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AMERICAN CULTURAL STUDIES

Kathleen Burke

Advisor: Stacy L. Smith

From Stakeholders to Shareholders: How the For-Profit Charter Movement Has Affected Discourses of Access and Equity within Charter School Reform

Charter schools represent a dramatic transformation in education reform over the past decade. These public schools of choice funded with state education dollars exist in thirty-nine states and the District of Columbia, representing more than 2,700 of America's schools. When charters were first introduced by Raymond Budde and Al Shanker, they were hailed as mechanisms for teachers to take control of their schools and implement innovative curricula in their respective learning communities. Yet, since the initial rhetoric emerged, public discourse surrounding charter schools has shifted significantly, primarily with regard to for-profit charter schools, the fourteen percent of charters run by corporations seeking capital gain from educational ventures. I utilize multiple methods of analysis, from educational sociology to rhetorical analysis, to examine the fundamental gaps in the discourse between the original conception of charters to the present media rhetoric surrounding for-profit charters. In doing so, I look for chasms in understanding regarding access and equity in American education. Specifically, I argue that rhetorical transformations suggest that involvement of teachers has decreased in the charter process, and that discourse surrounding equality for students has been replaced with free market metaphors aligning success with the "products" of education.

ANTHROPOLOGY

Elizabeth E. Hoagland

Advisor: Loring M. Danforth

The Construction of Male Homosexualities in Oaxaca, Mexico

Homosexuality is not a concept universal to all cultures. Homosexual behavior exists in all cultures, but a specific homosexual identity associated with people who engage in homosexual acts does not exist in all cultures. The concept of homosexuality does exist in Oaxaca as do homosexual identities. However, the ways in which homosexuality is understood and homosexual identities are constructed are unique to Mexico and more specifically to Oaxaca. This thesis examines the social construction of homosexualities in Oaxaca and the role of global cultural exchanges in this process. Local conceptions of homosexualities in Oaxaca can only be understood through the understanding

of the interaction between global cultural exchanges and traditional concepts of homosexualities. The ethnographic material covered includes a narrative chapter on a typical day for a gay man in Oaxaca, and three analytic chapters that examine coming out in Oaxaca, *la marcha*, a gay pride march, and *la vela*, a traditional party. The last two chapters on *la marcha* and *la vela* are the two main events of Orgullo Gay Mexico, Gay Pride Mexico, and demonstrate local agency interacting with global cultural exchanges.

Sara T. Montrone

Advisor: Loring M. Danforth

Moscow's Monumental Landscape: Contesting Russian National History

This thesis examines the relationship between the state, monuments of the state, and Russian national identity in the Russian Federation. Monuments are erected by the state to achieve certain goals, whether to propagate a certain ideology or influence the people to some end. However, the meaning of a monument after its construction is continually changing as it becomes a part of the symbolic landscape. The value of monuments to the construction of national identity lies in their ability to create various versions of the past. I elucidate the different meanings the monuments have for the nation and state. After giving a general overview of the role of monuments as symbols in Russia's history, I concentrate on specific monuments in Moscow. One chapter analyzes the monument to secret police founder Feliks Dzerzhinsky and the change in its meaning depending on time and location. Another chapter analyzes state use of pre-Soviet monuments to reconnect with a less painful national past. Finally, I analyze Lenin's mausoleum through the artwork of Soviet dissident artists, Komar and Melamid.

BIOLOGICAL CHEMISTRY

David J. Worhunsky

Advisor: Paula J. Schlax

The Bacterial Response to Stress: Regulation of rpoS Gene Expression

Survival of all organisms depends upon their ability to respond to the varying conditions of their surroundings, including limited nutrient supplies, changes in extracellular ion concentration, and other environmental stresses. The manner in which cells survive such pressures is through altering their pattern of gene expression. As the central paradigm of molecular biology, gene expression refers to the process by which DNA is transcribed into mRNA and the mRNA subsequently translated into

protein. σ^S , the protein product of the *rpoS* gene, controls expression of over fifty genes in *Escherichia coli* responsible for cell survival during the bacterial stress response. Translation, and therefore expression of σ^S is increased during a stress response as a result of changes in the structure of the mRNA. Three non-coding RNA molecules regulate translation of the *rpoS* gene. My work is focused on the understanding of how one of these non-coding RNA molecules modulates RpoS mRNA structure and thus the efficiency of rpoS translation.

BIOLOGY

Amanda P. Devine

Advisor: Curtis C. Bohlen

Effects of Inorganic Nitrogen Addition and Elevation Change on Species Evenness and Productivity of Salt Marsh Forb Pannes

Previous studies show that amelioration of stressful conditions such as nitrogen deficiency and waterlogging leads to an increase in productivity and a decrease in species evenness as intensity of competitive interactions between neighbors increases. This study examines the response of productivity and species evenness of forb pannes in the Sprague River Salt Marsh, Phippsburg, ME, to a two-factorial manipulation of soil waterlogging and nitrogen availability. Experimental plots were either raised or lowered from ground level in order to decrease or increase waterlogging, respectively, in conjunction with one of two levels of nitrogen fertilization. Elevation controls remained at ground level and fertilization controls received no fertilizer. As nitrogen mineralization in waterlogged soils is hindered by the absence of aerobic microbial action, I expected that lowering plots would diminish the effects of fertilization; conversely, I expected raising plots would enhance fertilization effects. Fertilization resulted in a loss of species evenness and an increase in total biomass. Raising plots also led to a decrease in evenness while lowering plots had no significant effect. Elevation had no net effect on total biomass of plots, and there existed no interaction between fertilization and elevation for any measured parameter.

CHEMISTRY

Hilary L. Domush

Advisor: Jennifer L. Koviach

Synthesis of 2-Deoxyglycosides by Conjugate Addition

The class of carbohydrates known as 2-deoxyglycosides is particularly important due to their presence in many antibiotics. The 2-deoxyglycoside linkage often provides the physiological significance of many large molecules. However, 2-deoxyglycosides are more difficult to synthesize than their fully oxygenated counterparts. The synthetic difficulty derives from the absence of oxygenation at the C-2 position. Conjugate addition to glycals offers a means by which this physiologically important moiety can be prepared. Conjugate addition is a simpler and more elegant technique than the current method, which involves the addition and subsequent removal of an activating group in the C-2 position. This project expands upon work found in the literature to include the initial conjugate addition studies of not only the primary benzyl alcohol, but also the secondary alcohols isopropanol, and cyclohexanol. Effects of protecting groups are also investigated.

James D. Wilcox

Advisor: Thomas J. Wenzel

Calix(4)arenes as Chiral Solvating Agents in NMR Spectroscopy

Many molecules exhibit the property of chirality, or "handedness." Chirality arises when a molecule cannot be superimposed on its own mirror image. The left and right-handed forms of the molecule are known as optical isomers. Chirality can have significant effects as many biological systems have the ability to discriminate between optical isomers. This is of particular importance in the field of pharmaceutical development as drugs created in the lab are often mixtures of optical isomers. While one of the optical isomers may have the desired effect the other may have no effect at all or could possibly prove toxic. This research is focused on developing derivatized calix(4)arene molecules that can be used as chiral solvating agents with nuclear magnetic resonance (NMR) spectroscopy to discriminate between optical isomers. Calix(4)arenes are "basket-like" compounds capable of associating with chiral substrates in solution. Chirality can be achieved by attaching optically pure amino acids to the calix(4)arene. The complexes between the optical isomers and calix(4)arene are fundamentally different and can lead to discrimination in the NMR spectrum. The coupling of lanthanide ions to the calix(4)arenes has also been explored as a means of increasing the degree of discrimination in the NMR spectrum.

ECONOMICS

Mika C. Kanda

Advisor: James W. Hughes

The Economics of Third Culture Kids

Third Culture Kids (TCKs) are individuals who have spent a significant amount of time during their developmental years in countries other than their parents' passport country. This thesis hypothesizes that the economic productivity of TCKs, measured by income, is higher than those without the TCK experience. Using Mincer's human capital earnings function I will look for statistical differences between the two groups when education, age, and sex are held constant. In other words, the culture and the environment in which children are reared play an important role in determining the economic productivity of later labor markets. The Panel Study of Income Dynamics represents data for non-TCKs. As there are no known national surveys that identify TCKs from the rest of the population, TCK data come from an original online survey conducted over the summer of 2002. A search in the current economic literature yields no research as of date on the economic productivity of TCKs. This thesis is the first research on TCKs within economics.

Peter Kozak

Advisors: David A. Aschauer and Melinda H. Harder

Valuation of Risky Fixed Rate Debt and Credit Default Swaps

Perhaps the most insightful class of models of credit-risky corporate bonds utilizes the contingent claims approach with exogenous default barrier, whereby the default event is assumed to occur when the total market value of the firm's assets falls to a sufficiently low level relative to the firm's total liabilities. This threshold level is called a default barrier, and it acts as a safety covenant providing a contractual mechanism that enables the bondholders to enforce bankruptcy upon the firm. In this thesis, I develop a two-factor model for pricing credit-risky fixed-rate debt in a stochastic interest rate environment. This model is an extension of the exogenous Briys and de Varenne (1997) model, and since it incorporates interest rate uncertainty, allows for deviations from the absolute priority rule and provides bondholders with a safety covenant with the option to force early bankruptcy, it is capable of producing quite diverse shapes for the term structure of yield spreads. Within this framework, I develop a new model for valuation of some simple credit derivatives, such as credit default swaps, which enable market participants to isolate and hedge specific aspects of credit risk.

Sacha Savrimootoo

Advisor: David A. Aschauer

Range Volatility Breakouts and the Stochastic Behavior of Stock Prices: A Closer Look at the Random Walk Hypothesis

I investigate an area of financial economics that has been the subject of much controversy over the last fifty years. The notion that stock prices follow a random walk, i.e., a path that is indeterministic and hence unpredictable, is held by efficient market theorists. Experts argue that the study of past price patterns is a worthless exercise: it provides no “edge” to an investor seeking to maximize returns. However, this consensus has weakened over the last decade with an increase in conflicting evidence on the random walk. Yet, the latter and the “buy and hold” form of investment, also known as passive investing and popularized by Warren Buffett, still finds institutional support. In my thesis, I analyze not so much the merits of passive investing as the underlying factual evidence for the random walk hypothesis. My analysis extends the work of Professor Eugene Fama on the behavior of stock prices and seeks to produce further evidence on the true nature of stock price fluctuations.

Daniel J. Taylor

Advisor: Margaret Maurer-Fazio

Intra-household Allocation Bias in China: Does Son Preference Decrease with Increases in Economic Welfare?

This thesis examines patterns of intra-household resource distribution in China. Goods may be allocated in a biased fashion if household members with decision-making power exhibit son preference. Son preference results in greater intra-household resource expenditure on boys than on girls, *ceteris paribus*. There are few places where son preference is as prevalent and noticeable as in China. The implications of the combination of son preference and China’s one-child policy are serious. The consequences include both higher infant mortality rates for girls (resulting in skewed post-birth sex ratios) and sex-selective abortions (leading to skewed at-birth sex ratios). There is evidence to suggest that Chinese son preference, rooted in Chinese Confucian culture, is sensitive to the economic environment. The outcomes of son preference are likely more severe for populations with few entitlements and low levels of economic welfare. I hypothesize that the outcomes of son preference are less apparent for higher levels of economic welfare. I test this hypothesis by applying both the “Engel framework” of equivalence scales and the “Rothbarth framework” of demand for adult goods to a large micro-level Chinese household data set. I thus examine differences in household resource allocation by household composition for communities of differing levels of economic welfare.

ENGLISH

Margaret C.S. Herrick

Advisor: Lewis A. Turlish

"Wombed in sin darkness I was too. Made not begotten:" The Making of the Artist in James Joyce's *Ulysses*

The focus of my study is to gain a comprehensive view of James Joyce as an artist through the lens of his most famous work, *Ulysses*. I begin with a broad biographical sketch, since much of my textual analysis is highly dependent on a knowledge of the basic facts of Joyce's life. From there I examine a number of Joyce's literary forefathers, namely Flaubert, Ibsen, Dante, and Giordano Bruno, and the way their stylistic influences can be tracked in *Ulysses*. I look for traces of Joyce's moral guides, people who imparted some knowledge about the social, spiritual role art plays, or should play, in society. In *Ulysses* these guides are frequently heretics who embody the power of the imagination to break away from conventional authorities. I consider Joyce as a specifically Irish writer and the influences of the Irish literary revival and the Troubles on *Ulysses*. Finally, I examine the way in which Joyce's relationships with his father and his son provide the inspiration for this whole novel, which draws so heavily on the mystical, even divine, bond between fathers and sons.

Howard W. Martin

Advisor: Robert L. Farnsworth

Disturbing the Quotidian: Parable Poems of Louis MacNeice

Most critical responses to Northern Irish poet Louis MacNeice have focused either upon his early fascinations with the textures and trials of contemporary life, what his most famous poem "Snow" calls "the drunkenness of things being various," or upon the longer, politically charged journalistic meditations he undertook in the 1930s in company with such English writers as Auden and Spender. Most contend that the more prosaic work of his late middle years lost vitality, but that his last poems featured a remarkably expressive compression, parabolic and surreal. My thesis illuminates parabolic strains already present in MacNeice's early lyrics and criticism and reveals, through close readings of poems from *Solstices* and *The Burning Perch*, how his distinctive later poems give disturbing insight into everyday experience and its emotional isolations. The thesis concludes by establishing a lineage of "parable poetics," linking MacNeice to contemporary Northern Irish poets Derek Mahon and Paul Muldoon.

Matteo A. Pangallo

Advisor: Cristina Malcolmson

“O blessed object!”: An Argument for the Value of *The Second Maiden’s Tragedy*

In October 1611, the Master of the Revels licensed for performance the anonymous play *The Second Maiden’s Tragedy*. Since then *SMT* has languished in the dark corridors of dramatic history, with most scholars only considering its authorship question worthy of any study. *SMT* has become merely an enigma to be unraveled, a casualty of our habit of focusing more on playwrights than on plays. This thesis aims to reverse that trend by exploring the play’s rich literary and dramatic potential. Included is a discussion of the only extant manuscript’s history, an overview of the authorship debate, and an investigation into its use as a source by later playwrights. Literary analysis focuses on the three formal characteristics of theme, structure, and genre and how all three are united through its language, characters, and plot. Also included is an explication of the text’s production values, a review of its stage history, and an envisioning of the premier performance. Within the specific practical applications of this thesis, a broader theoretical framework is evident: shifting critical attention from the closed, canonical paradigm of literature to a more open investigation of works *regardless* of their author-based positioning within the traditional hierarchy of texts.

Kate H. Strum

Advisor: Carole Anne Taylor

“Out there somewhere in America”: The Poetry and Poetics of Simon J. Ortiz

This thesis examines the poetry and stories of contemporary Acoma writer Simon J. Ortiz, whose art relies on creating a highly formal lyricism out of ordinary rituals and ordinary language. First, it analyzes the way in which Ortiz transforms the rituals and ceremonies important to his native oral traditions into written English. Second, it focuses on the interactive character of poetry representing the struggle to maintain a non-hierarchical relationship with the land, a struggle that places the writer in opposition to many of the conventions of Anglo-European poetics. Finally, it focuses on Ortiz’s self-referential use of the Coyote figure, a trickster appearing in diverse guises in many Native American traditions. This section draws together Ortiz’s themes and forms to reveal the complexity of his conception of the writer as Coyote, one who must speak to a white world directly enough to be understood but whose political meanings utilize all the levels of irony characteristic of “Indi’n Humor.” Ortiz’s writing (re)presents the strategies for survival that have grown from the nature of the losses undergone by his pueblo community between the beginning of an internal colonization and the twentieth-century resistance movements in which he himself has participated.

ENVIRONMENTAL STUDIES

Alexis M. Curry

Advisor: James G. Richter

Selling Compassion: PETA from the Radical to the Mainstream

Throughout the past century social movements and the organizations that represent them have altered the way Americans interact with different races, genders, and classes, as well as our interaction with the environment and nonhuman animals. Currently, social movement organizations are turning to principles of social marketing to “sell” ideas and persuade social change. This thesis examines the strategies People for the Ethical Treatment of Animals (PETA) uses to market animal rights values in mainstream society. As a non-governmental organization with a limited budget, PETA uses controversial campaigns to get media attention, and markets animal rights through the news it creates. Is this method an effective path to social change? Is it desirable for social movement organizations to use consumer based neo-capitalist commercial marketing principles to “sell” ideas? I explore these questions through literature reviews, informal and formal interviews, and focus groups.

Hannah R. Gaines

Advisor: Curtis C. Bohlen

The Impact of Patch Retention on Ground Beetle (*Coleoptera carabidae*) Communities in Western Maine

Increasing living standards and world population place greater demand on natural resources such as forest products. Current forest harvest practices can cause habitat degradation and loss of diversity. Researchers at the Manomet Center for Conservation Sciences are studying the potential of a method called “patch retention” for preserving biodiversity on commercial forestry land in western Maine. This thesis examines the effectiveness of patch retention by comparing the diversity of ground beetle (carabid) communities in mature forests, patches, and harvested areas. Carabids are a good indicator of environmental variation due to their species-specific habitat requirements. This study shows that 60-meter diameter forest patches support the same species of carabids found in mature forests, as well as a number of additional transient species. Thus, mature forest communities contain overall fewer species, but with a more even distribution of species abundance; whereas patches and harvested areas support more species, but with a less even abundance distribution. Although the patches support all species found in a mature forest, a 60-meter diameter patch may be the smallest effective forest remnant patch able to do so, as only the community in the very center of the patch resembles that of an undisturbed, mature forest.

Elizabeth A. Kreischer

Advisor: Peter J. Rogers

“We’re not just growing plants we’re growing people”: An Assessment of Who Receives What Benefits from the Community Gardens in Lewiston, Maine

Community gardens in Lewiston have existed for the past four years due to the efforts of a former Bates student, outside organizers, and residents. An assessment of the program has never been done. I worked with organizers and participants to develop three questions that would help assess the programs: Who is benefiting from the community gardens? What benefits are participants receiving? Why do some potential beneficiaries not participate? Answers to these questions were collected through surveys, questionnaires, participant photographs, and participant observation. It was found that the most frequent users of the gardens were white women and children, while men and Somalis were the least frequent. The benefits valued by users were knowledge gained, children's involvement, food produced, and community enhancement. Barriers reported for Somali residents were misunderstandings about the gardens, safety concerns, and a lack of time and interest. Other general barriers included low motivation, a dislike for the responsibility involved, and misconceptions about the purpose of the gardens. Through this study, community garden managers can become more efficient by catering to people's values in the gardens and maximize participation by breaking down barriers to ensure the long-term success of the community gardens in Lewiston.

Maya R. Levine

Advisor: Robert J. Andolina

Ecological Alternatives for Local Development: Confronting Mining in Intag, Ecuador

Intag, a subtropical zone located in northwestern Ecuador, is one of the world's most biodiverse regions, rich in flora, fauna, and minerals. The people of the zone have engaged transnational advocacy networks from local to global levels so as to more effectively resist mining development in their communities and forge alternative development agendas. Unlike other studies of transnationalism, which assume that government hostility toward local groups compels transnational activity, this thesis demonstrates that different levels of government may facilitate or obstruct the demands of local groups. While the national Ecuadorian government largely ignores or harms the interests of Intag residents, the municipal government supports Intag's efforts to create development alternatives, and it attracts support from international NGOs. This networking enables and informs Intag's alternative approach to development, which grants priority to ecological and social concerns. With the passing of an ordinance declaring the region an Ecological County, and international support of this agenda, Intag and the surrounding area in northern Ecuador may prove a model for local communities throughout Latin America facing similar challenges.

Elisabeth B. Markus

Advisor: Curtis C. Bohlen

Vegetation Patterns along Ditched and Natural Channels on Two Maine Salt Marshes

Salt marshes have long been subject to human alteration. This study examines vegetation patterns along ditched and natural channels at two Maine salt marshes, ditched fifty years ago (Sprague River Marsh) and one hundred years ago (Morse River Marsh). Elevation and distance from channel were compared for their ability to predict vegetation zones. The vegetation and morphology of ditches was also quantified, to better understand how ditches change over time. Natural channels were found to have vegetation patterns very similar to the characteristic zonation of New England salt marshes. *Spartina alterniflora* dominated adjacent to the channel bank, and was replaced by *Spartina patens* at three meters. The high marsh, above five meters, was dominated by *Juncus gerardi*. Ditched channels had very different zonation patterns along their banks, supporting the conclusion that ditches create unique microenvironments. Elevation data showed that salt marsh species are restricted to certain elevations resulting in vegetation zonation. The changing morphology of ditches shows that ditches are a dynamic part of the marsh ecosystem. Over time, ditches begin to either aggrade or expand, depending on water velocity and sediment retention. These results suggest that the evolving nature of ditches should be considered in future restoration efforts.

Abigail S. Poe

Advisor: Curtis C. Bohlen

An Energy Analysis of Organic and Conventional Apple Production

Controversy exists over the benefits of conventional versus organic agriculture. One topic of study in this field that has become popular is the difference in the energy use of the two systems. This study compares the energy use in the organic and conventional apple production systems at Ricker Hill Farm in Turner, Maine. In order to calculate the total energy use of both production systems, process analysis, a popular method of energy analysis, was utilized. The boundaries of the analysis included the embodied energy of materials used on the farm and the energy attributed to the fuel used in the production process. As practiced at Ricker Hill Farm, the organic production system utilized more energy per acre per year than the conventional production system, due to the large quantity of sprays that were used on the organic apples.

