

**Bates | College**

**Theses Abstracts**

submitted by

**Honors Candidates**

**1997-1998**

**BATES COLLEGE**  
**1997-1998**  
**THESIS HONORS CANDIDATES**

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Meghan Leslie Gullette\*

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**MUSIC**

Timothy Bakland  
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**NEUROSCIENCE**

Benjamin Rood

**PHILOSOPHY AND RELIGION**

Jan Christian Bernabe\*  
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Max Dawson  
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Shawn Draper\*  
Michael Andrew Ferrari  
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David Lieber  
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**PSYCHOLOGY**

Jessica Bondi  
Amy Hill  
Alyson Langlois  
Amanda Leighton

Rebecca A. Orfaly  
Alyssa Vitalius

**SOCIOLOGY**

Meredith Haviland\*  
Kenneth H. Kolb

**THEATER AND RHETORIC**

Erin Gottwald  
Meghan Leslie Gullette\*  
Arthur Stamoulis

**WOMEN'S STUDIES**

Kimberly Walker\*

\* Indicates double major

## AFRICAN-AMERICAN STUDIES

**Meghan Leslie Gullette\***

Advisor: Charles Nero

*"Race the Heartland: Examining Metaphor in Discourse About the Oklahoma City Bombing"*

In my thesis I examine racially coded metaphors in the discourse about the Oklahoma City bombing. Whites, specifically those in positions of power used various strategies such as evasion, rearticulation and scapegoating to explain the bombing. I explore this metaphorical and hidden language, and how it leads to the recognition, acceptance, and reproduction of false truths, stereotypes and rewritten history. Metaphors generate an image of a white, Christian heartland untouched by violence, and a threatening, external, savage enemy. The use of metaphor in the discourse surrounding the Oklahoma bombing fosters a collective identity in Oklahoma that systematically degrades and excludes those who are not white and helps maintain the invisibility of whiteness.

## AMERICAN CULTURAL STUDIES

**Jessica R. Brown**

Advisor: Emily Kane

*"The Girl Scouts in Philadelphia: A Case study on attempts to achieve diversity by a historically Caucasian organization"*

This thesis addresses the attempts of Girl Scouts in Philadelphia's to broaden its membership since 1912, offering a historical context through which to analyze current Girl Scout attempts at diversifying. I hope to be able to show why Girl Scouts in Philadelphia has been successful in its attempts to diversify with some communities of color and not with others. Analysis of archival evidence supplemented with interviews were the major research methods used in constructing this thesis.

## ANTHROPOLOGY

**Michelle L. Baldwin**

Advisor: Elizabeth Eames

*"A Study of Feminist Spirituality, Empowerment, and Song"*

The Feminist Spiritual Community (FSC) of Portland, Maine is a group of women who meet weekly to discuss issues of social and political concern, to celebrate and explore their spirituality, and to create and strengthen the bonds between themselves and other women. These processes all ultimately serve the goal of empowerment. As an individual who shares FSC's ideological systems and had attended their meetings in a personal context prior to my fieldwork, I will address the potential problems and advantages posed to anthropologists studying their own cultures. Then, by focusing on the group's self description, I will use the themes of feminism, spirituality, and community to illustrate the ways in which singing serves as a means of expressing their ideologies. Music will be shown to be a powerful communicative medium which reflects - through its various contents, forms, and uses -- the meanings and goals that lie behind FSC's structures, practices, and beliefs.

**Jennifer Bergeron**

Advisor: David Jenkins

*"Image Constructing in the American Southwest"*

The Southwest United States has become one of the primary tourist destinations in America. Tourists traveling to the Southwest arrive with expectations and perceptions of what they will encounter. The Grand Canyon, Native American cliff dwellings, Pueblo villages, desert landscapes, and vestiges of Hispanic culture are all part of the Southwest's image. Americans' perceptions and expectations of the Southwest have been molded by over a century of material culture that has promoted the Southwest as a region worthy of tourist travel. This analysis will use semeiotics to look at a wide variety of material culture from the turn of the century. Photographs, souvenirs, advertisements, World's Fair exhibits, and descriptions of landscapes and native people are examples of material culture that also act as signs which encode meanings that are implicit in forming Americans' perceptions of the Southwest. The objective of this analysis will be to interpret the "signs," and show how their meanings helped create the image that Americans now take to be reality in the Southwest United States.

**Renée A. Leduc**

Advisor: Elizabeth Eames

*"The CITES Agreement and Elephants in Southern Africa: Perspectives on Changing Their Trade Status"*

In January 1997, the Republic of Botswana submitted a proposal to the Convention on International Trade in Endangered Species (CITES) to change the trade status of the African Elephant (*Loxodonta afficana*) from Appendix 1 to Appendix 2. This would enable Botswana to trade their stockpiles of ivory with Japan. Widely different perspectives exist both within Botswana and in the international forum on whether trade in ivory should be allowed. This thesis is based upon ethnographic research at the CITES Conference in Harare, Zimbabwe in June of 1997 as well as in the Community Based Natural Resource Management Project (CBNRMP) areas of Northern Botswana both before and after the conference. I found that the different perspectives on the ivory trade in both Southern Africa and at the international level can be represented by different polarities of environmental philosophy such as: the species preservation approach versus the conservation and sustainable utilization approach to the management of Africa's wildlife. The decision on whether to reopen the ivory trade is not only a debate on the environment, but also rural development. Much of the debate has come to the question of determining what is more valued by the signatory countries to CITES: animal rights or human rights? Through the explanation of the different perspectives on this issue, I have utilized both dependency and semiotic theory to assess the cultural significance of ivory and wildlife in both a rural Southern African and international context.

**Katie Lipp**

Advisor: David Jenkins

*"Nizhoni Mesa School: A Struggle For Successful Bicultural Education"*

In the 1960s bilingual/bicultural education received a large push from educators in the United States, urging growth in the number of such programs around the country. The first of these were designed for immigrant children who were Limited English Proficient (LEP). Theories and governmental funding spread quickly to Native American communities, including those on the Navajo Nation. However, while many people are motivated to improve Navajo education, numerous schools are still struggling to implement successful bilingual and/or bicultural programs. One reason for this is a conflict of beliefs in most communities regarding such education. Numerous studies have shown, however, that bilingual/bicultural curricula are beneficial for LEP children, both educationally and psychologically. In this type of setting, many LEP children perform better academically, and their self-esteem grows. For Native American children, bilingual/bicultural classrooms also allow them to have pride in who they are and can help to pass on cultural traditions. Nizhoni Mesa School currently has what many of its teachers call an 'ineffective bicultural curriculum;' it is not serving the desired purpose. There are a few schools on the Reservation, however, which have succeeded in creating

exemplary bilingual/ bicultural curricula; many of their ideas, theories, and results can be useful in re-examining the classes at Nizhoni Mesa. My thesis, in addition to providing a brief history of education on the Navajo Nation, will present these theories as curricula which could be transferred to Nizhoni Mesa. With empirical data I will show that a bicultural curriculum is most beneficial to the children in the community. Based on teachers' and parents' concerns, I will provide possible methods for restructuring the current curriculum. The final product will be a school-wide curriculum which prepares the students for life on or off the reservation while ensuring that their backgrounds, language, traditions, and self worth are celebrated and not forgotten.

All names of people and places have been changed.

**Martijn Rasser**

Advisor: Bruce Bourque

*"Wampum: Its Functions and Role as a Mnemonic Device in Early Colonial North America"*

My thesis is on the subject of wampum, which had important symbolic and economic values to the participants of intersocietal interaction in post-contact northeastern North America. I am most concerned with the role wampum played as a mnemonic device and a vehicle for diplomacy (generally in the form of wampum belts) and its role in forming intergroup relations between the Iroquois, Algonquian-speaking groups, the French, English, and Dutch. A main argument is that the value of wampum was of a symbolic, rather than economic, nature for the Iroquois, explaining its subsequent role in its mnemonic and diplomatic contexts. Included in the thesis is an overview of the origins of wampum, a chapter concerned with historical context and geographical setting, and a comparative chapter on similar exchange systems such as the use of cowrie shell in western Africa and the use of the calumet in the western United States.

## ART

**Christine Quinn**

Advisor: Erica Rand

*"Picturing Freedom: The Wall Murals of the North of Ireland"*

My senior thesis explores the use of visual culture, specifically the Nationalist mural movement, that has emerged out of the current political conflict in the North of Ireland. For over 800 years the Irish people have been engaged in a struggle for independence from the British crown. Throughout the struggle for freedom, the Irish people have maintained their separateness from the British, by forging a strong sense of cultural identity and nationalism.

During the past two decades, visual culture has become a powerful tool that provides the marginalized Catholics of the North a means of political mobilization and expression. My thesis examines the development of the mural movement and its role in the conflict.

## BIOLOGICAL CHEMISTRY

Michelle Catherine Bastien

Advisor: Glen Lawson

### *"The Characterization of a Protein Destruction Signal in the EMC Virus 3C Protease"*

The encephalomyocarditis virus 3C protease has previously been shown to be rapidly degraded both *in vivo* in infected cells and *in vitro* in rabbit reticulocyte lysate. The *in vitro* degradation, at least, is accomplished by an ATP-dependent proteolytic system, mediated by the 76-amino acid protein ubiquitin. A major question in understanding proteolysis is exactly how proteins are recognized for degradation. The EMC virus 3C protease serves as a model protein for an investigation of this question. The purpose of this study is to identify and at least partially characterize the structural feature of the 3C protease required for recognition by the ubiquitin-mediated proteolytic system. A candidate ten amino acid recognition sequence, located from amino acids 34 to 43, was evaluated using point mutagenesis. *In vitro* transcription and translation systems were used to generate mutated 3C DNA constructs into proteins for analysis. Assays were conducted using methylatedubiquitin (Me-Ub) to assess the ability of proteins containing a mutation to become covalently bound with ubiquitin. Specific mutations of the designated region resulted in the complete destruction or damage to the ubiquitination of the substrate, revealing the significance of the region as a "destruction box" signal. Two hydrophobic regions of the signal were found to play particular importance for ubiquitination and subsequent degradation of the protease. While point mutations of the two hydrophobic areas (amino acids 1-34, 1-35, and V36 and 1-41, V42, and V43) did not have much if any inhibitory effect on ubiquitination, group mutations of these areas inhibited ubiquitination. Specifically, mutation of the hydrophobic region consisting of amino acids 41-43 to an all alanine or isoleucine composition and mutation of amino acids 34-36 to alanines both completely eliminated ubiquitination. A double mutation of both regions to alanines in the same construct also eliminated ubiquitination. Point mutation at hydrophobic and polar amino acids located between the flanking hydrophobic regions did not completely eliminate ubiquitination but did reduce ubiquitination. However, introducing a proline to generate a bend in the center of the signal (amino acid T40) destroyed ubiquitination altogether while changing T40 to alanine had a slight inhibitory effect on ubiquitination. A comparison with the previously identified cyclin "destruction box" shows vast similarity in size and location. These results reveal a legitimate "destruction box" recognition signal for the ubiquitin-



mediated proteolytic system on the 3C protease. The sequence is suspected of being recognized by an E3 protein-ligase, although further investigation will be required to confirm this.

**Alan E. Brown**

Advisor: Karen Rasmussen

*"Homology of the Amylase Binding Protein A Gene (abpA) of Streptococcus gordonii with Genes from other Oral Streptococcal Species"*

Dental plaque, a biofilm that forms on teeth, is directly involved in the propagation of a number of oral diseases, including periodontal disease and dental caries. Bacteria contained within this plaque have been shown to interact with salivary components and recent research has focussed on the role of this interaction in plaque formation. Alpha-amylase, a major component of saliva, is responsible for primary starch breakdown in the mouth and is known to bind to a number of the oral streptococci contained in dental plaque. Recently, a 570 bp gene encoding for a 20 kDa amylase binding protein (AbpA) was cloned and sequenced from *S. gordonii* Challis. Biotinylated abpA was used in Southern blot analysis to screen genomic DNA from 23 strains representing 10 species of oral Streptococci. This probe hybridized with a 4.0 kb HindIII restriction fragment from *S. gordonii* (7 of 7 strains), *S. mitis* (1 of 2 strains), and *S. sobrinus* (1 strain). This probe did not appear to bind to any restriction fragments from other species of oral streptococci including *S. crista* and *S. parasanguis*. Primers homologous to abpA yielded fragments of 400 bp following polymerase chain reaction (PCR) of genomic DNA from the Southern blot-positive strains. Several of these PCR products were cloned and sequenced. The % similarity of these cloned products to the abpA of *S. gordonii* Challis was 91 % for *S. gordonii* G9B, 91 % for *S. mitis* NCTC 10712 and 96% for *S. sobrinus* 6715.

These studies reveal that homologs of *S. gordonii* abpA are present in other amylase-binding species of oral streptococci. This work was supported by grant DE09838 from the National Institute of Dental Research and a Howard Hughes Dental Scholarship from Bates College.

## BIOLOGY

**Sarah A. Bartos**

Advisor: Robert Gerwein

*"A Comparison of American Redstart (Setophaga ruticilla) Territory Size and Habitat Selection into Forest Types: Implications for Conservation and Management of the Species"*

The American Redstart (*Setophaga ruticilla*) is a warbler that is found in much of eastern and north-central North America. On the mainland, adult redstarts generally hold breeding territories in deciduous forest. On Kent Island in New Brunswick, Canada, adult redstarts are

found holding territories in both deciduous and coniferous forest. During June and July 1997, the territories of eight adult birds on Kent Island were determined by daily observation and notations on island maps. The size of each territory was calculated and habitat quality was estimated by determining the percent cover, species composition, and tree density in each territory. Preliminary statistical analysis has shown that, in this study, territories in coniferous forest were 52% larger than those in deciduous forest ( $p < .05$ ). This suggests that deciduous forest is preferred by the redstart since a smaller area of forest is required for survival and reproduction. I will attempt to investigate correlates among territory size and my estimates of habitat quality. This study will also provide information about the conservation of the American Redstart including possible reasons for its population decline and suggestions for its management.

**Melanie McGarry**

Advisor: Sharon Kinsman

*"A Comparison of Stand Characteristics, Age Distributions, and Histories of Two Rare Pitch Pine (*Pinus Rigida*) Community Types at the Bates Morse Mountain Conservation Area"*

Forest stands are usually described using species composition, tree size, and density. This approach can characterize the stand at a given point in time, but does not reveal the ages of the trees, their growth histories, the effects of recent climate patterns, or the natural disturbance regime of the area. Dendroecology uses tree ring data to add the dimension of time. This study of two different pitch pine (*Pinus rigida*) stands at the Bates Morse Mountain Conservation Area uses traditional measures (diameter at breast height, density) in conjunction with tree ring data. Inferences will be made about recruitment and mortality, growth rates, microsite quality, and how the stands have changed over time, information valuable for conservation management planning. In Maine, pitch pine reaches its northernmost border, occupying inland sand deposits, coastal dunes, and outcrops of exposed bedrock. Morse Mountain's Pitch Pine Dune Semi-Forest and Pitch Pine Woodland communities are two of the rarest forest types in Maine, and so play a critical role in the state's biodiversity. The Dune Forest, located on old dunes about 100 meters inland from the beach foredune, is predominantly pitch pine, with no evidence of pitch pine recruitment. The Woodland community, located on a granite outcrop with small islands of thin soil, is noticeably more dense than the dune site. Canopy and subcanopy trees in the Dune Forest are relatively young (mean age 37.7 years, oldest tree 64 years), but large (mean dbh 14.8 cm). In contrast, the woodland site is exclusively pitch pine, there are three times as many trees, and the trees are older (mean age 61.4 years, oldest tree 171 years), but much smaller (mean dbh 8.6 cm). These two forest types differ conspicuously in density, age, size, and growth pattern. The histories of the two sites will be closely examined and compared to assess possible effects of microclimate, substrate, and disturbance history.

Douglas Van Hoewyk  
Advisor: Sharon Kinsman

*"Colonization of Endemic Plant Species by Vesicular Arbuscular Mycorrhizae in Nutrient Limited Fens"*

Fens are calcareous, groundwater fed, perennially saturated meadows that lack a closed tree canopy. Fens, classified as freshwater peatlands, occur in cold temperate northern climates. A crucial feature of these ecosystems is their low nutrient levels. In particular, plant species in fens are probably phosphorous (P) limited. Fens support a variety of rare, endemic plant species that are of great interest in conservation biology. Conservation of fens is problematic, because they are often surrounded by heavily fertilized agricultural areas; nutrients from adjacent areas can disturb the unique nutrient status of fens, resulting in changes in plant populations.

A great majority of terrestrial herbaceous plants are colonized by vesicular arbuscular mycorrhizal (VAM) fungi that live in the plant's roots mutualistically. In P limited environments, plants with VAM have increased P uptake. Fens differing in P availability are predicted to vary in the extent of VAM colonization of plant roots. Fens with low P availability would be predicted to have greater colonization by VAM. Understanding variation in colonization of fen plant species by VAM requires knowledge of nutrient cycling and soil microbial processes that are affected by wetland biogeochemistry, hydrology, and soil organic matter. In this study, VAM colonization of *Potentillafruticosa*, an endemic fen plant, was measured in 8 different fens in Eastern New York that varied in nutrient availability, water table level, and organic matter. Contrary to expectations, there is no significant difference among fens in the colonization of plants by VAM, as all roots contained a high percentage of VAM colonization. This study suggests that all the fens from which plants were sampled were P limited and that VAM are critical for nutrient acquisition in endemic plants in fens.

## CHEMISTRY

Jeff Troughton  
Advisor: Tom Wenzel

*"A Study of Cyclodextrin-Substrate Interactions Using NMR Spectroscopy"*

The association of carbinoxamine and tryptophan with cyclodextrins and a series of cyclodextrin-lanthanide derivatives is under investigation using NMR spectroscopy. The lanthanide ion is attached to cyclodextrin using a DTPA moiety with an amine tether. These cyclodextrin-lanthanide derivatives have utility as chiral NMR resolving agents. The presence of paramagnetic lanthanide ions such as dysprosium enhance the chiral resolution of the substrate. In addition, substrate inclusion with cyclodextrin and cyclodextrin-lanthanide

derivatives shift both cyclodextrin and substrate proton resonances. The magnitude of the cyclodextrin proton shifts, substrate proton shifts, and lanthanide induced shifts are useful in assessing inclusion geometry. Data indicate that carbinoxamine and tryptophan interact with  $\alpha$ ,  $\beta$ , &  $\gamma$ -cyclodextrin and the derivatives. The cyclodextrin-lanthanide derivatives caused some chiral resolution in carbinoxamine and tryptophan. The nature of the shifts indicate that the portion of the carbinoxamine and tryptophan that is entering the cavity is the aromatic ring. Using the shift data, a general model of how carbinoxamine and tryptophan interact with cyclodextrin is developed. It is also observed that the behavior of these systems is strongly dependent on pH.

## CLASSICAL AND ROMANCE LANGUAGES AND LITERATURES

### French

#### Portia Hard

Advisor: Richard Williamson

#### *"L'Esthétique de la mode au Début du Vingtième Siècle"*

In the years just before the First World War, the world saw the development of a radically new style of women's dress, which has been called the "beginning of modern fashion." Paul Poiret was among the leading avant-garde dress designers who recognized that neither the old style of fashion illustration nor the early examples of fashion photography could do justice to the "bold lines and brilliant colors of his dresses." This year I have chosen to look at his revolutionary dress designs, as rendered by the various illustrators of the period. I am interested in how his designs were influenced by several different factors: the arrival of the Ballet Russes in Paris in 1909, Orientalism, the "Directoire" revival style, and the role that sports began to play in the lives of Parisians at the beginning of the twentieth century.

#### Jessica Lindoerfer

Advisor: Mary Rice-Defosse

#### *"Histoires Orales et L'héritage Culturelle Franco-Américaine: Une Étude de Mères et Mamans"*

Nearly half of Lewiston's citizens come from a French-Canadian background. The Franco-American community has been vital in to the history of the city. What is the role of women in this society? How has this role changed in the years since the first generations of immigrants arrived? How are Franco-American cultural traditions passed through generations of these women? The study of Franco-American women's oral histories reveals the way these women

view themselves, the patterns in their interpersonal or intergenerational relationships and the ways in which each woman creates her own distinct identity.

### Spanish

**Marino Incháustegui\***

Advisor: Baltasar Fra-Molinero

*"Estudio de la Poiesia de Hector Inchaustegui Cabral"*

This thesis studies the life and literary works of the Dominican poet, critic, educator, and political figure Héctor Inchaustegui Cabral (1912-1979). The project consists of a translated anthology of twenty poems prefaced with a critical analysis of his works based on his political and literary life during the Trujillo dictatorship (1930-1961). Inchaustegui Cabral's poetic milieu springs from a Catholic doctrine on social justice which sought to condemn capitalism for the injustices it imposes on humanity. His vision of Dominican peasant life and his yearning for a utopian society established him as an emotional socialist, while his labor for the dictator presented him as a fascist puppet. His poetry never attacked the dictator directly but rather the extreme class differences particular to capitalism in Hispanic America.

**David Tzeutschler**

Advisor: Baltasar Fra-Molinero

*"Irony, Satire, and Political Subversion in Augusto Monterroso's Works"*

Irony and satire are mechanisms of subversion and resistance for many. In Central America, these mechanisms are often considered an integral part of daily life. Without them, some feel they could never criticize government, politics, religion, work, and social life. In my thesis, I explore how satire and irony interplay in Augusto Monterroso's (1921-) short stories to criticize the government of his native Guatemala and its policies, as well as the governments of other Central American countries. Through his satire, he frequently attacks the United States and its imperialist policies in Central America. This, of course, gives his writing a bitter-sweet quality, where for some it seems like a great triumph, while it disgusts others. This little-known author has refined the art of short-story writing, often following the form of the classic fable, to the extreme of being able to tell a story with a strong, clear political message in a few pages, a few paragraphs, or a few sentences.

## ECONOMICS

Sarah Brauner

Advisor: James Hughes

### *"Tobacco Taxes & Prices and Health Care Utilization"*

The impending tobacco settlement has brought the debate on cigarette smoking and health care utilization back into the public eye. One claim being made by the promoters of the settlement is that the increase in cigarette prices that will result from tobacco companies attempting to finance the settlement will lead to lower consumption. I analyze this claim by determining whether or not an increase in tobacco taxes or cigarette prices will lead to fewer smokers and whether or not a reduced number of smokers will mean an overall decrease in health care utilization. Previous literature has analyzed these two questions separately; looking either at the effect of changing tobacco taxes on cigarette consumption or the effect changing smoking status has on medical service use. While it may seem that the joining of these two areas would be relatively simple, two problems arise when individual data are used. The people who are most likely to quit smoking due to higher taxes or prices are light smokers. However, it is heavy smokers that have use more medical services. The second problem is that smoking status may be endogenous. Most literature addresses the notion that changes in smoking behavior will result in changes in smoking related illness. However, the incidence of smoking related diseases may affect smoking status. For example, smokers who become ill are likely to quit smoking. By looking at structural equations in addition to reduced form equations I will correct these problems. The results from my research will be valuable to policy makers, in light of the claims made by proponents of the tobacco settlement.

## ENGLISH

Maria Barton

Advisor: Lillian Nayder

### *"Mudrooroo: A Critical Study and "Reading" of an Aboriginal Writer"*

Mudrooroo is a prominent Aboriginal author and critic whose writing and criticism reflect the changing views and concepts of Aboriginal literature. Aboriginal literature, like many other indigenous literatures, has developed from an assimilated form to a more visible account of a community's 'coming-into-being' which incorporates ideas of cultural identity, self-definition, and historical reconstruction. Mudrooroo has been described as a shape-changer "who makes tactical shifts in response to changing contexts and conditions of debate." His purposes, views, and foci in his writing and criticism are constantly changing and being rewritten. He has brought Aboriginal issues and literary debates to the forefront with his criticism of

colonialist history and literature, white editors, and assimilated Aboriginal literature. Mudrooroo's exploration of postcolonial issues such as textual "Aboriginality," strategic essentialism, authenticity, racial identity, authorship, and readership are often contradictory and demonstrate the difficult and ambivalent position that Aboriginal writers are forced to occupy in contemporary Australian political and cultural spaces.

**Marino Inchaústegui\***

Advisor: Rob Farnsworth

*"The Poetry of Héctor Inchaústegui Cabral"*

This thesis studies the life and literary works of the Dominican poet, critic, educator, and political figure Héctor Inchaústegui Cabral (1912-1979). The project consists of a translated anthology of twenty poems prefaced with a critical analysis of his works based on his political and literary life during the Trujillo dictatorship (1930-1961). Inchaústegui Cabral's poetic milieu springs from a Catholic doctrine on social justice which sought to condemn capitalism for the injustices it imposes on humanity. His vision of Dominican peasant life and his yearning for a utopian society established him as an emotional socialist, while his labor for the dictator presented him as a fascist puppet. His poetry never attacked the dictator directly but rather the extreme class differences particular to capitalism in Hispanic America.

**Margot Victoria Kahn**

Advisor: Anne Thompson

*"Women Writing World War I: The 1922 Publications of Virginia Woolf and Willa Cather"*

Willa Cather and Virginia Woolf publish books in 1922 concerning the lost lives of relatives that question from a new perspective not only the fundamentals of the war experience and the war itself, but more importantly the persistence of memory after death. Cather, with her southern Civil War roots and personal experience of westward expansion moves into modernism more slowly than Woolf and with differing results. While both women adopt mythological tropes and almost epic form in constructing the hero's journey, Cather finds renewed faith in religion even in this fragmented and commodified time while Woolf looks to immortalize not only life but death in the tradition of myth. As women, they are constructing stories out of images both real and imagined. And in their attempts to explain and to immortalize the soul, to memorialize the loss, to restoratively order the chaos, these narratives succeed in very different fashions. Cather's tightly crafted narrative echoes the pastoral ironically glorifying war and comments on the commodification of time. As a preview for her work to come *One of Ours* establishes a base for what will develop into a conservative modernism. Woolf's tale of her brother, of her country, and of her memory serves to break the silence of the aftermath of the world's war and to be an epigraph to her own life's work. As an epigraph Jacob's Room situates the body of Woolf's work in tradition while locating itself in the divide between the modern and the pre-modern; while the form echoes the epic

and the picaresque, Woolf moves the language, style and eventual path of the hero into something distinctly modern.

**Basil Kolani**

Advisor: Lew Turlish

*"Robert Frost's New England: An Invented Tradition"*

Robert Frost has been identified as the quintessential New England poet. Such a title presupposes a tangible definition of what New England is, as a region, and what a New England literary tradition would be. However, there has been recent scholarship that suggests that defining any region, particularly New England, is impossible. Part of Frost's cleverness as a poet lies in his invention of a New England mystique that surrounds his poems and characters. From his imagination came a notion of what it meant to be from New England in terms of setting, characters, and emotional intensity. Frost's definition of New England became the region's literary tradition that subsequent poets would inherit. This thesis will examine the New England tradition that Robert Frost created and discuss its influence on three contemporary New England poets: Hayden Carruth, Galway Kinnell, and Wesley McNair.

**Gretchen May**

Advisor: Carole Taylor

*"Literary Self-Reference in Shakespeares Tempest and Three Twentieth-Century Revisions of It"*

In John Fowle's *The Collector*, Vladimir Nabokov's *Lolita*, and Martin Amis's *Other People*, the generic conventions of pastoral romance, as typified by Shakespeare's *The Tempest*, are invoked, parodied, and ultimately rejected. The three novels in question are metafictional, or texts whose primary subject is writing and/or the manipulation of language. Metafictional novels demonstrate an extreme of authorial privilege, yet within the framework of postmodernism, it is important to examine and question this allusive use of language. This thesis will examine: what is both present and absent within the structure of parody; what the role of the reader is what the implications are of dealing with feminist issues in metafiction; and what, besides witty self-consciousness, is created through artful subversion of romantic convention.

**Abigail Phelps**

Advisor: Steve Dillon

*"Politics, History, and Culture in Asimov Foundation"*

Although the Foundation Trilogy won the Hugo award for the best science fiction or fantasy series of all time, Asimov's masterpiece and most other science fiction have often been



dismissed as popcorn stories for little boys. This thesis proposes to argue that the trilogy has literary and philosophical value by discussing the historical context of the trilogy as a whole. Asimov's Foundation Trilogy was written during the end of World War II and the beginning of the Cold War. It is tied to many of the same contemporary issues: the creation of the towering individual who leads the masses, the interconnectedness of science and politics, and, finally, science as a means of gaining political control (psycho-history as a political theory of control). The Foundation Trilogy is an interesting exploration of these tumultuous times and should be examined as such.

**Tania Ralli**

Advisor: Robert Farnsworth

*"Identity and Imagination: The Poetry of Philip Levine"*

Philip Levine's poetry is intimate, without being confessional; his poems bring the reader directly into the lives of characters who struggle to survive but maintain dignity above all else. An examination of Levine's deep affinity for Keats reveals a strong adherence to the ideals of the English Romantics; as a result Imagination figures prominently into his poetry as a method of penetrating working class experiences. His committed interest in the Spanish Civil War has helped ground his political beliefs and resounds in issues of class consciousness at home. Levine's detailed poems illuminate individual industry workers and simultaneously grapple with ideological issues, making his poems both personal and political. Furthermore, Levine uses memory to bear witness to lives that suffer alienation at the hands of hierarchical forces denying them inherent "universal" freedoms. His work culminates in an urgency to record the transience of life as he probes the spheres of class identity and poetic identity.

**Alison A. Sculley**

Advisor: Lavina Shankar

*"Redefining "Irishness": Identity and Nationalism in the Drama of Brian Friel"*

The contemporary Irish playwright Brian Friel has devoted much of his career to exploring the national identity of his homeland. Ireland has been culturally and politically dominated by British colonization for over eight centuries. The literary works of many twentieth-century Irish writers, including W.B. Yeats, John Millington Synge, Seamus Heaney, and Friel, focus on the construction of a realistic and meaningful identity of Ireland and its people outside of this English imperial context. Friel's work, particularly through his establishment of the Field Day Theatre Company, has been dedicated to addressing these issues of postcolonial identity and nationality. This thesis focuses primarily on language, cultural symbolism, and colonial history and politics in Friel's three original Field Day productions of Translations (1980) The Communication Cord (1983), and Making History (1989), as well as Dancing at Lughnasa (1990). Through a close reading of these texts, an examination of dramatic criticism and postcolonial analysis, and a consideration of this dramatist's place within the greater political

and literary context of Ireland, this thesis shows how Brian Friel's work has redefined "Irishness" and is discovering an identity and voice faithful to its nation of origin.

**Anne Tommaso**

Advisor: Robert Farnsworth

*"Poems of Gary Snyder: Environmental Conservation and World Mythology"*

Gary Snyder's poetry and perseverance of his life vision offer a constructive alternative to the distance that modern culture has taken us from human sustaining resources, both natural and cultural. Relation and belonging to the land and its ecological processes, self knowing, both of the mind and body, and connection to the world mythologies and languages of the past are some of his subjects. Running themes of Japanese haiku, Zen Buddhism, manual labor, and mythology of indigenous cultures provide contexts from which to read his poetry, analyze his forms and methods, and attempt to understand his vision in our own context. His deliberate, hard-working, humble, and spiritual awareness toward writing and living make Gary Snyder one of the most important poets of our time, not only in the scope of American poetry but in the larger picture of humans beings inhabiting a planet.

**Benjamin J. Treat**

Advisor: Lavina Shankar

*"The Limitations of Language in a Postcolonial Context: An Analysis Amitav Ghosh's Literary Works"*

This thesis argues that Amitav Ghosh's literary works detail the limitations of the English language as a means of representing the social and political condition of the decolonized Indian subcontinent. Through an analysis of two of his novels, *The Shadow Lines* (1988) and *The Calcutta Chromosome* (1995), and his ethnographic/historical work, *In an Antique Land* (1992). I examine Ghosh's critiques of neocolonial uses of language which have, in some cases, perpetuated cultural imperialism. I argue that Ghosh depicts borders and nationalism as harmful forces in the postcolonial context of South Asia, since they are artificial constructions which misrepresent ideas of national identity and cause violent sociocultural conflicts. Using postcolonial and linguistic critical theory, this thesis demonstrates that--like his contemporary, Salman Rushdie, whose literary texts are composed in the "Queen's English" --Amitav Ghosh acknowledges the language's inability to express his experiences as one of partitioned India's "midnight's children."

Kimberly Walker\*

Advisor: Timothy Chin

*"Negotiating Identity through Displacement: Caribbean Women Writers Voicing Resistance"*

Caribbean women are often positioned in the margins of their national and personal homes. Oppressed by multiple forces, including racism, sexism, classism, and colonialism, the conception of home as a safe space is problematized for Caribbean women. Many women are forced either through exile or emigration, to leave their indigenous lands in attempts to find an alternative space in which to exist. Leaving home also places Caribbean women between two or more conflicting cultures, a location requiring constant negotiation. Various Caribbean women authors have challenged the restrictive structures that violate and displace them. Merle Hodge, Edwidge Danticat and Jamaica Kincaid in their respective novels *Crick Crack, Monkey, Breath, Eyes, Memory* and *Lucy* voice the pain of overcoming displacement and homelessness. Despite the isolation inherent in such a position, homelessness enables the female characters in the texts to recognize and rethink the oppressive structures that have excluded and marginalized them. With a critical distance from "home," the protagonists in these texts are able to negotiate an identity resistant to the oppressive effects of colonialism and patriarchy.

Laura West

Advisor: Sanford Freedman

*"Fictions of the Self: Palimpsestic Self-Construction and Autobiographic Truth in the Memoirs of Lillian Hellman"*

When Lillian Hellman, in a 1975 interview, described the writing of her several volumes of autobiography as "a very tricky business", she may as well have been referring to the entire genre. Since its conceptualization and naming in 1786, autobiography has presented a myriad of problems for critics and writers alike, inclusive of the matter of classifying this capricious and protean genre. With varying forms and degrees of fictionality, autobiography stands defiant against an academic world that would impose a series of classifications in order to subdivide it into a containable package, palatably defined. Exemplifying the trend in the 1970's of destroying any remaining assumptions about autobiography (such as adherence to historical truth and absolute factuality), Hellman's four works of autobiography substantiate many contemporary critical conundrums regarding authorial obfuscation of genre boundaries in the pursuit of a more efficacious means of self-portrayal. Writing each work in a progressively different form, Hellman displays an active searching and challenging process, constantly moving towards the frustratingly elusive, and arguably impossible, objective of self-knowledge. The problematics of reading Hellman become apparent with the consideration of her mechanisms of self-construction, as well as with her figurative flirtations with fictionality that operate as a function of memory and representation of self. In examining Hellman's works, I offer conclusions regarding autobiography, its capacity for self-creation, and the limits

and verisimilitudes of fictionality, as well as perhaps what the future may hold for the evolution of a genre that lays claim to the ineluctable mysteries of self.

**Michelle Wong**

Advisor: Carole Taylor

*"A Relationship in Difference:: Portraits of Class in Dorothy Allison's Bastard out of Carolina and Eudora Welty's The Optimist's Daughter"*

Contemporary American novelists Dorothy Allison and Eudora Welty share a literary relationship in difference. Although they are both white women from the South, their perspectives on class differ according to their authorial relations to their fictive worlds. Allison's narrator in Bastard out of Carolina explicitly positions herself among the very poor, whereas Welty's narrator in The Optimist's Daughter possesses a genteel sensibility. These choices correspond to Allison's working-class protagonist and world and Welty's middle-class protagonist and world. Disparate narrative or authorial judgments mind what the narrators and characters explicitly say or do not say and how authors develop "privileged" and "lower-class" characters differently. For my purposes, these works serve as models of how narration portrays class through the perspective of adult narrators sympathizing with female protagonists. The novels' titles frame stories focused on "daughters," with daughters as heroines socialized according to related but different patriarchal, hierarchical orders. An analysis of narrative perspectives, qualities and strategies will help demonstrate how class works within these fictional worlds, whose artfulness also shows how gender and race intersect with class. The narrative structure of Welty's novel reinforces many presumptions of class privilege, whereas the narrative structure of Allison's novel undermines beliefs of social superiority.

## GEOLOGY

**Lindsay Anderson**

Advisor: Michael Retelle

*"Beach Sedimentation and Its Relation to Norse Settlements in the Shetland Islands, Scotland"*

The Norse people moved to the Shetland Islands (located just North of Scotland) from Scandinavia around 1100 AD, but moved out about two hundred years later, a time which coincided with the onset of the Little Ice age. The Norse were not able to adapt their cultures to a new location, and people have wondered why. One response is that it was changing climatic processes that forced the Norse out of their living spaces. This project looks at why the Norse have moved by examining the areas surrounding their occupation sites. When the Norse arrived in Shetland, they settled on or near the beaches for easy access to the water.

These occupation sites are currently covered with two or three meters of sand. This gives the impression that the Norse were forced out of their habitation sites because of a huge influx of sand. This sand could have been transported by a few strong storms, or by the consistently strong winds of the area. This summer the sand from three beaches and the archeological sites located on them or nearby were extensively sampled. Upon return to Bates, this sand was analyzed and the sedimentation of the beaches was determined. The sand is also being analyzed through use of the Scanning Electron Microscope, which show markings on the sand grains that tell how the sand has been transported. By looking at these markings, it can be determined that the sand was moved into the archeological sites either by wind or by large storms. The purpose of this thesis is in two parts: the first is to determine the sedimentation of the beaches and the archeological sites, and the second is to understand how the sand has been moved into the archeological sites. This information can help to understand the Norse people's movement.

**Christopher Anton**

Advisor: Dyke Eusden

*"An Analysis Of Monazite Grains From Igneous And Metamorphic Rocks Of The Presidential Range, New Hampshire: Implications For U-Pb Age Dating"*

The purpose of this thesis is to analyze individual monazite grains from samples of igneous and metasedimentary rocks found in the Presidential Range, New Hampshire, to understand the implications of monazite chemistry and growth history as it relates to U-Pb radiogenic isotope age dating. Monazite is a light rare earth phosphate,  $(Ce, La, Y, Th)PO_4$ , that has been successfully used as a U-Pb geochronometer to date the crystallization and metamorphic ages of various crustal rocks for many years. It has been especially useful in rocks where zircon crystals have high inheritance, and as a result yield discordant age dates. The monazite grains have been analyzed using a Scanning Electron Microscope (SEM) and a Wavelength Dispersive Spectrometer (WDS) to observe internal growth structures and evaluate the chemical distribution and zonation that occurs in several of these grains. Five samples are included in this study: three from igneous bodies, which include the Bretton Woods, Cutler River, and Wildcat Granites, and two from metasedimentary rocks of the Silurian Rangeley Formation. The samples were selected in this way to study any differences in monazites that may occur between the two different rock types, and the effects this may also have on monazite geochronology. The results show that zonation in these monazites is primarily the result of thorium and uranium distribution, as well as minor rare earth element diffusion within a single crystal. This varied distribution alone may not affect the U-Pb systematics of an entire grain even though radiogenic dating of each individual zone could produce different U-Pb ages. This study suggests that monazite may preserve different temporal ages, from original crystal growth to peak metamorphism, within zones of a single crystal, and that proper U-Pb dating of these zones can potentially constrain multiple metamorphic events.

**Kurt Danielson**

Advisor: Sharon Locke

*"A Paleoclimatic Study of Glacial and Post-Glacial Sediments, Shingobee Lake, Minnesota"*

A sediment core was taken from Shingobee Lake, Minnesota, for paleolimnological and paleoclimatic study. Several analyses are undertaken on the core to extract a lake record that can be extrapolated to make interpretations about the climate and climate change over the past 15,000 years. Analyses such as magnetic susceptibility, grain size, and loss-on-ignition show changes in the physical characteristics of the lake as well as the environment in which it is located. Carbon-14 dating of terrigenous organic material found in the sediments allows for better correlation of the core to a time line, as well as to other previously recorded cores and climatic events. A closer examination of the transition of the core from a glacial lake to a post-glacial lake involves an in-depth look at the above-mentioned analyses, as well as a mineralogical study on laminated sediments above and below the contact using x-ray diffraction. Data gained from all of these analyses will lead to more insight about the climate record and climate patterns in this area of the United States as well as insight for future management of water resources.

**Matthew Engelman**

Advisor: John Creasy

*"A Heterogeneous Sebago Batholith: A Mineralogical and Geochemical Study of the Igneous Members of the Southern Sebago"*

Recent detailed mapping of the bedrock geology within the Sebago batholith in southwestern Maine have been successful in delineating several distinct granitic lithologies that combine to comprise the batholith. These lithologies exist as mappable bodies characterized by differing mineralogies. This thesis project analyzes these different granites from a mineralogical and geochemical perspective in order to better understand their genetic relationships with each other and the magmatic processes that created them. The mineralogical portion of this project was carried out using optical thin sections and standard geological optical microscopy. Samples were divided into three groups based on these observations. Group 1 includes samples with both biotite and muscovite in roughly, equal proportions, group 2 consists of samples with muscovite and garnet, and group 3 includes samples with only biotite. Geochemical data on 15 selected samples covering all three groups were obtained using inductively coupled plasma emission spectrometry and mass spectrometry (ICP and ICP/MS). Trace element abundances and chondrite-normalized rare earth element trends indicate a similar source in the generation of the two-mica and biotite granites with incomplete partial melting or crystal fractionation playing an important role in their developments. The highly depleted nature of the muscovite-garnet granite indicates that it was formed very early in a partial melt environment. These interpretations are consistent with a model of the three

granite lithologies as comprising different phases of a single intrusive event during which there was a change in crystal/melt equilibria conditions.

**Jason Gurdak**

Advisor: Lois Ongley

*"Aqueous Geochemical Characterization of an Arsenic Contaminated Aquifer, Zimapán, Mexico"*

The town of Zimapán, Mexico has been the center of a silver, zinc, and lead mining district since the late sixteenth century. In 1992, concentrations of arsenic exceeding the safe drinking water limit of 0.05 mg/L, set by the World Health Organization (1981), were detected in many private and municipal drinking wells. The known detrimental human health effects of arsenic poisoning prompted hydrological studies of this aquifer, hypothesizing two potential arsenic sources. Arsenic is believed to be oxidizing from naturally occurring sulphide minerals, as well as leaching from the mining waste-process piles. An examination of pH, Eh, major ion content, and trace element content will provide a more decisive determination of the arsenic mobility within the aquifer and a validation of the source hypotheses. Arsenic concentrations from springs in the naturally mineralized zone reach 0.85 mg/L, while wells near the mining waste pile have approximately 0.5 mg/L of arsenic. Concentrations as high as 0.3 mg/L have also been detected just north of the town, in a region that was previously thought to be uncontaminated. This thesis concludes that both proposed arsenic sources are significant, and offers further insight for locating uncontaminated groundwater within this region.

**Christopher B.H. Keith**

Advisor: Mike Retelle

*"Late Quaternary Post-Glacial Emergence and Relative Sea Level Change of Big Pond, Small Point, Maine"*

Coastal lowland lake basins in Maine situated below the maximum limit of marine submergence contain a stratigraphic record of the late Quaternary glaciation, deglaciation, and sea-level change. The stratigraphies include, from oldest to youngest, till, glacialmarine deposits and lacustrine sediments. Deposition of the lacustrine sediments occurred after the isostatic emergence of the basin from the synglacial sea. One of these basins, Big Pond, is located on the southern tip of the Phippsburg Peninsula approximately 27 km southwest of Bath, Maine. The objective of this thesis is to determine the basin's time of post-glacial isostatic emergence. The timing of this event will also offer insight into relative sea level change. Two sediment cores were retrieved from the basin each containing lacustrine and glacialmarine deposits. Extensive lab analysis was performed on each of the cores including core logging, loss on ignition, grain size analysis, and magnetic susceptibility. Massive, lacustrine gyttta deposits were found dominant in the upper section of both cores while a gradational, laminated transition was observed between each of the two

lacustrine/glacialmarine boundaries. Thin sections were made from core BP97C1 and both cores were subsampled at the lacustrine/glacialmarine boundary for radiocarbon age dating. The age estimates will clarify and bracket Big Pond's post-glacial emergence from the synglacial sea. Results from this study will help to further clarify previously published relative sea level curves for the state of Maine as well as to provide a better understanding of the localized late Quaternary history of the Phippsburg Peninsula.

**Janna Levin**

Advisor: Dyke Eusden

*"The Origin of Migmatites in the Presidential Range, New Hampshire"*

This thesis is based on field research completed during the summer 1997 field season in the White Mountains. It was undertaken in conjunction with Professor Dykstra Eusden's project to map the bedrock and determine the geologic history of the Presidential Range, NH. The goal of this project was to use data gathered during the field season to assess the metamorphic pressure and temperature conditions experienced by the rocks, the migmatite evolution, and previously developed models of melt transfer. Calculated pressures and temperatures are related to the cooling history of the migmatites. Peak pressures and temperatures were estimated through the use of a petrogenetic grid specifically designed for the partial melting of pelitic rocks.

**Daniel T. Voisin**

Advisor: Mike Retelle

*"Late Wisconsinian Glacial and Post Glacial History of the Waldoboro Area, Waldoboro, Maine"*

When the Late Wisconsinian Laurentide Ice Sheet retreated from its position on the Maine coast circa 14,000 B.P., marine waters transgressed the land due to isostatic depression. This continued until 12,600 B.P. when the Laurentide Ice Sheet reached the marine limit. Marine waters then receded from the landscape, leaving in its wake a complete record of its presence. Two cores taken from Kaler's Pond in Waldoboro, Maine, have complete records of the marine occupation and its retreat. These cores have been subjected to visual logging, magnetic susceptibility, loss on ignition, grain size analysis, and biogenic determination. Additionally, the oldest lacustrine sediments above the marine-lacustrine contact was sent to Geochron Laboratories for radiocarbon age estimation in the hope of finding an age for the basin's emergence. Preliminary results show a sharp contrast between lacustrine and glacial marine sediment facies in all tests done. There is also evidence showing that one of the cores was deep enough to retrieve glacial proximal sand deposits. These results will help to clarify published data for relative sea level changes through the late Pleistocene and early Holocene for the central region of Maine.



Thomas S. Weymouth  
Advisor: Dyke Eusden

*"The Stratigraphy And Structural Geology Of the Pinkham Notch Area Presidential Range, New Hampshire"*

The purpose of this thesis was to create a detailed bedrock map of the Pinkham Notch Area in the Presidential Range in northern New Hampshire. A thorough analysis of the stratigraphy, structural, and metamorphic geology was completed to better understand the geologic and tectonic history of this part of New Hampshire. The map includes the stratigraphic units, the deformational features, and appropriate cross sections determined from the measurements taken in the field. In addition, extensive petrographic analysis with the optical microscope helped to identify microstructural fabrics in thin sections. The goal of this thesis was to continue the ongoing mapping project in the Presidential Range with a specific goal of demonstrating transitions in styles of deformation in the study area. These efforts will lead to a better understanding of deformational features in the area leading toward a more comprehensive understanding of the geologic events and paleo-tectonic history in the Northern Appalachians, and a possible transition in structural style in any mountain belt worldwide. Field data was collected during the month of May and analyzed back at Bates. Four metasedimentary formations and one igneous body were identified in the Pinkham Notch area. At least three events of deformation related to the Acadian Orogeny were identified and correlated to previously mapped structures and events in the Presidentials. Most importantly, new outcrops of two key formations were discovered, greatly improving the control in the Pinkham Notch area.

## GERMAN, RUSSIAN, AND EAST ASIAN LANGUAGES AND LITERATURES

Grace Yee Eng  
Advisor: Yang Shu-Hui

*"'She Takes the Power for Women': Empowering Chinese American Women and Defining Their Experience in Maxine Hong Kingston's The Woman Warrior"*

Recently named the most frequently taught book on college campuses across the nation and winner of the National Humanities Medal, Maxine Hong Kingston's *The Woman Warrior* has met with harsh criticism despite its immense popularity and support. Kingston's first novel has been condemned for being "mainstream" and "catering to white America's Orientalist notions of Chinese." At the forefront of their argument is the way in which she fabricates and alters legends, customs and traditions to create a "fake" Chinese American experience. I will analyze Kingston's changes to the legends and will argue that these changes reflect what she feels is a need to address issues pertinent to the Asian American woman's experience. These

issues include the status of women, the relationship between Asian men and women, and the effects of racism. More specifically, I will show how she attempts to empower the Chinese and Chinese American women characters and define a Chinese American experience.

## HISTORY

**Paul Howard**

Advisor: Christopher Beam

*"Elder Statesman: The Modern Ex-Presidency in American Society"*

The recent exploits of Jimmy Carter in Haiti and North Korea have helped to focus attention on the potential role of former presidents in public life. Though some may be content to have these former leaders simply fade away, they have often gone on to live active and productive lives well after their tenure as president. My study looks at the nature of the modern American ex-presidency, defined by the post-presidential years of Herbert Hoover, Harry Truman, Dwight Eisenhower, Lyndon Johnson, Richard Nixon, Gerald Ford, Jimmy Carter, Ronald Reagan, and George Bush. After a brief survey of each's post-presidential activities, common patterns are extracted to demonstrate ways in which ex-presidents attempt to remain influential. The thesis analyzes the effectiveness/ineffectiveness of post-presidential influence as well as attempts to formalize an ex-president's duties.

**Angela Kao**

Advisor: Dennis Grafflin and Yang Shu-Hui

*"Yu Hua: Experimental Writer in Post-Mao China"*

A contemporary Chinese novelist, Yu Hua belongs to a generation of post-Mao writers acclaimed as new-wave and avant-garde. Experimenting with language that contains "labyrinths of slanderous sentences" and "grotesque conspiracies," the author reveals his attitude toward the social, political, and economic sores that have made China's contemporary history the major motif of literary production in the 1980's. Through the works of Yu Hua, this thesis explores China's intellectual history of the past decade, comprised of Deng's reforms, the remnant scars of the Cultural Revolution, and the changing representations of self and subjectivity in modern China.

Nicholas Terry  
Advisor: John Cole

*"Montaigne and the French Sixteenth Century Nobiliary Ideal"*

The elite of sixteenth century France found itself divided between two groups with conflicting ideals about what it meant to be a nobleman. and prestigious sword nobility favored the traditional military role, while the more recent and quasi-bourgeois robe nobility argued for a new role of legal and administrative office, backed by a high standard of humanist education. In his work, the *Essais*, Michel de Montaigne indirectly comments on these two opposing ideals, and in doing so reveals his own ideal of nobility. It is an ideal which commits itself to neither the sword nobility nor the robe nobility, but selects from each to create a nobiliary ideal that emphasizes independence and wisdom.

## INTERDISCIPLINARY

Derek Asadoorian  
Advisor: Sharon Locke and Bonnie Shulman

*"Influence of the Southern and North Atlantic Oscillations on New England Climate"*

When you consider the fact that the weather in New England is extremely variable and difficult to predict, it is justifiable to assume that many processes have impacts on that weather. There are two major atmospheric /oceanic coupled systems that may account for much of the weather variety in New England-the Southern and North Atlantic oscillatory systems. The Southern Oscillation's effect on the jet stream and the North Atlantic Oscillation's effect on New England's coastal waters testify to the potential influences that both systems could have on New England climate. The purpose of this study is to determine just how much influence each system has and how they affect New England climate in tandem. The indices of each oscillation were statistically compared to approximately 100+ years of station data for fifteen New England stations scattered throughout the sixstate region. The data were compared through a series of correlations. A linear model was created in order to approximate the effect that both systems have on New England together. Periodicity analyses were also performed in an attempt to find graphical correlations. The results of the study suggest that neither system has a significant effect on climate in New England. In fact, the correlations were much lower than anticipated even when rank correlations were executed. This is evidence that the processes that govern New England weather are extremely complex. According to the results of this study, little or no component of New England's climate can be explained or even approximated by these two systems alone.

**Jan Christian Bernabe\***

Advisor: Lavina Shankar

*"Representations of Filipino/Filipino American Male Sexuality in Jessica Hagedorn's Dogeaters and Carlos Bulosan's America is in the Heart"*

Understanding Filipino/Filipino American literary representations requires that Filipino American literature be examined outside the locus of Asian American literary production. Filipino American cultural production has been subsumed alongside other Asian American groups solely because of its "Asian" origins; however, the history of colonialism in the Philippines by both Spain and the United States sets itself apart from most other Asian countries. This thesis will focus specifically on representations of Filipino/Filipino American male sexuality in the Philippines and in the United States by examining Jessica Hagedorn's novel *Dogeaters* and Carlos Bulosan's *America is in the Heart* respectively. I will argue that representations of Filipino/Filipino American sexuality in both texts are affected by the Philippines' postcolonial status. The formation of a Filipino American sexual identity is influenced by the prevailing attitudes in Filipino society and in the United States.

**Shawn Draper\***

Advisor: Mark Kessler

*"The Legal Construction of Disability"*

The Americans with Disabilities Act of 1990 was heralded as the civil rights legislation which would help end the discrimination individuals with disabilities face. Recently, however, there has been concern that the Act's goals have been, to some degree, endangered by courts which have narrowed the meaning of disability, especially in Title I (i.e., employment) cases. No other civil rights statute has generated such controversy over the boundaries of coverage. Contrary to the intent of the ADA, and other civil rights laws, most court decisions have tried to create a special "protected class" of the "truly disabled" which is covered by the Act. Plaintiffs must prove that they fit into this class or have their case dismissed, regardless of the defendant's actions. Plaintiffs are then put in the precarious position of trying to show that while they are "substantially limited in a major life activity" (such as working), they are still a "qualified individual" to perform the job in question. The court has even interjected this substantially limited requirement into the "regarded as" prong of coverage, which says that a person is protected from discrimination if she is regarded as disabled - even if she is not. Moreover, instead of showing that the specific employment practice in question is arbitrary and limiting (therefore deserving "reasonable accommodation"), plaintiffs must often show that they are substantially limited in their ability to perform either an entire class of jobs or a broad range of jobs in various classes. Reasonable accommodation is decided upon more by whether the court feels a person "deserves" it (because without it they would be unemployed) than if it would rectify a practice of discrimination. (The EEOC has argued

against the above court interpretations, as well as those the court has made about temporary disability and rights to fringe benefits for those too disabled to return to work.) In essence, some courts have confused disability benefits programs with this nondiscrimination law. Those who are considered too impaired to make it on their own are given special treatment. By treating disability as inherent, and ignoring the situational nature of abilities and disabilities, courts have done damage to a disability rights movement which is trying to make institutional and structural changes in a world that has previously not heard their voices or represented their interests. Because the ADA was thought to be so progressive, few plaintiffs, or their attorneys, were ready to deal with the narrow readings the court gave it. Progressive lawyering strategies must try to expand the definition of disability so that courts see the contextual nature of disabilities, and that people with disabilities face discrimination not only from other individuals, but also from entrenched practices which put those with disabilities at an *unnecessary* disadvantage. From there, courts could make decisions about discrimination as they would in any civil rights case - i.e., by deciding if said practice was arbitrary, and held back an otherwise qualified individual.

**Erica J. Ellis**

Advisor: Baltasar Fra-Molinero

*"A Philosophical Discourse of Slavery: An Analysis of the Case of "Comfort Women"  
(Women Drafted for Military Sexual Slavery By Japan)*

Sexual enslavement of women by Japan in the 20th Century remains largely unacknowledged and unexamined in Eastern and Western historical discourse. By posing a link between certain moments in Western philosophical discourse, European and American enslavement of Africans and Japanese enslavement of women as military "comfort women", this thesis examines a philosophical discourse of slavery that is informed by local culture and practice and the culture and practice of others. Incidents of oppression, exploitation, and domination are not isolated, spontaneous occurrences in time. These incidents are intimately connected, each one perpetuating, reinforcing and laying groundwork for the next. Thus, in order to fully understand a particular incident of oppression, one needs to examine its place within a larger historical and global framework.

**Jamie Reiner**

Advisor: Will Ambrose and Mike Retelle

*"Dynamics of Sediment-starved Hardbottoms: The Roles of Endolithic Bivalves and Epibenthic Macroalgae in Sediment Production"*

Most continental margins are sediment starved and dominated by hardbottoms. From a biological perspective, these hardbottoms are important benthic habitat because they provide extensive substrate for plant and animal communities. The removal of sediments during storms encourages colonization of endolithic fauna and epibenthic fauna and flora.

Hardbottoms lacking an accumulation of sediments promote the development of macroalgae meadows containing both boring and encrusting organisms. These organisms create varying levels of bioerosion, which in turn leads to creation of 'new' sediments. The purpose of my work is to determine the successional patterns, if any, between the boring infauna, the extent of macroalgal cover and sediment creation, and the surficial relief of the limestone hardbottom. My study examines two sites in Onslow Bay, North Carolina (23- Mile and Chapel sites). My work closely examines and analyzes thirty-nine rock boring cores, and harvested quadrates of macroalgae, taken from the two sites. Results show that the biomass and abundance of plants increases with greater proximity to the scarp edge. The amount of limestone sediment, however, that is broken down and extracted in macroalgal holdfasts increases with distance from the scarp edge. The average amount of sediment contained in the algal holdfasts at the scarp is 12.84 g/MA<sup>2</sup>, and away from the scarp is 18.52 g/MA<sup>2</sup>. This could be due to the greater surficial relief found nearer the scarp, compared to less relief further away from the scarp. There is also greater sand cover further away from the scarp. This excess sand might be getting caught up in the holdfasts, increasing the amount of sediment, yet this can not be considered newly created sediment. These results will be compared with the relief data, along with bivalve species abundance and distribution found in the rock boring cores.

**Ethan Rowe**

Advisor: William Mathews

*"Computer Modeling of Musical Structures: Decomposition and Reconstruction"*

Based heavily upon the analytical concepts presented in Ray Jackendoff and Fred Lerdahl's work, A Generative Theory of Tonal Music, and the analytical and recompositional concepts of David Cope as presented in Experiments in Musical Intelligence, this is a study in musical analysis and composition by computer. Written in the C++ programming language, computer software was developed that inputs music in the form of a melodic line and the harmonies/key centers that fit that line and then breaks that music into its constituent parts of motives and phrases. The program performs this analysis on multiple pieces of music and then, using the harmonic progressions and melodic structures from those pieces, constructs new music that stands alone as independent and unique, but remains clearly related to the original pieces. The basic design of this software is discussed, as well as musical examples of its output.

## MATHEMATICS

**Justin Freeman\***

Advisor: John Rhodes

### *"Phase Locking in Coupled Oscillators"*

A number of systems, both in physics and biology, can be modeled as a group of interacting oscillators, with each oscillator displaying limit cycle behavior. One especially tractable model looks at the limit where coupling between the oscillators which is weak enough so that each oscillator can be described only by its phase. In this case it can be shown that the dynamics of some physical systems, such as a one-dimensional array of Josephson junctions, can be described by an equation which deals only with the relative phases of the oscillators. This model is explored and solutions are found where oscillators with different natural frequencies couple in such a way as to oscillate at the same frequency. This is the phenomenon of phase locking. Various efficient techniques for finding such solutions are presented.

**Christopher T. Santillo**

Advisor: Chip Ross

### *"Julia Sets with Siegel Disks"*

In "normal" Julia sets, iterated points are attracted to cycles. However, in the case of Siegel disk Julia sets, non-repeating rotations are observed in place of cycles. These rotations are caused by carefully chosen irrational numbers that are "sufficiently irrational." The Mandelbrot set and Julia sets for the functions  $f_C(Z) = Z^2 + c$  and  $f_\lambda(z) = \lambda z(1 - z)$  can be utilized to view this phenomenon. Using the Schröder functional equation, we can attempt to model the formation of these Siegel disks and understand how they are produced. A healthy mix of analytic theory, computer algebra and computer graphics are used to present the ideas in this thesis.

**John K. Werner**

Advisor: John Rhodes

### *"Computer Applications of Primality Testing and Methods Of Factorization"*

Is 3123 a prime number? No, since one can determine on a calculator that it is divisible by three in a matter of seconds. Yet what about 7325136352441? This is much more difficult to do with a calculator and when the number is over a hundred digits in length it becomes virtually impossible if it is the product of two large primes. There are many ways of testing whether or not a number is prime, such as the probable prime test and the strong probable prime test. Once one has determined that a number is not prime, but is too large to factor on a

calculator, one may look for a way to factor it. There are many different methods by which to do this, including the quadratic sieve, Pollard's rho method, and even a factorization method using elliptic curves. The beauty of these algorithms is that they can factor numbers in hours or days, while it would take a human a lifetime to accomplish this.

## MUSIC

**Timothy Bakland**

Advisor: James Parakilas

*"Elements of a Baroque Revival in the Music and Career of Saint-Saëns, Debussy and Ravel"*

This musicological study will explore the nature and effects of the "Baroque Revival" as manifested in the piano works and careers of Saint-Saëns, Debussy and Ravel. Due to a new sense of musical nationalism which compensated for France's defeat in the Franco-Prussian War, French composers in the late 19th and early 20th centuries turned some attention to forgotten heroes of their own past--Couperin and Rameau. The thesis will consider this historical backdrop along side the personal investments of Saint-Saëns, Debussy and Ravel in the revival (as critics, publishers and essayists). The thesis will emphasize, in finer detail, the detectable, musical allusions to the 18th-century made by Saint-Saëns (with reference to his views on performance practices), Claude Debussy (especially in piano works using the *sarabande* dance form) and Maurice Ravel (in his piano suite, *Le Tombeau de Couperin*). In addition, I have constructed a concert program (a piano performance on March 18) that illustrates the issues in the written thesis: harpsichord pieces from the Baroque are juxtaposed against piano pieces by the Moderns that imitate or pay tribute to that 18th-century repertory.

**Meredith Haviland\***

Advisor: James Parakilas

*"The Portland Symphony Orchestra: A Sociological Perspective"*

The Portland Symphony Orchestra has served as a source of community pride for Maine throughout the century. This paper focuses on the development of the Portland Symphony Orchestra from its earliest forms in 1924, linking these changes to status, and also examines the purpose and meaning of the orchestra. Through looking at status as defined by Weber, as a reflection of lifestyle and prestige, the communicative nature of the ritual of the orchestra is examined. A study of newspaper articles and programs, in conjunction with theories that explain the relationship among symphony orchestras, rituals, and status, provides the information with which to examine the Portland Symphony Orchestra from its inception and throughout the century.



## NEUROSCIENCE

**Benjamin Rood**

Advisor: Cheryl McCormick

*"The Effects of Repeated One Hour Neonatal Isolation on the Hypothalamic-Pituitary Adrenal Axis of Juvenile and Adult Rats"*

The first few weeks following birth are a very sensitive time in the development of the rat, and many neonatal manipulations have been found to have a profound effect on development of the hypothalamic-pituitary-adrenal axis. In this study the effects of short episodes of isolation as neonates were examined when the animals were juveniles and adults. Previous work indicated that neonatal isolation potentiates the corticosterone release in the neonate. Do these effects of neonatal isolation persist beyond the neonatal stage? To answer this question, animals were either 1) isolated for one hour per day for the first eight days of life, 2) handled for the first eight days of life to control for handling during the isolation period, or 3) left alone until weaning which occurred on the 25th day of life. The animals were then stress tested as juveniles and adults. Blood samples were taken before and after a 20 minute restraint stress to allow later determination of corticosterone levels by radioimmunoassay. The results showed that there were significant treatment effects ( $p < .05$ ) in the juvenile animals with neonatally isolated animals showing a smaller increase in the amount of corticosterone released in response to stress. Thus, the stress of neonatal isolation caused animals to be more resilient to stress as juveniles. However, these effects of neonatal isolation did not persist into adulthood.

## PHILOSOPHY AND RELIGION

**Jan Christian Bernabe\***

Advisor: Thomas Tracy

*"Outing Theology: (Re)Locating Gay Liberation Theology"*

The purpose of this thesis is to bring to focus gay liberation theology. Liberation theology has been popularized by Latin American liberation theological movement. From critiques of Latin American liberation theology emerged other theologies of liberation: Asian, African, Black, and Feminist. Gay liberation theology, however, remained neglected or overlooked. This thesis will attempt to bridge homosexuality and Christianity in a liberatory manner; in many respects, gay liberation theology can be viewed as an act of resistance and counter-hegemonic in its attempts to challenge the compulsory heterosexual nature of Christianity. Several methods are used in my discussion of gay liberation theology. Historical agency is important in understanding the legacy of homosexual oppression in American society, but also to bring forth the idea that the exclusion of homosexuals within Christian institutions has persisted for

decades in the United States. A critique of the framework of Latin American liberation theology is essential in providing a theological space for gay liberation theology. My discussion of gay liberation theology will focus on the construction of a new "hermeneutical circle" and a politicized theology of liberation.

**Susanne Bines**

Advisor: Mark Okrent

*"The Nature of Rationality"*

The introduction of new feminist thinking into western philosophical thought is helping both to shed light on and to redirect the meanings and possibilities of epistemology. Feminist thought is achieving these changes in part by attacking the artificial dichotomy identified by some theorists between reason and emotion. Many feminists have chosen and still choose to celebrate the differences and distinctions of what is known as a "woman's voice". Building on Cognitivist views of emotion, I hope in this paper to challenge this direction of "otherness" and separateness, not by denying women their individuality, but by suggesting that men and women in fact "reason" similarly even if they arrive at different conclusions. I hope to be able to show from this that emotions not only have cognitive value, but that because of their structure and implications, they necessarily have inherent worth within moral reasoning and philosophical argumentation.

**Tristan Cohen**

Advisor: Mark Okrent

*"Evolution of Ethics With a Look at Given the Origins: What Does That Mean About Ethic and Current Ethical Systems"*

The debate on the nature of right and wrong has plagued humankind for as long as our species can remember. Since the time of Thomas Hobbes (and possibly even before that) another question, the question of the origin of our ethical beliefs was sought after. With the theory of evolution giving science's arguably best explanation about the origins of mankind, the question of moral judgments may be best understood biologically. There are two primary explanations commonly offered. The purpose of this thesis is to look at each of these explanation, evaluate their strengths and weaknesses, and then ask the philosophical question, "Given the origin of our ethical beliefs, how do these origins affect the status and nature of our ethical beliefs today?". Even more fundamentally the question of whether any sort of ethical system can logically or fairly be derived from these conclusions.

Max Dawson  
Advisor: Marcus Bruce

"*Recreating Moses*"

Between 1930 and 1960, Sigmund Freud, Martin Buber and Cecil B. DeMille produced major works that interpret the life and significance of the biblical figure Moses. Each author recreates the figure of Moses and uses him as an occasion for reflection upon their own lives and work. In *Moses and Monotheism*, Sigmund Freud identifies with Moses as a heroic figure whose struggles resemble the resistance Freud experience in his own life. Martin Buber's *Moses: The Revelation and the Covenant* views Moses as the model for how human beings should relate to God and each other. And in the 1956 film epic *The Ten Commandments*, Cecil B. DeMille retells the story of Moses and offers American audiences a commentary on freedom, communism, capitalism and the American way of life. Each work offers a representation of Moses that is a reflection of both its creator's unique perspective and the cultural context in which it was produced.

Tina Iyer  
Advisor: Thomas Tracy

"*A Theology of Liberation in South Asia? An Interpretation of the Vision of Aloysius Pieris*"

Given the history of Christianity in Asia as a foreign religion that was closely linked to colonialism, and its current situation as a minority tradition among the much stronger religions of Asia, is there a possibility for Christianity to be a socially and spiritually liberative force on the continent? This is the question that I intend to explore in my thesis, using India and Sri Lanka as the specific area of focus, and with Aloysius Pieris' texts *An Asian Theology of Liberation* (1988) and *Fire and Water* (1996) as my primary sources of consideration. Pieris, a Sri Lankan Jesuit priest, sees the strength of an Asian theology of liberation lying in the Asian Church's willingness to address simultaneously the issues of Asia's many poor and Asia's many religious/religions. The former idea can be traced back to the foundation of Latin American liberation theology, while the latter is specific to Asia (and most specific to multi-religious countries such as India and Sri Lanka.) Pieris concludes that finding the renunciatory streams in all religions is the key to a theology of liberation for Asia, he also assumes that every religious tradition has the same soteriological goal. It would seem, however, that Christianity is then unnecessary; if every religion contains within it the same power of liberation, what use does Asia have for Christianity? I attempt to offer an analysis of some of the gaps in Pieris' proposed Asian theology of liberation - both practical and theological. Furthermore, I offer the conclusion that a mutually challenging dialogue which acknowledges the great differences between all of Asia's Regions, Christianity included, is perhaps a more conducive way in which to search for the different liberative elements in Asia's various religious and spiritual traditions without denying each their own identity.

Benjamin Mini

Advisor: Mark Okrent

"*Actuality and Potentiality in Heidegger*"

Aristotle, in a book of his very much caught up in the question of being, makes the claim that so far as the totality of metaphysical reality is concerned, actuality is prior to potentiality. (*Metaphysics*, 9.8.1051) Relating this claim to the ontology springing from the pages of *Being and Time*, it's important to keep in mind that, for Heidegger, before the question of being proper can be answered (namely: what is the meaning of 'being'?) the understanding constitutive of our grasp on the meaning of being must be spelled out and opened to investigation. Further, since an understanding of being is but one constitutive element to the interrelated and equiprimordial structure of the being of the being who understands, the path of access to the meaning of being must begin with an existential analytic of the being of that being who understands. Such an analytic reveals, for Heidegger, a hierarchy of ways of being, a system of ontological categories the second member of which is created by the first, and the third member of which is "derived" from the second: 1.) The Understanding of Being (Da-sein), 2.) The *Zuhanden*, and 3.) The *Vorhanden*. Explicitly, Heidegger is in a qualified agreement with Aristotle's claim that actuality is prior to potentiality, that is, for Heidegger actuality is prior to possibility for those types of beings encountered as objectively present (the *Vorhanden*). But, ultimately, this qualified explicit agreement, for Heidegger, reveals itself as part of a much larger explicit disagreement with Aristotle's position. That is, Heidegger conceives of the understanding of being (Da-sein) and the handy (the *Zuhanden*) as ways of being ontologically prior to the way of being of the objectively present (*Vorhanden*), and for these two more ultimate ontological categories Heidegger suggests that we should posit a priority of the possible over the actual. The story could end here were it not for Heidegger's rather obscure phenomenology of the mode of attunement which he designates as '*Angst*'. For it sometimes looks as if this phenomenological analysis of *Angst* suggests that what is revealed to an anxiously attuned Da-sein is the objective presence of both that Dasein itself and the world that Da-sein is a part of. If we paste this seemingly implicit sentiment to another claim that looks to be made in Heidegger's analysis of *Angst* (namely: that what is encountered in *Angst* is a condition upon the possibility of any intraworldly encountering), then it seems as if perhaps an implicit logic to Heidegger's programmatic lays the seeds for the reversal of Heidegger's explicit claim that ultimately the possible should be posited as prior to the actual. What is needed to iron out these seemingly contradictory sentiments is a careful analysis of Heidegger's phenomenology of *Angst*, a description of the many different levels of priority which Heidegger works with, and an investigation of the terms "primordial," and "equiprimordial" which Heidegger is so prone to employ.

## PHYSICS AND ASTRONOMY

Justin Freeman\*

Advisor: Mark Semon

### *"Phase Locking in Coupled Oscillators"*

A number of systems, both in physics and biology, can be modeled as a group of interacting oscillators, with each oscillator displaying limit cycle behavior. One especially tractable model looks at the limit where coupling between the oscillators which is weak enough so that each oscillator can be described only by its phase. In this case it can be shown that the dynamics of some physical systems, such as a one-dimensional array of Josephson junctions, can be described by an equation which deals only with the relative phases of the oscillators. This model is explored and solutions are found where oscillators with different natural frequencies couple in such a way as to oscillate at the same frequency. This is the phenomenon of phase locking. Various efficient techniques for finding such solutions are presented.

## POLITICAL SCIENCE

Shawn Draper\*

Advisor: Mark Kessler

### *"The Legal Construction of Disability"*

The Americans with Disabilities Act of 1990 was heralded as the civil rights legislation which would help end the discrimination individuals with disabilities face. Recently, however, there has been concern that the Act's goals have been, to some degree, endangered by courts which have narrowed the meaning of disability, especially in Title I (i.e., employment) cases. No other civil rights statute has generated such controversy over the boundaries of coverage. Contrary to the intent of the ADA, and other civil rights laws, most court decisions have tried to create a special "protected class" of the "truly disabled" which is covered by the Act. Plaintiffs must prove that they fit into this class or have their case dismissed, regardless of the defendant's actions. Plaintiffs are then put in the precarious position of trying to show that while they are "substantially limited in a major life activity" (such as working), they are still a "qualified individual" to perform the job in question. The court has even interjected this substantially limited requirement into the "regarded as" prong of coverage, which says that a person is protected from discrimination if she is regarded as disabled - even if she is not. Moreover, instead of showing that the specific employment practice in question is arbitrary and limiting (therefore deserving "reasonable accommodation"), plaintiffs must often show that they are substantially limited in their ability to perform either an entire class of jobs or a broad range of jobs in various classes. Reasonable accommodation is decided upon more by

whether the court feels a person "deserves" it (because without it they would be unemployable) then if it would rectify a practice of discrimination. (The EEOC has argued against the above court interpretations, as well as those the court has made about temporary disability and rights to fringe benefits for those too disabled to return to work.) In essence, some courts have confused disability benefits programs with this nondiscrimination law. Those who are considered too impaired to make it on their own are given special treatment. By treating disability as inherent, and ignoring the situational nature of abilities and disabilities, courts have done damage to a disability rights movement which is trying to make institutional and structural changes in a world that has previously not heard their voices or represented their interests. Because the ADA was thought to be so progressive, few plaintiffs, or their attorneys, were ready to deal with the narrow readings the court gave it. Progressive lawyering strategies must try to expand the definition of disability so that courts see the contextual nature of disabilities, and that people with disabilities face discrimination not only from other individuals, but also from entrenched practices which put those with disabilities at an *unnecessary* disadvantage. From there, courts could make decisions about discrimination as they would in any civil rights case - i.e., by deciding if said practice was arbitrary, and held back an otherwise qualified individual.

**Michael Andrew Ferrari**

Advisor: Douglas Hodgkin

*"PACs and Participation: The Effects of Contributions on the House Transportation and Infrastructure Committee"*

What are Political Action Committees (PACs) getting when they contribute to the campaigns of Members of Congress? Are they rewarding legislators for past votes or hoping to buy influence on new ones? Are PACs buying access to legislators and their staffs or do they simply just distribute campaign cash to friends and Members who are sympathetic to their concerns? This study investigates the link between PAC contributions and the selective nature of legislative participation of Members of Congress. Improving upon past research which has yielded mixed results in demonstrating a correlation between PAC contributions and legislators' roll call voting, this study provides a framework for examining PAC contributions in light of their effects on the pre-voting stage of legislative participation. After constructing indexes of Members of the House Transportation and Infrastructure Committee's formal and informal levels of participation, I empirically test whether PAC contributions induce Members to participate on two key issues in the 105th Congress with greater frequency and intensity than they otherwise would, all other things held constant. Additionally, I perform a case-study of the participation decisions of one Member of Congress to whom I have had special access.

**Julia French**

Advisor: Eduardo Honold

*"State-Labor Relations and the Making of Social Policy in Latin America"*

In the current Latin American context of structural adjustment, the role of labor in the formulation and implementation of policy has received very little scholarly attention. The stabilization policies following the debt crisis and the imposition of free market, structural reforms are seen by scholars and practitioners alike to require a considerable degree of authoritarian style decision making. As a result, those theories which present the state as the primary if not unitary agent of policy making have been privileged in the literature. This thesis is partly a response and criticism to such theories. It argues that these models fail to accurately describe labor's behavior within the policy making structure and thus the role it may play in determining policy outcomes. Consequently, an alternative, institutional explanatory model is offered as a corrective to the perceived failings of current conceptualizations of labor's role in the making of policy. Such an argument is based on and substantiated through a comparative analysis of organized labor's participation in the formulation and implementation of policy in three Latin American countries: Chile, Bolivia, and Mexico.

**David Lieber**

Advisor: Douglas Hodgkin

*"Street-Level Bureaucrats and Welfare Reform: Contextual Factors That Shape Local Welfare Caseworkers' Decisions"*

Previous research on welfare reform has focused almost exclusively on the economic effects of various welfare-to-work initiatives and programs. This study delves into the administrative dimension of welfare reform, attempting to determine if and how local caseworkers can impact the timing, substance, and outcomes of legislated welfare reforms. Through extensive interviews with local welfare caseworkers in Chicago, Illinois and Lewiston, Maine, this study examines the changes in administrative behavior (and in particular the notion of administrative discretion) engendered by the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (the new federal welfare law). Contextual factors germane to administrative behavior (such as resource availability, agency and managerial pressure, the nature of state welfare programs, welfare office culture, and personal philosophies) are employed as the bases for assessing the responses of local welfare caseworkers in this new, post-entitlement era.

**Timothy Ruback**

Advisor: James Richter

*"Globalization, National Cinema and the Politics of Film in France"*

Given that understandings of national identity are based on the work of social imagination, media systems are important in the normalizing of the imaginary in collective terms at the national level. This works through both the normalizing of language, and mobilizing narratives in a way that is tied to the state, first through print capitalism, which provided the framework for nations and later through new medias, such as film. However, in a system of high modernity, media systems cease to be bound to the nation, and provide for alternative value generating systems, produced externally, and not necessarily tied to the nation-state in terms of language or narrative. This thesis examines the tenuous, often adversarial relationship of American (Hollywood) films in France in the mid to late 1990's and France's attempts to limit the number and influence of American films within France through protectionist measures such as the GATT French cultural exception and a rhetoric of "national cinema" as not primarily an issue of economic protection of a floundering industry, but instead a struggle where the nation tries to maintain control of collective imaginations when faced with the possibilities of a post-national order.

## PSYCHOLOGY

**Jessica Bondi**

Advisor: Kathy Graff-Low

*"Self-Mutilation in College Women"*

Self-mutilation, or self-injury, is "the deliberate destruction or alteration of body tissue without conscious suicidal intent" (Favazza, 1989). Mutilation most often takes the form of cutting the skin on the wrists and forearms, but is seen on other areas of the body as well. Incidence in the 15-35 age group has been estimated at 1.8% (Favazza & Conterio, 1988). However, results of the present study reveal an incidence of 11.5% among undergraduate women at Bates. Self-mutilation is thought to be a form of tension reduction and expression of overwhelming negative affect and many women who engage in this kind of self-injurious behavior claim not to feel pain, possibly because of a strong ability to dissociate. I have investigated issues of pain and dissociation in response to a cold-pressor task as a model of self-injury and have interviewed women who have experienced selfmutilative behavior in an effort to further understand the phenomenon.



Amy Hill

Advisor: Drake Bradley

*"Role-Playing as a Technique to Enhance Creative Performance"*

Role-playing seems to have a "freeing" effect on people, somehow allowing them to escape from their normal patterns of behavior. For this reason, role-playing techniques and activities are not uncommon in our society. Children use them in their play to test out some of society's adult roles, for example. Among adults, roleplaying is used in theater and in therapy, often to help with the development of empathy and expressiveness. Research has shown that role-playing might be a useful educational tool as well. For example, there is evidence to suggest that in some cases role-playing may have a performance - enhancing effect for some children on certain cognitive tasks. This thesis examines the possibility that role-playing might have such an effect on children's creative output. To test this hypothesis, 127 fourth, fifth, and sixth graders wrote short stories and made collages after receiving one of four sets of instructions. Undergraduate students then ranked them from most to least creative so that the creative output of children in the four different instructional groups could be compared. It is hypothesized that children who were asked to role-play an especially creative person while completing the two tasks will have produced more creative work than those receiving other instructions. If effective, this technique could perhaps be used as a strategy for improving children's performance in a variety of areas.

Alyson Langlois

Advisor: Georgia Nigro

*"From Poverty to Promise: Using Multiple Intelligences Theory to Assess the Strengths of Economically Disadvantaged Kindergartners"*

One of the most disturbing consequences of poverty is the effect it has on children's cognitive development. A substantial and growing body of empirical literature has provided incontrovertible evidence documenting the fact that children raised under conditions of economic hardship score poorly on measures of cognitive ability and academic achievement relative to their more affluent classmates. So pervasive are the cognitive deficits associated with poverty that early intervention preschools and programs such as Project Head Start have done little to impart anything more than transient cognitive gains to economically disadvantaged children. While these programs were undoubtedly effecting positive changes in motivation levels and social competence, IQ scores were simply not improving. Such relentless focus on detecting deficits through the use of standardized cognitive assessment measures represents a shortcoming in the research on economically disadvantaged children. The IQ test and other standardized assessments like it only measure a child's linguistic and logical capabilities, not to mention their proficiency at standardized test taking. These tests can reliably detect deficits within linguistic and mathematical domains, but are unable to recognize nontraditional strengths that low income children may bring into the classroom.

Perhaps detection of strengths in nontraditional domains could provide an avenue for teachers to instill the more traditional cognitive skills that low income children often lack.

Howard Gardner's theory of multiple intelligences (MI) could potentially provide a useful framework for conceptualizing children's strengths outside of traditional linguistic and logical or mathematical domains. Gardner has expanded the traditional view of the human intellect to encompass seven different intelligences: linguistic, logical/mathematical, bodily/kinesthetic, visual/spatial, musical, interpersonal, and intrapersonal. Gardner's MI theory has its roots in cognitive psychology, but has been enthusiastically embraced by educational reformists who see within its structure the potential to nurture a broader array of strengths within children than school systems are currently cultivating. Because MI is a relatively new theory, however, few valid and reliable methods of assessing multiple intelligences within young children exist. I use two MI assessment measures developed by researchers to be used on young children to see how well these measures can detect strengths within a group of 29 low and high income kindergarten children. I obtained information regarding their economic background and the educational levels of their parents, as well as their scores on a standardized test measure to see if the lower income children in my sample performed more poorly than their classmates. I will compare the pattern which emerges from these new MI assessments for low and high income children to see if different profiles of strengths and weaknesses emerge. I will also compare the MI patterns for children who obtained high and low scores on the standardized test measure.

**Amanda Leighton**

Advisor: Georgia Nigro

*"Effects of Men's Attractiveness and Willingness to Communicate on Women's Perceived Risk for HIV Infection"*

While HIV is an issue for all sexually active women, it is particularly an issue of concern for young and adolescent women. Research on adolescents' and college students' sexual behaviors reveals that even over the near-decade which this research spans, young people continue to engage in risky sexual practices. Because heterosexual transmission is such a concern for women, with women becoming infected through heterosexual transmission more often than men ever since the disease was first discovered, the present research examined factors which may contribute to women's failure to practice safer sex. In particular, this research investigated influences which lead women to lower their perceived vulnerability to HIV in certain situations. For instance, a woman who is particularly motivated to have sexual intercourse with a man may use other information about his personality, which has nothing to do with his actual risk for HIV, to justify lowering her perceived risk for contracting HIV from him. Also, research has shown that women may rely on getting to know their partner as a means of assessing his HIV risk. Thus, men who are more open and willing to communicate may be viewed as being at lower risk for HIV because they facilitate a women's strategy of getting to know her potential sexual partner in order to assess his HIV risk. The present

research involved two separate studies. The first involved computer-assisted interview in which 12 sexually experienced heterosexual women were asked questions concerning their motivations to have sex in general, as well as their motivations to engage in unprotected sex. The interview transcripts were qualitatively analyzed for themes relating to these motivations. The second study was an experiment in which 60 women were given questionnaires asking them to estimate their perceived risk for contracting HIV from described male targets. The male were described as attractive or unattractive, as good or poor communicators, and as having few or many sexual partners and consistent or inconsistent condom use. It was hypothesized that women would estimate their risk for HIV infection to be lower when engaging in one instance of unprotected vaginal intercourse with the attractive men who were good at communicating as compared to male targets with the same sexual histories but no physical or communication description. Implications for prevention strategies for women are discussed.

**Rebecca A. Orfaly**

Advisor: Drake Bradley

*"Apparent Neglect of Statistical Power in Split-Plot Designs"*

An important issue in designing experiments is the determination of the sample size needed to achieve acceptable statistical power. Power refers to the probability of correctly detecting an effect that is present in a population. An objective of this study is to assess the statistical power of experiments published in a highly regarded journal of neuroscience. An examination of 60 experiments in behavior at Neuroscience which employed split-plot experiment designs revealed that the average power for detecting a large effect was only .56 (.80 and above is recommended by most authors). Although current guidelines in the discipline suggest that researchers should routinely report the power analyses conducted in order to determine the sample sizes for their experiments, this seems to rarely occur. Indeed, none of the experiments examined in this study reported a priori power analyses. A possible consequence of this neglect of power is that a large number of studies are conducted in which nonsignificant results are obtained, most of which are never submitted for publication (the so called "file drawer" phenomenon). This would explain why the studies which are published usually report significant results. Even though they have low retrospective power, they represent a biased sample of the studies conducted on a given phenomenon.

**Alyssa Vitalius**

Advisor: Georgia Nigro

*"Girls and the Experience of Romantic Relationships in Late Adolescence"*

This thesis explores the socialization of girls, looking specifically at how representations of self and others are manifest in their early romantic relationships. Traditional psychoanalytic

theories emphasize separation and individuation as the goal of development. More recent work in feminist psychology suggests that traditional theories serve as a model of masculine development but may not accurately reflect women's experience. A relational theory of development has been developed as a new way to view women's psychology. According to relational theory, an inner sense of connection to others is a central organizing feature of development; women ground their sense of self in their ability to make and maintain relationships. Consistent with this view, Lyn Mikel Brown and Carol Gilligan's work with adolescent girls showed that to sustain connections with adults and friends, girls split off parts of themselves that were deemed unacceptable by the cultural standard. Girls were aware that strong feelings spoken directly threatened their relationships, and that to be nice, calm, and quiet was rewarded with attention and praise. Brown and Gilligan link girls' disconnection from themselves and engagement in inauthentic relationships with lowered self-esteem, academic decline, and eating disorders. Recent studies suggest that by late adolescence, girls begin to recover the ability to engage authentically with their female friends but not with their boyfriends. A review of the research on girls' relationships exposed the need for more exploration of girls' experience in relationships with boys. This thesis targets this time in late adolescence when college women are establishing an adult identity. Twelve white, middle to upper-middle class women participated in in-depth, semi-structured interviews that focused on self conception, experiences in romantic relationships, and how perceptions and experiences changed over time. I am using grounded theory methods in data collection and analysis to gather rich, qualitative data. I am analyzing this data first through line by line coding of the transcribed interviews, which helps identify general themes, and then through focused coding of these more general themes. Progressively more abstract conceptual categories are emerging, which I will try to synthesize into a theory concerning the nature of adolescents' experiences in romantic relationships.

## SOCIOLOGY

Meredith Haviland\*

Advisor: Victoria Johnson

*"The Portland Symphony Orchestra: A Sociological Perspective"*

The Portland Symphony Orchestra has served as a source of community pride for Maine throughout the century. This paper focuses on the development of the Portland Symphony Orchestra from its earliest forms in 1924, linking these changes to status, and also examines the purpose and meaning of the orchestra. Through looking at status as defined by Weber, as a reflection of lifestyle and prestige, the communicative nature of the ritual of the orchestra is examined. A study of newspaper articles and programs, in conjunction with theories that explain the relationship among symphony orchestras, rituals, and status, provides the

information with which to examine the Portland Symphony Orchestra from its inception and throughout the century.

**Kenneth H. Kolb**

Advisor: Victoria Johnson

*"Illegal Immigration from Mexico into California: The Social Construction of a Problem"*

During times of fiscal recession, pre-existing Mexican stereotypes combine with immigrant scapegoating to "construct" a negative image of the illegal immigrant from Mexico. Historically, the welcome mat for Mexican immigrants to enter this country has been arbitrarily presented or removed according to the desires of American employers for low wage, exploitable labor. Public perception of illegal immigration from Mexico as a "social problem" has also shifted along with the economic climate. In this thesis the motivations behind the claims makers, and the strategies that they use to construct illegal immigration as a "social problem," will be examined using a "contextual constructionist" approach. The positive aspects of illegal immigration will also be explored to evaluate the accuracy of the claims makers who have participated in the construction of illegal immigration as a social problem.

## THEATER AND RHETORIC

**Erin Gottwald**

Advisor: Marci Plavin

*"Dance Performance as a Reflection of Human Relationships"*

My senior thesis consists of choreographing and directing a dance performance which will be performed by myself and fourteen other Bates students on December 5 and 6 in Schaeffer Theatre. My motivation for creating a piece such as this stems from the various reflections of art, dance, and humanity which are revealed through images of nature. I plan to use dance as a medium to portray images of the ways in which bodies are constructs of nature and especially how human life follows a path very similar to that of a tree: branching off at certain times during the life cycle. By experimenting with silence, breath, voice, and physical touch, dance becomes a tool for us to look deeper into the nature of the relationships we form and the emotions we exude. As a choreographer, I hope to create an intimate community of physicality on stage with which the dancers discover new and personal ways to portray their own visions and reflections through movement. I am keeping a daily journal of my choreographic process: both the creative and logistical dilemmas I encounter and the discoveries I make. In order to understand this process more fully, I plan to continue reading autobiographical literature of various modern dance choreographers: Mark Morris, Bill T. Jones, Jose Limon, and Martha Graham.

**Meghan Leslie Gullette\***

Advisor: Charles Nero

*"Race the Heartland: Examining Metaphor in Discourse About the Oklahoma City Bombing"*

In my thesis I examine racially coded metaphors in the discourse about the Oklahoma City bombing. Whites, specifically those in positions of power used various strategies such as evasion, rearticulation and scapegoating to explain the bombing. I explore this metaphorical and hidden language, and how it leads to the recognition, acceptance, and reproduction of false truths, stereotypes and rewritten history. Metaphors generate an image of a white, Christian heartland untouched by violence, and a threatening, external, savage enemy. The use of metaphor in the discourse surrounding the Oklahoma bombing fosters a collective identity in Oklahoma that systematically degrades and excludes those who are not white and helps maintain the invisibility of whiteness.

**Arthur Stamoulis**

Advisor: Charles Nero

*"Class Bias in the Mainstream/Corporate Press: An Examination of Narratives in Mainstream US Newspaper"*

Coverage of the 1997 UPS Strike

This thesis challenges common media presentations of journalistic objectivity, neutrality, fairness, and balance in its examination of mainstream US newspaper coverage of the August 1997 Teamsters strike at UPS. The thesis demonstrates how news narratives in the press which were framed as being about the strike encouraged readers to identify first and foremost with consumers and workers inconvenienced by the walkout. By almost completely failing to report on the plight of strikers during the work stoppage, and by spending comparatively little space explaining the causes of the walkout, overall news narratives were created which suggested that strikers were inconsiderately harming the nation for illegitimate reasons. Furthermore, these narratives revealed the mainstream press' class bias in their characterization of striking workers as child-like victims of the Teamsters union. The anti-union and anti-worker suggestions created by these mainstream news narratives fittingly worked to support the class interests of corporate media owners.

## WOMEN'S STUDIES

Kimberly Walker\*  
Advisor: Tim Chin

*"Negotiating Identity through Displacement: Caribbean Women Writers Voicing Resistance"*

Caribbean women are often positioned in the margins of their national and personal homes. Oppressed by multiple forces, including racism, sexism, classism, and colonialism, the conception of home as a safe space is problematized for Caribbean women. Many women are forced either through exile or emigration, to leave their indigenous lands in attempts to find an alternative space in which to exist. Leaving home also places Caribbean women between two or more conflicting cultures, a location requiring constant negotiation. Various Caribbean women authors have challenged the restrictive structures that violate and displace them. Merle Hodge, Edwidge Danticat and Jamaica Kincaid in their respective novels *Crick Crack, Monkey, Breath, Eyes, Memory* and *Lucy* voice the pain of overcoming displacement and homelessness. Despite the isolation inherent in such a position, homelessness enables the female characters in the texts to recognize and rethink the oppressive structures that have excluded and marginalized them. With a critical distance from "home," the protagonists in these texts are able to negotiate an identity resistant to the oppressive effects of colonialism and patriarchy.