



**Where Credit Is Due: How the Art World Reflects Evolving Sexual Politics**

Tracing the development of sexism through the historical discredit of female artists.

**Abstract**

From Paleolithic cave paintings to Baroque Florence's Artemisia Gentileschi, scholars have uncovered many cases in which women's art was credited to their male contemporaries. This reoccurring dynamic communicates a cultural attitude of explicit disbelief in female abilities known as classical sexism. Even today, this trend persists as female artists' work is continually dismissed as derivative of, dependent on, or simply less valuable than men's. What can the art world tell us about the narrative arc of sexism? I will present case studies of marginalized female artists to illustrate the evolution of sexism in Western culture. Lee Krasner faced hostile degradation with accusations of her work being mere imitation of her more famous partner, Jackson Pollock. Benevolent paternalism is evident in Margaret Keane's story in which her husband took credit for her portraits to "protect" her from reality. The feminist revolution is young, and there is still progress to be made. (150)

**Methodology**

I conducted comparative case studies on female artists throughout history whose professional difficulties reflected their generation's form of sexism. I studied both the ambient struggles they faced as well as ways some contributed to their own subordination. These social pressures mirror my research of the historical advancements of modern sexism. (50)

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### **The Weight of Her Heart: Wu Zetian in Perspective**

An examination of historian bias regarding Wu Zetian, the concubine who became the sole female Emperor of China, and its effect on contemporary views of women in positions of power.

#### **Abstract**

From Joan of Arc to Fusako Shigenobu, women are alternately vilified or venerated by those who tell their stories and, subsequently, those who listen. Modern historians build on the initial documentation of past historians; consequently, their works are imprinted with the same biases that can be found in the originals, creating a recycling of ancient cultures that continues to color modern decisions. Is our opinion of powerful women still dictated by long-dead scribes? Or have we cleared our judgement of their cultural obstructions? My analysis focuses on Wu Zetian, the sole female Emperor of China. By tracing the religious, socioeconomic and political nuances of the time, I argue that historical documentation on her reign was predetermined by the presiding culture and not rooted in her actions, person, or leadership. The threads of these documents can be found entwined with opinion on contemporary female politicians, continuing to alter modern perception. (149)

#### **Methodology**

For my project, I studied peer-reviewed research on Chinese religion, politics, geography, literature, socioeconomics, and gender-roles of the Sui and Tang dynasties to construct an appropriate context to analyze primary documentation of Wu Zetian. I then utilized these findings to scrutinize contemporary views on modern female politicians. (47)

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### **A Paradox of Scandinavian Social Democracy**

An assessment on the sustainability of social democracy in relation to the escalating xenophobia in northern Europe.

#### **Abstract**

When notable sections of the population wish to eliminate the immigration and integration of foreign nationals in order to preserve a culture ironically built upon tolerance, one must question the social democratic system. Does a social democracy undermine itself when tolerance does not extend to newcomers in its society? Is an economic system even equipped to alleviate racial discrimination? In answering these questions, I scrutinize the archetype of social democracy through a case study of Denmark. The Danish universal welfare state has historically survived because of social trust and public institutions framed around the population's solidarity and egalitarianism. Antithetical to these ideals, Denmark enforces some of the strictest immigration laws in Europe. My research indicates, however, that immigrants alleviate a different threat to the welfare state: the consequences of a negative birth rate. Thus, I hypothesize that without the effectual integration of foreigners, states cannot sustain a social democracy. (149)

#### **Methodology**

I compile data released from Statistics Denmark and the European Social Survey to analyze the impact immigration has had upon the welfare state. I then evaluate integration policies by gauging the education, housing, and employment patterns of immigrants and their descendants along with the violence they face. (47)

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### **Conservatism and Fighting Global Warming: An Either/Or?**

An examination of the compatibility of 19th and 20th century conservative political philosophy with aggressive climate change mitigation policy.

#### **Abstract**

I see three types of conservatives in regards to climate change: the deniers; the minimalists — who accept anthropogenic global warming (AGW) but oppose aggressive mitigation policy; and lastly, the supporters, those who accept AGW and support aggressive mitigation policy. However, many conservatives deny that supporters can be true conservatives. I hope to show that a close reading of some influential 19th and 20th century conservative political philosophy texts reveals that, contrary to many conservatives' claims, one can be both a true conservative and a supporter. Given the current partisan polarization in congress, both conservative supporters and liberals may benefit from my analysis. Conservatives can support mitigation policy without abandoning their core values; liberals can appeal to conservatism in order to cultivate Republican support. We are amidst a pivotal moment. Given that climate change will worsen, my reexamination can help conservatives stay relevant: minimalists, even deniers, may become supporters. (149)

#### **Methodology**

I will apply Andrew Light's pragmatist approach from *The Case for Practical Pluralism* (2003) to fifteen primary sources — most notably canonical conservative texts from Burke, Kirk and Hayek, Pew Research polls on climate views and political affiliations, contemporary conservative environmental politicians and organizations, and counter-arguments from non-denial yet unsupportive conservatives. (51)

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**Nietzsche and Rothko: A Comparative Philosophical and Biographical Exploration**

A comparative examination of the lives, works, and philosophies of Friedrich Nietzsche and Mark Rothko.

**Abstract**

The lives of the painter Mark Rothko and the philosopher Friedrich Nietzsche, when examined in parallel, reveal many insights into their late works. Mark Rothko was influenced greatly by Nietzsche's "The Birth of Tragedy." The kindred philosophical spirit shared by the two men, however, runs much more deeply. These men were exiles of cultures that Nietzsche would label as decadent and sick. Rothko would be equally repulsed in his own time by the contemporary culture of America. Each man would be fated to be defined by childhood tragedy, psychic as well as physical displacement, and the search for meaning amid the chaos. Many critics have missed this continuity of philosophical exploration. It is through comparative analysis that we can begin to experience their art with a new perspective. (128)

**Methodology**

My analysis focused on biographical research, artistic analysis, philosophy, and the relation of formative life experiences to the mature works of both Rothko and Nietzsche. Often the late works of Rothko and Nietzsche have been devalued or even dismissed because they are viewed solely as products of mental illness. By closely examining their biographies in parallel, we can appreciate their late works as an essential and extraordinary period in the continuum of their artistic and philosophic trajectories. (77)

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### **Searching for the Fountain of Youth: an Inquiry into the Function of Telomerase**

An investigation into the function of telomerase in humans, its potential to double life-expectancy, and its possible medical and social repercussion.

#### **Abstract**

Telomeres are non-coding DNA sequences at the end of chromosomes which shorten through cell division, leading to cellular aging. The enzyme telomerase naturally rebuilds telomeres; however, it is usually inactive. Would activating it allow humans to double their lifespan? If so, would social repercussions be severe enough to warrant banning such a treatment? Our investigation focuses on peer-reviewed studies of telomerase, economics, ecology, and ethics as well as data we collected from surveying 500 college students. Through our interdisciplinary approach, we show that, aside from medical concerns that telomerase may increase cancer risk, activating telomerase in humans may lead to a new social class based on longevity. If society is not adequately informed of potential consequences, we could unwittingly further the economic gap between countries and reap Malthusian consequences. (129)

#### **Methodology**

We performed meta-analysis on current scientific research on telomeres and telomerase as well as literature on ethics, economics, ecology, and vital statistics. Additionally, we worked with Citrus College's Office of Institutional Research to survey 500 college students and construct a sociological study. (42)

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**An Analytical Approach to Disease: What Can Evolutionary Game Theory Reveal About Cancer?**

Evolutionary game theory may be used to analyze cancer cell populations and reveal optimal treatment conditions.

**Abstract**

Even with the advent of modern medicine, the threat of resistant and malignant cancer is present. Game theory, which has classically modeled economics, has the potential to model a population of competing and cooperating cells. The success of a cellular strategy is not inherent, but it is relative to the frequency of interacting strategies. In the recent past, there has been successful game theoretic analysis of multiple myeloma bone disease in which direct eradication of a malignant cell-type was shown only to lead to eventual re-emergence and dominance. Understanding the population dynamics of cancer may lead to more successful long-term eradication. Cancer cell populations subject to a gradient of chemotherapy may reveal important spatial-temporal factors, such as the optimal environmental conditions to suppress certain cell-types. With continual research on cancer population dynamics from a game theoretic approach, minimally invasive targeted therapies to suppress malignancy of cancer may become a possibility. (150)

**Methodology**

I had the opportunity to participate in an NSF-funded Molecular Biophysics REU internship. I worked with Professor Austin at Princeton University. For my project, I was mainly working on experimental physics procedures. I set up a micromanipulator protocol, built an incubator, and worked on fluorescence imaging to obtain data. (49)

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### **Human Meltdown: Why the Fukushima Nuclear Disaster was Preventable**

An analysis using paradigm theory of the psychological and cultural causes behind the catastrophe.

#### **Abstract**

The 2011 Fukushima nuclear meltdown is one of the worst disasters in human history, resulting in \$105 billion of damage to the country of Japan, the health of its people, and the world energy economy. This accident, however, was entirely preventable. Records show that engineers and executives alike had been alerted to safety hazards regarding Fukushima's Mark I containment design years in advance. So why was nothing done to prevent this tragedy with all of the data screaming its impotence? I used Thomas Kuhn's Paradigm Model, various psychological theories and an analysis of Japanese culture to explain the Fukushima disaster. I will show how human tendencies like faulty assumptions, ostracizing dissenters and rewarding conformity created the false paradigm that the reactor was safe. The Mark I containment is a common element of many power plants. To prevent future fallouts, an understanding of this incident on a scientific, cultural and human level is essential. (153)

#### **Methodology**

I familiarized myself with a variety of error theories and Japanese culture through thorough research. Then I applied these theories to my analysis of the disaster gained by pouring over news articles, reactor design data, maintenance and safety records and the National Japanese Investigative Commission Report on the incident. (49)

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### **Evaluation of the Antimicrobial Activity of *Rhodiola rosea*, a Medicinal Plant**

Plant extract of *Rhodiola rosea* was tested against several microorganisms and proved to be effective, either inhibiting or killing the microorganisms.

#### **Abstract**

*Rhodiola rosea*, commonly called golden root, is a native plant of the circumpolar soils. *R. rosea* is used in traditional Native American medicine to treat intestinal disorders and tuberculosis. The traditional use suggests that the plant has antibacterial components. Our purpose is to test the hypothesis that *R. rosea* is antimicrobial and to identify its specific antimicrobial compounds. A commercial alcohol-free root extract was mixed with water, 100% ethyl acetate, 100% methanol, and 95% ethanol. These extracts were screened against bacteria and fungi in agar diffusion assays to determine antimicrobial activity. The ethyl acetate and aqueous extracts inhibited *Staphylococcus aureus*, *Escherichia coli* and *Mycobacterium phlei* bacteria, but did not inhibit *Penicillium notatum* or *Candida albicans* fungi. The minimum bactericidal concentration against *S. aureus* is 0.063, while *E. coli* was inhibited but not killed at 0.125. The extract does not cause cell lysis. Characterization of the antibacterial properties is in progress. We conclude that *R. rosea* has antimicrobial properties and may provide source material for a new antimicrobial. (167)

#### **Methodology**

During Summer 2014, I conducted independent research on campus at Skyline College. I was responsible for reviewing and literature, designing and performing experiments, analyzing results, and writing my report. I performed an agar diffusion assay, minimal inhibitory/lethal concentration test, and a growth curve in order to yield results. (48)

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