# 1NC v. Rhea Valley R4

## 1

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#### Text: An international panel of scientists including National Academies and corresponding organizations appointed by the member nations of the World Trade Organization should release a binding ruling to [reduce intellectual property protections for medicines].

#### They have the jurisdiction to rule over intellectual property and secure science diplomacy.

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At the global level, science diplomacy is defined as cooperation among countries in order to solve complex problems through scientific research and education (1). For example, science diplomacy plays an important role in resolving global issues related to the ecosystem (such as clean water, food safety, energy conservation, and preservation of the environment). It also addresses problems related to the healthcare industry. For example, scientists have served at the international level to forge the Middle Eastern Cancer Consortium a decade ago to facilitate better healthcare and improve cancer research in the region. Whether one considers science for diplomacy or diplomacy for science, international science collaborations benefit from allowing science diplomats (broadly defined as science envoys, science attaches, embassy fellows) to help establish positive international relationships between the U.S., Europe, Latin America, Africa or Asia, particularly when proprietary disputes arise (2, 3). These various types of science diplomats already exist; some, like embassy fellows and science envoys, have one-year appointments so their role may be limited, while attaches usually have two or three year appointments that may allow them to be more successful in long, protracted negotiations. In any event, we believe that scientists can play more of a role in advancing international scientific cooperation. A key point addressed here is how to balance security concerns against the need for free exchange of information needed for innovation and growth.

Both the National Science Foundation and the National Institutes of Health are already engaged in supporting American science and strengthening collaborations abroad. Such efforts take advantage of international expertise, facilities, and equipment. Here, we provide a rationale for the use of diplomacy to address scientific challenges. This approach allows some scientists working as diplomats to help manage complex and potentially conflicting situations that arise between scientific communities and their governments. Such issues include managing disputes such as licensing agreements for intellectual property (IP) and providing protection of IP.

International collaborations can not only support but also accelerate the advancement of science. However, collaborations may carry risk if IP is misappropriated for other purposes. International collaborations should have a basis in strategy and specific goals (for example, drug discovery) in order to justify the use of government and/or corporate funds.

About a decade ago, a group of academics from the University of Manchester in the United Kingdom assembled the “Manchester Manifesto,” subtitled “Who Owns Science” (6). This document addressed the lack of alignment between commercial interests, intellectual rights, and credit to the researcher. In our (and commonly held) view, the groups representing these disparate values could benefit from diplomatic mediation. More recently, it has become increasing apparent that managing China as a science and technology superpower represents another challenge for the U.S. Resolution of issues such as ownership of IP, rights to reagents, or use of skilled laboratory personnel from international collaborations may require the efforts of science diplomats. There are few international offices or “guardians” to protect junior and senior scientists in corporate or academic sectors from misuse of reagents or piracy.

China’s failure to respect IP rights, and the resulting piracy, has drawn much attention. The media have also focused on the failure of watchdog government agencies to detect and manage these unwanted activities. Industrial espionage compromises U.S. interests. Moreover, Chinese and Russian hackers have cyberattacked U.S. technology companies, financial institutions, media groups, and defense contractors. In 2018, industrial spying was even reported in a major medical school in New York City where scientists were alleged to have illegally shared research findings with Chinese companies.

The U.S. has a long history of hiring research personnel from other countries to staff its laboratories and industrial R&D centers. These scientists and engineers have made critical contributions to our nation’s well-being and security. These young Chinese and South Asian graduates of U.S. programs a generation ago now staff our research enterprise. However, recent trends in U.S. graduate school applications in science, technology, engineering and mathematics (STEM) reflect a downturn in foreign applicants, particularly from China. It is becoming increasingly apparent that the number of American-born students seeking STEM degrees is not sufficient to satisfy future demands of our high-tech workforce. While our own educational reforms must be augmented, we cannot ignore the need to continue to recruit overseas talent.

We believe that foreign scientists can continue to make critical discoveries in the U. S. provided that their talent is nurtured, developed, and harnessed for the common good. At the same time, American companies cannot hire foreign scientists if they take the ideas they generate in U.S. laboratories back to their home countries without proper credit or permission. If the advancement of science is to succeed, greater diplomatic cooperation is needed to solve and manage proprietary issues for the benefit of all (5, 6).

So, how does one strike the proper balance between security and growth? Science is a universal social enterprise; international conferences lead to friendships and productive collaborations between nations. Given that the U.S. and Chinese governments recognize the need for international communication and collaboration then surely there should be a mechanism for adjudicating anticipated conflicts. One approach would be for government, industrial, and academic stakeholders to form an international panel of scientists and engineers to manage any conflicts of interest between the need to protect proprietary information crucial to a company’s competitive edge, and the need for students and young faculty members to publish their findings. Smaller scale efforts along these lines have recently given rise to unique global partnerships, such as fellowship support by major pharmaceutical companies, which aim to address these conflicts to the benefit of both parties. An added feature of such arrangements is that they often provide corporate financing for research (9). Can this corporate-academic partnership model be adapted to multinational joint R&D efforts while protecting IP? This question falls squarely within the purview of international science diplomacy, whereby science diplomats can establish rules of conduct governing joint global technology development with proper IP protection.

Despite the highly publicized and legitimate piracy allegations against China, at least some data indicates that the Chinese legal system is responding positively to worldwide pressure to honor foreign IP. A 2016 study by Love, Helmers, and Eberhardt, for example, found that between 2006 and 2011, foreign companies brought over 10 percent of patent infringement cases in China, and won over 70 percent of those cases (10). Today, “win rates” average around 80 percent, and “injunction rates,” around 98 percent (10). As Chinese scientists and engineers increasingly enter the top tier of the innovation space, their growing awareness of their own need for IP protection could be a powerful motivating force for the protection of all IP. As stated earlier, science diplomats could catalyze this progress even further by direct negotiations with those parties involved in the conflicts. An obvious flaw in this optimistic outlook is that scientists in the U.S. wield more influence with their government than scientists in China wield with theirs. And to the extent that the Chinese government could be encouraging IP theft, this must be addressed first by those international companies/firms who want to do business with the Chinese. Chinese investments, as well as tech incubators and targeted acquisitions, can enable access to U.S. technologies for commercial development. Although this conveys a level of risk to the developers, it may provide valuable opportunities for U.S. companies as well. In many respects, the extensive engagement and collaboration in innovation between the U.S. and China, often characterized by open exchanges of ideas, talent, and technologies, can be mutually beneficial in enriching and accelerating innovation in both countries.

In summary, we believe that science diplomats could help address the increasingly complex issues that arise between accelerating scientific and engineering advances, and the need to protect national security and corporate IP. We also propose that this might be accomplished by asking the **National Academies to recommend academic, corporate, and government scientific leaders to serve on an international scientific advisory board**, and for the corresponding organizations in other countries to do the same. Access to the free flow of information promotes new knowledge and innovation. A return to a more restrictive intellectual environment is not only harmful to progress, but also nearly impossible to manage in the current internet age. A good place to start would be to engage the newly appointed head of the White House Office of Science and Technology Policy (the Science Advisor to the President of the United States), and working groups within established organizations. These organizations include the American Association for the Advancement of Science (AAAS) or the National Academies of Science, Engineering and Medicine, and corresponding international organizations. What incentive is there for a busy and successful scientist to serve in such capacity? It is the same altruism that motivates us to accept assignments as journal editors, manuscript reviewers, or funding agency panelists for the advancement of science toward the greater good.

#### Solves every existential threat.

Haynes 18—research associate in the Neurobiology Department at Harvard Medical School (Trevor, “Science Diplomacy: Collaboration in a rapidly changing world,” <http://sitn.hms.harvard.edu/flash/2018/science-diplomacy-collaboration-rapidly-changing-world/>, dml) // Re-Cut Justin

Today’s world is extremely interconnected. Most of us take this fact for granted, but its implications cannot be overstated. The rate at which information, resources, and people are able to move from one part of the world to another continues to accelerate at an alarming rate. Undoubtedly, this development has done society immense good. In the last century, global life expectancy has doubled, the percentage of people living in extreme poverty has dropped by about 60%, and world literacy rates have increased by a similar margin. But while these statistics paint a promising picture of human civilization, human progress rests on a fragile foundation of international cooperation; the challenges presented by an interconnected world are immense. War, natural disasters, and economic collapse now exert their effects globally, creating economic and ecological disasters and mass human migrations on an unprecedented scale. And with the US pulling out of major multilateral agreements on trade, climate change mitigation, and denuclearization, you might wonder if our ability to collaborate across borders productively is really up to the task.

Global challenges require global solutions, and global solutions require collaboration between countries both big and small, rich and poor, authoritative and democratic. There are few human enterprises capable of providing continuity across these differences, and as technological solutions are becoming available to some of our most pressing issues, two in particular will be necessary to getting the job done: science and diplomacy. While science has long been utilized as a means to reach political ends—think of British explorer James Cook’s mapping of unexplored continents or the United States’ Manhattan Project—a more formal integration of scientists into the diplomatic process is being undertaken. This effort, which has led to scientists and academics playing a direct role in foreign policy development and international relations, has given birth of a new branch of diplomacy: science diplomacy.

What is science diplomacy?

As both the term and concept of science diplomacy have only recently gained traction in scientific and diplomatic circles, it’s been given a variety of definitions. But common to them all is the focus on applying scientific expertise to an international effort. The focus of these efforts is to solve international problems collaboratively while balancing economic prosperity, environmental protection, and societal wellbeing. The challenge of reaching this balance in the face of a booming global population cannot be understated, but this new branch of diplomacy is already at work and is producing results. International agreements such as the Paris Climate Agreement and the Iran Nuclear Deal are two famous examples, and science diplomacy is also establishing international collaboration in many other important arenas. While these lesser known efforts may not dominate the headlines, they are quietly tackling the global issues of today and preparing us for those of tomorrow.

Natural disasters don’t respect national boundaries (and neither does the aftermath)

In 2013, the number of refugees displaced by natural disasters—hurricanes, droughts, earthquakes—outnumbered those displaced by war. Current projections estimate as many as 1 billion people may be displaced by natural disasters by the year 2050. That would mean 1 in 9 people on the planet displaced and looking for a home. Compare this to the estimated 12 million refugees displaced by the war in Syria, and a frightening picture begins to form. As natural disasters continue to increase in both their frequency and intensity, solutions for mitigating the risk of total catastrophe will be underpinned by science, technology, and the ability of the international community to collaborate. Many organizations are starting to tackle these problems through the use of science diplomacy. The center for Integrated Research on Disaster Risk (IRDR) is composed of ten national committees—a network of government sponsored research institutions across the world in countries ranging the political and economic scale. These working groups have committed to improving disaster-risk-reduction science and technology while providing guidance to policy makers charged with implementing disaster prevention and mitigation strategies.

IRDR is governed by a committee comprising experienced scientists and natural disaster experts. Its members come from all over the world—the US, China, Uganda, Norway, Mexico, Venezuela, and more. The diversity of this organization starts at the top and is crucial to developing comprehensive risk-reduction strategies. Data and insights from countries with varying areas of expertise are being shared and built upon, facilitating more accurate natural disaster forecasting and better strategies for mitigating their destructive power. And by including representatives from countries of varying political and economic power in its leadership, IRDR ensures that its work will consider the needs of the global community at large, rather than just nations with considerable wealth and political standing.

The results of this type of international collaboration speak for themselves. Although humanity is grappling with more natural disasters than ever before, deaths related to these incidents continue to trend downward. Operating outside of the typical political framework that dominates foreign relations, IRDR provides a model for effective collaboration across the geopolitical spectrum in the face of a major global issue.

Explore or Exploit? Managing international spaces

Over the last few decades the polar ice cap that covers much of the Arctic Ocean has been shrinking. So much so, that during the warm season vast areas of previously solid ice have become open waters, creating opportunities for new trade routes and exposing the Arctic’s enormous reserves of oil and natural gas. Depending on your values, this will sound either like an opportunity for huge economic development of the region or the inevitable exploitation of one of the last untouched natural territories on the planet. And if you live there, like the half a million indigenous people who currently do, how this territory is managed will determine where you can live, how (and if) you can make a living, and what the health of the ecosystems that have supported Arctic life for millennia will look like.

Luckily, such a scenario was predicted decades ago. In 1987, Mikhail Gorbachev, then leader of the then Soviet Union, delivered a speech outlining his aspirations for the arctic to be explored rather than exploited—to radically reduce military presence, create a collaborative multinational research effort, cooperate on matters of environmental security, and open up the Northern Sea Route for trade. This speech laid the foundation for the Arctic Council (Figure 1), which is one of the most successful examples of science diplomacy at work. Composed of the eight Arctic nations, including geopolitical rivals US and Russia, and numerous groups of indigenous peoples, the Arctic Council was established to maintain Gorbachev’s vision for the region while giving the indigenous peoples a seat at the negotiating table. The council’s activities are conducted by six scientific and technology-based working groups who conduct research in the area and provide knowledge and recommendations to the council members. As a result of this research, and allowing scientists to take part in the negotiations, the Arctic council has enacted several legally binding agreements regarding the sustainable development and environmental protection of the Arctic Ocean. These agreements have facilitated cooperation on a number of important issues including search and rescue operations, prevention and containment of maritime oil pollution, and, most recently, enhanced data sharing and scientific research collaborations. Against a backdrop of rapidly deteriorating diplomatic relations, the US and Russia have co-chaired task forces that laid the foundation for these agreements, proving to the world that meaningful results can be achieved through the avenue of science diplomacy, regardless of geopolitics.

Science diplomacy going forward

The technical expertise that characterizes science diplomacy will continue to be in demand across many realms of foreign policy. For example, synthetic biology and gene-editing technology continue to factor into matters regarding agriculture and trade. Also, digital currencies, such as bitcoin, have changed the way economists and businesses are approaching markets. Finally, machine learning and artificial intelligence are being used by governments as a means for population control, giving rise to a new type of governance—digital authoritarianism.

While this expertise will be necessary for managing such issues, building international coalitions can’t be done through a purely scientific and technical lens. Convincing others to cooperate means providing them with a convincing argument to do so, and in terms they understand and find compelling. To achieve this, scientists must be trained to communicate their expertise in a way that moves stakeholders in policy discussions to act. This means appealing to motivations they have been largely taught to put to the side—whether they be political, economic, or emotional in nature—without obscuring the data and insights they have to offer.

For our leaders, policy makers, and diplomats to effectively understand issues underpinned by science and technology, experts in these fields must continue to be integrated into the mechanisms of governance. With scientists in the US running for elections in numbers like never before, we can expect this trend to continue. And in the face of a rising wave of nationalism across the world, it is crucial that we do everything we can to foster collaboration. The future of human civilization depends on it.

## 2

### FW

#### The standard is maximizing expected well-being, or hedonistic act utilitarianism.

#### 1] Neuroscience- pleasure and pain *are* intrinsic value and disvalue – everything else regresses.

Blum et al. 18 [Kenneth Blum, 1Department of Psychiatry, Boonshoft School of Medicine, Dayton VA Medical Center, Wright State University, Dayton, OH, USA 2Department of Psychiatry, McKnight Brain Institute, University of Florida College of Medicine, Gainesville, FL, USA 3Department of Psychiatry and Behavioral Sciences, Keck Medicine University of Southern California, Los Angeles, CA, USA 4Division of Applied Clinical Research & Education, Dominion Diagnostics, LLC, North Kingstown, RI, USA 5Department of Precision Medicine, Geneus Health LLC, San Antonio, TX, USA 6Department of Addiction Research & Therapy, Nupathways Inc., Innsbrook, MO, USA 7Department of Clinical Neurology, Path Foundation, New York, NY, USA 8Division of Neuroscience-Based Addiction Therapy, The Shores Treatment & Recovery Center, Port Saint Lucie, FL, USA 9Institute of Psychology, Eötvös Loránd University, Budapest, Hungary 10Division of Addiction Research, Dominion Diagnostics, LLC. North Kingston, RI, USA 11Victory Nutrition International, Lederach, PA., USA 12National Human Genome Center at Howard University, Washington, DC., USA, Marjorie Gondré-Lewis, 12National Human Genome Center at Howard University, Washington, DC., USA 13Departments of Anatomy and Psychiatry, Howard University College of Medicine, Washington, DC US, Bruce Steinberg, 4Division of Applied Clinical Research & Education, Dominion Diagnostics, LLC, North Kingstown, RI, USA, Igor Elman, 15Department Psychiatry, Cooper University School of Medicine, Camden, NJ, USA, David Baron, 3Department of Psychiatry and Behavioral Sciences, Keck Medicine University of Southern California, Los Angeles, CA, USA, Edward J Modestino, 14Department of Psychology, Curry College, Milton, MA, USA, Rajendra D Badgaiyan, 15Department Psychiatry, Cooper University School of Medicine, Camden, NJ, USA, Mark S Gold 16Department of Psychiatry, Washington University, St. Louis, MO, USA, “Our evolved unique pleasure circuit makes humans different from apes: Reconsideration of data derived from animal studies”, U.S. Department of Veterans Affairs, 28 February 2018, accessed: 19 August 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6446569/>] R.S.

**Pleasure** is not only one of the three primary reward functions but it also **defines reward.** As homeostasis explains the functions of only a limited number of rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding may be due to pleasure. This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards. Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and provides the **basis for hedonic theories** of reward function. We are attracted by most rewards and exert intense efforts to obtain them, just because they are enjoyable [10].

Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure [14].

Pleasure as a hallmark of reward is sufficient for defining a reward, but it may not be necessary. A reward may generate positive learning and approach behavior simply because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain’s pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals.

Evolutionary theories of pleasure: The love connection BO:D

Charles Darwin and other biological scientists that have examined the biological evolution and its basic principles found various mechanisms that steer behavior and biological development. Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us “what we are,” i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness; yet, we humans, as it seems, are ingenious in fooling ourselves and others–when we are in love or desperately search for it.

It is well established that modern biological theory conjectures that **organisms are** the **result of evolutionary competition.** In fact, Richard Dawkins stresses gene survival and propagation as the basic mechanism of life [20]. Only genes that lead to the fittest phenotype will make it. It is noteworthy that the phenotype is selected based on behavior that maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, the ultimate, distal function of rewards is to increase evolutionary fitness by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring.

Behavioral reward functions have evolved to help individuals to survive and propagate their genes. Apparently, people need to live well and long enough to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards, including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E Comings, as any small edge will ultimately result in evolutionary advantage [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests and not immediately available in the environment. Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see in everyday behavior. That is why foods, drinks, mates, and offspring are rewarding.

There have been theories linking pleasure as a required component of health benefits salutogenesis, (salugenesis). In essence, under these terms, pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys. Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the “Brain Reward Cascade” (BRC) endorphin and endogenous morphinergic mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health.

Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage.

Finding happiness is different between apes and humans

As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure.

Remarkably, there are pathways for ordinary liking and pleasure, which are limited in scope as described above in this commentary. However, there are **many brain regions**, often termed hot and cold spots, that significantly **modulate** (increase or decrease) our **pleasure or** even produce **the opposite** of pleasure— that is disgust and fear [39]. One specific region of the nucleus accumbens is organized like a computer keyboard, with particular stimulus triggers in rows— producing an increase and decrease of pleasure and disgust. Moreover, the cortex has unique roles in the cognitive evaluation of our feelings of pleasure [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered.

Desire and reward centers

It is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called “REWARD” involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation.

In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for motivation, behavior, emotions and the “Feel Good” response. This defined system of the brain is involved in all addictions –substance, and non –substance related. In 1995, our laboratory coined the term “Reward Deficiency Syndrome” (RDS) to describe genetic and epigenetic induced hypodopaminergia in the “Brain Reward Cascade” that contribute to addiction and compulsive behaviors [3,6,41].

Furthermore, ordinary “liking” of something, or pure pleasure, is represented by small regions mainly in the limbic system (old reptilian part of the brain). These may be part of larger neural circuits. In Latin, hedus is the term for “sweet”; and in Greek, hodone is the term for “pleasure.” Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42].

Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans.

In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: “liking,” “learning,” and “wanting” [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward, (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or “wanting” hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45].

Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic “high” that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Vanyukov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between “stages,” and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations.

Over many years the controversy of dopamine involvement in especially “pleasure” has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50]

In essence, although nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. Sousa et al. [50] small case found various differentially expressed genes, to associate with pleasure related systems. Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders.

In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: “Humans have evolved a dopamine system that is different than the one in chimpanzees.” This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar, Sestan said: “It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction).” Remarkably, this research finding emerged from an extensive, multicenter collaboration to compare the brains across several species. These researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys. Moreover, these investigators analyzed which genes were turned on or off in 16 regions of the brain. While the differences among species were subtle, **there was** a **remarkable contrast in** the **neocortices**, specifically in an area of the brain that is much more developed in humans than in chimpanzees. In fact, these researchers found that a gene called tyrosine hydroxylase (TH) for the enzyme, responsible for the production of dopamine, was expressed in the neocortex of humans, but not chimpanzees. As discussed earlier, dopamine is best known for its essential role within the brain’s reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson’s, schizophrenia and spectrum disorders such as autism and addiction or RDS.

Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter dopamine plays a substantial role in humans’ ability to pursue various rewards that are perhaps months or even years away in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible alterlife. This may explain what often motivates people to work for things that have no apparent short-term benefit [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shilting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual’s physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

#### 2] Actor spec—governments must use util because they don’t have intentions and are constantly dealing with tradeoffs—outweighs since different agents have different obligations—takes out calc indicts since they are empirically denied.

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

#### 4] Impact calc – extinction outweighs

#### A] Reversibility- it forecloses the alternative because we can’t improve society if we are all dead

#### B] Structural violence- death causes suffering because people can’t get access to resources and basic necessities

#### C] Objectivity- body count is the most objective way to calculate impacts because comparing suffering is unethical

#### D] Uncertainty- if we’re unsure about which interpretation of the world is true, we should preserve the world to keep debating about it

## 3

### Theory

#### Interp – the 1AC may not get offense external to the implementation of the Plan – simply reading the Aff or affirming a deconstruction of debate is not sufficient for an affirmative ballot

#### Resolved means a policy

Words and Phrases 64 Words and Phrases Permanent Edition. “Resolved”. 1964.

Definition of the word “resolve,” given by Webster is “to express an opinion or determination by resolution or vote; as ‘it was resolved by the legislature;” It is of similar force to the word “enact,” which is defined by Bouvier as meaning “to establish by law”.

#### Violation – If they go for offense external to the plans implementation including debate bad, form > content, HOM as an indict to the form of the da, etc

#### At best they’re Extra-T, which is a voter for Limits, or Effects-T which is worse, since any small aff can spill up to the res.

#### Prefer – 1] Presumption – All the Aff does is affirm an already existing movement by the masses and an ideological orientation that leads to no material action which isn’t a distinct differential form the Status Quo, 2] Clash – We can’t engage you because you’ll just no link all our Disads, Kritiks, turns etc. by re-interpreting the 1AC since you’re not tied to any one action – destroys ability for activism since activist K v K debates rely on debates over methodologies which the Aff decks, 3] Competitive equity – debate is a competitive game which loses meaning without substantive constraints- Everybody comes to debate for different reasons, but the fact that the other team is here and has presented a 1ac means they have bought into the game, and concedes the authority of fairness, or the judge should hack against you.

#### 5] Paradigm Issues –

#### a] Topicality is Drop the Debater – it’s a fundamental baseline for debate-ability.

#### b] Use Competing Interps – 1] Topicality is a yes/no question, you can’t be reasonably topical and 2] Reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation.

#### c] No RVI’s - 1] Forces the 1NC to go all-in on Theory which kills substance education, 2] Encourages Baiting since the 1AC will purposely be abusive, and 3] Illogical – you shouldn’t win for not being abusive

## Case

### 1NC – Presumption

#### Vote neg on presumption – they can’t solve the entirety of the patriarchy by doing the aff:

#### A) Nothing spills over – there’s no connection between the ballot and chancing people’s attitudes. You encourage more teams to read framework which turns your offense and prevents the alteration of mindsets.

#### B) No warrant for a ballot – the competitive nature of debate coopts any ethical value of advocating the aff – winning rounds only makes it look like they just want to win which proves framework and means advocating by losing is more effective.

#### C) Debate – none of their evidence is specific to it – sets a high threshold for solvency and ignores how communicative norms operate.

#### D) Voting aff doesn’t access social change, but voting neg resolves our procedural impacts.

Ritter ‘13 (JD from U Texas Law (Michael J., “Overcoming The Fiction of “Social Change Through Debate”: What’s To Learn from 2pac’s Changes?,” National Journal of Speech and Debate, Vol. 2, Issue 1)

The structure of competitive interscholastic debate renders any message communicated in a debate round virtually **incapable of creating any social change**, either in the debate community or in general society. And to the extent that the fiction of social change through debate can be proven or disproven through empirical studies or surveys, academics instead have analyzed debate with **nonapplicable** rhetorical **theory** that **fails to account for the unique aspects** of competitive interscholastic debate. Rather, the current debate relating to activism and competitive interscholastic debate concerns the following: “What is the best model to promote social change?” But a more fundamental question that must be addressed first is: **“Can debate cause social change?”** Despite over two decades of opportunity to conduct and publish empirical studies or surveys, academic proponents of the fiction that debate can create social change have chosen **not to prove this fundamental assumption**, which—as this article argues—is **merely a fiction** that is **harmful in** most, if not **all, respects**. The position that competitive interscholastic debate can create social change is more properly characterized as a **fiction** than an argument. A fiction is an invented or fabricated idea purporting to be factual but is **not provable** by any human senses or rational thinking capability or is unproven by valid statistical studies. An argument, most basically, consists of a claim and some support for why the claim is true. If the support for the claim is false or its relation to the claim is illogical, then we can deduce that the particular argument does not help in ascertaining whether the claim is true. Interscholastic competitive debate is premised upon the assumption that debate is argumentation. Because fictions are necessarily not true or cannot be proven true by any means of argumentation, the competitive interscholastic debate community should be **incredibly critical** of those fictions and adopt them only if they promote the activity and its purposes.

### 1NC – AT: Solvency

#### 1] The WTO can’t enforce the aff- causes circumvention.

Lamp 19 [Nicholas; Assistant Professor of Law at Queen’s University; “What Just Happened at the WTO? Everything You Need to Know, Brink News,” 12/16/19; <https://www.brinknews.com/what-just-happened-at-the-wto-everything-you-need-to-know/>] Justin

Nicolas Lamp: For the first time since the establishment of the WTO in 1995, the Appellate Body cannot accept any new appeals, and that has knock-on effects on the whole global trade dispute settlement system. When a member appeals a WTO panel report, it goes to the Appellate Body, but if there is no Appellate Body, it means that that panel report will not become binding and will not attain legal force.

The absence of the Appellate Body means that members can now effectively block the dispute settlement proceedings by what has been called appealing panel reports “into the void.”

The WTO panels will continue to function as normal. When a panel issues a report, it will normally be automatically adopted — unless it is appealed. And so, even though the panel is working, the respondent in a dispute now has the option of blocking the adoption of the panel’s report. It can, thereby, shield itself from the legal consequences of a report that finds that the member has acted inconsistently with its WTO obligations.

### 1NC – AT: Contention

#### Vaccine Hesitancy straight turns the Aff.

WZB 21 7-19-2021 "Vaccine Hesitancy Lower in Poorer Countries" <https://wzb.eu/en/news/vaccine-hesitancy-lower-in-poorer-countries> (Berlin Social Science Center)//Elmer

**People in low and middle income countries** **are more willing to get a COVID**-19 **vaccine** than people in richer countries, a new study reveals. The finding suggests that prioritizing vaccine distribution to these countries should yield high returns in expanding global immunization coverage. As vaccination campaigns to protect against COVID-19 continue, understanding and addressing hesitancy around vaccines is vital for ending the pandemic. The research provides one of the first insights into vaccine acceptance and hesitancy in **a broad selection** of low and middle income countries, including samples from Burkina Faso, Colombia, India, Mozambique, Nepal, Nigeria, Pakistan, Sierra Leone, and Uganda, as well as from the US and Russia. The study published by **an international research team** in Nature Medicine **shows willingness** to get a COVID-19 vaccine was considerably **higher in developing countries** (**80% of respondents)** **than in the U**nited **S**tates (65%) and Russia (30%), suggesting that prioritizing vaccine distribution to low and middle income countries, where it has lagged to date, should yield high returns in expanding global immunization coverage. Personal protection against COVID-19 was the main reason given for vaccine acceptance, and concern about side effects was the most common reason for vaccine hesitancy. Health workers are considered the most trusted sources of information about COVID-19 vaccines. “Expressed acceptance rates of COVID-19 vaccines in low and middle income countries is high and if translated to vaccine uptake many countries could control infections rates and reduce mortality to a considerable degree,” said Julio S. Solís Arce, research fellow at the WZB and study co-author. “The challenge now is to improve distribution of vaccines to the Global South. Failure to extend vaccination globally would increase the risk of new variants and further infections and deaths, for both richer and developing countries.” The researchers point out that vaccine acceptance may vary with time and the information that people have available to them. While the evidence on the safety and efficacy of available COVID-19 vaccines has become more clear in the last six months, severe, but rare, side effects may have undermined public confidence.

#### Gender oppression does not cause war, it’s the other way around

Joshua Goldstein, Int’l Rel Prof @ American U, 2001, War and Gender, p. 412

First, peace activists face a dilemma in thinking about causes of war and working for peace. Many peace scholars and activists support the approach, “if you want peace, work for justice.” Then, if one believes that sexism contributes to war one can work for gender justice specifically (perhaps among others) in order to pursue peace. This approach brings strategic allies to the peace movement (women, labor, minorities), but rests on the assumption that injustices cause war. The evidence in this book suggests that causality runs at least as strongly the other way. War is not a product of capitalism, imperialism, gender, innate aggression, or any other single cause, although all of these influence wars’ outbreaks and outcomes. Rather, war has in part fueled and sustained these and other injustices.9 So,”if you want peace, work for peace.” Indeed, if you want justice (gender and others), work for peace. Causality does not run just upward through the levels of analysis, from types of individuals, societies, and governments up to war. It runs downward too. Enloe suggests that changes in attitudes towards war and the military may be the most important way to “reverse women’s oppression.” The dilemma is that peace work focused on justice brings to the peace movement energy, allies, and moral grounding, yet, in light of this book’s evidence, the emphasis on injustice as the main cause of war seems to be empirically inadequate.

#### Feminism narrow the space for worldviews, creating “others.”

Caprioli 2 Mary, PhD Assistant Professor, University of Minnesota, Duluth. “Feminist IR Theory and Quantitative Methodology: A Critical Analysis,” International Studies Review, Vol. 6, No. 2, pp. 253-269. 2004

Contrary to the argument that conventional IR theory excludes feminist inquiry, space exists within the field of international relations for feminist inquiry even allowing for a state-centric focus, just as room exists for scholars interested in exploring the democratic peace and ethnonationalism. International relations feminists make the same mistake that they accuse IR scholars of making: narrowing the space for various worldviews, thereby creating competition and a sense of exclusion among the so-called others. If the role of "feminist theory is to explain women's subordination, or the unjustified asymmetry between women's and men's social and economic positions, and to seek prescriptions for ending it" (Tickner 2001:11), then feminist IR scholarship ought to allow for an explanation of how women's subordination or inequality has an impact on state behavior, assuming a statecentric focus, while at the same time challenging the predetermination of a structural analysis.

#### Homogenization of the concept of woman locks them into powerlessness. They just inverts power relations; it doesn’t resolve them

Mohanty, postcolonial and transnational feminist theorist, 1986 (Chandra Talpade, Under Western Eyes, http://blog.lib.umn.edu/raim0007/RaeSpot/under%20wstrn%20eyes.pdf)

What does this imply about the structure and functioning of power relations? The setting up of the commonality of third world women's struggles across classes and cultures against a general notion of oppression (primarily the group in power—i.e., men) necessitates the assumption of what Michel Foucault calls the "juridico-discursive" model of power," the principle features of which are: "a negative relation" (limit and lack); an "insistence on the rule" (which forms a binary system); a "cycle of prohibition"; the "logic of censorship"; and a "uniformity" of the apparatus functioning at different levels. Feminist discourse on the third world which assumes a homogeneous category—or group—called women necessarily operates through the setting up of originary power divisions. Power relations are structured in terms of a source of power and a cumulative reaction to power. Opposition is a generalized phenomenon created as a response to power—which, in turn, is possessed by certain groups of people. The major problem with such a definition of power is that it locks all revolutionary struggles into binary structures—possessing power versus being powerless. Women are powerless, unified groups. If the struggle for a just society is seen in terms of the move from powerless to powerful for women as a group, and this is the implication in feminist discourse which structures sexual difference in terms of the division between the sexes, then the new society would be structurally identical to the existing organization of power relations, constituting itself as a simple inversion of what exists. If relations of domination and exploitation are defined in terms of binary divisions—groups which dominate and groups which are dominated—surely the implication is that the accession to power of women as a group is sufficient to dismantle the existing organization of relations? But women as a group are not in some sense essentially superior or infallible. The crux of the problem lies in that initial assumption of women as a homogeneous group or category ("the oppressed"), a familiar assumption in Western radical and liberal feminisms."

#### Expansion of medical access is a form of settler colonial biomedical onslaught – humanitarian promotions of health proliferate genocidal assimilation.

Klausen 13, Jimmy Casas. "Reservations on hospitality: contact and vulnerability in Kant and indigenous action." Hospitality and World Politics. Palgrave Macmillan, London, 2013. 197-221. (Associate Professor in the Instituto de Relações Internacionais at the Pontifícia Universidade Católica do Rio de Janeiro)//Elmer

On the other hand and by contrast, the **governmental reach of public health initiatives** that would effect the improvement of isolated indigenous populations’ health **accords** with Kantian philanthropy – **with all the risks of violated freedom and smothered life** that entails. Public **health advocates** would **repair** the **disadvantaged morbidity profile of** isolated **indigenous groups through** a policy of initiating contact supported by the provision of modern **biomedical** health **care** services to ameliorate the epidemiological effects of contact. State-initiated contact without attendant health care has proved disastrous. Into the 1970s, FUNAI attempted to make friendly contact with isolated Indians. By relying on hired expert indigenous trackers, government contact expeditions located isolated groups and – demonstrating their interest in seeking commerce – enticed the latter with gifts of machetes and blankets. One FUNAI expedition to contact the Matis in 1978 resulted in high morbidity from pneumonia and other infectious diseases and killed one of every two Matis. 60 To correct such devastating policies, anthropologists Magdalena Hurtado, Kim Hill, Hillard Kaplan and Jane Lancaster have elaborated the following argument: Many anthropologists and indigenous-rights activists believe that uncontacted Indians should be left alone. These people are well-meaning, but they are wrong because they base their position on three incorrect assumptions. First, they assume that the Indians have chosen to remain isolated . . . . Those who oppose contact also assume that the Indians will inevitably be decimated by virgin-soil epidemics . . . . Finally, opponents of contact assume that isolated native groups will survive if not contacted. 61 However, even correcting for the fatal infelicities of past policy-driven, state-initiated contacts such as FUNAI’s, the preponderantly disadvantaged morbidity profile of such virgin-soil populations cannot be reduced by greater hospitality in the form of redoubled and more expert interventionary contacts. **Although public health efforts** like those advocated by Hurtado et al. **might reduce mortality**, highly **disease-vulnerable persons will still sicken** and will do so **through means that would pretend to foster life by actively disregarding how the people subject to these external machinations might** determine their own needs and **value their own health**. Isolated **indigenes’** biological **lives** would be **simultaneously fostered and risked**, while their free **personhood would count as nothing** morally–culturally. In short, there are serious political costs to be weighed in such an intervention. Because of – and not in spite of – their philanthropy, public health interventions of the type that Hurtado et al. advocate extend the reach of governmentality much more intrusively than land rights policies. Besides deciding on behalf of peoples in regard to the interpretation of their acts of self-quarantine, the advocated **public health policies surgically insert apparatuses of biomedicine directly into the contacted peoples’ living being**. Such policies thereby **displace** **indigenous norms of health and native cultural strategies** of living on with the norms and overall strategy embedded in the culture of scientific and clinical biomedicine. Though the pretence is that such acts demonstrate the hospitality of the wider national or global society, such health policy interventions cannot simply make a presentation for possible society; rather, qua philanthropy they initiate contact, which, because of the high degree of vulnerability of those contacted, must needs lead to the proliferation of contacts. It is not a hospitable policy of fostering life that Hurtado et al. support, not merely possible commerce but an obsessive philanthropy of biomedical life support and literally **unavoidable onslaught of commerce**, possibly forevermore. Most startlingly, such public health interventions presume as universal a standard of life that could certainly vary while retaining meaning and value. The anthropologist Tess Lea describes this universalising interventionary compulsion in withering words: When you are a helping bureau-professional, the **compulsion to** do something to **fix** the problems of **target populations** – those deemed as suffering from unequal and preventable conditions – exceeds all other impulses . . . . ‘They’ need our greater commitment. The idea that life might be lived differently with value and meaning or that ‘need’ might be conceived differently from the way in which we **calculate** it **through** our **interventionary lens**, becomes impossible to imagine. 62 Hurtado et al. assume that health professionals and policy makers must hospitably confer biomedically acquired immunity on heretofore isolated and now contacted virgin soil populations. Fostering indigenous lives by **imposing** an **alien conception of immunity**, they would inhospitably **destroy alternate strategies of living on**. Seeing through their interventionary lens, Hurtado et al. themselves become arbiters of successful and unsuccessful forms of life: they presume that self-quarantine cannot itself serve as an effective cultural strategy to immunise living bodies. Thus, ironically perhaps, these anthropologists choose biology above culture by seeing each from a standpoint authorised by the culture of biomedicine. From their interventionary lens and against Canguilhem’s admonition above, self-quarantine appears to be a failed strategy for living on because the immunity it would confer is imperfect or incomplete. Likewise, condoning self-isolation is imperfect or incomplete hospitality as against their more perfect interventionary hospitality in the name of life. Authorising themselves to make these judgements, they enact an altogether different collapse of morality into nature than the Kantian collapse I reconstruct above. Whereas Kant’s collapse of minimalism into abstentionism and moral duty into nature’s constraints opens hospitality and therefore strategies for living on, this other collapse binds moralising conceptions of ‘health’ to the biomedically conceived body. Yet if, according to Canguilhem, for humans especially, ‘health is precisely a certain latitude, a certain play in the norms of life and behavior’, 63 then it seems that the ‘**health’ that supposedly hospitable**, though strictly philanthropic, ‘life’-fostering interventionary contact **would impose** on the exuberance of self-quarantining **indigenous peoples** is **a sickness unto** that other perpetual peace Kant mentions: **death**.

#### Biomedicine itself is invested in colonial exploitation through testing done on indigenous communities to biopiracy and stealing indigenous knowledge.

Lift Mode 17 3-10-2017 "Pharmaceutical Colonialism” <https://medium.com/@liftmode/pharmaceutical-colonialism-3-ways-that-western-medicine-takes-from-indigenous-communities-3a9339b4f24f> (We at Liftmode.com are a team of professionals from a variety of backgrounds, dedicated to the mission of providing the highest quality and highest purity nutritional health supplements on the market. We look specifically for the latest and most promising research in the fields of cognition enhancement, neuroscience and alternative health supplements, and develop commercial strategies to bring these technologies to the marketplace.)//Elmer

Does **modern medicine take from rural communities**? At first, this seems outrageous. However, on closer inspection, we find three main methods of poaching: **stealing indigenous knowledge**, ‘**biopiracy’**, and the sale of pharmaceuticals at exorbitant prices. Another example includes **using** **developing countries** and rural populations **as test subjects in unethical clinical trials** — for example on **AIDS patients in South Africa**.[1] This article examines three methods that Western medicine takes from rural communities. We also examine the emerging new forms of medicine and how many people are beginning to appreciate the medical knowledge of different cultures around the world. Traditional knowledge and culture is threatened by the expansive natural of the pharmaceutical industry 1. Pharmaceutical colonialism: Stealing Indigenous Knowledge First and foremost, what has been taken from indigenous communities for the last roughly 600 years is traditional knowledge about medicinal plants. It is interesting that the **major advancements in Western medicine** **coincide** very closely **to escalating global colonialism** by Western countries. It’s difficult to estimate the exact percentage of **modern drugs** that were **originally based on traditional plant sources**, because of the complex evolution of Western laboratory-made medicine. However, this percentage is known to be very high. In fact, a 2006 paper by Dr. A Gurib-Fakim states: “Natural products and their derivatives represent **more than 50%** of all the drugs in clinical use in the world. Higher plants contribute no less than 25% of the total.”[2] The extent to which traditional knowledge permeates through Western medicine is too broad to explain fully in a small article like this. We’d need to write an entire book to cover the full content! So, we will just take a look at one example below. How the West takes Indigenous knowledge: **Anti-Malaria Drugs** Mosquitoes are, by far, the world’s most dangerous animals, spreading a number of diseases including Dengue fever, Zika virus, and malaria. According to the World Health Organization, nearly half of the world’s population is at risk of malaria. In 2015, over 210 million people became infected with malaria, and a staggering 429 000 people died from the blood parasite.[3] To combat the infectious disease, scientists have developed two major classes of anti-malarial drugs. These are both based on indigenous knowledge of plant medicine: Mosquitos kill more people than any other animal every year 1. Quinine Quinine is extracted from the bark of the cinchona tree, native to South America. Contrary to propaganda by the Spanish inquisitors, which is still used in modern medicine today, Westerners did not ‘discover’ the cinchona tree. Indigenous Peruvian cultures had been using the bark of the cinchona tree for hundreds, possibly thousands, of years before the arrival of the colonial forces from the North. They crushed it up and mixed it with water to ‘relieve shivering’ — a major sign of the feverish symptoms of malaria.[4] Unlike traditional Chinese knowledge, which has survived until modern times, the ancient knowledge of South America cultures was almost completely destroyed by colonial forces. This makes tracing the historical use of the cinchona tree more difficult.[5] After the inquisition of most traditional cultures in South America, the cinchona bark was brought back to Western Europe and was hailed as one of the most exciting discoveries of modern medicine. The success of cinchona bark in Europe created a massive industry, initially run by the Spanish, but which was later overtaken by French and English industrialists.[6] It’s important to know that the ‘traditional’ use of cinchona bark in 18th century Europe was in exactly the same method as its original use in indigenous societies: crushing up the barking and mixing it with water. The chemical compound quinine was first extracted from cinchona bark in 1820 by two Frenchmen: Pierre Joseph Pelletier and Joseph Caventou. This allowed purified quinine to replace traditional cinchona extracts.[7] Interestingly, Western scientists have since discovered that cinchona bark actually contains several active components, which function in a synergistic relationship to kill the malaria parasite.[8] In modern times, a number of quinine-based drugs have been developed, with varying success. The issue becomes complex here because, while these drugs were developed by Western scientists using modern technological laboratories, if it hadn’t been for the original indigenous knowledge, these compounds could not have been developed at all. The quinine derivatives include Chloroquine, Pyrimethamine, and Mefloquine. Chloroquine was used as a spray along with DDT in the WHO’s malaria eradication plan (the efficacy and usefulness of this are still under debate: numerous countries that were sprayed with these chemicals soon developed strains of malaria that were resistant to the drugs).[9] 60411828 - workers are fogging for dengue control. mosquito borne diseases of zika virus. Quinine-based drugs were used in sprays to combat malaria around the world 2. Artemisinin **Artemisinin** is an active compound found in traditional Chinese medicine called Qinghao Su (sweet wormwood). This traditional Chinese medicine has been **used to treat fevers** for over a thousand years. It is currently still extracted from plant sources, the majority of which are grown in China, Vietnam and East Africa. Once the full-grown plants are harvested, the chemical is extracted, leaving the pure artemisinin at a highly variable market price of between $120 — $1200 per kilogram.[10] It’s interesting that the artemisinin-based drug combinations (ACTs) are the most expensive anti-malarial treatments available. This is despite the fact that it is one of the few malarial medications that are still mostly plant-based. However, **Western pharmaceutical** companies are now **developing synthetic** forms of **artemisinin**. The new forms of artemsinin are genetically engineered and have intellectual property rights attached, potentially bringing in big revenues for the companies involved. The proponents of the synthetic form of artemisinin claim that the synthetic form will be able to be sold for cheaper than the natural form. However, the average import price of natural artemsisin to India over the last ten years was around $370 per kilo — a fair amount cheaper than the price that the pharmaceutical companies are pushing for.[11] **Artemisinin farming** **sustains** the **livelihoods of** an estimated **100’000 farmers.** With **synthetic derivatives** being developed this **puts** the **livelihoods** of the farmers and their families **at risk of poverty** (estimated to be around 3–5 times the number of people as the farmers themselves).[12] The ironic and disturbing thing about the whole situation is that the artemisinin farmers themselves are the ones who are most at risk of contracting malaria. In effect, they stand to not only have their incomes stripped by Western pharmaceutical companies but also to become physically dependent on the products of those very companies. [13] 16118463 - portrait of a burmese woman with thanaka powdered face working in farm Farmers livelihoods are threatened by the use of synthetic chemicals 2. ‘**Biopiracy’** — **stealing natural resources and plants** The idea that modern medicine might be a form of colonialism seems at first to be quite outrageous! However, on closer inspection, it’s quite clear that a few nations continue to play the role of ‘missionary’, helping to save people in the ‘developing world’.[14] In some cases, though, the role of the ‘missionary’ becomes a little less clear. The second way that Western medicine takes from indigenous communities is something called ‘Biopiracy’. This is similar to the method we described above, however, in this case, what is taken is not knowledge but the actual plants and resources themselves. In biopiracy actions, plants and natural resources are stolen entirely from indigenous communities and are then used to develop drugs and medicines in the West. The indigenous communities benefit nothing from the theft of their resources. **Medicines** developed from **stolen** materials **are** often **sold back** to the very people from whom the original plant-sources were stolen — **at exorbitant prices**. Examples of medications that face biopiracy charges include: A **drug for diabetes developed** in the UK **from a Libyan plant**, Artemisia judaica A medicine for **immunosuppression** developed by GlaxoSmithKline which is **derived from** a **chemical found in termite hills** in Gambia An HIV treatment taken from bacteria found in central Uganda Antibiotic drugs developed from amoebas found in Mauritius and Venezuela Anti-diarrhea vaccines developed from Egyptian bacteria [15] According to Beth Burrows, president of Washington-based Edmond’s Institute: “Times have changed. It is no longer acceptable for the great white explorer to trawl across Africa or South America taking what they want for their own commercial benefit. It is no more than a new form of colonial pillaging. As there are internationally recognized rights for oil, so there should be for indigenous plants and knowledge.”[16] In an ideal world, knowledge and resources would be shared equitably. Both the indigenous cultures and the modern world would benefit from the sharing of knowledge and medicinal plants, which could leave the world a much better place. However, this is not the case in today’s world. More and more, we see evidence of **pharmaceutical companies using rural communities as customers and guinea-pigs for medicine** that was originally sourced from local knowledge.[17] Traditional medicine is pushed off the market and indigenous knowledge is ‘dumbed down’ through development programs. This forces the majority of the world to have to work through cartel-like pharmaceutical corporations who extract unbelievably large sums of money from people, which we’ll look at below.[18] 21736635 - shanty house in bangkok water canals along the river bank, thailand Those who benefit the least from pharmaceutical colonialism are the ones who need healthcare the most