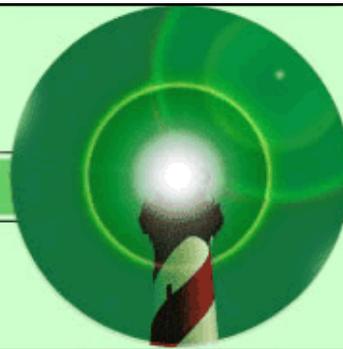


BEACON

a conference for Student Scholars

MONTGOMERY COLLEGE



'09

at Two-Year Colleges

JUNE 5, 2009



Conference Proceedings

***A Conference for Student Scholars
at Two-year Colleges***

Funded by a Coalition of Two-year Colleges



Montgomery College
Charlene R. Nunley Student Services Building
7600 Takoma Park, Takoma Park, MD 20912
www.beaconconference.org



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Introduction

The Beacon Conference is an annual conference that acknowledges the achievements of two-year college students in research, writing, and speaking. Sponsored by a coalition of member colleges, the conference showcases the work of students who have been mentored by faculty in a range of academic discipline categories.

After being evaluated by a panel of three readers from the member institutions, the top four students in each category are invited to the conference which is held on the first Friday in June. The three top ranked students in each category present their papers on a panel in their discipline. The fourth ranked students in each category present their research during the poster session. Presentations are judged on originality, quality of research, written work, and oral presentation. The panel judge for each discipline chooses the outstanding student participant. The conference closes with a ceremony recognizing the student winners of each panel and their faculty mentors and each receives a \$100 prize.

Faculty from Beacon Conference member colleges are also involved in the conference by volunteering to be a readers to select the panel finalists, recommending faculty from four year colleges who would be willing to serve as judges, and serving as panel moderators on the day of the conference.

Additional information is available at <http://www.beaconconference.org>.

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Erie Community College

Frederick Community College

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Their gifts of time, monies and in-kind items have contributed to the success of Beacon 09. We greatly appreciate their generosity.

Beacon Conference 2009 Planning Committee:

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Dr. Carole Wolin

Overview of Panels

Session I: International Studies/Globalization

Readers: Michael McCoy, Orange County Community College
Beatrice Ekinde-Epwene, Lehigh Carbon Community College
David Beisel, Rockland Community College

Judge: Michelle Egan, Ph.D.
Associate Professor
Coordinator, European and Russian Studies Program
Faculty Advisor, European Studies Certificate
American University

Moderator: Dr. Nathan N. Zook

Presenters: Crystel Britto
“Water Wars: Forecasting International Thirst”
Mentor: Dr. Aram Hessami, Montgomery College

Javier Pena
“Rising Crescent: The Ascent of a Radical Muslim Identity in Western Europe”
Mentor: Dr. Aram Hessami and Professor Shweta Sen, Montgomery College

William Plum
“How Johnny Got His Gun: the Growth of the Global Weapons Market and its Effects”
Mentor: Dr. Aram Hessami, Montgomery College

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Montgomery College, Rockville Campus

Session I: Literature I – Shakespeare

Readers: Joanne Gabel, Reading Area Community College
Caroline Kelly, Bergen Community College
Amy Zebrowski, Northampton Community College

Judge: John Andrews, Ph.D.
President, The Shakespeare Guild
Executive Director, The English Speaking Union

Moderator: Professor Joan Naake

Presenters: Christina Autiero
“Shakespeare’s Paradox of Honor: Prince Hamlet and Othello the Moor”
Mentor: Dr. Nancy Hazelton, Rockland Community College

Patrick John Bergquist
“Diabolical Evil in Othello and Madame Bovary”
Mentor: Dr. Elaine Toia, Rockland Community College

Maria Cecilia Vila Chave
“Measure for Measure and Othello: Clothing vs Personality Disguise”
Mentor: Dr. Nancy Hazelton, Rockland Community College

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Montgomery College, Rockville Campus

Session I: Gender Studies

Readers: Canelle Bower, Reading Area Community College
Martha Sullivan, Lehigh Carbon Community College
Elaine Olaoye, Brookdale Community College

Judge: Rebecca Reviere, Ph.D.
Professor and Graduate Program Chair
Department of Sociology and Anthropology
Howard University

Moderator: Professor Deb Taylor

Presenters: Estefany Carrillo
“From Marginalization to Empowerment: Microfinancing – The Missing Link for Women”
Mentor: Shweta Sen, Montgomery College

Rachel Hirshfeld
“The Stories of Catherine Sloper, Lily Bart and Lucy Honeychurch: Three Journeys Toward Self-Realization”
Mentor: Dr. Elaine Toia, Rockland Community College

Meg Lambert
“An American Cultural History of Menstruation”
Mentor: Genevieve Carminati, Montgomery College

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Business, Science, Mathematics and Technology/Honors Program
Montgomery College, Germantown Campus

Session I: Mathematics and Science

Readers: Nelda Latham, Bergen Community College
Greg Liano, Brookdale Community College
Sharon Lee-Bond, Northampton Community College

Judge: Professor Angela Walters
Associate Professor, Astronautical Engineering
Capitol College

Moderator: Professor John Hamman

Presenters: Angelene Elliott
“Chemistry of Curcumin and New Synthetic Analogues”
Mentor: D. Dewprashad, Borough of Manhattan Community College

Ken Hart
“Black Bear Hunting, Helpful or Harmful? What the Statistics Say”
Mentor: Wayne Moreau, Northampton Community College

Martha Molinini
“Dark Matter and the Criteria of Adequacy”
Mentor: Neil Schiller, Ocean County College

Panel Sponsor:

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Science, Engineering and Mathematics
Montgomery College, Rockville Campus

Session I: Education

Readers: Raj Kumari-Wesley, Brookdale Community College
Cecelia Connelly-Weiba, Lehigh Carbon Community College
Ji-Hyun Kim, Rockland Community College

Judge: Norma Tilden, Ph.D.
Department of English
Director of the Georgetown University Writing Program
Georgetown University

Moderator: Professor Sonja Fisher

Presenters: Charissa D. Eagy
“When Math and Humans Collide: Teaching Algebra Effectively to Help Students Succeed”
Mentor: Richard Wilan, Northern Virginia Community College

Stacey McKee
“Case Study: Does More Inclusion Mean More Education for Students with Disabilities?”
Mentor: Nancy Moreau, Northampton Community College

John Sherman
“NCLB and Dewey’s Virtues of Intelligence”
Mentor: Dwight Goodyear, Westchester Community College

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Session II: The Arts

Readers: Anthony Cruz, Orange County Community College
Jennifer Kaufman, Ulster County Community College
Christine Szymczak, Erie Community College

Judge: Nancy Petrisko
Arts Consultant and Adjunct Faculty in Arts Mangement
American University

Moderator: Professor Mary Staley

Presenters: Joshua Diaz
“The Journey of Paper to Origami”
Mentor: Bette Petrides, Montgomery College

Claire Kalala
“One, Two, Hip Hop, and You Don’t Stop: C-Block, Strongy, and A Black Atlantic Hip Hop”
Mentor: Dawn Avery, Montgomery College

Maegan R. Nevins
“An Exploration of Select Landscapes Created by Salvador Dali, Vincent Van Gogh and Paul Cezanne”
Mentor: Nancy Hazelton, Rockland Community College

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Montgomery College, Rockville Campus

Session II: Literature – World Literature

Readers: Melissa Browne, Orange County Community College
Linda Novak, Lehigh Carbon Community College
Melissa Adams, Reading Area Community College

Judge: Marcela Sulak, Ph.D.
Assistant Professor of Literature
American University

Moderator: Dr. Francine Jamin

Presenters: Justyna Broda
“Houyhnhnmland and El Dorado: No Utopias for Mankind”
Mentor: Dr. Dorothy Altman, Bergen Community College

Nadia ElFallah
“The Significance of Praise Names and Epithets in Literary Epics”
Mentor: Joan Naake, Montgomery College

Cody Schlaff
“The Power of Fate in Sophocles’ Oedipus Rex and Mann’s Death in Venice”
Mentor: Dr. Elaine Toia, Rockland Community College

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Session II: Social Justice

Readers: Jack Gasper, Lehigh Carbon Community College
Christine Armstrong, Northampton Community College
Mark Altschuler, Bergen Community College

Judge: Joseph Eldridge, D.D.
Chaplin
American University

Moderator: Dr. Alessandra Sagasti

Presenters: Theresa Brush
“The Prey of Pharmaceutical Experimentation: Clinical Drug Testing on the World’s Poor”
Mentor: Shweta Sen, Montgomery College

Jon Carlson
“Inequality, Innovation and the Free Market”
Mentor: Dr. Donna Singleton, Reading Area Community College

Emily Thron
“Stripped to the Bone: The Science and Ethics of the Bodies Exhibit”
Mentor: Shweta Sen, Montgomery College

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Session II: History

Readers: Jeffrey Ewen, Lehigh Carbon Community College
William Whyte, Northampton Community College
Alexander d'Erizans, Borough of Manhattan Community College

Judge: Hoda Zaki, Ph.D.
Co-Director of the African American Studies Program
Department of History and Political Science
Hood College

Moderator: Dr. Leigh Fought

Presenters: Stacy Anker
"The Vikings in England and Scotland: Raids, Trading, and Settlements during the Medieval Period"
Mentor: B. Jo Stokes, Westchester Community College

Ibrahim Baig
"Archibald Roosevelt: The Road to Samarkand"
Mentor: Dr. Sandra Maley, Montgomery College

William Law
"The Falklands War of 1982: Historical Reasons, Political Benefits"
Mentor: Mary Zimmerman, Northern Virginia Community College

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Session II: Natural and Physical Sciences

Readers: Isabella Cardenas, Rockland Community College
Robert Collis, Westchester Community College
Burl Yearwood, LaGuardia Community College

Judge: Richard Thorington Ph.D.
Curator of Mammals, National Museum of Natural History
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Moderator: Dr. James Smith

Presenters: Brian Barrett
“The Evolutionary Significance of the Thyroid Gland”
Mentor: Dr. Carole Wolin, Montgomery College

Joy Liang
“Green Revolution Technology: A Cornucopia or a Pandora’s Box?”
Mentor: Shweta Sen, Montgomery College

Wendolyn Quintanilla Sandoval
“The Role of the Amyloid Beta Protein and Apolipoprotein E4 in the Pathogenesis of Alzheimer’s Disease and the Possible Relationship to Cardiovascular Disease”
Mentor: Dr. Carole Wolin, Montgomery College

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Session III: Allied Health and Nursing

Readers: Dale Crispell, Rockland Community College
Maria Gellin, Erie Community College
Darlene Walsh, Orange County Community College

Judge: Robert E. Burke, Ph.D.
Professor and Chair
Department of Health Services Management and Leadership
School of Public Health and Health Services
George Washington University

Moderator: Professor Dianna Matthews

Presenters: Petra Dorfsman
“The Flip-side of a Medical Miracle Drug”
Mentor: Richard Rodriguez, Westchester Community College

Samantha Elise Moorman
“Patent Pandemonium: Intellectual Property Rights, The Pharmaceutical Industry and the Health of Developing Nations”
Mentor: Shweta Sen, Montgomery College

Michael F. Tondo
“Bioenergetic Medicines: East and West; Thinking Outside the Box in Terms of Healthcare and Globalization”
Mentor: Dr. Aram Hessami, Montgomery College

Panel Sponsor:
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Business, Information Technology and Safety
Workforce Development and Continuing Education
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Session III: Literature III – American and British Literature

Readers: Cara McClintock-Walsh, Northampton Community College
Elise Martucci, Westchester Community College
Mary Warrener, Orange County Community College

Judge: Professor Bradford Haas
Director, Honors Program
Columbia Union College

Moderator: Dr. Rita Kranidis

Presenters: Dawn Gieringer
“Seeing the Light in Heart of Darkness by Joseph Conrad”
Mentor: Dr. Joanne Gabel, Reading Area Community College

William Kreutinger
“Fraternal Struggle: Masonic Duality in Poe’s A Cask of Amontillado”
Mentor: Aaron Thomas, Erie Community College

Beth Uhlmann
“An Analysis of the Intellectual Antecedents of the Tyronne Family in O’Neill’s Long Day’s Journey into Night”
Mentor: Geoffrey J. Sadock, Bergen Community College

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Montgomery College, Rockville Campus

Session III: Communication

Readers: Katie Lever-Mazutto, Western Connecticut State
Laura Gage, Reading Area Community College
David Leight, Reading Area Community College

Judge: Professor Caroline Harper
Coordinator, Undergraduate Program at Shady Grove
University of Maryland

Moderator: Professor Rose Piskapas

Presenters: Holly Berardi
“A Deeper Look into Negative Campaigning”
Mentor: David Rothman, Montgomery College

Hal A. Limebeer
“Myth Tellers/Myth Makers: Advertising and Mythology”
Mentor: Sabrina Caine, Erie Community College

Samantha Plumlee
“The Growth of Film and Techniques Throughout History”
Mentor: Dr. Nancy Hazelton, Rockland Community College

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Jessica Datema, Bergen Community College

Judge: Michael Taber, Ph.D.
Director, Honors Program
Department of Philosophy and Religious Studies
St. Mary's College of Maryland

Moderator: Dr. William Soderberg

Presenters: Renee Campolongo
"Plato, Freire, and Bacon: Education Philosophy in the 21st Century"
Mentor: Dr. Elaine Toia, Rockland Community College

John E. Daniel
"Should the Government Require HPV Vaccination of Girls aged 11 to 12 to Prevent Cervical Cancer?"
Mentor: Tulin Levitas, Montgomery College

Urban Eisen-Miller
"I would prefer not to ' Conformity and Rebellion in Literature"
Mentor: Ian Blake Newman, Rockland Community College

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Applied Technologies and Gudelsky Institute for Technical Education
Montgomery College, Rockville Campus

Session III: Social Sciences

Readers: Jessica Eckstein, Western Connecticut State
Diane Glynn, Brookdale Community College
Donna Singleton, Reading Area Community College

Judge: Tariqah Nuriddin, Ph. D.
Assistant Professor, Medical Sociology, Gerontology,
Health Disparities, and Race, Class and Gender
Howard University

Moderator: Dr. Benedict Ngala

Presenters: Joseph Dunnigan
“La Cosa Nostra in America: A Research Paper”
Mentor: Dr. Miho Iwazaki, Ulster County Community College

Ronald Makawa
“A Study of Burmeze Monks and Deviance”
Mentor: Dr. Charlotte Twombly, Montgomery College

Thomas Quinn
“Peers and Parents: The Role of Horizontal and Vertical Learning in Chimpanzee Populations”
Mentor: Cory Harris, Orange County Community College

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The winning student paper for each discipline category is reproduced in the proceedings as it was submitted to the 2009 Beacon Conference.

How Johnny Got His Gun: The Growth of the Global Weapons Market and Its Effects

~William Plum

All was quiet in Mumbai, India on Wednesday November 27th 2008. It seemed like another ordinary day in the capital of Maharashtra. At around 9:21 pm, two young men opened fire on bystanders in Chhatrapati Shivaji Terminus, Mumbai's main railway station. At about 9:30 pm, gunmen attacked the Leopold Café and Bar, one of the city's best known tourist restaurants, leading only to more chaos in Mumbai. From 9:30 to 10:00 pm, gunmen consecutively attacked popular sites in Mumbai, including: Nariman House, Taj Mahal Hotel, Oberoi Hotel, and the previously mentioned sites. For the next three days, chaos rules the city of Mumbai, leading to the death of at least 174 people and the injuries of many more (Press).

Miles away in West Africa, children in Sierra Leone are often recruited into the Revolutionary United Front (RUF). These children are given an AK-47 and are taught to hate and to kill. To maximize their killing effectiveness, they are often given a mixture of cocaine and amphetamines the night before the attacks. These attacks are called "mayhem days," and are described as "endless hours when they [child soldiers] would rampage through countryside, killing, mutilating, raping, and pillaging until they collapse from fatigue and hunger" (Farah and Braun 73). Between 1991 and 1998, United States weapons and training deliveries to Africa totaled more than \$227 million, and U.S. military aid to seven African nations involved in the Democratic Republic of Congo (DRC) totaled \$125 million (Farah and Braun). These transfers, combined with the independent gunrunners, have led to a high level of weapons proliferation in Africa.

The global weapons market armed the terrorists and the children of the RUF with their assault rifles, primarily the AK -47 – a weapon designed by Russians and now produced in Bulgaria, China, Cuba, East Germany, Egypt, Hungary, India, North Korea, Poland, Romania, Slovenia, Turkey, and Yugoslavia (Cukier and Sidel 78). Globalization has empowered individuals to acquire firearms with greater ease. The global weapons market increases the gap between developed states and developing states, an inequality that has resulted in profit for some and destruction for others. This new globalized world has also blurred the line that separates the economic from the political aspect of the arms trade.

Almost one hundred countries are currently involved in some manner of firearm manufacturing. International arms transfer agreements amounted to about \$37 billion in 2004. The top five arms exporters were responsible for 86.8% of this arms transfer agreements. This was the largest total since 2000, topping the sum of \$28.5 billion from 2003 (Stohl 1). Most of the production takes place in the United States, Russia, China, the United Kingdom, and France (Cukier and Sidel 7). These countries are also the five permanent members of the UN Security Council. How much security can be expected when it is these very who are leading the production of weapons that often become illicit in the global market? Thus the countries that compose the closest entity that we have today to a global Leviathan, the United Nations, are indirectly supplying the world with the weapons that are responsible for the death of billions. According to the Small Arms Survey conducted by the Graduate Institute of International Studies, the U.S. alone profited an estimated \$2.39 billion on gun exports in 2000 (Cukier and Sidel 74). In 2004, the United States alone was accountable for more than 50% of arms deliveries, of which \$9.6 billion went to developing nations (Stohl 1). Thus, it is no surprise that American weapons have gone global.

According to the Bureau of Alcohol, Tobacco, and Firearms (BATF), the United States has more than 1,700 firearms manufacturers. In 2003, manufacturers sold over 1 million handguns and more than 2 million rifles and shotguns (Cukier and Sidel 74). Most of these weapons end up in the hands of civilians, rather than the military or police force – a reality with national and international repercussions.

The detrimental effects of this current state of massive weapons proliferation are undisputable. Globally, there are estimates of 200,000 deaths that occur due to homicide, suicide, and accidents, all with firearm use. This number increases dramatically if military conflicts are considered, and of course, many civilian casualties often occur during such military conflicts. In fact, the International Committee of the Red Cross (ICRC) conservatively estimates that more than 35% of casualties that occur during a conflict are civilian (Cukier and Sidel 4). It is no wonder that the arms trade is also being examined as a health issue. In 1996, the World Health Organization labeled violence a pandemic. The same year the ICRC stated, “Weapons are bad for people’s health,” and, “health professionals have been slow to recognize that the effects of weapons are, by design, a health issue, and moreover constitute a global epidemic mostly affecting civilians” (Cukier and Sidel 4). If violence is a pandemic, a disease, one must explore the root of the problem - what caused the increased availability of weapons in the global market.

The root of the problem can be traced to the end of the Cold War. The collapse of the Soviet Union created a power vacuum within the global weapons market, and this power lost by the Soviet Union was gained by the United States and other nongovernmental organizations. To fill this power vacuum the United States came in and allowed economic profits rather than maintaining good foreign relations to dictate its transfer of arms. This power shift, along with the ineffectiveness of the United Nations, is the cause of the unprecedented level of weapons proliferation witnessed today.

It is clear that during the Cold War era, both the U.S. and the Soviet Union were supplying their allies. Both were using arms transfers as a means to tip the balance of power in a bilateral world, and not for monetary profit. During this period, the U.S. made surplus military equipment available to its NATO allies. The Soviets also made weapons available to their allies through the Warsaw Pact. According to William Keller and Janne Nolan, authors of *The Arms Trade: Business as Usual?*, the Cold War “was a time when geopolitical calculations drove the arms trade” (114). During this period, arms trade with countries involved in the Cold War was primarily driven not by economic, but by foreign policy considerations. Rather, any economic benefits were a mere result of these efforts to influence other nations. Ron Smith, an economist during the Cold War, stated, “a variety of considerations suggest that in the current competitive climate the return [from exporting arms] to the country as a whole may be small or negative” (241). Thus, the weapons transfers during the Cold War were not primarily for monetary gain. He also elaborates on how government subsidies for domestic producers and the recipient’s desire to diversify supply leads to a market with excess supply from many high cost producers. He concludes his point by stating, “in purely commercial terms it [exporting arms] is a risky and unattractive market” (242). During the Cold War, the invisible hand of capitalism was not the driving force behind weapons exports to allied nations.

The end of the Cold War changed the arms market. Of great significance was that Russia lost its place within the realm of arms export. William Keller, the executive director of the Center for International Studies at MIT, and Janne Nolan, a senior fellow at the Brookings Institution, stated, “As the Cold War wound down, the Russians lost their foothold in the international arms trade” (116). The values of Russian arms exports diminished greatly, from \$29.9 billion in 1987 to \$2.7 billion in 1992. This was in large part due to the formation of newly independent and consequently less cooperative nation-states, which disrupted the military

production of the former Soviet Union (Keller and Nolan 116). At the same time, economic competition in the weapons market was rising. Keller and Nolan stated that Western powers began to view the arms trade as “a critical profit center” (116). The fall of the Soviet Union also placed the weapons market within the market realm of other simple commodities, “With the weakening of ideological and national identities associated with the Cold War, the development, production, and marketing of advanced conventional weapons began to resemble other sectors of the international economy” (Keller and Nolan 120).

The end of the Cold War also led to the creation of a unipolar world with the United States as the sole superpower. During the bipolar world during the Cold War, both world powers were supplying allies rather than making a monetary gain. Both super powers were constantly monitoring one another, in effect balancing each other out. Thus, with the fall of the Soviet Union, the U.S. was able to sell weapons unchecked by another state of comparable power. Consequently, compared to today, the arms market during the bipolar state of the world was characterized by a higher level of stability.

The collapse of the Soviet Union resulted in the emergence of fifteen new states. These states were not capable of filling the power void left by the Soviet Union in the weapons market. Each of the new nations had other issues and threats to deal with at the time. The Thomas J. Watson Jr. Institute for International Studies at Brown University conducted a project titled “Integration and Disintegration in the Former Soviet Union: Implications for Regional and Global Security”, in which researchers worked closely with experts from former Soviet satellite countries to explore security within these newly independent nations. According to the research, the Ukraine, along with many of the new states, was worried about its economy. The Ukraine also wanted to integrate fully into Europe: “Most Ukrainian security elites believe that Ukraine, unlike Russia, has historically belonged to ‘Europe.’ Therefore, its foreign policy should

gradually be oriented toward rejoining the West” (Hopmann, Shenfield, and Arel 15). Belarus on the other hand feared the threat of becoming a frontline state in a newly divided Europe due to its location (Hopmann, Shenfield, and Arel 15). Thus, the newly developed countries had other issues of diplomatic relations to deal with. They did not have the time or the means to absorb the power in arms trade lost by the Soviet Union. In absence of this power, the United States stepped in and filled the gap.

Even during Cold War era, the U.S. began displaying its power and influence in the arms trade by supplying weapons to Latin America for monetary reasons. Latin America was not part of NATO and did not need the weapons as a means of protecting the West.

In 1973, President Nixon waived statutory restrictions on the sale of “sophisticated” military equipment to Latin America. This was done in order to provide Argentina, Brazil, Colombia, Venezuela, and Chile with F-5E fighters (Klare 3). Thus, while letting foreign policy dictate the sales of weapons when it came to supplying allies during the Cold War, the U.S. was also selling to Latin America to boost their economy. These countries were not engaged in wars and did not need sophisticated military equipment. When questioned about accelerating military sales to the Third World, Deputy Secretary of Defense William Clements acknowledged that it was “first, to help reduce America’s mounting balance-of-payment deficit; second, to insure full production (and this full employment) in the aerospace industry, and third, to extend the production run of US weapons and this diminish the price the Pentagon pays for its own military hardware” (Klare 4). Clements believed that any restriction on US arms export “decreases the potential contribution of sales to strengthening both free world security and the U.S. economy and balance-of-payments position” (Klare 4).

It is possible that the increased sales to Latin America were indeed to replace the losses of the transfers that proved less economically beneficial. While the arms trade proved beneficial

to the U.S. economy, it was questionable in the sphere of foreign relations. Thus this one event of weapons sales to Latin America was a foreshadowing of the current condition of arms trade. The condition that prioritizes economic profits as much as, if not more, than gains in diplomatic relations. Yet this episode in Latin America was only the beginning. Most other sales of military weapons during the Cold War were to supply allies in case the Cold War became hot. This ambiguous sale of arms to Latin America was proof that the U.S. could fill the vacuum left in the market due to the fall of the Soviet Union.

Still, history had shown the U.S. that the arms trade was not to be taken lightly and based strictly on economic profit. In the Pakistani-India War of 1956, American equipment was used in both sides. This war led India to consider a nuclear project, and led Pakistan to become more neutral in world affairs (Thayer 20). Both of these outcomes displeased the United States. If there had not been such a large amount of American weapons in the area, the outcome of the war could have been different.

The United States had the means to fill the void left by the Soviet Union in this profitable market, and it did not ignore this economic opportunity. Also, the fear of communism diminished as a factor. The world was no longer divided between the East and the West. Some countries were no longer ideological enemies of the U.S., making them potential customers. After all, countries that were once heavily armed by the Soviet Union under the Warsaw Pact now had a need for a new source of weapons.

International arms sales conducted by the United States fall into five major categories: Foreign Military Sales (FMS), Direct Commercial Sales (DCS), leases of military equipment, excess defense articles, and emergency drawdowns of weapons stocks. Both FMS and DCS programs are the largest programs used for arms sales. The FMS program is government-to-government sales, while the DCS program involves negotiations by U.S. transnational

corporations and foreign buyers. The Defense Security Cooperation of Defense (DSCA), a division of the Department of Defense, runs all aspects of the FMS programs. On the other hand, the State Department's Directorate of Defense Trade Controls (DDTC) manages the DCS program. All countries wanting to participate in arms transfer through the DCS program must apply for a license from the DDTC for each individual arms transfer. Transfers conducted via the FMS programs tend to be used more often than those via DCS. According to the DSCA, in 2004, FMS added up to about \$10.7 billion and DCS totaled nearly \$7.6 billion (Stohl 1).

These five major categories do not include the arms transferred through covert means. The American government is also responsible for supplying arms via secretive means that are not open to public speculation. One may analyze the nature of this trade via policy statements offered by the government.

After September 11, 2001, Secretary of Defense Donald Rumsfeld announced that arms would be provided to the Afghan Northern Alliance/United Front (Stohl 1). However, it was not stated how this would be done. Perhaps complicating the situation was that this was not a government-to-government transfer and that the Afghan Northern Alliance would not fall in the DCS program category for licensing.

A glimpse of U.S. covert operations was also obtained in 2005. In May, the Colombian police discovered a house filled with twenty-nine metal crates of arms and 32,000 rounds of ammunition. While the police were conducting an inventory, two suspects knocked on the door. After being arrested, the two suspects were discovered to be U.S. soldiers. After investigation, the Colombian police stated that the arms were for an illegal paramilitary group, considered both a drug trafficking and a terrorist organization. Richard Boucher, the State Department spokesman in Washington, denied that the weapons were a secret effort to aid Colombian paramilitaries (Smyth 6). This is hard to believe, considering that in the 1960s military documents depicted the

U.S. encouraging the Colombian military to assemble rightist paramilitary forces to fight leftist guerrillas. Furthermore, if the U.S. was indeed supplying a paramilitary group, it would be in violation of the 1999 International Arms Sales Code of Conduct. This statute states that the recipients of an arms transfer must promote democracy and respect human rights.

Why would America violate an international code of conduct at the price of international relations? Perhaps because arms transfers are now motivated less by international relations than by economic interest. This shift is a result of the collapse of the Soviet Union as well as the fruit of globalization.

While the Nixon administration witnessed the beginning of the massive growth of the arms trade, it did not stop there. In 1992, President George H. W. Bush sold F-16 combat aircraft to Taiwan and F-15s fighter jets to Saudi Arabia. This was done purportedly because, as Bush himself stated, “in these times of economic transition, I want to do everything I can to keep Americans at work” (Hartung 138). Yet the sale to Taiwan was in clear violation of a 1982 accord that limited the level of sophisticated weapons that could be transferred to this country. This violation provoked China to cease talks among the five permanent members of the UN Security Council aimed toward limiting the arms trade to regions of conflict. While this may have helped maintain jobs for Americans in the weapons market, it was at the price of important foreign relations. Morton Abramowitz, the head of the Carnegie Endowment for International Peace, commented on this sale, “for a President who was establishing a new world order to massively violate a written agreement is hardly conducive to world order” (Hartung 139).

Thus, the economic aspect of the arms trade began to have as much significance as the political, if not more. The new world order that resulted from the end of the Cold War blurred the distinctions between the economic and foreign relations aspects of the weapons trade. With two superpowers balancing each other out, the Cold War delayed the effects of the global market on

the arms trade. It was a barrier that placed importance on the strategic effects of weapons sales rather than the profit. Today the relationship between the state and the multinational arms companies are now based as much on economics as on foreign policy.

During his administration, President Bill Clinton established the Presidential Decision Directive, which identified five goals for the United States when dealing with arms transfers (PDD 34). This PDD established a goal that did not exist before: “To enhance the ability of the U.S. defense industry base to meet U.S. defense requirements and maintain long-term military technological superiority at lower costs” (Stohl 3). According to Rachel Stohl, a senior analyst at the Center for Defense Information at the World Security Institute In Washington, this guideline “permits economic considerations to play an equal part in transfer decisions in what was previously the realm of national security and foreign policy considerations” (3).

Since the weapons market is based on an economy of scale, the expansion in production that comes from an increase in arms transfers helps to reduce prices of weapons used in the U.S. military. Thus PDD 34 is a way for the government to reduce the prices of advanced military equipment for its own military. With this criterion in place, the weapons industry’s relationship with the government has become stronger, as the government’s decision on arms transfers will have a direct effect on the profit margins of these multinational companies. Clinton’s presidential decision provides a path for cheaper military goods for the U.S. government and better business for the weapons manufacturers.

The end of the Cold War also diminished military assistance programs to allies. Joel Johnson, author of the article “Financing the Arms trade,” states that there was a steady decline in US military assistance programs in the years following the Cold War. This proved a problem for developing nations that continued to have regional, ethnic, and civil strife. During the Cold War the U.S. provided military assistance to developing allies through a grant on a concessional

basis (Johnson 111). During the Cold War these grants and loans were geared towards preventing the spread of communism. Since the fall of the Soviet Union, such grants were no longer a priority and thus declined as an effect. Arms exports did not suffer, however, as “cash paying customers have more than made up for the drop in programs funded via-military assistance” (Johnson 113). Johnson also stated, “the issue of how arms sales are financed will therefore become more important for purchasers and vendors as a commercial issue, rather than a foreign assistance question” (111). This reiterates the fact that economic incentive began to play a bigger role in the international weapons market.

This occurred bluntly in the post-Cold War era. During World War II, the United States was the largest donor of military equipment (Johnson 111). Once the U.S. became the sole hegemon after the fall of the Soviet Union, it began to explore the revenue that was available as a result of the weapons market, which it correctly perceived as having the potential to yield major profits.

The United States has also been hesitant when it comes to creating international criteria for the arms trade. The U.S. does not agree to guidelines provided by the UN that would require a change on U.S. policy when it comes to arms transfers. Thus the U.S.’s participation in initiatives dealing with small arms is described as “limited and narrowly focused” (Stohl 5).

In 2006, the United Nations General Assembly passed Resolution 61/89, entitled “Toward an arms trade treaty: establishing common international standards for the import, export and transfer of conventional arms” (Stohl 10). This resolution was aimed at attaining the views of all UN member states on the “feasibility, scope and parameters for a comprehensive, legally binding instrument establishing common international standards for the import, export, and transfer of conventional arms” (Stohl 10). Although countries like China, Russia, Cuba, Egypt, Pakistan and India have expressed skepticism towards a potential Arms Trade Treaty (ATT), the

United States has voiced the most open opposition towards these resolutions (Stohl 10). The U.S.'s unwillingness to support the ATT may be due to the large amounts of profit it already achieves under the current arms trading system. If the ATT is adopted, the economic reasons for selling arms established during the Clinton administration would effectively disappear. This, in turn, would negatively affect the weapons market and the military from the U.S.'s perspective. The U.S. government would pay a higher price for military equipment because companies would manufacture less of it. The economy of scales would no longer work to provide cheaper military weaponry to the U.S. government.

The United States has also shielded the manufacturers and sellers from certain types of lawsuits. On October 26, 2005 President Bush signed the Protection of Lawful Commerce in Arms Act (PLCAA). This law limits the types of civil actions that may be brought against weapons manufacturers. The state purpose is "to prohibit causes of action against manufacturers [...] of firearms [...] for the harm solely caused by the criminal or unlawful misuse of firearm products [...] by others when the product functioned as designed and intended" (Jiang 537). In other words, as long as the product works as designed, the manufacturer may not be held liable for the improper use of the product. While I do believe the manufacturers are not responsible for crimes conducted with their weapons, I do believe they should be held responsible for knowing whom they are selling to. If manufacturers are not held accountable for the use of their weapons, their prospective customers increase. Afraid of cutting their profits down, manufacturers may become increasingly reluctant to explore their buyers and their motives. Thus, to certain degree, this act may lead to more sales conducted by the U.S., with its many manufacturers.

The mass proliferation of firearms seen today is not just a product of the economic advantage to the producing countries. Globalization has also empowered individuals to become more independent in the weapons business.

The fall of the Soviet Union created the perfect environment for independent gunrunners. Gunrunners act as nongovernmental organizations that are willing to provide weapons to anyone willing to pay for them. Gunrunners are often in the business for monetary gain alone. They are willing to supply terrorists, freedom fighters, and even failed states. Gunrunners are usually protected by some state, making it more difficult to bring them to justice. Governments are able to use gunrunners to covertly provide arms to questionable parties, many of whom selling weapons to would be prohibited by law.

A notorious arms dealer, Viktor Bout, has recently been detained in Thailand. Past attempts to bring him to justice have failed, with some blaming the recurring leaks in the United States. Mr. Bout is said to have been providing weapons for forces in Iraq and for other causes around the globe supported by the U.S. (Reuters). This way states make use of gunrunners when they need to support causes around the world that may seem questionable. Inevitably, this fact complicates efforts to bring gunrunners to justice. Bout's arms pipelines became known to the intelligence community as the "shadow infrastructure," and were described as "the deadly symbiotic web of weapons purchasers and transporters who fueled conflicts around the globe" (Farah and Braun 5). Gunrunning also creates easier access to weapons, essentially empowering the individuals around the world. No longer do individuals and organizations have to depend on the state or on legitimate statutes to obtain weapons. They can simply go to individuals like Bout, whose business *The Economist* describes as "fast-changing firms with many fronts and names, providing air-logistics and weaponry to any client who could pay" (90). Viktor Bout is a direct product of the collapse of the Soviet Union, and along with the United States, he, like many others, has filled the power vacuum in the arms market left open at the end of the Cold War. Reflecting the story of others who filled this power gap, Bout is described as one of the "Soviet bloc entrepreneurs who rose from the ashes of the Cold War. These businessmen had easy access

to the massive inventories of weapons and ammunition that had been manufactured for decades to sustain a vast military that was suddenly shrinking” (Farah and Braun 8). Along with the fall of the Soviet Union, globalization provided the means for his business to thrive. The ease of transportation and the lack of international constraints led Bout to succeed in “exploiting the anarchy of globalization to get goods--usually illicit goods--to market” (Farah Braun).

Bout attained his planes as a direct result of the collapse of the Soviet Union. He used planes that ceased to be used after the Cold War. Thomas Pickering, U.S. ambassador to Moscow from 1993 to 1997, states, “The entire Soviet civil air system collapsed [...] everywhere [...] you’d see these parked airplanes, always with flat tires, just sitting there, useless” (Farah and Braun). Most of the planes were property of the Soviet commercial fleet Aeroflot. This company was left without guidance once it lost its communist overseers. Mark Galleoti, a British historian who specializes in the modern Russian military and organized crime, states that Aeroflot was “too big to know what it had and where. In some cases, local administrators or military authorities took them [...] and at some airports, they sat, completely abandoned. In that state, planes just disappeared” (Farah and Braun 33). These planes were perfect for the operations that Bout had in mind.

Along with the abandoned planes, the pilots that were once employed by the government were now out of a job. The Soviet Air Force had fourteen thousand pilots and five thousand aircrafts when the Berlin Wall came down, but thousands faced unemployment after the collapse of the Soviet Union (Farah and Braun 39). These pilots were willing to risk their lives for low wages: “Mr. Bout’s genius was to employ impoverished ex-Soviet pilots, ready to risk their lives for hard currency, and to send his aircraft anywhere needed” (“Flying” 90). The right conditions led Bout to acquire a monopoly in the illicit arms trade. This was the beginning of a market of death.

In the same manner that he acquired his planes and pilots Bout acquired his weapons: “as the Berlin Wall tumbled, supplies and surplus weaponry and fleets of military transport aircraft were up for grabs. Soldiers and air-force men, even senior ones, were poor and easily bribed; stocks of weapons, especially in remote corners such as Maldova, were barely monitored” (“Flying” 89). According to Western intelligence, about a third of a vast stock of AK-47s disappeared from the factories at Tula, “the main source of the ubiquitous Russian-built rifle” (Farah and Braun 36). With the planes, pilots, and weapons, Bout was able to fly anything to anyone.

His success is also rooted within loopholes in the new global weapons market and the lack of accountability. Globalization allows individuals to create an entity that is located within one nation, but has a global outlook and operations. As such, Bout was able to create a transnational corporation in Liberia. Liberia had, “a total disregard for aviation safety and a lack of oversight of Liberian-registered planes operating on a global scale” (Farah and Braun). By creating a corporation in a failed state such a Liberia, Bout was able to obtain a license to conduct international flights. The UN itself has documentation (Report of the Panel of Experts in Relations to Sierra Leone to the Secretary-General) stating how two known Bout associates obtained certificates of airworthiness on behalf of the Liberian Aircraft Register (Farah and Braun 292). Since Bout was a friend of Charles Taylor, president of Liberia, there was no issue when Bout established his corporation in Liberia.

The effects of weapons proliferation are undeniable in the realm of international politics. The surge of weapons, both legal and illegal, is inflicting destruction on developing nations. Africa has seen constant devastation due to the increase in arms proliferation within their continent. There is no denying this increase in weapons after the collapse of the Soviet Union. Oxfam International reported that the flow of Russian assault rifles was so vast in Kenya that the

barter rate for a single AK-47 dropped from ten cows in 1986 to two cows in 2001 (Farah and Braun 72). Notice that the drop occurred after the fall of the Soviet Union. It is no wonder that children in Africa are often learning how to operate an assault rifle rather than learning how to read a book.

Oxfam International, International Action Network on Small Arms (IANSA), and Saferworld have reported that the cost of conflict in Africa was approximately \$300 billion between 1990 and 2005 (Fifteen Years). During this same time period 23 African nations have been in conflict. “Armed violence is one of the greatest threats to development in Africa,” stated Irungu Houghton, Oxfam’s African policy advisor. “The costs are shocking. Our figures are almost certainly an underestimate but they show conflicts are costing African economies an average of \$18 billion a year. This money could solve the HIV/AIDS crisis, prevent TB and malaria, or provide clean water, sanitation and education” (Fifteen Years). Tom Ofcansky, a State Department African affairs analyst, states, “A few planes of arms going to an African country just didn’t make the cut, in terms of an issue governments would want to pay attention to, but the impact of a few planeloads of arms, as we’ve seen repeatedly in Africa, had a devastating impact on fragile African Societies” (Farah and Braun 37). The toll of the massive flow of weapons into the African continent is undeniable and a solution must be achieved.

This proliferation has not been stopped, or slowed, because the new power shift that occurred after the Cold War failed to empower intergovernmental organizations with respect to arms trade. The power left by the void of the Soviet Union was redistributed between the U.S. and gunrunners, while the UN drew the short stick.

In New York on July 2001, the United Nations Conference on the Illicit Trade in Small Arms and Light Weapons met to discuss the issue at hand. No international agreement was achieved by the member states. Aaron Karp, the senior faculty associate of the graduate program

in International Study at Old Dominion University, said that the conference “threw small arms policy back to the individual state...it repudiated the global process it was conceived to establish” (180). According to Karp, the UN served as a vehicle to reinforce state sovereignty (180). The fact of the matter is that the states are not willing to give up their sovereignty to the UN. The UN only has as much power as the member states allow it to have; it will never gain any real power in the global sphere unless the states are willing to lose some of their sovereignty. This brings us back to the Hobbesian concept of the social contract. Thomas Hobbes describes the nature of man as “solitary, poor, nasty, brutish, and short” (Hobbes XIII). He described that man needed to surrender some of his sovereignty in return for order, leading to the establishment of a “Leviathan.” I believe the same must be done on an international level. States need to surrender some of their sovereignty to the UN, and only by the loss of power from the states will the UN gain the necessary strength to establish firm international laws.

Paleman, an UN investigator, was mocked by one of Bout’s associates: “They basically laughed about it [...] as long as the UN takes action, puts experts in the field, and issues reports, and the countries where the individuals are doing their business do not act, then indeed, few things can be done. Of course the UN is only as powerful as UN member states allow it to be. And the UN, as such, cannot arrest people, has no subpoena rights of whatever...” (Farah and Braun 80). Therefore, because states are not willing to forfeit any level of sovereignty within the arms trade, we can expect little change, if any, in the near future.

The zero-sum game rules of the weapons market propose the cause of the problem and the solution. The collapse of the Soviet Union created a power void within the arms trade, and this power was subsequently redistributed between the United States and gunrunners. This led the United States to view the weapons market as more of a means to economic profit, rather than a means to attain positive international relations. The solution to the problem is surrendering

some of the power of the states to strengthen the UN, in order to transform the UN into a true and necessary Leviathan.

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Shakespeare's Paradox of Honor: Prince Hamlet and Othello the Moor

~Christina Autiero

In William Shakespeare's world, a man's honor and reputation holds the utmost importance. Thomas Mowbray, the Duke of Norfolk in Shakespeare's play *Richard II*, declares that "Mine honor is my life; both grow in one; / Take honor from me, and my life is done" (1.1.182-183). This sentiment also fits with one of Hamlet's soliloquies or Othello's prose. Hamlet and Othello, Shakespeare's tragic heroes of the plays *The Tragedy of Hamlet, Prince of Denmark* (1600) and *The Tragedy of Othello, Moor of Venice* (1602), respectively, succeed only in destroying themselves and the lives of their loved ones while attempting to defend their honorable names. Though introduced as admirable leaders in society, Hamlet and Othello face external forces that drive them mad. The person they each hold in highest regard, Hamlet's royal father and Othello's companion Iago, incites an eruption of vengeful and jealous passions within them. These passions guide Hamlet and Othello blindly into their own methods of destruction and sin. Thus while attempting to vindicate their honorable names, Hamlet and Othello in effect destroy them.

The citizens of Denmark view Prince Hamlet as a reputable and virtuous man. Hamlet's uncle King Claudius best describes the public's view of Hamlet: "Is the great love the general gender bear him, / Who, dipping all his faults in their affection, / Would, like the spring that turneth wood to stone, / Convert his gyves to graces" (4.7.18-21). The public respects Hamlet and in their affection for him overlooks all his faults. According to the medieval code of honor, proper lineage and right of birth constituted an honorable man. Society considered Hamlet as a respectable man on this basis. However, when Shakespeare wrote *Hamlet*, a more modern concept of honor began to emerge. "Honor was becoming, by the seventeenth century, a matter of conscience; honorable men needed to seek, in every situation, to behave in such a way as to

please both their state and their god" (Terry 1071). Hamlet's attempt to find balance in this changing honor code eventually leads to his tragic death. In order to preserve his father's honorable name and obey the medieval code of honor, Hamlet must avenge his father's death. However, if Hamlet chooses to do this, he will murder the current king and therefore defy the modern concept of honor. During this era, society also required that one honor both his father and King. As stated in Sir Robert Filmer's early English treatise *The Natural Power of Kings* (1630), "the law which enjoins obedience to kings is delivered in terms of 'Honor thy father'...If obedience to parents be immediately due by a natural law, and subjection to the princes but by the meditation of an human ordinance, what reason is there that the laws of nature should give place to the laws of men" (qtd. in McDonald 283). Hamlet cannot honor both his father and King Claudius, and consequently faces grave consequences.

Hamlet's morals and planned acts of vengeance conflict, and Hamlet attempts to justify reasons for disobeying the modern and medieval codes of honor many times in the play. Consider, for example, the scene in which Hamlet and his friend Horatio discuss Hamlet's motives for murdering Claudius. Hamlet argues, "Propped in between th'electin and my hopes, / Thrown out his angle for my proper life / And with such coz'nage—is't not perfect conscience / To quit him with this arm?" (5.2.65-69). Hamlet tries to convince Horatio, and perhaps himself, that he must murder Claudius, the man who stole his throne, killed his father, and destroyed his mother's virtue. For these reasons, Hamlet asserts that he can murder Claudius with an easy conscience. However, these are simply words and Hamlet clearly feels in conflict with his conscience. Though he presents himself as an honorable murderer, Hamlet does not seem proud of his actions or plans. Furthermore, when a messenger interrupts Hamlet and Horatio's conversation and removes his hat, symbolizing respect for Hamlet, Hamlet urges him to put his hat back on: "...Put your / bonnet to his right use; 'tis for the head" (5.2.92-93). Though the

messenger refuses, Hamlet continually insists he wear it. Hamlet does not feel worthy of the messenger's recognition. It seems apparent that Hamlet feels dishonorable in his actions, and therefore does not want others to show respect for him.

King Hamlet's ghost serves as a catalyst in *Hamlet*. His demand for revenge causes Hamlet to plot Claudius's death, which consequently leads to his madness. "The ghost appears as an agent whose task it is to haunt Hamlet with reminder of his Revenger role" (Bell 41). The deceased King Hamlet visits Hamlet to burden him with the task of avenging his murder, and Hamlet obediently replies. "Haste, haste me to know it," declares Hamlet, "that with wings as swift / As meditation or the thoughts of love / May sweep to my revenge" (1.5.29-31). Hamlet does not consider the sin he will commit by murdering the current king. The Ghost's tale immediately provokes revengeful feelings within Hamlet. However, Hamlet does not murder Claudius immediately. For this reason the Ghost appears later in the play to remind Hamlet of his duties. "Do not forget," says the Ghost, "This visitation / Is but to whet thy almost blunted purpose" (3.4.100-101). Hamlet reasons that his father has come to scold him since he has not avenged his death yet. The ghost stimulates Hamlet to act on his emotions. He serves as a reminder that Hamlet must avenge his death, and as the primary motivation of Hamlet's madness and destruction.

Hamlet behaves like a madman in hopes that it will help him commit Claudius' murder more successfully. Hamlet exposes this plan when he tells Horatio and friends, "How strange or odd soe'er I bear myself- / As I perchance hereafter shall think meet / To put an antic disposition on" (1.5.171-173). Although Hamlet originally plans to appear mad, many of his actions in the play illustrate that he has truly become mad. Hamlet impulsively murders Polonius, and guiltlessly orders the death of his two friends Rosencrantz and Guildenstern. As the Ghost tells Hamlet, "*Adieu, adieu!* Hamlet, *remember me*" (1.5.91), Hamlet obeys this wish, not wisely, but

only too well. Hamlet devotes his life to avenging his father's honor, driving him truly mad, and in turn destroying his life and the lives of others.

When Hamlet vows to avenge his father he says, "I'll wipe away all trivial fond records, / All saw of books, all forms, all pressures past, / And thy commandment all alone shall live" (1.5.99-103). In order to gain satisfactory revenge, Hamlet must eliminate all obstacles in his way and devote himself completely to his father's honor. Therefore, Hamlet must destroy his relationship with Ophelia. Hamlet has declared his love for Ophelia on numerous occasions. However, after Hamlet reunites with his father and falls into his method of madness, he violently turns Ophelia away from him. He denies ever loving her: "You should not have believed me, for virtue cannot so / inoculate our old stock but we shall relish of it. I loved you / not. (*Hamlet* 3.1.118-120). Though Hamlet cares deeply for Ophelia, he must reject her in order to save his father's honor. Critic G. Wilson Knight further proves this standpoint, as he believes that "From henceforth Hamlet must walk alone within the prison of mental death" (84). As Hamlet proclaimed in act one, he must attend "now to my word: / It is 'Adieu, adieu, remember me'. / I have sworn't" (1.5.111-113). Hamlet devotes his time to defending his father's honor, and destroys his relationship with Ophelia.

Unfortunately, Hamlet's fight for his father's honor causes Ophelia's death. The murder of Ophelia's father Polonius and Hamlet's cruelty towards Ophelia leads to her drowning. Hamlet's impulsive murder of Polonius, driven by his motives to avenge his father's murder, drives Ophelia insane. Laertes, Ophelia's brother, pronounces this madness when he cries, "O heavens, is't possible a young maid's wits, / Should be as mortal as an old man's life? / Nature is fine in love, and where 'tis fine / It sends some precious instance of itself / After the thing it loves" (4.6.158-162). Although Hamlet murders Polonius because he mistakes him for Claudius, the death of Polonius causes Ophelia's insanity.

Hamlet's pursuit of revenge also causes the death of his mother Gertrude. After Hamlet murders Polonius, Laertes and Claudius devise a plan to murder Hamlet. Laertes desires to murder Hamlet because he wants to avenge his father's death, while Claudius wants to murder Hamlet because he views him as a threat. They plan that Laertes will challenge Hamlet to a fencing duel, and Laertes will put poison on the tip of his sword so that if it touches Hamlet he will die. In the event that Laertes will not puncture Hamlet, Claudius poisons wine to offer Hamlet. When fencing, however, Hamlet rejects Claudius' offer of the wine and instead Gertrude drinks it. Ironically, Hamlet's fight for his father's honor has caused his mother's death as well. If Hamlet did not kill Polonius, Laertes would not have plotted to kill him, and Gertrude would not have drunk the poisoned wine. Ultimately, Hamlet dies for these same reasons. As Arthur Kirsch writes, "It is an especially painful paradox of Hamlet's tragedy that the final ending of his grief and the liberation of his self would be co-extensive with the apprehension of his own death" (135). Sadly, Hamlet succeeds in avenging his father death only after destroying innocent lives. Although Hamlet murders Claudius, he causes the end of his life and the two women he loves as well.

Similarly to Hamlet, the Venetian society honors and respects Othello. As a moor, Othello has a very unique reputation. During the Elizabethan era, people did not consider moors in high regard. For example, in 1596 Queen Elizabeth transported black slaves to England and Portugal, arguing that she did not want an excessive number of moors in her realm. Her "Edict Arranging for the Expulsion from England of Negroes and Blackamoors" of 1596 states, "...those kind of people may be well spared in this realm, being so populous and numbers of able persons, the subjects of the land and Christian people" (in McDonald 302). Clearly, moors did not hold high positions in Elizabethan society. Othello's reputation, however, differs from this norm. His status as a military hero earns him an esteemed position in society. Hence the Duke

and citizens of Venice overlook his offenses. For example, when Desdemona's father Brabantio demands that the Duke punish the man who has eloped with his daughter, the Duke seems outraged and promises Brabantio that he can choose the man's punishment. However, when the Duke learns that Othello has married Desdemona, his view of justice changes. "The Moor—howbeit that I endure him not—," the Duke tells Brabantio, "Is of a constant, loving, noble nature, / And I dare think he'll prove to Desdemona / A most dear husband" (2.1.275-78). Othello's essential role in the military outweighs Brabantio's desires. Furthermore, the Duke tells Brabantio, "If virtue no delighted beauty lack, / Your son in law is far more fair than black" (1.3.287-88). The Duke compares Othello to an honorable white man. Samuel Taylor Coleridge, esteemed critic of Shakespeare's work, agrees with the Duke when he asserts, "Othello must not be conceived as a Negro, but a high and chivalrous Moorish chief" (115). Though Othello's skin color labels him a Moor, Venetians ignore this and view him as an esteemed figure in society.

Iago desires to destroy Othello's noble reputation. Jealous of Othello's position in society, Iago plots to destroy Desdemona and Othello's relationship. "The moor is of a free and open nature," Iago says. "That thinks men honest that but seem to be so, / and will tenderly be led by th' nose as asses are" (1.3.381-83). Iago takes advantage of Othello's trusting and honorable nature. He knows Othello will believe the lies he tells him. Therefore, in order to destroy Othello, Iago asserts that Desdemona engaged in an affair with Othello's newly appointed lieutenant Cassio. Othello believes Iago's lies because he holds Iago in high regard. He describes Iago as "This honest creature doubtless / Sees and knows more, much more, than he unfolds (3.3.247-48). As a lover, Othello does not possess the same expertise he has as a warrior. Writer Andre Green suggests, "Everything shows us that Othello is gifted in the art of war, that he is successful at it and that he has won glory in its practice; there is nothing to show

us that he might have the same talent in love and reap the same success" (339). Since Othello lacks experience in love and companionship, he easily believes "honest" Iago's affirmations. Hence, Othello believes he must murder Desdemona and Cassio in order to defend his honor. "His honour was concerned: Iago would not have succeeded but by hinting that his honour was compromised" (Coledrige 116). Iago's lies about the faithful and loving Desdemona instill murderous ideas in Othello's head. After speaking with Iago, his life becomes consumed with thoughts of murdering Desdemona, and his honor becomes a moral obligation to avenge Cassio and Desdemona (Kirsch 75). Othello no longer possesses the virtuous and noble honor code he once displayed.

Iago directly causes Othello's change in behavior. Proof of this position lies within scene four of act three, directly after the temptation scene in which Iago convinces Othello that Desdemona has had an affair. Before Cassio arrives, Desdemona boasts about her unwary husband: "And but my noble Moor / Is true of mind and made no such baseness / As jealous creatures are, it were enough / To put him to ill thinking" (3.4.16-19). Though Desdemona has misplaced her handkerchief, she does not worry that Othello will accuse her of sleeping with another man. When Othello arrives to see Desdemona in this scene, however, his nature has changed. Othello accuses her of having a "liberal hand" (3.4.39) and yells at her for misplacing his handkerchief saying, "Fetch me the handkerchief—my mind misgives" (3.4.80). In addition to Desdemona's misplaced handkerchief, she persists that Othello show mercy for Cassio. This further convinces Othello that Desdemona has feelings for Cassio. Othello has become completely consumed by jealousy. Although he loves Desdemona dearly, it does not take much evidence to turn him against her. He has been tricked by a villain and pulled away from his virtuous and noble code of honor. He acts impulsively based on his jealousy. As a military and principled man, Othello must obey his values and honor code. When Desdemona cannot find

Othello's handkerchief, he views it as an attack against his honor and assumes she has given it to another man. Hence Othello proceeds to murder Desdemona and Cassio because he believes their false affair has destroyed his honor.

Othello orders the death of Cassio in order to preserve his nobility. When the play begins, Othello has just promoted Cassio as his lieutenant. This angers Iago because he believes Othello should have chosen him. Thus, Iago deceives Othello, falsely accusing Desdemona and Cassio of having an affair. Othello views this "affair" as a direct attack against his honor. According to the early English courtesy books, as stated in Ranald's article "The Indiscretions of Desdemona," a wife should "not dress too richly, for that is the forerunner of adultery" and "she should wholly obey her husband" (131). Desdemona fails to demonstrate these expected manners, as per Iago's lies. Not only does her defiance dishonor her country's morality code, but it also humiliates Othello. Othello must murder Desdemona and Cassio to defend his honor. Hence, Othello praises Iago after Cassio's death. Othello rejoices, "Tis he. Oh, brave Iago, honest and just, / That hast such noble sense of thy friend's wrong! / Thou teachest me. Minion, your dear lies dead, / And your unblest fate hies" (5.1.32-35). The tragedy of this play lies within Othello's naivety to Iago's selfish motives, and his appraisal for Iago's loyalty and honesty, when Iago has in fact destroyed his life. Oblivious to reality, Othello celebrates the death of his friend Cassio, declaring that Desdemona will soon meet her secret lover in Hell.

Unfortunately, Othello murders his faithful wife because he falsely believes she destroyed his honor. Iago's lies and Othello's "inability to coordinate morality and love" result in Desdemona's death. (Gronbeck-Tedesco 268). Desdemona brings happiness and joy into Othello's life. Othello verifies this when he testifies, "When I love thee not / Chaos is come again" (3.3.92-93). Othello declares that if Desdemona stops loving him, or if he believes that she has, he will become mad. Consequently, jealousy and revenge replace Othello's sense and

wisdom after he hears Iago's false claims. Although envy has taken over Othello, he still has strong feelings for Desdemona when he murders her. He truly believes Desdemona has been unfaithful and deserves her death. "Yet she must die," rationalizes Othello, "else she'll betray more men" (5.2.5-6). He also pleads that Desdemona confess all her sins so she dies chastely. "His eventual destruction of her is itself a suicidal act," argues Kirsch. "He has loved her as his own flesh, and when he destroys her, he destroys the basis of his own existence" (65). Although Othello restores his honor, or rather believes he has when he murders Desdemona, he cannot rejoice the same way he did when Cassio died. "Had she been true," Othello cries, "If heaven would make me such another world / Of one entire and perfect chrysolite / I'd not have sold her for it" (5.2.151-153). Clearly Othello truly loves Desdemona. Thus, when Othello finally discovers Iago's true motives, he has no intentions to live. He has destroyed his honor by murdering his loyal wife and no longer desires his life: "But why should honor outlive honesty / Let it go all" (5.2.259-60). Othello does not believe he should live longer than his honor does. He has realized the error of his ways too late, and commits suicide because he does not want to live with his regret.

Othello and Hamlet perceive their lives and immoral actions very similarly. Before they pass away, both men request that their reputations live on honorably. "O God, Horatio, what a wounded name," cries Hamlet. "If thou didst ever hold me in thy heart / Absent thee from felicity a while / And in this harsh world draw thy breath in pain / To tell my story" (*Hamlet* 5.2.342-46). Hamlet begs his friend Horatio to stay alive and tell Hamlet's story rightfully. Likewise, before Othello commits suicide he asks Lodovico to describe him as a worthy man. "Speak of one that loved not wisely, but too well / Of one not easily jealous, but being wrought, / Perplexed in the extreme. Of one whose hand / Like the base Indian, threw a pearl away" (*Othello* 5.2.361-64). He further describes himself as "An honorable murderer, if you will, / For naught I did in hate,

but all in honor" (5.2.309-310). Both Hamlet and Othello feel people will misjudge them because of their ignoble actions. Hamlet fought for his father's vengeance, while Othello, tricked by a villain, fought to defend his reputation. Each man defended his honor, and paradoxically, destroyed it. Both Hamlet and Othello cannot forgive themselves for what they have done. They can only hope that their honor will live on through their admirable intentions.

While attempting to defend their honor, both Hamlet and Othello succeed only in destroying their lives and their loved ones. External forces influence these noble men to engage in murderous acts. Hamlet's father urges Hamlet to avenge his death, while Othello's dishonest companion falsely accuses Othello's wife of adultery. Blinded by their passions, Othello directly murders his wife and Hamlet indirectly causes the death of Ophelia and his mother. Jealousy leads Othello to his destruction, while revenge and Hamlet's method of madness primarily cause his death and actions. Unfortunately, the only approach these men felt would vindicate their honorable names essentially destroyed them.

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An American Cultural History of Menstruation

~Meg Lambert

The function of menstruation is simple: When the uterus prepares to receive a fertilized egg, the lining of the uterus thickens with blood and various secretions. When the egg released by the ovary is not fertilized, the uterine lining breaks down and is expelled through the vagina. First menstruation, or menarche, typically begins between eleven and fifteen years, and end of menstruation, or menopause, can begin anytime from age forty to one's fifties ([Encyclopedia Britannica](#)). For three to four decades of a healthy woman's life, she experiences the monthly shedding of her uterine lining in one of life's most natural and regular bodily functions. Yet this routine function has created millennia of controversy with reactions ranging from celebration to indifference to persecution. In the anthropological scheme of things, Americans have been fortunate in our consistently mild reactions. Though our cultural beliefs have never allowed physical violence against menstruating women (such as many societies in Africa), our founding during the Age of Enlightenment produced a culture with a preference for mind games over physical hostility. The bulk of injustice done against women through menstrual bias in our country has been achieved through subtle, passive aggressive indoctrination. The issue of menstruation has been used to compromise women's access to education, physical freedom, and rights to political expression. It has been treated pathologically so that the act of shedding one's uterine lining is seen as "dirty", an angle that the feminine hygiene industry plays to shamelessly, promising "freshness" in return for using their product. The supposed hormone imbalances women suffer during their periods have been thought to affect their mental acuity, emotional stability, and general functioning to the point that handling premenstrual women is often described by frightened males and entertainment journalism in the same terms as tranquilizing

rabid animals. It has provided centuries of bigoted men with physical evidence to support their self-entitled supremacy over women: as they say in the sports bars, who can trust something that bleeds for seven days but doesn't die?

This paper in its entirety surveys the cultural effect and influence of menstruation throughout American history from the colonial era to the present day, explores its evolution from a taboo to a million-dollar-a-year industry, and argues against its past and current use as a political and cultural tool for degrading the female body and mind. This paper is written in three parts: Part I: The Colonial Era to the Victorian Age, Part II: The Turn of the Century to the 1980s, and Part III: The 1990s to Today. I am only submitting Part III for consideration by the Beacon Conference.

Part III: The 1990s to Today

Despite all the innovations, wars, and inventions of the past nine decades, the difference between this century and last century is one primary factor: informal interactions between humans drastically changed with the public launch of the Internet in the early 1990s. Until the Internet was established as a civilian as well as military device, informal communication on a large scale (not including assembling in person) was near impossible. With the widespread use of computers, the Internet, and cell phones, the 90s act as an interpersonal bridge between the 20th and 21st centuries. These innovations also greatly affected how we approach menstruation by providing new means of spreading information, advertising, and discussion that are contrasted against the largely one-sided approach of the 20th century.

As the 90s progressed, menstruation issues elicited impacts in two major places: the teen arena and academia. According to Karen Houppert, author of The Curse: Confronting the Last Unmentionable Taboo, the major source for menstrual anxiety of the 90s is that boys will know

you're menstruating (Houppert 72). This message is introduced first by the femcare companies who provide education materials and encourage sex-segregated viewings. Then there are the advertisements that play on embarrassing leaks or revealing apparatuses, and the teen magazines that feature beauty advice pages and columns to recount traumatic experiences. In 1994, Seventeen Magazine debuted a column called "Trauma-rama" where readers could write in about "their most embarrassing moments." It is no longer featured in the magazine, but during its time it was incredibly popular among the 2.5 million readers (Houppert 86). Many of these stories focused around leakage, and leakage in front of boys, which was even more terrifying than plain leakage. In 1995, Mademoiselle Magazine featured an article called, "Beauty and the Beast: How Your Period Affects Your Looks" (Houppert 93-95). It described the "erupting skin" and "raccoon eyes" during your "monthly beauty slump," but announced that even though there is "absolutely nothing a woman can't do when she has her period...there are a few things you might want to keep in mind for the sake of your looks..." Recommended is exercise, good nutrition, stress reduction, and investment in a few brand-name cleansers like "Aroma Vera Feminine Energy" and "Exact Vanishing Cream" (Houppert 93-95). As if looking like "pond scum" is bad enough, according to Mademoiselle your judgment also suffers, so avoid anything drastic like getting a new haircut because you may regret it (Houppert 93-95). It must be noted that this explicit focus on physical appearance and the sexualization of girls (sure you can do anything, but you have to look good doing it) has created a veritable plague of psychological damage to females across the country, as reported and defined by the American Psychological Association in their report of the effects of sexualization, published in February 2007. The report included negatively impacted cognitive functioning, physical and mental health, sexuality, and attitudes and beliefs in the listed effects ("Report of the APA Task Force on the Sexualization of Girls."). Even though it dealt explicitly with sexualization as opposed to other types of visual

aggression, I believe the same principles apply. Articles like the one found in Mademoiselle not only reinforce the cultural belief that “beautiful” looks a certain way, but that menstruation is the antithesis of beautiful. Menstruation is our original sin, and this sin needs cleansing.

As menstrual negativity hit an all-time high among adolescents, a mass of menstruation-related publications burst onto the social science scene. Menstrual history was a popular topic. The Curse: Confronting the Last Unmentionable Taboo (1999), by Karen Houppert and The Body Project (1998), by Joan Jacobs Brumberg provide invaluable information on the histories of American menstruation, as well as commentary on modern menstruation. Both Houppert and Brumberg take issue with the way Americans approach adolescence, arguing that although girls’ bodies are changing earlier than ever due to proper nutrition, their minds do not develop as quickly; this combined with sexualization of this generation is giving girls too much responsibility to grow up too fast. Brumberg writes,

When contemporary American girls begin to menstruate, they think of hygiene, not fertility....In an environment like ours, where looks mean so much, this turning away from the hidden aspects of female biology has put excruciating pressure on those body parts that the world can see. For girls in the twentieth century, this reorientation toward the visual, or the outside of the body, has only intensified the difficulties of being an adolescent (Brumberg 55).

These difficulties include major issues such as eating disorders and psychological problems, specifically those found in the effects of sexualization. This would not be an issue, Brumberg argues, if our society made a larger effort to help girls deal with the gaps between their biological and intellectual development. She particularly admires the Victorian efforts to ease adolescence through community programs and mutual support.

Victorian strategies for coping with adolescence seem old-fashioned and sexist because they cast young women solely in terms of their reproductive potential and they left girls ignorant of and unprepared for sexual maturation. Yet we need to acknowledge that our ancestors' pervasive (if largely unspoken) concern about the bodies of adolescent girls was an impetus for a powerful network of social support that was a functional hallmark of American life well into the twentieth century (Brumberg 24).

A spiritual menstrual renaissance was also making waves in popular literature. Spiritualist reflections returned to a positive, more pensive approach to menstruation. The Red Tent (1997), by Anita Diamant particularly had an effect in the new millennium. A work of historical fiction, The Red Tent follows the Biblical character Dinah, daughter of Jacob, who appears in Genesis, Chapter 34, when she is raped by her brothers. The title is derived from the Jewish practice of putting menstruating women together in isolation. The work has been on many bestseller lists and most notably has inspired other women to pitch their own "red tents". Among these was a literal tent erected in 2005 in New York City at ABC Carpet and Home on 19th Street and Broadway (Bain, Kaufman). Made from hundreds of silk scarves, the temporary exhibit acted as a haven for any and all women (not just those menstruating) to take a break, reconnect with themselves, and reconnect with other women. It was the result of the combined efforts of Paulette Cole, ABC's chief executive, and Eve Ensler, author of The Vagina Monologues. Along with offering reprieve, the tent also included workshops, a photography show, and a giant tree (Bain, Kaufman).

Advertisements of the new millennium caught on to this new menstrual optimism, but turned it into a tongue-in-cheek gimmick that feels more like a mockery than genuine enthusiasm. One commercial by Tampax comes to mind. It features two women walking down a shoe store aisle

as a male narrator states, “Compared to pads, Tampax helps keep your period private. But if you still want people to know, rent a mariachi band!” The women are confronted by a trio of grinning Latinos with instruments who sing happily about menstruation. One of the women grins as they follow her around the store. Fellow customers clap at the end. The mariachi band is then featured on a rotating pedestal with beige curtain behind them in the manner of old fashioned infomercials. The narrator enthuses, “Mariachi band and other ideas available at [advertiseyourperiod.com!](http://advertiseyourperiod.com)” The image of the mariachi band is replaced with boxes of Tampax. “Keep your period private, with Tampax!” (“Mariachi”) I find this commercial and others like it to be even more aggressive than their enthusiastic successors, which primarily focused on the features of the product itself. The simple idea is that with this product, no one will know you’re menstruating unless you tell them. The more sarcastic message implied is that telling people you’re menstruating is about as silly as having a mariachi band follow you while shoe shopping. These commercials acknowledge there is a different way to menstruate; however, it would be bad if people embraced a new way, one that doesn’t involve Tampax. Therefore, the alternative is cast in a ludicrous light so the tried and true path of secretive menstruation looks more appealing by comparison.

Tampax’s current campaign goes straight to the source of menstruation to make its point. Their new slogan, “Outsmart Mother Nature With Tampax Protection” is illustrated by a commercial in which Mother Nature herself accosts the menstruating young woman. It begins with three young women getting out of a plane in a sunny landscape. Mother Nature, dressed in a shiny green skirt-and-blazer combo and holding a red box with a pink ribbon says happily, “Helloo Jackie!” Jackie turns and pouts, “Mother Nature? Great.” Her friends look at each other sympathetically as Mother Nature says, “Here with your monthly gift! You know, your period!” Jackie grumbles, “I know. But I’m good!” She turns to show her transparent beach bag,

containing a box of Tampax Pearls. Mother Nature frowns. “Oh are you? I don’t see any back up in there.” The second friend giggles, “Back up?!” The girls laugh and walk away. Cue illustrated demonstration of a tampon with a gift inside and female narrator, who informs, “Tampax Pearl has leak-guard protection built in, to stop leaks better than the next leading brand! So you can ditch your back-up, not your bikini.” All three friends are shown lounging in pool chairs on the beach, as Mother Nature delightfully gasps, “Ah! Newlyweds!” Narrator: “Outsmart Mother Nature, with Tampax!” (“Waylei’d.”) The message in this commercial has progressed from secretive discretion to a full-out war against biology. Mother Nature is an irritant who takes perverse pleasure in ruining what should be happy, carefree moments by unceremoniously presenting her “gift”. She is to be “outsmarted” with the cunning of modern technology, which allows women to lead a normal life instead of being yoked to the functions of their bodies. Once again, Tampax has acknowledged another point of view and has attacked it as ludicrous and old fashioned so that, by comparison, hiding one’s menstruation is preferable. But unlike the previous commercials, the argument does not consist solely of sarcasm but instead directly confronts female viewers with the wrongness of their bodies.

Menstruation in entertainment has not yet reached the heights it leapt to in the 1970s, but it has become far more prevalent throughout normal conversation presented in television and film. This manifestation of menstrual discussion usually takes two forms: it is either mocked by males rife with machismo and an inherent fear or disgust toward menstruation, or it is casually yet genuinely discussed by characters with very few social skills. Examples of the first are found primarily in macho-infused “animal” comedy film and television. The film Superbad (2007) follows three teenage boys’ quest for love and sex in a single night. At one point, the most sex-driven character, Seth, dirty dances with a girl at a party he accidentally crashed. What he did not know was that she was menstruating and was not wearing protection; the result is a lick of

menstrual blood on his pants. Two other guys notice it first. They laugh as he desperately tries to understand why he would be bleeding after dancing with a girl. When he realizes what has happened too, he appears nauseated. He gasps and curses, crying, “Oh my God! What am I going to do? This is so disgusting!” One of the guys brings it to the attention of everyone around them, and soon people are exclaiming, “That’s an [expletive] mangina, man!” A group of girls laugh and ask him if he needs a tampon. Overall, this scene is a fairly straightforward illustration of how menstruation is frequently viewed. However, another Judd Apatow film mocks this fear of the period. In a scene in Anchorman: The Legend of Ron Burgundy (2004), a group of sexist male presenters at a TV news station express their outrage at the news of an incoming female presenter. Brick Tamland, the admittedly “mentally retarded meteorologist,” worries, “I read somewhere their periods attract bears. The bears can smell their menstruation!” As opposed to being directly disdainful of menstruation itself, this outburst is an extension of the mockery of sexism and men’s fear of women.

When machismo is not involved, menstruation is usually discussed by socially dysfunctional characters, such as those found on the television comedy *The Office*. Dwight Schrute of *The Office* is famously outrageous, known best for his deadpan demeanor, fascination with odd subjects, and blunt approach to sensitive topics. In one episode, he announces, “If I could menstruate I wouldn’t have to deal with idiotic calendars anymore. I’d just be able to count down from my previous cycle. Plus I’d be more in tune with the moon and the tides.” (“Menstrual Calender”) The humor is that Dwight, a man, finds menstruation to be a purely practical function, as opposed to identifying it with being female, and thus being weak.

In the real world, much of the focus is not on menstruation itself, but around menstrual side effects. PMS, or pre-/post-menstrual syndrome, is commonly mocked and derided as a dangerous side effect of menstruation that threatens the emotional, physical, and sexual well-being of males

who are close to the suffering woman. Though the existence of PMS as a provable condition caused by fluctuation of hormonal activity is still debated, PMDD (premenstrual dysphoric disorder) is a form of PMS so severe that it interferes with a woman's work, social life, and relationships ("Sexual Health: Your Guide to Premenstrual Dysphoric Disorder."). However, only two to ten percent of women suffer from this condition. The term "PMS" is applied loosely to describe general moodiness, cravings, or otherwise inexplicable behavior of any premenopausal woman at any given time during the month. Sexist humor related to PMS is typically based on the idea that all women become insatiably aggressive for a week each month, and men must use their cunning to outwit and soothe the beast. In the Humor section of Maxim Magazine's website, a line up of jokes includes this gem: "Why do they call it PMS? Because Mad Cow Disease was already taken." AskMen.com features an article titled "Handling Her Period," which contains five tips on how to be sympathetic toward a suffering loved one, but is even more sexist than Maxim. Because PMSing females are "given license to run amok," the man is advised, "survival should be your main goal." The five tips consist of Don't Point Out Her PMS ("Women can be touchy about being labeled as a raving lunatic for a few days a month....Save the commentary for your buddies, well out of earshot of the lady in question."); Don't Drop Any Surprises ("This can include any big news that can wait for a better time when she can give it her full attention with a sane mind and without the impact of her period."); Reduce Social Activities ("This is also a good time...to squash the possibility of surprise drop-ins from your buddies...you won't want your friends around to witness the aftermath of her latest meltdown."); Accommodate Her Diet Changes ("It isn't up to you to monitor what she's eating, and the best you can do right now is...keep the kitchen a little more stocked than usual."); and Take On Some Of Her Chores ("If you're lucky, you might get away with a woman who is simply a little bossier than usual; whether she's asking you to run to the store to pick up

tampons...just do it.”) Significantly, this article was written by a woman, which makes the dehumanizing of women even more disheartening when knowing the writer might feel this way about herself.

These attitudes have not been limited to personal experiences, but recently found their way into the 2008 presidential elections. When Sen. Hillary Rodham Clinton was still a contender, her physiology was frequently identified by opponents as the primary obstacle of her capabilities. This sentiment was expressed by Robin Williams on national TV when he appeared on The Ellen Degeneres Show (“Robin Williams on Ellen”). After enthusing that hopefully the country would have its first black president, he acknowledged Hillary’s candidacy by musing, “I guess some people are worried that every twenty-eight days there will be some severe negotiations.” In an episode of The O’Reilly Factor, featuring radio personality Marc Rudov, O’Reilly began the conversation by asking, “What is the downside of having a woman become president of the United States?” Rudov quipped, “You mean besides the PMS and the mood swings, right?” (“Hillary Sexism Watch: “Female Agenda” Edition.”) These sexist, dehumanizing remarks embody the inbred belief within our culture that male is typical and female is atypical; that male bodies are prototypes, while all the “extras” of the female body (menstruation, alternative psychology, etc) are too different to reconcile with the fullness of male humanity. It may also be indicative of male misinformation about women’s bodies; Clinton is clearly post-menopausal, therefore the period jokes are not applicable, yet they continue to be told.

Though many women dislike the moodiness, cravings, and bloating associated with PMS, other girls embrace their irritability to act any way they desire. Facebook features various groups that exalt the benefits of being female. Number twenty-two of “67 Reasons Why It’s Great To Be A Girl” reads, ““That time of the month’ is a great excuse to be a bitch for a week.” Number thirteen of “Things That A Girl Wants A Guy To Know...” reads, “I’m emotionally unstable

monthly, so I can yell at you for no reason. It only lasts for a few days in a month, so you can't say anything about it." This casual belief that a physical function can leave you exempt from responsibility for your actions is incredibly concerning, not only because it creates incentive for verbal abuse, but because it encourages the idea that women cannot control themselves and consequently cannot be tried and judged in the same manner as men. Other publications and forums are more concerned with the actual function of menstruation and its inconvenience instead of the side effects. Search results for "period" on Seventeen Magazine's website generates a list of advice articles and embarrassing stories from the "Daily Secret" or "Daily Trauma" columns. Catch lines consist of things like, "My mom talked about my period in front of a cute guy! He knew I had my period!" and "I stained his jeans! My period leaked onto my boyfriend!" Advice columns are tagged with questions such as, "Would I have my period if I were pregnant?" and "How do you know your period is regular?"

Unfortunately but unsurprisingly, there is very little accessible academic research within the past decade that focuses on how modern Americans approach menstruation. To gather the most recent and most factual information possible, I conducted my own research: I created two surveys (one for women, one for men), made them available online through a poll/survey generator, and distributed them by advertising to friends, family, and professors throughout the country. 114 people total responded, and though I would like to say the results provide a sufficient slice of information on how Americans as a whole feel about menstruation, I'm afraid the demographics consist almost entirely of Caucasians in the Northeast between the ages of sixteen and twenty-nine years. Nonetheless, the responses provide valuable insight into points of view rarely represented by pop culture media.

Of the twenty-seven men who responded to the male survey, fifteen were between the ages of 20 and 29, four between 16 and 19, four between 30 and 39, one each between 10 to 15 and 40

and 49, and two between 60 and 69. Twenty-three identified as Caucasian, two as Asian, and one each for black and Hispanic. Twenty-three hailed from the Northeast, two from the Southeast, and one each for the Northwest and North Midwest. Religious affiliation was dominated by Catholicism (twelve), followed by six Protestants. Atheists, agnostics, Jews, Muslims, and those who chose “Other” were fairly even. There were an equal number of Conservative and Liberal (eight), followed by six moderates, and five who remained unaffiliated. The male survey was purposefully short, as I correctly assumed most males would not want to discuss menstruation at length. Indeed, forty-two participants originally started the survey, but only twenty-seven completed it, and theirs are the only responses recorded.

When asked if they were aware of what menstruation is, how it works, and its function, eighteen replied in the affirmative while nine had a vague idea. When asked how they feel about discussing menstruation, nine remained neutral, eight were comfortable, seven were uncomfortable, and three were mortified. Eleven reported feeling affected when the women in their lives are menstruating, while eight each checked “It depends” and “No.” Twenty-five reported not being aroused by menstruation, and two were unsure. Eight said they would have sex with a menstruating women, eight were unsure, and ten would definitely not. When asked about being seen with menstrual products, thirteen were uncomfortable, eight were indifferent, and six were comfortable. Only seven were aware of toxic shock syndrome, while four had a vague idea and sixteen were entirely unaware.

The responses concerning attitudes toward menstruation were particularly fascinating, as they were often violently negative or delightfully positive. Sixteen of the participants felt menstruation should be approached as a normal bodily function, but nothing that is discussed in polite society, like taboos against discussing urination. Six felt its stigma should be entirely removed, and eight felt it shouldn’t be discussed or thought much about at all. When asked about

their own attitudes, the response was mixed. Seven responded negatively, while four remained neutral, and the rest wavered between positive reactions, only acknowledging its effect on their sex lives, expressing its normalcy, or uncertainty. The negative responses were often extreme. One reads, “Yes, it's a normal thing, but bleeding and/or shedding down there is just nasty. Imagine a penis bleeding and shedding tissue. Would you talk about that in public?” Another argues, “We don't talk in public about saliva, urinating, or defecating. And all of those occur much more often than menstruation, which gives them a little more normalcy. So why talk about something equally as repugnant as the above? There's no real need to talk about it, it just happens: leave it at that.” My favorite simply states, “I want to think about menstruation about as much as I want to think about my parents having sex.” Others were more supportive, even enthusiastic. “I wish it was talked about more. It's important, and the topic itself can be healing bridge between the sexes, instead of the warring faction-maker it is.” Another states, “I think it to be a necessity and normality of the female lifestyle, but nothing to be elevated or downgraded. Just like eating, sleeping or urinating, it's just something that happens.”

The female survey was far more involved, longer, and had a much larger number of participants. Of the 87 women who responded, twenty-eight were between the ages of 16 and 19, and thirty-two between 20 and 29. No one above the age of 69 participated. Sixty-seven identified as Caucasian, while the runner-up category was Other, followed weakly by 4 Hispanics, 4 Asians, and 3 blacks. Region was dominated by the Northeast (56) and the Southeast (16). Religious affiliation was largely even, with twenty-four who identified with Other, twenty who identified with Catholic, and nineteen with Protestant. Agnostic, Atheist, Muslim, and Buddhist, were fairly evenly distributed. Forty-one identified as liberal, nineteen as moderate, seventeen as conservative, and ten remained unaffiliated.

The survey began with a series of questions on menarche. Of the eighty-five who answered the question, seventy-three were aware beforehand what menstruations is and how it would affect them, while six were unaware and six did not remember. When it came to menstrual education, 67.4% were first told by their mother, only 10.5% by a teacher. The rest was evenly distributed between friends or peers, relatives or family friends, or another unidentified source. When asked to discuss their feelings on their impending menarche, nervousness, worry, and dread were the primary emotions, often mixed with excitement or annoyance. The majority of girls (73.6%) first broke the news of their menarche to their mother. Family response was equally identified with feelings and actions of pride or excitement, and apathetic, casual reactions. Some noted that their fathers' first reaction was to crack a joke, make fun of them, or create a codeword for their menstruation. Others expressed mortification at their parents proud, often weepy reactions. Others kept their menarche secret for fear of having their period discovered by less sympathetic family members: "My mother (to my knowledge) was the only one that knew. She was certainly the only one I told. In hushed and sympathetic tones, she handed me a box of liners- which I didn't dare keep in the bathroom for fear that one or all of my three brothers would discover them and intrude upon my terrible new secret/"condition"." When asked to discuss how they felt about their first period, many reactions were mixed, consisting mostly of surprise, nervousness, or worry along with excitement, unhappiness, or disappointment. One response merely stated, "Awkward, mildly disgusted, becoming more uniquely different from men." Another elaborated, "I didn't know what it was at first, so I was confused. Then kind of grossed out—it's totally not the mature womanly experience it's supposed to be. And secretly I felt a little proud—cause I was older. But embarrassed that I hadn't recognized it." Others expressed feeling more mature and more feminine. "Initially surprised, and then rather pleased. I felt like I had joined the ranks of real women."

When asked to discuss how they currently view their period, a negative reaction was most common, followed by neutrality, followed by a positive reaction. Most of the negative responses cited discomfort, pain, and inconvenience. "I hate it. I hate the inconvenience and the pain and the PMS." Many of those who identified their feelings as neutral expressed similar pain, but remarked that they either appreciated it as a symbol of their femininity, or viewed it simply as a fact of life. "It's part of my life. I find the cramps and bloating uncomfortable and painful. But in general, it's not a big deal -- although I also don't really celebrate it, either." Those who identified it as a positive function expressed feeling cleansed, more in touch with their femininity, or simply allowed some reprieve from life. One response said, "I don't mind it as much as I did when I first got it. I look at my period as a time to take care of myself now and get more sleep and relax more than I do the rest of the month." Another enthused, "I love it. Even when it hurts, it makes me feel healthy and complete in my own womanhood." When asked to discuss how they feel about discussing menstruation, an overwhelming majority expressed full comfort, no matter the audience. Of the eighty-one who answered the question, forty-eight were entirely comfortable, eighteen said it depends on the person they're speaking to and in what context, seven did not find it appropriate or were uncomfortable, five were neutral, and only three would not discuss it around males. Those who qualified their discussion depending on the person often cited other people's discomfort instead of their own. One response said, "With other women it's ok or safe to talk about it, but with a guy it's uncomfortable. I think 'they' think the pain and PMS is something to joke about with us and their friends, or they're uncomfortable even looking at us when we're having our period." Another expressed similar concerns: "It's a life function so it has its place, but I would say that I typically don't bring it up. There are so many people that react negatively to it or are awkward about it, that I don't bring it up. I would say I personally don't mind, but others do, so I just don't."

The same casual comfort toward menstruation held true toward menstrual products. When asked about being seen with menstrual products, 57.5% chose “Comfortable, but definitely not about to brag about it.” 28.7% identified as being uncomfortable, 10.3% as being so comfortable they would make tampon crafts if they knew how, and 3.4% as mortified. When it came to menstrual product use, 39.1% use tampons, 27.6% use a combination of products, 24.1% use sanitary napkins, and 4.6% use the environmentally friendly Diva Cup. 4.6% use Other, though most likely this consists of the Diva Cup’s sister, Luna Pads, which I neglected to include in the options. Almost half (48.3%) use the same brand all the time, while 26.4% do not and 25.3% vary. 89.5% are aware of toxic shock syndrome, while 5.8% have a vague idea, and 4.7% are unaware.

PMS was a varied topic, and did not reflect the chaotic drama it is famously known for causing. 44.8% reported sometimes suffering from PMS, 42.5% definitely suffer, and 12.6% do not experience PMS at all. When given a list of symptoms suffering during menstruation, mood swings (23.3%), cramps (21.8%), and bloating (16.5%) were most common. Only 9% identified suffering from mental foginess. This reflected the results of the question, “When menstruating, do you feel less mentally capable than when not menstruating?” 50% said no, 27.9% said sometimes, 15.1% said rarely, and only 7% said yes. When asked how painful menstruation typically is on a scale of 1 to 10, the most common numbers were 5 (17.2%), 4 (14.9%), and 2 (13.8%). 3, 7, and 8 came second, each with 11.5%. No one identified with number 10, and only 3.4% listed a 9. When asked if they limit their physical activity or participation in sports or exercise while menstruating, 46% said it depends on the activity and the time of the cycle, 42.5% said no, and only 11.5% said yes.

When asked about euphemisms used for menstruation, overwhelmingly the majority uses “period”. “That time of the month” came in a weak second, while words and phrases such as

“cycle”, “on the rag”, “the curse”, and “Aunt Flo” were used sporadically. Others had created their own euphemisms: “I named my period ‘Zack Morris’ (the lead character on the show ‘Saved by the Bell’) so whenever I mention it to my friend I tell them Zack Morris is visiting. Also, whenever I mark it on my calendar, I write his initials ‘ZM’ so if someone does question me about it I can have a funny story instead of the awkward ‘uhh that X marks my period.’”

When asked how menstruation should be approached in society, the responses were decidedly halved. 51.2% felt it should be seen as a normal bodily function devoid of any stigma. 46.5% felt it should be a normal bodily function, but nothing that is discussed in polite society, like urination. 2.3% felt it should not be discussed or thought of much at all. At the end of the survey, I included the opportunity for any additional commentaries. Many responses had to do with how menstruation is seen culturally. One response said, “I agree that menstruation should not be viewed as something horribly revolting because it is after all, a normal part of being a woman, but at the same time, it's just not something I feel needs to become a popular topic of discussion.” Others expressed the desire to see more education, positive attitudes, or less government bias: “I just really wish that young girls were more comfortable with the topic, and that young men were more educated so they know exactly what's going on within a woman's body during menstruation.” “I don't feel that menstrual products should be taxed, as they are in many states.”

Most concerning are the responses to the question, “Would you eliminate your period if you could?” 50.6% said yes, but only if they could still have children. 21.8% said no, 14.9% were unsure, and only 12.6% would eliminate it altogether, whether or not they could still give birth. When looking at the survey as a whole, this becomes one part of a huge contradiction. To summarize, the majority of respondents view their menstruation negatively or neutrally and would eliminate it if they could still be pregnant, yet they feel comfortable talking about it and

agree it should be given more attention and respect. It is not just this contradiction that I find concerning, but particularly the large number of women who would do away with their period if they could. Menstrual suppression without surgery has become a reality in this decade and, judging by the results of this survey, its emergence may be increasingly welcome.

In the 2000s, new medical technology was developed that offered women the opportunity to do away with their menstruation, whether temporarily or permanently, without surgery. In July 2001, business and technology magazine Wired published an article detailing new contraceptives being studied. The drugs, called progestin antagonists, were hailed as new treatment and effective for women with endometriosis, dysmenorrhea, or excessive bleeding. However, they could also be used by women who just wanted to end menstruation, with or without a menstrual-related condition. Dr. Anthony Dobson, a reproductive endocrinologist at the University of California San Francisco, was quoted on the “erroneous notion that it’s unnatural or unhealthy not to get a period every month.”; “Many women believe that having a monthly period is necessary for their wellbeing... This belief dates back to the Dark Ages when people were bled for just about any ailment, and it should remain there. Women have a period to prepare themselves for pregnancy, nothing more.” The article was published while the drugs were still being tested for human use, but as they and similar drugs neared approval by the FDA, waves of positive and negative response reverberated through cyber space.

Dr. Susan Rako, a psychiatrist in Newtonville, Mass., argued that the long term effects of menstrual suppression are generally unknown, but what is known is generally undesirable. “The complexity of hormones’ effects upon one another and on every organ system in the body is far from fully understood.” (Kelley) She cites the pill’s decrease of testosterone, which adversely affects energy levels, muscle tone, and brain function; she also points to a link in her research between long-term use of birth control and higher risk of cervical cancer, arguing that use of oral

contraceptives leaves women unable to fight the humanpapilloma virus, the leading cause of this cancer. The American Cancer Society states that there was no definite evidence linking oral contraceptives with cervical cancer (Kelley). Nonetheless, Rako's claims were supported and echoed by the Society for Menstrual Cycle Research, who issued a statement saying there was not enough evidence to suggest that the new birth control was "entirely safe and reversible." (Kelley) On the other side of the argument was Dr. Leslie Miller, an associate professor of obstetrics and gynecology at the University of Washington. Dr. Miller's study of low-dose birth control pills was tied to a goal to avoid periods altogether. She herself had not menstruated for eight years at the time of her New York Times interview (Kelley). Other publications referenced by the article, such as Is Menstruation Obsolete?, by Elsimar M. Coutinho and Sheldon J. Segal, argued that because women historically had very few periods due to frequent pregnancy, birth, and nursing, the regular function of menstruation was a recent phenomenon with a number of health problems. Regular women had their say too. The Museum of Menstruation (Finley) has run a popular forum titled "Would You Stop Menstruation" since 2000. The responses that I have read largely consist of a resounding "Yes", but only if it were safe. Many of these entries detail painful, heavy, or complicated periods. What few responses there are that argue in favor of menstruation usually cite unease at the thought of tampering with one's biology, or joy with one's physical connection to the earth. As of 2009, the debate is still on with inconclusive results. Though menstrual suppressing products such as Seasonale and Depo-Provera are available, their reviews are mixed and their use modest. Though I do not deny relief for those who suffer from complicated or extremely painful menstrual cycles, I firmly believe that for healthy women this new ability to suppress menstruation is a threat to our identity, and subsequently to our physical and psychological health. Menstruation is not an illness that needs to be cured. It is a natural bodily function unique to female anatomy. Not only should the

physical side-effects of suppressing menstruation be considered, but the psychological and cultural as well.

Our perception of menstruation as an antagonizing irritant is a product of an enduring patriarchal legacy that values the male as regular, and condemns the female as irregular and other. Menstruation has been used against women to dehumanize us: to prove we are irrational, emotionally unstable, and incapable of complex thought or high power positions. Now, our uniquely female function is being threatened with removal under the pretense that it will make our lives easier and our bodies more desirable. This is not simply a matter of women's health, but is an issue of female identity and pride. No aspect of any human function should be used as a means to control, demean, or even annihilate. If we were to embrace menstrual suppression, it would be an annihilation of one huge facet of what it means to be female, a crime on par with female genital mutilation. I am not arguing that menstruation should become cocktail party conversation; I am arguing that menstruation is a normal, ordinary, natural function that in no way provides ground for the abuse women have suffered in America for the past four hundred years. If we are to attain gender equality not only in the United States, but everywhere, we must acknowledge the severe sexism in current and past menstrual politics and take action to reform.

Chemistry of Curcumin and New Synthetic Analogues

~Angelene Elliot

Turmeric is used as an ingredient in Indian cuisine and is most commonly in curry. This spice is believed to have significant health benefits. Turmeric is reported to have antioxidant, anti-inflammatory, and anticarcinogenic properties. These health benefits have been supported by recent scientific studies. Curcumin is a main component of turmeric and has been identified as the major active ingredient (3). Curcumin's organic chemistry is unique and enables its healing properties. Moreover, curcumin's chemical structure and the functional groups it contains are related to its medicinal properties. As a result, synthetic analogues of curcumin with enhanced medicinal properties have begun to be developed, and the search for a "supercurcumin" is on going.

Curcumin [1,7-bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione], or diferuloyl methane, (Figure 1) is the principal part of the rhizomes of the plant *Curcuma longa* (turmeric), and is a yellow pigment used in cosmetics and in the ancient Ayurvedic system of medicine. Chemically speaking, curcumin is a β -diketone, which contains two ferulic acid molecules (Figure 2) connected by a methylene bridge at the carbon atoms of the carboxyl groups (Figure 3) (3). In other words, it is a "bis- α , β -unsaturated β -diketone that exhibits keto-enol tautomerism" and is "a member of the linear diarylheptanoid class of natural products in which two oxy-substituted aryl moieties are linked together through a seven-carbon chain." The seven-carbon chain contains two ketone functional groups (Figure 4) and is unsaturated (2). Curcumin is also polyphenolic (Figure 6) and has a low molecular weight (17). All of these attributes of curcumin are significant and contribute to its activity.

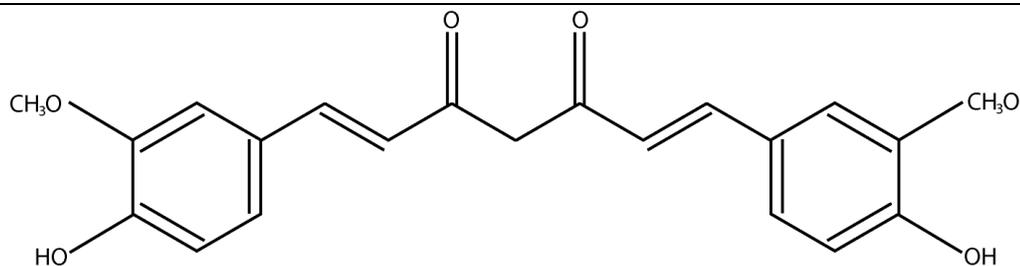


Figure 1: Structure of curcumin

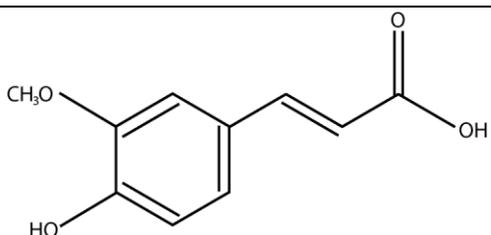


Figure 2: Ferulic acid

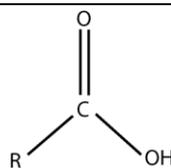


Figure 3: Carboxyl functional group

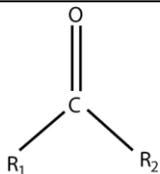


Figure 4: Ketone functional group

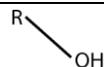


Figure 5: Alcohol functional group

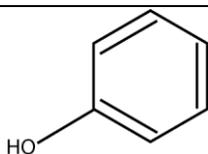


Figure 6: Phenol functional group

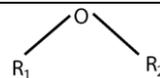


Figure 7: Ether functional group

Besides the structure of curcumin shown in Figure 1, there are several other curcuminoids. (Figures 8-11) Curcuminoids are also found, in smaller quantities when compared to curcumin, in turmeric. Demethoxycurcumin (DMC) (Figure 8) and bisdemethoxycurcumin (BDMC) (Figure 9) are the other curcuminoids found in the plant *Curcuma longa*. Isocurcumin

(Figure 10) and O,O-Dimethylcurcumin (Figure 11) are two additional curcuminoids. These curcuminoids are similar in chemical structure; they are all diarylheptanoid. What makes the curcuminoids different are the substituents of the aromatic rings (15). DMC's aryl ring substituents are varied, which include two alcohol functional groups (Figure 6) and one methoxy group (CH_3O). In contrast, BDMC's substituents of the aryl ring are two alcohol functional groups. Isocurcumin's substituents most closely resemble curcumin's substituents. These substituents are actually composed of the same functional groups as curcumin, but the groups are connected to different carbons on the aromatic ring, making curcumin and isocurcumin constitutional isomers. The last curcuminoid, O,O-Dimethylcurcumin, is comprised of four methoxy substituents (CH_3O) on the aryl ring. The curcuminoids are currently of great scientific interest.

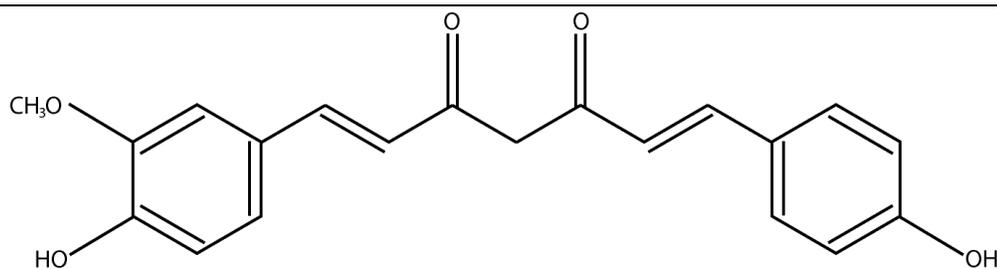


Figure 8: Demethoxycurcumin (DMC)

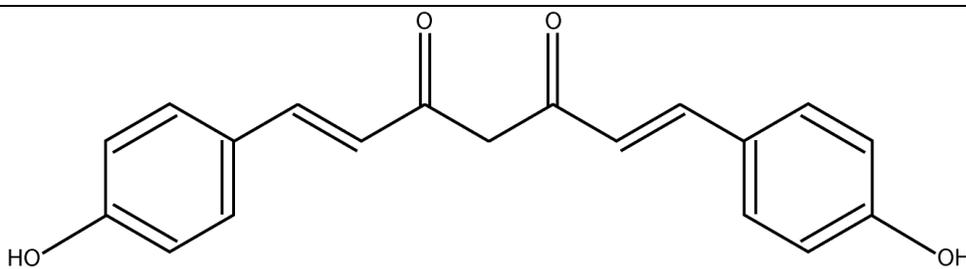


Figure 9: Bisdemethoxycurcumin (BDMC)

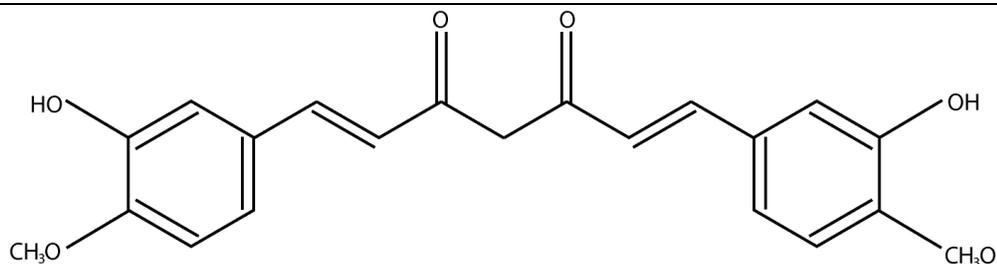


Figure 10: Isocurcumin

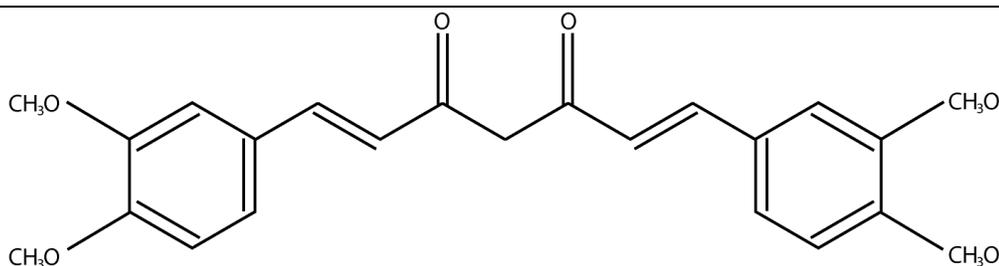
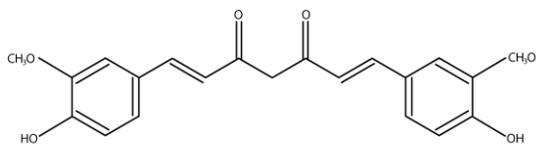


Figure 11: O,O-Dimethylcurcumin

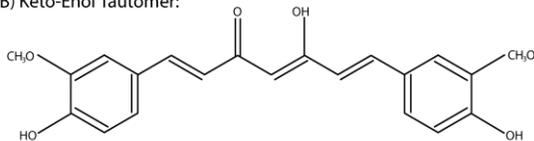
A more in-depth look at curcumin's organic chemical structure reveals reasons behind its positive medicinal affects. First, to reiterate, curcumin's structure can be described as "diarylheptanoid with substituted aryl rings" (15). Second, the structure of curcumin involves a few functional groups. (Figures 3-7) The molecule of curcumin is symmetrical if you draw a vertical line through the fourth carbon of the straight chain. Consequently, on either side of the C-4, at C-3 and C-5, there is a ketone functional group (Figure 4). Further, at both ends of the linear chain of carbons there is a cyclohexene aromatic ring. Each ring contains an alcohol (Figure 5) and an ether (Figure 7) functional group. Second, there are three likely structures of curcumin. The three possible structures include the β -diketone tautomer (Figure 12A) and two keto-enol tautomers (Figures 12B-12C), which differ because they are asymmetric (14). The energy of the curcumin isomers differs; the enol tautomer is lower when compared to the β -diketone tautomer. This proposes that the enol tautomer is favored in solution (19). Likewise, as

a result of the phenol groups (Figure 6), curcumin does exist in solution in two forms: a protonated and deprotonated form (Figure 14) (20). The structure of curcumin determines how the compound reacts with other substances.

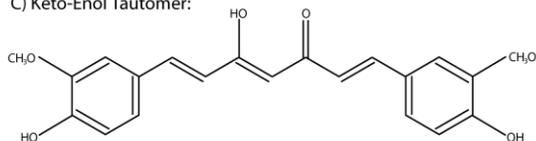
A) Beta-diketone Tautomer:



B) Keto-Enol Tautomer:



C) Keto-Enol Tautomer:



D) Resonance Structures:

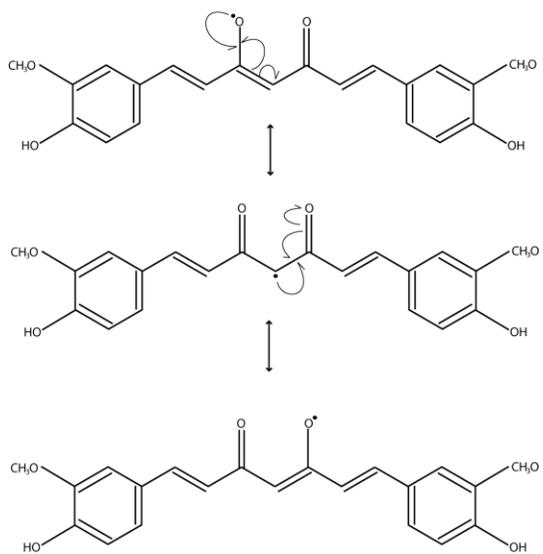


Figure 12: Structures of curcumin and resonance forms of curcumin radical

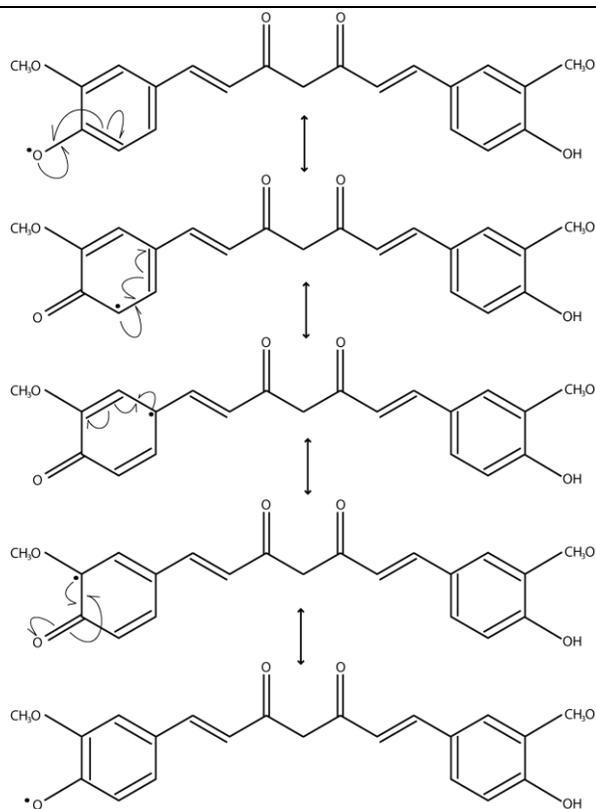


Figure 13: Structures and additional resonance forms of curcumin radical

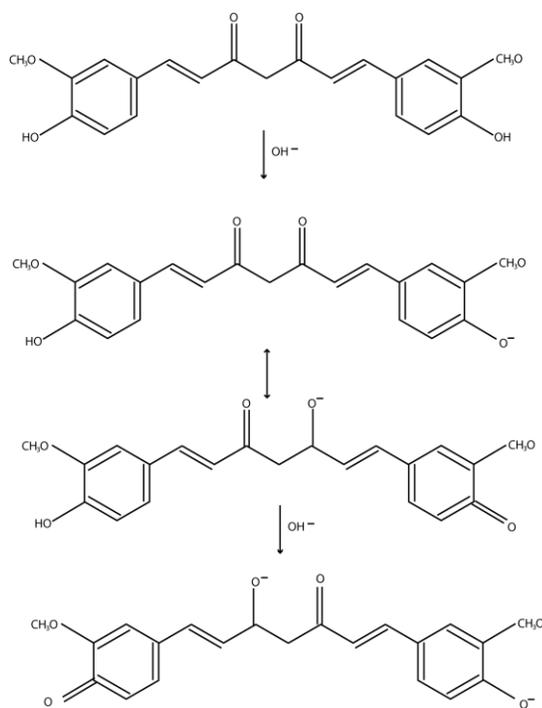


Figure 14: Protonation equilibrium between curcumin and its conjugate base (20)

Curcumin is widely acknowledged for its anti-oxidant properties. Anti-oxidants are substances that inhibit oxidation, which is described as combining with an oxygen molecule. Furthermore, oxidation is any chemical reaction where one of the substances loses electrons. In the body, if fat is oxidized in the blood, it can lead to increased levels of “bad” cholesterol, which can lead to hardening of the arteries. Consequently, curcumin is able to counteract the harmful effects of oxidation. The ketone (Figure 4) and phenol (Figure 6) functional groups relate to the antioxidant mechanism. It has been reported that the phenolic hydroxyl groups are required for curcumin to act as an anti-oxidant (2). Besides the phenolic groups, the β -diketone moiety also contributes to the anti-oxidant mechanism of curcumin (9). Both ketones and phenols require an oxygen molecule. It is these oxygen molecules that enable curcumin to become an antioxidant. By cleaving the double bond between the third carbon (in the seven-carbon chain) and the oxygen, it can produce a free hydrogen radical and a curcumin radical. (Figure 12) Similarly, if the double bond between the oxygen (in the alcohol group of the ring) and the aromatic ring is broken, a free hydrogen radical can be created. It also produces a curcumin radical. (Figure 13) This hydrogen atom, then, greatly attracts free radicals, which can cause a damaging combination. The curcumin radical also can combine with free radicals. In other words, a hydrogen atom is extracted from the phenolic group, which enables the anti-oxidant mechanism (19). Furthermore, either in enzymatic or nonenzymatic environments, curcumin has been demonstrated to help prevent free radicals from forming (3). To recap, curcumin is able to interrupt the radical chain reaction (11). Moreover, curcumin’s physiochemical and antioxidant properties are based on the solution equilibrium. If the solution is neutral or acidic, the keto isomer prevails, and that enables curcumin to become a strong hydrogen atom donor. On the other hand, in basic solutions, the enol isomer dominates, and the phenol groups assume control as the active site (7). Hence, curcumin is a strong antioxidant.

Anti-carcinogenic activities are another benefit of curcumin. The capability of curcumin to cause programmed cell death in cancer cells is under thorough investigation. Curcumin does not just target one type of cancer, it transverses organ systems and fights against cervical, gastric, breast, colon, leukemia, hepatic, pancreatic, oral, ovarian, prostate and epithelial cancer (17). Curcumin works in opposition to cancer by activating Phase I and Phase II detox systems, reducing the amount of blood malignant cells receive, neutralizing carcinogens, and hindering cell growth by blockage of protein kinases (6). Tzeng-Horng Leu and Ming-Chei Maa reported that the anti-oxidant mechanism of curcumin is responsible for its antimutagenic and anticarcinogenic activities (9). Therefore, the ketone (Figure 4) and phenol (Figure 6) functional groups of curcumin are certainly required in order for it to prevent cancer. These functional groups release hydrogen atoms, which create radicals. Then, these radicals capture carcinogenic free radicals, preventing them from causing unwanted, harmful cell growth. Thus, curcumin is a promising substance, which increases the hopes of a cure for cancer.

Anti-inflammatory is another characteristic attributed to curcumin. Inflammation causes pain, redness, swelling, and heat. The hydroxyphenyl unit is believed to be an important part of the anti-inflammatory mechanism of curcumin. The phenolic hydroxyl groups are needed to prevent cyclooxygenase (COX-1) activity, which initiates inflammation (2). Curcumin can abduct and then combine with the hydrogen atom needed to start inflammation, instead of the hydrogen atom joining with COX-1. If the hydrogen atom did combine with COX-1, COX-1 would convert anachidonic acid to three types of eicosanoids, which leads to inflammation. Curcumin is preventing the synthesis of eicosanoids. Therefore, curcumin is able to suppress inflammation.

Even though natural curcumin has many positive and advantageous biological properties, it is not a perfect molecule. First, one drawback of curcumin is its color; it is yellow and stains.

Second, curcumin is not soluble in water. It is a highly hydrophobic molecule, which makes it difficult to transport internally and reach target areas of the body. Third, the bioavailability of curcumin is limited. Inadequate absorption, quick metabolism, and rapid systemic elimination seem to be possible reasons for the low bioavailability of curcumin (1). Thus, scientists are hard at work trying to develop synthetic analogues of curcumin, which hope to solve the molecule's problems by enhancing its medicinal properties. Overall, it seems the most beneficial modified structure of a curcumin analogues is planar and linear (2). (Figure 15) One free hydroxyl group on the phenol ring should also remain in a man-made analogue in order to keep antioxidant properties (18).

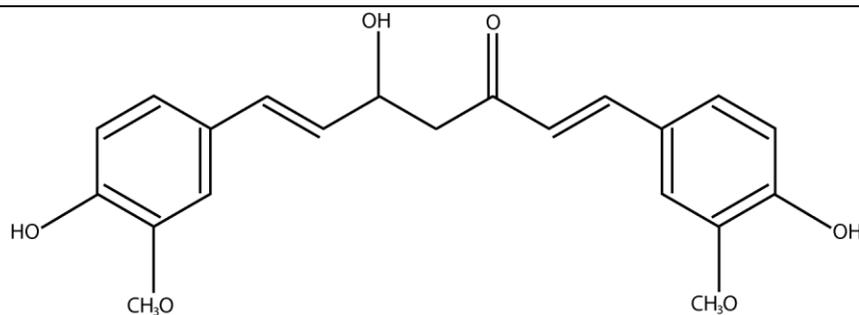


Figure 15: Optimized structure of curcumin analogue – (planar and linear)

Curcumin derivatives are one type of synthetic analogues. Researchers are trying to heighten curcumin's medicinal effects through the production of curcumin derivatives. In order for a substance to be a curcumin derivative, it must be of similar chemical structure. For example, the seven-carbon chain with ketone (Figure 4), phenol (Figure 6), and ether (Figure 7) functional groups will remain. So one way to generate a curcumin derivative is to adjoin molecules to the heptanoid chain (2). H. Ohori et al. developed curcumin derivatives in the hope of creating a more potent bioavailable anti-cancer drug. Their results produced five-carbon chain analogues with methyl modification of the hydroxyl group of the aryl ring (Figure 16) that were

much more cancer suppressive and extremely low in toxicity (13). Concerning the treatment of prostate cancer, L. Lin et al. also reported that a synthetic analogue requires two aryl rings, hydroxyl groups should be replaced by other substituents on the aromatic ring, and rings should be 3,4-disubstituted (10). Modifications to become a derivative also include altering the alcohol group of the aromatic ring. This can be done by adding varying functional groups (as Lin et al. suggest), adding differing molecules, and/or saturating / unsaturating bonds (2).

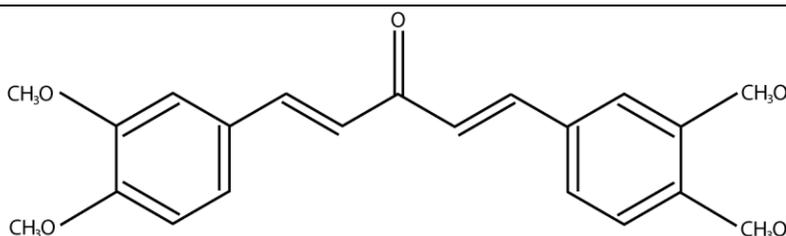


Figure 16: 5-carbon curcumin analogue with methyl modification of hydroxyl group of aryl rings

Metal complexes of curcumin are another kind of man-made analogue being researched. Metals, like boron, copper, iron, manganese, palladium, vanadyl, gallium, and indium, have been combined with curcumin to create synthetic analogues (2). Analogues with vanadium, gallium, and indium are reported to be more cytotoxic when compared to curcumin (12).

A third type of synthetic analogue is called curcumin analogues. Curcumin analogues include all other compounds with a chemical structure that is thought to be analogous to curcumin's structure. There are almost limitless ways to create curcumin analogues. Some examples include adding or deleting carbons from the seven-carbon chain, saturating the double bonds, and/or changing functional groups (2).

The future of curcumin looks promising because of the plethora of positive effects attributed to it. As previously mentioned, antioxidant, anti-inflammatory, and anticarcinogenic are three properties linked to turmeric (15). Anti-microbial is one more characteristic associated

with curcumin (2). In addition, curcumin regulates the expression and function of a many different proteins including membrane proteins, which affect lipid bilayer characteristics (5). Furthermore, turmeric can be applied to act antimicrobially or as an insect repellent (16). Another positive effect of curcumin is it helps reverse renal dysfunction (8). Additionally, curcumin has been recognized as protecting against heart attacks and suppressing thrombosis (2). The ability to cross the blood-brain barrier is one more unique trait of curcumin (4). Permeating the blood-brain barrier permits curcumin to be a possible candidate for the treatment of Alzheimer's disease. Thus, not only will scientists continue to forge ahead to fully take advantage of all the natural curcumin molecule can offer, but researchers will also strive to create an ultimate "supercurcumin".

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NCLB and Dewey's Virtues of Intelligence

~John Sherman

It is a miracle that curiosity survives formal education.

-Albert Einstein

I. Introduction

Lessons about morals signify as matter of course lessons in what other people think about virtues and duties. It amounts to something only in the degree in which pupils happen already to be animated by a sympathetic and dignified regard for the sentiments of others. Without such regard, it has no more influence on character than information about the mountains of Asia (Dewey, *Democracy and Education* 354).

At the heart of John Dewey's philosophy lies his democratic conception of education and the moral equality all human beings share to that end. For Dewey, education must be approached with an understanding of the incommensurable moral value of each individual. Without this understanding, education becomes a mere collection of useless facts. Thus, a democratic society is one whose institutions are organized to demonstrate an equality of concern for all human beings to fully realize their humanity by freely choosing patterns of life and intelligently adjusting to their environments in order to grow comprehensively. To achieve such a realization one must obviously acquire many facts and learn basic skills. But in order for education to be truly successful it must also foster a set of virtues or habits of intelligence including critical reflection, imagination, emotional sensitivity, sympathy, and many others. Although some of Dewey's ideas and proposals have been implemented (problem-solving, for example) into the American educational system, many institutions of higher learning still seem to lack a moral foundation that is consistent with and relevant to the rest of life's experiences. This paper will examine the policies and arguments surrounding the No Child Left Behind (NCLB) campaign—which has produced an enormous amount of legislation and has cost billions of dollars—using

Dewey's virtues of intelligence and his conception of education within a democratic society as a standard to evaluate it.

II. Dewey's Virtues of Intelligence

Before scrutinizing the No Child Left Behind Act, it is necessary to take a closer look at Dewey's understanding of intelligence. Dewey describes the process of intelligence as follows:

Observation of the detailed makeup of the situation; analysis into its diverse factors; clarification of what is obscure; discounting of the more insistent and vivid traits; tracing the consequences of the various modes of action that present themselves; regarding the decision reached as hypothetical and tentative until the supposed consequences which led to its adoption have been squared with actual consequences. This inquiry is intelligence. (Dewey, *The Middle Works, Volume 12* 173)

We see that intelligence is not just an acquisition of facts or skills. It is a form of inquiry that occurs in response to a problematic situation. According to Dewey, a problematic situation is one in which judgment and choice are required before any action is taken. The correct action is not always apparent and must be searched for. In order to discern the optimal action, the process of inquiry described above must be adhered to.

But what is the purpose of intelligence? Essentially the purpose of knowledge is to help us move successfully from experience to experience. The ability to use knowledge in an effective way is a transformative process that involves liberating action from certain habits and impulses.

Dewey puts it as follows:

The pragmatic theory of intelligence means that the function of mind is to project new and more complex ends—to free experience from routine and caprice. Not the use of thought to accomplish purposes already given either in the mechanism of the body or in that of the existent state of society, but the use of intelligence to liberate and liberalize action—that is the pragmatic lesson. (Dewey, *Middle Works, Volume 10* 45).

However, it is insufficient to merely understand this method of intelligence theoretically, as one needs to practice certain virtues or habits for the method to be realized. So it is important to briefly look at Dewey's conception of virtue.

Dewey conceives virtues as "interactions." According to this conception, the development and consistent practice of virtue presupposes certain material and social conditions. Most people think of virtues as moral qualities as opposed to qualities that have no moral consequence. Dewey, however, does not make the distinction. He challenges the idea that there is a clear line dividing phenomena that have moral significance from those that do not: "The serious matter is that this relative pragmatic, or intellectual, distinction between the moral and non-moral, has been solidified into a fixed and absolute distinction, so that some acts are popularly regarded as forever within and others forever without the moral domain" (Dewey, *Human Nature and Conduct* 40). For Dewey, every act has the potential to have moral significance. Now Dewey describes moral virtues or habits with subtle differences and similarities. There are, however, a core set of habits¹ which both represent his concerns and the concerns of this work.

- The habit of being conscientious or being interested in finding out what the actual good of a certain situation is
- The habit of maintaining a bias toward fairness and objectivity when judging and evaluating conflicting values and opinions
- The habit of seeking the good of a situation with others whenever possible
- The habit of being emotionally sensitive and especially sympathetic to the values and feelings of those in the situation
- The habit of carefully reflecting upon the relevant aspects of the situation
- The habit of exercising one's imagination to see new possibilities and have a sense of the situation as a whole
- The habit of being willing to change our beliefs in light of certain consequences and learn from the past (Goodyear 117).

We must have a vested interest in the outcome of a situation in order to truly discern the optimal action to take. Once we develop this habit, we must work on maintaining a position of objectivity regardless of the situation. This habit will allow for the greatest equity for all

¹ "Intelligence consists of a set of flexible and growing habits that involve sensitivity; the ability to discern the complexities of situations; imagination that is exercised in seeing new possibilities and hypotheses; willingness to learn from experience; fairness and objectivity in judging and evaluating conflicting values and opinions; and the courage to change one's views when it is demanded by the consequences of our actions. All education is moral education, when we understand "moral" in that broad sense which involves intelligent evaluation" (Bernstein 143).

involved once an action is taken or a decision is made. However, we must simultaneously practice the habit of sympathy, being aware and responsive to the emotional sensitivities of those involved in a particular situation. As a corollary, we must practice seeking the good in every situation. Finally, to truly participate in intelligence, we must practice reflecting upon the situations in which we find ourselves. Part of this reflection includes a utilization of one's imagination, openness to changing our beliefs in light of unexpected consequences, and learning from past experiences. Therefore, this process of gaining intelligence must be underscored by a fallibilistic attitude, as knowledge is never certain and thus always can be revised and improved with the employment of the imagination and an open mind. Once one adopts this attitude and pursues actions that are directed by intent and insight into their consequences, he or she begins to make intelligent adjustments that allow for intellectual and emotional growth.

IV. The No Child Left Behind Act of 2001

The No Child Left Behind Act of 2001 is a United States federal law first proposed by President George W. Bush immediately after taking office. The act was signed into law nearly a year later. Since this act's conception, Congress has increased federal funding of education, from \$42.2 billion in 2001 to \$54.4 billion in 2007.²

According to the Department of Education, the act is based on four particular areas of reform. These include stronger accountability for results, more freedom for states and communities, proven education methods, and more choices for parents³.

- **Stronger Accountability for Results**

Under *No Child Left Behind*, states are working to close the achievement gap and make sure all students, including those who are disadvantaged, achieve academic proficiency.

² <http://www.ed.gov/news/pressreleases/2006/02/02062006.html>

³ <http://www.ed.gov/nclb/overview/intro/4pillars.html>

Annual state and school district report cards inform parents and communities about state and school progress. Schools that do not make progress must provide supplemental services, such as free tutoring or after-school assistance; take corrective actions; and, if still not making adequate yearly progress after five years, make dramatic changes to the way the school is run.

- **More Freedom for States and Communities**

Under *No Child Left Behind*, states and school districts have unprecedented flexibility in how they use federal education funds. For example, it is possible for most school districts to transfer up to 50 percent of the federal formula grant funds they receive under the Improving Teacher Quality State Grants, Educational Technology, Innovative Programs, and Safe and Drug-Free Schools programs to any one of these programs, or to their Title I program, without separate approval. This allows districts to use funds for their particular needs, such as hiring new teachers, increasing teacher pay, and improving teacher training and professional development.

- **Proven Education Methods**

No Child Left Behind puts emphasis on determining which educational programs and practices have been proven effective through rigorous scientific research. Federal funding is targeted to support these programs and teaching methods that work to improve student learning and achievement. In reading, for example, *No Child Left Behind* supports scientifically based instruction programs in the early grades under the Reading First program and in preschool under the Early Reading First program.

- **More Choices for Parents**

Parents of children in low-performing schools have new options under *No Child Left Behind*. In schools that do not meet state standards for at least two consecutive years,

parents may transfer their children to a better-performing public school, including a public charter school, within their district. The district must provide transportation, using Title I funds if necessary. Students from low-income families in schools that fail to meet state standards for at least three years are eligible to receive supplemental educational services, including tutoring, after-school services, and summer school. Also, students who attend a persistently dangerous school or are the victim of a violent crime while in their school have the option to attend a safe school within their district.

V. Assessment of the No Child Left Behind Act

There are two main-standing objections a Deweyan would have to the No Child Left Behind Act. The first criticism is that the act focuses too heavily on standardized testing⁴ as the primary means of assessing students' abilities. Second, the act's focus on math and English language skills makes the curriculum so narrow that a liberal education in the humanities becomes a rare commodity.

The sheer amount of standardized testing brought on by this act has been unprecedented in the history of education. Surely, some tests are needed in order to assess an aspect of students' capabilities and the success of various teaching methods. However, to reduce every discipline to a set of multiple choice questions not only diminishes the consequence of these fields of study, but also debases students' intellectual growth as they become nothing more than machines regurgitating memorized facts.

Critics have also argued that the focus on standardized testing as a means of assessment encourages teachers to teach a narrow subset of skills that will increase test performance rather than focus on deeper understanding that can readily be applied to similar, practical problems. This is colloquially referred to as "teaching to the test." This method of teaching is completely

⁴ All students in a state take the same test under the same conditions.

contradictory to Dewey's notion of fostering intelligence, which as discussed above, involves an underlying moral (i.e. purposeful) sentiment. In this aspect NCLB fails in providing students with a morally and socially relevant educational experience. The emphasis NCLB places on standardizing testing bastardizes the process of intelligence by centering education around a set of scores as opposed to learning. The practice of determining educational quality by testing students is incorrect.

NCLB's focus on math and English language skills may elevate scores on two fundamental skills while students lose the benefits of a broad, liberal education.

Surveys of public school principals indicate that since the implementation of NCLB, 71% believe instructional time spent for reading, writing, and math (subjects tested under the law) has increased substantially, and decreased for the arts, elementary social studies, and foreign languages.^{5 6} While tapering the scope of education to a couple core disciplines will without a doubt increase students' ability to methodically solve certain problems, this sort of analytic education has a limited application in the real world and does not aid in moral character development.

VI. My Proposal

Now that we have established a clear definition of intelligence as well as a method for attaining it, we can examine how these virtues can and why they should be cultivated in the classroom.

If a teacher's instruction is generally consistent with other moral lessons a person has learned, then it may serve to reinforce these lessons; otherwise, such instruction will be of little positive consequence. Dewey suggests that there is even a potential danger in *merely* giving

⁵ <http://thehill.com/op-eds/no-child-left-behind-act-wrongly-left-the-arts-behind-2007-03-12.html>

⁶ http://www.cbsnews.com/stories/2007/07/25/national/main3096192.shtml?source=RSSattr=U.S._3096192

didactic instruction, and criticizes those who engage in this practice: "They overlook the danger that standards so taught will be merely symbolic; that is, largely conventional and verbal."

Dewey's concern is that, taught didactically, students may learn to exhibit the conventions of morality, while lacking that which is more genuine and substantive. A child who has cultivated only the appearance of virtue will be ill-prepared to develop the keen sensitivity and capacity for reflection and judgment that more mature virtue requires.

Therefore, Dewey is opposed to separating moral education from the rest of schooling: "Moral education in school is practically hopeless when we set up the development of character as the supreme end, and at the same time treat the acquiring of knowledge and the development of understanding, which of necessity occupy the chief part of school time, as having to nothing to do with character" (Dewey, *Democracy and Education* 338). All education in Dewey's conception is "moral education" to the extent that it enables students to participate more actively and meaningfully in social life. When taught in such a way that they serve this end, history, the sciences, mathematics, and other regular school subjects can be viewed as aspects of moral education:

Just because the studies of the curriculum represent standard factors in social life, they are organs of initiation into social values. As mere school studies, their acquisition has only technical worth. Acquired under conditions where their social significance is realized, they feed moral interest and develop moral insight (Dewey, *Democracy and Education* 207).

A modern Deweyan would try to encourage activities and social relations that support the development and practice of desired character traits. This could include the reading of "moral texts" (fables and other stories thought to exemplify virtue) upon which some contemporary approaches are largely based, but it would also include elements intended to engage students and teachers in ways that are more obviously active and participatory. The arts and humanities can cultivate emotional sensitivity, imagination, and sympathy in students by offering insights into

situations where the sciences fall short. For example, the study of history offers many important observations that can help us penetrate modern social and political issues and move more successfully into the future. Additionally, as mentioned above, the reading of moral texts that exemplify particular and desired virtues offers students personal, virtuously significant ideas and insights that can then be applied appropriately and intelligently to one's real life. Thus, given his advocacy of an experimental education that offers a mean between the traditional and progressive approaches to education, Dewey would seek to create problems from these moral stories, past ideas, and history so that students can be given the opportunity to reflect critically on them and see how they might be revised in light of new and interesting problems. In this way teachers can instill the virtues of reflection and self-correction in their students.

To take Dewey's educational vision a step further, one could propose that these problems be constructed outside of the classroom, thus helping to break down the artificial barrier that exists between school and the real world. For Dewey, education must go beyond the boundaries of the classroom; indeed, education and the process of intelligence must permeate all of life's endeavors in order to be truly successful. By posing students with morally and socially relevant problems, teachers can introduce and present moral tales without indoctrinating students uncompromisingly while simultaneously maintaining a respect for past tradition and the "wisdom of old."

Another proposal that I have which also involves inquiry into past content for the sake of intelligent adjustments for the future involves the utilization of group-work. By implementing interactive problems into a curriculum teachers can not only facilitate the habit of working with others, but also assist in the development of civic virtues because such interactive, social inquiry is a microcosm of the larger democratic community of which students will one day be a part.

What most clearly distinguishes the Deweyan classroom, however, is that such a classroom would reflect the understanding that all of its aspects have moral significance. Character education would not be addressed in special courses, or as a mere supplement to "regular" courses. For a Deweyan, the curriculum, teaching methods, the organization of time and physical space, would all reflect a concern for character development.

While Dewey does suggest ways in which moral education might be addressed in contemporary classrooms, a potentially more profound contribution lies in his argument that schools alone cannot foster virtue. Dewey urges us to consider the educational potential of all our institutions. Virtue on his account develops and is sustained in interaction with the whole of one's physical and social environment. The school constitutes only a part of a person's environment, and the other environments in which they participate will also influence the development of character. People live most of their lives outside of school among friends and family members engaging in a wide variety of activities, and the quality of these relations and activities will promote or hinder the development of different virtues. This is one reason why Dewey emphasizes that producing virtues and good character, from childhood on, requires social, political, and economic arrangements that are suited to this end. Thus if Dewey were to influence contemporary policy makers and politicians who assert that we are suffering a nationwide crisis in character, then their efforts would likely include reform of all such arrangements, not merely select elements of the schools' curricula.

There is [...] no incompatibility between the fact that the occasion of reflection lies in a personal sharing in what is going on and the fact that the value of the reflection lies upon keeping one's self out of the data. The almost insurmountable difficulty of achieving this detachment is evidence that thinking originates in situations where the course of thinking is an actual part of the course of events and is designed to influence the result. Only gradually and with a widening of the area of vision through a growth of social sympathies does thinking develop to include what lies beyond our direct interests: a fact of great significance for education (Dewey, *Democracy and Education* 88).

In conclusion, in order for education to be truly successful it must foster a set of virtues of intelligence that include critical reflection, imagination, emotional sensitivity, sympathy, in addition to many others. The policies of NCLB, which focus on developing a set of test-taking skills, seems to lack both moral and practical relevancy. Now to conclude with an issue that we have all certainly raised by this point—and that is, where the debate surrounding education is currently headed politically—let us briefly look at President Barack Obama’s position with regards to education. According to his official homepage: “Obama and Biden believe teachers should not be forced to spend the academic year preparing students to fill in bubbles on standardized tests and he will improve the assessments used to track student progress to measure readiness for college.”⁷ Additionally, President Obama has described the American public-education system as “morally unacceptable” and seems to want to make genuine efforts to improve it. Some of President Obama’s proposals for education included training more teachers and paying them better, making colleges more affordable for those who commit to public service, and to fix the ‘broken promises’ of the No Child Left Behind Act.⁸ There is certainly hope for the future of education in America, as President Obama’s policies are more closely aligned with Dewey’s vision of education.

⁷ <http://www.barackobama.com/issues/education/>

⁸ <http://www.usnews.com/blogs/on-education/2008/5/30/obama-finally-talks-tough-on-education-policy.html>

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One, Two, Hip Hop and You Don't Stop: C-Block, Strongy, and a Black Atlantic Hip Hop

~Claire Kalala

*“Listen...people be askin me all the time,
'Yo Mos, what's gettin ready to happen with Hip-Hop?’
(Where do you think Hip-Hop is goin?)
I tell em, ‘You know what's gonna happen with Hip-Hop?’
Whatever's happening with us’”
-Mos Def; “Fear Not Man*

This paper discusses and explores the complex history of hip hop as a music genre and urban subculture, as well as the conceptions and misconceptions that surround it. To explain this, I will use the research of scholar and associate professor at the University of California, Los Angeles, Cheryl Keyes, who specializes in American music, specifically African American music, popular music, rap/hip-hop music. This culture is thereby used as a means for a successful youth culture, and I will discuss its role in creating and defying the stereotypes of a “degenerate” youth culture and community, specifically citing the work on youth culture by Mary Bucholtz, professor in the department of linguistics at the University of California, Santa Barbara.

I will also analyze the immigrant and the way hip hop culture is used as a model for reinvention, and self-identification; established, specifically by young immigrants to combat the unique position of being an outsider in two worlds. In addition, I employ the work of Derek Pardue, assistant Professor at the Washington University in St. Louis who specializes in socio-cultural anthropology and international and area studies (specifically work on Brazilian hip hop as an educational project) and Elizabeth Chacko, Associate Professor of Geography and International Affairs at George Washington University (specifically her work on Ethiopia immigrants in Metropolitan Washington). Primarily, I use my own field research on a specific Congolese-Canadian hip hop artist, to explain how acculturation to the western world can be

achieved through the adoption and reshaping of a pre-existing dominant western subculture to recreate ethnicity: the hip hop world.

As I look at youth cultural practices, I will analyze my field work in relation to Professor Paul Gilroy's work on a "Black Atlantic." Professor Gilroy is a professor at the London School of Economics and Political Science, whose specialties are multi-disciplinary, but is best known for his work on racism, nationalism, and ethnicity. His original approach to the history of the African diasporas into the western hemisphere is specifically in regard to his theories of a Black Atlantic. I will show my field work subject as a modern example of Gilroy's explanation that a Black Atlantic is the result of a reinvented ethnicity and culture, musically and beyond, by African immigrants to the Atlantic.

For nearly four decades, hip hop has flourished as an American subculture. From the days of the "old school pioneers" to the present "new-school innovators," hip hop classifies so much more than the commercialized version of thug and party rap that is played and replayed on television stations like MTV and BET. In the introduction of Mickey Hess, assistant professor of English at Rider University, *Icons of Hip Hop encyclopedia*, the author explains that "tracing its roots back to African griots and bad-man legends of folklore, hip hop grew out of Jamaican DJs boasting and roasting, snaps, "ya mama" jokes, and children's playground chants (Hess Intro). In Byron Hurt's film *Beyond Beats and Rhymes*, Hurt claims that hip hop began as a productive and constructive cultural alternative to the violence of urban street gangs all too familiar with the predominantly African American and Puerto Rican youth population in New York's urban cities. As a form of music, its birth occurred as DJs began isolating the percussion break from funk or rock songs for audiences to dance to (Hurt 24). Instrumentally, hip hop culture incorporates, turntables, vocals, samples, synthesizers, drum machines and even more recently, live bands (Hess Intro).

Keith *Cowboy* Wiggins, a rapper with *Grandmaste flash and the Furious Five* has been credited with coining the term hip hop in 1978, while teasing a friend who had just joined the US Army. He scat sang the words "hip/hop/hip/hop" in attempt to mimic the rhythm of marching soldiers. *Cowboy* later worked the "hip hop" into a part of his stage performance. The group often performed with disco artists who would refer to them as "those hip-hoppers." Though the term was originally meant as a sign of disrespect, it soon became the classification of the new culture. Musically and culturally, hip hop is influenced by blues, jazz, funk, rock, rhythm & blues, and disco and in turn has inspired today's rock, dancehall, reggae, and popular culture (Hess Intro).

A dictionary definition might divide hip hop into four main elements: Graffiti art (tagging or writing), B-boying (break dancing, popping and locking), DJing (turntablism, mixing, cutting, or scratching records), and MCing (rapping or rhyming). KRS-One, one of hip hop's original MCs adds another five elements in his song "9 Elements," including beat boxing, fashion, language (slang), street knowledge, and entrepreneurialism (Hess Intro). Blooming culturally in the 1970s, hip hop's DJ was the focal point of performance, while the MC played a less prominent role, responsible for pulling focus to the DJ and to the dance floor (Hurt PAGEEEEE). Though rhyme battles were common in the inner-city communities and on the streets between local MCs, it wasn't until the 1980s that MCs took center stage in a more widespread performance, attempting to win over the audience with their rhyme structure, wordplay, and wit (Hess Intro). The success of *the Sugar Hill Gang's* "Rapper's Delight" in 1979, while it is neither the first hip hop single nor the first success, is generally considered to be the song that first popularized hip hop in the United States and around the world as it was graciously welcomed to the mainstream (Hess Intro).

“Amid its commercial success,” ethnomusicologist Cheryl Keyes of the University of California explains, “rap has been the subject of much controversy among critics. Some dismiss its cultural significance, positing that the music lacks artistic value and is little more than a controversial fad, while others share the view that rap is representative of a degenerate urban black youth culture” (Keyes 223). What these critics fail to realize, is the actual influence hip hop as a culture has on youth, community, and identity. As rap is an inextricable part of hip hop, it often becomes the poster face of the entire hip hop culture, two terms that have become almost interchangeable to both insiders and outsiders. MCs were classified and given respect based on their lyrical ability, but just as quickly as rap had hit the mainstream, there was a rapid detraction from the incredible lyrical skill. In the 1990s, with the development of *gangsta rap*, significant controversy arose concerning lyrics, which were perceived by some as promoting violence, promiscuity, and drug use (African 98). Though the arguments of many critics often state otherwise, *gangsta rap* is not the “evolution of hip hop,” but instead a subgenre of rap that co-exists with the political and consciousness-raising rap that has existed and continues to thrive.

Through fieldwork experiences in any discipline, people have an opportunity to really get an understanding for the relevance, implications, and essence of what they are studying. Through my studies in world music (MU 111), I was given a chance to do field work first hand, through which I have learned a lot more about what hip hop is really about, from its roots and from those who live it today. Current attitudes toward hip hop, often born out of ignorance on the subject, could be resolved as more people embrace these opportunities. Many would be able to better understand where rap is coming from and to see it as an important form of expression, not just what is apparent to the common observer. In studying hip hop and its role in the community, I chose to pin point and explore a place that I thought I knew very well: a tiny community called Caldwell, located in Ontario, Canada. I had been visiting Caldwell for years, to see family,

almost as a vacation spot of sorts. I can honestly say that before my experience as a field worker, I didn't fully understand the inner workings and spirit of the neighborhood. What became most fascinating were the differences in attitude and concepts within this community, specifically in reference to its hip hop culture.

At the young age of ten, Vasco Kalala, Congolese-Canadian hip hop artist and aspiring producer, which my fieldwork focuses on, moved with his Aunt and siblings to Ottawa, Ontario, Canada from Kinshasa in the Democratic Republic of the Congo. Vasco, who is named after and was raised by his uncle, Vasco Mbuyi Kalala Sr., moved after his uncle had come three years earlier to set up the family in one of Ottawa's oldest projects (built in 1972), Caldwell, named thus because of its location at the intersection of Merivale and Caldwell avenues. The two residential towers and series of townhomes that make up Caldwell are part of a larger area, Carlington. The latter is seen as one of the "least-advantaged" regions of the country's capitol. This is based on several socio-economic factors that were calculated as part of a fairly recent study done by the Institute of Population Health. It is comprised of different sections or communities, five of which are community housing owned by the Canadian government. In these neighborhoods the youth have named different 'blocks,' although the actual boundaries of Carlington cover an area of barely two miles in radius. Caldwell is referred to as C-Block and has a larger Congolese population

On his way to record his music at a studio thirty minutes out of C-Block, Vasco essentially leaves one world and enters another. Just by heading out of the neighborhood for the afternoon, Vasco, who uses the alias of *Strongv*, leaves C-Block behind in a physical sense, but knows in reality, he can never really leave it behind. The just turned twenty year-old sees the last ten years of his life very clearly as he nostalgically speaks about his music and his neighborhood; two things that an outsider might separate, but for him go hand in hand.

The differences in culture were an immense change for Vasco and his family. What Vasco and other young Congolese-Canadians in C-Block see as a “pretty good place,” is seen and portrayed by the media as an area to stay away from. This sentiment is backed by a series of statistics from 2001, which show the community as a very different place from how its citizens see it. In 2001, the average annual income in Carlington was \$25, 114, even though the population was fairly well educated, with 71% of residents completing high school, and 13% completing a bachelor’s degree. Unemployment was 8.6% and the percentage of people living below the poverty line was 34.5%. Eight percent of its residents were single parent families and 29% of the population was immigrants with 6% as recent immigrants, having immigrated within the last five years. Carlington has about 4,958 dwellings and the majority (67%) of residents own their homes and 33% rent. Housing is unaffordable for some residents in Carlington: 34% of residents pay more than 30% of their income on housing. About twelve percent of homes were reported to be in need of major repairs, and the number of people per room, a measure of crowding, was well above the city line (Institute 1). The most striking piece of this study is the obviously high levels of poverty combined with high levels of education among residents. It makes sense that hip hop would be such fertile ground for expressing this dichotomy. In one of his songs, Vasco says “I wake up every mornin’, and I’m runnin’/ catch my class on time, askin myself why if all you think I do is rhyme/it’s a pity when your own people don’t support you/pat you on the back then turn around and deport you” expressing the frustrations of young immigrants students, specifically those of African descent, who fight a double battle as racial and ethnic expectations, as well as stereotypes are imposed on them (Kalala et. al).

Though there may be very obvious reasons for these statistics, there are some that stand out above the rest. In an article in the *Ottawa Citizen* by Tim Shufelt and Jake Rupert, ‘a lack of attachment to the place itself’ is seen as one of the primary explanations for the statistics. The

article explains that a “team of community researchers, city planners, health officials and community workers found that only 38% of people living in the neighborhood feel a sense of belonging to their community, compared to a citywide average of almost 60% (Rupert 1). According to Shufelt and Rupert, many see Caldwell as a beginning or in-between stop, as people who immigrate to Canada find themselves there first, hoping to build a better life in their new country. But for an even greater amount of people, Caldwell is home. This is precisely why maintaining the idea that “who cares anyway, people are just coming in and out” does not hold very much weight, yet it serves the officials who don’t want to put much time, thought, or energy into the community, as an excuse to leave C-Block as it is. There are in fact large amounts of people who move to Caldwell and stay.

Very scientific and mechanical, these numbers are indeed accurate but surely cannot capture the heart and soul of the community. For Vasco, it is “the little things that make the area sound bad and give it such a bad rep. Parents don’t want or allow their kids going to Caldwell. Instead of focusing on Caldwell’s 'Family Community Centre' that runs a homework club Tuesday through Thursday from 4-9:30 pm, or the basketball tournaments that they sponsor Tuesday and Friday evenings from 6:30 to 9 pm, onlookers only see the negative aspects of my community" (Nov. 28, 2008).

Additional factors exist in the public sphere, but are often regarded as a given, rather they are strong realities in the private sphere: the community’s issues with gangs, drug use, and prostitution. According to Vasco, those who are involved in one of these activities are usually involved in the others. In my own travels to Caldwell, I have certainly witnessed some of this. I remember being fourteen, and being approached by a woman who told me she would do anything I wanted her to do for “some food.” Looking over to my cousin, he responded to the bewildered look on my face as something funny and unusual. For the young people who live in

C-Block, these occurrences are an everyday thing that they have become accustomed to and learn how to deal with appropriately. It is a part of life, but not one they have to engage in. Members of two infamous American rival gangs, the Bloods and the Crypts, are seen in the Carlington area. Like most gangs, there are criteria to acquire membership, and though all citizens of the community are indirectly affected by their existence and activity, Vasco admits that the gangs pretty much keep to themselves. Most of the violence, he explains, happens within and between gangs, especially during the summer, “when people are out socializing and celebrating the season; when people are ‘talking [smack]’ about other people or groups, as people back up or stand up for themselves and for their friends, and when those not from the area visit and act ‘too big’” (Nov. 28, 2008).

It is hip hop, Vasco believes, which saved him. Mary Bucholtz states in her article “Youth and Cultural Practice,” “cultural forms are taken up and assigned meanings far from their places of origin is a process that involves creativity and agency, not unthinking acceptance of cultural products. The same cultural resource can be put to use in radically different ways” (Bucholtz 543). For Vasco, it is his love of writing, recording, and performing, along with school and work that has kept him very busy over the years: “I didn’t and I still don’t have time to mess with the bad stuff going on in Caldwell. Now don’t get me wrong, I have a lot of fun, I just make sure I pick the right time, people, and places” (Nov. 28 2008). Other research, two studies in particular that were done on underemployed youth in Tanzania and privileged urban youth in Zimbabwe, that Bucholtz cites, say that “rap allows them to participate publically in political discourse and display personal aspirations through cultural style” (Bucholtz 543). All three are prime examples of how hip hop is used and transformed to fit the lifestyle of youth around the globe.

As a young teen, Vasco spent his time working as a tutor at the community center's homework club and working at a local bakery. "I really loved working with the kids, and helping them. I really saw the difference I was making for them, and I now see the difference it made to me. It kept me doing positive things, instead of getting into bad things" (Nov. 28, 2008). It is with this spirit that Vasco continues to function: "I would like to do something like that, with my hip hop; to build the community for the kids, to help [them] get there." This positive impact is important to Vasco, and he definitely recognizes how hip hop creates a spirit and an influence for young people in his community: "[hip hop] really has an influence, I see a lot of kids doing that have an interest in it, it keeps them out of trouble, keeps them occupied. At the same time they are going to school and getting an education, which keeps them very busy instead of getting involved in the bad things they are exposed to from a very early age" (Nov. 28, 2008). This same idea is applied in scenarios such as the FEBEM of the Brazilian hip hop education, documented by Professor Derek Pardue. In response to a question asking whether he liked a famous hip hop group, one of Pardue's interviewees said: "Of course! But, the thing is not so much about liking them or not. It's about knowing that their stories are our stories" (Pardue 421). This use of hip hop as a localized universal form of expression is needed to artistically convey their personal truth and to also occupy these young people, whose lifestyle might be drastically different without it.

Though the change was drastic, Vasco sees his move from the Congo as a positive change in his life: "Actually, it was a good switch in my life when I came to Canada. In many ways, I look back on my life in Congo as phase one. I don't really like to revisit it; it's filled with a lot of pain. Poverty, family stuff...you know, I was singing when I was in Congo. When I came to Canada, it was the first time I had really ever heard American hip hop, so I kind of 'switched sides'. Canada changed my perspective on music; I was able to see all that is out there. In Congo,

you kind of just listen to what your parents listen to, which is exactly the same as what everyone else's parents listen to"(Nov. 28 2008). Elizabeth Chacko explains in her article "Identity and Assimilation among Young Ethiopian Immigrants in Metropolitan Washington" "assimilation is a multifaceted and complex process with economic, social, and cultural ramifications that are closely intertwined" (Chacko 493). As Vasco expresses some of the more positive points of his move to Canada, there were undoubtedly hardships within this transitional period.

For Vasco, hip hop was an outlet that could help him deal with the pressures of adolescence, culture shock, and change. As someone who felt like music was where he belonged, Vasco quickly discovered hip hop as his calling: "Well, when I started listening to hip hop, I started seeing music in a different way. When I sang, it was all about – well I feel like I wasn't really expressing myself when I sang. When I heard hip hop, I felt like it was where I belonged. I began to practice, practice, and started listening, living and breathing hip hop" (Nov. 28, 2008). Having to deal with issues like gangs, drugs, and prostitution, three unpleasant truths in Caldwell, was tough, but Vasco employed the hip hop culture as a method of survival. Chacko also notes that "black music and its African influences were co-opted by many young Ethiopians to interweave ethnic pride with the notion of Africanness" (Chacko 498). In the case of this analysis, I believe "Ethiopian," is an interchangeable part of her observation, as this exists for immigrants of other ethnicities as well. Vasco employed hip hop music to keep him grounded, in a sense, and to not lose himself in the twists and turns of a complex environment.

For a young person, especially a young immigrant, hip hop was something to latch on to, in times of self discovery and identity crises. In Vasco's case, people like California Rapper's Tupac Shakur inspired him to try out rhyme and styles for size. When speaking about his early influences, Vasco said: "...that's when I 'met' Tupac...haha...Tupac had a huge impact on my life and music. I learned so much from his music; a lot about hip hop from him. I was inspired.

First of all his life, wow, he made it from literally rags. His life was hard, and it was an inspiration, for me, who grew up in comparable circumstances, to see someone like that come out on top. He wasn't just a rapper but a, a poet, an actor – he was amazing. He wasn't doing music for the money; you could really feel that he was doing it because he loved it. You listen to his songs and you see a man; you see a life” (Nov. 28, 2008).

Though hip hop culture originated in the heart of New York, it quickly spread around the world, a vessel for people of all walks of life to express themselves in a fashion that is creative, cultural and, welcoming. Paul Gilroy explains, “the musics of the black Atlantic world were the primary expressions of cultural distinctiveness which this population seized up and sought to adapt to its new circumstances” (Gilroy 115). For the young people of the world, minorities in their environment, racially or ethnically, hip hop is a means of self identification; of reinvention. Through hip hop, Vasco established some very important friendships, which were fueled not only by a common heritage, but a common love for the music. Mary Bucholtz explains, “The consequences of large scale social and cultural transformations disproportionately affect the lives of young people. The cultural shifts are drastically revising the meaning of youth in many societies,” (Bucholtz 544). This is due to already straining personal identity issues, which are only magnified by cultural change. In the midst of such drastic shifts, Vasco, his sibling and several other young Congolese-Canadian immigrants used their similar backgrounds to develop bonds that are arguably beyond ordinary friendship.

The experience of an immigrant, at any age, is an extremely delicate and unique story, one that is easiest to experience with others who share a related history. In Caldwell, Vasco met MCs Patrick *Trickxx* Elimo and Jean Baptiste *JBaller* Kabongo, along with beat makers Ernest *E-fresh* Feruzi and Joe *Jay-C* Christ, and formed some of those first crucial relationships. The group later evolved into a “crew” in hip hop terms, and in 2003 named themselves the

Killionaire Klick. They are putting the finishing touches on their first album and hope to release it this year, as a part of Vasco's upcoming record label *Hektic Records*' first artist. Outside of school and music, sports, especially football and basketball, is another very important aspect of life in Caldwell for these young men, many of whom play on community and school teams.

Attempting to dig deeper into their experience, I was able to speak with *K-Klick* member Jean Baptiste Kabongo and Brunel Kalala, Vasco's eighteen year-old cousin, who is a graphic design and 3-D animation student. The parallels in their interviews were astounding. They agreed strongly with Vasco's point stressing all of the good that can come out of Caldwell. Jean Baptiste, or JB as many call him, made the point that the policemen and others who frequently report negatively on Caldwell are basing their views off of the arrests they make, and the arrests only. They don't go further than the boundaries of their job, and report to the larger media that Caldwell is a place of poverty and crime, not of life and exuberance, or of youth, the way that those who live there can understand (Feb. 13, 2009). As a community that only the residents of Caldwell can understand, can be considered an imagined community, according to the work of Benedict Anderson, professor emeritus of International Studies, Government & Asian Studies at Cornell University, who theorized that all communities are imagined because "regardless of the actual inequality and exploitation that may prevail in each, the nation is always conceived as a deep, horizontal comradeship" (Anderson 1). As for the immigrant youth who inhabit Caldwell, it may be that their perception of the place is not quite accurate either, as they attempt to create a sense of community in Canada that expresses the community in which they want to live.

In addition to my interest in their music and youth culture, I was most interested to see what influence Congolese culture specifically had on these young artists and their art. Once again, their answers were very similar. The most significant piece of Congo for them in their new environment is not in their music, but in their home lives. For Jean Baptiste, he believes his

relationship with God and his spirituality comes directly from Congolese culture (Feb. 13, 2009). For Brunel, the very specific and almost ritualistic traditions that take place each and every day is what keeps Congo alive for him. He says that the way that his family runs is “only from Congo” (Feb. 14, 2009) Vasco however, said that he feels a deep connection to his people; he makes a point to always mention those kinds of things in his music (Nov. 28, 2008) Simply by stating “This is dedicated to my motherland” at the beginning of his song *Let It Go*, Vasco is keeping this link strong. All three also mentioned family as an aspect of the Congo that they keep close to their hearts: “In Luba culture, you don’t have cousins, aunts, uncles, or even friends. You have brothers and sisters; Mothers and Fathers; Grandparents. They taught us that family always comes first and we have to live by a very strict hierarchy that lays out proper interactions and the different levels of respect that each person much be shown. [Vasco] would do anything for my family” (Jan. 30, 2008). Vasco also points out that this value is a strong part of his music, because it is how he runs his crew. They are brothers, he explains, that have each others backs through thick and thin. But that also means they are completely honest with one another. “When I need to let someone know that what they are doing isn’t working, I just say it. There is no hostility or hard feelings; they know it’s all from love” (Jan. 30, 2008).

When asked about the term “immigrant” Vasco, Jean Baptiste, and Brunel, all began their answers with a chuckle. “An immigrant,” explained Brunel “is a person who doesn’t know anything; someone who came from another place, usually Africa or something, and is trying to make it here in Canada. That is why we use the term ‘immigrant’ as an insult sometimes. Sure, I know I am an immigrant. I know I am Congolese, and I am not afraid to say it out loud. But it hurts to be called an immigrant...an outsider” (Feb. 14, 2009). Bucholtz explains how these young people attempt to establish themselves facing great adversity and as a result, there is “a great deal of cultural production among first and second generation immigrants which involves a

kind of neo-traditionalism, in which elements of the heritage culture and selectively appropriated and resignified” (Bucholtz 542).

I realized in this interview, what an unbelievable amount of stress it must be on these young people dealing with identity; with “tensions between tradition and innovation” as Bucholtz puts it (Bucholtz 533). As they adhere to the culture and expectations of their family and their heritage, while attempting to fit in a world that they know they can never fully relate to. Bucholtz explains that it might just be “the tensions between tantalizing promises of modernity and the expectations of tradition minded adults may be thought to create resentment among young people caught in the middle” (Bucholtz 531). This is where hip hop comes into play. When people, especially youth, struggle with such monumental issues, they can often embrace things like hip hop culture as a model to create their own, brand-new, culture as a means to become insiders: a hip hop that is traditional, but current. A culture that is Western and Congolese. Vasco and his friends have created a place where their story is unique to them, but is easily relatable to both worlds in which they exist. Again, this is what Anderson implies, in his *Imagined Communities*.

Paul Gilroy argues that the recent history of black music came out of racial slavery, and that it now ironically dominates the western world. Gilroy believes that whites have essentially “stolen” this music and culture. What Gilroy writes most about is a “Black Atlantic” as an explanation of what black music and culture is. It has obvious influences and ancestors, but the Black Atlantic, Gilroy claims, was created by those who were “dislocated from their original conditions of existence” (Gilroy 116). Vasco is a modern example of this theory. “The transitional structures that brought the black Atlantic world into being have themselves developed,” (Gilroy 112) by people like Vasco, who take the cultures of the black Atlantic, like

hip hop, and transform them to construct their own community that is representative of their past, present, and future.

Those who migrated to the black Atlantic needed to create culture that could represent them, but not so much as to isolate them from the culture in which they newly existed. “Thus the role of external meanings and blackness, drawn in particular from Afro-America, became important in the elaboration of a connective culture that drew these different ‘national’ groups together into a pattern that was not ethnically marked as their cultural inheritances had been,” (Gilroy 120). The music that arose from these circumstances “were the primary expressions of cultural distinctiveness which this population seized upon and sought to adapt to its new circumstances” (Gilroy 119). By creating these new communities, people who had been stripped away from their homes were able to brand themselves with a certain cultural identity that incorporated their heritage, but also their circumstance, bringing people of similar historical pasts together.

So, what is the purpose of it all? What is the bigger picture? I believe it comes from looking at the myriad of individual factors within a community and its people, migrational, and transmigrational influences of culture, as well as acknowledging the actual music’s ability for expression. The truth is music is a powerful form of global communication. As Vasco so poignantly reminded me at the end of the interview, “some people don’t know how to read, but all people do music. Through what I am trying to do, people can actually hear what’s going on. It’s about conveying a message through your art. Everywhere you go, you are surrounded by music. I don’t know who doesn’t like it, but if they don’t, they are crazy!” (Nov. 28, 2008). In Derek Pardue’s research, he found that the Brazilian hip hoppers “like hip hop because it was about reality: ‘If you pay attention to what is being said in rap music, then you’ll know there is

something wrong going on out there, because rap is reality” (Pardue 419). Lyrics speak to people in a way that few mediums can.

The negative images that have become the poster face for hip hop are only a small sub-genre within a wealth of culture and soul. Through field research and experience like this one, more people may be able to see hip hop for what it is and for its potential positive impact in the world. For someone like Vasco, who comes from an unfortunate past, to be able to latch onto something with some many creative possibilities and use it as a motivation and strength to get him to the place he wants to be, is probably the most remarkable affect hip hop music can have. The public often sees only a few of these life-changing stories, but the reality is that there are many sub-genres of relatively unknown artists in hip hop who are using their talents as a means to survive and even more as a means to succeed. This success is a positive motivation by people who might otherwise follow the stereotypes that are normally expected in governmentally funded communities of mainly immigrant residents. Instead, hip hop is one of the many genres born out of the Black Atlantic that can serve as a tool for social change, around the world.

Personally, working on this fieldwork assignment taught me significantly more than I thought I would learn from this experience. Choosing to interview Vasco, who is also my brother (although I did not grow up with him), was probably the easiest and hardest decision I made regarding fieldwork. It was mostly difficult because of the distance between us, as he lives nine hours away in Canada. Although I could get an amazing insider’s view, professionalism became an issue. As with any person you schedule for an interview, I had to adhere to his schedule, but at some points the difficulty to set up times, largely because of our familial relationship, became extremely frustrating. I conducted my research on Vasco mostly through his internet sites, email and telephone calls. I was able to virtually go with him into the studio using Skype, yet again another example of hip hop culture’s innovative culture. I was able to watch him record his

music and ask him questions for a two-hour session, through a video chat on Skype. It's part of the hip hop philosophy to "make things work," and as outsiders, many youth in this community become very good at reinventing the wheel when there is a need for a quick adaptation to any given situation. I was also able to spend one weekend in Caldwell, conducting research, and used this opportunity to conduct the two other interviews, with Jean Baptiste and Brunel, that I used.

I do think however, this experience gave me not only a greater understanding of hip hop, but probably for the first time, I have looked at my brother as a real artist and I was really able to see his passion for music. It definitely made me respect what he does so much more. I have a newfound and very strong admiration for him as a person; as someone I can go to for guidance and advice. It is easy to see how Vasco says hip hop is a part of him. Though we have lived in very different circumstances our whole lives, this experience has brought us closer and shown us the unmistakable similarities in our personalities, ideals, and dreams.

I view all the negativity that surrounds hip hop as ignorance toward hip hop culture and history in its entirety. It is often overlooked as one uses the generalization of *gangsta* and *party rap* to classify hip hop as a whole. It is an amazingly rich culture that incorporates people from every walk of life and has become something that can be a common ground linking different people and cultures as a form for reinvention and self-identification in a challenging world.

Hip hop, past, present, and future encompasses a way that many choose to live their lives. The Black Atlantic is an explanation of a world that is welcoming and innovative, and that needs to be heard and respected. Scholars like Paul Gilroy who attempt to dig deeper into why and how this world exists are the kinds of people who advocate for the longevity of these new cultures and ethnicities emphasizing their importance in an ever changing and globalizing world. Though there are those who do support the commercialization of hip hop and the development of *gangsta rap* as a result, it is important for outsiders as well as insiders to remember where hip hop comes

from. It is people like Vasco who make hip hop a lifestyle that is culturally and socially full of inspiration, passion, and a love for music, that will keep the “real” hip hop alive. I have learned so much more than I expected to and I am hoping that I won’t be the only one. Although hip hop has a long history, I think it is important that listeners are aware of underground artists like Vasco, and the thousands more that exist across the globe, that live hip hop: as an innovative and constantly developing genre. Hip hop artist *KRS-One* put into words what is considered a well known truth in the hip hop world: “hip hop isn’t something you do, but something you live,” (Hess Intro). One, two, hip hop, and you will never stop.

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Houyhnhnmland and El Dorado: No Utopias for Mankind

~Justyn Broda

The eighteenth century experienced the transformation of power and politics in many European nations as well as the transformation of the cultural aspects of their societies. Political upheaval, exercise of unjust and excessive power by the church, the instability of war, and competition for remote regions left many individuals questioning the grounds of human behavior. This period of history, called the Age of Enlightenment, broke away from conventional beliefs and long held concepts, shifting its focus towards a “new light.” As discovery of the laws of science seemed to promise an orderly and perfectible universe, so too, a perfectible society, guided by reason, appeared to hold the promise of serenity and happiness to humankind. Two prominent figures of the century, Jonathan Swift, the famous satirist, and Voltaire, the Father of Revolution, responded to these modern beliefs in their witty travel narratives. The authors presented fictional utopias in their literary works that consider the application of reason to governance of society. Jonathan Swift’s utopian society in *Gulliver’s Travels*, A Voyage to the Country of the Houyhnhmns and Voltaire’s utopia, El Dorado, in *Candide* follow the mental and physical journeys of Gulliver and Candide and ultimately show the reader that utopias ruled by pure reason, although very admirable, are not ideal for mankind due to their rejection of essential human nature.

In comparing these two fictional utopias, the reader is impressed by their remoteness and isolation. In the land of Houyhnhmns, Gulliver is oblivious to the whereabouts of his location. There is no evidence of the course taken or any relation as to his positioning. Moreover, once upon the land, he describes the scenery in very little detail. His report of the physical environment does not relate any ordinary signs, or paint any particular pictures that would help distinguish or even familiarize the location: “The land was divided by long rows of trees, not

regularly planted, but naturally growing; there was plenty of grass, and several fields of oats” (Swift 167). However, such details suggest that the land is uninhabited and most likely undiscovered. Gulliver subsequently learns that there are no signs of human existence. Theoretically, until his arrival no man has walked the ground of Houyhnhnmland; therefore, it has never been infected with the wickedness and debauchery of human nature. Its sustainability can be attributed to the remoteness and isolation from the Western world. The inhabitants of this country have not been exposed to the depravity that plagues civilization.

The El Dorado utopia, although different in physical appearance, is similar to Houyhnhnmland in terms of seclusion. According to Voltaire’s critics, Mary Shanley and Peter Stillman, it is the natural features of El Dorado that maintain the welfare of the community. In order to come upon the kingdom, Candide and his companion endure a dangerous journey: “The river grew wider...disappeared into a cave under some cliffs of terrifying height...carried them with frightening speed and noise...at the end of twenty-four hours they emerged into the light of day“ (Voltaire 74). The travelers survive the death-defying experience by a stroke of luck. Donna Dalnekoff, an El Dorado critic, claims that “their safe arrival is a freak of chance hardly ever to be repeated.“ El Dorado is surrounded by “inaccessible mountains” (74). This confirms the obstacles that protect the utopia; its natural barricades make it impossible to reach the kingdom. Shanley and Stillman agree with this key concept. In addition, they claim that ‘the mountains that protectively circumscribe the country have preserved their innocence.’ They describe the “insulation” from the outside world as the greatest “gift of nature.”

Even though both utopias are sheltered from external intrusion, they differ in their understanding of the outside world. While the citizens of El Dorado are quite aware of the humanity around the globe, the Houyhnhnms, do not comprehend life beyond their own society. Dalnekoff believes that the citizens of El Dorado have a clear understanding of the miseries and

decadence of humankind. Additionally, she points out that “they only exist at the price of their absolute isolation.” The following passage, which is narrated by the old sage, confirms these statements. “Since we are surrounded by unscalable rocks and precipices, we have so far been sheltered from the greed of European nations, who have a quite irrational lust for the pebbles and dirt found in our soil, and would kill every man of us to get hold of them” (Voltaire 79). The El Doradans comprehend the vulnerability of their state. They know that their own ancestors’ venturing past their borders resulted in their demise and they aim to protect themselves: “With the agreement of the whole nation, they made a law that no inhabitant should ever leave our little kingdom” (Voltaire 78). However, Shanley and Stillman suggest that this “exact[s] a high cost. It makes the inhabitants narrow minded and limited human beings.” Dalnekoff adds, “It is a society that is exceedingly fragile and in need of careful sheltering from the reality.”

The Houyhnhnms, in contrast, are far more ignorant of the world. These creatures deny other existence of rational life; therefore, they cannot comprehend a suitable environment beyond their own. The Houyhnhnms claim they are the superior creatures of the world. By functioning on reason they do not inquire beyond their own limitations, since reason precludes all doubts. When Gulliver relates his voyage, his master accuses him of mendacity. Gulliver subsequently explains, “He [the master] knew that it was impossible that there could be a country beyond the sea, or that a parcel of brutes could move a wooden vessel whither they pleased upon water. He was sure no Houyhnhnm alive could make such a vessel” (Swift 176). The Houyhnhnms claim to be the “perfection of nature,” which is also signified by the etymology of the word “Houyhnhnm” (176). These creatures are unaware of the dangers that lurk past their horizon, since they function within their “reasonable” capacity. Furthermore, they disbelieve that any beings could surpass their race. This utopia, therefore, lacks knowledge, claims superiority, and is excessively proud of its “perfect state.”

Both Houyhnhnmland and El Dorado have a system of social ranking which dismays the modern reader and may have raised questions even for readers in their own times. Since “a utopia is defined as an ideal commonwealth whose inhabitants exist under seemingly perfect conditions” (Britannica), in a true utopian state egalitarianism should prevail; yet these societies fall short of this quality. Even though Houyhnhnmland, as perceived by Gulliver, sounds idyllic, it has a system of “class” identification, which is tantamount to a caste system:

Among the Houyhnhnms, the White, the Sorrel, and the Iron-grey, were not so exactly shaped as the Bay, the Dopple-grey, and the Black; nor born with equal talents of mind, or a capacity to improve them; and therefore continued always in the condition of servants, without ever aspiring to match out of their own race, which in that country would be reckoned monstrous and unnatural.

(Swift 193)

The Houyhnhnms claim superiority and inferiority according to the color of their coats. In his essay, *Politics vs. Literature: An Examination of Gulliver's Travels*, George Orwell identifies this as a “harsh racial system” (85). However, the Houyhnhnms embrace this classification; the less privileged do not question their servitude, nor would they ever strive towards a higher rank. Conformity appears to be a universal concept among them. “The master ordered the Sorrel Nag, one of his servants, to untie...” (Swift 172). The Sorrel Nag portrays devotion and loyalty throughout the text; he never confronts his master and he complies willingly with all commands.

All Houyhnhnms understand their responsibilities and place within their society. They are devoid of self-interest and work for improvement of the whole, in order to benefit their society. Furthermore, they are very cautious in preserving their “noble” breed from degeneration. For this purpose, matrimony is controlled and integration is forbidden: “In their marriages they are

exactly careful to choose such colors as will not make any disagreeable mixture in the breed” (Swift 203). Segregation is very much present in Houyhnhnmland, yet its inhabitants have no conception of it. They fail to recognize the defects of their community because of their own narrow-mindedness. Moreover, they harshly enslave their savage companions, the Yahoos, who are a nuisance to their society. They utilize them as labor and hold them in confinement. In actuality the Houyhnhnms are very oppressive creatures, who cannot see anything wrong with their conduct. Orwell states that these animals “ have, in fact, reached the highest stage of totalitarianism organization” (86). A true utopian society values freedom and development, not control and prejudice.

The El Doradan utopia also lacks egalitarianism. However, this flaw is harder to identify, since most readers tend to focus on the positive rather than the negative aspects of this society. In their critical essay, Shanley and Stillman argue, “that economic and social inequality is present in El Dorado.” Though most readers are likely to overlook the details, there are several throughout the episode. For instance, when Candide encounters the children, who are “covered in gold brocade,” and playing with the “riches of the land,” the readers seem to concentrate on the abundance of the wealth. However, the critics declare, “while the audience is regarding these children as living in riches, they are in fact, as Voltaire notes in the following paragraph, “little beggars.” Perhaps this signifies that while material riches are trivial to them, El Doradans acknowledge a different kind of system, which, most certainly, would create classes within their society: Dalnekoff points out “It is only from our perspective that the pebbles and mud of El Dorado are valuable. The El Doradans have their own scales whose bottom is our top.” The critic also believes “that El Dorado operates on some form of socialism and that there must be a monetary system of some kind.” She refers to the village inn, where Candide offers a payment of gold, but is refused. “Please excuse our laughter at your offering us with stones of the road. I

dare say you haven't any of our money, [my underline] but you don't need it to dine here
“(Voltaire 77).

Upon close examination, it is clear that “affluent” and “underprivileged” do indeed inhabit the kingdom. Before Candide sets out to meet the king, the old sage “commissioned twelve of his servants to take the travelers to Court” (Voltaire 80). In their criticism, Shanley and Stillman declare that such “superfluity of humans indicates that the old man must have more to spare.” This presents evidence of ownership and servitude, thus debunking the utopian notion of commonwealth for all. Additionally, once inside the kingdom, the travelers are welcomed by “twenty maidservants of surpassing beauty, which led them to a dressing-room, where they fitted them out with garments” (Voltaire 80). This contradicts the utopian standard yet again. Clearly, these women are not nobility, their function is quite “menial,” as the critics describe. Their role appears to be stereotyped as well, since serving the guests is considered a traditional womanly duty. The king, therefore, is not an egalitarian king. If so, then why possess such an extravagant staff? However, from Candide's perspective, the king is an honorable man, who treats him with utmost generosity. Still it is quite interesting that the traveler never focuses on the treatment of his Court.

So what is amiss in El Dorado? Well, it appears that Voltaire's ideal creation is in itself a paradox. For example, the statement that “all men are free is, in fact, pure irony, since no inhabitant is permitted to leave without the king's permission“ (Shanley). The satirist Voltaire creates qualities of the utopia, which, although attractive and desirable, tend to contradict themselves. Thus, El Dorado is actually a flawed society in which many of the negatives of European society exist in minor details.

The utopias differ in the religious aspects of their societies as well. In El Dorado religion is viewed as a universal concept whereas Houyhnhnmland lacks any notion of a spiritual belief.

The citizens of El Dorado, as opposed to the rest of the world, have one true religion. Candide is quite astonished when the old man relates, “I have always believed that we hold the religion of all mankind...we worship God from morning to night...there is only one God, not two, three, or four...we never pray...we have nothing to ask of God, since He has given us everything we need...we thank him unceasingly” (Voltaire 79). Such veneration is uncommon in Candide’s part of the world. Moreover, El Dorado lacks priests, churches and any types of religious establishments. Additionally, the inhabitants “are all priests” (80). Many critics suggest that the faith of El Dorado is closely similar to Voltaire’s own personal beliefs, and that it deliberately satirizes the oppressive religions of the world. Deism, embraced by Voltaire, is defined by the dictionary as “the belief in the existence of a God on the evidence of reason and nature only, with rejection of supernatural revelation.”

Clearly, there is much correspondence between deism and the belief of El Dorado. Both religions tend to function on “reason rather than revelations” (Van Pelt). For example, the El Doradans accept the notion of a God, but practice their reverence in a personal matter. Worship is not depicted through rituals or services but rather through deeply felt gratitude. The inhabitants embrace God, but do not live accordingly to a religious doctrine. Dalnekoff remarks that “Voltaire the deist offers the reader a blueprint of a model society where deism prevails.” In El Dorado religious oppression, submission, and intolerance do not exist. All individuals accept one God and adhere to their beliefs; there is no multiplicity among them. The old sage validates this by stating they are “all of the same opinion” (Voltaire 80). However, Dalnekoff argues that the “ironic characteristic of utopias is that their freedoms are only subtler modes of oppression.” All El Doradans live in unanimity and there is no distinction among them. Ultimately, such harmony eliminates any potential conflicts. On the other hand, since the whole race operates alike, there is lack of individuality as well, thus creating a rather dull society.

In Houyhnhnmland religion does not exist. The creatures' principal belief is "reason" itself; it is the supreme being of Houyhnhnmland; Thus, these creatures have no conception of a divinity, nor an imagination to conceive of such: "As these noble Houyhnhnms are endowed by nature with a general disposition to all virtues, and have no conceptions or ideas of what is evil in a rational creature; so their grand maxim is, to cultivate reason, and be wholly governed by it" (Swift 202). However, by functioning according to reason alone, they are devoid of a principal human attribute, emotion. The Houyhnhnms lack compassion. They feel no guilt about the imprisonment of the Yahoos, nor do they have any reservation at the proposal of Yahoo extermination. They have no concept of an afterlife and are apathetic towards morality. As Gulliver tells the reader, the Houyhnhnms do not grieve: "their friends and relations express[ing] neither joy nor grief at their departure; nor does the dying person discover the least regret that he is leaving the world, any more than if he were upon returning home from a visit to one of his neighbors" (Swift 207). As the narrator recounts the death of a fellow Houyhnhnm, he relates that the wife of the deceased, after the burial, "behaved herself at our house, as cheerfully as the rest" (207). Nor do the Houyhnhnms express love towards their young. They are emotionally detached from their families. On many occasions, as the narrator reports, the Houyhnhnms "bestow their own colts" to less fortunate couples who are not able to have two offspring; they also exchange their offspring to produce the ideal gender ratio of one male and one female. Matrimony among them is prearranged, and marriages function on friendship and benevolence rather than affection. The Houyhnhnms are heartless creatures even among themselves.

The El Doradans tend to lack emotions as well. They are rather insensitive towards Candide's misfortunes and cannot understand his human appetites; Shanley suggests: "They are provincial when they greet the travelers, and make little attempt to sympathize with them." She also points out that the El Dorandans behave quite arrogantly. Their reactions to Candide's

curiosity are very ill-mannered. For example, they laugh hysterically when he offers payment of gold at the village inn. He receives a rude reply upon inquiry of religious preachers. "We should be stupid if we had them. . .we don't know what you mean by monks" (80). Also, the El Doradians cannot fathom the travelers' desire to depart their bountiful country. "This is a foolish scheme of yours. . . man should be satisfied with what works moderately well..." (83). Upon his request for stones of the land, he is told: "I don't understand your European taste for our yellow mud" (83).

The El Doradians, like the Houyhnhnms, are governed by reason; they lack passion and emotion. Dalnekoff points out that "the satire of El Dorado's riches, is that European man is such that he only considers wealth to be as much valuable as it raises him above his fellow man." Candide's desire for recognition and wealth cannot be gratified in El Dorado. Moreover, there is no evidence of intimacy among the inhabitants in the kingdom. Despite its lavish descriptions there appears to be a lack of familial and romantic love, as well as friendship. Ultimately, Candide, a man driven by his passions, cannot withstand the dullness of this society. His avaricious character and fondness for Miss Cunegonde, in the end, are the motives behind his departure.

On the other hand, Gulliver, a man who worships reason, becomes fixated with his virtuous hosts the Houyhnhnms . In opposition to Candide, he is received by the Houyhnhnms quite graciously. They treat him respectfully and tolerate his "Yahoo" habits. However, according to their reason, Gulliver is just another Yahoo, although he is a superior type of the species. Yet he fails to recognize their damning appraisal and continues to admire them for their righteousness and hopes that he will win their acceptance. It is quite ironic that Gulliver exalts the animals that detest his kind and plan even to exterminate them. As he becomes a misanthropist, he fully degrades himself by kissing his master's hoof, which proves his

submission to these bigoted creatures, as well as his rejection of human beings. Ultimately, he worships the Houyhnhnms so fervently that he loathes what is human in himself. Gulliver never realizes that “reason” expelled him in the first place (the Houyhnhmns believe that this “superior” Yahoo might lead his kind in rebellion), a significant implication that perhaps mankind cannot be ruled by reason.

Emotion and passion are essential for humanity. Gulliver’s rescue by Pedro de Mendez after the Houyhnhnms set him adrift introduces the reader to such a kind, compassionate human being that Gulliver’s rejection of the human race seems absurd. John Ross, in *The Final Comedy Of Lemuel Gulliver*, declares that “Swift presents this generous character [Don Pedro de Mendez] to foil Gulliver’s misanthropy, which also serves as evidence that Gulliver has gone off the deep end and cannot recover himself from the nightmare view of Yahoo-man” (87). Further, his forsaking of his wife for the company of horses suggests that Gulliver may have become mentally unbalanced as Book IV ends with his rant against the pride of men, a trait which he surely exhibits.

In conclusion, the two travelers do not remain in the utopias. As Candide rejects El Dorado due to his appetite for love and wealth; Gulliver is rejected by the embodiments of pure reason, the Houyhnhnms. Therefore, utopias that are governed by reason prove unsuitable for the passionate nature of man, who is constantly seeking to fulfill his needs. These flawed and naïve societies featured masked oppression, dullness and conformity. Mankind is incapable of living such a tedious and limited life. Human beings are complicated creatures who love, hate, grieve and sin; suppressing such emotions or supplanting them with reason, is simply unnatural and impossible. Both Voltaire and Swift knew that reason alone cannot cure the ills of mankind. Without proposing a simple solution, they satirized human nature and society with the goal of improving it, and their commentary remains startlingly relevant for today’s readers. Dalnekoff

concludes, “Like Swift’s Houyhnhnms, who are not Swift’s ideal but serve a crucial role as a comparative standard in *Gulliver’s Travels*, Voltaire’s El Dorado serves as a standard by which to judge contemporary societies, but neither is desirable nor possible for civilized human beings.”

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Stripped to the Bone: The Science and Ethics of the Bodies Exhibit

~Emily Thron

A new vogue has emerged in the 21st century: commodifying death as entertainment. The scientific process of preserving human corpses and showcasing them around the world has led scientific experimentation to spill over the edges of morality. “BODIES: The Exhibition” has unburied the dignity of the dead – exploiting posed cadavers as a new profit generating twist in the world of entertainment. Since the scientific process of preserving human corpses has evolved into a source of amusement, an international ethical concern has erupted, causing a shift in how the world approaches morality. The question is no longer when science will pierce the margin of ethics– for it is evident that science and ethics are not divorced topics and have a long history of intersections. The question is, rather, how far will the margins of “entertainment” be pushed before it incites unrest on a universal level? The scientific aspect of this exhibit is simply a new direction which the entertainment industry is trying to pitch to society. It is a new approach to science which has triggered a wide-scale debate in the world of the media. Could it be, then, that the process of showcasing preserved human bodies is the issue that will cause this worldwide ethical upset? In order to assess these questions a number of criteria must be established.

First, if it is not a generally universal consensus that these exhibitions are unethical because it is an exhibition of dead human beings, would the opinions change if the cadavers used were proven to be either executed political prisoners from China, or were showcased without paperwork proving that these individuals donated their bodies to science prior to death? Second, since there has been a large profit return from these exhibitions over the past four years, the question of whether or not the motivation to make money in these company’s, outweighs their

legal and ethical decisions to use sound bodies for their exhibits, will be addressed. Similarly, this paper delves how the profit from the plasticization process used to preserve these bodies has caused an underground and international black market to emerge where corpses can be bought and sold on the internet. Finally, the educational and artistic aspects of these exhibits will be explored in an attempt to see how the ideas pertaining to death have progressed from being something so respected and mysterious to being viewed as nonchalant exhibits behind museum walls. All of these assessments will be used to evaluate the idea of entertainment in the 21st century along with helping to determine whether or not there is such a thing as “global morale” and whether ethical standards across the globe have taken a dangerous turn. Before the controversies which surround these exhibits are assessed, a concrete definition of the body preservation process must be established. Further, the creators, companies, and entities which endorse plasticization and these exhibits will be evaluated. He is known in the media and around the world as “Dr. Death.” Dr. Gunther Von Hagens is a German anatomist, the inventor of plasticization, and the creator of “BODY WORLDS—The Original Exhibition of Real Human Bodies” (Von Hagens). While few people would find this to be an appealing nickname, it accurately sums up his greatest life accomplishment and his remarkable contribution to the scientific world. Von Hagens coined the term “Plasticization” (polymer preservation) to describe his technique of preservation. Plasticization preserves individual tissues and organs that have been removed from the body by replacing [water](#) and [fat](#) with plastic; essentially halting the process of decomposition (Von Hagens). Dr. Gunther Von Hagens’ “BODY WORLDS—The Original Exhibitions of Real Human Bodies” is the first of two human bodies exhibit which features the donated cadavers of both European and American individuals. It premiered in Tokyo in 1995 and, since then, has been hosted by more than 50 museums and venues in North America, Europe, and Asia (Von Hagens). Von Hagens’ leading competitor in the “body”

business is “Premier Exhibitions Inc.” The Chairman of Premier Exhibitions, Inc. is Arnie Geller and the company is publicly traded under the NASDAQ Capital Stock Market. However, since its most recent exhibit called “BODIES: The World Within” which premiered in 2005, Premier Exhibitions has attracted skepticism regarding the cadavers used in its showcases. The controversy stems from the Chinese ethnicity of many of the bodies on display. This exhibit’s rapidly-gained popularity has provoked a collaborated concern from viewers and critics alike who are asking how these Chinese cadavers were obtained. This exhibit, and especially this question, has only rekindled skepticism regarding China’s history of human rights violations. Therefore, in exploring whether the “BODIES” will cause ethical controversy on a universal level, China’s history of human rights abuses and the Chinese culture is examined.

Firstly, this paper will investigate China’s beliefs regarding moral principles, art and entertainment, and death. Furthermore, the Chinese government’s tendency to abuse human rights according to China’s Rights Forum will be examined. Its previous practice of executing Chinese prisoners and its infamous harvested organ smuggling practices will also be analyzed. Today, Chinese culture is predominantly influenced by Confucianism, Daoism, and Buddhism which are referred to as “the three ways” (Bailey, Knapp, Neville-Hadley 246). Amy Yin Man Chow (The author of [*Death, Dying And Bereavement: The Hong Kong Chinese Experience*](#)) states that followers of “the three ways” believe that in order to have a good afterlife, you have to live life a life of integrity and die for the preservation of the virtues (128). This excerpt depicts the extreme importance of living a life with honor in the Chinese culture in order to secure a greater afterlife. Ethical principles, then, are greatly stressed throughout these three philosophical perspectives. Further, the death of someone who has lived a virtuous life according to “the three ways” would be greatly respected. However, putting the soul to rest after death through burial or cremation is an essential part of the mourning rituals (Chow 116). Similarly, Buddhism

emphasizes karma in the afterlife as a consequence for living a corrupt life (Bailey 126). Consequently, consenting to having one's body displayed could be viewed as karma for living a non-virtuous lifestyle – leaving the soul restless because the death ceremony would be disrupted. Therefore, these three philosophies do not congruently match up with the practice of plasticization and displaying one's body after death. In regards to art, the “BODIES” exhibit does not mirror the characteristics which are usually valued in Chinese art.

In the book entitled *China: People, Place, Culture, and History*, Allison Bailey writes that calligraphy and paintings are the dominating artistic ventures for the Chinese culture. She states that “song dynasty landscape paintings are seen as the pinnacle of the art” (256). Other types of popular art include embroidery, puppetry, pottery, and comics (Bailey 257). Therefore, Chinese art primarily values traditional techniques, customs, and skills. Further, entertainment in China does not value these exhibitions.

Chinese entertainment is a mix between cultural tradition and the most modern leisure considering China's place in the technological world. The opera, acrobatic arts, traditional Chinese dance, casinos, and movies are only a few of the possible forms of amusement in China (China Entertainment). So would the modern practice of plasticizing human cadavers and showcasing them at different venues fit on the entertainment list? Fiona Ma, a [California State Assembly](#) Majority Whip and a [San Francisco politician](#), saw neither the potential of an entertaining or artistically enlightening experience in viewing the exhibit and went on to label it a “freak show.” In an interview with 20/20, she states that the Chinese have very strong superstitions about death and dying and “being from a Chinese decent, I don't believe any family in China would consent to having their kin exploited in this way. Especially if other people were going to make millions of dollars off of looking at them” (20/20). While this interview addresses Ma's concern with Chinese superstitions and philosophical ideals, her concern is mostly driven

by her familiarity with China's history of human rights abuses. Since she does not believe that Chinese individuals would readily consent to this type of exploitation, she greatly suspects that the bodies used are those of executed prisoners (20/20).

A closer examination of China's human rights documents and other documentation will help assess whether or not the use of the Chinese cadavers is ethical. In China, the practice of using executed prisoners for skin and organ procurement, transplants and medical purposes, dates back to the 1970's (Lenning 173). China ceased cooperative transplant procedures involving foreign medical entities in the late 1970's and started its own state-run program, creating a lucrative business. Between 1979 and 1984, three documents were published regarding the use of executed prisoners for transplant purposes. They are: *Rules Concerning the Dissection of Corpses*, *On the Issue of Using Dead Bodies of Condemned Criminals*, and *On the Use of Dead Bodies or Organs from Condemned Criminals* (Lenning 174). All three of these documents review procedural techniques of removing and handling organs of executed prisoners and state the instances in which these extractions are appropriate. In the document, it is stated that organs should only be removed from the uncollected dead bodies of condemned prisoners. However, later in the article it is mentioned that either the prisoner or his family members must provide consent for organ removal, unless the body is unclaimed (Laogai Research Foundation, 2001, 63). There is no mention of how long a body must remain unclaimed before organ harvesting can take place. Further, even though the use of dead bodies or organs is "allowed," the document states that use of dead bodies from criminals must be kept confidential –elucidating that while these practices go on, they are not openly admitted (Laogai Research Foundation, 2001, 79). These passages make it hard to frame the actual extraction of prisoner's organs as a 'crime' in China, at least in the logistic sense of the term. However, China has an obligation to refrain

from the unethical use of executed prisoners' bodies because of their solidified membership in the United Nations. Therefore, breaking this obligation is a crime at an international level.

While China's laws for dealing with prisoners' bodies are legal within the state itself, they are contradictory to the treaties which they have signed with the United Nations. Specifically, China is in violation of the U.N.'s *Convention Against Torture and Other Cruel, Inhumane, or Degrading Treatment or Punishment*. This treaty denounces the practice of using the bodies of prisoners, and especially, killing or sentencing more individuals to death row in order to keep this lucrative business in progress (Mullins & Rothe 2006). Further, in *The Universal Declaration of Human Rights* under articles three and five it states that "everyone has the right to life, liberty and security of person" and that "no one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment" (The Universal Declaration of Human Rights). The prospect that the individuals used in this exhibit are executed Chinese prisoners directly violates both the right to life, and the right to be protected from cruel or inhumane treatment. Consequently, the practices of the Chinese government using unclaimed bodies for further purposes is considered an international state crime, or "internationally defined as unlawful actions committed by nation-states, typically to advance the social, economic, ideological, or political interests of the state or those in control of the state" (Mullins & Rothe 2006). Today, then, the Chinese government's practices regarding the use of prisoners' bodies after death is considered a violation of universal human rights. And these findings do not reveal the number of human rights that are violated from China smuggling these bodies to other countries on cargo ships or those violated from China's unprecedented use of the death penalty.

On January 1, 1997, a new "Criminal Law" was formally put into effect in China, implementing the death sentence by method of lethal injection instead of shooting (Respect for Tradition). Since its initiation in 1997, lethal injection has been the primary way to exterminate

prisoners. This point is very important pertaining to the “BODIES” exhibit. In February of 2008, Arnie Geller, the Chairman of Premier Exhibitions stated that all of the Chinese bodies on display were people who died of natural causes (20/20). If these individuals did die of natural causes, the issues of the death penalty being implemented over a less severe punishment, or the issue of the death penalty being rushed to provide bodies for the exhibit would be out of the question. However, the lack of documentation and the fact the Premier Exhibitions has openly admitted that the bodies are unclaimed portrays that they have no idea whether or not the bodies are those of individuals who have died naturally. Further, since the bodies came from China, and the death penalty is now carried out by lethal injection instead of a bullet in the back of the head, would one really be able to tell if they died of natural causes simply by looking at them?

Additionally, all of the bodies used are those of individuals who died in the prime of their lives – from robust young men to pregnant women, with their fetuses still intact (20/20). For many, this adds another eerie layer to the prospective thought that all of these individuals died naturally. No preliminary autopsies are performed on the bodies to find the cause of death before they are essentially dissected and plasticized. Similarly, Premier Exhibitions does not carry out the plasticization process themselves; they receive the bodies already dissected and ready for display, from China. And with skin and muscle already pulled back and carefully preserved, would someone actually be able to tell if a single vein in the corpse was punctured by a needle which ultimately caused his death? Because Premier Exhibitions does not have a plasticization school itself, it is crucial for them to know where their displayed corpses come from in China. Arnie Geller says that all of the bodies used in “BODIES” come from a medical university in Dalian, China. But when Brian Ross from ABC news contacted the president of the Dalian Medical University, he flatly denied ever having any connection with Premier Exhibitions and states that the university has never provided any bodies used on display in their showcases (

20/20). So the question still stands. Where do the bodies used in “BODIES: The World Within” actually come from?

Brian Ross, from ABC news, traveled to Dalian, China and found the answer to this question thirty miles away from the medical university in a run-down warehouse where the manager, when asked where the bodies came from, simply stated “I don’t know” (20/20). However, when ABC received pictures from a man who claimed he been involved in the body black market, the issue of executed prisoners once again surfaced. This man, whose identity was kept confidential, explained that his job was to drive around China picking up bodies off the streets of China and dropping them off at designated points. Some of the bodies he picked up, he claimed, ended up at the warehouse 30 miles away from the medical university. His job congruently matches up with excerpts pertaining to keeping the use of dead bodies confidential in the document: *On the Use of Dead Bodies or Organs from Condemned Criminals*. This document specifies everything from what cars should be used to pick up bodies to what the “runners” should wear. It reads as, “Vehicles with the logo of medical institutions are not to be used, and white clinic garments are not to be worn (Laogai Research Foundation 79). Arnie Geller, after seeing the photographs of executed Chinese prisoners stated that he was appalled and that his medical staff had seen no evidence of trauma or execution (20/20). But there would be no evidence of trauma if execution is implemented through lethal injection. Further, why is Premier Exhibitions allowed to showcase bodies which they have publicly stated are unclaimed when there are specific rules, consent forms, and procedures which need to be followed in order to have cadavers on premises in the United States?

Since 2006 it has been illegal under Chinese law to export human bodies or body parts (China Rights Forum 33). However bodies continue to be exported from China to the United States through loopholes. China is able to ignore the ethical dilemma of the “BODIES” exhibit

and can distance itself from the ethical controversy because it is convenient to do so for business purposes. China can simply continue to produce these plasticized models in the shadows and ship them to other countries – presenting the bodies on cargo documentation as “plastic models for medical teaching.” When Arnie Geller was asked if he thought this terminology was accurate he said technically, it was (20/20). However, Prof. Todd Olson, president of the American Associate of Clinical Anatomists says that this terminology is wrong. He states that:

“These people aren’t models, any more than a Manichean is a human being. To take a deceased person and subject them to a plastic process of preservation that dehumanizes them to the point of being a plastic model is appalling. Excuse me; this is a human being” (Olsen).

This statement portrays that the human aspect of these models no longer exist. The process of treating these corpses as plastic models over the course of several years has led to a completely dehumanized business. Further, dehumanizing these individuals enough to put them on display causes a desensitized approach to death in every continent where these exhibits have been showcased. And once the human aspect is separated from these bodies, it allows Premier Exhibits to disregard many regulation set in place for the handling of human cadavers in the USA. In his interview with 20/20, Todd Olsen stated, “it is amazing to me and every other anatomist in the state of New York who is licensed to have human cadavers on premises – the laws that apply to us do not apply to [Premier Exhibitions]” (20/20). For instance, Colleges and Anatomist Associations usually obtain cadavers from donation programs such as Whole Body Donations and Body Donation Program, BDP (Medcure). Many universities, including Yale University, also establish their own donation programs where your body goes straight to the university after death instead of going through a third party (Yale). Irrelevant of which method is used to obtain the cadavers after death, both Anatomist Associations and various universities must have informed consent certifications and other documentation for all bodies used. Even if the bodies are unclaimed, a signature from a physician or other designated authority is required

on death certificates stating that an attempt was made to find related kin, and that the individual died of natural causes (Encyclopedia of Death and Dying). Premier Exhibitions has failed countless times to produce any type of documentation for the cadavers used in their showcases. They have no identification forms, no release forms consenting to be put on display, and no death certificates from the companies they work with in China to verify that the bodies were individuals who died of natural causes or were even legally obtained. Premier Exhibitions has no paper trail of any kind for the bodies that they are parading around the country. On May 29, 2008, New York Attorney General Cuomo stated "despite repeated denials, we now know that Premier itself cannot demonstrate the circumstances that led to the death of the individuals. Nor is Premier able to establish that these people consented to their remains being used in this manner. Respect for the dead and respect for the public requires that Premier do more than simply assure us that there is no reason for concern" (Cuomo). The fact that the "BODIES" showcase has been up and running since November of 2005, without any documentation for the cadavers used in the exhibit, simply shows Premier Exhibitions found a way to get around the system – the system which every other organization and foundation dealing with cadavers has to follow with exact precision. How is it possible, then, that Premier Exhibitions has been allowed to operate without presenting documentation for the cadavers they use? And further, what could be the main motivation for a company to abandon the fundamental principles of operation within its category? (In this case, Premier Exhibitions failure to obtain and use legally sound bodies for their exhibit.) While there are a number of possible answers to this question, the focus of the answers will mainly pertain to the driving force of today's world; money.

Money has always been one of the most motivational devices known to mankind. George Savile once said, "They who think that money will do everything, may very well be suspected to do everything for money" (232). While this is only one out of a million sayings regarding money

and greed for money, the meaning is clear and relatively universal. Those who value money will usually sacrifice a great deal in order to obtain it. And in a world where the economic infrastructure is crumbling, staying in business and making a profit are the top priorities of large corporations and small businesses alike. Premier Exhibitions is no exception to this rule. In a Premier Exhibitions report on January 7, 2009, for their third fiscal quarter, (which ended on November 30, 2008), their revenue totaled 13.5 million, compared to 16.7 last year (Ingalls). Further, while Premier Exhibitions has a number of exhibits running under its corporation, “BODIES” contributed approximately 70% of this year’s revenue. This data portrays that the “BODIES” exhibit is a very highly valued asset and is a key player in keeping Premier Exhibitions afloat financially. When an exhibit brings in 70% of your total revenue, and has earned a company over 54 million dollars, there is no doubt that extreme measures would be taken in order to maintain the success and popularity of the showcase. Further, if a showcase is extremely popular, factors that would negatively impact the company, such as admitting that there is no documentation for the bodies used, would be kept concealed for as long as possible. Still further, a large corporation could afford to take measures to protect itself against negative press and skeptical opinions. Only proving that, when an asset becomes imperative to a company’s survival, in this case the “BODIES” exhibit, measures will be taken to assure that it continues to bring in revenue – even if it means that rules are bypassed or ignored for the sake of keeping the display open and making a profit. With the “BODIES” exhibit, they circumvented the regulations of using ethically and legally sound bodies for their exhibitions. Why would they choose to disregard such a major regulation for their exhibits? While the reasons of time, energy, and money may seem simplistic, they are legitimate reasons for companies to cut corners.

In the movie “Body Worlds: The Anatomical Exhibition of Real Human Bodies,” The processes behind Plasticization and the effort of putting together a “bodies” exhibit are explored.

Body Worlds is Gunther Von Hagens German bodies exhibition. In the movie it is stated that it took 25 years for Dr. Gunther Van Hagen to collect all of the bodies used in his exhibit (Body Worlds). It is also stated that an entire plasticized body takes eight to twelve months to prepare for display, and costs over \$60000 to produce (Body Worlds). This information proves that plasticization and the body exhibits circulating around the world are costly projects. They are not only expensive endeavors, but also take excessive time and effort to produce. But this is information from Premier Exhibitions leading competitor, who invented the process of plasticization and has been in business much longer than Premier Exhibitions. How does Premier Exhibitions contend with a competitor like Gunther Von Hagens? They compete by cutting corners.

Premier Exhibitions has no laboratories of their own where they dissect and plasticize each body. They buy them, already plasticized, from their source in China and off of the internet. This cuts down the time it took to initially prepare the exhibition, and the time it took to actually get the exhibit up and running. In order to compete with Dr. Von Hagens, Premier Exhibitions did not have 25 years to formulate the “BODIES” exhibit meaning that time and efforts were significantly lessened. Further, in the 20/20 interview exclusive, the man involved in the body market business who’s identity was kept concealed, stated that the dead bodies he picked up and dropped off at the warehouse cost \$200 each (20/20). While the entire price of plasticizing these bodies in China and shipping them to the United States is unknown, \$200 versus \$60000 is a major price difference in favor of Premier Exhibitions. While the price of \$200 leaves out major monetary figures, on a larger economic scale it is usually cheaper to import already made goods from other countries than to produce them. Consequently, it is cheaper for Premier Exhibitions to buy plasticized models than it would be for Premier Exhibitions to open its own plasticizing laboratories in the U.S. However, cheaper is not always better. For Premier Exhibitions, the cost

of using bodies bought overseas was the forfeited right and responsibility of ensuring that the bodies used in their exhibit were obtained legally and had proper documentation. So while Premier Exhibitions managed to get “BODIES” up and running quickly and smoothly, the aspects of the exhibit with which they chose to cut corners, are now proving to be major problems and handicaps. The prospect of making a large profit off of the “BODIES” exhibit compromised the company’s decisions to ensure that the bodies being used were obtained in an ethical manner. This choice proves that money outweighed the ethical obligations of Premier Exhibitions to ensure that the cadavers used were up to both the legal and ethical standards set by the United States. Attorney General Cuomo stated that, "The grim reality is that Premier Exhibitions has profited from displaying the remains of individuals who may have been tortured and executed in China" (Cuomo). Premier Exhibitions is now paying for choosing this convenient option. A settlement made on May 28, 2008, with the Attorney General’s office brought an end to Premier’s practice of using bodies of undocumented origins in their exhibitions. Further, \$50,000 is being put aside to refund tickets of individuals who saw the exhibit and were unaware of the malpractices behind it (Cuomo). Premier Exhibitions undoubtedly is paying for the “convenient” choice they made in obtaining cadavers for their exhibit. These “convenient” and “easy” options, however, are becoming harder to avoid when the internet and underground black market make obtaining, even dead bodies, readily available.

The buying and selling of entire bodies and body parts has been a lucrative business since the late 1700’s. The black market allows body brokers to easily obtain and sell cadavers. In the book entitled *Body Brokers: Inside America’s Underground Trade in Human Remains*, Annie Cheney explains how body brokers get around the laws by stating that:

“The Uniform Anatomical Gift Act, approved and recommended for enactment in all states in 1968 and amended in 1987, prohibits buying and selling dead bodies. However, the law allows companies to recover their costs which enables brokers to hide their

profits by inflating the amount they spend on labor, transportation, and storage of bodies” (8).

This excerpt reveals that while laws are in place to prevent the exploitation of dead bodies, brokers have found easy ways to get around them. This also portrays another situation where the temptation of money outweighs individuals’ choices to follow regulations set in place regarding cadavers in the United States. Further, the federal government does not regulate bodies used for research or education (Cheney 11). This means that if a body broker decides to form a company for research or education, no one is checking his books or ensuring that the bodies used are obtained legitimately or legally. This can instantly be tied back to Premier Exhibitions who has labeled its exhibit as an educational experience for all ages. Labeling itself as an educational expenditure permitted Premier Exhibitions to escape the eye of the government, at least until the controversy regarding the exhibit became too great to conceal. Further, lucrative plasticization businesses claiming to be “anatomical specimen providers for teaching professionals and medical universities” continue to surface on the internet (Corcoran Laboratories). An example of such a business is Corcoran Laboratories, Inc. They have an established website where one can see images of the plasticized cadavers in stock and instantaneously review price quotes. Websites such as this one make shopping for cadavers almost as easy as shopping for clothing online. And with the internet making the globe more interconnected every day, it is only a matter of time before websites such as Corcoran Laboratories become very numerous and harder to regulate. Thus, the black market will have yet another vessel through which cadavers can be easily bought and sold around the world. Further, the fact that the body market is called “the underground trade” instantly signifies that there is an ethical problem with this business. It is in the shadows and considered as dark and mysterious. How can the world view a black market where stolen corpses are bought and sold, usually on the internet, as ethical or even borderline appropriate conduct in any culture? And if this black market is viewed as unacceptable, how is the

showcasing of human cadavers in BODIES, which encourages the trade of corpses within this market, be seen as any more civilized? And if this exhibit is still considered a masterpiece of science, then the entertainment aspect can also be evaluated to judge the ethical standards behind the exhibit.

“BODIES...The World Within,” has been labeled as an educational and inspirational experience. It allows individuals to get an up close and personal look at how they are made. Senegar-Mitchell, a science teacher in the Sweetwater Union High School District in California, states that “making these displays accessible to all students in an interactive environment can only help them learn more about the human body and excite them about science” (Dabney). And while many agree with Mitchell’s approach to the BODIES exhibit, others think it is an affront to both the dead and the living. *Rabbi Louis Feldstein* talked about the BODIES exhibit in the 20/20 interview and stated that:

“It’s art, it’s science, no it’s entertainment. You are going to be entertained by looking at dead bodies. Can you learn something from it? Sure you can learn from it. Is it right to learn from that? I would say no (20/20).

There is an un-ignorable ethical dilemma in promoting this exhibit as strictly educational. First, because it is labeled as “educational,” Premier Exhibitions can get around the Federal Governments evaluation as Annie Cheney stated earlier. And even if this exhibit is educational, does the educational aspect justify the unethical practices which pieced the exhibit together? Education has been used to justify many gruesome wrongs in the past. During the Holocaust, Nazi experiments on the Jews were educational. Knowledge of the human body was gained, but brutally, with the cost paid in human lives. Pharmaceutical companies go to Third World Countries and test drugs on millions of destitute human “guinea pigs” each year. This testing is educational for the pharmaceutical companies who see how humans react to the drugs, but is it ethical? The fact that something is educational does not mean that it is ethical or acceptable.

There is no doubt that this exhibit could hold educational value, but at what cost? And while this exhibit may be a teaching tool which democratizes understanding of the human body, the entertainment aspect cannot be disregarded.

What was once viewed with a sense of respect is now treated the same way as pieces of metal at the Air and Space Museum. Death is on display. This exhibit has been showcased in such venues as shopping malls, the Las Vegas Strip, and has even premiered in a clip of the James Bond movie “Casino Royale” by Sony Pictures. People are paying \$26.50 per ticket to view human cadavers. Technology today would permit the design of plastic models that would look almost identical to the individuals used in the BODIES exhibit. But would people pay to see this exhibit if the models weren’t real people? Probably not. And why not? Because the entertaining aspect would be stripped away. And when entertainment has gone as far as paying to see dead people, an -evaluation of ethical standards needs to be made. Who’s ethical standards need to be evaluated? It depends on who is asking. On one end, the United States needs to check its ethical standard and cultural sensitivity for allowing this exhibit to travel across the nation. The fact that both Fiona Ma in California and Attorney General Cuomo in New York have taken measures to prohibit further showcasing of the “BODIES” exhibit in these states, portrays that not everyone is willing to let the American legal and ethical standards slip. On the other hand, the United States is not the only country who’s ethical and legal standards need to be re-examined. China’s unwillingness to act in accordance with their treaty signed with the UN allows for many loopholes concerning the body black market and death penalty laws. This lack of cooperation with outside countries and the continuing cycle of human rights abuses, halt the chance of redefining ethical standards in China at this point in time. And if China was going to redefine its ethical standard, what would it be defined to? There is no set “right” universal ethical standard to dictate the practices of every country. However, in most cultures, death has always

been regarded with some type of respect. In China, there is a disconnect between those who still respect the dead and those who see death as another lucrative business. Until death is again valued as more than just a way to make money, the ethical standard will not change. Further, Dr. Von Hagens has exhibit which travel in many European countries. He has always stated that “death and humor should go together” (20/20). He has also had bad publicity regarding some of the exploitive poses in which Von Hagens chooses to display his cadavers. There is questionable ethical activity, then, in the U.S., China, and most of Europe. While there is no universal code of ethical standards which all of these countries follow, there is the Universal Declaration of Human Rights with which this exhibit and many plasticizing organizations fail to comply. Further, an aura of silence, tranquility, and respect has always surrounded the idea of death. And when this natural aura is broken by ringing cell phones, children laughing and running around posed cadavers, and guards yelling that no food is allowed in the exhibit, perhaps it is safe to say that the global morale, at least in regards to respecting the dead as more than entertainment, has fallen. One can only hope that this slip in morale can be succinctly corrected now, before something even more questionable takes its place.

The “BODIES” Exhibit, then, has commodified death as entertainment in the 21st century. Through this “entertaining” exhibit, a scientific breakthrough has become an inexcusable, unethical practice which unburied the dignity of the dead. There is no doubt that the ethical obligation to respect the dead has been a relatively universal cultural ritual for centuries. This cultural approach to death is being slowly stripped away by the practice of displaying plasticized cadavers for entertaining purposes. From evaluating Chinas philosophical teachings, it is evident that respect for the elderly and the dead is an inseparable part of the Chinese culture. Because of this, the willingness to donate one’s body to scientific display after death in China is a significantly implausible circumstance. Therefore, the Chinese government’s abuse of human

rights laws, death laws, and international treaties were questioned in an attempt to gain an understanding of where the cadavers used in “BODIES” actually came from. Through documentation and statements released from Premier Exhibitions, it is evident that unethical, and in some instances, illegal actions were taken in the development of the “BODIES” exhibition and that the cadavers used have no proof of legitimacy. The methods used to obtain these cadavers were not only unethical, but they also fueled the thriving cadaver network and online plasticization laboratories which form a dark and lucrative underground business in today’s interconnected world. The fact that Premier Exhibitions is lawfully bound to reimburse customers who were unaware of the malpractices behind the exhibit proves that unethical choices were made by Premier Exhibitions, and that they are being forced to take responsibility for their actions. Exposing dead corpses for entertaining purposes, Premier Exhibitions has caused scientific exploration and different cultural approaches to morality to collide. Today, through the “BODIES” exhibit, death has been unburied.

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The Falklands War of 1982: Historical Reasons, Political Benefits

~William Law

During a period of less than three months in 1982, a war was fought over a group of small South Atlantic islands situated about three hundred miles from the nearest mainland. This cluster of two large and hundreds of smaller islands was of virtually no economic importance and only slight military significance. Despite what most would consider to be a land of trivial and inconsequential value, these islands became the focus of two established world powers that chose this territory as the site to engage in hostilities that eventually cost the lives of nearly 1000 of their citizens and that cost their countries billions of dollars. While one nation was able to emerge as the uncontested victor, to this day the name for this conflict, and even the name of land over which the war was fought remains in dispute. To Great Britain, these were their Falkland Islands, belligerently invaded by the Argentines without justification. To the Argentines, their military action was nothing more than a long overdue reclamation of their rightfully owned Islas Malvinas. Along with these deeply felt nationalistic perceptions, there were other reasons for both parties to go to war. At the time, both Great Britain and Argentina were suffering from substantial economic inflation and unemployment. In Argentina, the governing body, known as the junta, was losing popular support. While the Falklands War was said to be about the historical ownership of a group of islands off the coast of Argentina, there were tacit, advantageous reasons for both Argentina and the British to go to war that included political, economic, and social factors.

Ownership claims on each side were based on historical and legal facts. Argentina justified what was considered by the rest of the world as an invasion by stating that they were reoccupying their own territory. From Argentina's perspective, Great Britain had really been the aggressor, as they felt Great Britain had been trying to take what was rightfully Argentina's for

so many years. In order to understand the claims of both countries, it is important to recall the historical reasons for each of their claims. In the case of Argentina, the claim to the Falklands dates back to the issuance of the line of demarcation set by Pope Alexander VI in 1493. The line of demarcation was intended to keep Spain and Portugal from fighting over newly colonized land by drawing a longitudinal line 100 leagues west of the Azores and Cape Verde Islands (Goebel xiv). Territory east of the line belonged to Portugal and those lands to the west belonged to Spain. Consequently, the Falkland Islands fell within Spain's designated sphere of colonization, which created a legitimate future claim to ownership by Argentina when this former Spanish territory became independent on July 9, 1816. In Elizabethan England, the Protestants opposed Spain's authority over the land addressed by these Papal Bulls. But it was not until the Great Armada was defeated that the Spanish authority was truly effectively challenged, requiring Spain to resort to claiming its rights by either occupation or by treaty.

The island's history has been a complex ownership dispute since its original discovery and colonization. No one knows who first saw and officially claimed the Falkland Islands. As a result, the islands acquired a variety of names, such as the Sansons, the Sebaldes, Hawkins Land, the Malouines, and the Malvinas. It is known, however, that in 1690, Captain John Strong of England was the first to set foot on the islands. Although the Treaty of Utrecht of 1713 formally confirmed that the islands, incorporated within a large general area, belonged to the Spanish, it did little to restrain English and French ambitions (Hastings and Jenkins 2). By the spring of 1764, a French nobleman, Antoine de Bougainville, settled on the island.

A year later, the Brit, John Byron, nicknamed "Foulweather Jack," confronted the French. But the French, who were allies of Spain, transferred their land on the east side of the island group to the Spanish governor. In 1769, two years after the arrival of the British intruders, the Spanish, armed with five ships and 1400 men, forced the British to surrender under protest

from their west side settlement. Upon Argentina's independence from Spain in 1810, authorities in the new nation decided to remove Spanish settlers from the Falklands. During this time, the islands became a refuge for sealing and whaling vessels.

However, it was not until 1820 that Argentina officially claimed the islands as part of their postcolonial legacy from Spain and appointed its first governor in 1823 (Hastings and Jenkins 5). By 1829, the governor imposed restrictions on the indiscriminate slaughter of seals, as he feared their extinction. At that time, an American ship was arrested for illegally sealing and its cargo was confiscated. The American council in Buenos Aires claimed that they had never recognized Argentina's jurisdiction of the islands. The ship returned to the Falklands, recovered the confiscated seal skins, blew up the Argentine gun powder, sacked the settlement, and then declared the islands free of all government. Finally, on January of 1833, the British returned to the Falklands with two warships and instructions to hold the islands for Britain. Since then, the British have remained in possession of the Falklands.

Throughout the course of history both countries tried repeatedly to establish their claim to ownership. England and Argentina both believed that the Falkland Islands were their territory and neither country has ever stopped making this claim. Argentina participated in several diplomatic negotiations with the United Nations and has always maintained that the Falklands were their territory. There was never a point where Argentina abandoned this belief. Once it was clear that the Falklands were of strategic value to Great Britain, the British would not let them go. For instance, during the Cold War its location became an excellent place to have a military base. Countries other than Great Britain and Argentina viewed the islands with little interest. Fr. Sebastian Villanueva, who lived on the island during the 18th century, once described it saying, "I tarry in this unhappy desert, suffering everything for love of God" (Goebel 1). Nonetheless, Argentina's efforts to recover the islands were made clear after World War II at

the United Nations. After WWII, during the inauguration of the first period of sessions of the United Nations, Argentina presented its first claim regarding the islands. During the Cold War, England tried to hold the islands as firmly as possible by keeping an international military presence. The British believed that “bases were a ticket to the top table of nations” (Hastings and Jenkins 9). Even though England technically owned the Falklands at this time, Argentine schools were still instructed to teach that the Malvinas belonged to Argentina.

In 1971, a Communications Agreement was signed with Argentina. The objective of the agreement was to give the Falkland inhabitants more control over the island. The islanders were concerned about not having enough support from Great Britain. David Scott, the English undersecretary in charge of dependent territories, perpetually told the islanders that he was “not here to sell [them] up the River Plate” (Hastings and Jenkins 23). But in fact, the Communications Agreement did not support the islanders the way it was presented. The islanders were even denied full British nationality (Hastings and Jenkins 47). While Great Britain was now releasing its hold over its former colonial territories, it wanted its strategic presence to remain in these islands. This became a major issue in Argentina’s fight for sovereignty.

By 1976, Argentina had grown tired of the sovereignty dispute. At that time, the Peronista Regime—ruled by Juan Peron’s widow, Isabella—was brought down by a military junta in January of that year. The junta then decided to take matters into their own hands. According to John Arquilla and Maria Moyano Rasmussen’s article, “a serious but unsuccessful coercive diplomatic effort was aimed at dislodging the islands from British control” (par. 10). Unfortunately, this caused the Argentines to grow even more frustrated and impatient, which eventually led to the use of force, in 1982, to try to settle the dispute.

Argentina's internal problems were in need of a distraction that would unite the Argentines. The country was divided between those who benefitted from the junta being in power and those who were being repressed by the government. A war in the Falklands would be the perfect Argentine solution, as Argentines strongly believed it was Argentina's land and therefore everyone would unite under this common cause, thus distracting them from the political, economic, and social problems of the nation.

Argentina's politics and economy began steadily to deteriorate after the military junta took over in 1976. It was a period of dictatorship and repression, where the junta created rampant corruption and a failing economy. The repression included a series of public measures, such as the military occupation of large factories and state businesses; the prohibition of unions and political parties; the laying off of political activists from their jobs; and the censoring of intellectuals and artists that became known as the "black lists." The repression was responsible for the forced disappearance of between nine thousand and thirty thousand people (Privitellio et al. 232). Among the kidnapped were pregnant women. The children who were born in prison camps would be deprived of an identity, and were often handed over to the families of the Argentine police or the military to be raised. Out of this repression, a culture of fear was born in Argentina, where people would censor and isolate themselves from any relation or activity that could prove risky. This created a passive acceptance for the dictatorship by the Argentine society.

The repression was not the only plan of the military dictatorship to modify society. The dictatorship also created an economic plan whose main objective was to end the country's social and political instability (Privitellio et al. 233). This objective proposed to stop the state from getting into the affairs of the economy because it was believed that this contributed to the alteration of social order.

In the first stages of the plan, measures were taken to quickly stabilize the economic crisis. Salaries were frozen, which created approximately a 40% drop in pay (Privitellio et al. 233). This most greatly affected the workers' organizations. In 1980, various banks went bankrupt and the crisis went downhill from there. By 1981, industrial production had fallen by 20% in a period of only five years, and inflation had reached 100%, radically devaluating the peso (Privitellio et al. 234). Also, foreign debt had tripled over a period of two years.

The Argentine people were growing increasingly aware of their country's political and economic instability, and more and more people were becoming opposed to the military government. In order to distract the Argentine people from the growing domestic political tension, it is likely that the junta looked to the Falklands as a popular external diversion. In referring to the war, *Newsweek* asserted that "the squabble presented the Argentine junta with a pretext to divert attention from 13 percent unemployment, 120 percent inflation and growing civil unrest" (qtd. in Arquilla and Rasmussen 2). The military defeat in the Falklands by the English in 1982 removed what was left of the public support for the regime. The junta voluntarily resigned the following year.

British politics and economy did not have such an extreme situation as Argentina, but the Conservative Party had introduced many measures that had resulted in a problematic economy. Margaret Thatcher was identified with high unemployment following her economic reforms. In order to improve the economy, the British government started an austerity budget aimed to reduce inflation. While convenient, it would take more than a surprise attack on the Falklands by Argentina to produce the perfect excuse that would unite the country behind a strong leader who could prevail over both Argentina and the economy.

The British needed to address "more important" issues other than recession. The media had been reporting that "some bankers and economists predicted [the austerity budget] would

likely push the nation's economy deeper into recession" (Bailey, par. 1). Most economists predicted that inflation would remain high in 1982 and that unemployment, which was now nearly three million people, would keep rising ("The Outlook for Britain," par. 5). At the time, the government was committed to cutting inflation even at the expense of depressing economic growth.

The two countries reacted differently to the war while it was being fought. In Argentina, there was mass support for the military junta. Federico Guillermo Lorenz of *History Today* stated that "the landings of Argentine forces in the islands on April 2nd, 1982, roused the support of wide sectors of Argentine society. It was seen as the fulfillment of a long-held national right" (Lorenz 2). Rafael Wollmann, an Argentine photographer during the war, also exemplified the general enthusiasm of the Argentines through his personal account of the South Georgia occupation (par. 36). On the other hand, Great Britain endured bouts of humiliation and frustration during the war. One such event that had this effect on England occurred when Argentine forces took control of Port Stanley, and the British Navy had been too far away to prevent it (White, par. 1).

Although reactions during the war were important, its most critical effects occurred once it was over. The end of the Falklands War brought major political consequences for both Argentina and England. As a consequence of Argentina's loss of the war, major political change arose. Opposition of the military government continued to grow to the point where the junta had no choice but to resign. Later that year, Raul Alfonsin was elected to office. This marked the end of the military junta and the beginning of democracy in Argentina.

In England, the Falklands War significantly increased Margaret Thatcher's popularity. It played a crucial and decisive role in her 1983 reelection. One of the first things Margaret Thatcher did to prepare for reelection was to tour military positions on the Falkland Islands. The

opposing politicians in England accused her of trying to make political capital out of the British victory in the Falklands. George Foulkes, a Labor Member of Parliament from Scotland, said, “This is yet another episode in her carefully planned public exercise to derive maximum political gain from the victory which the troops gained. Her action in going there is so provocative to Argentina, South America in general and the United Nations that it makes a long-term political solution less likely” (Apple, par. 6). Regardless of whether or not this had been her original intent, Margaret Thatcher did successfully gain popular support and reelection. A 1983 *Fortune Magazine* interview of Margaret Thatcher held that, “Victory in the Falklands and significant success against inflation [had] overshadowed high unemployment and the lingering recession” (“There Aren’t Any,” par.1).

On June 14, 1982, with the surrender of the large Argentine garrison located in the capital city of Port Stanley on the island of East Falkland, the war effectively ended, only seventy-two days after it began. Six days later, Britain formally declared an end to hostilities. To the British, the war was over; Great Britain had emerged victorious; and this discreet event in the history of nations was now concluded to the satisfaction of Great Britain. The war’s outcome was unquestionably decisive, and certainly did result in dramatic and long lasting impacts on governments of both Britain and Argentina. However, it would be erroneous to say that the war brought an end to the long-standing nationalistic feelings in Britain and Argentina that resulted in the willingness, if not the eagerness, of these nations to spill blood and spend money to engage in this conflict. Although the historical ownership disputes of the Falkland Islands added tension to the unrelenting problem, it was the potentially advantageous political, economic, and social factors that ultimately fueled both nations’ participation in the war.

Tensions created by the complex history of these islands still exist and will undoubtedly remain for many years to come, and differences in national interests and priorities will continue

to shape the perspectives and approaches of relations between and among nations. But despite these differences, the past twenty-five years have not seen resurgence in the violence that has marked the history of these islands since the time of their discovery. If the outcome of this conflict is the creation of a foundation that will allow two nations to discuss their differences without engaging in force of arms, this may serve to become the greatest legacy of any event in the history of these islands.

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The Evolutionary Significance of the Thyroid Gland

~Brian Barrett

Introduction

In the catalog of evolutionary milestones and the most significant evolutionary innovations, the vertebral column, brain, and respiratory system generally top the list. The evolutionary contributions of a little gland in the neck called the thyroid gland are often overlooked. The purpose of this paper is to trace the evolutionary path of this gland, illustrating its role in the success enjoyed by the phylum Chordata, and highlighting the thyroid's contribution to the development of endothermy, a bony skeleton, and perhaps even abstract thought. This analysis will be done through a class-by-class examination of the phylum Chordata, culminating with a discussion of the class Mammalia, with an in-depth look at humans in particular.

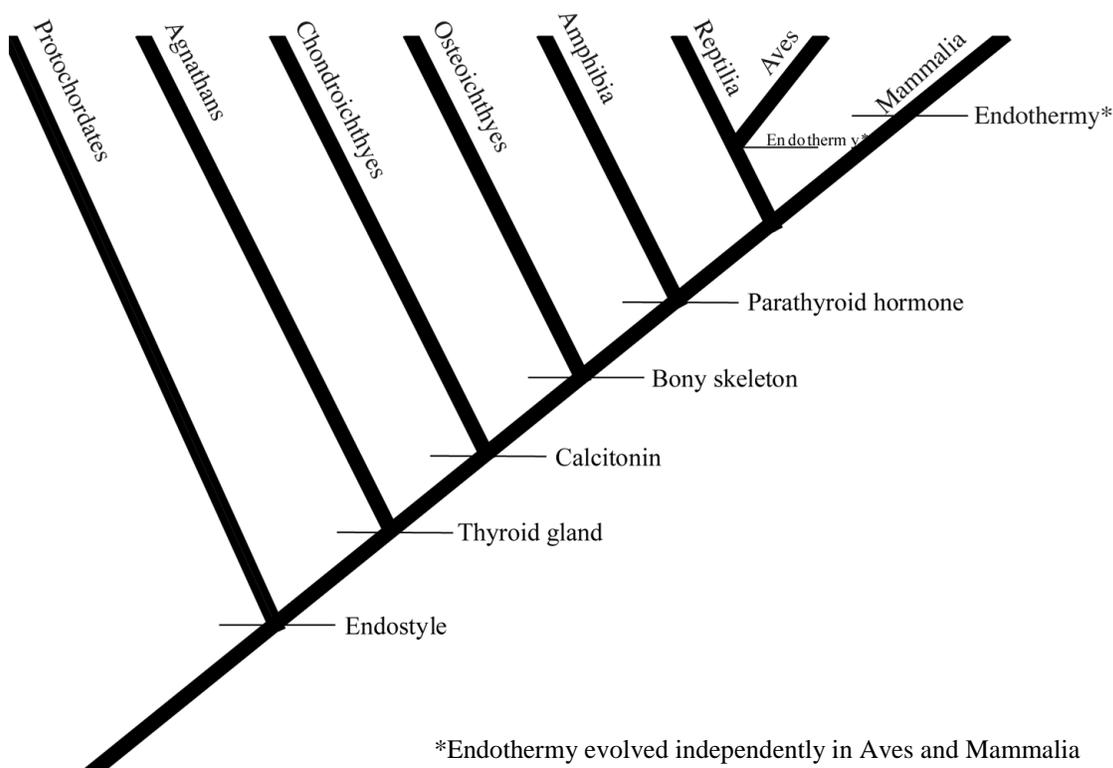


Figure 1. Cladogram demonstrating the evolutionary milestones of the thyroid gland.

The Human Thyroid

The thyroid as we know it today is an endocrine gland located anterior to the trachea, below the larynx, and above the sternum in humans. It weighs approximately 30 grams and has a dual-lobed shape, which resembles a butterfly. The parathyroid glands, of which there are typically four, are largely surrounded by the thyroid gland. Together, the thyroid and parathyroid glands are responsible for the synthesis and release of the hormones triiodothyronine (T3), thyroxine (T4), calcitonin, and the aptly-named parathyroid hormone (PH) (Jenkins, Kemnitz, & Tortora, 2007). These hormones work in concert to balance calcium and related ion levels, regulate basal metabolic rate in the body, and perform other related functions (Jenkins, Kemnitz, & Tortora, 2007).

To regulate basal metabolism, thyroid hormone secretion is controlled by a release mechanism involving thyrotropin-releasing hormone (TRH) from the hypothalamus, as well as thyroid-stimulating hormone (TSH) from the pituitary gland. Calcium blood levels are primarily controlled through opposing negative feedback loops involving calcitonin and PH (Jenkins, Kemnitz, & Tortora, 2007).

Metabolism Regulation in Non-Chordates

While the initiation of the phylum Chordata, and subsequently the thyroid gland, is evolutionarily recent as compared to invertebrates (Campbell & Reece, 2005), the ability to regulate metabolism is not. In fact, the ability to differentially burn food/fuel for energy is a fundamental ability of all but the most basic of life-forms.

Two main problems for an organism in establishing a mechanism for metabolic control is how to efficiently store food when there is a surplus of food versus energy demands, and how to subsequently access that surplus when there is a deficit of food versus energy demands. By and large, the answer to the first part of that conundrum has been adipose tissue, which is a very effective food storage device; however, as with all effective storage vehicles, access to the content of adipose tissue (energy) is somewhat restricted. One of the main keys to unlocking adipose tissue is iodine, which forms the extremely lipophilic ion, iodide and is greatly involved in the process of lipolysis (Flatt, Moroz, Tatar, & Heyland, 2006). Consequently, over eons, organisms have developed various increasingly efficient means of storing and delivering iodine, or other means of lipolysis, in order to more efficiently regulate their metabolism.

One of the most successful phyla of organisms, based on biomass, is Arthropoda. By examining insects' ("insect" being a general term for the sub-phyla Hexapoda within Arthropoda) means of metabolic rate control, one finds that their mechanism for control is largely analogous to that of the vertebrates (Flatt, Moroz, Tatar, & Heyland, 2006). In place of the thyroid hormones T3 and T4, insects utilize the morphologically similar hormones sesquiterpenoid juvenile hormone (JH) and the steroid 20-hydroxy-ecdysone (20E). So similar are the two sets of hormones to one another, that T3 and T4 can be used as surrogate hormones by insects in the absence of JH and 20E (Flatt, Moroz, Tatar, & Heyland, 2006).

These evolutionary endocrine homoplasies are not confined to arthropods and vertebrates, however; plants also developed similar pathways for metabolic rate control. In plants, the metabolism is regulated with the help of the sister hormones abscisic acid (ABA) and gibberellin (GA₃) (Flatt, Moroz, Tatar, & Heyland, 2006). Again, it has been shown that there are

circumstances where these hormones are interchangeable with the thyroid hormones of insects, with insects being documented as being able to use ABA and GA₃ rather than JH and 20E. There are also instances wherein plants have been known to endogenously produce JH, though for what function remains unclear (Flatt, Moroz, Tatar, & Heyland, 2006).

The Development of the Endostyle: Urochordata and Cephalochordata

With the introduction of the phylum Chordata came the evolutionary innovation of the endostyle. The endostyle is a pharyngeal organ primitive to the Urochordates that is postulated to be developed in response to an evolutionary shift to internal filter-feeding (Kluge, Renault, & Rohr, 2005). Originally, the endostyle only secreted mucous and proteins vital to the trapping and digestion of passively filtered food. However, as time went on, the endostyle evolved the ability to aggregate iodine, which was likely to assist in the breakdown of lipids. With the accumulation of iodine, the Urochordates and Cephalochordates began to produce thyroglobulin (a precursor to thyroid hormones). In turn, the endostyle began to take on some of the enzymatic roles possessed by the modern thyroid gland. Furthermore, the development of the thyroid-like enzymes associated with the endostyle provided a more efficient means of metabolic rate determination. With the innovation of a means of more efficiently controlling metabolism, coupled with a means of storing iodine, protochordates were able to radiate into more diverse environments. Of particular importance is the ability to move into areas which were lower in iodine concentration, such as fresh waters and coastal waters.

The Advent of the Thyroid Gland: Agnathans

By the advent of the Agnathans, the endostyle had advanced by leaps and bounds, but evolutionarily, it was little more than a prologue to the evolutionary tale of the thyroid gland. It

is with the Agnathans that we first catch glimpse of the thyroid gland as we know it today. In fact, in one primitive Agnathan genus, the lamprey, one can observe recapitulation of the evolutionary change within an extant organism. During the larval stage of a lamprey's life, the organism possesses an endostyle, as seen in the protochordates; however, after metamorphosis, the endostyle is converted into a true thyroid gland, which contains follicles. The follicles represent the chief anatomical distinction between the endostyle and thyroid gland; the follicles are the compartments involved in the production of the thyroid hormones. (Kluge, Renault, & Rohr, 2005).

With the Agnathans, the thyroid gland became closely linked with the reproductive axis. The thyroid gland developed an analogous role to the gonadal hormones in particular; in many cases the thyroid glands directly stimulate the production of gonadal hormones. Through this relationship, the thyroid gland became a key contributor in the determination of timing of metamorphosis and development. At this phase in the evolutionary history of the thyroid, metamorphosis was promoted by the inhibition of thyroid hormones, rather than the prevalence of said hormones (Youson & Sower, 2001).

As an interesting side note, in lampreys there exist several paired, sister species whose life histories are termed either parasitic or non-parasitic. For each of these pairs, there seems to be a non-parasitic species that has an abbreviated larval stage and subsequently develops the characteristic non-parasitic lifestyle, whereas the parasitic species has a more lengthy larval stage, and subsequently develops the parasitic lifestyle. The difference in the timing of these metamorphoses can be attributed to differences in serum thyroid hormone levels present in the

larval lamprey. Here can be observed some of the first direct evidence of speciation as a direct result of thyroid function (Youson & Sower, 2001).

The Need for Calcium: Chondroichthyes & Osteoichthyes

As the Agnathans gave rise to the vertebrates, the world began to be populated – and dominated – by free-swimming, active organisms. Fast, agile predators resulted in the development of equally fast and agile prey (Campbell & Reece, 2005). With all of these innovations in speed and agility came increased metabolic needs and a greater emphasis on quickly and efficiently tailoring the basal metabolic rate to suit a particular situation. The thyroid gland resides at the center of this evolving metabolic challenge.

One of the main manifestations of this change in the thyroid gland is its increased role in calcium regulation. During this evolutionary transition from relatively sedentary filter-feeders to active free-swimmers, the thyroid began producing the hormone calcitonin (Suzuki, 2001). Calcitonin's role in the body is to encourage the body to increase the absorption of calcium, a key ion in muscle contractions (Jenkins, Kemnitz, & Tortora, 2007). It is my theory that increased calcium was needed to support the increasingly active lifestyle of these organisms.

I further assert that this increased need of calcium resulted in a new evolutionary problem, whose solution resulted in one of the most significant evolutionary revolutions in history: the development of bones. Bones serve a dual purpose of acting as a repository for storing calcium ions, as well as providing mechanical advantage, which allows more force to be generated by muscular contractions (Jenkins, Kemnitz, & Tortora, 2007).

Alongside all of this innovation in calcium regulation was the continued evolution of the thyroid as it pertained to reproduction. In both the cartilaginous and bony fish there exists a relationship between thyroid hormone levels and metamorphosis, as observed in the Agnathans. Unlike lampreys, it is the prevalence of thyroid hormone that stimulates metamorphosis in fish, rather than the inhibition of thyroid hormone (Brown, 1997).

The Exodus from the Seas: Amphibia

As organisms moved from the sea onto dry land, new sets of challenges were presented, challenges that would play an important role in the development of the thyroid gland. One of the primary challenges encountered by these frontier organisms, as it pertains to the thyroid, was the need to adapt to an environment with variable temperature. Water has a drastically higher specific heat than air, and thus maintains its temperature very readily; this is not the case with the open air environs. While for the amphibians and the vast majority of reptiles, any thermoregulation was behavioral rather than thyroidal, it is important to note that this was an obstacle that species would eventually have to overcome in order to take full advantage of their new environment.

In amphibians, as in fish, the thyroid further honed its role as the chief determinant of metamorphic timing. A large degree of speciation occurred as the result of alterations in serum thyroid levels, leading to precocious or late metamorphosis. Furthermore, it has been found that the thyroid is also significant in the rate of overall development in amphibians. For example, supplementation with exogenous thyroxine can result in the premature development of limbs (Brown, 1997). In fact, in paedomorphic species, thyroid supplementation can result in the

process of metamorphosis in species that do not undergo that process in the course of their natural life (Brown, 1997).

In the amphibians, we see the first evidence of the parathyroid gland (Clark, 1983). With the increasing need for a bony skeleton and the ever increasing role of calcium in the bodies of the organisms, the hypercalcemic hormone control shifted from the pituitary-controlled hormone, prolactin, to the parathyroid-controlled hormone, PH (Clark, 1983). This consolidation of calcium regulation to a central region in the body is indicative of its expanded importance in amphibian life. This hormonal shift would lay the ground work for the development of mammals.

An Evolutionary Pause: Reptilia

The appearance and prevalence of reptiles appears to have been a bit of an evolutionary lull for the thyroid gland. In reptiles, we find the thyroid deprived of one of its chief roles thus far: the determination of metamorphic rate timing. In place of this function, the thyroid assumes the role of determining the timing of the shedding of skin (Yoh-Ichiro, Daisuke, & Kyun, 2006). Furthermore, with the evolutionary shift to an amniotic egg, many of the roles that the thyroid played in metamorphic development shifted to embryonic development.

And while the evolution of the thyroid in reptiles seems to be slowed, there can be observed a very gradual development of thermoregulation by the thyroid. Even though reptiles are strict poikilotherms, the more evolutionarily advanced species do seem to exhibit some measure of thermal stabilization, if not regulation. The different thermoregulatory strategies led to the independent development of endothermy in both birds and mammals (Yalden, 2008).

Aves

After taking an apparent evolutionary break during the development of reptiles, the thyroid returns to its previous evolutionary pace in birds. In birds, we find one of the first answers to the evolutionary problem posed with the advent of the amphibians: the necessity of an organism to maintain a constant energy and activity level in a consistently variable environment. The solution is endothermy.

Endothermy is the ability of an organism to self-regulate its body temperature. Endothermic organisms are commonly termed “warm-blooded” (Campbell & Reece, 2005). Experiments show that the development of endothermy in birds is largely, if not wholly, contingent on functional development of the thyroid gland (Olson, McNabb, Jablonski, & Ferris, 1999). By releasing greater or smaller amounts of thyroid hormones, birds are able to increase or decrease their basal metabolic rate (Jenkins, Kemnitz, & Tortora, 2007). This act promotes or inhibits the production of heat by determining how quickly cellular respiration occurs. Since cellular respiration is a largely exothermic process, the release of heat by this process is crucial to the maintenance of body temperature (Campbell & Reece, 2005). A greater metabolic rate means more heat is being produced, which allows an organism to maintain a body temperature that is greater than the temperatures of its surrounding environment (as is most often the case).

This new-found ability was critical in allowing birds to inhabit a previously untapped niche: the sky. With greater altitude comes lower air pressure and higher susceptibility to temperature variation from air currents. Without the ability to self-regulate temperature, it would be impossible for an organism to move freely between such diverse environments as the ground, the tree canopy, and the sky. And while birds, and bird-like ancestors, undoubtedly used this

thermoregulatory mechanism to increase their ability to capture prey, it is my belief that this was a ancillary benefit to temperature regulation. I base this theory on Yalden's evidence that indicates that reptiles had begun to develop feathers and other means of insulation prior to the advent of endothermy (Yalden, 2008). This indicates that the initial steps down this evolutionary pathway were primarily towards thermoregulation, increased mobility from increased metabolism seems to have been a secondary benefit.

Mammalia

While endothermy in birds appears to have evolved largely as a means of insulation and adaption to variable temperatures, endothermic development in mammals seems to have been driven by different forces. The reptilian ancestors of mammals appear to have developed the ability to regulate their metabolic rate as a predatory advantage. By being able to maintain a consistently high metabolic rate through thyroid regulation, these ancestors of mammals were able to deliver a consistent supply of energy to their muscles at an overall higher rate (Yalden, 2008). This increased muscular energy allowed these predators to more consistently capture prey than their competitors who simply relied on behavioral or environmental metabolic rate control.

The downside of this new self-regulated, thyroid-driven metabolism was the increased energy demand it placed on the organism. If the organisms were consistently metabolizing at a higher rate, it follows that they would require more fuel to keep their metabolic fire burning. This increased food demand favored smaller organisms originally developing endothermy; it is far easier for a smaller organism to find an extra 1-2 pounds of food than it is for a larger organism to find an extra 20-30 pounds of food. This is evidenced by the fossil record which shows that

most of the early mammals were roughly the size of a large rat or opossum, with the largest of early mammals being roughly the size of a dog (Chinsamy & Hurum, 2006).

This trend towards smaller organisms did not persist, as we can observe by looking at the animal kingdom today. With this increased focus on a high metabolic rate, it became advantageous to insulate the body so as to avoid excessive loss of heat, which would then have to be made up for by an even higher metabolic rate. The need for heat conservation led to animals with more favorable surface-to-volume ratios (larger animals with more insulating fat), many of which we can observe today.

Another key influence of the thyroid in the development of mammals was the shift from prolactin to parathyroid hormone as the main hypercalcemic hormone, which occurred in amphibians. By usurping the role of prolactin, parathyroid hormone freed prolactin to be used for its current role, the secretion of milk in mammals (Jenkins, Kemnitz, & Tortora, 2007). The reverberations of this seemingly innocuous change can still be heard hundreds of millions years later.

Mammalian Oddballs

While, by and large, most mammals acquire thyroidal control of endothermy during embryonic development, there are a few notable exceptions to the rule. The first exception, and perhaps most obvious, is the marsupial. As a result of the marsupial's evolutionary schism from other mammals approximately 125 million years ago (Campbell & Reece, 2005), marsupials developed the somewhat odd adaptation of birthing immature young, who subsequently complete development in their mothers' "pouch". As such, marsupial young are not born with the ability to

thermoregulate; rather, they acquire that characteristic while suckling in the mother's pouch (Rose & Kuswanti, 2004). Because marsupial development is completed outside the womb, it presents a unique opportunity to observe the role of thyroid function in the establishment of endothermy. It has been shown that marsupials are unable to raise oxygen consumption levels (a key indicator of endothermic processes) at ages younger than 140 days, the amount of time a marsupial typically remains in the mother's pouch (Rose & Kuswanti, 2004). However, at ages greater than 140 days, there is a 100% increase in oxygen consumption in response to thyroid stimulation (Rose & Kuswanti, 2004).

The other evolutionary oddball is the naked mole rat. These small hairless rodents have evolved to become poikilothermic, though they do maintain some ability to regulate their own body temperature (Buffenstein, Woodley, Thomadakis, Daly, & Gray, 2001). Since mole rats live their entire lives underground, loss of heat is a relative non-issue. As such, it became far more energy-efficient for mole rats to primarily regulate body heating by behavioral adaptations (such as shivering and huddling), rather than using metabolic pathways. As might be expected from a mammal who did not utilize endothermy, mole rat thyroid hormone levels are a mere fraction of similarly-sized endothermic mammals (Buffenstein, Woodley, Thomadakis, Daly, & Gray, 2001).

Thyroid's Effect on the Evolution of Humans

While the thyroid's influence on the development on the skeletal system, endothermy, and lactation have all had marked impacts on humans' evolution, there have been other, more subtle, influences as well. My theory is that the peculiarity of the thyroid gland to store its hormonal products allowed mankind to radiate out from its early iodine-rich environs into less iodine

fortified areas. The ability of the thyroid to store a one-hundred-day's supply of thyroid hormones (Jenkins, Kemnitz, & Tortora, 2007) meant that man only needed to come across iodine-rich areas a few times a year in the course of his hunter-gatherer life in order to maintain proper hormonal balance.

A more dramatic consequence of thyroid's action in our evolution was its possible influence in the development of abstract thought. As early humanoids left the safety of the trees and moved into the savannah, their lives were increasingly those of hunter/gatherers. The life of an early hunter/gatherer in the savannah would have very much been one of sustained exertion and chase hunting, leading to greater energy demands (Previc, 2002), which had a selective effect to greater thyroid production. This fact is illustrated by the significant differences in adrenal to thyroid size ratios in nonhuman primates versus human primates (Previc, 2002).

It has been shown that there is a clear link between hypothyroidism and mental development; iodine deficiency has been cited as one of the leading worldwide contributors to mental retardation and the congenital abnormality, cretinism, is directly caused by a deficiency in thyroid production (Jenkins, Kemnitz, & Tortora, 2007). Evidence supports that one effect of hypothyroidism is to stunt the production of dopamine in the central nervous system (Previc, 2002). Dopamine happens to be one of the preeminent contributors to the development of abstract thought. It has therefore been conjectured that seemingly miniscule changes in our thyroid hormone levels may have contributed to our following a different evolutionary path than some of our great apes. Consistent with this theory is the fact that the first reported hormonal difference between chimpanzees and humans happens to be serum thyroid hormone levels (Gagneux et al., 2001).



Degree of Public Health Significance of Iodine Nutrition Based on Median Urinary Iodine

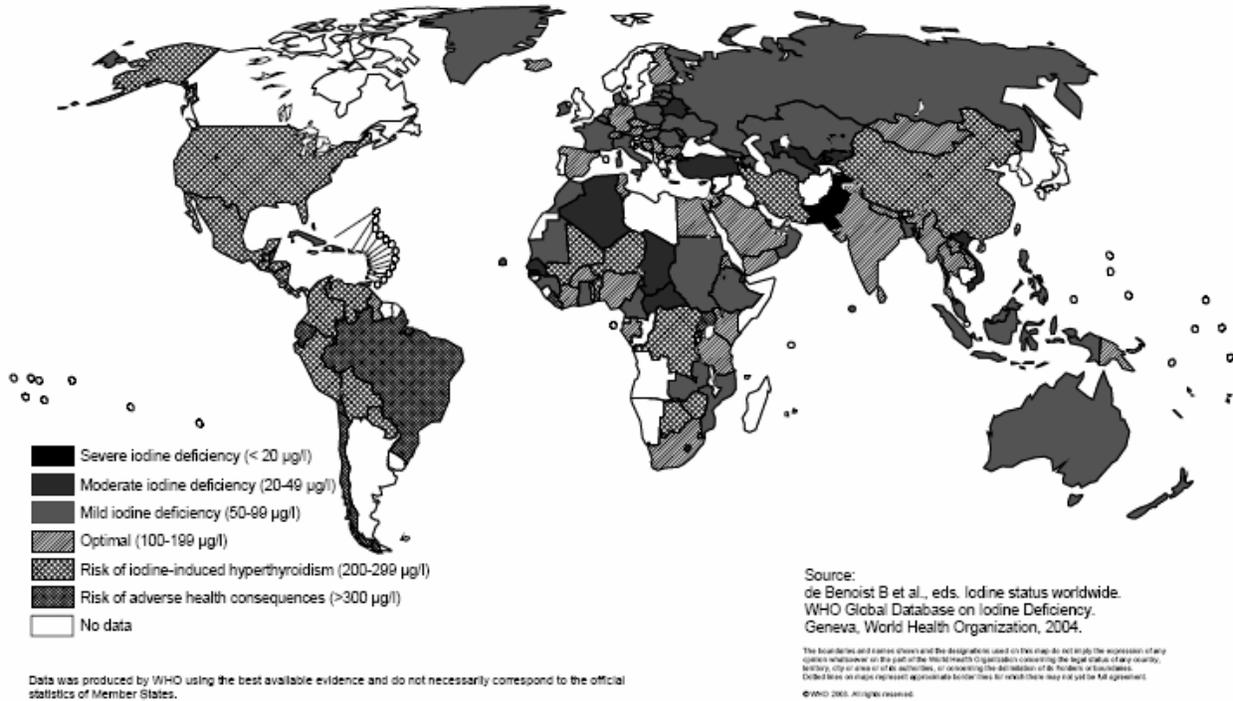


Figure 2. Global map of soil iodine levels as indicated by urinary iodine levels.

Conclusion

The evolutionary arc of the thyroid gland illustrates drastic changes since the gland first appeared in chordates. Since its simple beginnings as the pharyngeal endostyle, it has constantly been modified and revolutionized; its follicular cells have changed their shape, their numbers, and their capacity to store products; the thyroid's function has changed from that of a metamorphic timer to a homeostatic instrument vital to survival. These changes have given rise to numerous other changes ranging from increased musculature, to skeletal formation, to endothermic development, and perhaps even to our ability to formulate abstract thought.

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Patent Pandemonium: Laws, Money, and Global Health

~Samantha Moorman

We live in an age where scientific and medical technologies are the most advanced in all of human history, yet every day, fifty thousand people die unnecessarily due to vaccine preventable diseases (Pogge 182). The majority of victims are the poor of developing nations who do not possess the means to buy themselves basic medicines, much less sufficient food, shelter, and clean water. Life-saving drugs are unavailable to them partly because pharmaceutical companies have placed drugs at too high a price. Many pharmaceutical companies are guilty of abusing the patent rights granted to them by international law in order to maximize their profits. The developing nations, humanitarian organizations, and academia around the world have condemned these companies, as well as the laws that empower them, as unjust and harmful to global health. Pharmaceutical companies, on the other hand, argue that if they lower their prices enough for those in developing nations to be able to afford them or relinquish their intellectual property rights on them, they will get little return for their research expenditure, and as a result will be unable to afford further medical research (Watkins). Nevertheless, the evidence of my research has lead me to conclude that many pharmaceutical companies abuse their patent rights, and in doing so restrict access of drugs to the poor of developing nations.

As a result of globalization, the issue of global health has become incredibly extensive and complex. Every bastion of power in the world has become intertwined in this issue and has a critical part to play in both the problems and solutions of global health. I will first conduct a brief examination of the current controversy involving pharmaceutical companies and international intellectual property laws. I will then examine the role that the pharmaceutical corporations, such as Johnson & Johnson, AstraZeneca, Novartis and Pfizer, have had in manipulating the prices of their life-saving drugs through their abuse of international patent laws, as well as highlighting a few stories of pronounced pharmaceutical abuse. Then I shall

endeavor to explore in detail the past and present attempted solutions to this problem, as well the setbacks still faced by those trying to resolve this problem. I will also explore the role that current international patent laws, namely the TRIPS Agreement and DOHA Declaration, have to play in this issue.

Next, I will review suggested solutions for this problem, and propose new solutions based on my analysis of the current system. Considerations for these new solutions will include an assessment of different factors such as available fiscal resources, the state of current economic and healthcare systems in developing nations, and the willingness of the pharmaceutical companies to compromise on intellectual property rights and drug prices. Finally, I will discuss the moral implications of the pharmaceutical industry's actions as well as what kind of responsibility—if any—the industry has to make life-saving drugs more accessible to the poor.

The problems brought about by international intellectual property rights laws have long been debated. Lawmakers have argued that without patent protection, inventors would have little incentive to innovate because other companies would be able to steal the idea and produce generic copies of the invention. Without patent protection, the inventor company would be overrun with competition and unable to recoup on the money they spent on the research and development of their invention. In recent years this fundamental dilemma has come to a climax over the right of pharmaceutical companies to own patents for their discoveries and use them to charge high prices for their medications. Those opposed argue that patents allow pharmaceutical companies to overcharge on life-saving drugs, making them too expensive for the very poor to purchase them, thus abandoning these less fortunate to either fight off their sicknesses without any treatment or die from them. According the *American Journal of Law and Medicine*, there are eight major types of diseases that kill 29% of the poor in developing nations: tuberculosis, HIV/AIDS, diarrhea, diseases of childhood (such as mumps or chicken

pox), respiratory infections, malaria, maternal conditions, and neonatal fatalities (Dutfield). Known as tropical diseases, many of these illnesses are easily treatable with medications that have long been unpatented, such as the polio vaccine. The medications and vaccines used to treat or prevent these specific diseases are what are referred to as “life-saving” drugs. However, developing nations in particular, have difficulty accessing these drugs because their people are extremely poor, their countries have ineffective healthcare systems that are unequipped to help the poor even with the resources they have, and they are further blocked by many pharmaceutical companies that charge unattainably high prices for the life-saving medications they produce—that is, if they produce them at all. Many pharmaceutical companies are not in favor of investing R&D and marketing dollars to provide life-saving drugs to developing nations because there is no market there—the people in those countries are too poor to buy them—so they discontinue mass manufacture of those drugs (Pogge). The developed world has little need of vaccines for such diseases as malaria or tuberculosis since very few here suffer from them. Consequently, millions of these poor die each year; having been denied access to simple drugs that could have cured them.

The pharmaceutical industry has a far different view of the matter. They claim that without reimbursement for the extraordinarily high costs of the research and development of one of their drugs, they will lose money and be unable to continue the research and development for more drugs (Pogge 186). According to Dr. John Siegfried, who serves as senior medical officer for the Pharmaceutical Research and Manufacturers of America, the discovery and development of a single drug usually takes around fifteen to twenty years (Siegfried). A 2004 study showed that of 68 drug compounds developed by ten pharmaceutical companies, the average cost for the research and development of each drug was \$403 million dollars (Riggs 184). Nevertheless, some critics of this viewpoint suggest that these figures are largely made up, and that any loss sustained by pharmaceutical companies due to the release of

patents on a select few of the life-saving drugs they produce will be inconsequential in comparison to their annual income, and would not hamper research and development (Joseph).

Throughout this controversy, many opponents of high drug prices have been content to simply point the finger at patent laws for affording too much protection to pharmaceutical companies for too long. The most criticized of the patent laws has been the Agreement on Trade Related Aspects of Intellectual Property Rights (aka TRIPS), which was passed by the World Trade Organization in 1994. In short, TRIPS is an attempt to introduce global minimum standards for protecting and enforcing patent protection of intellectual property rights. Most standard patents are twenty years long. Although many countries gave this law their consent, one must also wonder whether any were forced to submit to this act because they feared sanctions from the powerful nations of the WTO. Since its inception, the TRIPS agreement has created great controversy over the fact that it enables pharmaceutical companies to maintain monopolies over their drug inventions for long periods. In 2001, nearly a decade later, in response to these concerns, the WTO issued the Doha Declaration, restating the extent of the TRIPS agreement and saying that the agreement was meant to be interpreted in a way that would not limit access to medications for the poor. And in fact, there are several provisions in TRIPS and DOHA that were provided in order to guard against these inevitable monopolies, such as parallel importing and compulsory licensing. Parallel importing allows for products to be imported from one country to another without the consent of the patent holder. Compulsory licensing gives all members of the WTO the right to override patent protection without the patent-holder's consent during an outbreak or an emergency.

Although patent law plays a critical role in problem of global health, it does not play the central role. Perhaps these laws have aided greatly in escalating the problem, but at the same time we must remember that laws are just laws—rules we set for ourselves to live by. It takes human will to obey them, manipulate them, or to outright defy them. That is why I am

convinced that the root of the problem lies not in the law itself, but in the way that pharmaceutical companies abuse and distort patent laws by charging high prices when they can afford to charge less, by patenting old drugs instead of creating new and better ones, and by resisting generic drug production in order to maximize their own profit.

Patent monopolies allow pharmaceuticals to have sole control over a drug for up to twenty years, during which time they can charge premium prices for the drug because they don't have to worry about competing with other companies. Outside companies who want to produce generic copies of that drug may only do so by gaining the permission of and paying royalties to the patent holder. Drug companies assert that a 20 year patent monopoly is fair compensation that affords them the opportunity to recoup their investments in research and development on a single drug. And yet, when you peruse the annual reports of multinational pharmaceuticals, the numbers reveal quite a different reality.

In fact, I find it appalling that drug companies feel that they need to charge the poor so much for life-saving drugs when they make tens of billions of dollars a year in revenue and profits and can clearly afford to charge less. Leading pharmaceutical companies, such as Pfizer and GlaxoSmithKline made over \$45 billion in revenue with \$8-10 billion in profits (“Global 500”). According to 2006 World Bank records, many pharmaceuticals make significantly more than the gross national income of many developing nations, such as the Democratic Republic of Congo and Uganda. The CEO's of these corporations make millions of dollars a year. In 2006, former-CEO of Pfizer, Hank McKinnell resigned after making \$16 million that year with a nice \$83 million dollar pension (“The real CEO Pay Problem”). While most drug company CEO's make a few million less than McKinnell did, they still walk home with quite an incredible paycheck. And the CEO's are not the only ones in the pharmaceutical business making big money—drug sales representatives' salaries are well up in the six-figures.

Let's take a closer look at the disparity between the actual revenues earned and expenses incurred by a multinational pharmaceutical. In 2008 Johnson & Johnson made approximately \$63 billion in revenue, \$12.9 billion of which was profit ("Global 00"). In that same year, R&D expense was a relatively slight \$7.57 Billion. While J&J's sales revenue grew a phenomenal \$16.3 Billion from 2004 to 2008, investments in R&D over the same period were relatively stagnant, increasing only \$2.2 billion. J&J's biggest expense in 2008 was certainly not R&D. In fact, R&D expense was a distant second to the \$21.5 billion they spent on Selling and Administrative Expenses, much of which is vested in executive compensation. In a year when Wall Street took a serious nosedive, J&J finished strong, boasting a return-on-equity of 30.17%, and earnings-per-share of 4.56. Considering the fact that only 14% of J&J's 2008 sales came from Africa and Asia Pacific (combined), it is difficult to reason that lowering the prices of life-saving drugs to developing countries in those regions would significantly deter them from recouping their R&D expenses.

On average, pharmaceutical companies make approximately \$12,000-\$15,000 off of each year-long package of HIV/AIDS drugs (Johnston&Wasunna), while they spent approximately \$402 million in total R&D expenses. In order to completely recoup on their research and development investment, the companies would only need to sell a maximum amount of 33,500 of these packages. By selling twice that amount they would also be able to afford funding for research and development of another drug. Considering that 39.4 million people are currently living with HIV/AIDS (according to 2004 USAID statistics), pharmaceuticals could surely find ways turn a profit without gouging the poor. Given the current cost-prohibitive nature of life-saving drugs in developing countries, significantly lowering prices to Third World customers might actually increase sales revenue from an under-tapped market. With all of the money pharmaceuticals make, it's hard to believe that they couldn't cut developing countries a little slack on a few life-saving drugs. As you may imagine,

patent monopolies and high drug prices are frustrating for those in developing countries, many of whom only make \$1-2 US a day (“World Bank”), and who couldn’t possibly afford a drug like Malarone (a malaria drug), which costs \$63.23 for a 3 week supply of tablets.

To further complicate the problems caused by high drug prices, pharmaceuticals also abuse the law by re-patenting old drugs instead of investing in new cures for these tropical diseases. As was previously mentioned, the pharmaceutical industry does not show a great deal of interest in developing new and better drugs for tropical diseases because those who suffer from those diseases don’t have enough money to pay for something better. How else can one explain that “of the 1,393 drugs approved between 1975 and 1999, only thirteen were specifically indicated for tropical diseases and five out of those thirteen actually emerged from veterinary research”? (Pogge 190) It is shameful that so few drugs were developed for tropical diseases during that 25 year time period.

However, what is even more shameful is the fact that pharmaceutical companies have been attempting to renew patents on their older drugs in order to keep hold of their monopolies and spend less money on real research and development. In order to pull this off, some pharmaceuticals have tried “tweaking” the drugs a bit, so that their “new drugs” can receive new patent protection. Some companies are also trying to combine sets of older drugs together in order to create “new drugs” as well. For example, in 2007 a drug company named Novartis challenged India’s patent laws after Glivec, one of their older “recombined” leukemia drugs, was denied a patent (“India’s Cheap Drugs”). Although India finally signed the TRIPS Agreement in 2005, after an 11-year period of defiance, its own national patent legislation denies patents to new versions of old drugs created before 1995. Indians feared that if Glivec was passed, then it would become a precedent for allowing patents to be passed for old drugs and that as a consequence, the quality of HIV/AIDS drugs would suffer. As a country where between two and three million are living with HIV/AIDS, India has become one of the world’s

biggest champions of generic drugs. Although India won the case against Novartis, the drug company stated that such a ruling would have long term detrimental effects for the research and development incentive in India (“India’s Cheap Drugs”). Be that as it may, India’s little \$5 billion dollar generic drug industry is able to continue saving and preserving lives by selling their cheap yet effective drugs throughout the developing world. “MSF says generic manufacturers have helped bring the cost of AIDS treatment down from \$10,000 per patient per year in 2000, to just \$130 now” (“India’s Cheap Drugs”). So by protecting its generic industry and keep drug prices at a minimum, India may have given thousands of impoverished, AIDS afflicted individuals incentive to live.

When pharmaceutical schemes and dreams of “re-patenting” old drugs fail, drug companies will often resort to even more desperate measures. Pharmaceutical companies are extremely tight-fisted about their patents, and will revert to any means necessary to prevent their drugs from being produced generically. They will even try to sneak around TRIPS by exploiting weaknesses in national patent laws. Although most members of the WTO adhere to the TRIPS Agreement, many countries are allowed their own set of intellectual property rights laws just so long as they are compatible with TRIPS. However, in many cases there are loopholes in these national laws which allow them to be abused and manipulated by pharmaceutical companies. For example, in 2002, Astra Zeneca, an Anglo-Swedish pharmaceutical company, tried to delay the generic production of one of its most popular drugs, a year after its patent expired, by filing a patent claim under the U.S. Hatch-Waxman Act. The pharmaceutical company claimed that unlike its generic copies, its anti-heartburn medication, Prilosec, was capable of being ingested in powdered form when sprinkled upon applesauce. Under the Hatch-Waxman Act, such a lawsuit could delay the production of any generic drugs for up to thirty months while the courts try to resolve the new issue. Oftentimes,

these types of lawsuits are filed over and over again, adding years of delay for the production of a generic drug.

Although the delayed production of a heartburn medication may not seem like a serious problem, if such a thing is done to a life-saving medication, the results could be catastrophic. Millions could lose their lives. And it is only a matter of time before drug companies start pulling these tricks with life-saving drugs. This story not only highlights the greedy intentions of the pharmaceutical industry, but it also exposes several weaknesses in TRIPS. The very fact that TRIPS can be undermined by loopholes in national patent laws—which are supposed to be fully compatible with it—shows fundamental errors in TRIPS itself.

As I have thought about ways to remedy the problem of pharmaceutical abuse of patent law, the first thing that came to my mind was TRIPS. The popular and common suggestion has been that in order to increase access to life-saving drugs, TRIPS patent protection on those drugs should be eradicated so that everyone is able to generically produce the drugs and sell them at lower prices. However, getting rid of the patents entirely might not be such a good idea. Although it will probably lower the prices of life-saving drugs, many worry that if the patents are entirely done away with, then pharmaceutical companies would lose all incentive to create those drugs. They don't have much incentive to produce them now as it is. Another solution that has been suggested, and that is even now been practiced by certain pharmaceutical companies, is differential pricing (Pogge 187). Differential pricing is when the same product is sold to different people for different costs. So, for example, a drug company could sell HIV/AIDS drugs more cheaply to Uganda than it would to Great Britain. However, the hitch in this plan is that this would probably just intensify black-marketing in drugs. Even the people who need the discounted life-saving drugs themselves might be tempted to go and resell them for higher prices.

Thomas Pogge, a philosophy professor at Yale University has taken a keen interest in this global problem and has written quite a bit on the subject. It is his suggestion that there should be no patents on life-saving drugs and to counteract the lack of incentive that such an amendment might create, a special fund should be raised to award pharmaceutical companies in proportion to the amount of impact their inventions have had on the global disease burden (Pogge 188-89). Pogge has even created a non-profit organization called Incentives for Global Health, which focuses on building up a Health Impact Fund, in order to create additional incentives for innovation in the health sector. However, Pogge's plan does contain a couple of large gaps. First of all, what are the rules for reward distribution? How will "health impact" be measured and how will the money be fairly distributed? An even bigger question is where will the money come from? More specifically, how are we going to be able to rake up Pogge's estimate of \$45-90 billion US annually? These are vital questions that Pogge has left unanswered, and some of these questions are too specific to be answered until people start coming together to support such a plan. However, Pogge's solution does hold a lot of promise. His suggestion, in effect, replaces a system where profit is made easily at the expense of others with a system where profit is a hard-earned privilege that is gained by helping others. There may be a few pharmaceutical companies that do not exactly give out of the kindness of their hearts, but perhaps by practicing good, some of it will rub off on them.

As I have been pondering my own ideas of how to solve this problem, I have taken much of what Pogge said to heart. I don't agree that it is the best idea to get rid of patents completely. I think that such an action would only anger the pharmaceutical companies and put them on the defensive. Plus, I agree that patent protection does create some incentive to innovate. Instead of totally scratching patent protection, I would like to see the WTO provide clear definitions of metrics that determine whether or not corporations are disseminating technology "to the mutual advantage of producers and users" and "in a manner conducive to

social and economic welfare, and to a balance of rights and obligations” (“TRIPS”). Such an amendment would, if successful, make it clear to pharmaceutical companies that practices such as “re-patenting” old drugs is not permissible without good reason. I also would like to see the patent terms on life-saving drugs reduced to at least ten years.

Pogge’s plan for a health impact fund to incentivize pharmaceutical companies to create more life-saving drugs is also an interesting idea. However, there is still the problem of how this whole thing will be funded. In order to maximize funding, money should be donated to this cause from both the public and private sector. However, in order to receive any funding, this cause needs a ton of publicity. Right now, Pogge only has a tiny, plain-looking website displaying only small and vague amounts of information. In order to gain worldwide support, this cause needs to be clearly broadcasted all over the media through the internet, news networks, and celebrities. The award itself must come with a great deal of prestige and the promise of extensive media coverage.

This movement must begin with grassroots support. It is the ordinary individuals like you and me, who buy from pharmaceuticals and refer their drugs to our friends and family. Some of us even hold small stock shares in these companies. These companies exist only to make money, and they make money only because we give them money. If they want to please their big markets, they’ll have to do so by giving their smaller markets a little more attention and consideration. Of course there is nothing perfect or certain about this plan. It will require a lot of time, money, support, and cooperation in order to become effective. Besides, so many other factors affect this issue, such as global poverty, tribal conflicts, sectarian violence, widespread corruption of governments, a severe lack of qualified health professionals in developing nations, and poor sanitation. Many of the deadliest diseases in third world countries have simple causes and simple cures. Take diarrhea for instance. Millions of people in developing countries die every year from this disease. Even though medication can be bought

to treat diarrhea, the real prevention and cure for this disease is eating enough food and drinking clean water. However, many of these millions who die of diarrhea do not have enough money to gain access to clean water and sufficient food. This interrelated issue cannot be addressed, however, by altering patent laws and bribing pharmaceutical companies into making the price of drugs cheaper. What good are drugs if you barely have enough food and water to survive on and are likely to be quickly reinfected?

Violence within developing countries is another problem. In many of those countries, rape is used as a weapon of war by spreading the AIDS virus to women and to their children. Violence also leads to the instability of the state, and the consequential poverty of its citizens. Many of the governments of developing nations are not only unstable because of violence, but also because of internal corruption. These governments buy drugs for the people, but who knows if they are distributed equally and at a fair price? Who knows if the drugs are even authentic? There are many who will take advantage of these peoples' desperation and sell them either fake or dangerously inappropriate drugs, and seeing as there is currently a lack of healthcare workers in the developing nations, there aren't many who are able to give these people correct diagnoses and treatment. It is a vicious cycle.

Now, let us delve into the moral arguments. Why should pharmaceutical companies be blamed for poor people not being able to afford their drugs? They are businesses, after all—not charities. The goal of a business is to make money and continue to expand itself—not to hand out money to the poor. But are pharmaceutical companies like ordinary businesses? I would posit that they are not. Unlike car dealerships, which sell cars, or real estate companies, which sell houses, pharmaceutical companies sell life. Most nations in the world have concluded that each person has a right to life, and that life is valued above all other things in this world. Cars, houses, cell phones, computers, and balding treatments are wants. Life is a necessity. Therefore pharmaceutical companies, and more specifically, the life-saving drugs that they develop, must

be viewed as different from other products by international law. There is no problem with allowing pharmaceutical companies to keep the long patents and high prices on all of their other drugs, save for those which have been deemed “life-saving. Not making this differentiation would create inconsistencies in the law, which has its foundations in the human right to live. TRIPS may have some lofty goals and aspirations, but it fails to make enough safeguards against those who would abuse the system. It attaches no consequences to non-compliance and bullying and does nothing to encourage the companies that abide by both the words and the spirit of this law. TRIPS simply assumes that Big Pharma is run by respectable businessmen who conduct business in a way that benefits both buyers and seller, while the reality is that greed is the great underlying, driving mechanism in these many of these organizations from the top down.

However, as we stand here pointing the finger at the pharmaceutical industry, it is important to remember that ultimately we are all equally responsible for the care of our fellow human beings. It is true that pharmaceutical companies, being in the business that they are, and having billions to do with as they please, have greater means with which to affect change than the average person—and many pharmaceutical companies have donated generously to the cause of global health. Nevertheless, this fact does not let you or me or other businesses and organizations, large and small, off the hook. In order to make medicines more accessible to the poor, there needs to be global participation and cooperation.

By adjusting the actions of the pharmaceutical industry and modifying patent law, we will only be helping to clot a bleeding wound. In this new age of globalization, where different cultures, peoples, religions, ideas, and goods and services are thrust together, the danger of disease epidemics is even greater than in ages past. Many of the more affluent nations have more influence in making global policy decisions than do poorer, more dependant countries. The wealthy countries do not always act in the best interest of the poor, as the TRIPS

Agreement illustrates. The real solution to this problem would be to end poverty entirely by developing all countries up to a first world standard. Perhaps it seems petty of me to reprimand Big Pharma and TRIPS in light of these other significant issues, but change must begin somewhere. By breaking a single link in this chain, by shedding light on abuse and corruption and making medicines more accessible to the poor, we may yet find a hope and a path to ending global disease. It seems far off and impossible, but every change starts with a dream.

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Seeing the Light in *Heart of Darkness* by Joseph Conrad

~Dawn Gieringer

*Fiction is history, human history, or it is nothing A historian
may be an artist too, and a novelist is a historian, the preserver,
the keeper, the expounder, of human experience.*

-- Joseph Conrad, *Notes on Life and Letters*

Great art is judged not only by its superficial beauty and integrity, but also by its interpretive value—enduring pieces of art are those which inspire contemplation and abstract thought. A classic piece of art is also one that is timeless, the validity of which spans the ages. Constant probing, however, can result in multiple conceptions; *Heart of Darkness*, by Joseph Conrad, is one such piece of art. It is a classic piece of literature that has been interpreted in all its glory and to its detriment, as claims of racism are made against Conrad. When the derogatory, prejudicial interpretations of Conrad's *Heart of Darkness* are understood as just one of many perspectives, however, the reader is left with the possibility of other unerringly inspirational and humanitarian messages which may have been intended by its author.

Contemporary literary criticism of *Heart of Darkness* is tainted by the following question: "Was Joseph Conrad Really a Racist?" Caryl Phillips of the Department of English, Yale University, wrote an essay with this title in March of 2007. Her essay, which is actually a "debate" with third-world author Chinua Achebe, addresses Achebe's claim that Conrad "has compromised African humanity in order to examine the European psyche" (66). Phillips proclaims Achebe the "father of African literature in the English language and undoubtedly one of the most important writers of the second half of the twentieth century" (59). This sentiment is echoed by professors who use Achebe's novel, Things Fall Apart, in literature

classes around the world. As such, it is no wonder that Achebe's opinion holds great weight within the scholarly literary community.

During the process of their debate, Achebe is further agitated by the suggestion made by Phillips that "Africa is used solely as a backdrop for the disintegration of the mind of Mr. Kurtz," and that this stance is one that teachers and critics use to defend the novel (61). Achebe rages: "Can nobody see the preposterous and perverse arrogance in thus reducing Africa to the role of props for the break-up of one petty European mind?" (qtd. in Phillips 61) Another source of Achebe's distress comes as a result of his respect for Conrad as a writer. He says of Conrad:

A man with such talent should not behave in this way As you know, we have very few who have the talent and who are in the right place, and to lose even one is a tragedy. We cannot afford to lose such artists. It is sheer cussedness to willfully turn and walk away from the truth, and for what? Really, for what? I expect a great artist, a man who has explored, a man who is interested in Africa, not to make life more difficult for us In this sense Conrad is a disappointment. (qtd. in Phillips 66)

One is struck by the universality of this sentiment when a professor of English writes an essay on the same subject entitled "The Value of Teaching from a Racist Classic" for *The Chronicle of Higher Education*. Lennard Davis slaps the word "racist" to *Heart of Darkness* after a student declares that she would not read the book for his class. Davis states, "The book is racist, in addition to anti-imperialist—not an unusual combination in books written at the turn of the nineteenth century" (91). The importance of Conrad's novelette is diminished by the arbitrary labeling of his intent as that of a racist. An allusive piece of literature—one in which the author's intent is obscured and adumbrated by symbolism—is particularly open to interpretation by the viewer, reader, or audience; this is an attribute on which the author relies. The dichotomy of the power of allusive literature is that as social norms and perspectives

change, so may the interpretation of that literature change. The intent of the author may never really be known—in a sense the author trusts that what he has written will be viewed as a many faceted piece of work, which changes, evolves, and grows with each reading. This attribute enables its transcendence as well as its scandalization.

Throughout his career, Lennard Davis has appreciated and critically studied *Heart of Darkness*, but has considered removing the text from his class syllabus: “My latest learning experience has taught me that this text, which has been mined for so much meaning and inspiration, perhaps needs to be discarded” (62). After research and contemplation, however, Davis expresses the sentiments of the true lover of literature through his decision to continue to teach *Heart of Darkness*: “It’s given back to me the efforts of my own curiosity, and it hasn’t necessarily defended itself as a moral or ethical text. It has opened up lines of inquiry, indictments not only of itself but also of the various eras through which it has lived” (63). This sentiment reveals the strength of Conrad’s writing; Davis has contemplated the objections he has fielded from students in regards to the claims of racism, yet he has come to the conclusion that while Conrad may be difficult to understand, it is worth the process of continual study and examination.

Opening lines of inquiry into the life of Joseph Conrad may illuminate his impetus for writing his novella, as well as justification for its content. Ross Murfin, editor of a collection of criticism on *Heart of Darkness*, explains the rationale for acknowledging the similarities between Conrad’s life and his writing: “Some of the parallels are so obvious that it may be tempting to think of the novel as thinly veiled autobiography. It may be tempting but it may also be treacherous” (13). Murfin continues to explain that for a formalist critic, a work of art is characterized by form, to be discovered by finding the patterns and relationships that exist within the work itself and not by what connection the work may seem to have with the author’s life story (13). Still, Murfin continues, “Even formalists would not have us be unaware of those

connectionsWe must know that connections exist before we can affirm or deny their ultimate significance” (13). Many noteworthy connections tie Conrad’s life and works together.

Conrad was born in Poland in 1857 into a family whose ancestral lands had been confiscated and had fallen under Russian rule. His family lived in an oppressed and exploited society; thus, Conrad’s father devoted himself to an underground political organization and was prominently involved in Polish attempts to overthrow Russian forces (Watt 2). As a child, Conrad (then Józef Teodor Konrad Korzeniowski) lived with his parents until they were tried and sentenced to deportation to a remote Russian province. Biographer Ian Watt explains that “both Conrad’s parents had exceptional qualities of mind and heart, and had been intensely devoted to their only child” (3). Conrad’s mother died when he was seven years old. His father died only four years later, leaving eleven-year-old Józef to walk alone behind the hearse which carried his father’s body. Conrad recalls the mourners “had come only to render homage to the ardent fidelity of the man whose life had been a fearless confession in word and deed of a creed which the simplest heart in that crowd could feel and understand” (Watt 3). Conrad wrote that the experience of watching his mother and then his father die, “stripped off me some of my simple trust in the government of the universe” (qtd. in Watt 4). Conrad’s youth molded him into the man that held his values dear, and his childhood formed the foundation from which Conrad’s sensitivity to oppression and exploitation was born.

Murfin theorizes that while it is tempting to think that recent Conrad criticism has brought us full circle, literary criticism doesn’t ever really come full circle. It is an “apparent circle” which is actually more like a “coiled spring” which comes close, but not quite back to the place it has been before. “It is the ‘not quite,’ the difference, that gives it resiliency, strength—and a future” (112). So it must be that new interpretations and thoughts on racism must be addressed. “We read at different times for different things” says V.S. Naipaul, quoted

in Mark Kinkead-Weekes's essay for the *Sewanee Review* (32). The essay, entitled "Heart of Darkness and the Third World Writer" contrasts perspectives of the third world writers who have come into prominence since the 1980s, including Chinua Achebe, V.S. Naipaul, and James Ngugi. Each of these writers focuses on imperialism and exploitation, as well the inherent problems associated with Africa. Achebe and Naipaul both lecture on Conrad and *The Heart of Darkness*; however, Naipaul's perspective differs greatly from that of Achebe. In his lecture, Naipaul states that as his own vision developed he found in that same Conradian analysis "his own feeling about his colonial land exactly caught, with a great effort of thought and sympathy for all men in these dark or remote places who are denied a clear vision of the world" (qtd. in Kinkead-Weekes 32). For Naipaul, the novelist must "clarify what is, and where it is, free from illusion and deception, though always, as in Conrad, with scrupulous fidelity to the truth of his own sensations" (qtd. in Kinkead-Weekes 33). Naipaul, with much the same accreditation as Achebe, has an interestingly different opinion of Conrad.

Naipaul and Achebe seem to draw from contrasting schools of thought and perspectives. Naipaul believes that Conrad has "achieved a vision of the world's half-made societies" and that through Conrad's use of the framed narrative, we are not hypnotized by Marlow, "but are made to look at him and question his vision" (qtd. in Kinkead-Weekes 35). In contrast, Achebe charges that "Marlow is to all intents Conrad, and enjoys his complete confidence" (qtd in Kinkead-Weekes 35). During Phillips' debate with Achebe, he explains further that "Conrad is an artist who attempts to resolve these important questions by denying Africa and Africans their full and complex humanity" (62). Achebe cannot be denied the validity of his sentiment; his perspective is a heartfelt one, and one which is justified for a man who is working to defeat the oppression of the African people. It is one of the myriad of perspectives that may arise during the process of digesting the allusions and beauty of a work like Conrad's: "The oily and languid sea, the uniform somberness of the coast, seemed to keep

me away from the truth of things, within the toil of a mournful and senseless delusion. The voice of the surf heard now and then was a positive pleasure, like the speech of a brother” (69). Quotes such as this pepper the novelette and can be read simply for their beauty, and yet investigated for “the truth of things” which “speaks like a brother” to the narrator, Marlow.

In Conrad’s defense, Mark Kinkead-Weekes addresses Achebe’s charge that *Heart of Darkness* is an “offensive and deplorable novel” by stating that there is every reason to distinguish Conrad from Marlow. Echoing Naipaul’s sentiment, he writes that the prime purpose of the framing narrative employed by Conrad serves to distinguish him from Marlow. In fact, Conrad interrupts the story and draws the reader back onto the deck of the “Nellie” to emphasize “the inflation of Marlow’s language.” In the end, the teller of the story is at peace, and it is the listener who is in trouble and must “respond with his or her true stuff” (34). Kinkead-Weekes concludes his essay by saying that by reading Achebe, Naipaul, Ngugi and other third-world writers, we ensure that vital questions are asked and answered, a necessary component if *Heart of Darkness* continues to be canonized (39). Debate and conjecture are to be welcomed in the field of literary criticism. It is through the sharing of perspectives that true dialogue can take place—dialogues which don’t always bring closure to a subject, but yet more debate.

In Frederick Karl’s psychoanalytical critique of *Heart of Darkness*, he describes Marlow as “foremost a man of action who should not be taken too lightly. His intelligence is displayed in his moral sensibility” (126). Karl goes on to say that Conrad demonstrated to good purpose the absurd contradictions and rifts between modern belief and modern practice: “[Marlow] assumes that the white men have come as friends, as helpers, as bringers of enlightenment” (126). Karl states that “Conrad was concerned with the rape of the people Here is white against black, entrenched against primitive, have against have-not, machine against spear, civilization against tribe” (130). Kurtz’s final shriek “The horror! The horror!” is

a cry that is “far richer and more ambiguous than most readers make it Marlow hears the words as a victory of moral sensibility over a life of brutality and prostituted ideals” (130). Through these words, Kurtz reveals what is underlying the brutality of imperialism: Kurtz, who is an icon to the colonists and has lived among the natives, screams out in his final breath his reaction to the atrocities that he has helped to commit. Kurtz seems to represent something which runs deeper than colonialism—some archetypal reaction to the nature of man and his actions; Kurtz symbolizes what happens when a “hollow man is taken over by the protections of civilization and the wilderness reveals itself to him” (Kinkead-Weekes 32). In reaction to the colonist’s and Kurtz’s actions, Achebe’s concerns for his people and country are understandable. The expense that Africa has paid for man’s elucidation of evolution from primordial beast is considerable when viewed in a literal light. When viewed in an analogous way, man’s return to Africa is the eventual coming to terms with his humanity which must involve a return to his roots. He must journey, like Kurtz and Marlow, to the subliminal orientation of his being, through the twisted dangers of the unconscious mind—like the river Congo—which leads to the symbolic jungle of deepest Africa.

If one can separate the real jungle and natives and view them in a symbolic way, the context of Conrad’s story changes. The philosopher Kant states that “this decontextualization – the severance of anything from its context – is always suspect, for, paradoxically, it is always done for a reason.” Kant goes on to explain that this “disinterestedness” is done to “privilege literature, to set it above and beyond other kinds of discourse . . . [that] literature is somehow different and somehow purer than other kinds of discourse because, at its best, it is perfectly *self-interested*” (qtd. in Rosmarin 149). The reader is charged with unraveling the underlying meaning of the text—to decode and reevaluate what Conrad’s story may mean on a different sphere.

Conrad elusively invites his reader to listen to Marlow's story and to perhaps realize that Marlow's symbols are not what they may seem; that to understand *Heart of Darkness* means to not necessarily rely on tried-and-true methods of deciphering symbolism. Conrad's use of color is atypical: light and dark, white and black, which historically represent good and evil, are transposed by Marlow. Beginning with the ominous "whited sepulcher" of the city, upriver stifling white fog inhibits vision: "When the sun rose there was a white fog, very warm and clammy, and more blinding than the night" (Conrad 87). Literary critic Adena Rosmarin states, "The reversal of the intellectual metaphor—that light signifies knowledge and darkness ignorance—could hardly be more startling, more sensually phrased, or more total" (161). Repeated reversal of the conventional color and moral code associated with it continues to confuse the reader in such a way that encourages a reevaluation of what "color" means—it encourages the reader to realize that preconceived notions must always be questioned, and even archetypal symbols and colors might lead one in the wrong direction.

It is the traditional, rather than atypical, view of symbolism that fuels the fire of Achebe's anger. In his conversation with Caryl Phillips, Achebe refers to the symbolism of good and bad, of light and dark in the story: "You will notice that the European traders have 'tainted' souls, Marlow has a 'pure' soul, but I am to accept that mine is 'rudimentary'? I cannot accept that" (65). Phillips relates Achebe's sentiment that Conrad mocks the African landscape and the African people when the story begins with the "good" river Thames and the "bad" river Congo, which is in a "dark place upon which the steamer toils along slowly on the edge of a black and incomprehensible frenzy" (60). To view this symbolism in the traditional manner, the meaning is seemingly clear. When viewed through a "reversal of the intellectual metaphor" as described above, Conrad's meaning changes as quickly as the view through a kaleidoscope changes. What is real? What is his intention? Perhaps what seems to be true is not true, but must be perceived from a new angle, foreign as it may be.

Ivory, traditionally a symbol of purity, when dead or fossilized turns yellow, which is also the color of Marlow's face: "He had sunken cheeks, a yellow complexion, a straight back, an ascetic aspect, and, with his arms dropped, the palms of hands outwards, resembled an idol" (Conrad 61). The reader understands that while Marlow has achieved an altered state of being through his experiences, he still may be tainted—his words may not be pure. In this tale, Adena Rosmarin theorizes, "Yellow seems the primary sign of the moral contamination acquired" (162). Marlow comes perilously close to identifying with Kurtz, but at the last moment pulls back: "True, he had made that last stride, he had stepped over the edge, while I had been permitted to draw back my hesitating foot. And perhaps in this is the whole difference . . ." (Conrad 110). Marlow is, therefore, seen as someone who had been pure and comes dramatically close to losing himself through the various kinds of darkness with which he came into contact during his voyage. The darkness, in a problematic way, has served to an extent to enlighten him.

Jacques Derrida, first to use the term "deconstruction" in terms of literary analysis, explains that readers tend to think in terms of opposites – black/white, beginning/end, conscious/unconscious, however, terms such as these are not truly opposites, but should be thought of as hierarchies. The meanings of words lie in the differences between them and the things they name, and Derrida suggests that the meaning of all words is grounded in that difference (Murfin 201). Derrida would say that "anyone attempting to find a single, correct meaning in a text is simply imprisoned by that structure of thought that would oppose two readings and declare one to be right and not wrong, correct rather than incorrect" (qtd. in Murfin 202). It is exactly this incompatibility of interpretations that makes *Heart of Darkness* worthy of attention, of anger and debate, and continual study.

Conrad has great insight to convey through *Heart of Darkness*; the beauty of his writing cannot be denied. Marlow recalls: "I have wrestled with death. It is the most unexciting

contest you can imagine. It takes place in an impalpable greyness If such is the form of ultimate wisdom, then life is a greater riddle than some of us think it to be” (Conrad 109). The impalpable greyness, the jungle teeming with life, the boat slowly moving upriver towards a much anticipated, yet much feared destination culminate in a sense of a truth underlying the confusion, a reality to be found in the depths:

The earth seemed unearthly. We are accustomed to look upon the shackled form of a conquered monster, but there – there you could look at a thing monstrous and free. It was unearthly, and the men were – No, they were not inhuman. Well, you know, that was the worst of it – this suspicion of their not being inhuman. It would come slowly to one. They howled and leaped, and spun, and made horrible faces; but what thrilled you was just the thought of their humanity – like yours – the thought of your remote kinship with this wild and passionate uproar. Ugly (Conrad 85).

It would be easy to take the first portion of this paragraph out of context in an attempt to skew Conrad’s meaning; however, if one reads with an open mind in an effort to absorb the full impact of the paragraph, one finds that the passage takes on new meaning:

Yes, it was ugly enough; but if you were man enough you would admit to yourself that there was in you just the faintest trace of a response to the terrible frankness of that noise, a dim suspicion of there being a meaning in it which you – you so remote from the night of first ages – could comprehend. And why not? The mind of man is capable of anything – because everything is in it, all the past as well as all the future. What was there after all? Joy, fear, sorrow, devotion, valour, rage – who can tell? - but truth – truth stripped of its cloak of time. (Conrad 85)

Conrad makes explicit that that which is fearful and unknown is really something that lies within men. The duality of the person, the hidden ancestry which all men share is something cultured men would like to deny. The man who would look upon a part of himself with

loathing and disdain is one who cannot appreciate the reality of his being; this is the man who will exploit that which he doesn't understand. The men in the jungle are terrifying because society has harnessed that "unconquered" monster, yet it hovers underneath and must be acknowledged. Marlow acknowledges his relationship to these men who leap and spin and the remote kinship between them. In a literary sense, his kinship with Achebe has been established—they are two of the world's most influential writers. One would hope that the bond they share in world literature can be a positive one.

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A Deeper Look Into Negative Campaigning

~Holly Berardi

Politicians need to be seen, to be recognized. They want to meet the American people in their living room through the portal of their TV screens to show that they are the best candidates to lead the country into the future. They want to break down the complicated issues of politics and public policy and utilize political campaign ads that bring in visual imagery and appeal to emotion in order to win the largest and most captivated audience. Politicians believe that campaign ads are valuable therefore they invest millions of dollars into them. The makers of today's television advertisements want them to remain valuable so they have studied sociology, human biology, and psychological theories. They know that instead of selling a specific item, their job is to sell an idea. Those ideas persuade people, sometimes without them realizing it, to do such things as to buy a certain shampoo or whom to vote for as president. These ads use visual and auditory symbols, biological triggers and even trance inducing techniques to cause their veiled messages to influence an audience's emotions, memories and perspectives in order to shape the decisions people make. Being aware of the methods used by the ads helps the audience better discern the intended message and there by, perhaps, not allow them to be manipulated.

Jay Leno recently did a skit that illustrated that it is not always what is said, but how it is said that matters. He took the beginning and end of a typical TV campaign ad featuring John McCain, but in the middle where the content of the ad would reside, he replaced it with the statement, "John McCain likes to deep fry turkeys in peanut oil." In the first example he uses colorful pictures of McCain, light-hearted music and a cheerful voice-over. It ends with "I'm John McCain and I approve this message." In the second example he uses the same images and words, but this time with black and white pictures, ominous music and a low voice. It even has the oil turn red as if the turkey is being dropped into a vat of blood. This one ends with "I'm

Barack Obama and I approve this message.” This skit makes it clear that there is more to political ads than the obvious message conveyed by the words. There are certain visual and auditory triggers that can be used to initiate an anticipated or desired response and the average American is receptive to the unspoken language of the ads.

Sociologists that focus on Symbolic Interactionism believe symbols are the foundation of language and that language is the building block, not only of communication, but of an individual’s thoughts as well. Language can include both verbal and nonverbal means of conveying messages. Nonverbal communication includes the use of gestures, eye contact, posture and tone of voice as well as symbols. Symbols are social objects that can represent anything that groups of people agree they should represent (Rohall, Milkie, Lucas 31). If advertisers have the ability to create symbols then this can explain why large groups of individuals within a society recognize the same images to mean the same thing. People are inundated with these images day in and day out, not only on TV, but also in every walk of life. Sut Jhally, PhD and author of *The Codes of Advertising* makes the claim that:

The power of advertising doesn’t come from the fact that it manipulates us, the power of advertising is based on the monopoly of the cultural space within which we think about ourselves, within which we figure out how society works. That is in some sense ultimate power.

Advertisements have found a way to permeate every aspect of a person’s life, from the labels on their clothes to the mouthwash they use in the morning. From the bulletin boards and store signs along the road, to the stadiums they visit to watch the game. It is hard to rest ones eyes anywhere and not see some form of advertisement. But TV advertisement has the additional feature of acting out scenarios of life as if they are the standards of normalcy. As a person buys into this image of life then they begin to look at their own in comparison causing them to change their perception of what defines normal. This can influence their purchases so they can

conform to the standard or else feel a sense of anomie. This can be true of political ads. If a person is made to feel that they are the only one against a certain candidate, they are more likely to reconsider their own views.

One of the ads used by Barack Obama during his recent 2008 campaign called “Low Road” uses many of the techniques that are most commonly found in the standard negative ad. This style is widely used because it incorporates symbols that effectively convey a clear message to a wide audience. Obama’s ad begins the use of symbols with a black-and-white image of McCain as the narrator says, in a low, accusatory voice, “He’s practicing the politics of the past.” This split second moment already achieves two things. In this modern day color images are preferred to black and white, which are gray and muted, so the translation is that McCain lacks life and vitality; this, along with the verbal message about the past, brings up impressions of McCain being old-fashioned and outdated. Next, a series of uncomplimentary quotes flash right over his face and bring to mind the mental image of a reject stamp seen in many movies and commercials over the years. The scene changes to another gray picture of McCain, this one where he is happily standing next to George W. Bush along with the words “Same old politics. Same failed policies.” Once again this serves as a repetition of the message already conveyed, that of McCain being old and archaic. Then it goes a step further by adding the repeated use of the word “same.” This use of repetition is very effective because “the more you hear something – even the same things from the same person- the more you believe it” (Clark 84). Having the previous and unpopular president in the picture links him to the unpopular policies of the last administration. Another technique used is when the words that dissolve on and off the screen are written in a large font with all capital letters. An audience familiar with e-mail etiquette would recognize this as a visual representation of an angry or loud voice and that it is considered rude.

Next, a silent white light flashes across the screen and the underlying music changes from eerie and somber to a happy, patriotic sound just as Barack Obama's face, in soft, warm browns, comes onto the screen. Use of color affects emotions and meanings. The American Psychological Association published findings that said, "Psychologists have documented that 'living color' does more than appeal to the senses. It also boosts memory" (Morton). The soft, warm browns of the image have a calming effect much like the color blue used to highlight the words "Barack Obama supports a \$1000 middle class tax cut" in the lower screen. Dark blue in particular is seen as dignified and authoritative and the fact that it is used as a border to the upper and lowercase letters is seen as professional and non-threatening. These words don't interfere with the moving color images of Obama, instead they frame them with clean lines. The words stretch and grow at the pace of the music, drawing the viewer's eye to them. This drives the message deeper into the viewers mind and memory.

Music taps into memory and emotions as well. "Music is used often in advertising to enrich the key message and may be the single most stimulation component in a commercial" (Hecker, 1984). Multiple studies have shown that there is a strong correlation between well-linked music and visual images to memory recall. Many people will attest to the fact that listening to an old song on the radio can bring to mind something they haven't thought of in years. More often than not, this memory has an emotional component that is associated with the music as well. During the course of this political advertisement the shift in music plays a key role in setting the tone for its ultimate message. As stated above, the music starts out eerie and somber, a simple piano piece consisting of the repetition of three main notes, similar to what one might expect to find on the X-files TV series. The music then changes to a symphony playing a light, happy, patriotic song, which increasingly goes up in pitch to raise its emotional impact. All of this occurs just as the shift is made from grayed out images of McCain to soft warm color images of Obama. The emotional associations trying to be

conveyed are clear, as is the symbolism behind the emotions. If the audience associates the tension of the first piece of music with McCain and the second lighthearted music with Obama, then auditory symbols have been created which can impact a person's view of each candidate.

The ad goes on to detail specific plans of Obama's campaign and then ends with Barack walking happily with a factory worker as the words "That's change we can believe in" are spoken by the narrator in a happy, lighthearted voice. Obama walking with the hardhat wearing worker, shows that he is in touch with the average working-class American. The word "change" implies promises for a better future and has been repeated so often in Obama's campaign that it has become a symbol in and of itself. But "it is not enough simply to identify and give meaning to (symbols), we must also process that information in the context of other meanings"(Rohall, Milkie, Lucas 32). If a person was already sympathetic to Obama's campaign promises then this ad becomes increasingly effective because it feeds into the biases and perceptions of that audience. If a person is undecided then it could persuade them, by changing previously neutral emotions. This helps the campaign because of a second theory of Symbolic Interactionists, which is that people put their perceptions into action. The viewer can use the input they received from the ad as a guide for their future behavior, more specifically the manner in which they will vote. The information received through the interpretations of symbols "tells us how to think, feel or act" ((Rohall, Milkie, Lucas 33). This is the basis for the Thomas theorem which basically means that a person's perception of reality can manipulate their actions, "as long as we think that our understanding is real, we will act on it." This can result in a vote for Obama.

The concept of using sensory input to change a person's emotions, and thus actions, is not new. When we look at the influence that TV ads have on the human brain we discover some interesting facts. The biological viewpoint often refers to synapses and neurological functions and when ads attempt to alter our emotions, especially when they use fear tactics to

attempt to direct people towards or away from certain actions, then they are tapping into the most primitive parts of the human brain. The ad put out by George W. Bush during the 2004 presidential elections called “Wolves” attempts to do just this. It strikes the audience immediately with an ominous sound that might come out of a horror movie or slasher film just as an image of a misty forest flashes quickly onto the screen. Over a low musical score that is once again reminiscent of the X files theme song, a narrator with a voice full of concern says, “In an increasingly dangerous world, even after the first terrorist attack on America...” The camera angle brings the viewer into the forest moving through the actual underbrush as if in the position of a stalker. Images of wolves hiding in the brush ready to pounce flash quickly on the screen. The narrator pauses only briefly and then says, “John Kerry and the liberals in Congress voted to slash America’s intelligence operations by six billion dollars.” The camera zooms out to the misty treetops and the low breathy voice of the female narrator, almost seductive and definitely threatening continues with “cuts so deep it would have weakened America’s defenses.” The video image changes to a pack of wolves lying in wait in a clearing as the narrator continues, “And weakness attracts those that are waiting...” the wolves get up and start running toward the viewer, “to do America harm” (Stanford U.).

This ad is effective because it keeps the message very “simple and specific, with a vivid detail that sticks in the mind” (Clark 85) and its main purpose is to appeal to a human’s instincts for survival and the fight or flight mentality. Ads like these reach us at our very core because “all the information we gather about the world comes in through our sensory reptilian and limbic brains” which reside in the “irrational and nonspeaking right hemisphere.” This means, “we feel before we even have a chance to think” (Hartmann 58-60). It may sound obvious to say that feelings are the result of emotions, but it may be less known that emotions are a physical biological response, one that humans share with, not just other mammals, but with birds and reptiles as well. That helps to explain why emotions cause an involuntary

response from the sympathetic nervous system, such as a rapid heart rate and a tensing of the muscles. Emotions are vital to survival; they help a person to create “a rapid, automatic summary that initiates appropriate actions” (Eagleman 58).

Tapping into our emotions is one way to drive an ads message deeper into our memory. David Eagleman, author of the article “10 unsolved mysteries of the Brain” states “when you learn a new fact... there are physical changes in the structure of your brain” (Eagleman 56). Memory is dependent on the neurons and syntax changes that strengthen the connections between brain cells and is stored in many different regions of the brain. A scientist, James Brewer used fMRI’s to try to find out which parts of the brain were “responsible for encoding memories of pictures. They showed 96 pictures of indoor and outdoor scenes to participants while scanning their brains.” Later they were examined for their recall ability. It was found that the right prefrontal cortex and the parahippocampal cortex are the areas most responsible for storing images, whereas emotional memories’ storage is largely the result of the amygdala stimulating the hippocampus and cerebral cortex (Huffman pg 269). As ads use different methods to tap into different areas of the brain, they inject their messages that much deeper.

These methods also provide connections between the visual images and the emotions. These connections create associations because memory “encodes the relationships between things more than the detail of the things themselves” (Eagleman 56). The images in this ad are supposed to be representing the potential dangers of terrorists but actually the ads intent is to link Kerry to the enemy. People’s minds are seeing and hearing John Kerry’s name at the same time as they are feeling fear and anxiety at the visual images of the wolves. Because brains tend to categorize memories by emotion then people who see this ad will always, in their gut, equate a vote for Kerry with a lack of safety for themselves, their country, and their families. These voters may not even know why. What they don’t realize is that they are responding to the simultaneous stimuli of fearful sounds, visual images and words such as

“slash,” “cut,” “weakness” and “harm.” By creating these associations the ads have managed to alter one’s perceptions. The viewer is left with the image of a pack of wolves running towards them, and through the use of their visual and auditory senses has emotionally linked this threat with John Kerry’s name. Their brain will then direct them to avoid Kerry in any way possible. The only action in their control is to vote against him. That is exactly the objective of John Kerry’s opponent.

Cognitive Psychology takes these subjects a step farther. While not discounting the biological effects and physical responses of an individual that can come from external stimuli, this discipline looks at the influences within the unconscious mind. Jean Kilbourne, Media Critic and creator of the documentary *Killing Us Softly*, which is about the negative effects of ads on women’s issues, says, “I think its true when (people) say they tune advertising out, that most people don’t pay conscious attention to advertising. The mistake is that they believe they aren’t influenced by advertisements. In fact people are extremely influenced when they are most zoned out.” Today’s ad writers are becoming more and more sophisticated, as can be seen in the following negative ad approved by John McCain. This ad, directed towards Barack Obama during the 2008 campaign is called “Special” and it uses what is described by Thom Hartmann as a “learning trance.”

This style of commercial relies heavily on many of the elements that work well in creating a type of trance most people voluntarily put themselves into, that of the “movie trance.” In a movie theater the audience turns themselves completely over to the multimedia experience. Each of their major sensory receptors, visual, auditory and kinesthetic are stimulated, tapping into the main ways people learn new information. Using certain techniques, an audience’s complete attention can be captured and maintained, increasing the likelihood that the intended message will be received. This is the basic definition of a trance. The most effective step to accomplish a trance on an audience is to tell a story. “Build into the

story visual and auditory metaphors and elements, each designed to evoke emotional responses. Embed into the most emotional parts of the stories the information you want remembered.” The pacing of the images and the story are vital, you want to have “viewers move to your beat, thus amplifying the learning trance” (Hartmann 106).

The creators of McCain’s ad use this persuasion method effectively. The ad tells the story of Obama’s quick rise to popularity, then shifts to crises that are plaguing America and goes on to say “Barack Obama lacks the experience America needs and it shows.” The ad cites an example of a mistake he would make and then repeats the adage that he isn’t ready to lead just yet. This tells us that being a good speech giver does not replace the skills of good leadership through tough times. It even ends with the words “The fact is Barack Obama is not ready... yet.” This leaves the story open-ended, implying that perhaps in the future he will be ready, but what America needs now is someone who already has the experience.

Visually, the ad starts off with images of Barack in front of large crowds, which change in a rapid succession, transitioned by white flashes of light and the sound of a camera flash. This draws the viewer’s eye to the screen and keeps it riveted. One emotional response could even result in the viewer feeling assaulted by the paparazzi themselves and cause them to want to shy away from the onslaught. Even though the images may seem positive, they are now attached to a negative emotion. Then the scene slows down and focuses on a still picture of Obama looking angry, which almost resembles a mug shot. But the ad goes on to alternate between the quick flashing images, this time of closed businesses, soldiers, sad-looking low-income citizens, foreclosed houses, and gas pumps, and paused still images of Barack. In the final shot of him, Barack looks to be on the verge of tears, sad and confused. This is enhanced by the words, “not ready” that materialize on the screen (Stanford). Repeatedly changing the images and the pacing, interspersed with written words that appear and disappear off the screen and then under it all playing a slow, mellow music along with a narrators voice that is quiet,

steady and concerned, the makers of the ad force the viewer to concentrate deeply in order to focus their attention. This can create confusion, which “might be just the point of the ad – to suggest that the subject is just as confused as the ad is confusing” (Hartmann 106). By monopolizing the senses it causes the viewer to hyper-focus on the message, driving it deeper into their minds and without knowing it, they have learned to lose confidence in Obama.

Each of these ads attempts to stimulate the viewers’ senses in order to invoke emotions. The hopes are that this will, in turn, affect the audience’s behaviors. Unfortunately, the news media is a big driving force behind negative campaigns further permeation into our society. Politicians know that repetition plays a key factor in something being remembered. This means that when negative ads are given attention by the mass media, even if they are saying the ads are deceptive, the very repetition of the ads message gives them strength and memorability. This is why politicians focus so much of their language into phrases that can be most easily used as sound bites. They recognize that the media are looking for excerpts to be quoted so candidates tailor their messages into ready-made clips to ensure a form of free advertising. And because “journalists relish the battle and revel in the attacks” (Geer), this means that politicians’ snappy retorts are repeated and debated endlessly. This is an encouragement for candidates to use negative ads that will spark debate because controversy is a powerful tool for publicity. And free publicity is the most effective way to reach the most people. As a result an interdependence has been formed between the media, advertisers and science.

The fact is that while Scientists are studying Advertisements, the creators of ads are studying modern science. They want to use the latest information on human biology, individual’s psyche, and peer influence on spending habits to increase their consumerism and thus, their profit margin. The overarching data suggests that TV advertisements affect people on every level possible. What should someone do with this knowledge? Perhaps a quote in the film *The Ad and the Ego* by Umberto Eco sums it up nicely, “A democratic civilization will

save itself only if it makes the language of the image into a stimulus for critical reflection – not an invitation for hypnosis.” Being aware of the techniques used by advertisers helps consumers make more informed decisions at the store and at the polls. A politicians’ goal is for voters to recognize and select his or her name on the ballot, some might believe, by any means necessary. Because negative campaign ads can influence unconscious thoughts towards a deliberate action, being aware of the methods used by the ads helps the audience better discern the intended message. This can help citizens avoid being manipulated. With any luck voters will seek additional information so they can make informed decisions that they believe will contribute to a more positive future.

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Should the Government Require HPV Vaccination of Girls Aged 11 to 12 to Prevent Cervical Cancer?

~John E. Daniel

1. Introduction: According to the U.S. Centers for Disease Control and Prevention (CDC), Human Papillomavirus (HPV) infects about 20 million women in the United States with 6.2 million new cases each year. HPV causes virtually all cases of cervical cancer and genital warts. Cervical cancer is the second leading cancer killer of women worldwide. In the United States, nearly 10,000 women are diagnosed with cervical cancer each year and 3,700 women die (“HPV Vaccine”). There is no treatment for HPV, only treatment for related health problems (“Cervical Cancer”). There are more than 30 strains of HPV that affect at least half of sexually active people in their lifetime. Most strains of HPV do not produce any symptoms and disappear on their own (“Detailed Guide”).

Almost 70 percent of cervical cancer cases and 90 percent of genital warts cases are linked to four types of HPV: 6, 11, 16 and 18 (“Quadrivalent”). Currently, the only HPV vaccine approved by the U.S. Food and Drug Administration (FDA) that protects against these four types is Gardasil, manufactured by Merck & Co., an international pharmaceutical company (“HPV Vaccine”). CDC’s national Advisory Committee on Immunization Practices (ACIP) and the American Cancer Society recommend that the vaccine be routinely given to females aged 11 to 12 (and as early as 9 years at the discretion of doctors) (“Quadrivalent” and “Detailed Guide”).⁹

States are now debating whether or not to mandate that girls, as a part of school vaccine requirements, be vaccinated (“NCSL Resources”). The proposal has numerous supporters, but others express moral objection related to a vaccine mandate for sexually transmitted disease, especially for such young girls. This controversy raises the question: Should the Government

⁹ The ACIP recommendation became an automatic requirement for prospective immigrants when the government updated its vaccination list in July 2008 (“ACOG News Release”).

Require HPV Vaccination of Girls Aged 11 to 12 to Prevent Cervical Cancer? This essay will examine this question using principles derived from moderate communitarian, utilitarian and justice ethical philosophies.

2. Do Moderate Communitarian Ethics Support a Vaccine Mandate¹⁰?:

Communitarianism, which holds that the community is the primary moral agent and possessor of rights, came from the Platonic School and was advanced by Augustine (Soderberg, Game 24). But adherence to their form of strict communitarianism can lead to a tyranny of orthodoxy, exemplified by a vaccine mandate. The tyranny of orthodoxy can occur if only some people are regarded as capable of fairly administering a society (Soderberg, “Genetic”). To address such concerns, moral liberalism developed to make the individual the primary moral agent (Soderberg, Game 14). According to John Rawls, the individual is capable of adopting a fair-minded point of view. Rawls’ principles would test the vaccine mandate by an individual asking whether she would agree with this system rather than some alternative (Graham 20).

There is little question that Gardasil, if properly administered, can protect women from four types of HPV infections¹¹; the FDA assessment of Gardasil indicates that the vaccine is almost 100% effective in preventing infection and disease associated with HPV types included in the vaccine (“Product Approval”). A girl can get an HPV infection only from sexual contact (“HPV Vaccine”). The overall prevalence of HPV types associated with all cervical cancers is relatively low, about 3.4% (Gostin and DeAngelis). The clinical trials used by the FDA had a short follow-up period of only five years (“Quadrivalent”), thus there is no empirical data to

¹⁰ The term “Vaccine Mandate” is used to denote the system whereby states grant regulatory bodies, like the Board of Health or Board of Education, the power to require vaccinations as a condition to attending public schools. Because of the need for “herd immunity,” these state mandates, with very limited exceptions, do not allow families to “opt-out” of coverage on the basis of religious or philosophical grounds (“NCSL Resources”).

¹¹ HPV types 6, 11, 16 and 18, are recognized as the “high risk” or “carcinogenic” types. There are approximately 100 types of HPV; about 70% of all cervical cancers are caused by HPV types 16 and 18. Most genital warts are caused by HPV types 6 and 11 (“Cervical Cancer”).

show how long the protection will last or whether it might have long-term adverse effects on a girl's health.

Unlike other vaccinations subject to state mandate¹², HPV is not casually transmitted and is not a highly infectious airborne disease. These conditions are usually prerequisites for mandatory vaccination policies. The HPV vaccine is designed for protecting the individual; it is not a vaccine that is intended to create a so-called "herd immunity," that is to immunize cohorts in a school who are subject to exposure to a highly contagious disease. Contrasting existing vaccine mandates, HPV vaccination is not necessary to prevent immediate harm to others (Gostin and DeAngelis).

Answering Rawls' question, it is reasonable to disagree with a system of HPV vaccine mandates rather than an alternative approach based on individual choice to be vaccinated. Individual choice protects the person's right to choose without disregarding the access of other persons to the vaccine. This answer would be consistent with Rawls' argument that human beings, acting morally, can be moved by another person's interest (Graham 21). For these reasons, moderate communitarian ethics cannot be used to support a vaccine mandate.

3. Can Utilitarian Ethics Provide Justification for a Vaccine Mandate? Utilitarianism is a school of philosophical ethics which holds that the action that produces the greatest net benefit for all concerned is the right action (Soderberg, Game 174). Jeremy Bentham was one of the early English utilitarians who believed that the basic needs of each individual were to be taken into account in policy decisions. Instead of a "consent-of-the-governed" approach to policy making, he proposed that the standard of justice and morality be the greatest pleasure for the greatest number (Soderberg, Game 48-51). Bentham gave the movement its full and official

¹² States vaccination requirements typically include: diphtheria, polio, measles, smallpox, rubella, mumps, tetanus and pertussis (Vernon).

statement as well as its name¹³ (Solomon and Higgins 104). John Stuart Mill and Harriet Taylor offered that a more workable goal would be the greatest happiness for the greatest number. Utilitarians regarded as misdirected the efforts to ground public policy in individual rights. Out of these philosophical notions developed utilitarian ethics that a just policy is one that produces the greatest good for the greatest number, that is to say the sum of the individual views of the good life, not the good of the group viewed as a single organism (Soderberg, Game 48-51). Can we turn to utilitarian justification for the proposed vaccine mandate?

As noted above, HPV infects approximately 20 million women in the United States with about 6.2 million new cases each year. In the United States, nearly 10,000 women are diagnosed with cervical cancer each year and 3,700 women die (“HPV Vaccine”)¹⁴. The American Cancer Society says that with early detection, typically through Pap tests¹⁵, cancer is usually treatable (“Cervical Cancer”). Even with HPV vaccination, Pap tests would still be required of all women who have been sexually active (“HPV Vaccine”). The vaccine mandate would require that 4 million girls aged 11 to 12 years undergo the three dose vaccination series and that another 2 million girls entering the age group each year would take the vaccination series (“Annual Estimates”). The HPV vaccine protects against just 70% of the HPV types that can cause cervical cancer (“HPV Vaccine”). Thus, even with vaccination, a girl has about one chance in three that an HPV type to which she is exposed is one not prevented by the HPV vaccination. The duration of vaccine protection is not known but is believed to be at least five years (“Quadrivalent”). Thus additional rounds of booster vaccinations are expected to be required of millions of girls just to maintain protection. At current prices, a three-dose round of vaccine costs \$375. Since the vaccine is so new, not all health insurance plans cover the

¹³ David Hume, who was something of a utilitarian, insisted that all ethics has its basis in “utility,” giving rise to the principle’s name (Solomon and Higgins 104).

¹⁴ Because of widespread cervical cancer testing in the United States, these numbers continue to decline. Globally, an estimated 493,000 new cervical cancer cases occur each year, with 274,000 deaths. More than 80% of cervical cancer deaths worldwide occur in developing countries, largely due to lack of early testing.

¹⁵ The Papanicolaou (Pap) test is a screening device for cervical cancer (“Detailed Guide”).

costs (“HPV Vaccine”). In the few instances where insurance plans cover the HPV vaccine, it is a result of state legislative mandate (“NCSL Resources”). The HPV vaccine is now included in the CDC Vaccines for Children (VFC) Program, a federally funded program for children, who because of cost, would likely not be vaccinated otherwise. To be included, the children must be 18 years old or younger, and either Medicaid eligible, uninsured, an American Indian or an Alaska Native (“HPV Vaccine”). In addition, few states have set aside funds to make the vaccine available for indigents and the uninsured (Belluck and “NCSL Resources”).

During the first five years of the vaccine mandate, more than 12 million girls would be vaccinated for HPV. After the first five years, 4 million girls would be required to be vaccinated or given a booster vaccination each year (“Annual Estimates”). This would be required of them notwithstanding a lack of information about the long-term effects of the HPV vaccination. Girls that are not yet sexually active would gain no benefit from the vaccination. While any cervical cancer death is distressful, the likelihood that one of these young girls will contract cervical cancer is approximately one out of 200, or will die of cervical cancer is approximately one out of 500¹⁶.

The burdens that a vaccine mandate would place on girls aged 11 -12 include: vaccinating 12 million girls in the first five years; 4 million initial and booster vaccinations each year thereafter; first year vaccine costs of almost \$1.5 billion, first five year costs of \$4.3 billion, and annual costs thereafter of \$1.0 billion¹⁷; possible booster vaccinations more frequently than every five years; continued lifetime Pap test screening at least yearly; assumption of risk of potential long-term adverse effects; lack of benefit until a girl becomes sexually active; and risk of cervical cancer from the 30% of HPV types not included in the vaccine. The benefits would include a possible 70% reduction in the incidence of cervical

¹⁶ These estimates are based on current incidence of cervical cancer which is declining in the United States. See 5, *supra*.

¹⁷ Cost estimates are nominal 2008 dollars.

cancers and deaths when these girls reach maturity and latency periods of the virus take effect probably decades from the time of vaccination. These incidence reductions would occur during a time when both cervical cancers and deaths are declining without the use of the HPV vaccine. Summing these burdens and benefits, it is reasonable to conclude that there is no net benefit for the affected girls now and unlikely when they reach maturity. A vaccine mandate does not produce the greatest good for the greatest number and cannot be justified by applying utilitarian ethics.

4. Do Justice Ethics Provide Support for a Vaccine Mandate? The most basic and contemporaneous exposition of justice ethical principles has been developed by John Rawls. His postulation of the “veil of ignorance” to reduce the influence of self-interest in moral decision-making has greatly advanced the way that ethicists examine policies in a representative democracy. Rawls formulated two principles of justice based on equal liberty and redistribution of social and economic goods (Rawls 47-48). I agree with Rawls that the First Principle of equal liberty is to be given priority over economic redistribution (Soderberg, Game 57). His last formulation of the First Principle provided that each person has the same infeasible claim to a fully adequate scheme of equal basic liberties, which scheme is compatible with the same scheme of liberties for all (Graham 48). In this principle, Rawls attempts to retain the consent-of-the-governed standard from Immanuel Kant (Soderberg, Game 56).

A vaccine mandate causes the young girls to lose their autonomy, which Rawls defines as “independence in judgment” (Graham 144-145). Autonomy is an aspect of persons that prevents or ought to prevent state paternalistic intervention in their lives (Christman). The girls’ legal-political autonomy is insecure at best. Unlike babies and toddlers who receive mandated vaccines¹⁸ and are too young to speak out, these young girls are at or near the age

¹⁸ See 3, *supra*.

when most of them not only understand the significance of the HPV vaccine but may have an opinion on whether they choose to undertake the vaccination series. Bioethicists generally hold the values of patient autonomy to be preeminent and tend to be skeptical about compulsory vaccination laws (Colgrove). Autonomy might be rejected if the disease which the vaccine is to protect against is one that is casually transmitted. But we know that HPV transmission occurs only through sexual contact. The purpose behind the vaccine policy is one of individuality, not herd immunity. Under the circumstances, loss of autonomy is not warranted¹⁹.

In discussing medical treatment for a severely disabled girl, ethicist Peter Singer noted that all medical treatment is unnatural and objections could be made to treatment. He postulates a “best interest” principle as the right test to use-- that is treatment that is best both for children and their families (Singer). Considering the minor age of the girls subject to a vaccine mandate, the “best interest” choice of vaccination should be left to the girls and their parents.

Sexually active boys, girls, men and women can contract HPV types. When a woman becomes sexually active and gets the virus, she is most likely infected by a man who has the virus. As proposed, the vaccine mandate would require routine vaccination of girls but not boys (“Quadrivalent”). In boys and men, some HPV types can cause genital warts and anal warts. Over half of sexually active men in the United States will have HPV at some time in their lives and about 1% will have genital warts at some time. While not common, anal and penial cancer in men can be caused by several HPV types. There are no routine tests for determining if men carry HPV (“HPV and Men”). Thus boys and men may have as high prevalence for HPV infection as girls and women. ACIP and CDC likely did not recommend

¹⁹ This discussion omits reference to the intermingling of rights of the girls and their parents. If one takes the position that the girls are minors and therefore the “independence of judgment” rests with parents, other issues emerge regarding the authority of parents to choose not to have their young daughters vaccinated.

routine HPV vaccination of boys since the clinical trial data is currently limited to girls and women²⁰. Applying Rawls' First Principle of equal basic liberties, serious issues of fairness arise if only young girls are mandated to undergo HPV vaccination as a condition to enrolling in public schools and boys are not.

Rawls' Second Principle, the difference principle, calls for equality in the distribution of goods and for equality of opportunity to be afforded to all. This principle represents Rawls' effort to meet the equality standard from utilitarians (Soderberg, Game 56-57; Graham 23, 48). The cost of the HPV vaccine raises an important question of who will pay the cost of the mandated vaccine. An estimated cost of \$375 per girl for the three-dose vaccination may well be beyond the means of many families who are poor or uninsured. The vaccine is so new that few health insurance plans currently cover its costs, although this could change. If the government is to pay the cost, in today's parsimonious budgeting environment, it would not be unexpected that the funds would be taken from other high priority public health needs thereby reducing funds from those programs²¹. Without a publicly funded program to cover all costs of vaccination, an HPV vaccine mandate fails to meet ethical principles of basic economic justice.

5. Conclusion. A vaccine mandate is not supported by applying moderate communitarian ethics because it would displace individual choice of the vaccinated girl. Utilitarian ethics do not justify imposing a vaccine mandate since it would not produce the greatest good for the greatest number. Applying justice ethics, a vaccine mandate is not supported since: vaccinated girls lose their autonomy; it is not in the best interest of the girls or their families; only girls are mandated to undergo HPV vaccination; and the economic cost of vaccination would fall most

²⁰ Clinical trials are now being done in boys/men. The FDA will consider licensing the vaccine for boys/men when there is research to show that it is safe and effective in boys/men ("HPV Vaccine"). It will be interesting to see if the ACIP is as quick to recommend and state legislatures, to consider, vaccinations for boys as they have been for vaccinating girls.

²¹ It appears that currently only New Hampshire and South Dakota have provided sufficient funds for a state-wide HPV vaccination programs, albeit voluntary ones ("NCSL Resources," and Belluck).

heavily upon the poor and uninsured. For these reasons, the government should not require HPV vaccination of girls aged 11 to 12²².

Epilogue²³.

²² Virginia is the sole state to this date to legislatively mandate requiring the HPV vaccine, but only for girls entering the sixth grade. The state law allowed parents to opt-out of the program for any reason or no reason and parents may make their choice verbally without any paperwork on their part (Belluck). The District of Columbia has enacted legislation to mandate vaccinating girls before the age of 13 and given parents the right to opt-out their daughter (“NCSL Resources”).

²³ The proposed HPV vaccine mandate may one day merit adoption by states. It appears that other vaccine mandates have often taken years to mature and become universal. The current controversy over Gardasil will not make that process or decision easy. In Merck’s haste to make money from this vaccine (and to obtain a marketing edge over a competing product, Cervarix, made by GlaxoSmithKline, that was expected to be approved by FDA in 2008, but is still not approved in 2009), it initiated a nation-wide lobbying strategy soon after receiving FDA approval in 2006 (Charo). Merck engaged lobbyists in every state capitol and co-opted a group of female state legislators, Women in Government (WIG), through time-honored wining and dining bashes, to introduce vaccine mandate legislation. As Merck’s free spending and heavy-handed tactics have been disclosed, it has made state law makers even more cautious about supporting the legislation (Siers-Poisson). This is a lesson that public health policies should not be orchestrated by corporate marketing campaigns (Fugh-Berman). Merck’s “unethical” behavior is worth examining, but that is another research paper.

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Peers and Parents: The role of Horizontal and Vertical Learning in Chimpanzee Populations

~Thomas Quinn

While questions concerning whether chimpanzees utilize culture remain a topic of philosophical debate among scholars, the accumulating evidence of complex chimpanzee behavior definitively supports their participation in learned and shared traditions (Biro 2003; Ueno 2005; Whiten et al. 2005; Bonnie 2006; Bonnie 2007; Hopper 2007). In such studies, researchers commonly focus on two categories of tradition, tool use (any material manipulation, usually functional) and arbitrary convention (any nonmaterial expression, usually nonfunctional) (Bonnie 2007). One example of tool use by chimpanzees is their hammering of hard shelled nuts with a rock to access the nutritional center (Biro 2003; Morgan 2006). One example of an arbitrary convention sustained by chimpanzees is handclasp grooming, a greeting ritual employed by several captive and wild chimpanzee populations (de Waal 1997; Bonnie 2006). Although chimpanzee populations have exploited the environment to produce tools in over twenty-five unique scenarios and have demonstrated arbitrary conventions in many contexts, tool use and arbitrary convention does not make chimpanzee behavior exceptional (Bonnie 2006; Bonnie 2007; Pruetz 2007; Sanz 2007; Whiten 2007). Rather, it is the capacity for these primates to engage in diverse, regionalized, and transmittable activities which surpasses the known capacity for any nonhuman species that invites inquiry into the dynamic of chimpanzee behavior, recognized by all as tradition and by some as culture (Biro 2003; Whiten 2005; Whiten et al. 2005; Bonnie 2006; Bonnie 2007; Hopper 2007). While the diversity and regionalization of these particular traditions are extensively documented, less literature has concentrated on their transmission (Biro 2003; Ueno 2005; Bonnie 2006; Bonnie 2007). However, through referencing research discussing chimpanzee social learning, the influence of parents and peers on the spread of traditions in

populations of the common chimpanzee, *Pan troglodytes*, is examined. Knowledge of the mechanisms which allow chimpanzees to employ tools and other rudimentary elements of culture has applications in both the natural and social sciences as any study on chimpanzees, because of their close kinship to humans, relates to both zoology and anthropology. Likewise, examination of chimpanzee behavior invokes questions of nonhuman intelligence which blends the disciplines of ethology and psychology.

Investigation into the transmission of chimpanzee traditions first requires a preliminary understanding of the historically underrepresented diversity and regionalization these traditions exhibit as illustrated by examples of tool use which researchers have found to occasionally overlap (Sanz 2007). In at least five wild chimpanzee populations, researchers have recorded the predation of termites with tools or tool-sets (multiple tools used to perform one task); however, the type and number of tools or tool-sets used by the population varies by location (Deblauwe 2006; Pruetz 2007; Sanz 2007; Möbius 2008). Studies have recorded fishing for termites using slender probes of plant material in chimpanzee populations from Tanzania and southern Senegal while other studies have recorded the use of a tool-set in the rainforests of Central Africa (Deblauwe 2006). In northern Republic of Congo, two distinct tool-sets are used, one of which is also used at Cameroon (Ibid.). Chimpanzee populations from Guinea and Cote d'Ivoire each use similar technology (botanical probes) except to fish for army ants, the population from Guinea using statistically significant longer sticks than the other, a phenomenon not entirely justified by ecology (Möbius 2008). In Senegal, studies have recorded chimpanzees processing branches systematically into spears which they thrust into tree cavities to hunt for bushbabies (Pruetz 2007). On only one other occasion, to the east in Tanzania, a similar behavior was observed: a chimpanzee used a branch to startle a squirrel out of a hollow bough (Ibid.). This instance of stick technology (contrasting with probe technology) reinforces the traditional aspect of chimpanzee tool use as the behaviors are not

specific to an individual but instead to a group. Furthermore, in the account of the spear crafting at Senegal, researchers noted several steps followed in the construction of the spears (Ibid.). Of seventeen measured spear productions, all but one involved a chimpanzee locating and breaking a live branch (Ibid.). In all productions, the tool maker trimmed leaves and side branches, one half of the time continuing modification to strip off bark and occasionally sharpen the tip using its incisors (Ibid.). Although the manufacture of tool-sets and elaborate spears have remarkable implications, chimpanzee ingenuity is not limited to altering plant material in probe and stick technologies; studies have documented a stone technology in chimpanzee populations west of Cote D'Ivoire and from Cameroon (Morgan 2006).

Chimpanzees from these regions use rocks to crack open nuts which have nutrient rich seeds, a tradition not practiced elsewhere despite widespread availability of both rocks and nuts (Ibid.). As illustrated by different lengths of fishing probes and regular absences of stick and stone technologies even where adopting other traditions would improve access to available foods, the environment does not exclusively determine what tradition a chimpanzee population sustains. Considering this, chimpanzee tradition must exist in its variety and complexity because of ideational transmission.

When examining how chimpanzees transmit traditions, an anthropomorphic lens brings insight. Similar to human culture, chimpanzee traditions are transmitted multilaterally (de Waal 1997; Whiten et al. 2005; Bonnie 2006; Bonnie 2007; Hopper 2007; Murray 2008). Two models of social learning explain the transmission. Horizontal learning describes the process of learning traditions from peers of the learner. In contrast, vertical learning describes the process of learning traditions from a parent of the learner, usually the mother. No model exclusively documents transmission. There is a consensus that most behavior is learned vertically in humans although horizontal learning is significant also (Kendall 2006). These models as they relate to chimpanzees have remained mostly unexplored. However,

some studies have monitored directly or indirectly the transmission of traditions by mapping the spread of introduced or organic behaviors (de Waal 1997; Whiten et al. 2005; Bonnie 2006; Bonnie 2007; Hopper 2007). From this research, it is possible to extrapolate the affect of horizontal learning and vertical learning on the transmission of chimpanzee traditions. According to the research currently available, it seems horizontal learning has a lesser role while vertical learning has an greater role in influencing behavior although both are necessary for maintaining tool traditions and arbitrary conventions throughout and across generations.

In 2005, researcher Andrew Whiten developed an experiment designed to measure the transmission of introduced tool traditions in captive chimpanzee populations (Whiten et al. 2005). In 2007, another research team including Whiten repeated a variant on this experiment (Hopper 2007). The results of the research bring insight to horizontal learning in chimpanzees. Each experiment required the use of an apparatus called a pan- pipe (Whiten et al. 2005; Hopper 2007). Pan-pipes are simple constructions which conceal food chimpanzees can extract by two methods (Ibid.). The first method is performed by inserting a long pole into an anterior opening on the apparatus which pushes the food down a lower chute (called the poke method); the second method is performed by using the same tool to raise from the outside a barrier inside the apparatus which allows the food to fall from the upper chute (called the lift method) (Ibid.). The orientation of the experiments relies on rewarding two manipulations of the pan-pipes (Ibid.). In both experiments, researchers prepared three groups of chimpanzees (one control group and two experimental): researchers infused one experimental group with a chimpanzee trained to operate the pan-pipes using the poke method and infused the other experimental group with a chimpanzee trained to operate the pan-pipes using the lift method while researchers introduced no trained chimpanzee to the control group (Ibid.). In the more recent experiment, an individual control supplemented the control group

which later served to test chimpanzee learning under the ghost condition, simply a process demonstrated without a demonstrator (Hopper 2007; Thomas 2004). This dubbed three-group, two-action methodology chosen by Whiten and Hopper allows for an unequivocally powerful analysis. Whiten defends the experiment because when a chimpanzee in the experimental group is presented with a complicated task, it can complete it using two techniques only one of which it has observed. The technique with which it chooses to perform the task could confirm that the chimpanzee had copied the behavior (Whiten et al. 2005). If a chimpanzee copied a behavior, the transmission of tradition occurred (Ibid.). Through the outlined procedure, the transmission of traditions as a result of horizontal learning is documented with several implications encountered.

In the earlier study on social learning among chimpanzees in a captive setting, Whiten revealed two major elements of the horizontal spread of traditions in chimpanzee populations. First, the research demonstrates chimpanzees are capable of sustaining traditions without human intervention; second, the research demonstrates chimpanzees are subject to pressures of social conformity (Whiten et al. 2005). To begin this experiment, Whiten selected a high-ranking female from each the poke and lift groups. In an area unseen by their group mates or each other, they taught the chimpanzees the corresponding tool technique then reintroduced them to their groups such that the rest of the group could observe the trained, high-ranking female operate the pan-pipes for seven days, twenty minutes per day, without having access to the apparatus themselves (Ibid.). According to counts by the researchers, each chimpanzee watched one of the high-ranking females successfully operate the pan-pipe, the number of times ranging from eight to two hundred five (Ibid.). All, therefore, participated in observational learning. Next, researchers made the apparatus accessible to all chimpanzees from each group for thirty-six hours over ten days; two months later, chimpanzees were reintroduced to the pan-pipes and allowed to operate them, this time without the

demonstration by the expert first (Ibid.). The results of the experiment satisfied the hypothesis that chimpanzees transmit traditions horizontally, at least in a captive setting. The chimpanzees in the poke group all used the poke method almost exclusively during both interactions with the pan- pipes while the chimpanzees in the lift group performed the task taught by their expert with similar commitment and success (Ibid.). Of the six chimpanzees from the control group, none operated the pan-pipes successfully using either method (Ibid.). Therefore, it appears that the presence of an expert chimpanzee encourages other chimpanzees to operate the pan-pipes through some mechanism of horizontal diffusion.

While revealing the capacity of chimpanzees to share traditions, the study by Whiten also suggests chimpanzees modify their behavior according to a conformity bias (Whiten et al. 2005). In each experimental group, several chimpanzees obtained food from the pan-pipes using both methods (Ibid.). Therefore, because no group was seeded with an expert chimpanzee versed in both the poke and lift methods, at least one chimpanzee from each experimental group discovered the technique independently (Ibid.). However, the novel trick never gained popularity over the already established tool tradition, a phenomenon Whiten interprets as a consequence of conformity to a social norm (Ibid.). This signifies that, among chimpanzees, a tradition has value beyond its function; that is, when a chimpanzee knows more than one means to arrive at the same end, it exhibits a preference seemingly unbound by practical considerations (Ibid.). In the case of this research, the chimpanzees capable of both the poke and lift methods more often chose the technique common to its group despite both methods having the capacity to extract food from the pan-pipe apparatus (Ibid.). The results of the experiment conducted by Whiten indicate that chimpanzees can engage in traditions that are horizontally learned (through interaction with an expert) and shared (through the influence of a conformity bias) in a manner reminiscent of human culture.

The more recent experiment by Lydia Hopper, modeling the same three-group, two-

action methodology introduced by Whiten, likewise contained a twofold revelation. First, the research confirms the results of the Whiten study which shows how chimpanzees can sustain traditions through horizontal diffusion (Whiten et al. 2005; Hopper 2007). Second, the research brings further insight into the specific mechanism of horizontal transmission in chimpanzee populations by testing chimpanzee learning under the ghost condition (Hopper 2007). The ghost condition is applied to determine whether imitative learning (abbreviated imitation) or emulation serves a greater role in the way in which a new skill is learned by an individual (Heyes 1996; Thomas 2004). Imitation occurs when an observer watches the actions of a modeler and then repeats their maneuvers, with or without understanding why the repetition is successful; in contrast, emulation occurs when an observer notices a phenomenon with no modeler and then replicates the process, presumably reflecting a fundamental understanding of how the action produced the result (Thomas 2004). For most animals, including young humans, one of these mechanisms results in more effective learning of a skill; for example, researcher Katherine Nagell posits, according to a study on how two year old humans and chimpanzees learn to use tools, human children tend to favor imitation over emulation although other studies refute the consistency of that tendency (Nagell 1993; Gergely 2002; Thomas 2004; Whiten 2005). Nevertheless, the results of the ghost condition test contradict the established opinion that chimpanzees do not learn well through imitation, an important component of horizontal diffusion (Nagell 1993; Tomasello 1999; Thomas 2004; Whiten 2005; Hopper 2007).

After conducting the first phase of the experiment according to the procedure set by Whiten, the control group of chimpanzees were introduced to a demonstration resembling that which the experimental group received (Hopper 2007). However, instead of an expert performing the demonstration, researchers secretly maneuvered the tool by invisible fishing line such that observing chimpanzees would witness the operation of the pan-pipes (through

the poke and lift methods) without watching an operator; from the perspective of a spectating chimpanzee, it would appear as if a ghost handled the apparatus (Ibid.). Even after this trial, no chimpanzee from the control group could successfully obtain a food reward from the pan-pipes (Ibid.). Therefore, the performance of an expert chimpanzee is necessary for the transmission of this tradition as unlearned chimpanzees failed to reproduce the actions of a ghost performer (Ibid.). This implies chimpanzees have the capacity to imitate as a means of learning, an ability erroneously attributed as unique to humans (Nagell 1993; Whiten 2005). This human trait of chimpanzee learning, while simplifying the differences between human and chimpanzee ideational transmission, favors interpretations that horizontal learning assumes a powerful role in the perpetuation of chimpanzee traditions. As indicated by the experiments of Whiten and Hopper, chimpanzees learn from other chimpanzees and moreover look to other chimpanzees for learning.

Evidence and details of vertical learning in captive chimpanzee populations are less often encountered. Experiments testing horizontal learning among chimpanzees are both easily assembled and brief, using chimpanzees of all ages over a short duration of time (Whiten et al. 2005; Hopper 2007). In contrast, a study of vertical learning among chimpanzees would employ mostly chimpanzees with young children and would demand several years for collecting data. Therefore, in understanding the vertical transmission of tool traditions especially, analogous interpretations prove especially informative. Some incidental occurrences encountered during the research of Whiten and Hopper reveals the importance of vertical learning in chimpanzee populations. In both studies the expert chimpanzees which learned their skill from the researchers more often used the pan-pipes than those which learned their skill from peers (Ibid.). In the experiment by Whiten, the expert chimpanzees of the poke and lift groups each effectively operated the pan-pipes on more than thirty occasions after the initial observation phase during which only the expert chimpanzee had access to the pan-pipes

(Whiten et al. 2005). While other chimpanzees from the study also used the pan-pipes more than thirty times (the exact number unrecorded for any chimpanzee), Andrew Whiten notes in his report “[t]he expert[s from each group] consistently used the method it had been trained on” (Ibid.). Likewise, the expert chimpanzee from the lift group in the study by Hopper expressed remarkable success when operating the pan-pipes (Hopper 2007). According to their measurements, the expert chimpanzee from the lift group successfully operated the pan-pipes one thousand, nine hundred one times, comparing to a median frequency of ten (Ibid.). Related data detailing the success of the expert chimpanzee from the poke group is inapplicable because the expert learned the technique on its own; still, its performance exceeded that of the observing chimpanzees (Ibid.).

One interpretation of the consistent and frequent success of the expert chimpanzees could posit that the intensity of the interaction between the chimpanzee and the researcher while the chimpanzee learned the new technique facilitated their mastery of the skill. Assuming this intensity of interaction resembles that which occurs between a child and parent chimpanzee, insight is provided into how vertical learning may operate among chimpanzees. The most parsimonious explanation for the increased success of the expert chimpanzee is that the intimate interaction between the chimpanzee and the researcher reinforced the procedure of the tool tradition more than the remote interaction which occurred during horizontal learning. Relating the chimpanzee-researcher relationship with the child-mother chimpanzee relationship, it seems that knowledge acquired through vertical learning is manifested more in regular activity. The elevated influence of vertical learning would only increase during interactions preceding total myelination of the brain as with human learning (McCrone 1990). While this analogy offers only a limited understanding of vertical learning among chimpanzees, other research concerning the vertical transmission of arbitrary conventions provide further details on the mechanism and importance of this manner of learning in captive

settings.

Studies on the spread of arbitrary conventions, like those monitoring the spread of tool traditions, also contribute evidence to understanding social learning in captive chimpanzee populations. Researchers Kristen Bonnie and Frans de Waal have dedicated their time to exploring the horizontal spread of arbitrary conventions among chimpanzees (de Waal 1997; Bonnie 2006; Bonnie 2007). Two studies conducted at the Living Links Center, part of the Yerkes National Primate Research Center, investigate the phenomenon (Ibid.). The earlier study builds on previous research of how the custom of handclasp grooming, a tradition native to some chimpanzee populations, spreads, adverting to data collected during a twelve year span of observation (de Waal 1997; Bonnie 2006). The later study monitors how two introduced arbitrary conventions could spread through chimpanzee populations when performing the arbitrary convention receives a reward (Bonnie 2007). The more recent investigation will receive immediate discussion because of its familiar emphasis on incentivizing a behavior to study horizontal transmission. The structure of the experiment resembles that of Whiten and Hopper; in fact, the models chosen in this experiment served as the experts during the research conducted by Whiten (Whiten et al. 2005; Bonnie 2007; Hopper 2007). Reflecting the three-group, two-action methodology aforementioned, the study by Bonnie and de Waal employed two groups of chimpanzees, each seeded with a model versed in one of two arbitrary techniques and provided equipment necessary for performing the technique; however, the study included no control group (Whiten et al. 2005; Bonnie 2007).

Researchers provided several tokens (ten by four centimeter PVC tubes painted orange) and two receptacles (a bucket and a pipe each with an opening for inserting tokens); a chimpanzee received a reward whenever it placed a token in either receptacle regardless of to which group the successful chimpanzee belonged (Bonnie 2007). To insert the token in the

bucket receptacle or to insert the token in the pipe receptacle, therefore, represents the two techniques researchers trained the chimpanzee models to perform for a food reward (Ibid.). Like the studies by Whiten and Hopper, this experiment by Bonnie and de Waal concentrates on how chimpanzees behave if introduced to two tasks which yield the same end when they have observed only one of the means to the end (Whiten et al. 2005; Bonnie 2007; Hopper 2007). Unlike the studies by Whiten and Hopper, the techniques rewarded in this experiment “ha[ve] no logical, causal connection to a food reward” (Bonnie 2007). Therefore, if other chimpanzees acquire the behavior through horizontal transmission, the event would provide evidence which supports that chimpanzees have the capacity to transmit arbitrary conventions through social learning (Ibid.). The results of this experiment contrasted with a previous study which proposed chimpanzees are incapable of sustaining anthropogenic arbitrary conventions (Tomasello 1997). According to data collected by Bonnie and de Waal, most chimpanzees copied the action of the model chimpanzee and put the token in the proper receptacle, thus replicating the arbitrary convention for food reward (Bonnie 2007). Only one chimpanzee consistently inserted the token in the receptacle not used by the model chimpanzee; although researchers rewarded this uncommon act, Bonnie and de Waal attribute its rarity to pressures of a conformity bias previously shown to influence the choice between tool traditions (Whiten et al. 2005; Bonnie 2007). This experiment, therefore, seems to highlight two key aspects involved in the horizontal spread of arbitrary conventions. First, chimpanzees can sustain behaviors for reward which have no direct connection to obtaining food even when the behavior is introduced by humans (Bonnie 2007). These behaviors are the arbitrary conventions which chimpanzees can learn and share. Second, the horizontal learning of these arbitrary conventions appears subject to a conformity bias not unlike those influencing the transmission of tool traditions (Ibid.). This suggests the transmission of pragmatic ideas somewhat resemble the transmission of arbitrary ideas which would

accentuate the complexity of the traditions upheld by chimpanzee populations.

The earlier study by Bonnie and de Waal pursues a different perspective on how arbitrary conventions transmit, expanding upon an earlier report coauthored by de Waal (de Waal 1997; Bonnie 2006). Rather than monitoring the spread of anthropogenic arbitrary conventions among chimpanzees in a controlled setting, this experiment traces the spread of a tradition which emerged organically in a captive chimpanzee population (Bonnie 2006; Bonnie 2007). The arbitrary convention at focus is called handclasp grooming, the first social custom identified in chimpanzees, noted in several wild and captive chimpanzee populations (Whiten 2005; Bonnie 2006). The custom of handclasp grooming occurs between two individuals, referred to as a dyad: there exists a variety of styles although it always resembles the general form of each chimpanzee lifting one hand of the other chimpanzee to mutually groom the underarm area of one another (Ibid.). The bulk of the Bonnie and de Waal studies heavily detail the specifics of which individuals engaged in the handclasp grooming, how often, and when (Ibid.). However, it is the conclusions based on these details that explicate chimpanzee social learning (Ibid.).

Bonnie and de Waal, during the twelve years of study, observed what they state as four characteristics of the social custom which fulfill criteria of a cultural pattern outlined by anthropologists Alfred Kroeber and William McGrew (Kroeber 1928; McGrew 1998; Bonnie 2006). First, Bonnie and de Waal began the study noting the organic emergence of the social custom of handclasp grooming in a captive chimpanzee population (de Waal 1997; Bonnie 2006). It emerged without human instruction in 1992, pioneered by a female chimpanzee named Georgia born into the study group in 1980; Georgia first initiated the handclasp grooming and participated in every instance of handclasp grooming during the first year of the study (de Waal 1997). It would prove difficult to explain why Georgia began this tradition however Bonnie and de Waal offer that handclasp grooming signifies intimacy

between two chimpanzees, encouraging “cooperation, coordination, and trust” (Bonnie 2006). Second, after the first year of observations, the arbitrary convention of handclasp grooming had transmitted horizontally (de Waal 1997; Bonnie 2006). By 1993, other chimpanzees in the group started initiating handclasp grooming (Ibid.). While satisfying one important condition of the cultural pattern established by Kroeber and McGrew, the spread of the handclasp grooming also expounds the significance of the studies mentioned previously: not only are chimpanzees capable of perpetuating complicated tasks for food reward but they can also originate, share, and learn traditions without incentive or other human interference (Kroeber 1928; McGrew 1998; Whiten et al. 2005; Bonnie 2006; Bonnie 2007; Hopper 2007). Third, the chimpanzee population continued the arbitrary convention even after researchers separated the originator of the tradition from the group (de Waal 1997; Bonnie 2006). For chimpanzees to practice handclasp grooming in the absence of Georgia who introduced the trait implies that the novel behavior of an individual had successfully translated into the collective behavior of a group. This feature may seem unsurprising, but its documentation is necessary for explaining how chimpanzees can sustain traditions for generations. Fourth, the observations made by Bonnie and de Waal reveal handclasp grooming can transmit vertically and also horizontally (Bonnie 2006). Chimpanzees born during the course of the study adopted the practice of handclasp grooming through vertical learning (the youngest at age five years nine months) (Ibid.). Vertical learning of handclasp grooming occurred between infant chimpanzees and their mothers as well as between infant chimpanzees and unrelated adults although studies of handclasp grooming in wild chimpanzee populations have not revealed similar accounts of infant chimpanzees engaging in the social custom with unrelated adults (Ibid.). Still, this evidence has further relevance to understanding how chimpanzees can sustain traditions for generations. Through demonstrating how chimpanzees satisfy the cultural pattern criteria established by

Kroeber and McGrew, Bonnie and de Waal show that organically developed social custom spread between chimpanzees multilaterally, seemingly encouraged by factors of interpersonal affiliation (Ibid.).

If the elevated influence of vertical learning, demonstrated by analysis of the studies of Whiten and Hopper, holds true for arbitrary conventions learned through vertical transmission, then, considering the ability of young chimpanzees to learn arbitrary conventions successfully from their mothers, it would appear advantageous for mother chimpanzees to provide environmental knowledge which aids in survival to their young. Under a similar premise, researchers Ari Ueno and Tetsuro Matsuzawa conducted one study which investigates the vertical learning of an important arbitrary convention among captive chimpanzees (Ueno 2005). Specifically, the research focuses on how infant chimpanzees respond to novel foods (Ibid.). Chimpanzees are considered neophobic animals; that is, they often express a definite hesitation when presented with new substances (Ibid.). According to the research conducted by Ueno and Matsuzawa, when an infant chimpanzee encounters an unknown food type, it often consults its mother for approval to eat the foreign item (Ibid.). The researchers designed an experiment around two infants under the age of forty-one months which examines how the infants interact with food when their mother is present (Ibid.). During thirty-two trials conducted on each infant-mother pair (sixty-four sessions total), researchers introduced the couple to either two familiar foods or a combination of one familiar food and one foreign food (Ibid.). Twelve sessions total exposed the infant-mother pair to novel foods wherein both the infant and the mother had access to the food (Ibid.). On all but one occasion, the infant chimpanzee sniffed and licked the food before consuming it, a common mammalian behavior (Ibid.). Seven times one of the infant chimpanzees looked to its mother and then, based on her positive reaction, continued to eat the food (Ibid.). While the infant chimpanzees exhibit some independent reasoning (through

sniffing and licking the food), they also demonstrate a particular interest in the opinion of their mothers (Ibid.). As knowledge gained through vertical learning has a significant role in the behavior of an individual, the capacity for chimpanzees to transmit vertically the arbitrary conventions of food discrimination and other discriminatory practices (e.g. mating) allows for adaptive traditional behavior to span generations while the capacity for chimpanzees to transmit horizontally allows traditions to span contemporary populations (Ueno 2005; Whiten et al. 2005; Hopper 2007).

Although a wealth of resources document horizontal learning and few accounts trace vertical learning in captive chimpanzee populations, horizontal and vertical transmission in wild chimpanzee populations has remained largely unexplored (Whiten 2005; Whiten et al. 2005; Bonnie 2007; Hopper 2007). Represented by fewer studies than those detailing vertical learning among captive chimpanzees, researcher Victoria Horner notes studies on social learning in wild chimpanzee populations have additional limitations relying on “circumstantial and correlational” evidence (2006). One study, however, will prove especially helpful in understanding social learning in wild settings and should provide clarity as to what extent studies of captive chimpanzee behavior can apply to wild chimpanzees. The study, conducted by researcher Dora Biro, makes record of a nut cracking tradition in local chimpanzee populations from Guinea, West Africa which encompasses sixteen years of study (Biro 2003). From this expansive study, two details seem most significant. The first detail relates to how infant chimpanzees acquire the nut cracking tradition through vertical learning (Ibid.). Around the age of three to five years, infant chimpanzees spend most of their time in proximity to their mother who serves as a model from which the infants learn (Ibid.). Through observations of their mother engaging in the nut cracking tradition, the infants master the skill (Ibid.). This infant-mother interaction is crucial for the transmission of the tradition as chimpanzees that do not learn nut cracking by five years of age will not learn the tradition

(Ibid.). From this perspective, vertical learning appears to critically influence the acquisition of traditions in wild chimpanzee populations (Ibid.).

The second detail relates to how horizontal learning could expand the nut cracking repertoire of a population of chimpanzees; that is, the research explores if chimpanzees can learn from their peers to use the familiar nut cracking tradition to break open unfamiliar nuts (Biro 2003). Biro introduced novel nuts to a group of chimpanzees versed in the nut cracking tradition to monitor their reaction (Ibid.). Adult chimpanzees experimented with cracking the unfamiliar nuts as other chimpanzees, their age or younger, watched “with great interest” (Ibid.). Some juvenile chimpanzees also experimented with cracking the unfamiliar nuts although their effort received less attention from the group (Ibid.). According to Biro, the older models from which the peer chimpanzees learn serve a necessary role as a center for horizontal transmission, allowing new skills to spread among a population despite the general trend of chimpanzee neophobia (Ibid.). This data, while foremost confirming the often understated complexity of chimpanzee social learning, also reaffirms the relevance of the studies performed in captive settings. The elevated influence of chimpanzee vertical learning and the versatility of chimpanzee horizontal learning remain supported conclusions in both the wild and captive experiments. Moreover, considering the naturalistic environment created at many of the chimpanzee testing facilities (e.g. Yerkes National Primate Research Center), captive experimentation unlikely biases results especially in cases when researchers do not offer incentives or incentives reflect foraging process (Ueno 2005; Whiten et al. 2005; Bonnie 2006; Bonnie 2007; Hopper 2007). Therefore, both the captive and wild chimpanzee studies help to untangle the magnificence surrounding chimpanzee social learning and customs.

Through the research of horizontal and vertical learning in captive and wild chimpanzee populations, the mechanisms underlying the horizontal and vertical

transmission are better understood. However, before making any conclusions related to the mechanisms underlying the spread of chimpanzee traditions, the features of such traditions should have review. The results of the several experiments outlined above characterize chimpanzee traditions as diverse, regionalized, learned, and shared (Ueno 2005; Whiten et al. 2005; Deblauwe 2006; Pruetz 2007; Hopper 2007; Möbius 2008). Whiten and Hopper demonstrated chimpanzee tool traditions are transmitted horizontally, learned through imitation and subject to a conformity bias (Whiten et al. 2005; Hopper 2007). The work of researchers Bonnie and de Waal confirmed chimpanzees learn arbitrary conventions in a manner resembling the learning of tool traditions and moreover that chimpanzees have the capacity to sustain organic customs without human intervention (Bonnie 2006; Bonnie 2007). Last, the report by Ueno on infant chimpanzee reaction to novel foods emphasizes the role of vertical learning in transmitting particular arbitrary conventions while data collected by Biro arguably unifies captive and wild studies (Biro 2003; Ueno 2005). Considering these results, the role of horizontal and vertical transmission in the spread of chimpanzee traditions seems as follows. While both horizontal and vertical learning facilitate the transmission of traditions, vertical learning has more influence on the spread of social customs than horizontal learning. Infant chimpanzees learn vital skills (tool traditions and arbitrary conventions) from their mothers and other adults which allow them to better adapt to their physical and social environment. However, this is not to understate the value of horizontal learning. Although the vertical transmission of techniques allows for chimpanzees to sustain traditions for generations, horizontal transmission allows for traditions to pass from one adult to another which can benefit populations by compensating for neophobia in a changing environment or by introducing a useful tradition to other lineages. It is most likely that both forms of social learning allow for the complex array of behaviors exhibited by chimpanzees. This understanding of how chimpanzees transmit behavior has many

applications to the natural and social sciences. As up until the middle of the twentieth century most researchers rejected the proposition that chimpanzees (or any nonhuman animal) could use tools, these discoveries of chimpanzee traditions set the stage for further exploration into curious behaviors of other animals (Jolly 1972). Knowledge of mechanisms underlying the spread of chimpanzee behavior has additional application to anthropological investigations. The resemblance of chimpanzee traditions to human culture, such as their learned and shared qualities, shapes human explanation of their ancestry and proposes new answers to the ancient question of what defines humanity.

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Poster Presenters

Sheena May Austria

“Tangled and Trapped: the Numerous Multi-Faceted Obstacles Facing Filipina Migrant Workers”

Mentor: Shweta Sen, Montgomery College

Athena Balanou

“Neural Tube Defects (NTD’s) in Developing Countries”

Mentor: Michael Chase, Montgomery College

Andrew Bernstein

“Electoral College Trouble”

Mentor: Joan Naake, Montgomery College

Jil Bucceroni

“The Night of the Iguana”

Mentor: Dr. Geoffrey Sadock, Bergen Community College

Sascha Fink

“Reducing Inmate Recidivism Through High School and Post-Secondary Education”

Mentor: Dr. Christine Bowditch, Lehigh Carbon Community College

Saritha Gateau

“British Literature and the Second World War”

Mentor: Dr. Christine Bowditch, Lehigh Carbon Community College

Bryce J. Hoover

“Water, Water Everywhere, Nor Any Drop to Drink: Can Global Efforts Solve the Global Water Crisis?”

Mentor: Shweta Sen, Montgomery College

Maria Piedrahita

“La Mujer en el Poema de Mio Cid”

Mentor: Hilario Barreru, Borough of Manhattan Community College

Julie M. Rivera

“Circumstances of his Time”

Mentor: Sabrina Caine, Erie Community College

Poster Presenters

Ermias Semaie

“Quantitative Measurement of Microbial Population in Relationship with Elevation”

Mentor: Dr. Muswamba Kadima-Nzuji, Montgomery College

Samuel Strong

“The Mathematics of Art”

Mentors: Carol Reed and John Pepper, Lehigh Carbon Community College

Stephanie Vara

“Twirling: A Sport of Communication”

Mentor: Bette Petrides, Montgomery College

Participation Information

Colleges	Papers Submitted	Students Submitting	Mentors	Readers
Bergen Community College	8	8	4	4
Borough Community College	4	4	4	1
Brookdale Community College	1	1	1	4
Dutchess Community College	1	1	1	
Erie Community College	6	6	3	2
LaGuardia Community College				1
Lehigh Carbon Community College	3	3	4	7
Montgomery College	38	37	17	
Northampton Community College	6	6	3	5
Northern Virginia Community College	6	6	4	
Ocean County College	1	1	1	
Reading Area Community College	5	5	4	6
Sunny Orange Community College	2	1	2	5
Sunny Rockland Community College	21	18	8	4
Ulster County Community College	1	1	1	1
Westchester Community College	4	4	4	3
Western Connecticut State University				2
Total Papers Submitted	107			

Student Presenters	Panels	Posters
Bergen Community College	2	1
Borough of Manhattan Community College	1	1
Brookdale Community College		
Erie Community College	2	2
LaGuardia Community College		
Lehigh Carbon Community College		2
Montgomery College	18	6
Northampton Community College	2	
Northern Virginia Community College	2	1
Ocean County College	1	
Reading Area Community College	2	
Suny Orange Community College	1	
Suny Rockland Community College	10	1
Ulster County Community College	1	
Westchester Community College	3	
Western Connecticut State University		