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Oswald Research and Creativity Program

UK Office of Undergraduate Research

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Any current UK undergraduate (full- or part-time, enrolled for either semester) who does not already have a four-year degree is eligible for the Oswald Research and Creativity competition and is invited to submit papers and other projects in the following categories:

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
7. Social Sciences

Entries are judged on originality; clarity of expression; scholarly or artistic contribution; and the validity, scope, and depth of the project or investigation.

The following are representative winners in the 2005-2006 Oswald Research and Creativity Program:

(Extended versions of some of these entries are available at <www.uky.edu/kaleidoscope/fall2006>)

**CATEGORY 1: Biological Studies**
2nd Place
**NAME:** Demetrius Abshire
**TITLE:** Endotoxin as a Protective Factor for Asthma in Children Living on Farms

Asthma is the most common chronic childhood condition, affecting about nine million children in the United States. Studies have suggested that children living on farms have a lower prevalence of asthma compared to children living in an urban setting. Endotoxin exposure has been suggested to be one of the factors in offering children protection against the development of asthma. The purpose of this literature review is to examine endotoxin exposure and its relationship to the occurrence of asthma in children.

**CATEGORY 2: Design**
1st Place
**NAME:** Phil Schilffarth
**TITLE:** Habitat for Fruit

My Habitat for Fruit concept can be described with three individual ideas: Mass, Plane, and Armature. There are eight sculpted masses that are supported by a large planer ring. The way in which the masses are supported is an armature technique. The Habitat for Fruit is elevated by four small individual masses to help enhance the planer element. The massing elements are made of rich mahogany wood. The planer ring is composed of 1/4” aluminum stock that was rolled and welded into a complete ring. These two materials complement and at the same time contradict each other in composition to help deploy the idea of armature. This is done by distinct division of materials.

2nd Place
**NAMES:** Brock McKay and Tim Joice
**TITLE:** A Master Plan for the Raven Run Retreat Center

The master plan for the Raven Run Retreat Center focuses on having the least additional impact, and the buildings exhibit features of sustainable design. The least additional impact is evidenced by strategic site planning from our previous analysis. The master plan preserves the most valuable areas, while concentrating development in already manipulated or previously damaged areas. The main development takes place along the central entrance corridor already existing on the site. The historic features are maintained, along with much of the hiking trails. Building features that relate to sustainable design include orientation, sheltering, greening, and on-site water treatment.

Upon entering to the grounds, a view toward the main stables presents itself. Here, equestrian education will take place, allowing visitors the opportunity to care for and ride horses. In addition, the surrounding area provides opportunity for visitors to enjoy the sights of horses grazing in the fields. The New Nature Center will involve conservation education. The main building will be for artifact
display, while the other three buildings are reserved for education and interaction with the subjects of flora, fauna, and water quality.

Bridges incorporated into the master plan design add to the rustic character, while also creating interest and connection. The restaurant is partially earth-sheltered; visitors will enter the restaurant from the top floor, and proceed down an elevator to be seated. Southern-style cooking, views, and a council ring combine for a truly unique dining experience. The lodge will be built into the existing hillside. The lodge maintains a rustic character through its materials, and is located in the heart of the property, allowing for a complete experience in nature. With 22 rooms of various sizes, the lodge allows for visitors with varying income levels to participate in the Retreat Center. The unorthodox main exit off the second floor adds to the unique character created by the overall design. Finally, agriculture fields to the west allow for an on-site food source, reducing the global ecological footprint of the Center.

CATEGORY 3: Fine Arts
1st Place
NAME: Michael Martinez
TITLE: Sol Expansion
Sol Expansion is a sculpture that is meant to pay homage to the stellar processes that produce the constituents of life and the reality that surrounds us. Every element heavier than hydrogen and helium is produced in the atomic cauldron of a dying star before it is expelled into the void of space, where they reform and accrete to form other stars, planets, and, eventually, life. Sol Expansion is my sculptural attempt to represent this process as it casts off its outer shells and releases rays of energy into its surrounding “space.”

2nd Place
NAME: Kristin Furlong
TITLE: Recreating a Piece of History: An 1845 Day Dress
The process of creating this 1845 gown began after receiving a rendering from my senior advisor. I began researching the period and what was worn. Specifically, I was looking for information on what was worn and how it was made, as well as what it was made from. After determining all of these factors, I began the construction process, drafting, draping, and patterning the different garment pieces, including chemise, bloomers, corset, two petticoats, and the actual dress. During the process, I consulted my research to produce the most accurate reproduction of an 1845 day dress, with the exception of minor alterations for the stage.

CATEGORY 4: Humanities: Creative
2nd Place
NAME: Andrew Crown-Weber
TITLE: Only A Game
These are what may turn out to be the first chapters of a novel tentatively called “Only A Game,” which could possibly be finished some time in the future, maybe.

At present, this book-to-be deals with the life of a young man who is addicted to one of the few new drugs to be discovered this century: massively multiplayer online role-playing games. If you are unfamiliar with this digital scourge, have some time on your hands, and haven’t eaten recently, I recommend googleing the term for an eye-opening experience. I won’t spoil all the many surprises and twists and intrigues that will appear later in the narrative (mostly because I don’t know them myself at the moment), but I will say that these chapters represent this young man’s interpretation of how he arrived at such an addiction. And, because this young man is diligent enough to begin his account in utero, we must at least commend him for his thoroughness.

I worked on these chapters under the mentorship of Professor Jane Vance and Kim Edwards and I am eternally indebted to them for their wisdom, patience, and willingness to give feedback about crappy writing long enough for said writing to become slightly less crappy.
Oswald Research and Creativity Program (CONT.)

CATEGORY 5
Humanities: Critical Research
1st Place
NAME: Yury Bronshteyn
TITLE: What We Know Must Be: Hamlet, Religion, and Existential Theory of Mind
This paper draws on recent empirical findings from cognitive and personality psychology to re-examine Shakespeare’s rhetorical methods in Hamlet and Mircea Eliade’s cross-cultural observations of religious belief. More generally, the paper advances a new theoretical model of how cognitive science can contribute to literary analysis and how literature can be used to test the “real-world” validity of certain cognitive theories.

2nd Place
NAME: Heidi Caudill
TITLE: The Virago Hemaphrodite and Jan Gassaert: A Metamorphosis in Netherlandish Art
See Ms. Caudill’s full article on p. 57.

CATEGORY 6:
Physical and Engineering Sciences
1st Place
NAME: Scott Pabian
TITLE: Shear & Flexural Reinforcement of Bridges Using Advanced Fiber
Many civil engineering structures become damaged or deteriorated due to corrosion, weathering, overloading, or other forms of abuse. These structures can show damage in many ways, including the loss of shear capacity. The beams of the Carter County Bridge on KY-3297 (B-144) over the Little Sandy River in Kentucky, showed signs of shear cracking due to overloading. The Louisa – Fort Gay Bridge, which spans the Big Sandy River across the Kentucky and West Virginia state lines, also showed signs of flexural cracking due to overloading. Carbon Fiber Reinforced Polymers were used to reinforce the beams of both bridges. This report describes the shear strengthening process of the Carter County Bridge and the Louisa – Fort Gay Bridge, both of which include analysis and application of CFRP materials. The success of such repair indicates that this strengthening technique can be applied to other bridges having similar problems.

2nd Place
NAME: Christin Pramudiati
TITLE: The Study of Degradation and Drug Release of PLGA Drug Delivery Systems for Crohn’s Disease Treatment
See Ms. Pramudiati’s full article on p. 13.

CATEGORY 7
Social Sciences
1st Place
NAME: Andrew Bozio
TITLE: Interpreting Power in the Political Poster
Although the Cultural Revolution has been documented in numerous scholarly and autobiographical works, it remains to be explained in ideological terms, as an event constructed by various discourses circulating through Communist China.

This paper attempts such an explanation through an analysis of the propaganda posters of the Maoist government. First, it examines the attempts to advertise collectivized agriculture in the 1950s before moving to the posters of the early 1960s, in which caricature is used to demonize counterrevolutionaries. With reference to Mao’s Talks at the Yan’an Conference on Literature and Art (1943) and a newspaper editorial entitled “Sweep Away All Monsters and Demons,” the paper demonstrates that the posters provide a material connection between official Maoist philosophy and the appearance of this thought in the psyches of ordinary Chinese civilians.

This analysis, based on Louis Althusser’s theory of Ideological State Apparatuses, therefore, discusses the syntax of Maoist propaganda and the methods by which it was produced. It concludes with an analysis of the personal experience of Xiaomei Chen, in order to evaluate the extent to which propaganda is responsible for inciting the Cultural Revolution.