleday, 1991, 1996).

The consensus system thought its expansion was boundless: Europe, the international community, the citizenry of the world, and, finally, humanity - all so many names for a whole that is equal to the sum of its elements, each having the common property of the whole. What it discovers is a new, radical figure of the identity between all and nothing, of an integrity everywhere under attack, is also, from now on, called humanity. Man "born free and everywhere in chains" has become man born human and everywhere inhuman.⁶

The term "human race" is understood here to have a less monolithic and more inclusive connotation than "humanity." The term has a double meaning with more weight given in this work toward a common race against extinction than of genetic closeness. The dissertation outlines an approach that is designed to allow all humans to be forever victorious against a universe that is brutally unforgiving. "Forever" is used here to suggest the need for a commonly willed experience over multiple generations of human beings in an incessant race against time.

While soldiers in battle develop the greatest bond, it is at the unacceptable cost of death, dismemberment and psychological trauma. When groups of the human race organize themselves for murderous action against one another, from street gangs to international alliances, a Social Darwinist can argue that the human race becomes stronger and more capable as the weak are eliminated. Even if this is true, the cost of violence is too high because it distracts groups of the human race from coordinating responses to forces of nature that could exterminate the human race quite easily. As the human race progresses through time, if it fails to prepare multiple forms of defense across the solar system, the luck that it has enjoyed in its youth in terms of geological

⁶ Jacques Rancière, *Disagreement: Politics and Philosophy*, trans. Julie Rose (Minneapolis: University of Minnesota Press, 1999), 125.

time will eventually run out. A primary aim of this dissertation is to help ensure that luck no longer remains its only defense, which first requires improved cognitive perception.

Below, *New York Times* columnist David Brooks summarizes his reporting in the field of consciousness research on *Charlie Rose*. In part, Brooks draws from research by neuroscience professor Antonio Damasio at the University of Southern California, also a contributor to the brain series on *Charlie Rose*. He also addresses the topic of love in his recent work, though within the institution of marriage, an economic construct that is challenged in this dissertation.

...Some people make a distinction between passion and reason. That is a false distinction. There is no such thing as reason without passion. Our passions decide what's important... One of the things institutions do is educate the emotions... That's the power of institutions; to permeate who we are and change the way we think... sometimes emotions, God knows are stupid but sometimes they are just phenomenally intelligent... there is a complex universe... perception is the most important thing. You should spend more time perceiving than deciding... somehow the brain leads to spirit and spirit affects the brain...⁷

In this regard, 3x3 Global Drills are designed for popular participation in better perceiving complex global threats and to develop, evolve and constantly refine survival strategies for the human race. At present, global leaders restrict their mental image of the world by continuing to view it as a chessboard. One of many well-intentioned scholar-practitioners that use this image is Zbigniew Brzezinski in *The Grand Chessboard: American Primacy and its Geostrategic Imperatives* (1998). By widening their

⁷ David Brooks, interview by Charlie Rose, *Charlie Rose*, PBS, September 16, 2010. <http://www.charlierose.com/view/interview/11206>. Retrieved August 12, 2011. See also David Brooks, *The Social Animal: The Hidden Sources of Love, Character and Achievement* (New York: Random House, 2011).

perspectives to include at least the solar system, these same leaders are capable of enabling the human race to interact with the brutal universe beyond as an expansive golf course of physical and mental obstacles and goals to be achieved together over lifetimes.

As indicated in the title and contents, every chapter in the dissertation is related to the high prospects and dire necessity for achieving global collaborative power in the face of a brutal universe. The term brutal universe was deliberately crafted to provide an alternative narrative based on open systems to the prevailing closed-loop systems analytical emphasis in academe since Hardin's "Tragedy of the Commons" (1968) - that humans are primarily to blame for harming nature. In regard to global power, military-industrial complexes across the world are not presented as inherently evil but rather misused. This construct is key to understand before embarking on any section of the dissertation. The figure of President Eisenhower (Ike), who coined the term military-industrial complex as a warning in his now iconic farewell address in 1961 (post Hiroshima/pre-Cuban Missile Crisis) stands in the background of every page of the dissertation as if it were a watermark. The conclusion of the author in regard to Ike's warning is that the power of the U.S. military-industrial complex and its counterparts across the world cannot and *should not* be stopped but rather fundamentally *redirected* outward into the solar system. Military-industrial complexes are presented as capable of working for the benefit of the human race but only if they collaborate to overcome the various inanimate enemies in the brutal universe as tentatively outlined in the World Problematique Plus (Figure 9). In this respect, Chapter 1, A Chronology of Misused Power in a Brutal Universe provides a brief alternative review of the 20th century to

prepare the reader to consider a new paradigm of thought in the present by first considering the recent past in a new light.

Chapter 2, *Global Collaborative Power: Beyond the Status Quo* reiterates the philosophical underpinnings for a new paradigm of global collaborative power, setting up the pivotal or keystone chapter of the dissertation. Primary among these principles is the need and potential for a new global currency/economic system based on human knowledge accumulation, enabled by harnessing energy abundance through solar energy collected in space and transmitted to Earth or anywhere else humans plan to live in the solar system. Such an economic transformation could allow technical solutions to global political dilemmas to be executed more readily due to independence from both the bank and the state. Accountability in such a new global economic system might be achieved through 360-degree reviews by peers in the workplace or across professional networks. Unfortunately, economic conventions based on scarcity (i.e.: capitalism and socialism) prevent science and engineering from harnessing energy abundance in all its forms due to the "expense" of space-based solar power as defined by scarcity-based economics. Chapter 3, *3x3 Global Drills: Prototyping Collaborative Power* also details potential interlocking elements of power through its pedagogical function for consideration by conscientious and non-ideologically driven leaders and their aides, including recent precedents for each element.

The universal power of storytelling to galvanize human understanding and action is explored in Chapter 4, *Global Collaborative Power Illustrated through Literature and Film*. In this regard, three films are analyzed: *Ike: Countdown to D-Day* (2004), *Meteor* (1979) and *Mission to Mars* (2000). The chapter offers a composite image toward which

vigorous redirection of existing power structures on Earth might be advanced and sustained. As with countering the physical power of asteroids and comets, redirection is argued as far more efficient than resisting or overcoming existing power structures by mustering greater power through legal advocacy and/or mass protest, though all are possible. Aspects of these three films are grounded by examples from Western literature from 1624 to 1977. One U.S. television show, *90210* (since 2008) is included to illustrate aspects of love as described by Fromm and Epictetus in Chapter 3. The lyrics of one pop-folk song, Gordon Lightfoot's "The Wreck of the Edmund Fitzgerald" (1976) are briefly analyzed to illustrate the brutal universe concept and a positive social reaction to it through the interaction between a renowned Canadian artist and his audience. The power of popular music to tell stories as equal to if not greater than literature and film is mentioned as an area of interest for continued research and pedagogy by the author late in Chapter 3 when previewing the use of Lightfoot in Chapter 4.

Chapter 1

A Chronology of Misused Power in a Brutal Universe

*...Why... should man's first flight to the moon be a matter of national competition? Why should the United States and the Soviet Union, in preparing for such expeditions, become involved in immense duplications of research, construction, and expenditure? Surely we should explore whether the scientists and astronauts of our two countries - indeed of all the world - cannot work together in the conquest of space, sending someday in this decade to the moon not the representatives of a single nation, but the representatives of all of our countries. President John F. Kennedy*⁸

1908-1952: Tunguska, two world wars, space weapons and Mars

Ironically, it is the wars of the past that have yielded the technological capacity for the human race to save itself from asteroids and comets. On June 30, 1908, six years before World War I, an asteroid, comet or asteroid-comet mix (still disputed) on an Earth-crossing orbit (ECO) decimated the forest region surrounding Tunguska, Siberia. The glow from this event lit the night sky in London and missed striking the heart of Europe by six hours.⁹ Over a century after Tunguska and several major wars later, the human race is no more prepared for the recurring phenomenon of Near-Earth Object (NEO) impacts of asteroids and comets than the dinosaurs were when they met their extinction from a large and dense NEO that happened to be on an ECO. The largest asteroids that pose a global threat to Earth are only between one and two kilometers in diameter but there are hundreds of smaller objects of various diameters known as potentially hazardous asteroids (PHAs) that orbit the sun within the innermost solar system (Mercury through Mars). Based on variable mass, velocity and trajectory, PHAs can either be locally devastating or inconsequential. As of August 15, 2011, there were 1,255

⁸ Text of President John F. Kennedy's address to the United Nations, September 20, 1963: <http://www.jfklibrary.org/Asset-Viewer/Archives/JFKPOF-046-041.aspx>. Retrieved August 17, 2011.

⁹ *Fire from the Sky*, dir. Brian Avenet-Bradley and Mark Mitchell, 60 min. (Atlanta: Turner Home Entertainment, 1997), videocassette.

such PHAs visually plotted in the innermost solar system. While the plot is available to the public, it cannot be reproduced without written consent. It is the inevitably uncharted PHAs of diameters over 50-800 meters that should be of more concern to global leaders and publics alike.¹⁰ On March 24, 1993, the late U.S. Representative from California, George Brown's opening statement to the Congressional hearings on the NEO threat before the U.S. House Committee on Science, Space and Technology stands as follows:

If some day in the future we discover well in advance that an asteroid that is big enough to cause a mass extinction is going to hit the Earth, and then we alter the course of that asteroid so that it does not hit us, it will be one of the most important accomplishments in all of human history.¹¹

“NEOs” is an inclusive term for asteroids and comets on ECOs as well as man-made space debris (improperly discarded satellites, lost tools from space walks etc.), thousands of which in the latter category travel dangerously at approximately 17,000 miles per hour in low-Earth orbit (LEO). Occasionally these NEOs impact in LEO and create more orbital debris, which pose a danger to military satellites (MILSATS) and civilian communication satellites, both of which are used for planning and executing terrestrial military operations in terms of command, control, communications, computing and intelligence, known generally as C4I.¹² This new dependence on space by modern

¹⁰ NASA Ames Research Center, Asteroid and Comet Impact Hazards, "Introduction," webpage. <http://impact.arc.nasa.gov/intro.cfm>. See also International Astronomical Union, Minor Planet Center, Smithsonian Astrophysical Observatory, Harvard-Smithsonian Center for Astrophysics. <http://www.minorplanetcenter.net/>. See also "Plot of the Innermost Solar System," webpage. <http://www.minorplanetcenter.net/iau/lists/InnerPlot2.html>. Both retrieved August 15, 2011.

¹¹ NASA Ames Research Center, Asteroid and Comet Impact Hazards, "Death of U.S. Congressman George E. Brown," webpage. http://impact.arc.nasa.gov/news_detail.cfm?ID=54. Retrieved October 10, 2011.

¹² C4I Center, George Mason University. <http://c4i.gmu.edu/>. Retrieved August 17, 2011.

militaries makes MILSATS extremely high value assets, which must be defended or attacked through the use of offensive anti-satellite satellites (ASATs) and other terrestrial countermeasures such as electronic jamming, all of which creates the potential for a counterproductive arms race in space, namely between China and the U.S., primarily over the issue of Taiwan.

Current reconnaissance and surveillance satellites of individual nation-states, called “national technical means” by the international security community, look down on Earth from space to verify nuclear arms control treaties. They are not watching the space environment. However, the U.S. Space Surveillance Network (SSN) based in Cheyenne Mountain in Colorado and its Russian counterpart, the Space Surveillance System (SSS) do look at the space environment from the ground for space debris and to monitor MILSATS.¹³ One idea to be considered by Russian and U.S. leaders is to combine these two nation-state programs to form the basis for multiple nations contributing staff and technical expertise. This hypothetical international and interagency effort conceivably could base observation platforms in space to monitor ASATS and preferably to transform ASAT capabilities into what is known as a kinetic kill vehicle (KKV) to serve as one tool of many for an international planetary defense system against asteroids and comets and a collaborative political regime to support it, not unlike NORAD or NATO.

In January 2003, President Dr. A.P.J. Abdul Kalam of India (as distinct from the Prime Minister of India), known as the father of the Indian space program called for an International Space Force to guard against the weaponization of space at the 90th Session of the Indian Science Congress. President Kalam began his remarks by addressing the

¹³ Theresa Hitchens, *Future Security in Space: Charting a Cooperative Course* (Washington, D.C.: Center for Defense Information, 2004), 6-32.

need for a knowledge society in the 21st century, citing poverty as a dynamic of terrorism and violence, clean energy for future generations of the planet, space solar power to enable water desalination, international cooperation against dangerous asteroids, commercialization of space access and socio-economic development. He then concluded his speech by saying:

Above all, we must recognize the necessity for the world's space community to avoid terrestrial geo-political conflict to be drawn into outer space, thus threatening the space assets belonging to all mankind. This leads on to the need for an International Space Force made up of all nations willing to participate and contribute to protect world space assets in a manner, which will enable peaceful use of space on a global cooperative basis without the looming threat of conflict on Earth. I am sure India would contribute its best to the creation and sustenance of such an International Space Force.¹⁴

In *Asteroids: A History* (2001), Peebles puts recent developments in asteroid science within a human historical context that dates back to Kepler's inspired guess at locating the asteroid belt. The idea to protect Earth from asteroid impacts is attributed to the poet Lord Byron who called asteroid impacts "the only natural disaster that human society can prevent." Advanced by both poorly equipped amateurs and world-renowned professionals, the study of asteroids has repeatedly shattered scientific orthodoxies, forcing theorists to rethink the structure of the solar system and the history of Earth.

A profound fact concerning the conception of the solar system by Wernher von Braun, known as the father of the U.S. space program, is that he had planned in detail the peaceful human exploration of Mars during and following World War II. von Braun is

¹⁴ President Dr. Abdul Kalam of India, "Vision for the Global Space Community; Prosperous, Happy and Secure Planet Earth" (address to the 90th Session of the Indian Science Congress, Indian Space Research Organization, 4 January 2003). <http://www.spaceref.com/news/viewsr.html?pid=7457>. Retrieved March 20, 2012.

best known for developing the V-2 combat rocket for Hitler as well as the Saturn V rocket that made Kennedy's Apollo program possible. (The V-2 or any ballistic missile is technically a space weapon when it leaves Earth's atmosphere under power before plummeting to targets on Earth.) In 1944, the Gestapo arrested von Braun after he expressed regret for not being allowed to work on a spaceship.¹⁵ He envisioned and calculated for a fleet of ten spacecraft to carry 70 astronauts to Mars. Of these ten, three would be unmanned, each carrying a 200-ton winged lander to carry cargo, nine vehicles and the astronauts themselves to the surface.¹⁶ After the moon landing, von Braun said "given the same energy and dedication that took them to the moon, Americans could land on Mars as early as 1982."¹⁷

1953-1972: Ike, JFK, Apollo and the opportunity costs of Vietnam

Eisenhower's farewell address warning of the undue influence of the military-industrial complex is well known. This dissertation does not discount that this is a reality, not only in the U.S. but also in all advanced nations. Instead, it assumes that the power of military-industrial complexes is all encompassing in the modern world and proceeds to ask the next question: How might this reality serve the human race in a brutal universe? In this wider context of reality, past and current abuses of national power are recontextualized as global *misuses* of power. It is often forgotten that it was during Eisenhower's administration and not Kennedy's that NASA was created in 1958. It is

¹⁵ Bob Ward, *Dr. Space: The Life of Wernher von Braun* (Annapolis: Naval Institute Press, 2005), 38-40.

¹⁶ Wernher von Braun, *The Mars Project* (Urbana: Illini Books, 1991). Republished posthumously. First published by University of Illinois Press in 1953.

¹⁷ *Time*. "Next, Mars and Beyond." July 25, 1969.
<http://www.time.com/time/magazine/article/0,9171,901107,00.html>. Retrieved August 17, 2011.

even less remembered that NASA was an expansion, strengthening and re-dedication of the National Advisory Committee for Aeronautics (NACA) that had since 1915 studied the problems of flight from the perspective of making practical improvements.¹⁸ Analysis of General Eisenhower's multilateral leadership at D-Day in 1944 through a docudrama in Chapter 4 will indicate that the NACA/NASA model can be extended to the global sphere in the interest of human survival in a brutal universe. As President of the United States, Eisenhower also signed the National Defense Education Act of 1958 in response to Sputnik, another theme from the Eisenhower era that is extrapolated at the end of Chapter 3.

Campbell argued that the form of nurture that the world desperately needs today is a modern myth that has the vitality to move the human soul to offer its temporal life for others in a great cause. The current myth that success is measured economically is a recipe for societal discontent says Campbell, resulting in various forms of neuroticism and schizophrenia, including through drug use. Campbell said that the economic model of history fails to explain why the cathedrals of Europe were built over many lifetimes. Campbell cites July 20, 1969, the night Neil Armstrong walked on the moon as the great event of the modern era - a public demonstration of the standard to which all human beings in the global tribe can now aspire. Campbell's use of the term *global tribe* carries a different meaning than McLuhan's *global village*. The concept presented here, *primal instincts for duty to the human pack* favors Campbell more than McLuhan.¹⁹ While the

¹⁸ See Michael H. Gorn, *Expanding the Envelope: Flight Research at NACA and NASA* (Lexington: University Press of Kentucky, 2001).

¹⁹ Joseph Campbell, "The Vitality of Myth," in *Mythology and the Individual* (Minneapolis: HighBridge Audio, 2002), audiotapes of lectures posthumously published.

term "pack" can imply hierarchy and abuse of power, the term as used in this dissertation draws from archeological understanding of humans, not so much as bloodthirsty predators but as innovative survivalists who have overcome great odds in our distant past such as hunting mastodons.²⁰ Structured aggression such as this by and for humans instead of aggression among humans is what is needed now to approach the World Problematique Plus (Figure 9). Consideration of Derrida's posthumously published lectures, *The Beast and the Sovereign, Volume I - The Seminars of Jacques Derrida* (2009) in Chapter 4 provide further insight on this question in relation to analysis of London's *The Call of the Wild* (1903).

The following images and captions introduce an alternative narrative to the securitization of international relations (humans vs. humans). This narrative is not opposed to power, including the use of U.S. power to include the kind of knowledge-production that can empower individuals worldwide. Neither does it favor ultimate power for any one nation, empire or group of people exclusively, namely to the U.S. From the perspective of lost opportunities for a permanent human presence on the moon in addition to human exploration of Mars to coincide with the Viking robotic lander missions of the 1970s, the conflict in Vietnam can be viewed in a new historical light. The continued ill will among U.S. citizens toward each other and the mistrust by other nations toward U.S. leadership that this conflict has spawned for two to three generations has wasted the powerful energies and abilities of potentially the entire world. How might recent world history have unfolded differently if President Kennedy had lived and the

²⁰ Michael R. Waters et al., "Pre-Clovis Mastodon Hunting 13,800 Years Ago at the Manis Site, Washington," *Science* 21, vol. 334, no. 6054 (October 2011): 351-353.
<http://www.sciencemag.org/content/334/6054/351.abstract>. Retrieved March 16, 2012.

conflict in Vietnam had not been fought? Would the U.S. and the Soviet Union have been able to work together to lead the developing spacefaring capacities of other nations to conquer the moon and Mars as President Kennedy called for at the UN two months before his assassination? (See President Kennedy's quote at the beginning of this chapter.) This question posits a historic counterfactual that cannot be realized. However, it is never too late for global leaders and global citizens to correct for the historic misstep that the U.S. took in Vietnam and to begin anew from where Ike and JFK brought the world and the U.S. position in it post World War II.



Figure 1. The torch from Marshall²¹



1962 PULITZER PRIZE WINNER AP Photo by Paul Vathis

Figure 2. Passing the torch (at Camp David)²²

²¹ Dr. von Braun showing President Eisenhower a model of and an actual Saturn I booster at Marshall Space Flight Center, Alabama, September 8, 1960. Image credit: NASA.

²² Presidents Kennedy and Eisenhower at Camp David in Maryland on April 22, 1961 post Bay of Pigs invasion. Image credit: *Associated Press*.



Figure 3. A generation tempered by war²³

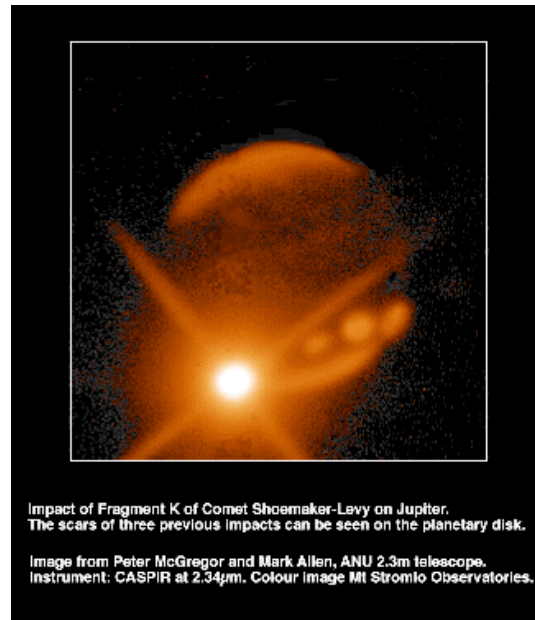


Figure 4. Jupiter under fire 22 years after Apollo 17²⁴

1973-1980: Apollo-Soyuz Test Project and détente

Known as the July 1975 “handshake in space” mission, the precedent that Apollo-Soyuz set for global collaborative power is as remarkable as it is forgotten or perhaps deliberately ignored. In this mission, Soviet cosmonauts and U.S. astronauts shook hands at the height of the Cold War when their capsules docked in low-Earth orbit (LEO).²⁵ More impressive than this technological feat is that collaborative planning took place among the collective embodiment of realism, President Richard M. Nixon, then National Security Advisor Henry Kissinger and Chairman Aleksey Kosygin. Apollo-Soyuz was realized during the Ford administration. It is widely believed among arms control

²³ Dr. von Braun and President Kennedy at Redstone Arsenal, Alabama, May 19, 1963. Image credit: NASA and U.S. Army Aviation and Missile Command.

²⁴ One of 21 fragments from Comet Shoemaker-Levy 9 impacting Jupiter from July 16-22, 1994. Image credit: NASA JPL.

²⁵ NASA History Program Office, "Apollo-Soyuz Test Project," webpage. <http://history.nasa.gov/astp/>. Retrieved August 12, 2011.

scholars that the Apollo-Soyuz mission served to de-escalate tensions between the U.S. and the Soviets, at least at the strategic [nuclear] level. It is important to note that the diplomatic momentum behind Apollo-Soyuz stopped short of full and open collaboration on humans to Mars missions. As indicated above and earlier, President Kennedy had promoted this idea at the UN two months before his assassination in November 1963 and von Braun had originated planning for such missions at the expense of being imprisoned by Hitler.

1981-2000: Space station diplomacy and humans to Mars again delayed

From the perspective of the need to protect the human race on Earth with space-based assets, this prolonged period of "exploration" in LEO with the U.S. Space Shuttle and the planning of the International Space Station are problematic. From the perspective of winning the peace of the Cold War, the role that building the station together played is consequential. The definitive text that supports this contention, *Partners in Space: U.S.-Russian Cooperation After the Cold War* (2004) is contributed to by over 100 principles of this time period and edited by Susan Eisenhower, granddaughter of President Eisenhower, herself a principle in this under-appreciated story. Sometime after her 1990 marriage to Roald Sagdeev, Director Emeritus of the Space Science Institute, the Moscow-based center of the Russian space exploration program, Sagdeev became Distinguished Professor of Physics at the University of Maryland near Washington, D.C. In that capacity, he advised then Senator Al Gore that space in general was a great area in which to engage the Soviets to further U.S. political and economic goals (23). Later as Vice President, Gore co-chaired the Gore-Chernomyrdin Commission that paved the way for the International Space Station. In regard to Mars, Sagdeev recalls that in 1973:

We came to the philosophical conclusion that since Viking [two U.S. Mars lander and orbiter missions achieved in 1976] was such an expensive, dedicated and extremely sophisticated spacecraft, we should not try to duplicate the mission... Instead, we argued, we should abandon Mars and see how the American program would develop... The openness of the American program played an important role for us in planning our missions, particularly since the United States would announce all their missions, like Viking and others, well in advance (15).

In *Partners in Space*, Eisenhower and her colleagues expertly chronicle the key events and political forces that led to the superpowers of the Cold War merging the U.S. Space Station Freedom project proposed by Reagan in January 1984 with the Russian and European Space Agency project, Mir 2 begun under Yeltsin in December 1991. Both projects were saved from cancellation, space agencies from Europe, Canada and Japan formed around the U.S.-Russian lead and the U.S. was able to influence though hardly control the proliferation of Russian missile technology and know-how, namely to Iran.

In full disclosure, the author interned at The Eisenhower Institute in Washington, D.C. during the spring of 2003 in a support role for closed workshop sessions as part of the Space Security Working Group. This group consisted of an international team of approximately 20 senior experts that produced the inaugural Space Security Index, an ongoing annual project now part of Project Ploughshares of the Canadian Council of Churches in Waterloo, Ontario.²⁶ 3x3 Global Drills, designed for private or public settings are inspired in part through observing the efficiency of dialogue on complex and intense space security issues moderated by Susan Eisenhower.

²⁶ See Space Security Index of Project Ploughshares, Canadian Council of Churches and other participating institutions in North America. <http://www.spacesecurity.org/>. Retrieved July 3, 2011.

Adding to the general composite of insights voiced at the Eisenhower Institute, the author draws upon his prior experience as the interim chairperson of the Ohio Chapter of the Mars Society in 2000, having been influenced by the ideas of Dr. Robert Zubrin, a former member of Martin Marietta's scenario development team for space exploration and now President of his own aerospace firm, Pioneer Astronautics in Colorado. Zubrin, president of the Mars Society and author of *The Case for Mars: The Plan to Settle the Red Planet and Why We Must* (1996, 2011), in addition to understanding the imperative of planetary defense from asteroids and comets favors aggressive nationally-based approaches to humans exploring Mars - different nations, large and small exploring different regions of Mars rather than collaborating for its own sake on unworthy missions that dishonor the human spirit of exploration. The author is sympathetic to Zubrin's philosophical opposition to the International Space Station model of "exploration." Zubrin indicts the space station concept as being designed to keep space agencies busy studying the effects of zero gravity on humans instead of simply engineering ways to mitigate these effects. Zubrin proposes a simple mechanism to achieve artificial gravity for the six-month journeys to and from Mars with current heavy-lift propulsion achieved through mile-long centrifugal force tethers attached to the crew capsule and one of the expended stages of the lift rockets.²⁷

In fairness to the Susan Eisenhower or pro International Space Station approach, it seems to more accurately calculate domestic political realities in all countries that compete with the noble dreams of space exploration than the Zubrin or entrepreneurial

²⁷ Robert Zubrin, interview by David Livingston, *The Space Show*, KKNW 1150 AM, Seattle, June 28, 2011. <http://www.thespaceshow.com/detail.asp?q=1583>. Retrieved July 3, 2011. See also Robert Zubrin, "How We Can Fly to Mars in This Decade - And on the Cheap," *The Wall Street Journal*, Saturday, May 14, 2011.

approach. In fairness to Zubrin, he appreciates the distinct roles that government and the private sector must play in space exploration more than many in the international space entrepreneur community. Hogan's case study of the failure of President George H.W. Bush's 1989 Space Exploration Initiative to send humans back to the moon and ultimately to Mars by 2019 in terms of gaining Congressional approval let alone international implementation, in part accounts for the differing approaches labeled above. The essence of space planning seems to depend on the current economic environment and leadership, two of the same reasons why President Bush lost his reelection bid to Bill Clinton in 1992.²⁸ Zubrin and the Mars Society contend that the 30-year long goal of the Space Exploration Initiative budgeted at some \$300 billion was needlessly overpriced and prolonged and understandably was "dead on arrival" when considered by Congress. It is notable, given Sagdeev's account of Soviet abandonment in 1973 to strive toward von Braun's humans to Mars plans from World War II that Susan Eisenhower concludes *Partners in Space* with a chapter entitled "From Columbia to Mars." In this chapter she includes a quote from Secretary of State Colin Powell who was in Moscow days after President George W. Bush's announcement of his long-term Vision for Space Exploration to send humans back to the moon by 2020, then to Mars at NASA Headquarters in Washington, D.C. on January 14, 2004:²⁹

²⁸ See Thor Nels Hogan, "Mars Wars: A Case History of Agenda-setting and Alternative Generation in the American Space Program" (Ph.D. diss., The George Washington University, 2004).

²⁹ "President Bush Announces New Vision for Space Exploration Program," White House press release, January 14, 2004. <http://history.nasa.gov/Bush%20SEP.htm>. Retrieved July 3, 2011.

Russia has too much to offer the world for us to allow the promise of our partnership to go unfulfilled... As we joined thirty years ago to develop the Apollo-Soyuz mission, thirty years from now we can be surveying together the outer reaches of the solar system (142).

1994: Comet Shoemaker-Levy 9 pelts Jupiter

Since the formation of the solar system, asteroids and comets that orbit through the inner solar system, NEOs have or are developing ECOs. From July 16-22, 1994, 21 fragments from Comet Shoemaker-Levy 9, each up to two kilometers in diameter pelted Jupiter, two planets away from Earth (see Figure 4). These first ever observed NEO impacts in real time eliminated what those in the global asteroid detection and deflection community called "the giggle factor" in reaction to the possibility of Earth being hit.

On July 19, 2009, another object the size of the Titanic impacted Jupiter.³⁰ Since asteroids are more numerous and identifiable than comets, astronomers regularly determine that near-Earth asteroids large and dense enough to do significant damage to Earth will miss our planet as they orbit the sun. Both asteroids and comets occasionally go undetected for many technical reasons until amateur astronomers see them on approach or after they have already passed too close for comfort. Regrettably, the international community has no space-based planetary defenses at the ready under international command and control. One group calling for a "global response" to potentially hazardous asteroids was founded in 1985, the Association of Space Explorers (ASE), an international nonprofit professional and educational organization of over 320

³⁰ NASA, "Asteroids Ahoy! Jupiter Scar Likely from Rocky Body," January 26, 2011. <http://www.nasa.gov/topics/solarsystem/features/jupiter20110126.html>. Retrieved August 10, 2011.

individuals from 34 nations who have flown in space. Apollo 9 astronaut Russell "Rusty" B. Schweickart chairs the ASE Committee on Near Earth Objects.³¹

2001: Gamma-ray bursts - the mother of all threats to the solar system

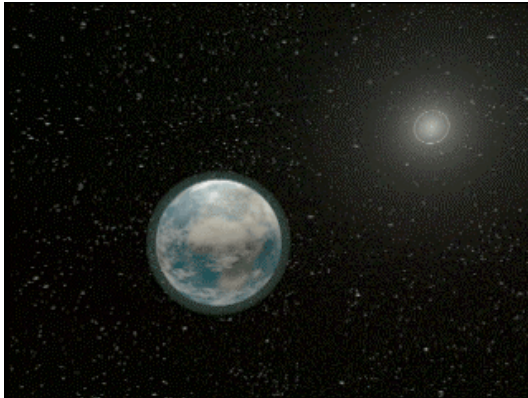


Figure 5. Gamma-ray burst (GRB) illustration³²

An even bigger threat than NEOs that originates from outside the solar system are gamma-ray bursts (GRBs) of radiation. They can destroy Earth's ozone layer to where the sun's ultraviolet radiation can kill all exposed vegetation and animal life. Gamma-ray bursts are the most powerful known force in the universe - essentially dying stars that implode and release incredible amounts of energy beyond that of our sun. The U.S. and Europe have dedicated a handful of satellites to monitor them.

Observed GRBs occur about once a day in other galaxies and pose no threat to Earth from that distance. As with asteroids and comets, we have no defenses against a gamma-ray burst that might occur from within our galaxy that may already be travelling to our

³¹ Association of Space Explorers (ASE). *Asteroid Threats: A Call for Global Response*, September 25, 2008. Presented to the Committee on the Peaceful Uses of Outer Space (COPUOS) of the United Nations Office for Outer Space Affairs (OOSA), Vienna, February 16, 2009. <http://www.oosa.unvienna.org/pdf/pres/stsc2009/tech-30.pdf> and <http://www.space-explorers.org/committees/NEO/docs/ATACGR.pdf>. Both retrieved August 17, 2011.

³² NASA Goddard Space Flight Center, "Gamma ray burst," illustration, November 7, 2001." <http://www.gsfc.nasa.gov/topstory/20011025heteburst.html>. Retrieved May 6, 2010.

solar system at the speed of light. Its arrival could be detected at any random point in time by a flash seen through a space-based or ground-based telescope. On September 21, 2001 a frequent yet random GRB occurred, lasting only a few seconds. The afterglow of the flash, which looks like a cinder slowly fading, was spotted by NASA's High Energy Transient Explorer (HETE), the first satellite dedicated to GRB detection. GRBs from hypernovae (imploding stars) involve the extragalactic release of energy equivalent to a billion trillion of our suns and no one is exactly sure what causes them or even where they originate. It is believed that the September 21 GRB occurred relatively close, 5 billion light-years from Earth in the constellation Lacerta.³³ While issues of "high diplomacy" are considered among governments, in research institutes and in academe on how to maintain the balance of power favorable to a particular nation, GRBs within our galaxy may already be on collision courses with our solar system.

2003: U.S. reaction to historic first human spaceflight by China

Days before China became only the third nation to launch their own humans into orbit and successfully return them to Earth, Buzz Aldrin, the second human to walk on the moon, was quoted as saying: "We'd learn a little bit more about China's space plans if we extended a hand of welcome... We should offer to work out some mutually attractive means of advancing both of our interests." The Chinese Shenzhou spacecraft meaning "Vessel of the Gods" or "Sacred Vessel" launched by Long March heavy lift rockets have the capability to be mated with the International Space Station, providing a lifeboat. The Chinese also are developing the capability to build their own space station in

³³ NASA Goddard Space Flight Center, "NASA's HETE Spots Rare Gamma-ray Burst Afterglow," Top Story, November 7, 2001. <http://www.gsfc.nasa.gov/topstory/20011025heteburst.html>. Retrieved August 17, 2011.

addition to lunar missions.³⁴ (In November 2011, an on-orbit docking test mission between the Shenzhou-8 spacecraft and the Tiangong-1 space lab module was successful.)³⁵

In October 2000, Luan Enjie, Director of China's State Aerospace Bureau, said that China's long-term goals were to "conduct exploration of the moon and actively join international activities for Mars exploration"³⁶ which have since become national goals in a space race with India, which has similar aims.³⁷ It is not responsible for U.S. leaders to automatically assume that China is insincere in professing their intention in the past to take part in the peaceful international exploration of Mars. Dialogue in good faith by the West with China in this area has huge possibilities for avoiding military competition in space. If the U.S. publicly and loudly were to hold the government of China as a whole to the positive statements in regard to space made by their space scientists, we might be able to break out of the zero-sum cycle that has started in the military space-Earth arena. Domestic discussions about joint U.S.-Chinese missions in space, taking place on each side of the Pacific might also be productive in establishing firm international commitments involving all space faring nation-states.

³⁴ Leonard David, "NASA and China Should Work Together, Apollo Moonwalker Says," *space.com*, October 10, 2003. http://www.chinadaily.com.cn/en/doc/2003-10/11/content_271024.htm. Retrieved August 17, 2011.

³⁵ "China Accomplishes First Space Docking," *Xinhua*, November 3, 2011. http://news.xinhuanet.com/english2010/sci/2011-11/03/c_131226569.htm. See also *China's Space Activities in 2011*, Information Office of the State Council of the People's Republic of China (December 2011). http://china.org.cn/government/whitepaper/node_7145648.htm. Both retrieved February 9, 2012.

³⁶ AP, "China Plans Lunar Landing, Mars Exploration," *CNN.com*, October 4, 2000. Source irretrievable.

³⁷ PTI (Press Trust of India), "China's Space Program Gears up for Missions to Moon, Mars," *The Hindu*, September 20, 2010. <http://www.thehindu.com/sci-tech/article738574.ece>. Retrieved February 9, 2012.

2001-2011: The counterproductive debate over space weapons

It is important to note that this issue area is not new to the study of international security as a subset of political science. In 1988 for example, Nye provided a comprehensive framework for assessing the security consequences of the anti-satellite (ASAT) weapons issue and the military uses of space more generally. He addressed the significance of the military uses of space at the end of the Cold War and the available negotiated and unilateral steps that might be taken to suppress threats and secure space assets from a U.S.-centric perspective. Essentially, his choices for consideration were to either develop ASAT capabilities or to exercise restraint, coupled with treaty verification controls.³⁸ Discussions have not departed from the framework Nye set out in 1988 and in reality have been considered along these lines since the Eisenhower administration.

In January 2007, China shot down one of its own aging weather satellites with a kinetic kill vehicle launched with a ballistic missile, seemingly to get the U.S. to negotiate a ban on space weapons. The U.S. had conducted a similar test in 1985 and has reportedly been developing components for various space weapons in secret. In February 2008 the U.S. shot down one of its own defunct spy satellites from a U.S. Navy ship off the coast of Hawaii with a standard missile in apparent tit-for-tat.³⁹ In regard to the present key bilateral relationship between China and the U.S., a similarly conceived project(s) as Apollo-Soyuz might serve as a confidence building measure to yield breakthroughs on contentious issues. Among these include the question of independence

³⁸ Joseph S. Nye, ed. and James A. Schear, *Seeking Stability in Space: Anti-satellite Weapons and the Evolving Space Regime* (Lanham, Maryland: Aspen Strategy Group and University Press of America, 1987).

³⁹ See Craig Couvaut, "Chinese Test Anti-Satellite Weapon," *Aviation Week and Space Technology*, January 17, 2007. See also Jeremy Hsu and Jeanna Bryner, "Space Arms Race Heats Up Overnight," *space.com*, February 21, 2008. <http://www.space.com/news/080221-asat-aftermath.html>. Retrieved August 17, 2011.

for Taiwan and Tibet, religious and political liberties and most importantly, the military use of outer space. Throughout history, mobilization on grand scales has yielded new economic dynamism and revitalization of civilizations. China and the West and indeed the whole world could benefit from such sustained revitalization. Again, this dissertation argues that such dynamism be achieved by co-exploring but only with urgent purpose to extend the footprint of the human race to spaces beyond Earth so as to be less vulnerable to the many unforgiving hazards in the universe, including those in and on Earth.

Carl Everett Dolman, Professor of Comparative Military Studies, School of Advanced Air and Space Studies, Air University, Maxwell-Gunter Air force Base, Alabama, introduces the concept of “astrogeography,” or geographic positioning in space as it pertains to the evolution of current and future military space strategy. While his book, *Astropolitik: Classical Geopolitics in the Space Age* (2001) does not advocate an “astropolitical” future for the exploration of space; it does analyze what the future might be like, given the continuing nationalistic pursuit of outer space. Dolman formulates a neoclassical astropolitical dictum: “Who controls low-Earth orbit controls near Earth space. Who controls near-Earth space dominates terra. Who dominates terra determines the destiny of humankind.” Dolman argues that the agreements on space that were forged in the Cold War were achieved because neither the U.S. nor the U.S.S.R. thought that it could achieve dominance in space.

Moving beyond the counterproductive debate, Hitchens, now the director of the United Nations Institute for Disarmament Research (UNIDIR) served as the director of the non-profit Center for Defense Information in Washington, D.C. when making the following remarks in Geneva:

...While the United States may be unwilling to work toward a ban on space weapons, it remains a major – and for the most part responsible – player in space. Isolating the United States because of its position on space weaponization is simply a waste of time; or worse, attempts to do so may well backfire by promoting the views of those in the United States who see unilateral approaches to security as the only approaches. Meanwhile, other spacefaring nations need to be discouraged from treading down similar destructive paths. This brings even more urgency to undertaking initiatives that promote cooperation amongst the spacefaring powers in areas where they have mutual interests. There is little time to waste.⁴⁰

Specifically, Hitchens emphasizes space debris mitigation in the above address while this dissertation emphasizes planetary defense, humans to Mars and space-based solar power for the same reasons as Hitchens expresses above. (A U.S. Department of Defense plan for space-based solar power is cited in Chapter 3.) An updated survey of these and other views on U.S. space security strategy is provided by Charles D. Lutes and Peter L. Hays, eds., *Toward a Theory of Spacepower: Selected Essays* (2011).

⁴⁰ Theresa Hitchens, “Engaging the Reluctant Superpower: Practical Measures for Ensuring Space Security.” Presentation to conference entitled “Safeguarding Space Security: Prevention of an Arms Race in Outer Space,” held in the Council Chamber, Palais des Nations, Geneva. Sponsored by the People’s Republic of China, the Russian Federation, the Simons Center for Disarmament and Non-Proliferation Research (Canada) and the United Nations Institute for Disarmament Research (UNIDIR), March 21-22, 2005.

http://www.cdi.org/friendlyversion/printversion.cfm?documentID=2946&from_page=../pro%20%20gram/document.cfm. Retrieved August 10, 2011.

2008-2011: Incremental-unilateral U.S. leadership of space endeavors

- December 4, 2008: In Alexandria, Virginia, 27 subject matter experts from across the U.S. Government, including Steven Hadley, National Security Advisor to President Bush, participate in a single day tabletop exercise to explore whole of [U.S.] government response to an impending asteroid strike⁴¹
- April 15, 2010: President Obama announces at Kennedy Space Center in Florida a goal of U.S. humans to an asteroid by 2025 and to orbit Mars in the 2030s⁴²

Scientists and engineers from around the world need to be developing as many young minds as possible to design and build an overabundance of prototypes to defend against celestially-derived mega-threats including those within, on and beyond Earth as we prepare to explore other planets, itself a defense in the form of evasion. Some ideas will work while other ideas that "fail" in regard to mega-threats defense can only lead to other useful applications in space and on Earth. Smaller global threats can also be averted by space-based responses if global resources are marshaled away from national defense budgets and into collaborative action. For example, as will be reiterated at the beginning of Chapter 3, global private pharmaceutical research programs could make enhanced use of zero gravity aboard the International Space Station, which better replicates how cells multiply in the human body than in any laboratory process on Earth. More launches to the International Space Station carrying follow up experiments on a weekly basis might accelerate vaccine development against increasingly virulent strains of diseases that threaten rapid pandemics across Earth.

⁴¹ U.S. Air Force Future Concepts and Transformation Division (AF/A8XC), Directorate of Strategic Planning, Headquarters, U.S. Air Force, *Natural Impact Hazard (Asteroid Strike) Interagency Deliberate Planning Exercise After Action Report* (Washington, D.C.: GPO, December 2008). <http://neo.jpl.nasa.gov/neo/niaa2008.html>. Retrieved August 10, 2011.

⁴² See President of the United States, *National Space Policy* (Washington, D.C.: GPO, June 28, 2010), 11. http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf. Retrieved August 10, 2011.

Leaders of major nations would do well to view Earth (inclusive of her relatively unexplored ocean depths) as one sphere of hundreds in an unexplored solar system. After Mars and her two moons, Jupiter, Saturn, Uranus and Neptune have over a hundred moons with new discoveries announced every few years, as shown in and cited after Figure 8, *A wider box of thought* at the beginning of Chapter 3. Robotic and human exploration of and stationing at some of these bodies can be expected to reveal new knowledge of solar system dynamics, not limited to our own. By not depending on Earth as our only home, we can become less vulnerable. Our individual lives are all limited in productive time. They would be better spent preparing defenses against known hazards of the universe and proactively searching for new ones than manipulating the global chessboard, however skillfully. We owe our children and ourselves more meaningful lives by giving the human race a fighting chance.

Thus far we have discussed the dysfunction of the world system as it is and why it is unacceptable in the context of a brutal universe. The human race is capable of using the technological capabilities that have resulted from wars and deterrence of wars that were set in motion in 1914 to reposition itself favorably across the solar system. The next chapter reviews in more depth the political nature of our global dysfunction and outlines prospects for reversing it in synergistic fashion with our technical and scientific know-how and potential.

Chapter 2

Global Collaborative Power: Altering the Status Quo

Men since the beginning of time have sought peace. Various methods through the ages have been attempted to devise an international process to prevent or settle disputes between nations... Military alliances, balances of power, Leagues of Nations, all in turn failed, leaving the only path to be by way of the crucible of war. The utter destructiveness of war now blocks out this alternative. We have had our last chance. If we do not now devise some greater and more equitable system. Armageddon will be at our door. The problem is basically theological and involves a spiritual recrudescence and improvement of human character... It must be of the spirit, if we are to save the flesh. General Douglas MacArthur⁴³

Why global leaders do not collaborate against multiple global threats

Despite MacArthur's quote above, global leaders have thus far not been acculturated to think about evading annihilation in a brutal universe. Easton shows that political environments in general create demands and supports for politicians who meet those demands, leading to public policy formation.⁴⁴ It is reasonable to assume that as an increasingly interdependent global citizenry becomes better informed on existential threats, they will demand and begin providing political support within and among human societies to avert human extinction. Such a political reality could very well induce in leaders and instill in citizens long-term psychic commitments and larger scale contingency planning across all disciplines and regions of what NASA calls "the home planet," Earth.⁴⁵ Until this known political dynamic manifests itself, leaders will continue to avoid meeting their responsibility to protect citizens and themselves against human extinction.

⁴³ From address to Congress, April 19, 1951, quoting his post surrender message aboard the battleship Missouri in 1945.

<http://www.pbs.org/wgbh/amex/macarthur/filmmore/reference/primary/macspeech05.html>. Retrieved August 17, 2011.

⁴⁴ See David Easton, *A Systems Analysis of Political Life* (Hoboken, New Jersey: Wiley, 1965).

⁴⁵ NASA, "The Home Planet: NASA's View of Earth," webpage. http://www.nasa.gov/externalflash/earthday_gallery/. Retrieved August 7, 2011.

Potential for global economic, social, political and military harmonization is at present self-defeated by fear and ignorance among and within nations and peoples. Leaders of major powers and multinational corporations are too easily distracted from newly identified threats that are multi-global, multi-stellar and multi-generational in nature. Two structural reasons why global leaders are distracted are 1) to stay elected and 2) to stay profitable for their networks of stakeholders. Following Lasswell, these distractions are inflated due to personal insecurity and are often sincerely justified to be in the interest of "national security," defined as the political stability of their governments.⁴⁶ Such false understanding of ultimate responsibility could prove deadly to the human race while dangers lurk just beyond the horizon of common sight. This propensity for leaders to protect themselves politically or their profits commercially paradoxically causes them to fail their primary duty to safeguard the continued safety and even existence of their constituents, customers, themselves, and their progeny. Their failure to think big owes to their success in thinking small. Many thinkers have provided new technologies for thinking but they have not been fully institutionalized within the global system.⁴⁷ Like MacArthur, Boulding provides further insight into the dysfunctional nature of small-minded national security thinking, though he had in mind the threat of nuclear war, not asteroids or a brutal universe more generally:

⁴⁶ See Harold D. Lasswell, *World Politics and Personal Insecurity* (New York: McGraw-Hill, 1935).

⁴⁷ See Edward Debono, *Lateral Thinking* (New York: Penguin, 1970). See also Joseph Chilton Pearce, *The Crack in the Cosmic Egg: Challenging Constructs of Mind and Reality* (New York: The Julian Press, Inc., Publishers, 1971). See also Buckminster Fuller, *Synergetics: Explorations in the Geometry of Thinking* (London: Macmillan, 1975). See also Thomas L. Saaty, *Creative Thinking, Problem Solving and Decision Making* (Pittsburgh: RWS Publications, 2001).

...National defense is basically non-economic; it does not justify itself by cost-benefit analysis, but by absolute values of sacrifice and sacredness. National defense however now threatens to destroy us all. The most important conflict in the world today is that between the unilateral national defense organizations of the world and the human race itself. The only national defense that is now feasible is stable peace.⁴⁸

Another quote from Boulding supports the operational philosophy of this dissertation though he did not extend his image of concern beyond Earth, as did Buckminster Fuller. Boulding's quote is taken from "This Week's Citation Classic" in *Current Contents*, November 28, 1988:

The basic theme of *The Image* is that behavior, especially of humans, is not a product of a particular stimulus, but of the whole image of the world in the mind of the behaving person... Behavior then consists of acting in a way that is expected to realize the image of the most preferred future.⁴⁹

In order to clarify the usage of the term, idea and image of *collaboration* and *collaborative power* as used throughout this dissertation, a text in the secondary literature on Foucault was helpful to the author. One connotation of collaboration implies treason as in "collaboration with the enemy," especially in the context of World War II from which the dissertation draws in regard to the leadership style of General Eisenhower. In a certain respect, this challenge is apt. Within a new context and common understanding of the universe as brutal, "collaboration with the enemy" is exactly appropriate but without the element of capitulation or coercion. When the author was an intern at the Eisenhower Institute in Washington, D.C. during the spring of 2003

⁴⁸ Kenneth E. Boulding, "Pathologies of Defense," *Journal of Peace Research* 21, no. 2 (1984): 101-108.

⁴⁹ See Kenneth E. Boulding, *The Image: Knowledge in Life and Society* (Ann Arbor: University of Michigan Press, 1956).

learning about space security issues, he was privileged to have a private conversation in a hallway with a former U.S. arms control negotiator who shared his insight, "your enemy does not have to be your enemy." Stuart Elden, Professor of Political Geography at Durham University defines the French version, *collaborateur* as "a colleague, a research team-leader, a facilitator" and describes Foucault as such. He includes Foucault's normative understanding concerning optimal human interaction over ideas:

...thirty or forty of us could get together in a room. I could tell you roughly what I've been doing, and at the same time have some contact with you, talk to you, answer your questions and so on, and try to rediscover the possibility of the exchange and contact that are part of the normal practice of research or teaching...⁵⁰

Chapter 3 and beyond describes 3x3 Global Drills in similar terms but details how a group of thirty or forty might take turns deliberating in teams of six as the rest benefit from observation before taking their turns in the drills (see Appendices A and B). Neither does the usage of the term collaborative, as presented in the dissertation title, mean collectivism.

Beyond competition and treaties of cooperation

The call for and the analysis of *international cooperation* in conventional political practice and political science against common global threats is problematic. Whether it is used under the assumptions of realism, liberalism or constructivism it involves actors giving up things such as land, weapons, weapons research or symbols of sovereignty in

⁵⁰ Stuart Elden, "Strategies for Waging Peace: Foucault as *Collaborateur*" in Michael Dillon and Andrew W. Neal, eds., *Foucault on Politics, Security and War* (New York: Palgrave Macmillan, 2008), 21. Elden cites Michel Foucault, "*Society Must Be Defended*": *Lectures at the Collège de France, 1975-76*, trans. David Macey (London: Allen Lane, 2003), 3.

order to *accommodate* the interests of other actors in the form of treaty or aid agreements.⁵¹ Within this understanding of international cooperation, global political leaders miss grand opportunities to collaborate and realize Boulding's concept of stable peace as more than the absence of war achieved through treaty. Since 1648, treaties among nations have only temporarily forestalled numerous wars. Treaties, as instruments of accommodative power are understood in this dissertation to have the effect of pressure cookers that repress national psyches, resulting in the 20th century creative and cruel ways to efficiently deliver death among human beings, even and perhaps especially between peoples of the same faith and basic traditions. Outer space is given in this dissertation as a pressure valve for the continuing dysfunction of internal global politics as well as providing the essential cognitive perspective for the human race to engage the brutal universe, as previously described.

In a recent thought-provoking presentation, John Mueller of Ohio State University, Mershon Center for International Security Studies argues that there is no significant external military threat to the U.S. global hegemon and that the U.S. military-industrial complex is seemingly fighting terrorism in order to perpetuate its reason for being. Mueller judges this use of power as an expensive overreaction by the U.S. to irrational fears of terrorism, which as a tactic lacks the capacity to consistently kill in large numbers. Instead, by implication, the U.S. could be helping to police world affairs through diplomatic leadership, inspiration and other components of national power.⁵²

⁵¹ See Arthur A. Stein, "Coordination and Collaboration: Dilemmas of Common Interests and Common Aversions," in *Why Nations Cooperate: Circumstance and Choice in International Relations* (Ithaca: Cornell University Press, 1990), 2:25-54.

⁵² John Mueller with Richard Rosecrance, Arthur Stein and Emma Belcher, "Agglomeration versus

This dissertation argues that fighting terrorism with militaries is yet another misuse of global power, given the nature of the brutal universe which requires the psychic energies of all available humans everywhere to most efficiently apply force and other protective measures against multiple global threats.

Beyond institutions of coordination and consensus

Like international cooperation, the large concepts of *coordination* and *consensus* are equally problematic. The former can imply a supreme global coordinating authority in the context of international relations, which Hobbes showed us does not exist. The latter in practice is usually reached through some form of marginalization and there is seldom any unanimity among the non-marginalized. Most notably, there are as many economic prescriptions for a given developing economy based on the "Washington Consensus" as there are economists and all other voices, even within the social sciences can only offer supplemental considerations.⁵³

For eight months in 1975 and 1976 the late Senator Daniel Patrick Moynihan of New York served as U.S. Ambassador to the United Nations. In *A Dangerous Place* (1978), Moynihan details how he confronted the double standard in the UN General Assembly where nations with few violations of human rights are condemned by those nations in which such violation is a system of government. His real attack was on the acceptance, especially in the U.S. of this double standard. (Henningesen recalls that

Balance of Power" (luncheon roundtable at the ISSS-ISAC Annual Conference, joint annual conference of the International Security Studies Section of the International Studies Association and the International Security and Arms Control section of the American Political Science Association, Irvine, California, October 14, 2011).

⁵³ See Jeremy Clift, "Beyond the Washington Consensus," *Finance & Development* (September 2003): 9. <http://www.imf.org/external/pubs/ft/fandd/2003/09/pdf/clift.pdf>. Retrieved March 12, 2012.

during this same time period through to the present, nations in Europe in particular have often regarded the U.S. as hypocritical in that its persistent military intervention and expansive basing contradicts its rhetoric of peace.)⁵⁴ To a great extent, Moynihan's text influenced the decision to not delve deeper into issues of conventional global governance or UN studies in this dissertation. Other ways to the stars can be found than through the UN. The author has argued in a refereed publication that global institutions can be improved by the nature of a global approach to the asteroid-comet threat, in opposition to Sagan's argument that global institutions need to improve before asteroid and comet defenses should be developed.⁵⁵ However, this argument does not preclude any nation such as the U.S. or Russia or any consortia of multinational corporations from bypassing the UN if constructing a planetary defense system in and beyond low-Earth orbit is deemed more *urgent* than leading UN reform. In either approach, dysfunction at the UN should never impede progress toward planetary defense. It is important to note than in words, the UN itself has considered the need for collaborative planetary defense favorably in the past. Paragraph 1. C. iii of the Vienna Declaration on Space and Human Development (Vienna 1999), a resolution adopted at the UN Office for Outer Space Affairs (OOSA) at the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) reads:

⁵⁴ Comments made in dissertation draft upon submission for defense. See also Manfred Henningsen, *Der Mythos Amerika* (Frankfurt: Eichborn-Verlag, 2009.)

⁵⁵ See Martin Schwab, "Constructing a Planetary Defense Regime to Reduce International Terrestrial Insecurity," *Journal of the Washington Academy of Sciences* 89, no. 3&4 (Fall/Winter 2003): 125-140. See also Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space* (New York: Random House, 1994), 324-326.

To improve the international coordination of activities related to near-Earth objects, harmonizing the worldwide efforts directed at identification, follow up observation and orbit prediction, while at the same time giving consideration to developing a common strategy that would include future activities related to near-Earth objects.

Until the UN places the Campaign for the Establishment of a United Nations Parliamentary Assembly higher on its agenda, it will continue to lack global popular support and continue to be generally ineffective toward laudable earthbound agendas such as the Responsibility to Protect doctrine (R2P) and the eight anti-poverty UN Millennium Development Goals (MDGs), let alone in space endeavors.⁵⁶ 3x3 Global Drills make R2P and the MDGs conceptually obsolete by integrating these types of fundamental needs into its framework as means to expand the human race in an intergenerational manner across the solar system and beyond rather than instituting them as bureaucratic ends in themselves.

Power is forever pursued and can never be balanced

Gilpin argues that a shift in the balance of power, economic or military weakens the foundations of the existing system, because those gaining power see the increasing benefits relative to decreasing costs of changing the system. The result, maintains Gilpin, is that actors seek to alter the system through territorial, political, or economic expansion until the marginal costs of continuing change are greater than the marginal benefits. When states develop the power to change the system according to their interests they

⁵⁶ Campaign for the Establishment of a United Nations Parliamentary Assembly. <http://en.unpacampaign.org/index.php>. See also Gareth Evans and Mohamed Sahnoun, "The Responsibility to Protect," *Foreign Affairs* 81 (November/December 2002): 99-110. See also International Commission on Intervention and State Sovereignty (Canada), *The Responsibility to Protect*, December 2001. <http://www.iciss.ca/report2-en.asp>. See also United Nations Millennium Development Goals. <http://www.un.org/millenniumgoals/>. All retrieved August 13, 2011.

will strive to do so, either by increasing economic efficiency and maximizing mutual gain, or by redistributing wealth and power in their own favor.⁵⁷ No one disputes that it is in everyone's interests to save the home planet and gain prestige by contributing to the migration outward of the human race to the maximum of their abilities, therefore by Gilpin's theory, this ought to occur as soon as possible with great vigor and intensity.

A new insight that this dissertation posits is that power cannot be balanced as realists claim. It can only be pursued, either through competition as Morgenthau and his intellectual successors like Gilpin and Nye suggest or normatively through collaboration as the following pages will argue. To balance power for any length of time requires the substitution of psychological violence for physical violence - power *over* others. U.S. strategic doctrines from our recent global Cold War past, "Mutually Assured Destruction (MAD)," "détente," meaning release from tension and "Containment" can be understood as merely different organizing concepts for maintaining psychological conflict. Power, understood as technological capability such as rocket power but also *prestige* that comes with having such capability can be synergistic among nations rather than zero-sum. In this sense, power *with* others in full-bore "attack" mode is far greater than power over others.

A question that gets to be answered in the middle of the 21st century is whether or not the world system, argued in this dissertation as a pack of human beings⁵⁸ will finally apply the essence of President Wilson's prescription at the end of World War I, transparent global communication through the League of Nations. The answer to this

⁵⁷ Robert Gilpin, "The Nature of International Political Change," in *War and Change in World Politics* (Cambridge: Cambridge University Press, 1981), 9-49.

⁵⁸ The meaning of this concept is first introduced in Chapter 1 in the section entitled, 1953-1972: Ike, JFK, Apollo and the opportunity costs of Vietnam.

question is critical because the human race cannot afford to have the 21st century turn out like the 20th century in terms of resolving human-on-human conflict through violence or the threat of violence. Before passing in 2009, the controversial former U.S. Secretary of Defense, Robert Strange McNamara said that his generation became the first generation of the human race that could conceivably destroy global civilization quickly and completely.⁵⁹ At the beginning of the 21st century, the current tools of power projection are heavily dependent on space assets. This dynamic fosters greater risk for crisis escalation, with potentially devastating consequences for our economically interdependent world, even if the U.S. is not directly involved in a given conflict resulting from an attack on military satellites in space.⁶⁰

Beyond the global chessboard: Celestial golf

The image of the global political chessboard reflects dangerous assumptions common to war prone "hawks" and peace seeking "doves." Both assume nations must compete to control this chessboard either by fighting or writing treaties that best serve their interests. Negotiating treaties such as the New START (Strategic Arms Reduction Treaty) of April 2010 between the U.S. and Russia is inherently antagonistic. Treaties postpone and may even intensify eventual conflict by repressing national psyches until aggression is inevitable. Viewing the world as a chessboard to be won, increasingly through military reliance on space is outmoded given economic interdependence. The latest example of

⁵⁹ Robert S. McNamara and James G. Blight, *Wilson's Ghost: Reducing the Risk of Conflict, Killing and Catastrophe in the 21st Century* (New York: Public Affairs, 2001), 224.

⁶⁰ See also Michael J. Coumatos, William B. Scott and William J. Birnes, *Space Wars: The First Six Hours of World War III - A Wargame Scenario* (New York: Forge, 2010).

this error is the secretive mission of the U.S. Air Force's X-37B space plane from April 2010 to December 2010 with a second vehicle launched again in March 2011.⁶¹

Still, the chessboard image can be useful if it is viewed as a domain worth protecting instead of winning. Imagine what global collaborative chess might look like if all 32 pieces, great and small alike project their combined economic, social, political and military power from Earth into a massive presence of space-based platforms, each tasked to prevent the possibility of extinction, as conceptualized below in the context of a brutal universe:

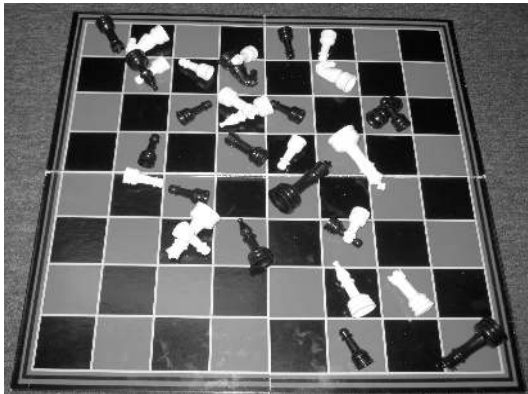


Figure 6. All global chessboard pieces destroyed

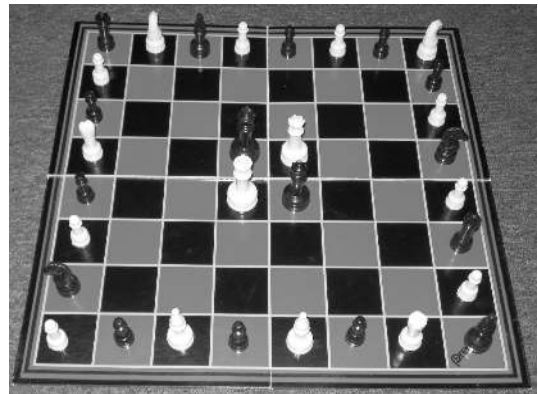


Figure 7. Guarding the global perimeter

As mentioned in the introduction, by widening our perspective beyond the global chessboard to include at least the solar system, leaders can enable the human race to better mitigate the brutality of the universe in a manner akin to celestial golf where long-range physical and mental obstacles can be achieved together over lifetimes. As with the universe, rounds of golf are influenced by open system forces such as wind, sun and to a degree far less understood by even present day quantum science; perception, imagination, concentration and execution by the individual. While the dispositions of

⁶¹ Mike Wall, "Secretive X-37B Space Plane Launches on New Mystery Mission," *space.com*, March 5, 2011. <http://www.space.com/11031-secret-x37b-space-plane-launch.html>. Retrieved August 17, 2011.

golfers playing together in a competitive context can influence performance both negatively and positively, the manner in which most people play golf together is collaborative - "nice shot," "tough break" etc. In fact, even the most competitive golfers in tournament play do not take pleasure in the poor performance of opponents. The golf course analogy is also a useful way to think about international, academic and private sector collaboration in exploring the solar system and beyond for another reason. It is preferable for multiple golfers to be spread out across the course, each doing their best to interpret the different links of the course in an effort to become better golfers. By convention, any damage to the course is always repaired in the process so that other golfers can gain from course play. Once back at the clubhouse, which represents Earth in the analogy, the nature of the discussion is collaborative in that tips are traded in how to gain the best experience of accomplishment on each hole. Anyone who has played golf knows that this "gentle" game is frustratingly brutal in the sense that it can never be perfected or won, "only played," as Will Smith's character Bagger Vance teaches in the popular film, *The Legend of Bagger Vance* (2000). Within this shared reality, suspicion over providing false intelligence does not enter the paradigm of golf as it does in the cutthroat mindset inducing games of chess, poker, international relations and capitalism. (Correspondingly, socialism cannot be equated in this analogy as a game, as it is a preconfigured set of hierarchical power relationships, justified by its aim to maintain equality of conditions.)

Returning to the conventional global chessboard model, in *The End of the American Era: U.S. Foreign Policy and the Geopolitics of the Twenty-first Century* (2003), Kupchan maintains that the next challenge to America's might comes not from the

Islamic world or an ascendant China, but from an integrating Europe that is rising as a counterweight to the U.S., as argued by Robert Kagan in *Of Paradise and Power: America and Europe in the New World Order* (2004). Kupchan outlines how decades of strategic partnership across the Atlantic are giving way to renewed geopolitical competition. The waning of U.S. primacy will be expedited by America's own ambivalence about remaining the globe's guardian and by the impact of the digital age on the country's politics and its role in the world. By deftly mining the lessons of history to cast light on the present and future, Kupchan explains how America and the world should prepare for the more complex and unstable road ahead. Mearsheimer's *The Tragedy of Great Power Politics* (2003) shows that the anarchy of the international system requires states to seek dominance at each other's expense, dooming even peaceful nations to a relentless power struggle. Mearsheimer presents his theory of offensive realism through a sweeping survey of modern great power struggles and reflects on the bleak prospects for peace in Europe and northeast Asia. Mearsheimer argues that security competition between the U.S. and a rising China will intensify regardless of "engagement" policies.

In appreciation of the clarity of Mearsheimer's thesis, as will be shown in Chapter 3, there is no inherent reason why Asia-Pacific, Africa-Europe and the Americas cannot collaborate against existential threats to the human race. If for no other reason, global collaborative power is in the strategic interest of the U.S. and all major powers to avoid Mearsheimer's forewarning of tragedy. By contrast, Nye's formulation of smart power, the combination of hard military power supported by economic power and soft cultural power to get others to do what they would not otherwise do is mechanistic. It lacks a

strong sense of normative values such as the avoidance of tragedy, absent maintaining U.S. primacy for its own sake.

Anne-Marie Slaughter, Director of Policy Planning for the U.S. Department of State for the first two years of the Obama administration argues in *A New World Order* (2004) that global governance is here, but it is not where most people think. She argues that not only should we have a new world order but that we already do. Slaughter provides the most compelling description to date of a world in which government officials, police investigators, financial regulators, even judges and legislators exchange information and coordinate activity across national borders to tackle crime, terrorism, and the routine daily grind of international interactions. These networks, Slaughter argues, frequently make good things happen, but they are underappreciated and, worse, underused to address the challenges facing the world today. The modern political world, then, consists of states whose component parts are fast becoming as important as their central leadership. Slaughter not only describes these networks but also sets forth a blueprint for how they can better the world. She argues that despite questions of democratic accountability, this new world order is not one in which some "world government" enforces global dictates and that the governments we already have at home are our best hope for tackling the problems we face abroad, in a networked world order. This last idea supports the use of 3x3 Global Drills among existing sub-state global organizations of all varieties instead of advocating that the process be a template for a monolithic new global institution.

Consistent with Slaughter's worldview and recognition of the indigenous in 3x3 Global Drills is that of Strobe Talbott in *The Great Experiment: The Story of Ancient*

Empires, Modern States and the Quest for a Global Nation (2008). Talbott, President of the Brookings Institution since 2002 served as U.S. Deputy Secretary of State during the Clinton administration. A quote from the introduction of *The Great Experiment* reads:

Just as a nation is a gathering of tribes, so the international community is a gathering of nations - an incipient global nation, in the sense that the human race is learning to govern itself as a whole on those issues where it can do so to the benefit of all, and especially on those where it must do so to avert planetary disaster (6).

Another rare non-ideologically driven think tank in Washington, D.C. besides the Brookings Institution is the Center for Strategic and International Studies (CSIS), though both shape the agenda of what can be understood as the global establishment, for good and bad. Many think tanks ignore space altogether though not CSIS. On October 16, 2006, the CSIS Global Space Agenda, since renamed "Space Initiatives" held a meeting on the UN Committee on the Peaceful Uses of Outer Space, stating:

The CSIS Global Space Agenda is a forum provided for interested national parties in current and emerging space-faring nations to discuss their progress as well as potential interest in engagement with other groups. Given the recent resurgent interest in space exploration around the globe – from renewed visions and commitments for exploration programs to bold new space programs in all space faring nations, it is now time for international reengagement to harness cooperation for the lasting benefit of exploration. These meetings of the Global Space Agenda are intended to augment existing dialog [*sic*] among international partners by providing a new, neutral venue for discussion, one in which all interested sectors can communicate openly and directly with each other.⁶²

⁶² See Center for Strategic and International Studies, "Space Initiatives," webpage. <http://csis.org/program/space-initiatives>. Retrieved August 17, 2011.

3x3 Global Drills as outlined in Chapter 3 is consistent with the above stated CSIS objective of neutrality and discussion as opposed to staking out ideological positions for debate or negotiation. Still, pure political ideology, absent machinations and attacks on the integrity of those who subscribe to other ideologies can be helpful. For example, in defense of U.S. hegemony, Niall Ferguson of Scotland considers the dangers of a world with no one in charge. Ferguson's work challenges us to think about the role power and more importantly its *absence* might play in global governance.⁶³ Many implications can be drawn after reading Ferguson, which is why his work is helpful in that it is provocative, especially if it were to be considered in the setting of reflective dialogue in 3x3 Global Drills.

A companion thinker to Ferguson who is helpful for U.S. leaders to consider is Timothy Garton Ash of Oxford University. He argues that the Obama election reminded Europeans of the youth and optimism that they liked about America in decades past, stopping short of making comparisons to President Kennedy and simply showing to Europe that the U.S. could elect an African-American. More critically from a European perspective, which is not always articulated in the U.K., he also argues that President George W. Bush understood or at least felt at home more in Europe than did Obama, who himself wrote in *Dreams from My Father* (1995, 2004) the cultural disconnect he felt there on his way to visit his father's home country, Kenya. Ash further cites an Obama aide who says that Obama's mental model is north/south, not east/west. Ash further observes that the ideologically driven U.S. political system is "profoundly, depressingly, shockingly, disturbingly dysfunctional," a major cause for concern among

⁶³ Niall Ferguson, "A World Without Power," *Foreign Policy* 143 (July/August 2004): 32-39.

global elites such as Ash.⁶⁴ In this regard, the three regions as delineated in Figure 10, 3x3 Global Drills and Figure 11, *Three broad regions of Earth*, conceptually integrate north, south, east and west.

Ideological impasses such as exist in the U.S. but in other countries as well usually surround the thorny issues of how wealth is accumulated and redistributed and what rights and incentives are protected and promoted by any given public policy. The following section is not meant to be an ideological position in itself, though it does spring from strong feelings of the author that would be unfair to the reader to conceal. Rather, the extensive section with many subdivisions is meant to provoke readers to rethink or confirm their own biases and limitations of traditional economic assumptions.

Mobilizing energy abundance and militaries against threats to the human race

Money and all systems of economic exchange do not serve us well in facing the multitude of challenges in a brutal universe. In addition, they foster obscene values. In the fall of 1993, the author attended an economic conference on the Maastricht treaty of 1992 at the London office of Salomon Brothers International as an undergraduate intern for the Federal Trust for Education and Research in London. Maastricht set out the guidelines for the European Economic Union to move toward a common currency, the ECU (European Currency Unit), ultimately named the Euro. On a wall in the Salomon Brothers office was a garish oil painting of two tigers prominently displayed. One tiger was ripping its claws into the other tiger, drawing blood while the other tiger snarled its teeth, reflecting the ethos of many capitalists who proudly claim they make the world go

⁶⁴ Timothy Garton Ash, interview by Charlie Rose, *Charlie Rose*, PBS, October 29, 2010. <http://www.charlierose.com/view/interview/11267>. Retrieved August 17, 2011.

around. (As of March 2011 the Salomon Brothers entity had long been subsumed into Morgan Stanley Smith Barney, Smith Barney being a member of Citigroup.)

What makes humans distinct from other animals is that we can change our social structures, economics in this case. If we so choose, we can go from exchanging units of scarcity to interchanging all of our talents in true free enterprise, distinct from capitalism by harnessing energy abundance from a variety of sources in the context of trying to survive in a brutal universe.⁶⁵ In *Scarcity and Modernity* (1989), Xenos shows that the root of the scarcity-based economic social invention that now governs the world is not ancient and certainly not a universal force of nature around which all economic thought must orbit. Xenos lays blame for this false "postulate of scarcity" squarely on Adam Smith and David Hume who represent what he calls "classical realism."⁶⁶ Stuart Hampshire's posthumously published *Spinoza and Spinozism* (2005) shows that Spinoza saw that true freedom of the individual is not associated with accumulation of personal property, the value of which is determined by its scarcity but by a reflective state of perceiving an abundant universe, requiring a cultivated desire for solitude (*xv-xvii, liv-lv, lviii, 76-77, 168-173*). By contrast, market activity, whether in the bazaars of New Delhi or in the pits of Wall Street represent every conceivable human ambition except for solitude, all frenzies of which perpetuate jealousy and contribute to the imprisoning cycles of crime and war. Bataille offers a different perspective on abundance but one that also does not assume material scarcity as the basis for human affairs. For Bataille, solar

⁶⁵ See Steve Burgess, "The (Needed) New Economics of Abundance," *Nanotechnology Perceptions: A Review of Ultraprecision Engineering and Nanotechnology* 2, no.2 (May 8, 2006). Available since May 9, 2006 at: <http://www.kurzweilai.net/the-needed-new-economics-of-abundance>. Retrieved July 25, 2011.

⁶⁶ Nicholas Xenos, "Liberalism and the Postulate of Scarcity," *Political Theory* 15, no. 2 (May 1987): 225.

superabundance on Earth and its surplus energy are expended on the non-procreative sexual act, human to human killing, eating meat and ostentatious consumption patterns.⁶⁷

Whether war is caused by artificially imposed scarcity or natural abundance, the Dalai Lama reminds us that there is still considerable hope for peace given that the majority of people do not engage in war.⁶⁸ It is widely recognized that the photograph taken of the Earth by the Apollo 8 mission, "Earth Rise" made a slow but drastic change in how humans see themselves in the universe, though all too commonly understood as a serene vacuum. Political systems based on war eventually collapse from their own weight, evidenced by the over expansive Roman and British empires. While the U.S. tradition of civilian control of the military is impressive, control and influence of the government by economically entrenched interests in what President Eisenhower termed the "military-industrial complex" gives reason for alarm. In *The Pornography of Power: Why Defense Spending Must Be Cut* (2008), former *Los Angeles Times* columnist Robert Scheer demonstrates the vile extent to which false patriots have profited from U.S. treasure in terms of tax dollars and human life since his reporting career began during the Vietnam conflict. Still, the military-industrial complex in the U.S. and those in other nations are well positioned to turn their sights effectively toward the brutal universe that envelops the human race. Through such common understanding, it is imagined that global solidarity of purpose could manifest itself through various contributions that maintain human existential survival. A goal of this dissertation is not only to advocate for the continued defense of the human race but also to do so in a way that brings deep

⁶⁷ Georges Bataille, *The Accursed Share, vol. 1: Consumption*, trans. Robert Hurley (New York: Zone Books, 1988), 12, 23, 28, 32, 38, 63.

⁶⁸ Dalai Lama, *Ethics for the New Millennium* (New York: Penguin, 1999), 11, 214-216.

meaning to individual lives, recalling MacArthur's quote at the top of this chapter. The evolving controversy that originated with Huntington's *The Clash of Civilizations and the Remaking of World Order* (1997) diverts elite human attention from the existential tasks at hand with both his detractors and his supporter-exploiters at fault. The following paragraphs contrast more useful realist and constructivist thought. More critique of liberal thought, specifically its economic component is reserved for the next chapter, 3x3 Global Drills: Prototyping Collaborative Power.

In *Social Theory of International Politics* (1999), Wendt argues that the nature of international politics is not fixed and that the international system is not condemned to conflict and war. He draws on philosophy and social theory to develop a cultural theory of international politics to contrast with the realist mainstream. Wendt argues that states view each other as enemies, rivals and friends and characterizes these roles as "cultures of anarchy," which are shared ideas that help shape states' interests and capabilities and that these cultures can change over time as ideas change. One idea that this dissertation intends to help change is that entrenched power as represented by the current status quo economic system of global capitalism can be replaced with something other than global socialism, namely a multi-global economy based on ever newer knowledge and insight. First published in 1899, Veblen's *The Theory of the Leisure Class* (1994) exposes the real meaning of the advancement of the working and merchant classes and the formation of elites based mostly upon money and asset valuation and the transfiguration of the traditional social and individual ethical values that this phenomenon produced. Fitzgerald's second novel, *The Beautiful and the Damned* (1922) is a well-known social commentary on the intersection of money, love and marriage. It will be analyzed further

in relation to the current television show *90210* (since 2008) in Chapter 4. *The Beautiful and Damned* complements Veblen's critique of capitalism though not of his critique of socialism. Interestingly, Fitzgerald and Veblen were both from Minnesota and challenged the eastern economic establishment during the progressive era.⁶⁹ Boulding was a notable figure in the field of evolutionary economics that Veblen founded. His words below from his later years capture the essence of the field, of which this dissertation makes note in order to encourage the abundance-based economic paradigm to be considered in small groups using 3x3 Global Drills:

In its largest sense, evolutionary economics is simply an attempt to look at an economic *system*, whether of the whole world or of its parts, as a continuing *process* in space and time. Each economy is then seen as a segment of the larger evolutionary process of the *universe* in space and time... [emphases are the author's].⁷⁰

In earlier years, Boulding was more "down to Earth," adopting or perhaps promoting a closed-loop assumption of energy-scarcity espoused later by Hardin:

Man is finally going to have to face the fact that he is a biological system living in an ecological *system*, and that his survival power is going to depend on his developing symbiotic relationships of a closed-cycle character with all the other elements and populations of the world of ecological *systems*... we are wasting our intellectual resources on insoluble problems like unilateral national defense and on low-priority achievements like putting a man on the moon. This is no way to run a space ship [emphases are the author's].⁷¹

⁶⁹ See E. Ray Canterbery, "Thorstein Veblen and *The Great Gatsby*," *Journal of Economic Issues* 33, no. 2 (1999): 297-304. (Published by the Association of Evolutionary Economics.)

⁷⁰ Kenneth E. Boulding, "What is Evolutionary Economics?" *Journal of Evolutionary Economics* 1, no. 1 (1991): 9-17.

⁷¹ Kenneth E. Boulding, "Earth as a Space Ship." Committee on Space Sciences, Washington State

As Veblen and Boulding represent different brands of evolutionary economics as introduced briefly above, Niall Ferguson's defense of status quo finance comes close to what might be called devolutionary economics in his paradoxically entitled *The Ascent of Money: A Financial History of the World* (2008):

...Today's electronic money can be moved from our employer, to our bank, to our favorite retail outlets without ever physically materializing... The intangible character of most money today is perhaps the best evidence of its true nature. What the conquistadors failed to understand is that money is a matter of belief, even faith: belief in the person paying us; belief in the person issuing the money he uses or the institution that honors his checks or transfers. Money is not metal. It is trust inscribed... (30-31).

If the true nature of money represents trust and faith in each other then Ferguson might agree that given the time inefficiencies involved in even electronic transfers, financial credit can be responsibly abandoned in favor of trust and faith among humans as we either overcome the brutal universe or perish from existence.

Joyce Appleby, in *Capitalism and a New Social Order: The Republican Vision of the 1790s* (1984) writes that when the Federalist defenders of traditional European (Roman-derived) notions of order and authority came under attack, they sought unsuccessfully to discredit the radical beliefs of the Jeffersonians. (Of course, this is not to say that the Federalists opposed slavery with any great vigor.) The ideas that fueled the Jeffersonians came from several strains of liberal and libertarian thought. The prospect of expanding commercial agriculture drove their conviction that U.S. citizens

University. May 10, 1965. Kenneth E. Boulding Papers, Archives (Box #38), University of Colorado at Boulder Libraries. <http://www.colorado.edu/econ/Kenneth.Boulding/spaceship-earth.html>. Retrieved August 17, 2011.

could divorce themselves from the corrupting European precepts of the past, through plantation slavery, of all mechanisms. Aroused by the Hamiltonians' or Federalists' efforts to bind the nation's wealthy citizens to a strong central government/bank, the Jeffersonians unified ordinary men in the southern and middle states, mobilizing on the national level the power of the popular vote. Their triumph in 1800 represented a new sectional alliance as well as a potent fusion of morality and materialism.

Even the Catholic Church, the epitome of the status quo in terms of enforcing moral norms throughout the centuries once opposed economic exchange, especially among people that did not know each other within the feudal context. Even it was made to alter its position by the rise of the business class everywhere.⁷²

Strangely, Gilles Deleuze and Félix Guattari in *Anti-Oedipus: Capitalism and Schizophrenia* (2009, 1972) overlap in thought with Heinlein, who poses a question on the strengths and dangers of human solidarity, as shown in Chapter 4. Deleuze and Guattari argue that Western society's innate herd instinct (as opposed to Heinlein's alien others) enables government, media, and even principles of economics to exploit the individual's unwillingness to be cut off from the rest. As Fuller does in Chapter 3, *Anti-Oedipus* argues that the dominant class deliberately creates lack as a function of the market economy amid an abundance of production, even within a scarcity-based or closed-loop economic paradigm in order to create fear of needs going unmet. And worse than the dominant class convincing the enslaved that they are free through the pursuit of

⁷² Michael J. Shapiro, POLS 600, Scope and Methods of Political Science, lecture, September 11, 2007, citing Joyce Appleby, *Economic Thought and Ideology in Seventeenth-Century England* (Los Angeles: Figueroa Press, 2004). First published by Princeton University Press in 1978.

property, Deleuze and Guattari understand that the enslaved want to be enslaved in full realization that they are slaves within fascism (28-29).

Whether Deleuze and Guattari are right or wrong, Boulding's concept of knowledge as capital can be extrapolated to finding one's individual purpose and identity within the pack of human beings preparing to extend its reach further into the solar system. This reaching can become understood as a new currency - that which makes the world go around. Instead of defining success as how much money is in individual 401(k) accounts, in the paradigm that this dissertation presents, measures of individual success can be quantified around intrinsic metrics such as the following:

- How much was done by an individual and/or team in a given time period to help track and when necessary use space sentinel satellites to divert Earth-crossing orbits of asteroids that would otherwise hit Earth in the long-term future?
- Who showed up to help figure out the best way to direct solar power from space to a new settlement on Mars or a selected moon of Jupiter, Saturn, Uranus, Neptune or Pluto?
- Who was selected to settle a region of Mars or a Jovian moon?
- Who helped a child who wants to stay on Earth find her purpose within the solar systems oriented pack?

The world's great universities, our Houses of Solomon (recalling Bacon's *New Atlantis* to be discussed further in Chapter 4) are now able to collaborate systematically with each other and all human societies through community colleges in free thought, for free - to produce an abundance of useful knowledge and insight. Such a popular global pedagogy, also extrapolated from Jefferson's concept for the University of Virginia can

tame the solar system.⁷³ It can also tame the military-derived hardware, software and organizational structures that have taken us as far as we have gone in space.

The imperative to launch a new paradigm of global collaborative power

While the term collaboration is used extensively across the U.S. business community, the idea of urgent collaboration is unprecedented at the global level, inclusive of all nations, corporations and academe. In global collaboration, instead of actors giving up things they give things to the maximum of their ability in common self-interest, the continuation of the human race. Collaboration of effort in a spirit of solidarity based on earned respect through performance *absent formal global governance or chain of command* is offered as a better way to lead collective human action than self-imposed limitations on the human race through treaty or worse, through large-scale bureaucracies.

Covey, influenced by Kuhn's concept of the paradigm shift also emphasizes synergy and the Principles of Creative Cooperation.⁷⁴ Both have influenced the development of the 3x3 Global Drills process in this dissertation. Steger brings to the fore critical analysis of the forces of U.S. global capitalism and military hegemony as essentially imperial, though he uses the term liberally as does Katzenstein, to be shown later. The forces of U.S. capitalism and U.S. militarism do not always move together, as in regard to China and are perhaps more unwittingly imperial - they know not what they do. More precisely, both do not know that it has always been necessary to launch a solar system

⁷³ See Dr. Jill Biden, Op-Ed., "Harnessing Community Colleges," *Philadelphia Inquirer*, Monday, February 28, 2011.
<http://www.whitehouse.gov/the-press-office/2011/02/28/op-ed-dr-jill-biden-philadelphia-inquirer-harnessing-community-colleges>. Retrieved August 17, 2011.

⁷⁴ Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962). See also Stephen R. Covey, *The 7 Habits of Highly Effective People: Powerful Lessons in Personal Change* (New York: Simon & Schuster, 1989), 29-32, 261-284.

civilization as soon as the human race was capable. Steger constructively critiques Barnett's *The Pentagon's New Map* (2004) to challenge his use of the term "we the planet,"⁷⁵ charging that the U.S. national security model of E Pluribus Unum that Barnett represents is too restrictive as a culture of globalism. He legitimately prefers "justice globalism." While it is important to carefully examine the main varieties of the global imaginary as they stand now in their historic context, the global imaginary broadly defined is an all too rare necessity to the present and ongoing future survival of the human race. While Steger does not ignore Barnett's most useful concept of *interconnectivity* in *The Pentagon's New Map*, he is rightly skeptical that Barnett and other realists and not just in the U.S. may be inflexible in how interconnectivity is to be constructed going forward through engaged U.S. leadership with the rest of the world.

The section in the middle of the next chapter that uses insights from Katzenstein's analytical work on world regions to argue that global empire is avoidable through pedagogical use of 3x3 Global Drills is aligned with Chalmers Johnson's *The Sorrows of Empire: Militarism, Secrecy and the End of the Republic* (2004). Johnson writes convincingly that the democratic ideals as promoted around the world by the U.S. are in the throes of self-strangulation by the extensive global web of military bases, including through full spectrum dominance of low Earth orbit by the U.S. This dissertation sees a vital opportunity in that crisis; to turn the forward leaning forces of the U.S., and those leaning forward to engage her around the world, outward into the solar system to responsibly engage the World Problematique Plus (Figure 9). 3x3 Global Drills is inspired by engaged realism as exemplified by James Baker III, Richard Lugar and

⁷⁵ Manfred Steger, *The Rise of the Global Imaginary: Political Ideologies from the French Revolution to the Global War on Terror* (Oxford: Oxford University Press, 2008), 240.

Richard Gephardt and as stated previously, Anne-Marie Slaughter. It is within this bipartisan strain in the U.S., the Wilson-Eisenhower-Kennedy strain that 3x3 Global Drills can be utilized for the greater good of the human race through enlightened U.S. global influence. This dissertation's understanding of influence is informed in part by Cialdini in *Influence: Science and Practice*, 3rd ed. (1993) in regard to power defined by Chadwick (1973) as the ability to attain goals against resistance while influence merely affects change, intentional or not. The 3x3 Global Drills process is designed to influence existing mechanisms of true power following Cialdini's principles of psychology that direct human behavior: reciprocation, consistency and social proof; while remaining skeptical or at least vigilant of his principles of liking, authority and scarcity. The close of Cialdini's short section on *primitive automaticity* closely complements the principle of *primal instincts for duty to the human pack*⁷⁶ and referred to throughout this dissertation:

With the sophisticated mental apparatus we have used to build world eminence as a species, we have created an environment so complex, fast-paced, and information laden that we must increasingly deal with it in the fashion of the animals we long ago transcended (224-225).

Unlike much of social science, this dissertation maintains a positive view of human nature, including of those "in power," whom in many instances are internally frustrated by being unable to do with power other than what has been prescribed by the very conditioning that led to them "gaining" the position of "power." There is no reason why collaborative 3x3 Global Drills, when introduced into "the system" of U.S. national security, the hub of an already draconian "world order" cannot quickly perpetuate itself

⁷⁶ The meaning of this concept is first introduced in Chapter 1 in the section entitled, 1953-1972: Ike, JFK, Apollo and the opportunity costs of Vietnam.

into a norm just as easily as the norm of competition is perpetuated. In colloquial terms, while it may be true that old dogs cannot be taught new tricks this truism provides all the more reason to teach new tricks to young dogs as old dogs die off before the habits of old dogs get all dogs killed off. At the same time, there is always much that young dogs can learn from old dogs. Such is the nature of canine as well as human evolution and the success of mammalian evolution across all world regions.

This chapter was critical of capitalist, socialist, realist and liberal ideas but it identified 47 intellectual allies and six of opponents across the political spectrum of Western international relations scholars, practitioners and social scientists and institutions. Based on this philosophical background, the next chapter elucidates the 3x3 Global Drills process in part through comparison with decision-support models that have come before it.

Chapter 3

3x3 Global Drills: Prototyping Collaborative Power

...the systemic level of analysis, and only this level, permits us to examine international relations in the whole, with a comprehensiveness that is of necessity lost when our focus is shifted to a lower, and more partial level. J. David Singer⁷⁷

Beyond the Club of Rome: Uniting all powers on Earth for great efforts beyond

As the human race now faces problems in the 21st century that require concerted action by global civilization it is plausible to extend the precedent and vision of the Club of Rome's World Problematique from a generation ago in what is introduced here as a World Problematique Plus. Aurelio Peccei coined the term "World Problematique," the underlying concept of the Club of Rome.⁷⁸ The World Problematique was defined as political, social, economic, technological, environmental, psychological and cultural interrelationship.⁷⁹

An appropriate context for global leadership by the U.S. in the present is identified by William E. Burrows, director of the graduate Science and Environmental Reporting Program at New York University. He provides a catalogue of catastrophes that might destroy civilization, as we know it, including a devastating impact by an asteroid or comet, nuclear holocaust, famine, earthquakes and hurricanes. The impact of all of these potential catastrophes might be mitigated, he argues through intelligently developing a program for humans to settle space so as to not be isolated on a single planet. This

⁷⁷ J. David Singer, "The Level-of-Analysis Problem in International Relations," *World Politics* 14, no. 1, The International System: Theoretical Essays (October 1961): 80.

⁷⁸ Elenora Barbieri Masini, *The Legacy of Aurelio Peccei and the Continuing Relevance of his Anticipatory Vision*. Based on Masini's 2004 Aurelio Peccei Lecture, Rome, November 23, 2004. <http://www.clubofrome.at/archive/pdf/mas-peccei.pdf>. Retrieved August 17, 2011.

⁷⁹ See Donella H. and Dennis L. Meadows et al., *The Limits to Growth* (New York: Universe Books, 1972).

should become the prime goal of NASA, which he says has lacked a well-defined mission since the goal of landing on the moon was reached.⁸⁰ In this regard, a politically significant space exploration strategy has already been drafted by 14 space agencies from Italy, United Kingdom, France, China, Canada, Australia, Germany, India, Japan, Republic of Korea, United States, Ukraine, Russia and the European Space Agency (ESA). It is compiled by ESA to begin discussing how labor might be divided and mutually reinforced for the advantage of all.⁸¹ At present, China and India, together representing almost half of the human race and a talent pool of capable space scientists are not being fully utilized in a synergistic manner with every other space faring nation through their lack of participation on the International Space Station. U.S., Chinese and Indian political leaders are to blame.

The levels of analysis as described by Viotti and Kauppi include the individual, groups of individuals, the state and society or nation and the world or international/global levels. Singer's insight in this area is that by focusing on any one of the levels, the different actors, structures and processes are highlighted thus obscuring those of the other levels.⁸² The assumption ever since has been that all levels of analysis cannot be combined into a composite view. 3x3 Global Drills endeavors to offer such a composite to assist the human race to withstand the brutalities of the universe. Buzan

⁸⁰ See William E. Burrows, *The Survival Imperative: Using Space to Protect Earth* (New York: Forge, 2006).

⁸¹ Global Exploration Strategy: The Framework for Coordination (Framework Document), May 31, 2007. http://esamultimedia.esa.int/docs/GES_Framework_final.pdf and http://www.esa.int/SPECIALS/Global_Space_Exploration/index.html. Both retrieved August 17, 2011.

⁸² Paul R. Viotti and Mark V. Kauppi, *International Relations Theory*, 4th ed. (New York: Pearson, 2010), 8-9. See also J. David Singer, "The Level-of-Analysis Problem in International Relations." *World Politics* 14, no. 1, *The International System: Theoretical Essays* (October 1961): 80.

establishes a new theoretical framework that can be used to understand globalization as complex political interplay among firms, NGOs and nations in *From International to World Society? English School Theory and the Social Structure of Globalization* (2004). 3x3 Global Drills goes beyond the single global-descriptive to apply an expanded framework of many globes, initially contained to the solar system. In the interest of interacting in common effort while more aware of surroundings in the solar system on a day-to-day basis are six unifying sub-elements that complement the primary elements of 3x3 Global Drills numbered in the introduction: 1) science 2) engineering 3) academe 4) policy 5) business and 6) militaries (SEAPBM). When considered together, these sub-elements inspired by stakeholder analysis offer a comprehensive foundation for human beings in any work situation to foster greater *serendipity by design* to maximize latent human talent and technological power.

In 1901, Richard M. Bucke, one of the founders of the medical school at the University of Western Ontario hypothesized that cosmic consciousness was the next stage of human mental development, the last being the ability to see colors and appreciate music and art. Bucke suggested that this consciousness was slowly beginning to appear and would eventually spread widely throughout the human race.⁸³ The figure below, *A wider box of thought* gives an overview of possibilities that individuals and whatever culture with which they may or may not closely identify can contribute to the human race, or not, as they choose. The figure is aligned with Frank White's "overview effect" as well as Bucke's cosmic consciousness. White explains his overview effect as "...a different philosophical point of view as a result of having a different physical

⁸³ See Richard M. Bucke, *Cosmic Consciousness: A Study in the Evolution of the Human Mind* (Philadelphia: Innes & Sons, 1901).

perspective... not limited to space travelers alone... supports social transformation... may point to humankind's purpose as a species."⁸⁴



Figure 8. A wider box of thought⁸⁵

⁸⁴ Frank White, *The Overview Effect: Space Exploration and Human Evolution*, 2nd ed. (Reston, Virginia: American Institute of Aeronautics and Astronautics, 1998), 4-5. See also Ben Finney and Eric Jones, eds., *Interstellar Migration and the Human Experience* (Berkeley: University of California Press, 1985).

⁸⁵ Ongoing general knowledge of solar system composition is available through Wikipedia searches. See also Carl Sagan, *Pale Blue Dot: A Vision of the Human Future in Space* (New York: Random House, 1994). See also Robert Zubrin, *Entering Space: Creating a Spacefaring Civilization* (New York: Jeremy P. Tarcher/Putnam, 2000).

The most unfamiliar term above, "vulcanoids" are hypothesized asteroids that may orbit the area around the sun and Mercury. Knowledge of their existence and impact record on Mercury could increase understanding of general solar system dynamics of which Earth is a part, including naturally occurring climate change within the inner solar system.⁸⁶ Chadwick offers a comprehensive statement that supports in concept the establishment of "global threats integration centers" (author's term) at research universities within close proximity to military bases and innovative urban centers such as Wright State University and Wright Patterson Air Force Base in Dayton, Ohio:

...since global modeling lacks an academic or institutional home, key issues that have arisen with early global models are left essentially untouched... Global modeling is the only methodology capable of helping humanity to self-consciously envision itself and its environment in a time frame long enough and a scale large enough to provide an effective guide in its transition from a global to an interstellar species.⁸⁷

This view is common to the Boulding-derived idea of Toma, that humankind has entered an era in which events unfold with unparalleled speed and the speed of evolution will accelerate further. Toma argues that new cognitive tools such as "images of the future" are needed as any algorithm applied to the present information space is bound to fail when used to forecast change.⁸⁸ Within the past decade, futurists engaged in an

⁸⁶ NASA, "NASA Dryden, Southwest Research Institute Search for Vulcanoids," April 3, 2002. <http://www.nasa.gov/centers/dryden/news/NewsReleases/2002/02-20.html>. Retrieved August 18, 2011. See also Spencer R. Weart, "Venus and Mars," in *The Discovery of Global Warming*, rev. ed. (Cambridge: Harvard University Press, 2008).

⁸⁷ Richard W. Chadwick, "Global Modeling: Origins, Assessment and Alternative Futures," *Simulation & Gaming* 31, no. 1 (March 2000): 50-73.

⁸⁸ Luigi Toma, Ph.D., "Decision Making in a High Speed World: An Early Warning System for Avoiding Crises," *Journal of the Washington Academy of Sciences* 89, no. 1 & 2 (Spring/Summer 2003): 13-27. See also Kenneth. E. Boulding, *The Image: Knowledge in Life and Society* (Ann Arbor: University of

informal feasibility study to investigate futures ranging from 25 to 3000 years. Their approach is also consistent with 3x3 Global Drills mode of thinking.⁸⁹ Furthermore, James T. Burke, a retired engineer from the Jet Propulsion Laboratory, California Institute of Technology during the Apollo era writes:

...just in the act of searching [for contemporary civilizations within observable range in the universe] we shall gradually install in the conscience of society a new way of thinking about the human race and its place in the cosmos - essentially a continuation of the Copernican revolution that has already had such a profound effect... Eventually, with the human race a two-planet species immune to destruction by terrestrial or celestial catastrophes... our civilization may become robust enough to survive, not just for millennia but essentially forever.⁹⁰

It is influences such as these that inspired the formulation of 3x3 Global Drills. Among these, include Comfort's expertise in disaster management in terms of prevention and mitigation. Her development of the Interactive, Intelligent Spatial Information System (IISIS), a prototype decision-support system is applicable to natural and human caused disasters on Earth.⁹¹ In similar fashion, Darema's Dynamic Data Driven Applications Systems (DDDAS) also spawned the integrative thought model of 3x3 Global Drills. DDDAS entails the ability to dynamically incorporate additional data into

Michigan Press, 1956).

⁸⁹ Horizons Project, "Dedicated to the Long-Term Future." <http://www.horizonsproject.org>. Retrieved August 18, 2011.

⁹⁰ James T. Burke, "The Impact of Space Activities Upon Society," profile webpage. International Academy of Astronautics and European Space Agency: <http://www.spaceandsociety.org/cgi-bin/long-list.pl?000015>. Retrieved August 10, 2011.

⁹¹ Louise K. Comfort, Arjen Boin and Chris C. Demchak, *Designing Resilience: Preparing for Extreme Events* (Pittsburgh: University of Pittsburgh Press, 2010). See also Center for Disaster Management, University of Pittsburgh of which Comfort is lead faculty member. <http://www.cdm.pitt.edu/>. Retrieved August 10, 2011.

an executing application, and in reverse, the ability of an application to dynamically steer the measurement process.⁹² By comparison, the 3x3 Global Drills prototyping model, while wider in scope in terms of intended application is far less complex than Darema's model. Similarity is found in the synergistic structure that is maintained by the incorporation of new ideas as well as newly defined problems.

The left hand column in the table below suggests eight issue areas of global responsibility detailing the World Problematique Plus. Some areas are included in the Club of Rome's problematique and some are new. No areas are being addressed adequately, and in some cases are being utterly avoided and left to future generations, if the human race survives long enough. The right hand column suggests possible strategic aims for our global civilization, some being discussed and some not but in no case being funded sufficiently at any national level or through any appropriate global mechanism.

World Problematique Plus	Potential space-based responses
1. Gamma-ray bursts of radiation from hypernovae	1. Global research into possible countermeasures
2. Asteroids and comets on Earth-crossing orbits	2. Countermeasures through global collaboration
3. Climate change on Venus, Earth and Mars	3. Humans at Mars for comparative planetology
4. Super volcanoes on Earth and Mars	4. Humans at Mars for comparative planetology
5. Freshwater scarcity on Earth and Mars	5. Space-based solar power for seawater desalination
6. Rapid pandemics of disease on Earth	6. Medical research at International Space Station
7. Scarcity-based economic paradigm on Earth	7. Space-based solar power as symbol of abundance
8. Auto nuclear annihilation of humans on Earth	8. Transform militaries through co-exploration of space

Figure 9. World Problematique Plus⁹³

⁹² Frederica Darema, National Science Foundation, "Dynamic Data Driven Applications System: A New Paradigm for Application Simulations and Measurements." <http://www.dddas.org/iccs2004/papers/darema.pdf>. Retrieved August 16, 2011. Dr. Darema is currently at the Air force Research Laboratory, Wright Patterson Air Force Base, Dayton, Ohio.

⁹³ Sources on all threats are updated at www.3x3globaldrills.blogspot.com. Retrieved October 6, 2011.

In regard to the third problem listed above, hard scientists, political scientists and global leaders can consider more fruitfully and less divisively to what extent climate change is influenced by humans or is naturally occurring or both. This includes considering plausible options for proactively changing climate on purpose in the interests of the human race by recasting the challenge from an inner solar system perspective and certainly beyond a "national security" problem formulation as constructed by Schwartz and Randall.⁹⁴ The prospect of terraforming Mars by intentionally introducing greenhouse gases over the course of several hundred years in order to regenerate what is reasoned to be a lost atmosphere is included in how the negative connotation of "climate change" can be discussed.⁹⁵

Of special concern to the human race is the potential of rapid or runaway climate change on Earth. In the worst-case scenario global leaders can be comforted that there also exists a concept to forward position a shield between Earth and the sun.⁹⁶ As with asteroid and comet defense countermeasures, the responsibility of ensuring global protection requires massive institutional mobilization and discipline to build and pre-position such a platform to be held in reserve and deployed when needed.

In consideration of lines seven and five above, a technology in development at the component level since the NASA Echo 1 satellite in 1961 bounced microwaves back to

⁹⁴ See Peter Schwartz and Doug Randall, *An Abrupt Climate Change Scenario and its Implications for United States National Security*. Special report prepared at the request of the U.S. Department of Defense, October 2003. http://www.climate.org/PDF/clim_change_scenario.pdf. Retrieved August 17, 2011.

⁹⁵ See Robert Zubrin with Richard Wagner, *The Case for Mars: The Plan to Settle the Red Planet and Why We Must* (New York: Simon & Schuster, 2011, 1996). See also Mars Society, founded by Robert Zubrin. <http://www.marssociety.org>. Retrieved January 19, 2011. In full disclosure, the author served as interim chairperson of the Ohio Chapter of the Mars Society in 2000.

⁹⁶ James T. Early, "Space-based Solar Shield to Offset Greenhouse Effect," *Journal of the British Interplanetary Society* 42 (1989): 567-569.

Earth and the U.S. Air Force Project Eros in 1963 concentrated solar power in space, space-based solar power or "space solar power" challenges the scarcity-based assumptions of energy and water in all Earth-based economic systems to date. Global leaders have the opportunity to take full mutual advantage for their societies and corporations of this elegant form of energy from the home star, the sun, whether harnessed in space or perhaps more efficiently with advances in collectors and directed energy systems on Earth.⁹⁷ In consideration of lines six above, research aboard the International Space Station in low-Earth orbit could be accelerated through more launches per year in a global effort to create vaccines and possibly cures to current and future rapid pandemics of disease and all disease, thereby maintaining the productive potential of human beings.⁹⁸

Global leaders need to persistently find ways to integrate power toward common purposes rather than to check or balance power. More is needed than Nye's construct of smart power, the combination of soft economic and cultural power with hard military power. His construct remains limited to a single planet outlook, as do most political scientists who study international relations, whether they are realists, liberals or constructivists. In fairness to Nye, his recent thinking has evolved to allow for what is needed in this century but only terrestrially:

⁹⁷ See National Security Space Office (U.S.). *Space-Based Solar Power as an Opportunity for Strategic Security*. Phase 0 Architecture Feasibility Study. Report to the Director, National Security Space Office. Interim Assessment, October 10, 2007. <http://www.nss.org/settlement/ssp/library/nssso.htm>. Retrieved August 17, 2011. Animated demonstration, pictures and audio of October 10, 2007 National Press Club conference, including presentation by Dr. Buzz Aldrin. <http://www.nss.org/news/releases/pc20071010.html>. Retrieved August 17, 2011.

⁹⁸ See Lynn Harper, "Biotech: A Near Future Revolution from Space," in *Beyond Earth: The Future of Humans in Space*, eds. Bob Krone, Ph.D., Kenneth Cox, Ph.D. and Langdon Morris (Burlington, Ontario: Apogee Books, 2006), 99-104. Harper serves as Lead of Integrative Studies, NASA Ames Research Center Space Portal, a consortium to promote commercial space development for the public benefit.

An increasing number of challenges will require the United States to exercise power with others as much as power over others... A smart-power narrative for the twenty-first century is not about maximizing power or preserving hegemony. It is about finding ways to combine resources in successful strategies in the new context of power diffusion and "the rise of the rest."⁹⁹

Nye's observation in *The Powers to Lead* (2008) of contextual intelligence, a power relationship between leaders and followers depending on *context* appears applicable to leading dangerous and necessary space endeavors (85).

Implementing 3x3 Global Drills

Implementation theory is a normative or reverse engineered parallel to game theory.

Jackson writes:

In implementation theory, instead of taking the game as given, it is something to be designed. Often, one thinks of the desired outcomes as the given and analyses whether there exist game forms for which the strategic properties induce individuals to (always) choose actions that lead to the desired outcomes.¹⁰⁰

The repetition of 3x3 Global Drills is designed for leaders to modify global responses to the above World Problematique Plus for at least a century depending on circumstances that will arise. Central to the purpose of the drills, a new ethos of political leadership that releases *primal instincts for duty to the human pack*¹⁰¹ substitutes political control of the human race with that of collaboration of the collective human

⁹⁹ Joseph S. Nye, Jr., "The Future of American Power," *Foreign Affairs* 89, no. 6 (November/December 2010): 12.

¹⁰⁰ Matthew O. Jackson, "A Crash Course in Implementation Theory," *Social Choice and Welfare* 18 (2001): 655-708.

¹⁰¹ The meaning of this concept is first introduced in Chapter 1 in the section entitled, 1953-1972: Ike, JFK, Apollo and the opportunity costs of Vietnam.

spirit, individual by individual. If built into the routines of leadership practice, it is imagined the process can replicate itself based on principles of self-organization and self-replication rather than hierarchy.¹⁰² Complementing the healthy fear-based image of surviving as a human pack in a brutal universe, this leadership ethos is also based on hope by striving to lay the foundation of a solar system civilization by the 22nd century, upon which future generations can build.

By design, the drills resists the socially constructed “reality” of economic competition inherent in scarcity-based or closed systems such as capitalism and socialism. (Hardin and the Meadows' most famously assumed a closed system.)¹⁰³ An open system assumes an energy source that for all practical human purposes is inexhaustible, the primary example being radiant energy from stars, including the sun. Umpleby defines an open system as "an entity with a boundary that is not closed. It receives inputs and produces outputs."¹⁰⁴ This thesis is also supported by Boulding's allowance for economic abundance based on knowledge abundance; that knowledge always increases and never decreases save for global catastrophe.¹⁰⁵ Prospects for synergistic practice are explored here in the same spirit as Fuller, who in agreement with

¹⁰² See W. Ross Ashby, "Principles of the Self-Organizing System," in Heinz von Foerster and George W. Zopf, Jr., eds., *Principles of Self-Organization*. Sponsored by Information Systems Branch, U.S. Office of Naval Research, 1962. Republished in *Emergence: Complexity and Organization* 6, nos. 1-2 (2004): 102-126.

¹⁰³ See Garrett Hardin, "The Tragedy of the Commons," *Science* 162 (1968): 1243-1248.

¹⁰⁴ See S. Umpleby, "Open System," in: F. Heylighen, C. Joslyn and V. Turchin (editors): *Principia Cybernetica Web* (Principia Cybernetica, Brussels): http://pespmc1.vub.ac.be/Asc/OPEN_SYSTE.html. Retrieved August 17, 2011. Stuart A. Umpleby is Director of the Research Program in Social and Organizational Learning, School of Business, George Washington University. <http://www.gwu.edu/~umpleby/>. Retrieved August 17, 2011.

¹⁰⁵ See Kenneth E. Boulding, "The Economics of Knowledge and the Knowledge of Economics," *American Economic Review* 16 (May 1966): 1-13.

Boulding's knowledge-based economic abundance charges, "...'know-what and know-how wealth' potential based on energy abundance of the universe, 'obscured from public knowledge' by 'money-makers and their economists.'"¹⁰⁶

The following grid shows the results of a realistic though *hypothetical* present-day drill. It corresponds to lines four of the World Problematique Plus concerning rapid climate change on Earth, resulting in a hypothetical worst-case scenario of three to ten feet of global sea rise by 2060. Below, any six people or less at a time anywhere can think in terms of how the human race might collaborate to evacuate 75 percent of each coastal urban population center on Earth by 2055. Consistent with implementation theory, instead of simulating struggles for power or accommodation of power through "cooperation," this drill is designed to induce synergistic collaboration in practice across governments, industries and academe:

¹⁰⁶ R. Buckminster Fuller, *Operating Manual for Spaceship Earth* (New York: E.P. Dutton, 1963), self-cited in Fuller, *Critical Path* (New York: St. Martin's Press, 1981), 198-99.

Pan-regional seats	Americas	Africa-Europe	Asia-Pacific
Pan-disciplinary seats	+Hawaii ..Relations Atlantic	+Ankara & Moscow Relations Afro-Eurasian-	+ Israel/Arab Peninsula/Iran Pacific Relations Pacific-
Cosmic Human exploration Robotic exploration Research & Applications Civil-military nexus Search for ET <i>Mutual expansion</i>	National Oceanic and Atmospheric Administration (NOAA) monitoring of oceans NASA/Industry plan and launch space solar power satellites to power globally distributed infrastructure	European Space Agency (ESA) space-based solar power satellites to power globally distributed infrastructure Construction of launch facilities from Somalia to Tanzania, taking advantage of centrifugal force of Earth to assist escape velocity	Ongoing satellite monitoring of weather patterns Chinese National Space Administration (CNSA) Japanese Aerospace and Exploration Agency (JAXA)
Individual & Societal Relationships & Faith Health & Education Law & Economics Architecture & Art Transportation & Water <i>Purposes & cultures</i>	Learn from Cuban public health and literacy programs Prolonged and steady evacuation will stimulate Brazil and Argentina as new economic engines, if managed correctly	Replicate academic structure of "ancient" European universities and Plato's Academy globally while preserving local customs and values	Learn from Arab women on family management Necessary vaccines New schools and universities inland
Environmental Planetary spaces Interplanetary spaces Atmospheres & Space Tectonics & Bio-regions Molecular & Quantum <i>Human survival</i>	New small resilient cities in "Tornado Alley," Amazon Basin and Patagonia need to be built	All African coastal urban centers are of concern Copenhagen, Hamburg and French Riviera are of strong concern	Lessons of December 26, 2004 Asian tsunami: Listen to indigenous populations U.S. Navy seawater desalinators were force for good in Asia-Pacific

Figure 10. 3x3 Global Drills

The above worksheet, seating diagram, wall-sized planning board, computer screen template or smart-phone application is designed to facilitate individual note taking, data searches and improved *listening* to perspectives from around the world in any deliberation. Its symmetrical visual design is not intended to communicate that all environmental, political, technological and regional interests in the world as represented in the above checklist of subcategories can be taken into account, at least not all at once. It only maintains that fewer interests are not ignored, as drills can be run repeatedly as

needed followed by team writing of nine-page dissemination reports by teams of six as outlined above.

Because the world and the brutal universe will always be complex and untidy, the 3x3 Global Drills process is necessary for continual tidying. It is not intended to merely describe untidiness. The drills process is offered not as a means to formally indoctrinate but to informally develop the habit of thinking cross regionally/culturally and cross disciplinarily so that monolithic patterns of thought do not remain global cultural norms. As successive drills are run, more than one threat from the World Problematique Plus can be approached by new groups of six that rotate into the seats of responsibility to where eventually all of its threats can be overcome simultaneously. In this regard, specifics of *serendipity by design* principle as mentioned previously are given through six synergistic elements as follows:

1) *Cosmic* (mutual expansion)

Beyond what has been said in this dissertation on space endeavors, when at the cosmic perspective seat of responsibility in 3x3 Global Drills, the ability to think/perceive at the galactic level and perhaps beyond or into the multiverse of dimensions is given here as a *practical* rather than a fantastic spatial awareness. It can order priorities of human and robotic investigation and development of the solar system by collaborative civil-military nexuses of the current international system. Specifically, the act of considering the magnitude of lethal GRBs of radiation from hypernovae from within the Milky Way to life and potential life in the entire solar system re-contextualizes pedestrian terrestrial concerns. Among these within this new paradigm suddenly become *asteroids and comets*, circling single stars like the sun, inevitably colliding with planets like Earth at

which the totality of human existence now precariously rests. Search for ET is listed as a subcategory within this element to reflect a growing if not primal interest in the multifaceted and speculative topic of the reasonable potential for ET intelligence.¹⁰⁷

2) *Individual and Societal* (purposes and cultures)¹⁰⁸

This seat of responsibility refers to the enabling of all human cultures through architecture, transportation and water systems, relationships and faith and conceptual structures and processes such as law, economics (scarcity-based and abundance-based) and the process of 3x3 Global Drills itself. In order for several interrelated multi-generational mega projects necessary for human survival to be integrated, users of 3x3 Global Drills might discuss whether laws and/or customs of nations need to be harmonized or not. Mediation as a process of resolving inevitable disputes among individual humans and among human groups may or may not be more useful than litigation and arbitration. Economic dynamism is an anticipated result of space-based solar power abundance and newly stated needs from wide use of 3x3 Global Drills. It is proposed for consideration that this dynamism can result in the evolution of economic systems from scarcity-based to abundance-based.

In consideration of individuals, when deliberating from this seat of responsibility in 3x3 Global Drills, the main concept to represent is that *everyone matters*. Somewhat in the U.S. libertarian tradition this means every *one* matters but in the context of the whole

¹⁰⁷ See Alexander Wendt and Raymond Duvall, "Sovereignty and the UFO," *Political Theory* 36, no. 4 (August 2008): 607-633. See also Steven J Dick, "They Aren't Who You Think: If we ever encounter extraterrestrial intelligence, they're likely to be machines, not creatures of flesh and blood." *Mercury* 32, no. 6 (November 2003): 18-19. Dick is a member of the International Academy of Astronautics and its permanent Search for Extraterrestrial Intelligence (SETI) Permanent Study Group.

¹⁰⁸ See Abraham Maslow, *The Farther Reaches of Human Nature* (New York: Viking, 1971). For Maslow, transcendence is higher on his hierarchy of human needs than self-actualization.

human system.¹⁰⁹ As collective action on a planetary scale and eventually on a multi-world scale is necessary for the continuation of the human race, world-class individualized preventive health maintenance made available for all individuals is vital. Every-one, able-bodied, able-minded or not is argued here has a perspective to offer, even if it is not always apparent in every immediate situation. In this respect, health; education to cultivate self-actualization and transcendence; encouraging compatible, diverse and revitalizing human relationships and providing opportunities to connect with the mysteries beyond this life through individual faith are regarded as ethical and optimal.

3) *Environmental* (human survival)

Only after the human race sends physical probes or people into other solar systems will this area of focus become more than unitary. However, recent successful astronomical searches for extrasolar planets, published frequently in popular media outlets such as *Yahoo!* are already increasing human awareness in this direction.¹¹⁰ For now, this seat of responsibility shown in the 3x3 Global Drills diagram above primarily encompasses issues and applicable knowledge from the core of the sun to the "edge" of the solar system and everything in between. The physical concept of *everything in between* is why a cursory understanding of the potential of quantum mechanics is key to consider when a person is representing this seat when deliberating with potentially five others in 3x3

¹⁰⁹ See Edward Hoagland, "The American Dissident: Individualism as a Matter of Conscience," *Harper's*, August 2003, 33-41.

¹¹⁰ As of August 11, 2011 the online Extrasolar Planets Encyclopedia, established in February 1995 has catalogued 573 extrasolar planets. <http://exoplanet.eu/>. Retrieved August 16, 2011. See also William Weed, "Star Trek: NASA thinks we can find another Earth in another nearby star. When we do, how can we possibly travel light-years to get there? It might not be as hard as you'd think..." *Discover*, August 2003, 35-41.

Global Drills. Similarly, awareness of how bioregions, atmospheres, plate tectonics, fissures or the lack of them work on *all celestial bodies* (inclusive of asteroids and comets) in the solar system of origin is critical to the survival and perpetuation of the human pack. For example, University of Hawaii at Manoa professor Klaus Keil conducts research to understand the processes that took place in the solar nebula including the evolution of the crusts, mantles, cores and volcanism on asteroids in the solar system.¹¹¹

4) *Americas + Hawaii*

5) *Africa-Europe + Ankara and Moscow*

6) *Asia-Pacific + Israel/Arab Peninsula/Iran (Persia)*

The above regions that represent the pan-regional seats in the 3x3 Global Drills process (see Figure 10) are somewhat arbitrary, though the subcategories listed in these examples are deliberate. As with the drills process in general, they can be modified and scaled to meet the needs of particular actors operating in current hierarchical social roles. These broad geographical subsets of the world allow for a smaller number of voices (three of six) at any one time to use 3x3 Global Drills in particular contexts worldwide. The broadness reinforces the political leadership ethos outlined in this dissertation, to tap primal instincts for duty to the human pack. When prototyping human survival strategies in a brutal universe; national, corporate, academic and indigenous voices within these regions can plan together rather than being forced to conform to and be limited by global capital, state-socialism or any scarcity-based closed-system economic-social construct.

¹¹¹ See also University of Hawaii Institute for Astronomy's Pan-STARRS (Panoramic Survey Telescope & Rapid Response System). Pan-STARRS discovers and characterizes asteroids and comets that might pose a danger to Earth. <http://pan-starrs.ifa.hawaii.edu/public/>. Retrieved August 18, 2011.

Specifically, the combined power of our world is configured around three contiguous sections that reinforce north/south solidarity of purpose while recognizing global cultural diversity as human strength to be maximized. Hawaii is given as both a part of the United States as well as culturally distinct from it and as a link between Asia-Pacific and the Americas. The boundary between Africa-Europe and Asia-Pacific is drawn east of Ankara and Moscow because Turkey and Russia are given as hybrids of and links between Europe and Asia. Iran and the Arab Peninsula, inclusive of Israel are given as part of Asia-Pacific to unite Persians, Arabs and Jews through unit identity.



Figure 11. Three broad regions of Earth¹¹²

Based on the above paragraphs, international relations as praxis to avert human extinction is recast in three primary relationships from left to right on the map above: 1) the Atlantic relationship among the societies of the Americas and Africa-Europe 2) the

¹¹² Image credit: National Geographic Society, Washington, D.C., 2005.

Afro-Eurasian-Pacific relationship among the societies of Africa-Europe and Asia-Pacific and 3) the Pacific relationship among the societies of Asia-Pacific and the Americas.

Complementing Hughes' International Futures model

The framework of analysis represented in Barry B. Hughes and Evan E. Hillebrand, *Exploring and Shaping International Futures* (2006) is used by the U.S. Director of National Intelligence, the U.S. Central Intelligence Agency (CIA), the European Commission and the United Nations Environment Program. It is useful to consider in understanding the development, evolution and ongoing application of 3x3 Global Drills.

The 3x3 Global Drills process is complementary to Hughes' International Futures global modeling methodology (IFs), housed at the Frederick S. Pardee Center for International Futures at the Josef Korbel School of International Studies, University of Denver, aside from IFs being a quantitative computer simulation. Like IFs, the 3x3 Global Drills process is designed to aid *global* decision-making. Like IFs, 3x3 Global Drills represents visually, though more experientially how subsystems of the world system *could* interact collaboratively rather than predicting outcomes primarily based on the current assumption of competition among nations and humans. [In *The World That Could Be* (1976), Robert C. North in part considers General System Theory as a means to expand horizons, accelerate social learning and widen perceived alternatives.]

Unlike IFs, 3x3 Global Drills as a system of global collaboration is designed for simplicity of use rather than complexity of analysis. The 3x3 Global Drills process is complementary to IFs in that it replicates a "large-scale integrated global modeling system" to be used as "a thinking tool for the analysis of long-term country-specific,

regional and global futures across multiple, interacting issue areas."¹¹³ 3x3 Global Drills can be scaled to meet the needs of any specific organization, namely countries, agencies, corporations, non-governmental organizations and academic institutions. IFs also is scalable as indicated in its historical development in Appendix Two, "History and Future of IFs" in *Exploring and Shaping International Futures* (Hughes and Hillebrand, 213-214). The framework underlying 3x3 Global Drills induces a 360-degree perspective of and on all global stakeholders from the perspective of not only every other part of the world but of the solar system and universe, characterized here as brutal. The IFs approach is preferable if long-term accuracy in forecasting trends is desired but weak if short, straightforward, intense decision-making experiences in diverse small groups are desired, to give immediate feedback on simulated approaches to long-term or immediate challenges. The 3x3 Global Drills process is for the latter. The pan-disciplinary rows on the 3x3 Global Drills worksheet labeled: "Environmental," "Individual and Societal" and "Cosmic" are similar in language to Hughes' categories of analysis labeled, "Humans with the Environment," "Humans with Each Other," "Peace and Security/ Social Fairness," "Humans as Individuals" and "Personal Development/Freedom." Hughes uses even more categories of analysis than these, which creates unnecessary bulkiness for use by small groups.¹¹⁴

The November 1997 revised edition of U.S. National Intelligence Council (NIC) *Global Trends 2010* is regional in focus with expertise represented from within the U.S. intelligence community, government and academe. Regions are listed in the contents as:

¹¹³ International Futures, University of Denver. <http://www.ifs.du.edu/index.aspx>. Retrieved August 17, 2011.

¹¹⁴ Ibid.

Europe, Russia, East Asia, Middle East, South Asia, Africa, Latin America followed by Implications followed by Role of the United States. This concluding category reads in its entirety:

How the United States views the world – and how the world views the U.S – has been shaped by a mere page of history – five decades. American disengagement or continued involvement will determine if that half century is to serve as a model, rather than an aberration. Although trends will unfold regardless of U.S. policies, U.S. policies can help foster a climate where change is benign or violent, steady or unsettling. The ability of the United States to remain engaged will be determined in turn by the power at our disposal – economic vitality, military strength and the consensus on its use, and political cohesion. But given budgetary constraints, and the messiness in implementing new concepts of order, America’s success will also hinge to a considerable extent on how effectively it works with nongovernmental agencies, and the degree to which it builds and sustains multilateral cooperation *and* institutions.¹¹⁵

The separation of the Role of the United States from the other regions in *Global Trends 2010* is problematic as it may reinforce perceptions around the world that the U.S. only cares about preserving its exceptionalism. It defeats the collaborative sentiment expressed in Role of the United States. It is on this sentiment and around the lack of integrated regional approach that the 3x3 Global Drills can fill in this conceptual gap of IFs and NIC.

NIC *Global Trends 2015* (December 2000) is more pan-disciplinary than NIC *Global Trends 2010* and more open to feedback from non-U.S. governmental experts as well as U.S. citizen perspectives. Demonstrating the evolutionary nature of NIC reports,

¹¹⁵ *Global Trends 2010*, rev. ed., National Intelligence Council (November 1997). http://www.dni.gov/nic/special_globaltrends2010.html. Retrieved August 17, 2011.

Mapping the Global Future: Report of the National Intelligence Council's 2020 Project (December 2004) includes on its title page, Based on Consultations with Nongovernmental Experts Around the World. Rather than employing pan-regional or pan-disciplinary foci, as does 3x3 Global Drills, this project included 12 topical workshops, seminars, roundtable discussions or conferences held from November 2003 to June 2004, on five continents.¹¹⁶ Consistent with 3x3 Global Drills, *Mapping the Global Future* represents an interactive and ongoing process. However, the key difference between the two methods is that the NIC process solicits opinion from policy experts, business elites and U.S. citizens in dedicated fora while the 3x3 Global Drills process aims to be available for use by both elites in dedicated fora and citizens around the world in everyday situations such as undergraduate classrooms (see Appendices A and B).

Global Trends 2025: A Transformed World (November 2008) presents the most distinct features relative to other NIC reports in its focus on four scenarios with orderly and captivating titles, though not necessarily the most explanatory or jargon free:

- Global Scenario I: A World without the West
- Global Scenario II: October Surprise
- Global Scenario III, BRICs' [Brazil, Russia, Indonesia and China] Bust-Up
- Global Scenario IV: Politics is Not Always Local

¹¹⁶ See introductory background message by the Chairman of the NIC, Robert L. Hutchings to *Mapping the Global Future: Report of the National Intelligence Council's 2020 Project*, National Intelligence Council (December 2004). http://www.dni.gov/nic/NIC_2020_project.html. Retrieved August 17, 2011.

This NIC project was more collaborative among participants in preparing the written report than previous projects, resulting in positive secondary benefits through new relationships or *serendipity by design*. In the Executive Summary is a header entitled A More Complex International System above this striking paragraph:

The trend toward greater diffusion of authority and power that has been occurring for a couple decades is likely to accelerate because of the emergence of new global players, the worsening institutional deficit, potential expansion of regional blocs, and enhanced strength of nonstate actors and networks. The multiplicity of actors on the international scene could add strength – in terms of filling gaps left by aging post-World War II institutions – or further fragment the international system and incapacitate international cooperation. The diversity in type of actor raises the likelihood of fragmentation occurring over the next two decades, particularly given the wide array of transnational challenges facing the international community.¹¹⁷

The phrase “nonstate actors and networks” in this instance is defined by what it is not within the dominant order of states having authority to be heard in the “international community,” a term in itself that sets the parameters for political discourse. Rancière’s passage at the beginning of “The Distribution of the Sensible: Politics and Aesthetics” in *The Politics of Aesthetics* (2000) is relevant to consider in thinking about how 3x3 Global Drills can help democratize aspects of IFs through intense dialogue, beyond the general global population being able to access data from the IFs website:

The distribution of the sensible reveals who can have a share in what is common to the community based on what they do and on the time and space in which this activity is performed. Having a particular ‘occupation’ thereby determines the ability or inability to take charge of what is common

¹¹⁷ *Global Trends 2025: A Transformed World*, National Intelligence Council (November 2008). http://www.dni.gov/nic/NIC_2025_project.html. Retrieved August 17, 2011.

to the community; it defines what is visible or not in a common space, endowed with a common language, etc. (12-13).

Rancière helps us think about the meaning of specific aims in the 3x3 Global Drills process, identified here as *social promotion* and *social cohesion*, whether expressed in societies driven by global capitalism, state-socialism, indigenous traditions or yet entirely new values to emerge through dire necessity in a brutal universe. While complementary, assumptions embedded in the 3x3 Global Drills are distinct from IFs and the NIC because its field of conceptual perception includes at least the solar system, which envelops the space of the international community.

NIC *Global Governance 2025: At a Critical Juncture* (September 2010) is the first NIC report to be produced with a non-U.S. body, the European Union Institute for Security Studies (EUISS) in cooperation with comparable institutes in India, China, Japan, Brazil, South Africa, Dubai and Russia. While much of the substance continues the methodological approach in *Global Trends 2025*, notable in *Global Governance 2025* are anonymous short thought-provoking italicized quotes, encapsulating the essence of the report. Anonymous titles given include "Brazilian Senior Official," "Russian Participant" and "Chinese Think Tank Expert." The quotes on different global issues indicate that intense dialogue took place. For NIC and EUISS, discussions were dispersed across time and space before being integrated into a 69-page report. For 3x3 Global Drills, interactions are integrated from the beginning followed by dissemination and invited participation and amendment through more frequent nine-page reports.

Applying Katzenstein's world regions to prevent global empire

Support for and challenge to the regional seats of the 3x3 Global Drills can be found in Katzenstein's *A World of Regions: Asia and Europe in the American Imperium* (2005) where he argues that regions have become vital to a contemporary world politics that assumes U.S. empire. The changing regional dynamics of Europe and Asia are presented through detailed studies of technology and foreign investment, domestic and international security, cultural diplomacy and popular culture as they are structurally linked to the United States (Americas) through Germany (Europe) and Japan (Asia-Pacific), accounting for all three regions in the 3x3 Global Drills as seen in the brackets above. The 3x3 Global Drills process carries forward Katzenstein's notion "that regions are made porous by a variety of processes and vary greatly in their institutional forms" (13). However, the drills process does not share his U.S.-centric realist perspective, however critical it may be, that his regions [beyond Europe and East Asia] "differ in having (or not having) core states that support U.S. power and purpose... these regional factors for world order are extremely important in an era of U.S. preeminence" (13).

Katzenstein's concept of regions, while different in analytical purpose than that of this dissertation offers precedent for the utilization of broad regions in 3x3 Global Drills. Soguk's guidance to be "thievish in the deployment of thinkers in ways they would protest," as "all ideas are contextually and strategically available" influences this use of Katzenstein.¹¹⁸ In 3x3 Global Drills, regions are efficient means to divide the labor of responsibilities to secure the human race against multiple global threats, each of which has a partial solution that can be achieved through space exploration. This approach

¹¹⁸ Nevzat Soguk, POLS 600, Scope and Methods of Political Science, University of Hawaii at Manoa, November 20, 2007.

necessitates much greater global investment in and mission integration of national civil space programs across regions. This is why both the nation-state and world regions are units of analyses in policy research and applied recommendations and practice when using 3x3 Global Drills. Just as Katzenstein sees regions as porous, the drills allow regional boundaries to be scaled in accordance with the conventional needs of small groups that utilize them in 1) nation-states 2) corporations 3) academies and 4) indigenous populations to prototype particular mega-projects, always with an eye beyond Earth to ensure human survival.

Katzenstein's critical thesis of U.S. imperium and Ferguson's same construction in *Colossus: The Rise and Fall of the American Empire* (2004) to argue that power, whether U.S. or British has been and will be good for the world are both awkward truisms. Ferguson is right to argue that if U.S. power were to be removed from the world system today, there would be less stability, not more.¹¹⁹ However, intuiting this truism, U.S. foreign policy as an expression of the general character of her body politic has a tendency to act with tactlessness generosity in her relations with the rest of the world. This combination of generosity and tactlessness is rooted in her economic and thus military strength, both derived from her reverence of private property, its accumulation, protection and propagation. The U.S. wants to be *the best*, which is inherently subjective and therefore never quite attainable. Tactlessness generosity in the form of aid and development can convey as imperial hubris. The perception that the U.S. is an empire or acts imperial does not accurately reflect her self-identity or her motives. U.S. citizens

¹¹⁹ Niall Ferguson, "A World without Power," *Foreign Policy* 143 (July/August 2004): 32-39.

and elite policymakers and implementers have never wanted to *govern* the globe, the basis for how the British Empire defined itself as historically superior.

It is commonly understood that the U.S. identity is defined by the Civil War, the divides of which live on in its body politic like a debilitating virus with the most severe rupture being "Vietnam" as syndrome, the echoes of which still dominate as many subtexts within U.S. politics as race. This lack of internal cohesion does not represent the monolithic polity, forced or unforced upon its subjects that the word empire implies. Still, despite these fundamental philosophical and cultural divides as represented by "red states" and "blue states," in terms of relative global power, it may be more fitting to say that due to the soft power of Hollywood specifically, the U.S. has broken the imperial mold altogether - that *empire* is too small of a word to accurately describe the U.S. In 1998, Hubert Védrine, French Minister of Foreign Affairs from 1997-2002 coined the term "hyperpower" to non-aggressively and neutrally describe the U.S. as a "big" power in the world system. In French, the prefix "hyper" means beyond "super," approaching "omnipotent."¹²⁰ In regard to consolidating global power in order to face down a brutal universe, as might be expected from a true global empire in the age of space, the U.S. hyperpower has misused its power, as argued in Chapter 2. On these grounds, the charge that the U.S. is an empire misses the point. Yes, the U.S. is in denial of its defacto control of the world but only because paradoxically its aim is to be or feel *the best* without defining *best*.

Anne-Marie Slaughter's book *The Idea that is America: Keeping Faith with Our Values in a Dangerous World* (2008) complements the philosophical impetus behind 3x3

¹²⁰ See Hubert Védrine with Dominique Moïsi, *France in an Age of Globalization*, trans. Philip H. Gordon (Washington, D.C.: Brookings Institution Press, 2001).

Global Drills. Slaughter stresses the values of liberty, democracy, equality, tolerance, faith, justice and humility. The 3x3 Global Drills process emphasizes the support society owes the individual not only for her own sake but to enhance human excellence for the purpose of spreading the human race as wide as possible across a brutal universe so as to not continue being dangerously pinned down. Through such a renewed social contract, the life experience could be optimized in all the ways the individual chooses to focus, which because humans are social animals will be based on positive peer pressure. This team concept or pack animal element should be encouraged rather than stifled by extreme forms of either individualism or collectivism that resemble the sociopath and the free rider respectively such as capitalism and socialism induce in otherwise generous and industrious people.

It is always important for U.S. citizens and leaders to reflect on the question of whether they have or are in danger of turning into that which it originally fought to gain independence and by so doing earned the hope of the world. In the case of the present world system, the evolution of the U.S. away from her frugal immigrant work ethic and into frivolous consumer behavior has unjustly and artificially sustained it. For these reasons, attention paid to U.S. indebtedness to China and the world's dependence on OPEC also divert focus from the exigent question that this dissertation addresses: *How can the human race best work together to survive?* Katzenstein's intricate understanding of world regions may be able to help practitioners reverse consumption without intrinsic purpose in the name of modernity. Since the end of NASA's lunar program in 1972, commitment to achieving space-based solar power and other clean technologies such as nuclear fusion have been retarded in favor of U.S. military expansiveness, driven by

global demands of consumer capitalism as distinct from conventional market forces. (Christopher Stone, a space policy analyst warns that China and other nations are pursuing a comparative advantage in space-based solar power to the detriment of U.S. strategic influence abroad and at home.)¹²¹

Nobel laureate economist Michael Spence addresses squarely the bitterness that those who identify the U.S. as an empire for a variety of reasons hold. In promoting his book *The Next Convergence: The Future of Economic Growth in a Multispeed World* (2011) on *Charlie Rose*, Spence identifies the challenge of how to run the behemoth of the global economy where power is decentralized. Like many, he favors greater global governance and regulatory measures to set rules for competition, a legitimate position. This dissertation, as explained in the abstract sees greater global governance as unworkable and unnecessary, presenting instead the straightforward 3x3 Global Drills design for existing national agencies to use. Spence also prescribes that the U.S. must become psychologically prepared to no longer be dominant or to be "the best" in the manner that she has strived to be since World War II.¹²² This thought is consistent with the philosophy behind 3x3 Global Drills. In fact, by many common measures of great nations such as maternal mortality, literacy, universal healthcare and funding instead of loaning for higher education, the U.S. is far from best. It is in recognition of these inferiorities/vulnerabilities of U.S. power in the context of it being a global stabilizing

¹²¹ Christopher Stone, "National Space Strategy: Proactive or Reactive?" *The Space Review*, Monday, October 3, 2011. <http://www.thespacereview.com/article/1938/1>. Retrieved October 9, 2011.

¹²² Michael Spence, interview by Charlie Rose, *Charlie Rose*, PBS, May 27, 2011. <http://www.charlierose.com/view/interview/11698>. Retrieved August 16, 2011.

agent militarily, which subsidizes other nations to be able to invest more in their people than on their national defenses, that the 3x3 Global Drills process has been conceived.

Applying Thoreau, Parsons, Lasswell, Fuller, Marx-Hubbard and Pfaltzgraff

Parsons' observation of environmental adaptation, goal attainment, integration and latent pattern maintenance (AGIL paradigm) as functional imperatives in social systems correlates to the goal of the human race working together to survive in a brutal universe.¹²³ In addition to recalling Lasswell's Continuing Decision Seminars and Social Planetarium,¹²⁴ a quick review of his *The Future of Political Science* (1963, 2005) also reveals how 3x3 Global Drills might be used to reverse the universal sense of unease in the human experience that Thoreau identifies in *Walden* (1854): "The mass of men lead lives of quiet desperation. What is called resignation is confirmed desperation." The section *Prototyping* in the chapter Experimentation, Prototyping, Intervention (99-122) supports the idea that prototyping with 3x3 Global Drills can be both a prototype of social design in itself in addition to an engine or micromodeling process if used by small groups. Lasswell's Social Planetarium was a micromodeling process, also described in *The Future of Political Science* (140) to put into the public domain earlier prototype solutions constructed by elites to the most pressing global challenges. Lasswell writes: "The typical advantage of prototypes is that they may be kept sufficiently small scale to stay out of sight until results have been rather fully studied. In this, they differ from a pilot project, although in the marginal case differences disappear." Still, Lasswell warns:

¹²³ Talcott Parsons, *The Social System* (London: Routledge & Kegan Paul Ltd, 1970), 26-50.

¹²⁴ See Harold D. Lasswell, "The Library as a Social Planetarium," *American Libraries* 1, no. 2 (February 1970): 142-143 and Harold D. Lasswell, "The Continuing Decision Seminar as a Technique of Instruction," *Policy Sciences* 2 (1971): 43-57.

When a prototype is in process of formation, dangers from partisan interferences are usually greater than in the laboratory, since prototypes are likely to be identified by interests who seek to control results for their special benefit. However, the vulnerability to interference is greater still in the case of official innovations (100).¹²⁵

An important part of the rationale that drives the 3x3 Global Drills design is also captured in Lasswell's words: "That prototyping provides a means of clarifying and disseminating the social practices of human dignity and of revealing the latent capability of man is evident. In particular, prototyping lends itself to discovering the limits of power sharing in various circumstances" (119). The 3x3 Global Drills process promises to be popular within governments, corporations, academe, militaries and among national citizenries in part due to the ego appeal of "playing" across the solar system with the fate of the human race at stake. In this regard, consider the following passage by Lasswell in *The Future of Political Science*:

Obviously, the strategy of prototyping must aim at confidence without generating sanguine expectations that end in disillusionment or permitting the pessimism that invites paralysis. We referred above to the special environment of mutual support that "true believers" create among themselves. Since more than words and gestures (for example, affection, respect, and rectitude) are needed, it is always relevant to ask: What else do the participants get out of it? Whose demands are indulged? Deprived (109)?

Following the header Prototyping and the Deeper Dynamics of Politics, Lasswell writes: "Undoubtedly, the future use of prototyping in conjunction with other methods will greatly improve knowledge of *intensity factors* in the political process and of the

¹²⁵ Consider also R.J. Rummel, *Power Kills: Democracy as a Method of Nonviolence* (New Brunswick, New Jersey: Transaction Publishers, 1997).

changing environmental and pre-dispositional elements that condition intensity” (115-116). It is in this sense that the 3x3 Global Drills process intends to fuel the slow and steadily burning intensity across human generations that Thoreau in *A Week on the Concord and Merrimack Rivers* (1849) interprets from mythology:

In the mythus a superhuman intelligence uses the unconscious thoughts and dreams of men as its hieroglyphics to address men unborn. In the history of the human mind, these glowing and ruddy fables precede the noonday thoughts of men, as Aurora the sun's rays.

As the sun pays no heed to national borders, Lasswell too broke down the man-made barriers between the social studies and acquainted each with the rest. He filled in multidisciplinary spaces between 1) political science 2) psychology 3) philosophy and 4) sociology. He was disciplined in wide-ranging inquiry and worked to create the above "quadrivium" of social sciences to make them truly liberal arts.¹²⁶ Before President Eisenhower spoke of the military-industrial complex, Lasswell saw clearly the potential for a "garrison state" in the U.S. and courageously tried to curb its powers.¹²⁷ The 3x3 Global Drills process builds on this tradition by not overlooking any discipline and region that pertains to surviving long term in the solar system, turning garrison states or military-industrial complexes into collaborative enterprises that draw from and benefit individuals. Here too, Thoreau in *Civil Disobedience* (1849) helps elucidate the underlying principle of the middle and most political row of the 3x3 Global Drills perspectives, Individual and Societal:

¹²⁶ From the jacket of Harold D. Lasswell, *Power and Personality*, Fifth Printing (New York: Viking, 1969). First published by W.W. Norton in 1948.

¹²⁷ Harold D. Lasswell, "The Garrison State," *American Journal of Sociology* 46, no. 4 (January 1941): 455-468.

There will never be a really free and enlightened State until the State comes to recognize the individual as a higher and independent power, from which all its own power and authority are derived, and treats him accordingly.

The firm that now runs Fuller's cooperative World Game with the goal "to make the world work for 100% [*sic*] of the human race without any harm to another" is called o.s. Earth Global Simulations, New Haven, Connecticut.¹²⁸ (Fuller envisioned the World Game out of his experience in competitive war games conducted by the U.S. Navy during World War II.) In the view of the author, the o.s. Earth approach has too many directions, stages and printed materials, creating unnecessary complexity. Like many consulting practices, especially when large groups are involved, it also encourages a carnival atmosphere, not intensity of purpose than can be better achieved through small group dialogue, reflection and a variety of distilled report writing using 3x3 Global Drills. It also just focuses on Earth rather than taking a solar systems or galactic approach which Fuller articulated through his body of written work. Barbara Marx-Hubbard's SynCon (Synergistic Convergence) Conferences may appear to stress the universal over the individual. However, her distinction between the individual as ego and her preferred idea of the individual as "essential self" may be the necessary and sufficient key to prevent both tyranny by leaders and chaos among citizens.¹²⁹

Equally concentrated an experience as the SynCons are the SIMULEX annual crisis management exercises, held over two-day periods, led by Professor Robert Pfaltzgraff,

¹²⁸ World Game of Buckminster Fuller, o.s. Earth, Inc. Global Simulations, "Global Simulation Workshop – How Would You Run the World?" Webpage. <http://www.osearth.com/index.shtml>. See also Buckminster Fuller Institute. <http://www.bfi.org>. Both retrieved August 17, 2011.

¹²⁹ Barbara Marx-Hubbard. <http://www.barbamarxhubbard.com>. Retrieved August 17, 2011.

International Security Studies Program (ISSP), The Fletcher School, Tufts University, A Graduate School of International Affairs. SIMULEX is a major crisis management exercise in which participants assume the roles of national policy makers in an international scenario. The exercises focus on a highly realistic scenario involving the U.S. and other world actors, exposing students and participants to the potential constraints and opportunities facing policy makers. As representatives of various national and international teams, participants are asked to make critical decisions in the interest of their respective countries as they attempt to resolve crises, all of which are Earthbound with a U.S.-centric focus. In an atmosphere of conflict escalation, the exercises stress crisis management and negotiation skills. In terms of geography, recent scenarios concerned crises in Pakistan, the Persian Gulf, Northwest Africa/Nigeria, the Caspian Sea the Taiwan Strait and the strategic alliance between China and Iran and relations between Taiwan and Mainland China. Graduate students from The Fletcher School work alongside fellows from local universities and high-ranking officials from the broader political-military community, including representatives from the U.S. National Security Council, Department of Defense, Central Intelligence Agency and the several wargaming centers across the different U.S. service branches.¹³⁰ Given the predominance of hard and soft U.S. power around the world, the 3x3 Global Drills process embraces the same institutions as does SIMULEX above in addition to their international counterparts as venues at which to offer time-sensitive drills and follow-on dissemination report-writing, altogether ranging from 40 minutes to a week.

¹³⁰ SIMULEX 2010, October 29-30, 2010. The Fletcher School, Tufts University, A Graduate School of International Affairs. <http://www.fletcher.tufts.edu/simulex/>. Retrieved August 17, 2011.

There are many ways to characterize and categorize existing power and latent power potential around the world as well as the intents of various centers of power. Evidenced by continued immigration, legal and illegal, the U.S. still receives much goodwill in the world, if only in regimes of terror, despite the loss of moral authority and even relative material appeal she enjoyed during the Cold War. The author hopes that the contribution of 3x3 Global Drills through this dissertation proves useful to U.S. and global leaders who want to set in motion all available economic, social, political and military power on Earth for engaging a brutal universe successfully over the very long term.

3x3 Global Drills as pedagogy in the interconnected world

In the context of a brutal universe post moon landing in 1969, both the "masses" and the "elites" of the human race must continually be trained in the art of strategic global collaboration. This statement is informed by Varley's dissertation in this department as well as through dialogue with her. Her recommendations for how to bring wars of extermination to an end include making internal coups in weak states illegal by moving toward a cosmopolitan world order that includes compulsory peace education.¹³¹ By promoting 3x3 Global Drills, this dissertation offers a less formal approach but one no less serious in the importance of "rowing together" as communicated in Crane's *The Open Boat* (1897), analyzed in Chapter 4.

Every individual's survival or at least those of her descendents depends on appropriately configuring and maintaining forces that the human race can bring to bear against the brutal universe. As such, each individual should be expected to give their

¹³¹ Yeoun Varley, "Dynamics of Wars of Extermination: A Theory" (Ph.D. diss., University of Hawaii, 2009), v, 237-240.

best effort to the human pack,¹³² meaning the now fully integrated global society of societies. While swift decapitation of the unserious, famously depicted in Sun Tzu's ancient text, *The Art of War* is not consistent with norms of global modernity, the lesson is key to global leadership. Those in elite positions have a solemn duty to communicate effectively to those temporarily in their charge how to best use their individual talents while preserving their individual choice to do so or not.

Mosca (1858-1941), who shaped early 20th century elite theory challenges democratic societies to examine basic assumptions of democracy and representational government, arguing that an elite minority always rules any society or polity.¹³³ An illustration of Mosca's understanding of elitism can be found in the paradoxical legacy of Horace Mann, best remembered as the father of the U.S. public school system by democratizing access to education as well as promoting women in the teaching profession. A bona fide elite, Mann succeeded John Quincy Adams in Congress from Massachusetts during the years 1848-1853, first as a member of the Whig party. In 1850, after being defeated by Daniel Webster in the nominating convention, he won re-election as an independent abolitionist candidate, later failing in his candidacy for Governor of Massachusetts with the Free Soil Party. From this esteemed and intriguing participation in U.S. political history, Mann became the first president of what evolved into one of the more progressive private colleges in the U.S., Antioch College, founded in 1852 in Yellow Springs, Ohio, also the hometown of the author. "Be ashamed to die until you have won some victory for humanity" is Mann's most enduring quote. It is taken from

¹³² The meaning of this concept is first introduced in Chapter 1 in the section entitled, 1953-1972: Ike, JFK, Apollo and the opportunity costs of Vietnam.

¹³³ See Gaetano Mosca, *The Ruling Class* (New York: McGraw-Hill, 1939).

his commencement address to the first graduating class of Antioch, the Class of 1859. (Mann took ill after the address and died later that summer, a reminder in the context of 3x3 Global Drills as presented in this dissertation that the brutal and unforgiving universe strikes most commonly through disease.) What is less discussed is that Mann, for all his progressive intentions adopted the model of the Prussian education system to achieve "democratic" ideals that are commonly given as Jeffersonian. Ultimately, Mann failed to develop popular free thought in favor of disciplining youth to enter an industrial workforce, managed by elites.¹³⁴ This scrutiny of an honorable public servant in the past is relevant to the present transition to a solar system civilization in that the elite-mass dichotomy is antiquated and should be left behind. Ironically, this was Mann's overarching aim in regard to participation in primary and secondary public education in the U.S. by all social classes.

Sustaining the transition to a solar system civilization

If the elite-mass dichotomy is to be jettisoned as the human race migrates into the rest of the solar system and beyond, earning terminal degrees might even become a common social expectation. In any event, more readily accessible opportunities for all individuals who wish to contribute their all to the defense of the human race are clearly needed. [This sentiment previews Heinlein's *Starship Troopers* (1959) as discussed in Chapter 4 where civic virtue is defined as those who demonstrate the courage to make the safety of the human race their personal responsibility, giving their lives if necessary (40).]

The unprecedented access to information as well as the possibility of its control by governments and manipulation by anyone in the present global civilization are both

¹³⁴ See Bob Pepperman Taylor, *Horace Mann's Troubling Legacy: The Education of Democratic Citizens* (Lawrence: University Press of Kansas, 2010).

opportunities and obstacles in the transition to a collaborative solar system civilization. The normative image this dissertation presents is one that would satisfy both Marx and Mosca. Based on the prospects of abundance-based economics discussed in Chapter 2, Marx's complaints based on economic class are nullified. In consideration of Mosca's elite theory, in a new social ecology of abundance, job security through global organization that resembles permanent war against a brutal universe as an inanimate enemy, opportunities for both social promotion and cohesion abound. Temporary elites, based on achievement and experience exist in this normative image but within an intergenerational context of pulling together as humans for continued existence, which is never guaranteed. Exploitation and corruption based on elite status becomes absent because the concept of comparative advantage is not applicable to how success/survival is defined and measured. The interests of the individual, promoted as paramount are still supported by the collaborative power of the human race, understood as a composite of distinct societies and cultures. Selfishness becomes the equivalent of treason in today's consciousness, penalized not by the state but through a harsher and more effective primal political force: mammalian positive peer pressure based on the instinct of the human pack.

At present, it is possible and necessary through abundance-based economics to release the pent up human spirit resulting from scarcity-based terrestrial politics and channel it into keeping the human race on the move by spreading out as far as possible in as short a time as possible in order to reduce the vulnerability of the human pack. This dissertation presents outside threats (Figure 9, World Problematique Plus) in this regard but we are just as vulnerable to threats internal to each individual. "We are explorers

forever moving outwards, or we die inwards." Such are the words former NASA astronaut Story Musgrave wrote in his journal the year after he retired in 1997. Musgrave was selected by NASA at the end of the Apollo program and became the only astronaut to serve on all five space shuttles, including being the person responsible for executing the on-orbit repair of the Hubble Space Telescope in 1993.¹³⁵ It is from this perspective that our education processes will need to instill principles of collaborative leadership instead of continuing to indoctrinate the idea that knowledge is only to be rewarded if it can be used to manipulate other human beings. Because W. Edwards Deming was operating within the paradigm of scarcity-based economics, partial language from his 14 Points in *Out of the Crisis* (1986) is as relevant as Musgrave's quote above to higher education in its vocational form:

Create constancy of purpose toward improvement... Eliminate work standards (quotas) on the factory floor. Substitute leadership... Remove barriers that rob people in management and in engineering of their right to pride of workmanship... Institute a vigorous program of education and self-improvement... (23-24).

In the same mode of thought and at the end of his seminal work, *Leadership* (1978, 1979) James MacGregor Burns argues that education and leadership are vitally related:

Ultimately education and leadership shade into each other to become almost inseparable, but only when both are defined as the reciprocal raising of levels of motivation rather than indoctrination or coercion (448).

¹³⁵ Story Musgrave (former NASA astronaut), "Story's Journal," webpage. <http://www.storymusgrave.com/journal.htm>. Retrieved July 28, 2011.

The combination of these elements taken from Mann, Musgrave, Deming and Burns suggest that an updated and expanded version of President Eisenhower's National Defense Education Act of 1958 for Singer's global level should be possible in the second decade of the 21st century. (Within the scarcity-based economic paradigm, perhaps this could take the institutional form of a global space education fund or bond.) The human race has not a mind, body or nanosecond to waste. In such a state of semi-emergency, the business plan model of economic life, appropriate for developed countries during the mid 20th century needs to be replaced with knowledge-based human advancement strategies for the world system to perform at optimal levels for and by all.

Considering Plato's Cave Allegory from *The Republic* in the transition to a solar system civilization may be useful. The often-futile obligation of the enlightened citizen to descend back into the cave to liberate the captivated and pacified, a well-intentioned idea that may have guided Mann's thinking for example is not what this dissertation proposes. Instead, it advocates for a new sense of obligation among elites and masses as understood today: Lighting and passing on proverbial torches in the form of space education promises to enlighten without blinding and angering. A basic understanding and use of these torches by body politics around the world offers a better chance to bring out the inherent dignity and unique assets of every individual human currently chained to Earth by unenlightened leadership more so than its gravity well. These torches are conceptualized in Figures 1 and 2 through images of von Braun, Eisenhower and Kennedy, all participant-resisters to militarism who took hold of outer space and never let go.

Instituting a galactic identity for the human race in the present

The Defense Advanced Research Projects Agency in the U.S., in partnership with its civil-space counterpart, NASA Ames Research Center recently held a 100 Year Starship [Study] Public Symposium, a multidisciplinary event open to international participation to win seed grants to begin building a starship to be ready by 2111. The 100 Year Starship project will also discuss how organizations can maintain and evolve momentum for 100 years or more on space endeavors post Apollo-Shuttle era.¹³⁶

Building and sustaining momentum through public curricula for global primary, secondary and higher education within the context of a brutal universe are achievable goals, either as private or public projects or both. Any space endeavor, such as the 100 Year Starship would do well to combine elements of 1) individual and societal perspectives 2) pan-regionalism and 3) intensity of reflective dialogue as do the following institutional precedents set after World War II:

- *People to People International*, founded by President Eisenhower on September 11, 1956 as part of the U.S. Information Agency (defunct since 1999) in the U.S. Department of State, becoming a non-profit organization in Kansas City in 1961 and now run by Ike's granddaughter, Mary Jean Eisenhower¹³⁷
- *Sister Cities International*, founded by President Eisenhower, September 11-12, 1956 as above, remaining a part of the fated U.S. Information Agency until reorganized into the Bureau of Educational and Cultural Affairs in the U.S. Department of State in 1995¹³⁸

¹³⁶ See Defense Advanced Research Projects Agency (DARPA), U.S. Department of Defense, 100 Year Starship Public Symposium, "2011-2111," September 30 to October 2, 2011, Orlando, Florida. <http://www.100yss.org/about.html>. Retrieved August 18, 2011.

¹³⁷ People to People International, "People to People International History," webpage. http://www.ptpi.org/about_us/History.aspx. Retrieved August 2, 2011.

¹³⁸ Sister Cities International, "History of Sister Cities International," webpage. <http://www.sister-cities.org/about/history.cfm>. Retrieved August 2, 2011.

- *Great Decisions* annual briefing books and U.S. national civic education program, started in 1954 by the Foreign Policy Association (founded in 1918 after World War I) to promote thoughtful discourse on global issues and regions and citizen participation in the U.S. foreign policy process¹³⁹

In regard to the social promotion aspect of 3x3 Global Drills, any global network of public universities may want to consider collaborating over and beyond exchanging students. Global cross-enrollment at all levels of public education may be overdue and now more feasible with advances in videoconferencing such as Skype and the video chat function in Gmail (Google Mail), the current global standard in email organization. Global publics ache for social promotion in the form of education, not limited to space education. Established global public universities have common expertise in the area of rigorous credentialing, both of students and faculty. It should be possible to streamline and standardized global public education at all levels without losing any more distinctiveness than is sacrificed in regional accreditation of private grade schools, high schools, colleges and universities in the U.S. The 3x3 Global Drills process is adaptable to any classroom. Pedagogies might include the study and creation of continua of human conflict and peace, defined as follows for preliminary discussion:

Instigation - Propagation - Management - Resolution - Transformation - Prevention - Elimination

As presented at the beginning of the chapter, global stakeholder analysis might be presented to include the following: scientists, engineers, academics, policy-makers, business communities and militaries (SEAPBM). The foundation of such pedagogies should include the dilemma of achieving international security based on present day

¹³⁹ See Foreign Policy Association. <http://www.fpa.org/>. Retrieved August 3, 2011. See also "Great Decisions," webpage. <http://www.facebook.com/GreatDecisions?sk=info>. Retrieved August 7, 2011.

terrestrial political constraints, namely the potential for nuclear exchange escalating from anti-satellite warfare among modern space-dependent militaries.¹⁴⁰

As an important aside, the early proponent and developer of stakeholder analysis, Professor Klaus Schwab (no relation to the author), Executive Chair of the World Economic Forum that is held annually at Davos, Switzerland is anything but a cheerleader for the status quo of globalization. He has written most prominently against this community for not fully understanding or at least not exercising the principles of the 1973 Davos Declaration, “the stakeholder concept - the idea that a company has a clear responsibility to the community beyond its shareholders... a corporation’s social and environmental responsibility.” Schwab further cites the 1999 “UN Global Compact, a framework of ten core principles to guide business behavior in areas such as human rights, the environment, labor practices, and corruption.” Schwab’s basic argument is that “since companies depend on global development, which in turn relies on stability and increased prosperity, it is in their direct interest to help improve the state of the world.”¹⁴¹ This dissertation is closer to the tradition of Schwab's stakeholder concept for world economic development than Nye's legacy of U.S.-centric conceptions of soft power maintenance of superpower advantage. However, the dissertation does not share Schwab's scarcity-based assumption on which global capitalism is based which necessitates his advocacy for stakeholder analysis.

¹⁴⁰ See Space Security Index of Project Ploughshares, Canadian Council of Churches and other participating institutions in North America. <http://www.spacesecurity.org/>. Retrieved July 3, 2011.

¹⁴¹ Klaus Schwab, “Global Corporate Citizenship: Working with Governments and Civil Society,” *Foreign Affairs* 87, no. 1 (January/February 2008): 107-118.

Performance objectives for a pedagogy built around 3x3 Global Drills might be based on nine-page weekly reports written by six students on topics of their choice after teachers run them through a series of drills and made available to global leaders and publics through digital knowledge banks such as "cloud computing." The nine-page reports might be written and evaluated by asking and answering the following questions:

- 1) Why is a global strategy needed to address a particular global issue?
- 2) Who are the central players in a given global strategy?
- 3) How might the global strategy be implemented?
- 4) How might the success of this global strategy be measured?
- 5) How were the unanimous recommendations of the teams made under extreme time pressure (40 minutes recommended for concentrating focus)?

Global threats might be generated and considered one at a time or in different combinations based on the World Problematique Plus as described in Figure 9. If any given student global team runs out of time before reaching unanimity or if an observer team of "national leaders" (waiting their turn to drill) disregards their recommendation, the entire human population could perish in the drills with valuable lessons learned. In addition to the Foreign Policy Association's *Great Decisions* discussion booklets used by select U.S. audiences, the U.S. Central Intelligence Agency's Presidential Daily Briefings and the Millennium Project's annual *State of the Future* set precedent for rapid and timely dissemination of large-scale ideas respectively.

In order to realize prospects for collaborative power in a brutal universe, the traditional idea of school, including universities might be reconsidered per Lasswell's Social Planetarium, Continuing Decision Seminars and prototyping. The essence worth

maximizing in any such mass institutional redesign is to ensure that "classes" or any kind of intellectual conglomeration are composed of those who seek to understand rather than receive or dispense credentials. Librarians, knowledge-workers and mentors across the disciplines would be in a more empowered position to encourage, cultivate and embolden sincere and capable minds if allowed to operate more freely within the confluence of both open-systems of energy abundance and a brutal universe.

Post space shuttle retirement (July 2011), the human race can return to the process begun in 1958-1969 of expanding across the solar system and perceiving itself in galactic terms through intergenerational planning. George S. Robinson, a former international space law practitioner at NASA and the Smithsonian Institution understands this. Extended excerpts from Robinson's editorial, "Migratory Manifesto for a Space *Civilization*" in *Cosmos 2004* are recorded below as a companion piece to the full lyrics of Gordon Lightfoot's ballad, "The Wreck of the Edmund Fitzgerald" and Susan Eisenhower's extended quote on the leadership of implementation from her research and memory of Ike, as both quotes are presented in Chapter 4. (The juxtaposition of style coupled with the alignment of thought and feeling between intellectual elites and popular music is a teaching technique and research area that the author wishes to pursue in further research through the methodology of content analysis.) Robinson's contribution reads:

All nations must become responsible in some degree for a global effort to uncover and illuminate the fundamental requirement for such a space migration undertaking, beyond reliance solely on transitory economics, strictly domestic and international partisan politics, and shifting military requirements for the protection of equally as shifting national and international interests... On January 14, 2004, President George W. Bush underscored his policy for NASA to establish a human

presence on our Moon and then, ultimately, Mars by stating that "[t]his cause of exploration and discovery is not an option we choose; it is a desire written in the human heart." Unfortunately, what the President omitted was the unsettling but critical survival imperative of humankind through space migration and settlement... In short, cultural recidivism is being relied upon to establish the legal foundation and social constructs for human and humankind evolution off Earth. This deficiency is represented in the multilateral agreement and unpublished dependent accords governing the cultural / social aspects, as well as the operational objectives and control, of the International Space Station... We should be pressing with great urgency to catch up with our unfolding space technology in terms of the philosophical, theological, and biocultural constructs necessary to establish a civilization that reflects not only a framework of values we wish to inculcate, at least at the outset, but, more importantly, reflect the unique demands and physical exigencies of a non-Earth life support system... we seem to be adopting a tragic, cultural laissez-faire attitude that does not challenge our intellectual abilities, and does not recognize the imperative requirement of a well-considered establishment of the space civilization(s) that will ensure not only that *Homo sapiens sapiens* and its altered descendants will evolve biologically, biotechnologically, and culturally in sensible fashions, but that they will evolve at all...

As an important example of the evolution of elite-mass relations in the U.S., *Cosmos Journal* has been published semi-annually in Washington, D.C. since 1991 by members of the self-professed elite Cosmos Club for distribution to reciprocal scientific clubs worldwide, university libraries and the press. The Cosmos Club was founded in the Washington, D.C. home of geologist and American explorer, John Wesley Powell in November 1878. As of August 2011 its membership has included three U.S. presidents, two U.S. vice presidents, a dozen U.S. Supreme Court justices and collectively has won

56 Pulitzer and 32 Nobel prizes and 45 U.S. Presidential Medals of Freedom. It voted to include women as members in June 1988.¹⁴²

For reasons stated by Robinson above, an important area in which the dissertation chose not to devote time and space is the body of international law in outer space. This body is comprised primarily by the 1967 Outer Space Treaty, the 1968 Rescue Agreement, the 1972 Liability Convention, the 1976 Registration Convention, the 1984 Moon Agreement and the activities of the UN Office for Outer Space Affairs (OOSA) and the UN Committee on the Peaceful Uses of Outer Space (COPUOS), established at Vienna in 1958-1959, again during the Eisenhower administration. The principles established in this body of law continues to receive the rededication of notables in the U.S. today, most recently by Dr. Buzz Aldrin, the second human to walk on the moon.

Reflections on the intellectual genealogy of 3x3 Global Drills

The author joined the Mars Society in 2000 as a volunteer and served as interim chair of the Ohio chapter. Intellectually, this activity led to an internship with the Space Security Working Group at the Eisenhower Institute in Washington, D.C. in 2003 after the author received his master's degree in international security studies from the University of Pittsburgh, Graduate School of Public and International Affairs in 2002. Further volunteer activities in the area of U.S. space policy broadly defined quickly led to the creation of a large network of expert colleagues who constantly fed the author with information and insight. In order to handle the onslaught of opinion and evidence in 2003-2004, the author was forced to create and evolve different systems of categorization. Some were broader than the 3x3 Global Drills perspectives (Figure 10),

¹⁴² Cosmos Club. <https://www.cosmosclub.org/>. Retrieved August 11, 2011.

such as a set of drawers labeled "Celestial - Human - Structural - Regional." At one point in 2005-2006, the author purchased an elaborate system of 48 tray drawers to "sift and sort" the deluge of paper articles for future use or present reference after making notes in the margins. Category 1 was "Asia-Pacific - Earth Systems - Tectonic plates." Category 48 was "Europe and Scandinavia – Space Development – Military-civil nexus."

A foundational text in the intellectual genealogy leading to the 3x3 Global Drills is *Getting to Yes: Negotiating Agreement without Giving In* (1983, 1991, 2011) by Roger Fisher, William L. Ury and Bruce Patton of the Program on Negotiation at Harvard Law School. During the undergraduate years of the author, this text inspired further training in conflict resolution and service as a volunteer community mediator for the Dayton courts beginning in 1994. The primary objective of this experience was to help clear the dockets of city and county judges during an epidemic of female juvenile assaults.

It is simple for mediators to follow the *Getting to Yes* method to facilitate principled negotiation as opposed to the positional bargaining that is used in international arms control negotiations. A mediator and co-mediator simply 1) Separate the people from the problem 2) Focus on interests, not positions 3) Invent options for mutual gain and 4) Insist on using objective criteria. This four-step formula proves in most cases to aid the parties themselves in resolving their own conflicts and to take ownership of the peace to follow. The authors of *Getting to Yes* combined with 16 hours of basic mediation training at the Dayton Mediation Center of the City of Dayton prepares citizen mediators to expect power imbalances, stubbornness and dirty tricks among parties to occasionally thwart agreements. With that occurring, conflict resolution and occasional conflict transformation are achieved more often than not. This then begs the question of conflict

prevention. By 1999, the author concluded that human on human violence, at least among the population to which he was assigned to mediate stemmed from a lack of purpose being facilitated by human civilization in the wake of the Cold War. This offense by national and global leaders seemed far worse than the lashes of violence born of frustration for which the girls were being threatened with punishment, opting for mediation on Saturday mornings in the courtroom.

U.S. Senator Patrick Moynihan's book, mentioned toward the end of Chapter 2, *A Dangerous Place* (1978) relating to his service, as U.S. Ambassador to the U.N in 1975 and 1976 remains pivotal in the thought development of the author. The author may be unique in his view that until a democratic parliament is established at the UN, for which there is a small but growing movement, particularly from within the European Parliament, the UN lacks moral authority to lead the human race as united peoples beyond Earth. Having volunteered with the world federalist community, even being selected as interim president of the Washington, D.C. chapter of Citizens for Global Solutions in 2004 (formerly the World Federalist Association), the author gives this opinion based on brief but intense experience with the issues involved.

The author was influenced by the insights of Theresa Hitchens, a member of the Space Security Working Group at the Eisenhower Institute in 2003 in her capacity as vice president of the Center for Defense Information, both in Washington, D.C. Now as director of the UN Institute for Disarmament Research in Geneva, Hitchens offers an authoritative overview of the current status of the multifaceted if not arcane area of space security within the current dominant paradigm of balance of power realism, tempered by international institutional liberalism. She concludes, "integrated multilateral

approaches to space security are not a luxury, but a necessity." This thought runs parallel to the collaborative power paradigm of 3x3 Global Drills as does the paragraph on planetary defense in the Vienna Declaration at UNISPACE III in 1999 mentioned in Chapter 2, even if the UN culture of accommodative power in which both are expressed may not.¹⁴³ Drawing a distinction between accommodative power and collaborative power is a contribution that this dissertation has tried to make.

This chapter outlined and in some areas filled in where necessary the mechanics of the proposed 3x3 Global Drills process, the heart of the dissertation. The next chapter draws from the richness of Western literature and film to offer an even more complete understanding of the spirit in which 3x3 Global Drills has been conceived.

¹⁴³ See Theresa Hitchens, "Multilateralism in Space: Opportunities and Challenges for Achieving Space Security," *Space and Defense* 4, no. 2 (Summer 2010): 3-25. *Space and Defense* is the journal of the Eisenhower Center for Space and Defense Studies at the U.S. Air Force Academy. See also United Nations Office for Outer Space Affairs, "United Nations Treaties and Principles on Space Law," webpage. <http://www.unoosa.org/oosa/en/SpaceLaw/treaties.html>. Retrieved August 10, 2011.

Chapter 4

Global Collaborative Power Illustrated through Literature and Film

...my purpose is once again to denounce war and to expedite a colony of people there [Venus]: if therefore you will participate with us in our exploration... **Lucian, *True History* (second century Greek rhetorician of Syrian Samosata, Roman Empire)**

Enlisting the universal power of storytelling

The author is on record as being critical of most science fiction for resembling bad history in that many works in both fields tend to take present day political and economic assumptions and attribute them to another time.¹⁴⁴ The author is also not widely read in Western fiction let alone Eastern, Islamic or indigenous literature and oral traditions. This bias and background provides a certain distance from which to better examine Western literature and film and to show that the transformative powers of projected visual aesthetics in Western cinema are rooted in the universal practice of telling good stories. While this dissertation does not include any non-Western titles, it aims to make up for this absence by emphasizing common human characteristics of good storytelling, the ability to pass knowledge but more importantly insight across generations, as through cave paintings. In particular, understanding psychological insights from both the individual and societal perspectives, or the middle row of 3x3 Global Drills (Figure 10) through literature and film is a fundamental political requirement to face the brutal universe or World Problematique Plus (Figure 9).

Shapiro continually shows us new ways for how and why cinema can be used to "first map and then supply alternative imaginaries" to the way security analysis

¹⁴⁴ See "Appendix II" in Martin A. Schwab, *Homeplanet Defense: Strategic Thought for a World in Crisis* (West Conshohocken, Pennsylvania: Infinity Publishing, 2005), 198. Adapted from Martin A. Schwab, "Our Two Planets: To Free Enterprise from Capitalism for Civilizations on Mars and Earth," presented at the Third Annual International Mars Society Convention, Toronto, August 2000.

constructs "global problematics;" not just geographically but in terms of "the forces, institutions, and agencies that move bodies into the zones of violent encounter," such as the military recruiting process.¹⁴⁵ In that regard, the apex of this chapter draws from *Ike: Countdown to D-Day* (2004), *Meteor* (1979) and *Mission to Mars* (2000) to fuse an alternative imaginary of global collaborative power in a brutal universe.

Four seminal works that may at first appear to be emblematic of this dissertation need to be acknowledged and set aside in order to better understand other works that are more illustrative of global collaborative power. Arthur C. Clarke's *2001: A Space Odyssey* (1968), represented in cinema as *2001: A Space Odyssey* (1968) and Philip K. Dick's *Do Androids Dream of Electric Sheep?* (1968), represented in film as *Blade Runner* (1982) respectively, fit into a different category of analysis than the focus of this dissertation. These works concern the ethical use of technology created in the image of human beings to perform inhuman tasks while being treated inhumanly by humans, provoking the questions, 1) what defines being human and 2) what are the associated values of being human? Andrew Niccol's *Gattaca* (1997) and Steven Spielberg's (with Stanley Kubrick) *A.I. Artificial Intelligence* (2001) are perhaps the latest classics that struggle with this philosophical question. Heinlein largely bypasses these fundamental questions but not altogether, as will be shown in the section on *Starship Troopers* (1959). This dissertation also regards these questions as important but secondary, given the precarious nature of the human race in a brutal universe. Clarke and Dick's questions, as defined here represent a type of skepticism of technology and human nature of which people should be mindful when considering unforeseen consequences of using the 3x3

¹⁴⁵ Michael J. Shapiro, *Cinematic Geopolitics* (New York: Routledge, 2009), 19.

Global Drills. While skepticism is useful, cynicism is never constructive. The bias embedded in this construction of global collaborative power is optimism, not cautious or unbridled optimism or naïveté but intense, focused optimism. This bias or attitude is best performed in the lines delivered by Ed Harris playing NASA Flight Director Gene Kranz in *Apollo 13* (1995), "failure is not an option" and "work the problem people," now part of the U.S. if not global lexicon.¹⁴⁶

George Lucas' *Star Wars* and Gene Roddenberry's *Star Trek* franchises are not explored in this dissertation in part because their impacts are so infused within existing global entertainment culture. In order to contribute new knowledge to the field of political science, this dissertation explores aspects of lesser known or perhaps forgotten films and books that capture specific elements of 3x3 Global Drills rather than retreading these two mega-epics.

A critique of entrenched power in Bacon's *New Atlantis* (1624)

In Gordon S. Haight's introduction of Bacon's *Essays and New Atlantis* (1942), he writes of *New Atlantis*: "It is one of the famous utopias, those accounts of an ideal world in which authors reveal what is wrong with their own" (Haight, xvi). This is quite different than the common usage of the word "utopia" to mean an overly idealized dream. Without the utopian tradition's effect on history, More's *Utopia* and the early 19th century experimental communities in the U.S. by British social reformer, Robert Owen, status quo power would have been even more venomous to the human spirit. Subsequent sections of this chapter briefly explore a number of contributions to film and literature as diluted expressions of utopianism.

¹⁴⁶ See Gene Kranz, *Failure is Not an Option: Mission Control from Mercury to Apollo 13 and Beyond* (New York: Simon & Schuster, 2000).

The main significance to history of *New Atlantis* may be that it and certainly its author inspired the Royal Society, a real institution that has had incalculable impact for British security for three centuries and therefore on the world, for good and bad. The influence of the Royal Society can be seen in Cook's "discovery" of Hawaii, both for him and eventually the Hawaiian way of life in the former Sandwich Islands. Hawaii's historic and pivotal place to U.S. security in Mackinder's sense is well established, evidenced by the Japanese attack on Pearl Harbor in 1941 as thought necessary to secure the geopolitical objectives of the Japanese empire at the time. Little has changed in terms of the military importance that Hawaii provides to the U.S. In 2011 there are more U.S. military bases, representing all service branches on the map of Oahu than towns. This fact is a visually striking harbinger of the potential the U.S. has of becoming a complete garrison state. As a U.S. citizen, this is of more concern to the author than the creation or perceived maintenance of U.S. empire, a problematic construct as argued in Chapter 3.

Like the often-referenced "culture of secrecy" within the U.S. security community [of rivals], secrecy or perhaps an echo of the esoteric tradition is part of Bacon's plot. The utopians of Bensalem knew the outside world but they remained unknown by it. Elitism is also detected in *New Atlantis* as only the best and brightest of Bensalem's citizens are selected to join Solomon's House for the purpose, consistent with Enlightenment thinkers to understand and conquer nature and to better society by accumulating knowledge. Bacon assigned different names for those who performed the respective tasks of foreign intelligence gathering and interpretation and scientific experimentation of different types. By so doing he showed that foreign intelligence and science both require analysis as well as observation, the blending of the two later

adopted by the U.S. Central Intelligence Agency and the many other intelligence agencies in the U.S. military-industrial complex.

In Bensalem, the academy is cast as superior to the state, a reflection of Plato's philosopher kings. For Bacon, the ultimate purpose of his configuration of power in *New Atlantis* may be found in his earlier work *Novum Organum* (1620) in which after he identifies catalytic effects on the world due to the inventions of printing, gunpowder and the compass he anticipates an "empire of man" over the universe. This work, more than *New Atlantis* links the utopian tradition, cosmopolitanism, universalism and international security studies to seemingly give marching orders to the space faring U.S. hegemon of today to unite the world in this fashion while it still can. This is especially apparent in the context of the stalled age of space that began with Sputnik in October 1957.

Related to these marching orders is the concept of intensity as discussed in the section on Lasswell in the previous chapter. To employ an Obama campaign slogan from 2008, if one is bored with making money in life or disillusioned with not being able to make money it is harder to "get fired up" about anything. However, high school American football teams still get fired up in locker rooms before Friday night games across North America as winter sets in Earth's northern hemisphere.¹⁴⁷ Consider the pre-game locker room scene "Peace by Inches" from Oliver Stone's *Any Given Sunday* (1999) in relation to Plato's Cave Allegory in *The Republic*. In this scene, which has a cult following of imitations and adaptations on YouTube, Al Pacino plays an aging professional football coach under pressure by the team's ownership to start winning or be

¹⁴⁷ See Geoff Winningham and Al Reinert, *Rites of Fall: High School Football in Texas* (Austin: University of Texas Press, 1979). See also Sal Paolantonio, *How Football Explains America* (Chicago: Triumph Books, 2008).

fired. Pacino inspires his team, which is on the verge of self-destruction as much as he is to “heal now” and “claw” their way out of hell and “into the light,” inch by inch and into the playoffs as the film progresses.¹⁴⁸

Implicit in the works of Bacon and other utopians is the idea that the human spirit can be unchained from both the institutional power of the state and the self-limiting power of the self; whether defined as mind, ego, hubris, sloth or any other form of what is stated here is damaged spirit as opposed to original sin. Through striving toward celestial fields of play beyond the locker room known as Earth, the prospects are good for the most wounded of spirits to be healed such as those captivated by both joining and fighting Al Qaeda during the first wasted decade of the 21st century.¹⁴⁹ These opposing spirits are not evil on either side. They are distracted from the many tasks the human race need to be doing in concert in order to continue existing.

Speaking for the human race in Hoyle's *The Black Cloud* (1957)

Hoyle, having coined the term “Big Bang Theory” in his scientific opposition to it helps readers “confront the extraterrestrial” through his reading of the astronomer's novel, according to Kilgore.¹⁵⁰ Hoyle was writing to illustrate the concept of interstellar ecology. As in Lem's *Solaris* (1961), to be analyzed later in this chapter, the invasive antagonist is not a recognizable humanoid but an Earth-sized black cloud that

¹⁴⁸ “Peace by Inches,” scene from *Any Given Sunday* (Warner Bros., 1999). <http://www.youtube.com/watch?v=9rFx6OFooCs>. Retrieved August 10, 2011.

¹⁴⁹ See Catherine Herridge, *The Next Wave: On the Hunt for Al Qaeda's American Recruits* (New York: Crown Forum, 2011).

¹⁵⁰ This section was influenced by Indiana University professor of English, DeWitt Douglas Kilgore's presentation, “Confronting the Extraterrestrial in *The Black Cloud*,” International Conference on the Fantastic in the Arts, Orlando, March 19, 2010.

foreshadows in some ways the current possibility regarding rapid climate change. Concepts explored are 1) who is empowered by speaking for the human race? And 2) the tradition of mass military response coupled with scientists serving at their command as an archaic social structure, recalling the Technocracy movement critique of government as too political. Eventually, a precursor to Sagan's "we are star stuff" narrative from Hoyle allows the military-scientific team speaking for the human race to communicate with and domesticate the cloud.

These areas that Hoyle explored in 1957 are intrinsically related to the 3x3 Global Drills process if it is to be used to revive the initial cooperative spirit of the International Geophysical Year (1957-1958). After the successful Sputnik launch on October 4, 1957, the U.S. public's reaction became hysteric, the strength of which was misjudged at the time by the Eisenhower administration.¹⁵¹ Variations on Hoyle's themes in *The Black Cloud* such as the *Stargate* series on U.S. television, while not entirely original do contribute new aesthetics to old ideas, more of which are explored in the next section on Heinlein.

Relevant works of the Grand Master, Robert A. Heinlein (published 1939-1987)

Heinlein's imaginary in *Starship Troopers* (1959) on "the beauty of a powered suit" (126) or powered armor for his Mobile Infantry uses technology to fit around and enhance the individual human being. With the aid of a powered suit, the individual becomes exponentially stronger, faster and smarter against the non-human alien on their extraterrestrial "turf," without being distracted physically, intellectually or ethically by

¹⁵¹ "International Geophysical Year," National Academy of Sciences. <http://www.nas.edu/history/igy/>. See also Roger D. Launius, "Sputnik and the Origins of the Space Race," NASA History Division. <http://history.nasa.gov/sputnik/sputorig.html>. Both retrieved July 15, 2011.

which Heinlein means that the preservation of the human race should take precedence over every other consideration.¹⁵² When representing the Individual and Societal perspectives row during 3x3 Global Drills (Figure 10), its most political element, the underlying concept behind Heinlein's powered suit can be transferred to individualized healthcare. The Human Genome Project has long promised revolutions in individualized healthcare based on each individual's genome. Without delving into various ethical objections to associated issues of human enhancement technologies in this dissertation, which range from unforeseen consequences to "playing God," which can be discussed within 3x3 Global Drills, it is enough to say that the principle that Heinlein's powered suit concept conveys serves as a useful guide to such discussion.

Heinlein said that he was inspired to write *Starship Troopers* in response to the movement to stop nuclear testing, which will be addressed at the end of this section.¹⁵³ In his 309-page novel, galactic in scope, Heinlein touches on many issues current to our time, each richer than the last:

- Women as superior pilots (16)
- Reality of violence (39)
- Civic virtue (40)
- Career placement officers (45)
- Lawful or delegated authority (48)

¹⁵² In part, the loss of our humanity when soldiers are made to *fit into* weapon systems is explored in Chris Hables Gray, "The Cyborg Soldier: The US Military and the Post-modern Warrior," in *Cyborg Worlds: The Military Information Society*, ed. Les Levidow and Kevin Robins (London: Free Association Books, 1989), 43-71.

¹⁵³ Robert A. Heinlein, *Expanded Universe* (Riverdale, New York: Baen Books, 2005, 2003), 468-469 or 481-482 depending on edition.

- Importance of hard physical training (70)
- Traditional gender roles in parenting (110-113)
- Duty and morality (145)
- Appreciation of the feminine in girls (152)
- Prestige, pride and status of the citizen (195)
- Human solidarity: weakness or strength of virtue in terms of galactic survival (263)?

Equality of the human sexes and races is a major sub-theme of *Starship Troopers*. Female supremacy in piloting is not in doubt for Heinlein who correct to science imbues human females with quicker reaction times and G-force toleration than human males (16). Throughout the novel, Heinlein is a peacemaker in the battle of the sexes, which this section will argue is a peace that is as key to global strength as any among major national powers. True to Heinlein's complexity in the passage below can be detected a gentle swipe at gays as well as a subtle glimpse beyond traditional male ownership of women through marriage,¹⁵⁴ an institution now demanded by gays in pursuing their interest of equality under law.

On the steps of the Federal Building we ran into Carmencita Ibanez, a classmate of ours and one of the nice things about being a member of a race with two sexes. Carmen wasn't my girl - she wasn't anybody's girl; she never made two dates in a row with the same boy and treated all of us with equal sweetness and rather impersonally. But I knew her pretty well, as she often came over and used our swimming pool, because it was Olympic length - sometimes with one boy, sometimes with another.

¹⁵⁴ Heinlein would later popularize polyamory in his Mars-Earth relations novel, *Stranger in a Strange Land* (New York: G.P. Putnam's Sons, 1961).

Or alone, as Mother urged her to - Mother considered her "a good influence." For once she was right (40-41).

Elements of Heinlein's character Carmen above can be seen in the character of Erin Silver, the central focus of *90210* (since 2008) on U.S. television's The CW Television Network, a work to be explored shortly in the section *Girls and boys confront the brutality of adults and money*. Another dynamic at work is the timeless concept of ultimate sacrifice by infantry, Heinlein's dominant theme in *Starship Troopers*. For Heinlein, willingness and even eagerness to sacrifice the individual body for the collective body politic makes one a citizen rather than merely a civilian. (This idea is similar to radical Islam's propaganda, repeated in different contexts that they love death while the U.S. loves life.) In *Starship Troopers*, civic virtue is defined as those who demonstrate the courage to make the safety of the human race their personal responsibility, giving their lives if necessary, male or female (40).

The matriarchal quality of Heinlein's popular novels hint that there may be a significant strain in U.S. society that has grown weary of the patriarchal institution of marriage in service of the state. The strange convergence of the libertarian right and the pre "hippie" free love movement that Heinlein may have been successful in appealing to in *Stranger in a Strange Land* (1961) is a potentially fruitful demilitarized zone in the ongoing U.S. culture war, which has its roots in the U.S. Civil War. A potentially unpopular notion that this dissertation advances for consideration is that marriage, whether gay or straight is inherently regressive, while periodic monogamy may be more natural and healthy among the sexes and genders. A counter-consideration identified by Warren Bennis is that of a subset of 60 private sector Chief Executive Officers (CEOs)

from *Fortune's* 200 list interviewed for his book, *Leaders: Strategies for Taking Charge* (1985, 1997), all had remained married to their first spouse. All were enthusiastic about the institution of marriage and almost all were white males, reflecting the legacy of sexism and racism in the corporate world, Bennis notes.¹⁵⁵ Bennis reflects in *On Becoming a Leader* (1989, 1994) that the function of truth telling each CEO received from the spouse resulted in career success. However, in the same volume, Bennis cites psychologist Sonja Friedman who in essence condemns marriage:

The truth of the matter is that the most emotionally disturbed women are those who are married and into traditional full-time, lifetime homemaker roles. Single women have always been happier than married women. Always. And there isn't a study that has disproved that.¹⁵⁶

That marriage has truly served previous generations well is at least debatable. The feminine-masculine divide is perhaps the most universal and dysfunctional divide with which the human race is still grappling. Like healthcare and human enhancement mentioned earlier in this section, differing views on marriage can be readily discussed within the context of human relationships in the Individual and Societal perspectives row of the 3x3 Global Drills worksheet (Figure 10).

A collaborative tri-polar world of the U.S., Europe and China is presented here as one that can and should be constructed. In regard to the U.S pillar of the Americas, Heinlein's chief market, the continuing divide of the U.S. Civil War, represented loosely by red states and blue states in political punditry can be seen as a threat to global

¹⁵⁵ Warren Bennis with Burt Nanus, *Leaders: Strategies for Taking Charge*, 2nd. ed. (New York: HarperBusiness, 1985, 1997), 23-24.

¹⁵⁶ Warren Bennis, *On Becoming a Leader* (Cambridge, Massachusetts: Perseus Books, 1989, 1994), 50, 194.

strength. In such a construction, the above three power centers might serve as the undergirders of the three regions used in the 3x3 Global Drills which are again, 1) Americas 2) Africa-Europe and 3) Asia-Pacific. The U.S. might be the conceptual left flank or pillar of this world system, instead of endeavoring to maintain a central role of global hegemony forever.¹⁵⁷ The U.S. is necessary but not sufficient in power to overcome or evade by itself the global threats listed in the World Problematique Plus in Chapter 3. The film *Independence Day* (1996) echoes signatures of Heinlein when the U.S. president, played by Bill Pullman addresses the air forces of the world to combat the locus-like behavior of an initially dominant alien other. This other, coupled with advanced technology ultimately proves vulnerable as a combat pilot, played by Will Smith and a scientist, played by Jeff Goldblum demonstrate with comic effect.

In April 2010, President Obama signed a treaty with the Russians, a natural link between Asia and Europe, to reduce nuclear stockpiles while the global consensus is that Iran should not have nuclear weapons. Heinlein's intellectual impetus for *Starship Troopers* in his stance against a ban on nuclear testing may still have merit in 2011 but not based on his reasoning, to deter a Soviet attack. NASA Goddard Space Flight Center aerospace engineer Brent Barbee's call for global collaboration in developing standoff nuclear blast capability against Earth-crossing orbits of asteroids and comets from pre-positioned space-based platforms is compelling. He persuasively argues that this approach is the only foolproof measure against the global threat of asteroids and the *much faster moving though less frequent comets* from across the solar system. Just as

¹⁵⁷ See Robert Ross, Oystein Tunsjo and Zhang Tuosheng, eds., *U.S-China-EU Relations: Managing the New World Order* (New York: Routledge, 2010). A counter perspective is offered by Donette Murray and David Brown, eds., *Multipolarity in the 21st Century: A New World Order* (New York: Routledge, 2010).

importantly, Barbee hints at the counter-intuitive rationale that there would be no better vindication for all human life lost in the long history of warfare, yielding the human race nuclear weapons than for these weapons to be used in the human race's self-preservation. As co-organizer of the Planetary Defense Session at the 2007 Aerospace Technology Working Group Forum in Dallas, the author was initially skeptical of Barbee's presentation, a fellow member of Generation X, preferring instead a variety of other non-violent space-based countermeasure concepts.¹⁵⁸ For the most part, this intensity of thought at Singer's international/global level of analysis is confined to science fiction, a few more selections from which pertaining to aspects of 3x3 Global Drills follow.

Interstellar human-alien politics in C.J. Cherryh's *Hunter of Worlds* (1977)¹⁵⁹

The political significance of this often-unasked question cannot be overstated. If the human race fails to consider the possibility if not probability of advanced "alien" civilization from the parochial perspective of Earth, a disservice is done to the scientific method. Wendt and Duvall provide insight derived from Foucault and Derrida on why human beings tasked with defending national sovereignty cannot even ask the question concerning possible observations of alien presence on Earth, historically electing to quarantine such a potential with the label "Unidentified Flying Object (UFO)."¹⁶⁰

¹⁵⁸ William Brent Barbee, M.S.E., "Deflection of Hazardous Near-Earth Objects Using Nuclear Explosive Technology," paper presented at the biennial forum of the Aerospace Technology Working Group, Dallas, Texas, May 2007. http://www.enaе.umd.edu/facstaff/staff-profiles/brent_barbee.html. Retrieved July 10, 2011.

¹⁵⁹ The author thanks independent scholar Jake Casella from Buffalo for introducing him to Cherryh's work following the author's presentation, "Lucas, Roddenberry, Heinlein and Global Politics," International Conference on the Fantastic in the Arts, Orlando, March 18, 2010. A dedicated Cherryh scholar, Casella may be unrivaled in his theoretical understanding of her contribution to literature.

¹⁶⁰ Alexander Wendt and Raymond Duvall, "Sovereignty and the UFO." *Political Theory* 36, no. 4 (August 2008): 607-633.

Cherryh scholar Casella, in his paper, "Hegelian Encounter and Dialogic Intersubjectivity as Foundations of C.J. Cherryh's Alterity-rich Science Fiction" at the International Conference on the Fantastic in the Arts, Orlando, March 20, 2010 notes that for Cherryh:

The iduve are not simply villains - as readers, we're eventually led to consider the iduve plot as central, over and above the plight of their captives [human beings]... Cherryh has accomplished something intriguing: crafting alien monsters who are not objectified and so dismissed, not some projected fear or stereotype; they are villains precisely to the extent that they make themselves known as a real and alien Other.

One of the subcategories of perspective in the 3x3 Global Drills framework is Search for ET. Cherryh's novels could prove useful in scenario planning and backcasting with the international SETI (Search for Extraterrestrial Intelligence) community concerning what is referred to as "post detection protocols," if they have not already found and used her work in crafting policy.¹⁶¹ Hawking was also vocal on this question in 2010, arguing that the human race needs to eventually leave Earth or risk extinction, citing six of the eight categories in the World Problematique Plus and the risk of communicating with aliens post detection.¹⁶² In order to glean insight into addressing our darkest fears of the unknown within the context of U.S. global hegemony which poses existential anxiety for the majority of the human race, considerations of Dwight

¹⁶¹ International Academy of Astronautics, SETI Permanent Committee, "SETI Protocols," webpage. <http://www.setileague.org/iaaseti/protocol.htm>. Retrieved August 14, 2011.

¹⁶² Alan Boyle, "Stephen Hawking: Off Earth by 2110?" *Cosmic Log*, MSNBC.com, August 9, 2010. http://cosmiclog.msnbc.msn.com/_news/2010/08/09/4850998-stephen-hawking-off-earth-by-2110. Retrieved August 16, 2011.

Eisenhower as a general, as a president, as an institutional legacy, as a Western archetype and as a human are in order.

Collaboration in *The Longest Day* (1962) and *Ike: Countdown to D-Day* (2004)

As the decades continue to pass, it is argued here that a major turning point in the ongoing U.S. culture war occurred within the divided psyche of General Eisenhower (Ike). His success as a general let loose dark forces that he would later warn against while stopping short of condemning in full. His richness as a figure on the world stage may only now be in the early stages of full comprehension. *Ike: Countdown to D-Day* contributes valiantly to such reflection.

Operation Overlord on June 6, 1944 was a competitive enterprise against Nazi occupied France in Normandy, though it remains the single best precedent of large-scale collaboration among 12 nations where failure would have resulted in the unthinkable.¹⁶³ In Lionel Chetwynd's *Ike: Countdown to D-Day*, the Amazon.com review expresses that Tom Selleck (*Magnum, P.I.*) gives a restrained yet powerful portrayal of General Eisenhower fine-tuning over 90 days, tactical and political concerns involved with the Allies' imminent D-Day invasion of Normandy.

Despite being filmed in New Zealand in just 20 days for A&E Television Networks, *Ike: Countdown to D-Day* is a genuine film. It more than makes up for its limitation in not providing combat scenes of sacrifices made on both sides at Normandy in the tradition of Darryl Zanuck's *The Longest Day* (1962) and Steven Spielberg's *Saving Private Ryan* (1998). To put *Ike: Countdown to D-Day* in cinematic perspective, Zanuck

¹⁶³ Twelve nations are honored at the National D-Day Memorial Foundation, Bedford, Virginia. Bedford lost the most per-capita of any town in the U.S. on D-Day. <http://www.dday.org/index.php?page=education>. Retrieved August 17, 2011.

and Spielberg cannot be separated. Zanuck's film gives the impression of war as absurd but his stated intention was to "reproduce authentically the brutality and inhumanity of war;" his words spoken in 1969 on the 25th anniversary of D-Day in the DVD special feature, "The Longest Day: A Salute to Courage (History Channel, 2000)." Zanuck consulted an unprecedented and unmatched number of 22 senior U.S., British, French and German officers who participated in D-Day though his film was not always historically accurate. The film also reflects a collective U.S. psyche of optimism in 1962 before the Kennedy assassination and Vietnam conflict in how it viewed itself domestically and its role in the world. This contrasts with a cynical and divided U.S. of 2004, militarily engaged in Iraq when *Ike: Countdown to D-Day* was released. Zanuck depicts General Eisenhower's decision-making in only a brief scene, emphasizing the role of the fighting soldiers under his unseen but ever-present leadership.

The term "friendly fire" has been a part of the U.S. lexicon since a good deal of it occurred in Operation Desert Storm in Iraq during early 1991. A scene in *The Longest Day* that is based on a real event and shows war to be absurd might be termed "unfriendly non-fire." The camera follows a small contingent of U.S. airborne troops that had parachuted into France in secret the night before D-Day. They march in single file past a comparably sized group of German soldiers marching in single file within arm's reach in the opposite direction, separated by a short stone wall. Each group fails to identify the enemy due to the groupthink context in which they were both fixated on marching to a pre-determined position. This scene is symbolic of relations among any set of great civilizations, not just the U.S. and Germany. Israel and Iran (Persia) may be substituted for example. Both groups are blind to the presence of the other and by

implication their true natures (bad and good) even when the obvious is presented before their eyes, represented in this scene by the clear difference in helmet design. Another scene that represents war as absurd is when French nuns stride unworried and unharmed through an urban firefight to tend to wounded soldiers in a manner similar to being called to discipline unruly schoolboys, perhaps a feminist statement by the male Zanuck.

Another prominent theme in *The Longest Day* that distinguishes it from *Ike: Countdown to D-Day* showcases the logic of denial and second-guessing among otherwise brilliant German generals such as Erwin Rommel before D-Day, whose widow served as a consultant on *The Longest Day*. This dissertation has already delved into the absurd nature of denial among world leaders in regard to global threats in Chapter 1.

Another feminist statement by Zanuck can be detected through the casting of his bombshell girlfriend, Irena Demich. She plays an atypical role for a woman at the time. As an untrained actor she has limited lines but in her role as a member of the French resistance she carries a gun, leads men in railroad sabotage and at one point engages a German guard in hand to hand combat, all in a way that heightens her femininity rather than suppresses it. Her character is comparable to Heinlein's strong female character in *Starship Troopers*, Carmencita Ibanez and The CW Television Network's character in *90210* (since 2008), Erin Silver as will be shown. No comparable female role in the allied planning of D-Day is represented in *Ike: Countdown to D-Day* with the possible exception of a brief handshake and exchange of pleasantries between Ike and the Queen of England. Instead of emphasizing the tradition of female authority instituted in the

Queen, the scene stresses Ike's Midwestern respect for tradition while revealing an ever-so-subtle lingering U.S. contempt for subservience to inherited authority.

More than Zanuck was allowed by film industry censors of his time; Spielberg's *Saving Private Ryan* captures the brutal realism of combat in addition to staying with a few main characters beyond D-Day. Spielberg chooses to center his story around one iconic U.S. actor, Tom Hanks (*Apollo 13* and *Forrest Gump*) on the U.S. side. Zanuck organized an ensemble of great actors around D-Day itself, which is clearly the main living and breathing character that Zanuck sought to represent and understand. (Later in this section on *Ike: Countdown to D-Day*, an attempt is made to characterize the living, breathing nature of what Ike later identifies as the military-industrial complex, present in subtle form throughout his planning for D-Day.) Mary Corey, an intellectual and cultural historian at UCLA also identifies D-Day itself as the star of the film in her 2006 DVD narration of *The Longest Day*. To represent the gravity of D-Day, Zanuck cast 42 international stars including John Wayne, Robert Mitchum, Henry Fonda and Sean Connery along with lesser-known German, French and British actors to present-day U.S. audiences. Chetwynd's approach in *Ike: Countdown to D-Day* is more reminiscent of Sydney Lumet's *Twelve Angry Men* (1957) in that he confronts the essence of the case by not showing the actual events to which the concentrated deliberations in the film relate.

In one sense, *Ike: Countdown to D-Day* can be understood as the antithesis of collaborative 3x3 Global Drills. In the opening scene, Ike defiantly presents the need for a single Supreme Commander to Churchill. The Prime Minister, based on his military experience spanning the 19th and 20th centuries is persuaded by Ike that inter-service rivalry cannot be permitted to thwart the invasion of the continent that Hitler had been

enabled to transform into Fortress Europe with the aid of denial in the United Kingdom and the U.S. However, the rest of the film shows deliberative decision-making and acceptance, both militarily and politically by the allies followed by collaborative mass action. In contrast to Hitler's role as military and political Fuhrer, there is no hint of begrudging obedience to Ike's supreme command, even by British General Bernard Montgomery who initially saw himself more fit for Ike's appointment based on Ike's lack of battlefield experience. Through firm but fair dealings with Montgomery, Ike is able to win his loyalty. Here, parallels can be drawn with another made for television film by A&E from the same director, Robert Harmon in *The Crossing* (2000). This film in part portrays the retreat-savvy General George Washington's trials at winning the loyalty of his generals and his troops while preparing the war-changing secret amphibious attack on Hessian (German) mercenaries at Trenton, New Jersey on Christmas night, 1776.

All actors except for Selleck and those playing other U.S. generals were cast from Australia and New Zealand. Four minor though significant characters in the film are not human at all. One is a dog that sniffs, whimpers, leaps and barks among dead bodies littered across a southern English beach at dawn, resulting from a German U-Boat (submarine) attack. Based on a real event preceding D-Day, this scene depicts the aftermath of an ill-advised nighttime amphibious training mission in which approximately 900 allied soldiers were killed. The frigid morning beach scene early in the film is described by Harmon in the DVD special feature "Ike: The Filmmakers Reflect" as a lucky improvisation during the condensed shooting schedule, not unlike the actual D-Day. The emotional appeal that the dog demands from the audience may even be unrivaled by the lead, Selleck. Any casual lover of dogs is compelled by the canine's

performance to feel the unnaturalness and heartbreak bordering on feelings of abandonment that is the unspoken reality of human-to-human killing in any form. The scene echoes London's sense of primal connection between man and beast in *The Call of the Wild* (1903) as previously discussed. This device, whether consciously or unconsciously employed by the filmmakers is used more extensively in *The Longest Day*. German Shepherds are frequently engaged with lovingly by German officers. The ownership of German Shepherds also reinforces their dominant status over enlisted men in the film, as German Shepherds are generally thought to be the most dominant of all canine breeds. In *Downfall* (2004), Hitler's German Shepherd named Blondie symbolizes his power and serves as an avenue of psychic escape, even from or perhaps especially from the intimacy offered by Eva Braun.

A second character in *Ike: Countdown to D-Day* is a wall-sized blue gridded planning board at one of the command locations in southern England, Southwick House. Large planning maps of different varieties, representing the different realities of the war experienced by different levels of leadership in the allied effort and the German effort is also a significant visual feature in *The Longest Day*. In terms of illustrating the 3x3 Global Drills gridded worksheet in Chapter 3, the blue board represents the capacity for cool human reason amidst brutal realities. The World Problematique Plus table, also shown in Chapter 3 outlines the nature of the brutal universe that the human race faces, each component of which must be displayed so that vital information is not overlooked.

A third character in *Ike: Countdown to D-Day* is cigarette smoke. It is pervasive throughout the film, particularly from Ike. Selleck, a non-smoker said in the special feature that Ike smoked four packs of the potent Camel brand cigarettes a day, due to the

stress of war planning and the fashion of the times. The smoking itself posed a challenge for Selleck to portray naturally without becoming dizzy. Selleck adds that a rare photograph of Ike taking a drag while cupping his face with his hand as he looked into the distance helped him understand and be able to reveal the sense of foreboding gravity that Ike carried that no degree of collaboration could quite help him dispel. Not mentioned by the filmmakers is the possible interpretation of the cigarette smoke as a symbol of death, specifically caused by the soon-to-come pervasiveness of what Ike would later call the military-industrial complex in his presidential farewell address in 1961. The cigarette smoke can be read to represent Lewis Fry Richardson's Arms Race Model in his *Arms and Insecurity* (1960) as the stress of allied war planning built on the grievance of 1940 gives way to fatigue and fear as death slowly envelops military systems that seemingly attract the smoke of battle by their own logic of being.

Water, a fourth non-human character in the film can be read as symbolizing life which fights in vain to hold back death. Ike and Churchill, responsible for the judicious dispensation of death constantly worry about heavy wind, waves and rain on the English Channel threatening the entrance of tanks onto the albeit stony beaches of Normandy. The night Ike gives the order for the allies to *storm* the beaches, the water on screen goes from an English rainstorm at night to a trickle of water dripping into a bucket in a dimly lit smoke filled room. As Ike stares into the bucket while seated in a club chair with the other generals and admirals, the cool and calm blue planning board is farther in the background. It has become less relevant as the killing of D-Day becomes imminent through Ike's command decision given soon thereafter. His historic decision is based on a piece of information concerning the weather which put into the context of all the other

information considered for three months, finally makes his decision a necessary though hardly confident one. In fact, Ike had prepared a press statement in the event of defeat in order to take the blame away from Roosevelt and Churchill, saying in the film that he was expendable and they were not.

In the special feature, the ever-self-deprecating Selleck reveals that he is not sure he would have cast himself as Ike, as the difference in physicality between Ike and Selleck's signature role in the 1980s television series *Magnum, P.I.* is obvious. As writer and executive producer, Chetwynd explains that an older Selleck than is remembered in *Magnum, P.I.* was cast for his natural personal character, decency, honesty and humility. He says these qualities resemble Ike's ability *to lead without dominating* by respecting and being patient with others by first respecting himself. Throughout the film, the egocentric though tactically adept and enthusiastic British General Bernard Montgomery, played convincingly by supporting New Zealand actor Bruce Phillips provides generous occasion to showcase this leadership style of Ike. Ike's granddaughter, Susan Eisenhower, as presented in Chapter 1 and who as a teenager knew Ike gave a similar summation as Chetwynd at the Smart Power Speaker Series, "Powers to Lead" at the Center for Strategic and International Studies (CSIS) on April 24, 2008, held for thought leaders to engage Nye's constructs, soft power, hard power and smart power:

...what he figured out how to do I think most successfully was to learn how to control himself. This is something that we don't talk about too much. You can deploy all these great theoretical ideas; the truth is at the end of the day, if you're not reliable, if you're impetuous or you don't have personal control over yourself or internal discipline, people are very destabilized by that. I think he was probably a genius at knowing when to suppress his ego and when to deploy it. So I often tell people when I'm talking to groups of people interested in leadership, "start with yourself." Dwight

Eisenhower was a man with a passionate nature who was tutored by his mother to learn to gain control over his soul; "he who conquereth his soul is greater than he who taketh the city," she told him once after he beat his head against a tree and drew blood. And that had a huge role in his life. He had all kinds of personal techniques for gaining control over himself before he went into a difficult situation, leading him to write Maime Eisenhower during the war that remaining optimistic at all times was the single most important thing he had to do because attitude of a leader is tremendously infectious... any of these factors can play a role in effective implementation... it's an area of fruitful new study I think...¹⁶⁴

Normally, the political views of the actors and the descendants of those portrayed in films are not as important as the stories and how they are told. In this case, their views are relevant. *Ike: Countdown to D-Day* was shown on television in the summer of 2004, an election year in the U.S. at the height of violent resistance to the U.S. invasion, liberation, occupation or colonization of Iraq (depending on the view of the reader) occurring around the time of the 60th anniversary of D-Day, June 6, 2004. Other factors contributing to their relevance include Selleck's recurring role as an actor in the evolving U.S. self-conception of masculine identity. Like Tom Hanks in *Philadelphia* (1993), Selleck portrayed a gay man in *In & Out* (1997). Another contributing factor to the relevance of their political views is a recurring feminine representation of Ike's legacy on news shows and documentaries (viewed mostly by U.S. elites) through Susan Eisenhower's expertise on nuclear energy, nuclear non-proliferation, Russia, space security policy and space exploration policy.

¹⁶⁴ Susan Eisenhower's comments at CSIS are available at <http://www.youtube.com/watch?v=6IwtUbR0sMg>. Retrieved March 20, 2012.

Selleck, known for keeping his political and acting roles separate said in the special feature that he hopes the film pays homage to Brokaw's notion, The Greatest Generation. In preparation for the role he read Ambrose's *Supreme Commander* (1999, 1970) and Ike's son, General and former Ambassador to Belgium under Nixon, John Eisenhower's *General Ike* (2003) and Dwight Eisenhower's own memoirs, *At Ease: Stories I Tell to Friends* (1967). Selleck, who supported John McCain in the 2008 presidential campaign,¹⁶⁵ said in the special feature that he had discussed Ike with Ambassador Eisenhower before performing the challenging role. He remembered the ambassador saying that he felt sorry for any actor who had to portray the humble ordinariness of Ike. Selleck added from his research that Ike, the son of pacifists rose in just two years from the rank of lieutenant colonel to become Supreme Allied Commander. John and his daughter Susan Eisenhower in recent years permanently ended their longtime association with the Republican Party to become independents, the former voting for John F. Kerry in the 2004 presidential campaign, citing mismanagement of U.S. foreign policy by President George W. Bush and the latter to campaign actively for Barack Obama during the 2008 presidential campaign.¹⁶⁶

Apropos to 3x3 Global Drills, Chetwynd and Selleck note that Ike was dedicated to the concept and practice of allied or collaborative command. They relate that Ike had zero-tolerance for name-calling among U.S. staff of other militaries in the alliance and vice versa, strictly enforcing the practice of alliance rather than being self-satisfied at

¹⁶⁵ Andrew Malcolm, "All 4 Hollywood Republicans Give to McCain - 2 Sellecks, 1 Grammer, 1 Bruckheimer," *Los Angeles Times*, Monday, July 21, 2008.

¹⁶⁶ See Susan Eisenhower, "Why I'm Backing Obama," *The Washington Post*, Saturday, February 2, 2008. See also John Eisenhower, "Why I Will Vote for John Kerry for President," *The Union Leader*, Tuesday, September 28, 2004.

being the figurehead, as important as that role is. This alliance grinded steadily from D-Day, June 6, 1944 through to Nazi defeat in May 1945, the latter month being the subject of the German film *Downfall*, which shows the perspective of Hitler and Goebbels among others and also released in 2004. Selleck explains that he works best when interacting with a strong cast. The collaborative energy in the acting is evident between his Ike and Ian Mune's Winston Churchill, Gerald McRaney's George Patton and George Shevtsov's Charles de Galle. In addition to these more look-alike historical figures, all the supporting actors give memorable lines and/or facial expressions. Every individual actor's role, no matter how small was indispensable in telling the story of the go or no-go decision-making for D-Day, right up to the minute Ike assumed the full weight as Supreme Allied Commander to *go*.

Chetwynd's favorite scene in terms of cinematography was a tabletop dialogue on selecting the month in 1944 for D-Day at Supreme Headquarters, Allied Expeditionary Force during the early part of the film. Ike is at the head of a long table engaged in "animated intense listening" of his allied commanders as Selleck in the special feature relates. In this scene, Chetwynd's aim was to get the audience inside Ike's head with quick takes of staccato arguments made by the commanders, switching back and forth between each general or admiral and Ike as he is taking in the points, tightening in on Ike after each take, successively faster as the divergent views are expressed. This type of concentration yielding not stress or dysfunction but the best possible assessment and judgment among peers is what is expected through use of 3x3 Global Drills, though in an L shaped table configuration and not a long table but inducing the same degree of formality, as explained in Chapter 3.

Chetwynd, himself a Canadian reminds his audience in the commentary of the fact that Canada, then a nation of 11 million raised a million troops for the war effort, including for deployment at D-Day. Massive societal mobilization of individuals not confined to the U.S. and directed in a sense of urgency toward existential ends in the present day as delineated by the World Problematique Plus in Chapter 3 is a vital characteristic of 3x3 Global Drills. The role of the individual is highlighted by Selleck's Ike after he sends home a fellow general and member of the "inner circle" from his West Point graduating class after he lets loose operational details in a crowded restaurant bar while entertaining dinner guests:

Ike: The thing about all the power "Beetle,"¹⁶⁷ it isn't the big decisions that weigh heavy. Hell, you can decide to invade Russia at dinner, pick Waterloo for battle on a whim. It's the details, the small stuff. It's easy to gamble a million lives. What's hard is to see how that can hurt one single person. And if you can't keep that straight, hell, you lose your humanity. Won't you?

Beetle (Bedell): Couldn't say sir.

Selleck's Ike draws the film to a close with a monologue accompanied by a score of serene orchestral horn by Jeff Beal (USA Network's *Monk* and HBO's *Rome*) over still shots of faces from present-day New Zealander soldiers portraying U.S. airborne soldiers on D-Day; their losses forecast by headquarters to be at least 70 percent:

¹⁶⁷ General Walter Bedell Smith, Chief of Staff to Ike, nicknamed "Beetle" and often referred to as his "hatchet man" later served as the Fourth Director of Central Intelligence under President Truman, responsible for making the CIA the arm of the government primarily responsible for covert operations. He also served as Ambassador to the Soviet Union under Truman and finally as Undersecretary of State under President Eisenhower. See Ancell, R. Manning and Christine Miller, *The Biographical Dictionary of World War II Generals and Flag Officers: The U.S. Armed Forces* (Westport, Connecticut: Greenwood Press, 1996), 300.

Of course Overlord did not fail. How could it? With so many fine young men and women from all corners of the earth, all determined to do their best to free a world gone half mad. There would be setbacks. There would be small triumphs, even in the first few hours.

Ike: Countdown to D-Day concludes with Ike being informed by Beetle that the casualties of "the jumpers" in grease painted faces with whom he is famously pictured sharing a light moment before they flew over the channel was 20 percent. This revelation yielded another powerful small monologue delivered by Selleck's Supreme Allied Commander: "20 percent is so much better than 70 but the loss of even one of this gallant band is a loss to all decent humanity everywhere and besides, if the person killed in action is you or the one you love then the odds are 100 percent in that case..."

Ike: Countdown to D-Day as described in this section can be applied to refocusing threat perceptions outward to account for a brutal universe. In this regard, it is important for U.S. citizens to do so in a way that is neither boastful nor self-loathing, mindful that all countries watch the U.S. more than the U.S. watches the globe. This in itself is a global-systemic error in both instances that is addressed in the final chapter on global space education. The very term "America" for example alienates some Canadians as to their ears it makes invisible anyone but U.S. citizens who live in North America.

In April 1949 President Truman announced the creation of NATO and Ike served as the first Supreme Allied Commander Europe from 1951 to 1952.¹⁶⁸ Zbigniew Brzezinski, former National Security advisor to President Carter as introduced in *Foreign Affairs* argues that NATO should now "become the hub of a globe-spanning web of regional cooperative-security undertakings" and indirectly engage China in

¹⁶⁸ "Former SACEURs [Supreme Allied Commander Europe]." NATO. <http://www.aco.nato.int/page61411944.aspx>. Retrieved August 17, 2011.

cooperation with NATO through a joint NATO-Shanghai Cooperation Organization (SCO) council. The SCO was formed in 1996 to deal with border issues among China, Kazakhstan, Kyrgyzstan, Russia and Tajikistan (renamed in 2001 to include Uzbekistan) with Afghanistan, India, Iran, Mongolia and Pakistan having observer status. In addition to the NATO-Russia Council, Brzezinski articulates why NATO can "fill a need that the United Nations by itself cannot meet but from which the UN system would actually benefit" by "responding to the twenty-first century's novel and increasingly urgent security agenda."¹⁶⁹ Applying the three broad regions of the 3x3 Global Drills to Brzezinski's proposal above, the northern half of the Americas, a part of the Asia-Pacific and the northern half of Africa-Europe are "covered."

The need for global collaborative power, which Brzezinski calls a global security web is not the focus of the recent Project on National Security Reform (PNSR), which receives input from across the spectrum of U.S. national security experts. PNSR's phone book sized reports to President Bush, *Forging a New Shield* (2008) and to President Obama, *Turning Ideas Into Action* (2009) emphasize security for and greater collaboration within the national security apparatus of the U.S. By taking this approach, PNSR fails to consider how the exercise of U.S. leadership toward global collaborative power might secure U.S. leadership in the world for another generation or two.

Collective security institutions like NATO, which has its roots in D-Day may or may not fit into helping leaders refocus their attention away from each other and into the cosmos. World War II and D-Day in particular along with the moon landing in 1969, not possible without Ike's leadership in creating NASA remain perhaps the formative

¹⁶⁹ Zbigniew Brzezinski, "An Agenda for NATO: Toward a Global Security Web," *Foreign Affairs* 88, no. 5 (September/October 2009): 2-20.

experiences that legitimize U.S. global hegemonic status in the collective psyche of U.S. citizens as well as many global citizens. The mental images of Hiroshima and Nagasaki, which Ike opposed and Vietnam, which Ike initiated, represent the dark side of U.S. power, the former in the psyche of citizens around the world and the latter by many U.S. citizens. President Eisenhower is less remembered for his Atoms for Peace construct leading to the UN International Atomic Energy Agency (IAEA).¹⁷⁰ Along with the National Defense Education Act of 1958, the IAEA might be revisited in the context of mobilizing global education and nuclear capabilities in the context of overcoming many challenges within the World Problematique Plus (Figure 9).

Ike was not a saint. A fair representation of his presidency can be found in Philip Taubman, *Secret Empire: Eisenhower, the CIA and the Hidden Story of America's Space Espionage* (2003). Taubman praises Ike's achievements in the development of military space technology while holding him accountable for compounding the culture of secrecy in the U.S. national security state and sowing the seeds of mistrust in government among U.S. citizens. Still, like the Roman general Cincinnatus and for that matter George Washington, Ike returned to his farm after exercising power. His farm, now a U.S. national historic site is on the Gettysburg battlefield where his country narrowly escaped an early death as immortalized in Lincoln's Gettysburg Address. Ike was also stationed there as a young officer during World War I, living in the town of Gettysburg, Pennsylvania. Ike's retirement suggests not an embodiment of imperial militarism but given his televised farewell address warning of entrenched influence, a citizen concerned that the dead from all battles fought on all sides everywhere ultimately have died in vain.

¹⁷⁰ President Dwight D. Eisenhower, address to the United Nations, December 8, 1953, "Atoms for Peace," webpage. http://www.iaea.org/About/history_speech.html. Retrieved August 7, 2011.

Every decade at the Normandy landing reunions, the political spectrum of the U.S. if not the world easily circles their wagons around Ike as a well-deserved symbol of U.S. goodness. This metaphor, derived from the U.S frontier experience is of course archaic if not culturally insensitive, given the systematic policy of Indian removal from spaces such as Kansas, Ike's home state. The status quo of U.S. foreign policy now results in the abuse of the U.S. military in defense of global civilization (defined by consumerism) by what resembles in tactics and strategy "playing cowboys and Indians" against Al Qaeda and other such tribes. "Operation Geronimo," the name given to the mission that eliminated Osama bin Laden in April 2011 offers glaring evidence into what the U.S. has become or perhaps from which it has never evolved. Following 9/11, U.S. force was deployed in Afghanistan against the Taliban, then in Iraq to "smoke out" Al Qaeda infiltrators and back to Afghanistan against a re-emerged Taliban. This is no way for the U.S. to lead the other powers of Earth, including indigenous Arabic peoples to face down brutal forces in the universe, within, on and beyond Earth in a way that fosters social justice beyond "stability" for commerce across the globe. Playing cowboys and Indians against radical Islam also happens to reduce the stature of the U.S. within traditional realpolitik calculations to that of Israel whose strategies and tactics it seemingly emulates.

The concept of circling or rather "perimeter posting" the capacities of military-industrial complexes in defense of Earth is useful if Fuller's use of the term Spaceship Earth as an open system is utilized instead of Boulding's use of the term to mean a closed system. "Circling the wagons around Spaceship Earth" could take the form of human exploration back and forth to the moon (which Boulding opposed) to an

expansive fleet of specially designed space stations/bases and to Mars and beyond. Such redirection, collaboration and intensification of military power could yield increased hope of resiliency for the human race among global leaders and all global citizenries alike.

Healthy fear in *Meteor* (1979)

In Hoyle's novel *The Black Cloud*, as discussed earlier, a military-scientific elite of one country finds a way to subdue the interstellar threat of the black cloud by speaking for the human race. In *Meteor*, the military-scientific elite of the two Cold War superpowers must act swiftly on behalf of the human race, vulnerable to a large asteroid called Orpheus that originates from within the solar system. Quick action is preceded by a brief though heated clash in front of the U.S. Secretary of Defense (Richard Dysart) between General Adlon of the U.S. Air Force (Martin Landau) and NASA Johnson Space Center Chief Harry Sherwood (Karl Malden) who is recently reunited with Dr. Paul Bradley, a retired NASA scientist (Sean Connery).

The issue of contention is General Adlon's concern over revealing treaty violations. The following dialogue in the scene labeled "Distrusting Russians" on the DVD captures the real life general psychological avoidance of the asteroid and comet threat at the highest political and military levels in the U.S:

Sherwood: There's nothing else we can use. The only thing we've got out there is Hercules.

General Adlon: Damn it. Hercules is not up there either, as far as anybody but we are concerned and it's got to stay that way. We have never admitted to Hercules. And if we admit to it now -

Sherwood: We have to. You can't keep the whole world in the dark about what's going on. Once they know... the people will want to know what the hell we intend to do about it -

General Adlon: You're going to tell the entire world we have nuclear rockets orbiting out there in direct contradiction to every international agreement we've ever made? That's an invitation to being called liars and warmongers by every single nation in the -

Sherwood. What do you want to do? You want to go out there and meet it with BB guns and slingshots?...

General Adlon: What if the thing doesn't hit? There's some chance of that isn't there?

Bradley: I need air. I don't give a damn what Russia says about America or vice versa. I told you what's going to happen when that meteor hits but if you think you can prevent it by burying your heads under a blanket of shit, fine. If you ever reach a decision, I'll be in the bar across the street [slams door].

U.S. Secretary of Defense: I'll get back to you. I'll have to discuss this at the White House.

Sherwood: ...there's damn little time.

Throughout the film, world regions are connected via closed-circuit television intercom (preceding Skype by three decades) as scientists in the U.S., Britain and Hong Kong update each other on fragment impacts during the crisis. *Meteor* presents a realistic and normative model in terms of effective planetary defense countermeasures against the asteroid and comet threat, though the film presents the size of the asteroid Orpheus as an unrealistically jagged 20-mile wide asteroid

Meteor was released four years after the 1975 Apollo-Soyuz “Handshake in Space” Mission as part of Nixon's détente. The film was not successful at the box office despite Sean Connery of James Bond fame as the lead actor, indicating psychological avoidance

of the asteroid threat by the U.S. public. Bradley's project to point a space-based nuclear weapons system "outwards, not in" toward asteroids and comets on Earth-crossing orbits had been overtaken by secret military interests born of the Cold War, he angrily reminds Sherwood before the confrontation with General Adlon. Bradley and Sherwood reconcile old professional wounds from General Adlon's takeover of Hercules in an empty meeting room at NASA Headquarters in Washington, D.C. With the help of the U.S. president, Sherwood and Bradley are able to neutralize the influence of General Adlon and are able to combine firepower with a comparable Soviet secret weapons system to save Earth from the approaching asteroid, all in five days. That Sherwood and Bradley of NASA are the ones to take charge initially and not the U.S. president and the Pentagon reveals a climate post Vietnam and Watergate that President Jimmy Carter famously described in 1979 as a "crisis in confidence" and by his critics as a "national malaise."¹⁷¹ The problem of the U.S. Government during this period of the Cold War was not that it was hegemonic but that it was not seen as competent, at least on the issues over which it had legitimate responsibility. This view of the U.S. Government has resurfaced, domestically and internationally after Hurricane Katrina in 2005 and the BP oil platform disaster in 2010.

The film remains politically relevant because the U.S. and China, particularly since the historic Chinese orbiting of astronauts (taikonauts) in 2003 have had the capabilities to be collaborative in outer space, perhaps even on planetary defense. However, as introduced in Chapter 1, both nations remain distracted with competition and mistrust in the military space arena. The gallows humor on screen in *Meteor's* dialogue is also

¹⁷¹ President Jimmy Carter, "Crisis in Confidence," televised address, July 15, 1979. http://www.pbs.org/wgbh/amex/carter/filmmore/ps_crisis.html. Retrieved August 17, 2011.

present in the counterintuitive East-West collaboration that has existed off screen since 1972 at the nongovernmental International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria. IIASA scientists, including social scientists from around the world conduct "policy-oriented research into problems that are too large or too complex to be solved by a single country or academic discipline," concentrated within three core terrestrial-based and closed-loop system themes: 1) Energy and Climate Change 2) Food and Water and 3) Poverty and Equity. Howard Raiffa, first director of IIASA humorously details the circuitous multilateral process of naming and locating IIASA after its concept was set in motion by U.S. President Lyndon Johnson; Soviet Premier Alexey Kosygin; McGeorge Bundy, an advisor to Presidents Kennedy and Johnson and Jermen Gvishiani, the deputy minister of the Soviet State Committee on Science and Technology.¹⁷²

The narration rhetoric at the beginning of the film adeptly puts Earth in the context of a violent solar system within a brutal universe, making the East-West collaboration depicted on screen an obvious expectation rather than a utopian critique of the world order of 1979. While sexist language grates the Western ear of 2011, an enduring longing for the indigenous cultural heritage of the human race can be discerned in the subtext:

Outer space - limitless and timeless - filled with cosmic explosions and endless turbulence, an infinite playground for that occasional blazing visitor, the comet. At first, comets terrified man. He thought they were signals of impending catastrophe but he got used to them and he gave names to

¹⁷² International Institute for Applied Systems Analysis, "What is IIASA," webpage. http://www.iiasa.ac.at/docs/IIASA_Info.html. See also "History of IIASA," webpage. <http://www.iiasa.ac.at/docs/history.html>. Both retrieved August 15, 2011.

them and waited for them to drop by like old friends. This one has come from behind the sun, moving across the heavens at 108,000 miles an hour and has never before been seen by man.

The asteroid belt - a vast junkyard of metal and rock orbiting the sun between Jupiter and Mars - thousands of fragments, some as small as a fist, some as large as a city and amongst these, Orpheus, 20 miles in diameter and undisturbed for countless generations, until now.

Despite outdated set design and dialogue, the premise of this original asteroid film remains superior to its offspring, *Armageddon* (1998) and *Deep Impact* (1998). In the latter two films, representing non-collaborative U.S. hegemony, NASA alone saves the world and does so closer in to Earth. The asteroid in the case of *Deep Impact* and the comet in the case of *Armageddon* are not presented as parts of a wider whole, which Earth and the human race are a part. In *Meteor*, "the blazing visitor" as personalized above dislodges Orpheus on a direct collision course with Earth.

Early in the film, a U.S. manned probe to Mars, eerily named Challenger II is redirected to observe the comet's interaction with the asteroid belt. (The real Challenger space shuttle disaster in Earth's atmosphere after launch was in 1986.) The crew of Challenger II meets the fatal wrath of a brutal universe after the comet to asteroid impact yields more energy than expected. The tragedy is highlighted by the speechless reaction by the father of one of the crew, General Easton of the U.S. Air Force (Joseph Campanella) who witnesses the event in real time from mission control in Houston. The loss of Challenger II was followed by a cover story of an investigation into the cause of the disaster given to the press, a highly plausible political reaction by all national governments that need to demonstrate the ability to protect its citizens when they cannot. The intergenerational theme is subtly played again in the command center under

Manhattan when Bradley is introduced to Chief Technician Rolf Manheim (Bo Brundin), an obvious homage to Wernher von Braun whose nephew is taking a course from Bradley at MIT. The intergenerational theme is concluded with a shot of a desk bookend statuette of Lincoln appearing to look over the shoulder of the U.S. Secretary of Defense at the height of the crisis. The figure of Lincoln gives new meaning to his final words in the Gettysburg Address, "...that this nation under God shall have a new birth of freedom, and that government of the people, by the people, for the people shall not perish from the earth."¹⁷³

On one of the planning boards in the secret underground command center in Manhattan, December 7, year unspecified is given as the projected date of impact, clearly an homage to the attack on Pearl Harbor, December 7, 1941 by the Japanese empire. However, the most surreal image of the film (also the DVD cover) from the perspective of 2011 is the twin towers of the World Trade Center getting struck in similar fashion by a fragment from Orpheus as they were by planes on September 11, 2001. The smoky aftermath of Manhattan minus the twin towers in *Meteor* conforms exactly to helicopter news footage images from 9/11. The power of that image is multiplied because in both events, one real and the other imagined, the human race failed. In the real case, intelligence and root causes of terrorism were ignored and in the "imaginary" case, intelligence of the brutality of asteroids as part of the solar system are still not being acted on by governments in urgent enough and collaborative effort. Another notable image at the moment of impact is a skyward shot showing the statue of Atlas at the base of Rockefeller Center being blown away. The symbolism of this image

¹⁷³ President Abraham Lincoln, "Gettysburg Address," November 19, 1863.
http://avalon.law.yale.edu/19th_century/gettyb.asp. Retrieved August 15, 2011.

cannot be clearer: Holding the world from falling either through financial globalization, media consolidation or through global justice is not good enough. The human race must expand its everyday consciousness to be vigilant against forces from beyond Earth or risk unnecessary obliteration.

Henry Fonda (*12 Angry Men*) who also played the U.S. president in *Fail-Safe* (1964) in which nuclear catastrophe was not avoided speaks with supreme gravitas and pathos, not only to his citizens but also to the entire human race. In terms of achieving global collaborative power, President Obama and subsequent U.S. presidents and global leaders would do well to emulate the U.S. president played by Fonda in *Meteor*. In a diplomatic masterstroke, Fonda's president took to the airwaves to reveal to U.S. citizens, global citizens and his counterpart in the Soviet Union that the U.S. had in secret deployed a space-based nuclear weapons platform called Hercules in anticipation of such an asteroid impact emergency. Also watching the president on television with Sherwood from a private jet enroute to the Manhattan command center, Bradley reminds the audience of the president's fib, "right name, wrong direction." The president's tactic is ingenious because by deliberately telling a half-truth in public and revealing that the U.S. knew the Soviets had a similar platform conceived with the same "foresight," he isolated the political influence of the military-industrial complexes in both his own country and that of his enemy. No longer could the military-industrial complexes continue to operate in and fuel a climate of distrust internationally thus the U.S. president specifically nullified the internal cultures of secrecy in both superpowers. This section of the film echoes the indirect communication between President Kennedy and Premier Khrushchev through Robert Kennedy and Ambassador Dobrynin and through U

That at the UN during the Cuban Missile Crisis that ultimately resulted in saving world civilization.¹⁷⁴ In *Meteor*, the Soviet premier follows the lead of the U.S. president by sending Bradley's counterpart, Dr. Dubov (Brian Keith), the developer of the Soviet space-based nuclear missile platform, Peter the Great to coordinate the defense of Earth with Bradley in the command center under Manhattan.

No more symbolic and awe-inspiring illustration of the global collaborative power paradigm is available than a few key frames in *Meteor*. The first of these is when Peter the Great is slowly turned outward through remote control toward Orpheus (still in deep space on approach to Earth), followed soon thereafter by the turning of Hercules. After the Soviet and U.S. missiles are fired 40 minutes apart due to their different alignments in low-Earth orbit, the 14 U.S. missiles catch up to the 16 Soviet missiles. The hammer and sickle and the stars and stripes flag emblems on the missiles are seen in symmetrical 2x2 formation in three waves of impact. During this phase a few of each superpower's missiles fail, another realistic detail that is accounted for in the planning by each nation in having over ten missiles deployed. This level of realistic redundancy is far from being captured in *Deep Impact* or *Armageddon*. This aspect is even an issue in current unofficial planetary defense planning by scientists, engineers and military officers. All three expert types tend to present their best "silver bullets" in science fair mode, usually with overly complex PowerPoint presentations instead of being led in true collaborative planning such as is illustrated in *Ike: Countdown to D-Day*.¹⁷⁵

¹⁷⁴ See Robert F. Kennedy, *Thirteen Days: A Memoir of the Cuban Missile Crisis* (New York: W.W. Norton, 1999). First published by McCall Corporation in 1968.

¹⁷⁵ Numerous PowerPoint presentations and videos of PowerPoint presentations are accessible at Planetary Defense Conference 2004, 2007, and 2009, co-sponsored by the American Institute of Aeronautics and Astronautics and The Aerospace Corporation. <http://www.planetarydefense.info>. See also Planetary Defense Conference 2011 (International Academy of Astronautics), co-sponsored by the European Space

In Figures 6 and 7, the image of the chessboard is given as an outmoded way of thinking in the space age and why the circular and long-range nature of golf might be a better substitute. (This comparison is most relevant in terms of relative scale of thought, the America's Cup sailing race even more so.) In the underground command center during the meteor crisis, Dr. Dubov and Manheim play chess to break the tension before the set time of missile to asteroid launch. As Manheim is about to make a bad move, Dr. Dubov signals so, symbolizing the spirit of collaboration against the brutality of the universe that was taking place.

As indicated in the section header, the lessons from *Meteor* are fear-based. Healthy fear or vigilance is presented throughout this dissertation as necessary for the continuation of the human race in a brutal universe. This natural and necessary fear can and should motivate the internal energies of individuals around the world to work collaboratively, intensely and productively. The corollary to, rather than the opposite of fear is hope, as argued in this dissertation. A reformulated global civilization may very well be able to cast off the spells of unrestrained financial elites. "Globalization" can become understood more than economic and social reality, for good and bad depending on one's perspective. Globalization can evolve into a new organizing concept - to paradoxically venture into the brutal universe together to be safe from it. If this reformulation of globalization comes to pass, fear cannot be the sole impetus. Hope must be the counterweight with a preponderance of societal focus given to it over that of fear. It is for this reason that the next film is analyzed.

Agency and The Aerospace Corporation. <http://www.pdc2011.org/>. Both retrieved June 23, 2011.

Attentive hope in *Mission to Mars* (2000)

Set in the year 2020, the first and longest part of *Mission to Mars*, directed by Brian De Palma who also directed *Scarface* (1983) and *Mission: Impossible* (1996) is based on the real and the possible - how the human race can get to and stay on Mars.¹⁷⁶ Producer Tom Jacobson [*Flashdance* (1983) and *Ferris Bueller's Day Off* (1986)] in the DVD special feature, "Visions of Mars" (original documentary) says that a goal of *Mission to Mars* was to take the audience where they cannot yet go. The final whimsical scenes are based on speculation concerning the ET-human genetic connection. This consideration is allowed for by the last subcategory of the first row in the 3x3 Global Drills worksheet (Figure 10), Search for ET. However, this line of inquiry in the film is not what best illustrates the strength of 3x3 Global Drills. The rest of *Mission to Mars* best represents the harsh though rewarding known realities of deep space exploration that are at the heart of 3x3 Global Drills. The entire human race, not just the U.S. has avoided space travel beyond low-Earth orbit since 1972, the last Apollo mission, Apollo 17. Humans to Mars mission design, based on Apollo-era know-how is given in this dissertation as inspiring enough to individuals and societies without the ET question. De Palma in his artistic license may have unwittingly set back the already vulnerable humans to Mars movement by confusing the two questions. The death of Commander Woodrow "Woody" Blake (Tim Robbins) in low Mars orbit, to be explained serves as the

¹⁷⁶ See Robert Zubrin with Richard Wagner, *The Case for Mars: The Plan to Settle the Red Planet and Why We Must* (New York: Simon & Schuster, 2011, 1996). See also The Mars Society, founded by Robert Zubrin in 1998. <http://www.marssociety.org>. Retrieved January 19, 2011. In full disclosure, the author served as interim chairperson of the Ohio Chapter of the Mars Society in 2000.

demarcation point between De Palma's representations of these two questions. This analysis works backwards from just beyond in the film from Woody's departure.

After a harrowing entry into the Martian atmosphere, the U.S. rescue crew of three minus Woody reach the surface safely to search for the lone Mars I mission survivor, Luke Graham (Don Cheadle). Two Russian and another U.S. astronaut had been killed in a lifelike dust vortex. Homage is paid to the iconic American World War II footage from Iwo Jima which served as the basis for the U.S. Marine Corps War Memorial in Rosslyn, Virginia, across the Potomac from Washington, D.C. Second in command, Jim McConnell (Gary Sinise), specialist Terri Fisher (Connie Nielsen) and specialist Phil Ohlmyer (Jerry O'Connell) symbolically dig a U.S. flag out of the Martian dust as their first action on Mars. As with the figures depicted in the Rosslyn statue, together they place Old Glory upright with random Martian rocks serving as the support. The marooned Luke is soon found in a questionable state of consciousness in the Mars I greenhouse, knocked to his senses and given a shave after which he acts "normal." Soon thereafter, the new software the crew brought for the Earth Return Vehicle (ERV) that was damaged in the vortex begins to be uploaded for the return trip to Earth.

While it may be tempting to be critical of De Palma for reveling in U.S. triumphalism, it would be wrong. His Iwo Jima device is one of many that he uses to differentiate the U.S. contributions within the context of a fairly well represented international endeavor - turned inter-species and intergalactic in his ending albeit with a U.S.-centric storyline. Dutiful more than triumphal best describes the score chosen by Italian composer Ennio Morricone [*The Untouchables* (1987) also directed by Brian De Palma] for introducing the rescue sequence, which starts on approach to Mars after

several months in deep space. Morricone scored quite similar horns as employed by Jeff Beal at the end of *Ike: Countdown to D-Day*, tempered though rising in both cases to emotionally cue the primary U.S. audience that the rescue mission was a U.S. mission, with specific U.S. characteristics. D-Day itself is often given as a rescue mission for all of Europe. U.S. self-identity as expressed through uniformed activity in film and real life, whether as police, soldiers or as astronauts in *Mission to Mars* is rarely as occupier but often as rescuer or liberator. Among specific characteristics presented as particular to U.S. rescuers, perhaps born of Ike's leadership at D-Day are innovation, persistence and risk-taking. These are all qualities that are celebrated as being unique to the U.S. private sector as well.

When a dime-sized micrometeoroid penetrates the ship and goes clean through the hand of Phil just during the checklist phase before insertion into the Martian atmosphere, a state of unanticipated crisis is in effect. Through an unusually clever product-placement advertisement, Dr. Pepper is squeezed out of its packet in order to locate the micrometeoroid's exit hole in the ship, a move never performed in a simulation the crew proudly notes. Woody suits up and goes outside of the ship to patch up the hole with what resembles a glue gun and a suction cup. Pressure is restored in time for the imminent orbital insertion window. When the lifelong-anticipated moment comes to press the ignition button to "go to Mars," all goes wrong, as more micrometeoroids had corrupted the fuel tank, which explodes and rocks the ship. The ultra-compartmentalized vessel breaks apart and is no longer operable for the orbital insertion. Woody calmly issues the time-honored maritime command, "prepare to abandon ship."

Undeterred, in an incredible maneuver, the crew of four abandons ship in their jet packs to rendezvous with a resupply module that had been attached to the ship and to use that as an entry landing craft, their only hope. The resupply module is farther away than calculated but Woody takes the end of a specialized grappling hook in hand from one of the cable guns the crew has and fires then jettisons his jetpack to propel himself at fairly high velocity toward the module to ensure contact. He hooks the cable to the module for the others to reel themselves in and enter. Due to his high rate of speed and cumbersome suit gloves, Woody is unable to grab any part of the module for himself and careens into low Mars orbit, later saying stoically over his radio, "I am not retrievable." He begins to descend slowly but steadily into the Martian atmosphere to burn up as debris from the ship's explosion is already doing, which he sees in a mirror attached to his spacesuit arm. Terri, the only female crewmember, who also happens to be Woody's wife uses her jetpack to break free from the module and to fire her cable gun for him to catch, which dramatically falls short by a few feet. Before she is tempted to use too much of her jetpack fuel to move in closer for another shot, Woody nobly unlatches his helmet and decompresses, ending his life to save hers. By so doing, Woody maximizes the chance of the rescue mission being successful.

The above compelling sequence illustrates the heart wrenching brutal universe concept that this dissertation posits as well as the U.S. identity as innovative, persistent and risk-taking individuals. Of course in real life there is no monopoly on these "U.S. traits." The quality of risk-taking, epitomized by Woody includes bravely accepting fatal consequences, made more acceptable if the ultimate sacrifice is made for crewmates, family or fellow soldiers. On Earth in the 2000s and now the 2010s, where human life is

valued and pampered exponentially higher in some world regions than others, Woody reminds us of the universal ideal/instinct, seldom expressed that no individual life is more important than the success of the human endeavor. In the context of 3x3 Global Drills, all global cultures have distinct if not common ideals of honor as embodied by Woody, the specifics of which are the subject of another work. *Mission to Mars*, while international in scope, for better and worse focuses on the U.S. ideal of honor, which like so many other universal ideals is promoted by though inconsistently practiced by the U.S. The above action sequence on approach to Mars also parallels a sequence in the German World War II submarine film adaptation of the anti-war novel of the same name, *Das Boot* (1981). As in *Mission to Mars*, the small German crew makes repairs after being hit before running out of oxygen. In both films, the original mission changes based on unforeseen events.

Notable in the first scenes on Mars before the dust vortex is the NASA logo on the front of each Mars suit with the U.S. and Russian flags on the shoulders. This symbol of NASA more than the U.S. as the force that brings two former enemies together on Mars is tremendous for anyone who lived through any part of the Cold War. In regard to Hoyle's question, "who speaks for humanity," discussed in a previous section, in *Mission to Mars*, by putting the NASA logo front and center on the suits, De Palma is confidently saying that NASA speaks for the human race. The original predominately blue NASA logo from the Apollo era, known within the space exploration community as "the meatball" was brought back to NASA in 1992 after the red NASA logo instituted in 1975, known as "the worm" was retired.¹⁷⁷ "The worm" may have become a symbol of

¹⁷⁷ See NASA Headquarters, "History of the Insignia."
<http://www.hq.nasa.gov/office/pao/insignia/text/insignia.html>. Retrieved August 17, 2011.

an agency and country that during the space shuttle era became less than the achievements of Apollo.

A vital element espoused by Zubrin and the Mars Society that is represented well in the film is the preference for data-driven "mission support" over that of hierarchical "mission control." In this area of operations philosophy, the nostalgia of Apollo does not apply. However, a glimpse of how the power dynamics of mission control can quickly turn into mission support is seen in the crisis film *Apollo 13* (1995), based on real events in 1970. Instead of taking orders from and being monitored by Houston, when staring into the abyss of the brutal universe, the space-based crew and the Earth-based crew worked collaboratively to save the mission. To this day, based largely on the film, *Apollo 13* serves as a moral victory for the U.S. identity as rescuers (in this case of themselves) but more importantly as a sober reminder of the harsh nature of the universe, even between the home planet and the moon.

As an ideal, mission support has much to offer the field of politics, domestic and global. In regard to 3x3 Global Drills, mission support exemplifies the Individual and Societal row in Figure 10. The individual is listed first to indicate that the normative purpose of any society as argued in the dissertation is to serve and enhance the individual, never the other way around. This is a critical understanding as the human race teaches itself through societal structure to live harmoniously on her home planet by living and growing food in a more decentralized and autonomous way (Environmental perspective row, Figure 10). The greenhouse in *Mission to Mars*, based on Zubrin and others' concepts of how to "live off the land" on Mars shows that a sophisticated

See also "NASA Takes 'Meatball' Over 'Worm,'" *The Roanoke Times*, Sunday, May 24, 1992.

understanding of low technology such as gardening will ensure human survival across all celestial bodies in the brutal universe (Cosmic perspective row, Figure 10).

Earth-based principles and lessons learned will apply as the human race begins to stand again on new worlds through the experience of individuals and *look to the next*. De Palma represents this last big idea for the audience through the mediation of a professional camera operator simulating an old home video of an anniversary of Sinise's character, Jim McConnell and his late wife Maggie (Kim Delaney). It is Maggie who articulates this pioneer creed of looking to the next world, adding, "It is who we are," being inclusive of the human race in her tone. De Palma then has her insert the speculative idea from beyond the grave that is the basis for how the film ends - "life reaches for life." Jim and Maggie had been originally selected for the Mars I mission before Maggie died of an unmentioned fatal disease, evidence of the brutal universe as all too commonly experienced on Earth. It is the replaying of Maggie's words by Jim in his quarters on the rescue ship that gives him and Woody pause to consider the possibility of unexplained forms of life that might account for the strange moving storms they can monitor from the orbiting satellites around Mars, representing current technology. In this way, De Palma gives homage to *Solaris* the novel (1961) and the film (1972) that are explored next.

Another meme of caution from Lem's *Solaris* (1961)

Polish author Stanislaw Lem's novel *Solaris* is a rich text and is equally reflected as such in two films, one by Russian filmmaker Tarkovsky in 1972 and the other by U.S. filmmaker Soderbergh in 2002. Both interpret the human push into outer space by flawed men and women as individuals, moving the discussion well beyond the feminist

critique while acknowledging its contributions. The living ocean intelligence on Lem's fictional far-distant planet Solaris expresses physical phenomena aboard the humans' hovering space station in ways difficult for earth-based science to explain, emotionally and psychologically breaking the scientists. The "extraterrestrial" mind that seemingly is Solaris is so greatly different from the human mind of objective consciousness that attempts at inter-species communications and science are futile. This begs the question then of the ultimate purpose of space exploration, the central component along with human collaboration exercised through 3x3 Global Drills.

In the 1972 and 2002 films, Lem's anti-science and perhaps anti-human bias has the ocean's response to human aggression expose hidden aspects of the human scientists while revealing nothing of the ocean's nature as they are confronted with their most painful and repressed thoughts and memories via the materialization of physical human simulacra. The protagonist Kelvin for example confronts memories of his verbal abuse of his dead lover and his guilt about her suicide on Earth yet repeats his lack of intimacy with her, resulting in a repeat of the short-lived suicide on the station when her simulacra drinks liquid oxygen. In this manner, Lem repeatedly seems to enjoy tearing into the thin psyches of mere humans as they venture beyond Earth. By providing a contrast to portrayals of aliens as recognizably "humanoid," which he scorned, Lem forces a human-alien encounter that challenges Western or perhaps "Northern" scientific ways of knowing and being. As previously discussed, the north-south orientation of 3x3 Global Drills, representing the three world regions 1) Americas 2) Africa-Europe and 3) Asia-Pacific attempts to integrate the best of all human traditions as the human race begins to migrate beyond Earth.

Boats, beasts and boys in a brutal universe

Stephen Crane [*The Red Badge of Courage* (1895)] who was to die at 28 of tuberculosis reveals to us in his short story, *The Open Boat* (1897) that when confronted with the very real probability of death to the unforgiving forces of nature, spirited collaboration and sacrifice is the norm within human beings. Crane's famous short story is based on his own experiences of being shipwrecked off the coast of Florida for 30 hours with three others in a lifeboat taking turns paddling against the high waves in their wait for rescue. One crewmate drowned in his attempt to make it ashore after being swamped in the strong surf, reminding us that the forces of Earth, guided by the forces of the universe are indeed brutal, unforgiving and seemingly uncaring. For over three decades, a particular song has stood as a popular social text and response to this ruthlessness. "The Wreck of the Edmund Fitzgerald" (1976) by renowned Canadian singer-songwriter Gordon Lightfoot was inspired by the loss of all 29 crewmembers of an ore freighter when it sank on Lake Superior, November 10, 1975. The full lyrics of what is widely considered Lightfoot's most significant contribution to North American folk-pop musical heritage are included below. When read as poetry without hearing Lightfoot's gifted singing voice, the lyrics alone convey insight into how the unpredictability of the brutal universe can unite people in lasting solidarity through communal memory and grief. Such anguish is to be expected in space endeavors. The indigenous legend at the beginning and end of the lyrics is noteworthy, given the importance of listening to indigenous voices shown in 3x3 Global Drills (Figure 10):

The legend lives on from the Chippewa on down of the big lake they called "Gitche Gumee." The lake, it is said, never gives up her dead when the skies of November turn gloomy. With a load of iron

ore twenty-six thousand tons more than the Edmund Fitzgerald weighed empty, that good ship and true was a bone to be chewed when the "Gales of November" came early. The ship was the pride of the American side coming back from some mill in Wisconsin. As the big freighters go, it was bigger than most with a crew and good captain well seasoned, concluding some terms with a couple of steel firms when they left fully loaded for Cleveland. And later that night when the ship's bell rang, could it be the north wind they'd been feelin'? The wind in the wires made a tattle-tale sound and a wave broke over the railing. And ev'ry man knew, as the captain did too 'twas the witch of November come stealin'. The dawn came late and the breakfast had to wait when the Gales of November came slashin'. When afternoon came it was freezin' rain in the face of a hurricane west wind. When supertime came the old cook came on deck sayin'. "Fellas, it's too rough t'feed ya." At seven P.M. a main hatchway caved in; he said, "Fellas, it's bin good t'know ya!" The captain wired in he had water comin' in and the good ship and crew was in peril. And later that night when 'is lights went outta sight came the wreck of the Edmund Fitzgerald. Does any one know where the love of God goes when the waves turn the minutes to hours? The searchers all say they'd have made Whitefish Bay if they'd put fifteen more miles behind 'er. They might have split up or they might have capsized; they may have broke deep and took water. And all that remains is the faces and the names of the wives and the sons and the daughters. Lake Huron rolls, Superior sings in the rooms of her ice-water mansion. Old Michigan steams like a young man's dreams; the islands and bays are for sportsmen. And farther below Lake Ontario takes in what Lake Erie can send her, And the iron boats go as the mariners all know with the Gales of November remembered. In a musty old hall in Detroit they prayed, in the "Maritime Sailors' Cathedral." The church bell chimed 'til it rang twenty-nine times for each man on the Edmund Fitzgerald. The legend lives on from the Chippewa on down of the big lake they call "Gitche Gumee." "Superior," they said, "never gives up her dead when the gales of November come early!"¹⁷⁸

¹⁷⁸ Gordon Lightfoot, "The Wreck of the Edmund Fitzgerald," *Summertime Dream*, Warner Bros., 1976. From "Wreck of the Edmund Fitzgerald - Gordon Lightfoot Song Lyrics," webpage. <http://gordonlightfoot.com/wreckoftheedmundfitzgerald.shtml>. Retrieved July 29, 2011.

While Lightfoot gives a lyrical account of nature's brutality on Lake Superior in November, London reveals North American modern man's capacity for love and intimacy as well as acts of evil in this same context. *The Call of the Wild* (1903), London's masterpiece is a love story between a man in the wild and a domesticated dog that becomes a leader of wolves, paradoxically as his love for his befallen master increases. London substitutes the partial animal nature in humans by writing from the canine perspective. As a U.S. author with experience in the Canadian wilderness, he may also be reflecting a yearning among U.S. citizens after the excesses of the Gilded Age to reconnect with nature and to recapture her reputation, at least among Francophiles in Europe as Rousseau's noble savage. Both novels are considered juvenile texts as well as representative of early 20th century North American masculinity.

London captures the dark aspects of the man-animal connection as does the *Batman* comic book series that first emerged in May 1939 followed in later decades by television cartoons, shows and films.¹⁷⁹ The continued success of the *Batman* film franchise serves a therapeutic need for U.S. cultural identity. The assemblage of villains around "the bat man," as derided by the Joker provides U.S. citizens an outlet to reflect on corruption and various kinds of undue influences, ranging from the Mafia to the military-industrial complex. The cavernous Gotham City, throughout which Batman brings his nocturnal brand of vigilante justice substitutes for the shadowy moral frontier present in all U.S. cities. Gotham also represents the property-based philosophy of Locke that has contributed to injustices throughout U.S. history in both urban and rural spaces alike.¹⁸⁰

¹⁷⁹ Les Daniels, *Batman: The Complete History* (San Francisco: Chronicle Books, 1999), 25.

¹⁸⁰ See also Mark D. White and Robert Arp, eds., *Batman and Philosophy: The Dark Knight of the Soul* (Hoboken, New Jersey: John Wiley & Sons, Inc., 2008).

Some of the last of Derrida's lectures were given during 2001-2002 before his death in 2004 and are chronicled in *The Beast and the Sovereign, Volume I - The Seminars of Jacques Derrida* (2009). In part drawing from Rousseau's use of werewolves and Machiavelli's foxes, Derrida reminds us that while the king (sovereign) is above the law, the beast is below it. Beast and sovereign are thus connected in that they are not subject(s) to law.

The power potential of 3x3 Global Drills can be achieved without the vigilantism of *Batman* but not without his intensity of human dedication in lieu of relying on super hero powers. In the drills, the wolf pack image is intended to synergize and elevate the human pack¹⁸¹ concept to persistently take on a brutal universe. Such fusion of the human spirit in accordance with and defense of rule of law, minus its association with scarcity-based property rights is conceived in opposition to the counterproductive use of the wolf pack image to attack other human beings as ironically sub-human. Such was and remains the identification with wolves by the Nazis in Germany before and during World War II and by Neo-Nazis around the world in the present day. The more such symbols are used by human beings positively, the less power they have for being used degenerately.

In the tradition of *The Call of the Wild*, Canadian author Farley Mowat's *Two against the North* (1961), originally titled *Lost In the Barrens* (1956) is an adventure tale. Two boys, Jamie, an orphan from Toronto and Awasin of the Cree Nation and their two dogs survive rather than overcome the brutal forces of the Canadian Arctic. This text won the Governor-General's Award for Juvenile Literature, the Book-of-the-Year Medal of the Canadian Association of Children's Librarians and the Boys' Club of America

¹⁸¹ The meaning of this concept is first introduced in Chapter 1 in the section entitled, 1953-1972: Ike, JFK, Apollo and the opportunity costs of Vietnam.

Junior Book Award.¹⁸² Mowat's literary spirit of intercultural and inter-mammalian adaptability typifies the spirit that the 3x3 Global Drills process is designed to promote.

Girls and boys confront the brutality of adults and money

The remade *90210* television series has been broadcast on The CW Television Network since Fall 2008. The new network's target audience is women aged 18-34 but the writers of *90210* explore universal themes from this perspective in a manner consistent with Marilyn Waring's *If Women Counted: A New Feminist Economics* (1988, 1990) that charges the UN System of National Accounts as keeping women and children invisible. As a counter-example to Fitzgerald's *The Beautiful and Damned* (1922), *90210* brings the essence of this classic to light for the global, post-family, digital age more so than *Gossip Girl* (since 2007), its perplexing sister show. *Gossip Girl* more obviously pays homage to *The Beautiful and Damned* as it is set in Upper East Side, Manhattan; profiling eccentricities of elite WASP 20-something behavior there. *90210* is set at fictional West Beverly Hills High School in Los Angeles, a wealthy though public school district attended by the super rich as well as the destitute, interacting without regard to economic status.

90210's most compelling character is an artsy outcast turned popular girl, Erin Silver [Jessica Stroup, *The Hills Have Eyes 2* (2007) and *Prom Night* (2008)] who goes by her last name. Silver is an aspiring journalist and wears a stylized bluish heart tattoo on the back of her neck. Having recently experienced homelessness, she is supported by her older half-sister who is a high school guidance counselor, a character from the

¹⁸² "Lost in the Barrens" (2009). Google Books, review.
<http://www.google.com/search?tbm=bks&tbo=1&q=Lost+in+the+Barrens&btnG=Search+Books>.
Retrieved July 9, 2011.

original show that aired in the 1990s but which is written out of the current show. Unlike Fitzgerald's character Gloria Gilbert Patch in *The Beautiful and Damned*, confirmation is given in season four that Silver is half Jewish-American. Her boyfriend Navid (Michael Steger) is the oldest child of a Jewish-Iranian man who returns to Iran to escape a child-pornography investigation after Navid sees a classmate in a film produced by his multinational pornography empire. Navid confronts his father who dismisses him as a child. Silver's Platonic embrace of Navid in season three demonstrates empathy for and resistance to being made to feel invisible, as her mother who suffered from alcoholism had neglected her in earlier childhood. This, rather than social position as in the *The Beautiful and Damned* forms the basis of the relationship between Silver and Navid.

In his last semester of high school, Navid becomes determined to support his timid mother and several younger sisters by transforming his father's empire into a low budget studio specializing in music videos. His friend Dixon (Tristan Wilds) who is also one of Silver's two ex-boyfriends in the series helps him in his new enterprise, in part to save money for college. Dixon is African-American and adopted by white parents who are recently divorced and finding it difficult to pay their bills.

Like Heinlein's Carmencita in *Starship Troopers*, Silver is never a possession of one boy though neither is she promiscuous. Unlike Heinlein's Carmencita as well as Fitzgerald's Gloria, The CW Television Network's Silver is a real rather than an impersonal friend to everyone, especially to her ex-boyfriends. Recalling Epictetus and Fromm's work on love as presented in the same chapter, love never ends for Silver. It only deepens as she continues to develop her ability to love, even when forces outside of

her control bring her committed relationships to an end such as when her boyfriend Teddy (Trevor Donovan) realizes that he is gay.

As an aside, a cause that Stroup supports is the social networking-based Love is Louder. Love is Louder was created by Stroup's co-star in *Prom Night* (2008), Brittany Snow. Snow partnered with MTV, the Ad Council and others in Fall 2010 after a rash of suicides resulting from anti-gay bullying, the most galvanizing being that of Tyler Clementi of Rutgers University who jumped off the George Washington Bridge in New York City. Two distinguishing features of this online movement include writing "Love is Louder" on the palms of hands and posting the images to Facebook and individualizing the phrase, "*Love is Louder than*: 'failure, depression and disappointment,' 'the giants you face,' 'the people who want you to think you're nothing,' 'the past that haunts you,' 'the hate raging deep inside you,' 'being in prison,'" etc. (Examples taken from the Love is Louder message "wall" on Facebook, July 11, 2011.) Love is Louder has adopted a broad yet specific mission that strikes well beyond its anti-gay bashing impetus:

... to support anyone feeling mistreated, misunderstood or alone. Online and in communities around the world, the movement is raising the volume around a critical message - that love and support is more powerful than the external and internal voices that bring us down, cause us pain and make us feel hopeless.¹⁸³

In the few scenes in which adults are written into *90210*, they prove more trouble than help. The role that adults play through their absence represents an emotionally laden backdrop of anxiety that continually draws Generation Y characters together for

¹⁸³ Kara Warner and Matt Elias, "Brittany Snow and MTV Launch 'Love is Louder' After Recent Suicides," *MTV Networks*, October 1, 2010. <http://www.mtv.com/news/articles/1649201/brittany-snow-mtv-launch-love-louder-after-recent-suicides.jhtml>. See also "Love is Louder." <http://www.loveislouder.com/>. Both retrieved July 11, 2011.

mutual support and away from adolescent jealousies in which they also engage. This dynamic is comparable to the backdrop of anxiety caused by World War I in *The Beautiful and Damned* and how it counter-intuitively drove a shell-shocked wedge between members of the Lost Generation, corrupting their abilities to relate and love each other fully. In *90210*, monogamous affinity between the revolving couples is by choice as opposed to by circumstance in *The Beautiful and Damned*. In *90210*, one relationship ends, at least emotionally before another begins. *90210* is significant in the number of dire social issues it is able to address or at least introduce good-humoredly, as long as Silver in taking her medication to treat her bipolar disorder. The underlying anxiety imposed by the dysfunctional nature of adults is read here as mirroring the uncertainty of the marketplace, which to function as it is designed, whether globally or locally must keep capital artificially scarce, as scarce as positive adult guidance in *90210*.

The underlying form of social stability in *90210* is access to knowledge, shown through the high school setting but more so through the many smart-phones that are product-placed as advertisements for *90210*'s main sponsor, T-Mobile. Dramatic dialogue is skillfully interwoven with academic dialogue, in which Fitzgerald and Derrida are mentioned at least once, hinting at the influences of the various *90210* writers. Books are placed as visual backdrops in various scenes and are stacked horizontally in Navid and Silver's rooms, communicating democratic application of the accumulation of human insight rather than its uniform or hierarchical vertical display.

As in *The Beautiful and Damned*, forces of social ostracism and face saving are at play in *90210*. Preservation of the social fabric through the maintenance of monogamy

in the "West Bev" human pack is of constant concern. Interdependence as human beings is a frequent though perhaps unintended message in *90210*, unlike in *The Beautiful and Damned* where reverence is given to inanimate money. "Money" is used by Fitzgerald as a euphemism for various "sets" of people who have accumulated more than enough wealth through various industries and who reside in corresponding boroughs of New York City. Individual members of the preferred sets are respected as long as enough currency remains in their bank accounts. Otherwise, communal derision leading to hatred, most significantly by the reader, as deduced from prominent reviews is sanctioned against anyone such as Anthony Patch who fails to maintain a dominant social position by not protecting and accumulating wealth. In both the New York-based novel of the 1920s and the Los Angeles-based television show of the 2010s as compared here, acculturation is more important than education, for good and bad. For Anthony Patch, having attended Harvard is less important than not being able to pay his membership dues at the Harvard Club in New York City. In *90210*, attending class is less important than maintaining reputation among friends. For U.S. and global audiences, envy rather than puritanical disapproval of conspicuous consumption is the appeal of both Fitzgerald's second novel and The CW Television Network's series. While the characters in *90210* are beautiful, because they pursue the rare insights of love as well as those of knowledge broadly defined, they are far from damned.

This chapter analyzed selections from Western literature and film in addition to a popular song and a television show. The sections illustrate different principles by which the 3x3 Global Drills process seeks to develop the intent in individual minds to exercise global power collaboratively against multiple threats to human existence.

Summary

The Introduction, *Redirecting Global Power to Avert Human Extinction* outlines the necessity to view political power in a new way. *Global collaborative power* is introduced as a series of vital assets to be redirected across our solar system to avert human extinction as opposed to power commonly understood as something to be accumulated, balanced or resisted.

Chapter 1, *A Chronology of Misused Power in a Brutal Universe* revisits the 20th century from an alternative perspective of the absence of collaborative power among nations. By so doing, the chapter reframes the history of the two world wars, the Cold War and the conflict in Vietnam as a misuse of power rather than a victorious use of power or an abuse of power by the U.S., given her eventual role as global hegemon. Iconic images of von Braun, "JFK" and "Ike" together in different Cold War contexts are put in a wider framework of analysis in time and space with the addition of an image of nearby Jupiter getting pelted by fragments from Comet Shoemaker-Levy 9 in 1994, "...22 years after Apollo 17." The images suggest that opposing forces of the human race can come together across oceans and across U.S. political parties, offering inspiration for collaboration among nations of the Americas, Africa-Europe and Asia-Pacific regions to survive and thrive in all solar system environments. The ongoing debate over space weapons in regard to the U.S.-China relationship is recast as counterproductive when considering the potential threat to surface life on Earth from gamma-ray bursts that occur frequently and randomly within the Milky Way galaxy.

Chapter 2, *Global Collaborative Power: Altering the Status Quo* makes distinctions between the status quo terms *competition*, *cooperation*, *coordination* and *consensus* and

argues why all are insufficient in a brutal universe, compared to the term *collaboration* as used normatively and critically in the dissertation. In order to emphasize the capacity of the current world system for positive change, the chapter identifies 47 intellectual allies and six intellectual opponents across the political spectrum of Western international relations scholars, practitioners and social scientists and institutions. Collaboration is further defined through negative treatment of the global chessboard, a common symbol of status quo international politics while positing "celestial golf" as an alternative mental image for readers to consider. The scale and purpose of the rugged golf course as compared to that of the brittle chessboard approximates the widening of thought, perception and the spirit of collaborative play that is needed in international relations, common to all who have played golf. Both games are justified for inclusion in the dissertation as they represent elite thought, leadership and professionalism while remaining accessible to the general public, a democratic principle of building excellence that is echoed throughout the dissertation. Most notable in this chapter is the introduction of the concept of energy abundance to mobilize, unite and transform economies and militaries on our highly vulnerable planetary system. This introduction follows on the explication in this chapter of a theoretical observation of *the human pack*, first introduced in Chapter 1 and repeated throughout the dissertation - not to reinforce dominance and hierarchy among humans but to "unleash" the self-evident mammalian instinct of aggressive solidarity in facing down brutal forces inherent to unforgiving natural environments.

Chapter 3, 3x3 Global Drills: Prototyping Collaborative Power outlines "seats of responsibility" for political and policy elites as well as members of globally

interconnected publics to experience exercising collaborative power in a solar systems context without sacrificing current senses of identities. New concepts for interaction, reflection and generation of ideas through 3x3 Global Drills based on the operating principle *serendipity by design* are explained. Participants in the drills fuse three disciplinary perspectives, 1) Cosmic 2) Individual and Societal and 3) Environmental with three regional perspectives, 1) Americas 2) Africa-Europe and 3) Asia-Pacific to solve one or more global threats as given in the problem set, World Problematique Plus (Figure 9). This problem set is adapted from the Club of Rome's World Problematique of economic, social, political, military and environmental challenges as broadly defined in the 1970s. 3x3 Global Drills is also compared and contrasted with the following innovations:

- International Futures global modeling process - Barry Hughes, Frederick S. Pardee Center for International Futures, Josef Korbel School of International Studies, University of Denver
- SIMULEX - Robert Pfaltzgraff, International Security Studies Program, The Fletcher School, Tufts University, A Graduate School of International Affairs

Chapter 4, Global Collaborative Power Illustrated through Literature and Film explores the universal power of storytelling, adding an example from music and another from television to illustrate different aspects of human intensity that are needed for 3x3 Global Drills to be effective. The element of fear in most of the examples given such as in Crane's *The Open Boat* (1897), *Meteor* (1979) and *Ike: Countdown to D-Day* (2004) is counteracted with the need for attentive hope as analyzed in *Mission to Mars* (2000) to motivate global collaborative power.

In building on the tradition of Lasswell's approach to elite-mass relations, this dissertation relies on the World Problematique Plus (Figure 9) as a critical set of reasons for why human populations need to be mobilized by leaders. No longer is it appropriate for leaders to direct populations in opposition to each other such as in the Cold War. Together, leaders are well advised to project all available power outward from Earth in order to both save and give meaning to human life, using 3x3 Global Drills or some adaption of it to steer such collaboration. The political philosophy behind this prototyping model indicts the global status quo as it outlines the use of economic, social, political and military power in a way consistent with the human will to survive in a brutal universe. The ideas behind 3x3 Global Drills as written in this dissertation can be dismissed as "visionary" only in the sense that they are not blind to realities other than 1) earthbound balance of power realism and 2) liberal global institution and bureaucracy building in reverence of scarcity-based economic social inventions, whether socialist or capitalist.

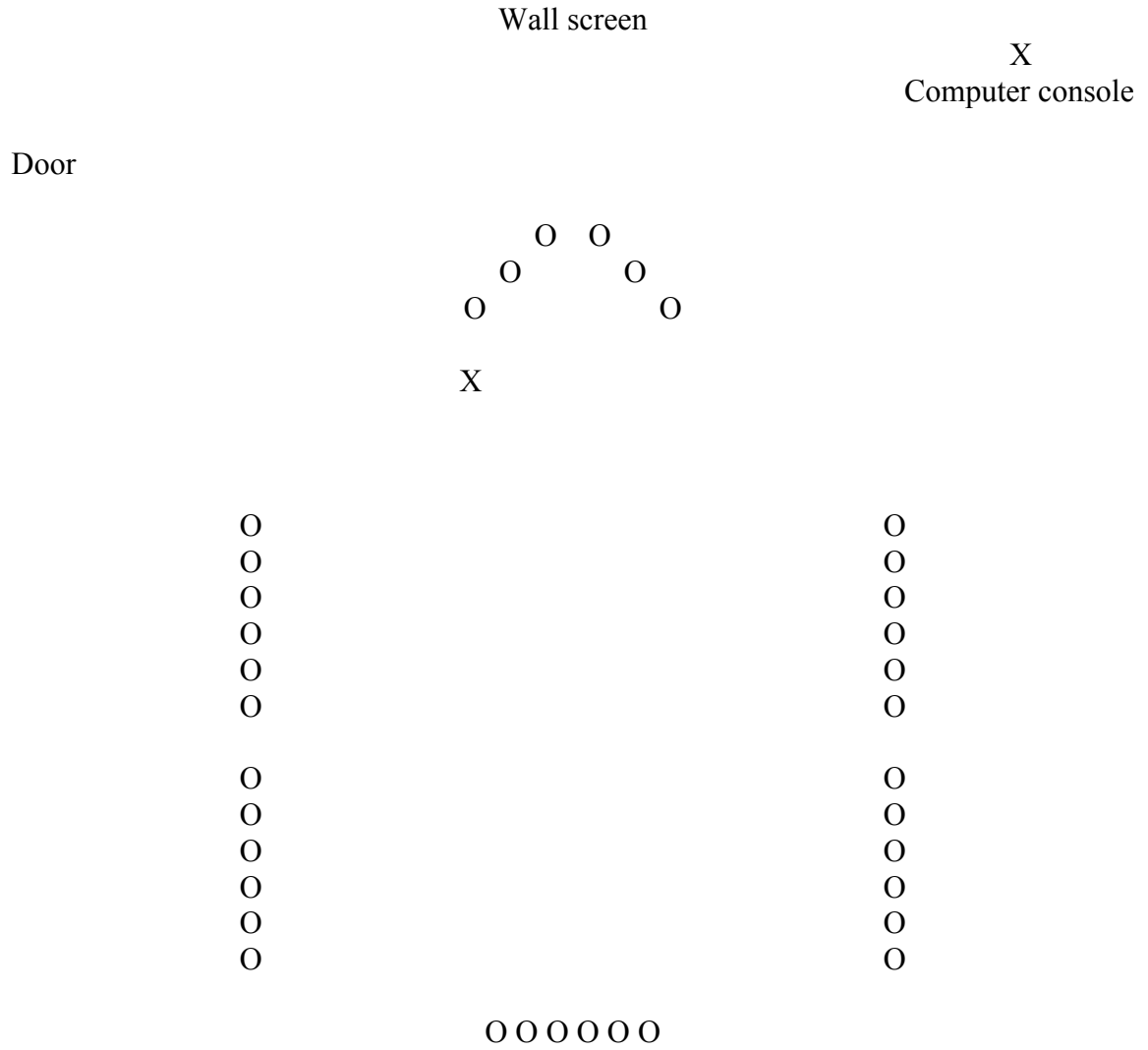
A distinguishing feature of 3x3 Global Drills as a political project is that it is globally populist without seeking to dishonor elite institutions that represent the global status quo, merely to infuse them with a more realistic understanding of the wider dangers that we all face. Once this is accomplished, accumulated power might be more readily directed against multiple global threats with more vigor. The human race needs to pull together, not for the sake of unity alone but because working together is the only way to continue our existence.

Appendix A

Room diagram to facilitate 3x3 Global Drills in a typical undergraduate course

Each O represents a student participant/observer in a chair

Each X represents a teacher's aid/commentator in a chair



Appendix B

Procedures to facilitate 3x3 Global Drills in a typical undergraduate course

1) Students are equally responsible as a six-person or less group and as individuals to approach the World Problematique Plus (Figure 9) by using the 3x3 Global Drills worksheet (Figure 10). It is helpful to have both figures printed back-to-back on a single sheet for each student along with *Three broad regions of Earth* (Figure 11) printed on the same side as the World Problematique Plus. Students may be responsible for more than one perspective if a six-person group is unfeasible for all groups in a given class. To be effective as groups, each student is responsible for one or more of six perspectives as indicated in the 3x3 Global Drills worksheet. Students will discuss within a group of six or less in an L or V shaped table configuration at the center of the room as shown in Appendix A. All groups will learn by observing the intensity of each drill. Background information for students to review before the day of their small group drill is updated at www.3x3globaldrills.blogspot.com to better approach the World Problematique Plus. If there is strong interest, students can approach a global threat of their own choice that is not listed in the World Problematique Plus. Student groups also have the options to approach the World Problematique Plus as a whole, just one of the eight global threats of the World Problematique Plus or a combination of global threats as they or the professor decide based on the interest of the group and the purpose of the course.

2) While there is no requirement as to which intersection or box the groups approach first, *only the two students whose individual perspectives correspond to a given box speak at a time, for roughly five minutes*. Since there are nine boxes to approach, each

drill is designed to take no more than 45 minutes. As each of the nine dyads of students approach their boxes, the other four students during any given period should be listening in a reflective manner and taking individual notes. Having done this, when their turn comes to speak or to speak again, they can either add insight that they might have to address a previously discussed box or be able to offer richer insight to their boxes of responsibility. *Each student will interact in three dyads.* Also, during these nine periods of five minutes each, a designated teacher's assistant (TA) is to record *the essence* of what is being said in respect to each box, *not everything* that is being said. To do this, the TA is to use the computer console behind the active group in the L or V shaped table configuration to type in eight-point font within each box of the worksheet. As what the TA types is projected onto the wall screen, an added benefit to the drills experience may be that the observer groups can use the TA's notes to better follow the drills in process. The TA is to save each group's document and send it to the entire class.

3) Main outcome: Each student is to write a five-page report on his or her individual approach to solve the World Problematique Plus, designed to persuade world leaders in government, industry and academe. This report is to be comprised of nine paragraphs that correspond to the nine boxes on the worksheets. Reports are to be based on individual student research before and after their small group drill and from the input of other members of their group as well as ideas from other groups of six that each student observed. As each box is repeatedly filled during the drills, *it is in the interest of each student to listen intently* for insights to better solving the World Problematique Plus to prevent human extinction that they or their group *or the TA* may have overlooked. Each report should be evaluated on originality and inventiveness. Students should be

reminded periodically that "groupthink" within individual groups and among all groups is as much a contributory cause to potential human extinction as are the eight areas of the World Problematique Plus.

4) Role of the commentator: In addition to guarding against groupthink, the commentator, usually a faculty member has an opportunity between each five-minute didactic interchange to briefly offer helpful knowledge within the context of the deliberations. *It is also the role of the commentator to explain and re-explain the scope of the six perspectives prior to each drill based on the subcategories that are listed on the 3x3 Global Drills worksheet.* The commentator should also provide opportunities for the groups to debrief after the intensity of their drills, ideally in person while each group is still seated. However, providing oral or written feedback to student reflections on the drills process through email is acceptable. Depending on the length of and the number of people in the class, the commentator can judge if it is appropriate for members of the observer groups to participate in each debriefing, either orally or in written form.

5) Potential dissemination: For undergraduate students, as well as graduate students and professionals, publication of their individual reports is given as a motivating force to maximize quality of research, analysis and most importantly, prescription. The best vehicle for such dissemination (hardcopy journal, e-journal, YouTube recordings, etc.), potentially to the highest levels of global responsibility has yet to be determined. In the case of all social and technical innovations, there is no substitute for trial and error. May both commence.

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