

JUNIOR FACULTY SUMMER RESEARCH AWARD PROGRAM



BOOK OF ABSTRACTS

2007 PRESENTATIONS

November 19, 2007



ABOUT THE CAS JUNIOR FACULTY SUMMER RESEARCH AWARD PROGRAM

The College of Arts & Sciences Junior Faculty Summer Research Awards program was initiated in the 2005-2006 academic year to support selected junior faculty as they develop their research and creative projects during their probationary period, a critical time in their careers. The program provides summer salary support to junior faculty for the purpose of advancing their research and creative projects and scholarship. Recipients are selected on a competitive basis.

The first 13 awards were made in 2006 with financial support from College Dean and the Provost. Funds for the second set of 17 awards made in 2007 came from a special university funding pool for one-time initiatives.

ACKNOWLEDGMENTS

Sincere thanks are due to Dr. Gerald Pogatshnik, Associate Vice President for Research and Dean of the Graduate School, for facilitating the financial support for the 2007 CAS Junior Faculty Summer Research Awards and to the former Dean, Dr. Andrew Schoolmaster, for negotiating the support. Thanks are also due to members of the College Research & Faculty Development Committee for their diligent work in reviewing the applications and selecting the recipients. We are also indebted to Mrs. Dana Kearns and Mrs. Kelly Powell, the Dean's office staff who worked meticulously in handling the logistics involved in the application review process, award management, and the setting up of the poster presentation session. Last but not least, our gratitude goes to award recipients and all applicants for making the junior faculty summer research program the success that it is.

PROGRAM

Location: First Floor Lobby, Roark Building (Refreshments served)

3.00 - 3.30 pm	Set up
3.30 - 3.35 pm	Opening remarks, Dr. John Wade, Interim Dean
3.35 - 4.15 pm	Poster sessions
4.15 - 4.30 pm	Interactions among recipients
4.30 - 5.00 pm	Clearing

FURTHER INFORMATION

For further information please contact:

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PRESENTERS AND TITLES

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ABSTRACTS

1

The Image and Migration

Ben Bridgers

Department of Art & Design

My primary objective was the continuation of building a current body of artwork that I have been actively engaged in producing and exhibiting over the past six years. In addition I traveled to the Netherlands to conduct research on Dutch painting at the Rijksmuseum and the Van Gogh Museum in Amsterdam. My current work consists of traditional techniques in the drawing and painting medium with imagery that is autobiographical in nature and heavily influenced by the transition of environment, time, and place. With this work I began referring back to 17th century Dutch still life and landscape painting. These Dutch paintings were beautifully rendered with highly realistic imagery that was at times very deceptive. The use of odd juxtapositions and subtle instabilities of imagery was a reminder of our mortality. Even with landscape painting there were often reminders of uncertainty through the use of light and space.

The results of my research entail a body of paintings and drawings relating to my recent transition from California to Kentucky. These works allow the viewer to observe my vision as a contemporary painter working through traditional techniques to explore relevant themes surrounding the human experience. This body of work is currently on display in a solo exhibition titled *From California...* at the Auginbaugh Gallery at Messiah College in Grantham, Pennsylvania and will be there through November 2007. In conjunction with the Messiah College exhibition, select pieces are included in current group exhibitions at the Barton Museum in Wilson, North Carolina and the EXP Gallery in Chicago, Illinois.

2

An Architectural History of the Canterbury Hebrew Congregation, Christchurch, New Zealand. (Including a Discussion of Influential European Synagogues and Australasian Contemporaries)

Gay Sweely

Department of Art & Design

Jewish immigration to New Zealand has been characteristically low since the beginning of the 19th century. In the early 1860's, a number of Anglo-Jews (from Great Britain) came to the gold rush areas of Otago and Westland on the South Island, later establishing themselves in commerce and industry. The Jews on the Canterbury Plain formed a *minyan*, established the Canterbury Hebrew Congregation, and selected prominent architect Benjamin Woolfield Mountfort to design their *shul* (place of worship). In the 1870's and 1880's, those Jews immigrating to Australasia were no longer only Anglo-Jews. The majority of the new immigrants were eastern-European Jews who were escaping the waves of pogroms and massive episodes of oppression. The Hebrew Congregation in Canterbury expanded so rapidly that, by 1875, a more suitable structure was needed. The architect selected for the proposed synagogue was T.S. (Thomas Stoddart) Lambert.

In 1874, Lambert moved to Wellington but was not excited about building prospects there. Subsequently, he moved to Christchurch and entered the office of Frederick Strouts, one of four founding members of the Canterbury Association of Architects (1871), which also included Mountfort. Lambert's designs in Canterbury, prior to 1880, included churches, residences, schools, commercial buildings, and rural hotels. An 1880 newspaper article from the congregation archives reported that Lambert's synagogue design was unique and that the façade would be clad in blue, white, and yellow stone, with exterior walls of brick (local Hoon Hay stone was also used).

This paper explores the built-history of the Canterbury Hebrew Congregation, architects Mountfort and Lambert, and the design and construction of the new synagogue in Durham Street, Christchurch, in mid-1888. The 2007 Junior Faculty Summer Research Award made it possible to research and document the architectural history of the 19th-century synagogue for the Canterbury Hebrew Congregation, the New Zealand Historic Places Trust, the New Zealand Jewish Archives, and the Canterbury Historical Association (University of Canterbury).

3

Beckett's Ethics

Tom Butler

Department of English & Theatre

My project focuses on the final ten seconds of an obscure, 15-minute play entitled *Ohio Impromptu* by Irish playwright Samuel Beckett (most famous for *Waiting for Godot*). In this play, one character reads from a book to a nearly identical character who says nothing but occasionally knocks on a table when he would like to hear a passage again. The read story is oddly similar to what we see on stage, namely, it is about a man who reads from a book to another silent listener. At the end of the read account, the characters look down and are lost in “profounds of mind.” In contrast, at the end of the play the two characters look at each other “expressionless” for ten seconds. I argue that Beckett contrasts the read account and the stage action in order to highlight different ways of responding to literature. In short, does reading lead to solipsism or to an engagement with other human beings? Beckett, I contend, favors the latter. Indeed, reading can foster ethical encounters with others. I develop an understanding of ethics that derives from the philosophers Luce Irigaray and Emmanuel Levinas who both argue that ethics has nothing to do with prescriptions for moral action; instead, ethics describes an experience a subject has with another human being that upends the subject’s conceptual knowledge of the world. An encounter with another human being renders knowledge useless. The silent, expressionless gaze of the characters at the end of *Ohio Impromptu* portrays such an ethical experience. According to this kind of ethics, the most respectful, least determinative response one could have to another human being is a silent recognition that another human being is outside of all of my subjective, conceptual categories.

4

Prepare for Publication an English Translation, with Scholarly Introduction, to the Zapotec Novel *Songs of the First Winds* by Humanities Javier Castellanos Martinez

Abbey Poffenberger

Department of Foreign Languages & Humanities

I am currently working on an annotated critical English translation of the bilingual Spanish-Zapotec novel: *Cantares de los vientos primerizos/ Songs of the Ancient Winds* (1994) by Javier Castellanos Martínez. This work is particularly unique in that it is lauded as the first Mexican indigenous novel, and the author is recognized by his peers as one of the foremost artists of Mexican indigenous literature. It consists of seven chapters and is bound with a Spanish translation written by the author himself. The novel genre allows Castellanos Martínez to offer a poignant portrayal of the complex issues facing

contemporary Zapotec communities, as the characters navigate modern society while searching for the most effective manner to preserve their cultural traditions.

Songs of the First Winds articulates a space for heterogeneity by demonstrating the power of literature as a device for resistance and cultural preservation, through the reaffirmation of indigenous traditions and languages. Furthermore, it inspires a revision of the indigenous communities both from within and beyond non-native communities, on their own terms, in their own words.

5

Rêves Pastoraux (Pastoral Dreams): An Interactive Multimedia Composition on DVD

Thomas M. Couvillon
Department of Music

Rêves Pastoraux (Pastoral Dreams) is an original multimedia composition on DVD that combines images and sounds from the wilderness areas of Kentucky with a score of electronic music and processed natural sounds. The piece is conceived as an exploration of our constantly changing experience of nature from a variety of physical and temporal points of view (different perspectives, different seasons, etc.). The natural images and sounds are digitally processed and placed in a multi-channel (surround sound) audio environment to give the work a slightly surreal and dreamlike atmosphere. The work is organized into four scenes, each of which explores a different temporal/physical environment. Rêves Pastoraux will eventually exist in two formats: a non-interactive version for the purpose of concert performance and an interactive DVD version that will give the viewer the ability to choose a variety of paths as they pass through the experience of the piece.

6

Concerts and CD Recording in Dornheim, Germany Cello and Organ Music

Nathanael D. Jasinski
Department of Music

Johann Sebastian Bach was married in 1707 to Maria Barbara in a small church in Dornheim, Germany. Hardly a household name, Dornheim is a village of 500 about 2 miles from Arnstadt, the city in which Bach held his first position of organist. The young Bach had fallen into disfavor with the minister of the large church of his employment due to an incident that had something to do with having a girl (perhaps Maria Barbara?) in the organ loft after hours! He then opted to walk the 2 km to Dornheim to be married in

the St. Bartholomew church at the center of this little town. The church still stands today, and is on the historic Bach registry. Each year, thousands of tourists visit Arnstadt and Dornheim as part of tours through Thuringen, or "Bach country" as it is affectionately known.

BYU professor of organ and Bach scholar Dr. Douglas Bush has long had a relationship with the curators of the St. Bartholomew church, visiting it many times. In 1999 and 2001, we visited the site, performing concerts and recording two CDs in the process. The CDs were sold in the church and the proceeds went to help maintain the historic building. A complete renovation of the church was completed in 2000. We were invited back this year to produce another CD to be sold in the church.

In addition to our activities in Dornheim, we arranged concerts in Innsbruck, Austria and Geisa, Germany where we performed the repertoire to be recorded in Dornheim. Among the pieces for organ and cello we recorded are two world premiere recordings: one of David Sargent's Sonata for the Church, written in 1997, and Rodolf Bibl's Adagio for organ and cello. These will be of interest to the cellist community as introductions of new pieces for our instrument.

7

Ethical Training and Emptiness: The Living Legacy of Nāgārjuna and John of the Cross

Abraham Vélez de Cea

Department of Philosophy & Religion

Inter-religious dialogue can be fostered through comparative studies. Among the many possible types of comparative studies, comparisons of ethical values and spiritual practices are more likely to promote dialogue than comparisons of doctrines and beliefs. We might disagree on fundamental doctrinal matters, and yet we might agree on central ethical values as well as on specific practices to implement them. While former Buddhist-Christian studies have focused primarily on comparisons of theological and philosophical concepts, little attention has been given to comparisons of specific methods to develop ethical virtues.

In this project, I compare how emptiness is understood and used as a method to develop ethical virtues in the Indian Buddhist philosopher Nāgārjuna (ca. 150-250 CE) and the Spanish Catholic mystic John of the Cross (1542-1591 CE). More specifically, I examine the meaning and the ethical functions of John of the Cross' concept of *vacío* and Nāgārjuna's concept of *śūnyatā*.

In order to maximize inter-religious dialogue and avoid misconceptions, I supplement a mere textual analysis with field research in religious communities where the ethical and

spiritual teachings of Nāgārjuna and John of the Cross are still influential. That is, this comparative study presupposes the actual praxis of inter-religious dialogue with Tibetan Lamas at the Central Institute of Higher Tibetan Studies, Sarnath, India, and members of the Carmelite order at the Centro Internacional Teresiano-Sanjuanista, Avila, Spain.

8

The effects of the neuropeptide arginine vasotocin (AVT) on male aggression in the monogamous convict cichlid, *Archocentrus nigrofasciatus*

Nicholas Santangelo

Department of Biological Sciences

Arginine vasotocin (AVT), as well as its mammalian homologue arginine vasopressin (AVP), has been shown to modulate a variety of behaviors such as aggression and parental care in monogamous animals, however monogamous fish have yet to be explored. Here, we investigated the effects of arginine vasotocin (AVT) and its specific antagonist (i.e. specifically binds to, but not activates, AVT receptors) Manning compound on parental aggression in males of the biparental monogamous convict cichlid *Archocentrus nigrofasciatus*. Saline and isotocin (IT; the teleost fish homologue of mammalian oxytocin) were used as controls. Because IT only differs from AVT by one amino acid, it is an ideal control to test the specificity of AVT to modulate a specific behavior. Data was collected and analyzed on the number of bites a parental male exhibited towards a strange male (i.e. an "intruder" fish). This intruder was set behind a clear partition while the parental male was caring for offspring. AVT and isotocin increased male parental aggression while Manning compound had the inverse effect (i.e. it decreased aggression). The effect of isotocin in this monogamous fish system was surprising as previous studies have shown that in polygynous systems, AVT increased aggression while isotocin had no effect. This perhaps suggests that in more "complex" biparental societies where AVT has additional functions (i.e. modulating pair bond behavior and parental care), isotocin has evolved as an added modulator of some of these behaviors such as aggression..

9

Building Efficient Peer-to-Peer Networks for Content Delivery over the Internet

Mengkun Yang

Department of Computer Science

The decentralized P2P technique has been widely used to implement scalable file sharing systems. It organizes nodes in a system into a structured or unstructured network. The

advantages of the unstructured P2P system are that they have lower maintenance complexity and can better adapt to node heterogeneity as well as network dynamics. However, the search process in unstructured system is not as efficient as in structured P2P systems because the same search message may go through a node multiple times. We proposed a novel approach to improving the search efficiency in unstructured P2P networks by assigning each node a unique identifier (ID). Based on these IDs, we developed a search algorithm to avoid message duplication when forwarding queries. We proposed a passive mechanism for monitoring and discovering neighbors in order to reduce the maintenance overhead. The performance evaluations demonstrate that the proposed approach can improve the search efficiency of unstructured P2P systems while keeping the maintenance overhead at a comparable or even lower level, compared with the traditional unstructured systems.

10

Covering Systems

D. Jason Gibson

Department of Mathematics & Statistics

A covering system is a collection of congruences with distinct moduli, each greater than 1, such that each integer satisfies at least one of the congruences. A conjecture of Erdős from 1950 states that the least modulus of a covering system can be arbitrarily large. This conjecture remains open, and, in its full strength, appears at present to be unattackable. Most of the effort in this direction has been aimed at explicitly constructing covering systems with large least modulus. Improving upon previous results of Churchhouse, Krukenberg, Choi, and Morikawa, we have constructed a covering system with least modulus 25. We discuss the method involved and consider its applicability to related conjectures.

11

Hidden Target Photogrammetry Enhanced with Refraction of Targets

Jennie E. Campbell

Department of Physics & Astronomy

Photogrammetry is the three-dimensional reconstruction of an object's geometry from two or more two dimensional images. It is becoming more useful and acceptable as a non-contact measurement technique due to the recent improvements of digital image technology. Hidden Target Photogrammetry was developed to determine the geometry of water rivulets, small streams of water, which flow on surfaces. Reconstruction of the

rivulet is completed by allowing them to flow on a grid of circular targets. It is the three dimensional reconstruction of the targets that can be distinguished in all images that allow for the rivulet geometry to be determined. The reconstruction provides only an envelope of the rivulet geometry, not the exact shape. Due to the transparency of the rivulet, targets that can be observed through the fluid are distorted. This distortion is due to refraction of light as it moves from one material (the rivulet fluid) to another material (the air). The distortion of a target is determined by the height of the water covering the target and the angle at which the target is viewed. This work attempted to look at the distortion is a target and determined the height of the water that was covering it, thus giving a better description of the geometry of the rivulet.

12

Late Light Curves of Sub-luminous Type Ia Supernovae

Jessica C. Lair

Department of Physics & Astronomy

The late light curves of Type Ia supernovae (SNe Ia) are powered by the deposition of positron kinetic energy from the decay of ^{56}Co into the supernova ejecta. It has been suggested that a fraction of these positrons can escape the ejecta and contribute to the Galactic 511 keV annihilation radiation (Chan & Lingenfelter 1993; Milne et al. 1999). Previous studies have modeled the late emission from SNe Ia as either complete and instantaneous trapping of all the positron in a radiation transport code, or energy deposition modeling transporting the positrons through the ejecta allowing for some escape. A study of the late light curves of normally-luminous SNe Ia showed that neither method of modeling could completely explain the shape of the curves (Lair et al. 2006). To expand upon that work, we are studying the late light curves of subluminescent SNe Ia, employing the data analysis technique of template image subtraction. Including the light curves of subluminescent SNe Ia into the larger set we will have a more complete picture to use for conclusions regarding the treatment of positrons in SNe Ia models.

13

A Study of Psychosocial Characteristics That promote Positive Health Management in Older Adults with End-Stage Renal Disease

Robert L. Karolich

Department of Anthropology, Sociology & Social Work

Understanding the human response to illness in relation to positive health behaviors and treatment adherence has been a challenge to social scientists for decades. This research

analyzed the association of the psychosocial characteristics of *sense of coherence*, self-perceived quality of life, and positive health behaviors in regard to health behaviors and adherence to treatment in 100 adults fifty years old and older with end-stage renal disease. A combined method of quantitative measures and qualitative-narrative interviews were utilized to collect data. The purpose of the study was to gain insight into the characteristics that promote positive health outcomes, through understanding the health behaviors that contribute to adherence to treatment. The goal of this research is to demonstrate the importance of meaningful and effective social work assessments of clients with end-stage renal disease to promote positive outcomes. The study explored an assessment tool that will assist social workers to understand the characteristics that promote resiliency, as well as the barriers that impede positive health behaviors. Through effective psychosocial assessments to better understand the attributes that are associated with positive health behaviors and adherence to treatment, social workers have the potential to help improve resiliency, quality of life and positive outcomes for thousands of older adults who are diagnosed with end-stage renal disease requiring hemodialysis as a life support measure.

14

The Evangelical Vote in Mexico

Steve Barracca

Department of Government

This project seeks to explain why Mexico's Evangelical Protestant voters are among the strongest supporters of the Institutional Revolutionary Party (PRI). This partisan attachment is a puzzle because surveys indicate that Evangelicals in Mexico are more socially and economically conservative than the average citizen. At the same time, the PRI has historically been associated with secularism, anti-clericalism, and economic populism. Given their ideological leanings, one would expect greater Evangelical support for the country's most conservative and religiously-grounded of its three major parties, the National Action Party (PAN). Combining historical analysis with survey data, I explain Evangelical support for the PRI as a product of both historical and contemporary factors. Historically, Evangelical partisan attachments to the PRI were consolidated in the period between 1935 and 1965 as a result of Catholic anti-Protestant violence in rural Mexico. The continuity of this partisan attachment in contemporary politics can be explained by four factors: (1) enduring partisan identification; (2) the PRI holding conservative positions on social issues, effectively taking them away from the PAN; (3) the appeal of the PRI's economic populism among a sizable minority of Evangelicals; and (4) the persistence of sectarian tensions today.

15

Islamic Revivalism in Post-Colonial West Africa: Gender and Class Issues in Shari'ah Law in Nigeria

Ogechi E. Anyanwu
Department of History

The re-introduction of Islamic law of Sharia in 2000 has reshaped Nigeria's criminal justice system. In all societies, the criminal justice system produces social harmony by reaffirming the society's adherence to established norms. As a French sociologist, Emile Durkheim stated in his work, *The Division of Labor in Society*, "[w]hat confers a criminal character on an act is not the nature of the act but the definition given it by society." Thus, a society's justice system reflects its established traditions, culture, and beliefs as well as promote social solidarity by uniting non-violators (society as a whole) in what Durkheim called conscience collective. This paper critically examines the provisions and implementation of Sharia law as it relates to women since 2000. It will account for, and provide fresh insights on, how the suppression of women's rights, coupled with the selective and harsh punishment perpetrated against women, is not only repugnant to natural justice but also threatens to destroy Muslims' collective conscience which the justice system seeks to unite.

16

American Crossroads: Migrations and Intersections in Antebellum America

John P. Bowes
Department of History

My poster presentation will focus on two aspects of the work I conducted under the auspices of the Junior Faculty Summer Research Award. First, I intend to explain in brief the overarching book project, entitled, *American Crossroads: Migrations and Intersections in Antebellum America*. It is a project that will examine different cities and towns in the early nineteenth century trans-Mississippi West to obtain insights into the intersection of different segments of the population during a period of increased movement and expansion in the United States. This brief explanation will provide a summary of both the purpose and proposed structure of the book. Second, I intend to present an overview of the article that I produced over the summer as a result of this research award. The article is titled, "The Gnadenhutten Effect: Moravian and Canadian Munsee and Delaware Indians from the 1780s to the 1830s," and it addresses the ways in which Munsee and Delaware Indian converts to the Moravian religion utilized that political border in an attempt to evade the violence permeating the Ohio Valley in the late eighteenth and early nineteenth centuries. As part of my presentation I will also explain

the ways in which the information in this article illustrates the larger points I intend to make in *American Crossroads*.

17

Daily Self-Improvement

Jonathan S. Gore

Department of Psychology

This project involved the development of materials and proposal of a daily diary study to be conducted in face-to-face and online sessions. Two research assistants and the principal investigator spent the summer developing the materials for the project and training on the SONA system to familiarize ourselves with the online data collection process. In addition, the principal investigator wrote a formal proposal for approval through the ethics committee and submitted it at the beginning of the Fall 2007 semester. This project was approved September 11, 2007, and data collection will begin in November. In addition, the principal investigator furthered his scholarly work this summer by revising two manuscripts, one which was submitted for publication in October, the other will be submitted in November. He also analyzed data for four separate projects, all of which will be submitted for publication within the next year. The results for one of these projects were presented at the annual conference for the Society of Southeastern Social Psychologists in October. Finally, he supervised the development and approval for two collaborative projects with students this summer, one of which will be developed into a Master's thesis; the other was supported through the McNair Scholarship program and is currently being written up for publication.

