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Summer Research and Creativity Grants

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One of the special benefits of a large research university is the opportunity it provides undergraduates to study in a wide variety of disciplines and to work under the personal supervision of nationally recognized scholars. As a means of promoting such educational experiences for students, the Office of Undergraduate Studies offers Research and Creativity Grants during the summer term. The grants are intended to take advantage of the rich resources available through the libraries, the laboratories and, most especially, the academic personnel at the University of Kentucky. Undergraduates in all areas of intellectual inquiry are eligible, and students at many different levels of matriculation have received support. Both individual projects and joint ventures have been endorsed by the selection committee, which is particularly interested in funding interdisciplinary efforts. During the summer of 2003, a total of eleven awards were made. Of these awardees, the following students had progressed far enough to be able to supply a description of their research in time for publication in this issue of Kaleidoscope:

William Fredrick Dotson
Department of Psychology
Mentor: Dr. Michael Bardo

Novelty Disruption in Acquisition of Amphetamine Self-administration in High Responders and Low Responders

A great deal of research has been conducted to elucidate the behavioral, neuropharmacological, and neuroanatomical mechanisms associated with psychostimulant abuse. One long-term goal of this research is to determine the genetic and environmental causes for stimulant abuse.

Vulnerability to drug abuse is related to a personality trait known as "novelty seeking" or "sensation seeking." Previous research has shown that stimulant self-administration is greater in rats that are highly active in a novel environment (high responders) compared to rats that are relatively inactive (low responders), but it is not clear whether the decrease resulted directly from exposure to novelty per se or whether any enriching stimuli (novel or familiar) would produce a similar effect. The specific aim of this project is to determine if individual differences in response to novelty predict the acquisition of amphetamine self-administration when novelty is presented prior to an amphetamine self-administration session in high responding and low responding rats.

Rats will first be screened for novelty response and activity using two different tests (free-choice and inescapable induced). In order to conform to a procedure, which in preliminary tests yielded a clear novelty-induced decrease in acquisition of amphetamine self-administration, exposure to novelty will consist of placing rats (n = 6) individually into a large chamber (50 x 80 x 30 cm high) for 15 minutes immediately prior to each amphetamine self-administration session. The chamber will have pine chips on the floor and various objects made of hard plastic or metal. The objects will be re-arranged daily, with novel objects being introduced daily. Control rats (n = 6) will be handled briefly 15 minutes prior to each self-administration session. Both novelty exposed and control rats will be assessed for acquisition of amphetamine self-administration using a low unit dose. The FR value will be incremented by a pre-determined set of criteria.
Summer Research and Creativity Grants (Continued)

If the hypothesis is supported, the results will add to the mounting evidence that exposure to novel environmental stimuli serves as a protective factor against drug taking among high novelty/high sensation seekers. The findings would also advance understanding of vulnerability for stimulant abuse and could potentially lead to better prevention and drug treatment interventions.

Mott Aumaine
Department of Modern and Classical Languages
Mentor: Dr. Jean Marie Rouhiere-Willoughby
The Generation Gap in Bosnia
In the summer of 2003 I intend to return to Bosnia to examine the generational differences that exist between young people between the ages of 23-35 and their parents. As a continuation of the extensive interviews and journaling from my previous trip, I will examine the issues of religion, oral history, and the gap that exists between the two generations. Previously, among the younger generation I noticed a strong sense of disillusionment. They are barred by the government from leaving the country, and the economy is not regaining its feet. In my travels between Kladusa and Cazin I only met three young people (23-35) who were employed. The continuing economic strain, lack of travel opportunity, and very prevalent disillusionment from the war contribute to an amazing proliferation of oral folklore. Folklore acts to realign society in times of crisis and instability. The conditions of Kladusa and Cazin currently exist in a state of instability and internal crisis. The resulting lore manifests itself primarily as memorates and tabulates that describe eye-witness events passed from person to person. As the foundation for my Gaines thesis, I will examine the transmission of oral lore and the healing function it provides.

Lesli Proffitt
Department of History
Mentor: Prof. George Herring
The Role of Neutrality in Korean War Diplomacy, 1954-55
In this time of polarized foreign policies, understanding concepts and practices of neutrality is essential in making fair and just decisions. How better to gain that level of thinking than to explore the foreign policy of a neutral country during one of the world’s most antagonistic times, the Cold War. Sweden is one such country, and an excellent example, due to the world leadership provided by Swede Dag Hammarskjold as United Nations Secretary General from 1953 to 1961.

I am currently examining how the country of Sweden and the individual, Dag Hammarskjöld, resolved a tense situation involving China and the United States during the Korean War. In November of 1954, China announced that it had eleven American fliers who through Chinese law had been sentenced to long prison terms due to alleged acts of espionage, and that four more airmen were awaiting trial. The US, led by President Eisenhower, refused negotiations with "Communist China" as a part of their continued allegiance to the exiled Nationalist government of China. With these two giants frozen in their politics, Dag Hammarskjöld began mediations under the authority of a UN resolution. The fact that Sweden, as a neutral country, had recognized the Communist government of China did play a factor in the eventual acceptance of Hammarskjöld as a mediator and his authority as the UN Secretary General.

Through the power of diplomacy and the influence of neutrality, China freed the four unconvicted airmen in May 1955. The remaining eleven were freed on August 1st. This event solidified the power and prestige of the UN and established the organization as an independent actor, neutral in its own right. Commonly, neutral countries are popularly defined as countries without an opinion. I disagree with this definition and believe by examining the opinions and papers of government officials, the people, and Dag Hammarskjöld during this tense time, we can begin to dissect the truth of neutrality and better understand it.

I am going to visit the Swedish Foreign Ministry archives within the next week to look at files from the Swedish government point of view. Recently, I have been reading and examining files from the Eisenhower and Dulles files of the Eisenhower Library archives and other scholarly articles on this subject. In July, I will be visiting Uppsala, Sweden and the Dag Hammarskjöld Library, which includes archived papers of the former Secretary-General and is also a UN archive.

Lauren Argo
Department of Theatre
Mentor: Dr. Barbara Lewis
Carolyn Taylor’s Red memory
Develop interest in life as you see it; in people, things, literature, music — the world is so rich, simply throbbing with rich treasures, beautiful souls and interesting people. Forget yourself. — Henry Miller

My summer research and creativity grant is being used to fund research for a play I am writing based on three diaries I purchased at a yard sale in Danville, Kentucky. The diaries roughly span from 1914 to 1933 and were kept by Carolyn Taylor from Augusta, Kentucky. My summer work deals with transcribing the antique text and researching Carolyn’s life in regard to the role of Kentucky women in the twenties. I will be traveling to Augusta, Kentucky to find other remains of her life and record some images of her home. Carolyn Taylor’s Red Memory will not only deal with Ms. Taylor’s life and writings, but also my search for her through the remains of memory I have stumbled upon. As a playwright, I want to explore the connection between myself and the author of these intricate works, using the diaries as a vehicle to find my own red memory.
Jessica Miller  
Advisor: Dr. Paul Trawick  
Department of Anthropology  

Cultivating the Global Market for Local Sustainability: A Study of Agroecotourism on a Costa Rican Farm

Traveling is a means of communication — a conversation that engages all five senses, and opens roads of understanding among its participants. The search for that dialogue is what drives millions of travelers every year to the most beautiful and pristine examples of earth’s self-expression. The ecotourism movement has endeavored to utilize that yearning to protect natural treasures from development by selling travelers the opportunity to observe, admire, and study preserved locations. The demand that this creates for preservation of natural resources, and the money that ecotourism generates for preservation ostensibly protects the land from development, and thus protects the culture of its inhabitants.

Though ecotourism proposes ambitious ideals for sustainability, there are currently many holes in its implementation. In many cases, international nongovernmental organizations (NGO’s) have sponsored ecotourist projects in order to integrate undeveloped communities into the international market. However, due to a lack of international regulations, and a frequent lack of consultation with the indigenous groups, the local community becomes vulnerable to foreign interests instead of the environmental or social impact of the projects.

New forms of ecotourism have taken root in local communities that hope to answer such problems. Agrotourism, for example, is a form of rural tourism, in which visitors have the opportunity to participate in the functioning of the system that they visit, and thus become participants in the local culture. My study will concentrate on La Flor de Paraiso, an agrotourism farm in Costa Rica that combines the ideas of eco and agrotourism. La Flor offers tours of the farm and nearby natural treasures, lodging, and meals to travelers. It also invites volunteers to help with sustainable, organic agricultural practices, with the projects for reforestation, and with the education of the local community regarding sustainable development. The sponsoring NGO, ASODECAH, or the Association for the Development of Environmental and Human Consciousness was constituted in 1998 in order to incorporate the local community into agricultural and social sustainability projects.

Before visiting the farm, I will visit Heredia, where I will be staying with a family and utilizing the resources at the School of Geographic Sciences, Natural Resources, and Tourism in order to gather preliminary research on the history of eco and agrotourism in Costa Rica. From there, I will travel to La Flor de Paraiso, where I will conduct participatory observation as a volunteer, noting the influence of the farm and its participants on the natural resources, and mapping its effect on the local culture. I will converse with the volunteers and the ecotourists in order to understand their backgrounds, their incentives for visiting the farm, and what they will take home with them from their experience. Likewise, I will speak with the managers of the farm, and the people of the nearby town of La Flor de Santiago in order trace the footprints that agrotourism leaves in the sand of this small community.

Jennifer Konopa  
Advisor: Dr. John Thompson  
University of Kentucky Chandler Medical Center  
Department of Internal Medicine  

Absence of the p50 Subunit of NF-κB Significantly Alters TNFα and IL-5 Protein Levels In Vitro

Nuclear factor-κB (NF-κB) can be activated by a variety of stimuli and serves as a transcriptional activator for a variety of inflammatory cytokines. In this study, we tested the hypothesis that the p50 subunit of NF-κB is necessary for the expression of tumor necrosis factor-alpha (TNFα) and interleukin-5 (IL-5) following in vitro activation. Lymphocytes were isolated from p50 negative mice (p50-/-) and wild-type (B6.129) control mice. Both groups of cells were then stimulated in vitro with PHA, 3 Gy gamma radiation, radiation plus PHA or received no treatment. Supernatant samples were collected on days 1, 4, and 7 post treatment and IL-5 and TNFα protein levels determined using ELISA and Search Light arrays.

It was found that cells lacking the p50 gene demonstrated higher levels of TNFα production than did the wild-type controls. P50-/- cells produced 4 to 5 times higher levels of TNFα after stimulation with radiation plus PHA when compared to the wild-type controls’ cells. Twice as much TNFα was produced by p50-/- cells after receiving radiation alone or PHA alone. IL-5 protein levels in p50-/- cells were in contrast to TNFα. Little to no IL-5 protein was produced by the p50-/- cells. Wild-type control protein levels were up to 50 times higher than that of the p50-/- mice when treated with radiation plus PHA. PHA alone elicited IL-5 levels over 70 times higher in the B6.129 control cells than in the p50-/- cells.

Two conclusions are drawn from this study. The first is that the p50 component of NF-κB serves as a transcriptional modulator of TNFα production in vitro. However, it is not essential for the production of TNFα. The increased TNFα production in p50-/- mice may be due to the formation of an alternative NF-κB complex (e.g., p52/p65) in the absence of the p50-/- component. Second, p50 is essential for the expression of IL-5. Because p50 is not known to be directly associated with IL-5 expression, this suggests that a p50 dependent cascade is required for IL-5 expression.
Corinne Kearns
Advisor: Dr. Alice Christ
Department of Fine Arts

Identification of the Couple Portrayed on the Marlborough Turquoise Cameo

The Marlborough Turquoise Cameo is a small Roman gem located in the Museum of Fine Arts, Boston. The cameo portrays a couple with features characteristic of the Julian-Claudian line of Roman emperors and empresses who reigned for ninety-five years between 27 BCE and AD 68. Divine and imperial attributes of the couple include the woman in the guise of the goddess Venus Genetrix and the young man's wreath signifying military and political accomplishments. Roman art historians agree that the woman on the cameo is the Empress Livia. The young man is inconclusively identified as either the Emperor Augustus, Livia's husband, or the Emperor Tiberius, Livia's son. The cameo is dated between AD 14-37, which places it during the reign of Tiberius. However, based on Julio-Claudian dynastic iconography and familial relationships, the two may be identified incorrectly and the gem dated much later than previously thought. I have set out to challenge the accepted doctrine of this piece, based on comparative research into the physical likenesses of other Roman empresses and their sons found on small-scale pieces such as gems and coins, along with additional dynastic relationship possibilities. These dynastic relationships focus on mother and son combinations; including Livia and Tiberius, Agrippina I and Caligula, Antonia and Claudius, and Agrippina II and Nero. Also of interest are the sons of these four women who were promoted as emperors and appeared on Imperial propaganda, but died before ascension to the throne.

Coins of the Julio-Claudian period offer a relatively unbroken chronology of the emperors, empresses, and princes, both alone and in dynastic combinations. Typical dynastic combinations include immediate familial groups or pairs. Through coins, many of which are found at the American Numismatic Society in New York City, individual characteristics of the Imperial family and the evolving history of hairstyle can be traced. It becomes evident that Caligula had a pointed chin and Nero’s image changes completely from the time he was a young prince to after becoming emperor. It is on the coins of Antonia that a hairstyle resembling the woman’s on the Marlborough Turquoise Cameo first appears. Based on the physical and divine attributes portrayed on the coin, the woman appears to be Antonia and the young man Nero as a promoted prince. However, coins cannot reveal the entire picture of physical attributes, because the subjects are often rendered in profile. Gems often allow for a complete frontal view of the subject. Many of these gems, notably the Grand Camée (Bibliothèque Nationale de France, Paris), Livia as Cybele and priestess of the Deified Augustus (Kunsthistorisches Museum, Vienna), and the sardonyx cameo of Agrippina II and Nero (Bibliothèque Nationale de France, Paris), are helpful in further reviewing individual characteristics and possible dynastic combinations.

The last step of research will be taking what the art itself reveals and comparing it against dynastic sensibilities. For example, dynastic sensibility suggests that Antonia and Nero cannot be the couple on the Marlborough Cameo, as the coins may suggest, because their relation-

William “Andy” Lewis
Advisor: Dr. Benda Weber
Gaines Center for the Humanities

The Japanese Garden

It has been said that the religion of Japan is being Japanese. It is true that the Japanese have a cultural capital that is unique even in East Asia, and (some say) an aesthetic sense that binds them together as a society. The purpose of this research project is to identify elements of the Japanese Garden that immediately relate to the Japanese cultural capital.

During the course of this research, one thing became apparent above all else. Much has been written about the Japanese garden, and the average library has many, many books on the subject. What takes some time and study to realize is that in most cases, these books each say exactly the same thing, and only the spread of photographs changes. These books are written by gardening or photography enthusiasts, and not scholars — as such, they are generally made up more of crass generalizations and stale platitudes than of any effort to take up a serious, academic study of the Japanese garden.

Developing an understanding of the Japanese garden requires a broad view of Japanese cultural capital, which involves folklore, philosophy, native spirituality, and mythology as much as it does transplanted religion, history, and literary traditions. A student can see much of the Japanese cultural capital reflected in the Japanese garden as long as s/he has even a basic understanding in each of these very broad subject areas.

My research indicates that the Japanese Garden, as a concrete expression of cultural capital and the Japanese aesthetic, can be read much like a text for reflections on which parts of the Japanese cultural capital are instrumental in forming the Japanese aesthetic. Such research is valuable to us because it helps us understand the concrete expression of the humanities in the world, and suggests that many undertakings speak to the cultural capital of the society that created them. My research continues by identifying thematic structures in the garden and using them to illustrate specific nuances of the Japanese aesthetic, and then concretely tracing those points to the specific forms of cultural capital from which they sprang.
Upcoming Undergraduate Scholarship Events and Deadlines

Kaleidoscope, Volume 3
The University of Kentucky Journal of Undergraduate Scholarship is published once each year, at the beginning of the fall semester. All contributions to the journal are refereed by a standing editorial board and guest referees and editors. Articles, reports, and other creative works may be submitted by any undergraduate student at the University of Kentucky. All submissions must be accompanied by an endorsement by a University faculty member who has agreed to attest to the scholarly quality of the work and to serve as faculty mentor for editing and final submission of the work. Detailed guidelines for submission are available at <www.uky.edu/kaleidoscope>.

Deadlines for Volume 3, Fall, 2004:
February 20, 2004: Optional letter of intent to submit, including a brief description of the nature and contents of the proposed submission.
March 26, 2004: Complete submission, prepared according to the guidelines, delivered electronically to the editor (rst@uky.edu)
June 1, 2004: Final, revised submission delivered electronically to the editor.

National Conference on Undergraduate Research
"The mission of the National Conferences on Undergraduate Research (NCUR®) is to promote undergraduate research scholarship and creative activity done in partnership with faculty or other mentors as a vital component of higher education."

The 2004 NCUR conference will be held April 15-17, 2004, at Indiana University-Purdue University, Indianapolis, IN. Visit the NCUR Web site at <www.ncur.org/basics/index.htm> for general information on NCUR; visit <http://ncur.cs.IUPUI.edu/> for details and deadlines for the conference.

Oswald Research and Creativity Awards
All current UK undergraduate students are eligible to submit a paper or other creative work to be considered for an Oswald Research and Creativity award. The competition categories in which papers and projects may be submitted include: (1) Biological Sciences; (2) Design (architecture, landscape architecture, interior design, etc.); (3) Fine Arts (film, music, painting, sculpture, videotape, etc.); (4) Humanities: Creative; (5) Humanities: Critical Research; (6) Physical and Engineering Sciences; and (7) Social Sciences. The deadline for submission is approximately February 1. Visit <www.uky.edu/UGS/Oswald/OpeningPage.htm> for details, application forms, and official rules.

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UK Undergraduate Research Program
The University of Kentucky Undergraduate Research Program creates research partnerships between first- and second-year students and faculty researchers. The program offers students the opportunity to work and learn alongside a research faculty member. Undergraduate students are given the real-life experiences of working in laboratories and other scholarly settings; developing a research abstract; presenting their projects at symposiums and professional conferences; publishing their findings; and meeting others in the international community of scholars. In other words, students are given a jumpstart on their careers. For more details and deadlines for applications, visit <www.rgs.uky.edu/ukurp>.

Additional Information
Additional information regarding undergraduate scholarship and creativity programs, conferences, competitions, and opportunities is posted on the Web site of the Office of Undergraduate Studies, <www.uky.edu/UGS/awards.html>.

Subscriptions: If you wish to receive a copy of Kaleidoscope each year, please send your name, address, and e-mail address to: Ms. Evie G. Russell, 115 Bowman Hall, University of Kentucky, Lexington, KY 40506-0059.