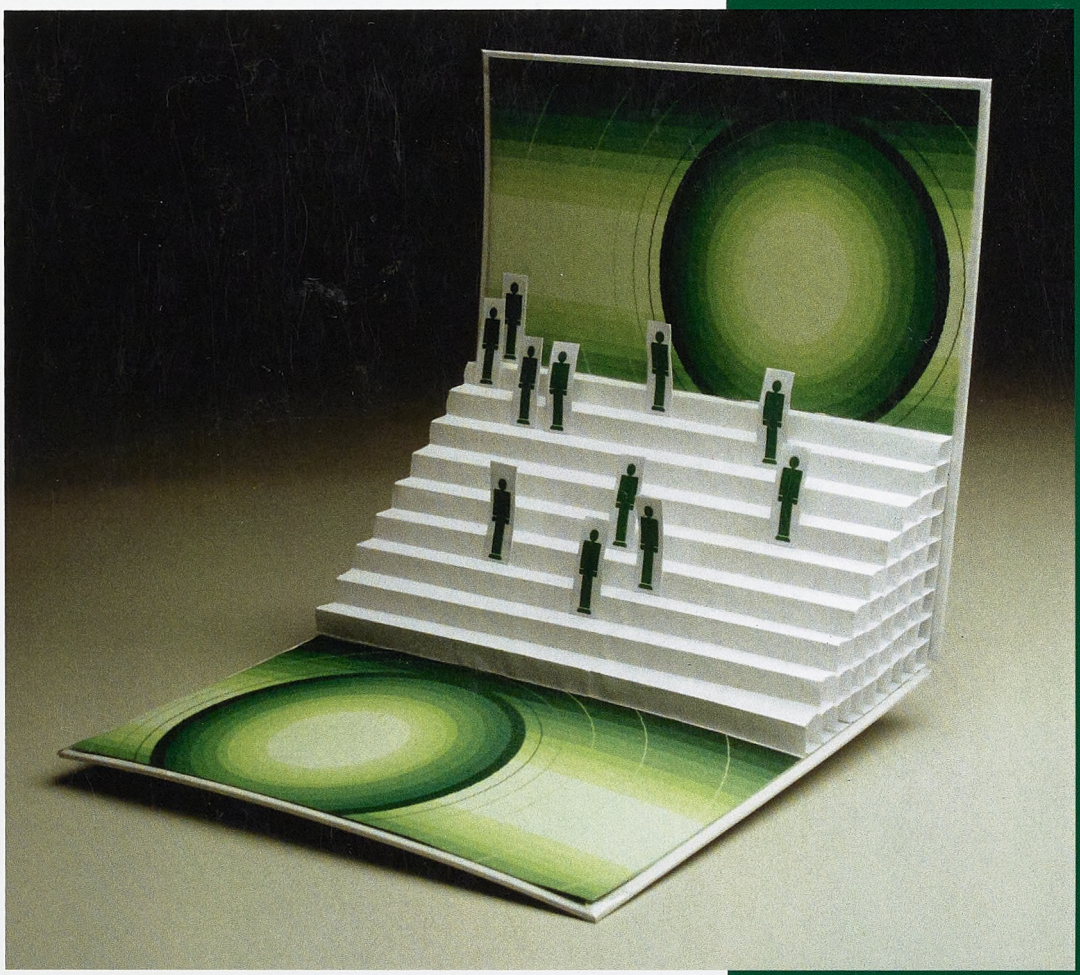
INCITE

JOURNAL OF UNDERGRADUATE SCHOLARSHIP



Cook-Cole College of Arts and Sciences

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UNIVERSITY

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Longwood University
Farmville, Virginia

Fall 2009

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INCITE

Journal of Undergraduate Scholarship

Volume 2, Fall 2009

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1 From the Dean

It is my pleasure to welcome you to the second edition of *Incite*. In this journal you will find wonderful examples of the undergraduate research and creative activity in the Cook-Cole College of Arts and Sciences at Longwood University. The faculty of the college and I are extremely pleased to be able share the work of our students with you.

Longwood University has a tradition of cultivating a stimulating and effective learning environment through the dedication of our faculty and the close personal attention they give each student. This tradition is amplified and enhanced by the scholarly and creative work of our faculty as they explore new ideas and techniques in their disciplines.

In *Incite* you will find some of the results of our efforts to give our students the opportunity to become scholars in their disciplines. In our college, we are making an effort to give as many students as possible the chance to experience the excitement of generating ideas and creative works that are not only new to the student involved but to the discipline as well. We feel that when a student has the chance to stretch his or her abilities by working closely with a faculty member on a rigorous project, it is the perfect complement to the colleges excellent classroom instruction.

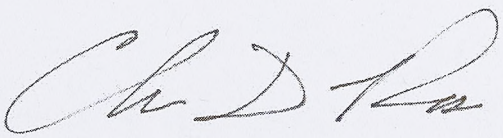
One of the joys of my role as dean is having the chance to learn more about the many fields of study that comprise the Cook-Cole College of Arts and Sciences. As you read through *Incite*, I believe you will get that same sense of enjoyment from the wide variety of student work contained in the journal. Here you will find everything from work on scalable computing systems to poetry and paintings. The DVD included with the journal showcases the work of our student thespians, musicians and creative writers.

Our mission is to provide our students with both a solid liberal arts foundation and a deep understanding of their chosen discipline. I believe that *Incite* provides solid evidence that we are achieving our mission. We also hope that our students and faculty find a love of learning that lasts a lifetime and that the collaborations highlighted in these pages are just first of many such explorations to come for all involved.

Thank you for your interest in our students and for taking the time to investi-

gate what they have created. In addition to thanking the student authors and artists and their faculty mentors, I must express extreme gratitude to Mary Carroll-Hackett and graduate student Austin Eichelberger from the Department of English and Modern Languages and Dr. John Graham of the Department of Mathematics and Computer Science. Without their talent and tireless work, *Incite* would not be the beautiful work that you now hold in your hands.

Sincerely,



Dr. Charles D. Ross
Dean, Cook-Cole College of Arts and Sciences

2 Feature Article

Mike's Nite: New Jazz For an Old Instrument

Joeseph A. Mann
Faculty Mentor: Dr. Charles Kinzer
Department of Music

Introduction

Throughout jazz history, a number of instruments have lost favor as principal members of the standard jazz ensemble. Instruments such as the clarinet and flute have become secondary or special case instruments that bandleaders expect saxophonists to play if the need arises. As a result, clarinetists who wish to pursue performance opportunities in jazz ensembles will more often than not find themselves performing on the saxophone rather than on their primary instrument. Therefore, in an effort to expand the jazz literature for clarinet soloists, and provide more opportunities for clarinetists to participate in jazz ensembles, I conceived of a piece that would later become *Mike's Nite: New Jazz for an Old Instrument*.

The title of this piece comes from Mike Shetley (BA, class of 2003). It was the difficulty he faced in finding a clarinet feature to perform with the jazz ensemble that originally inspired me to write this piece.

Formally, the piece follows a modified ternary construction, (ABCDACoda) with two additional sections of unrelated material attached to the end (E and F). The style of the piece changes from section to section, to provide the soloist with the opportunity to perform in multiple styles. The A section begins the piece in the ballad style, which develops into swing in the B section. The C section, containing the first improvised solo section, maintains the swing feel until the final repeat, the balladstyle then returns in the D section and continues through the A section. After the ballad style coda, the E section shifts into a bass groove that features a halting, motivic rhythm in the manner of jazz composer Thelonious

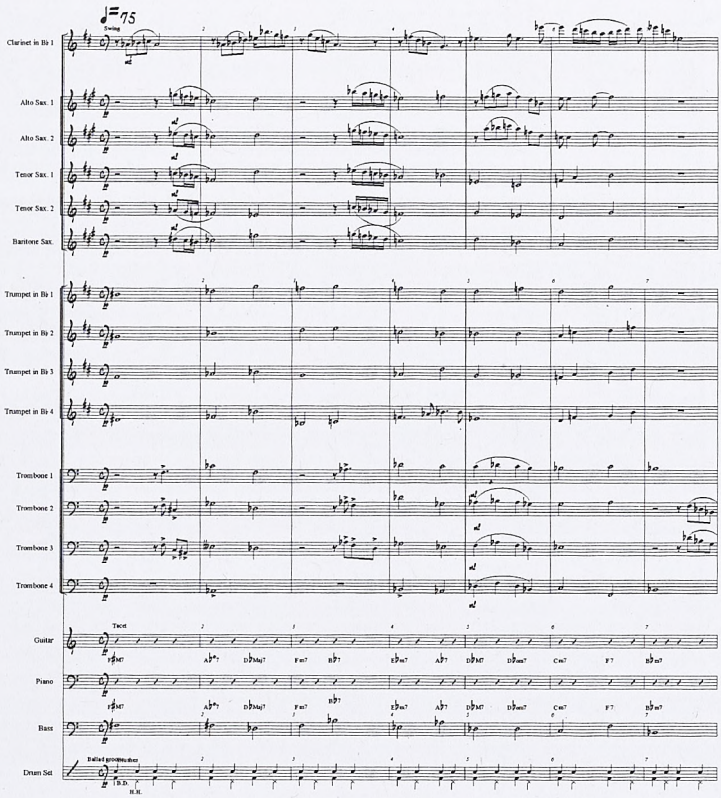
Monk. After repeats for solos, the style changes again in the F section to a funk groove, which repeats to a fade-out.

In writing the harmonic progression for this piece, I chose not to emphasize any particular key or mode; instead, I chose each chord based on the way it sounded in relation to the one preceding it. As a result, the tonalities created by the harmonic progression are often weak, and occurred purely by chance through the construction of the progression.

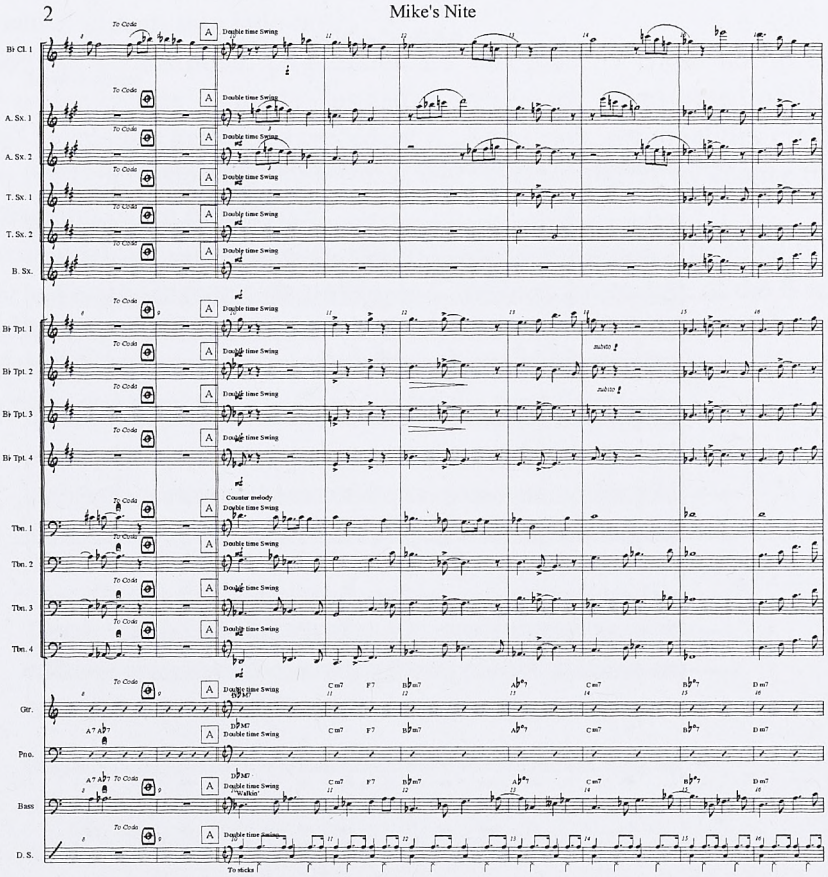
Several tonalities do arise, however, throughout the piece. The tonality of the A section settles in Db major, then shifts to C major in the middle of the B section. The tonality stays in C major until the D section, were it returns to Db major in preparation for the return to A. After the coda, the tonality shifts to C minor for the E section, and then shifts to G minor for the final F section.

Mike's Nite

Joseph A. Mann



Mike's Nite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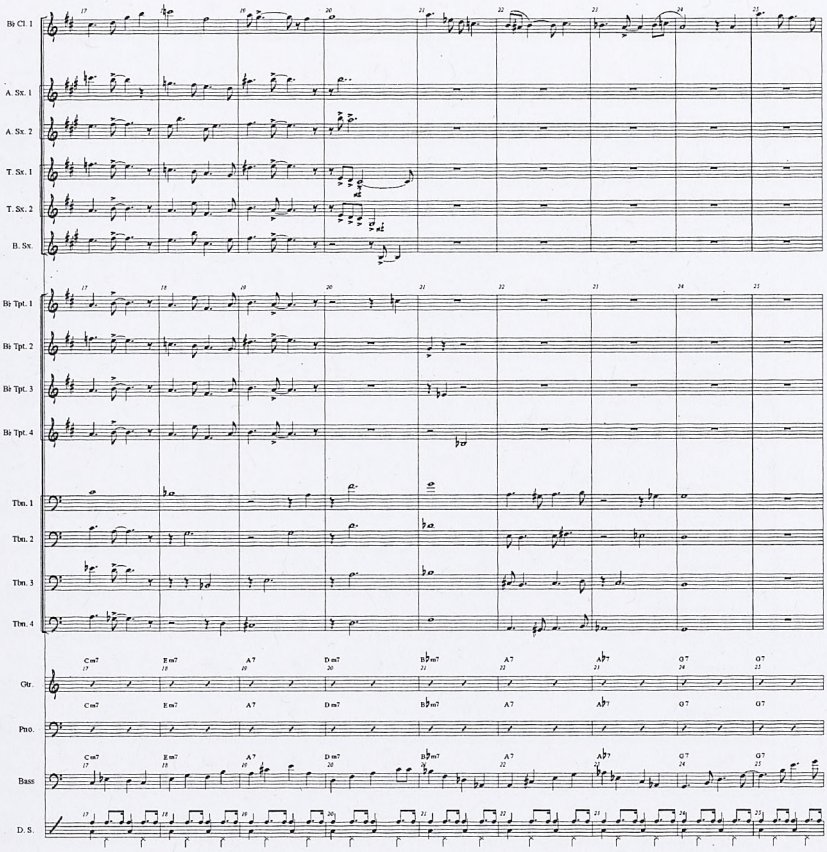
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.
To Coda
A
Double time Swing
rubato
Counter melody
"Walkin'"
To sticks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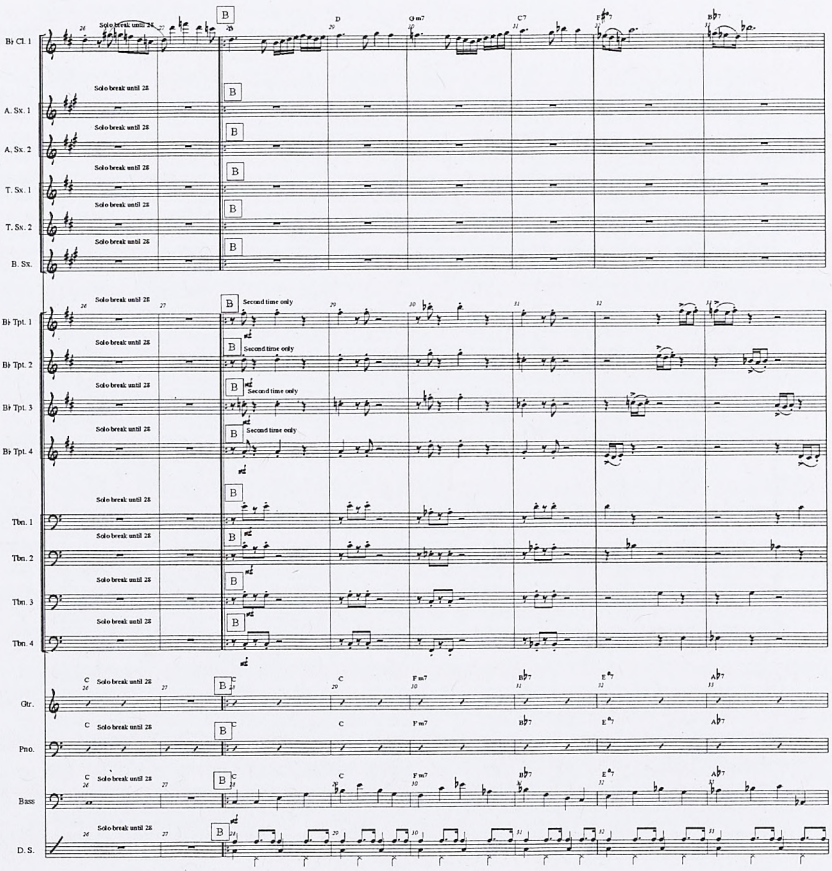
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.
Cm7 Em7 A7 Dm7 B♭m7 A7 A♭7 G7 G7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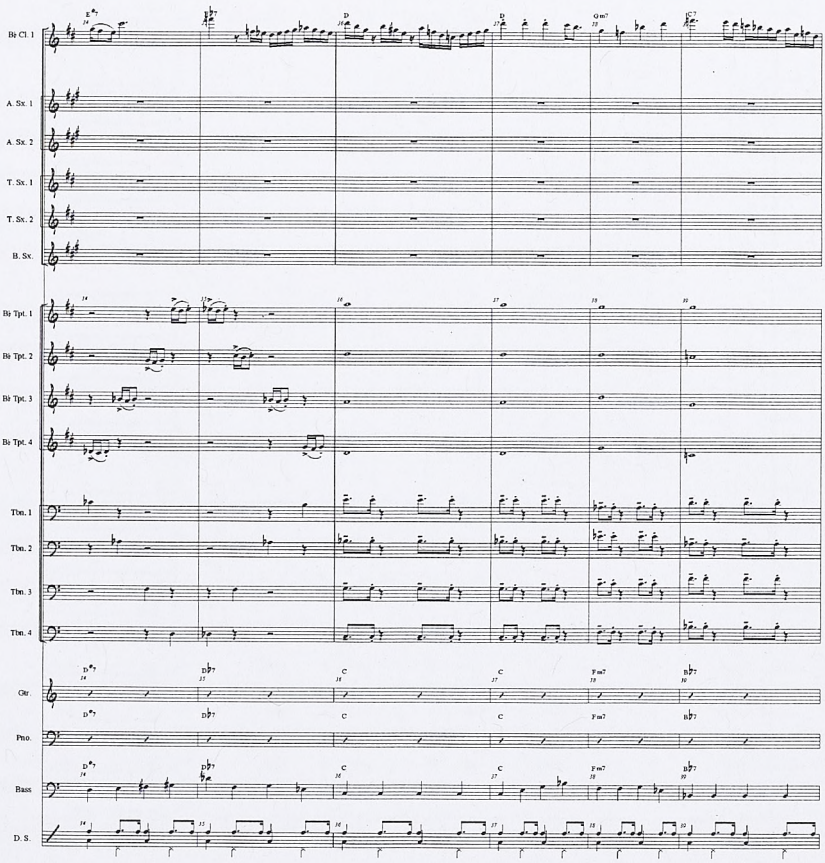
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.
Solo break until 28
Second time only
B
C
D
Gm7
C7
F♯7
B♭7
Fm7
E♭7
A♭7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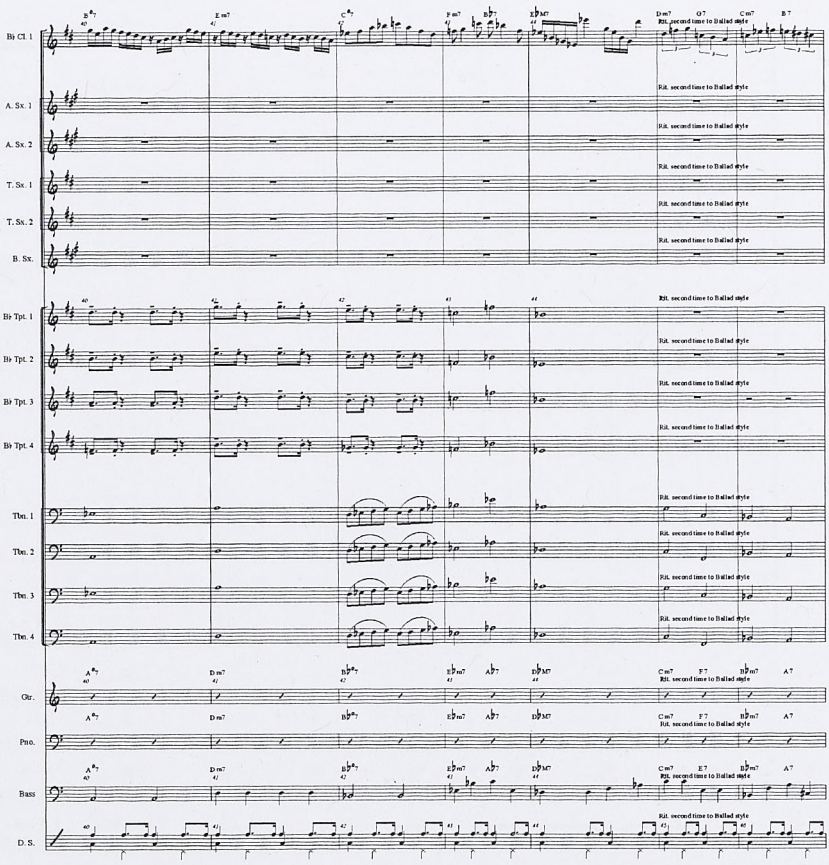
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.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B. Sx.
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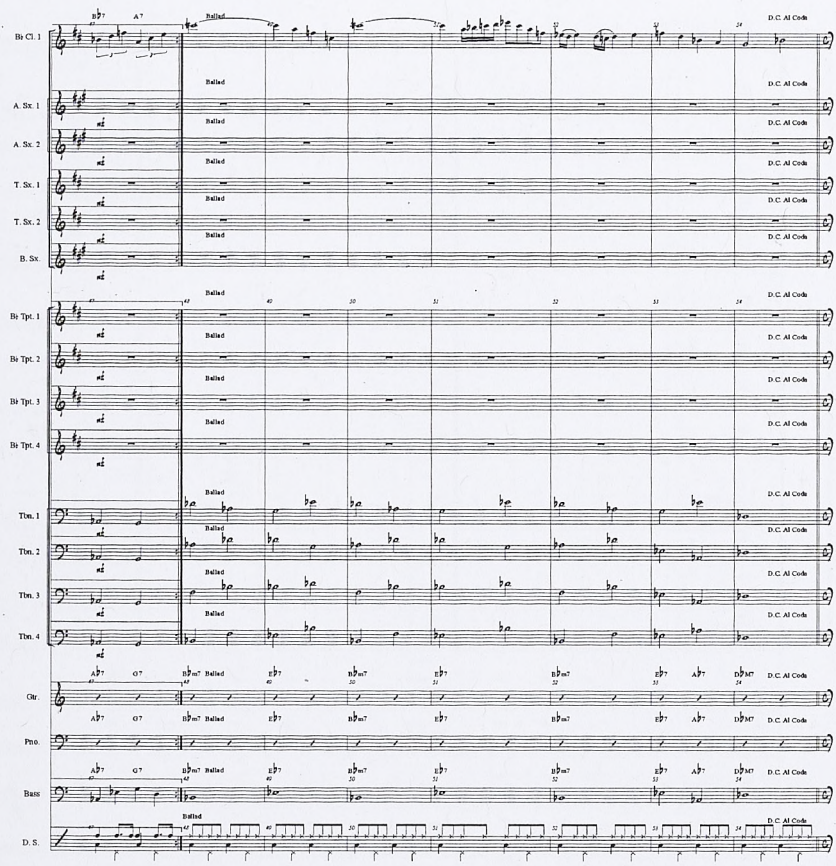
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.
Rit. second time to Ballad style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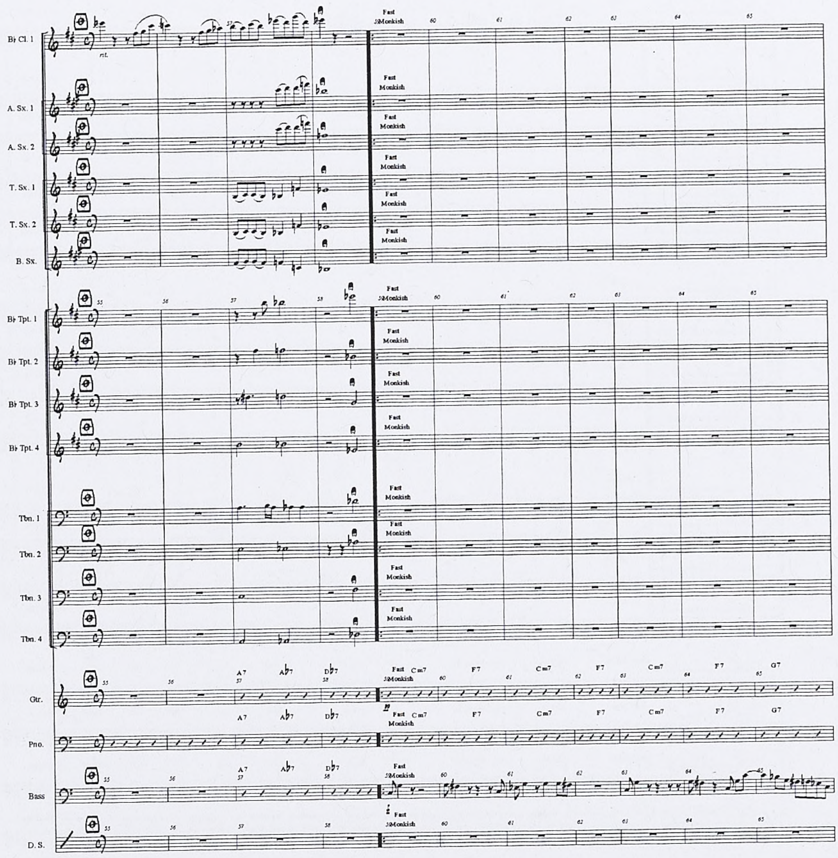
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
Bb Tpt. 1
Bb Tpt. 2
Bb Tpt. 3
Bb Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.
Ballad
D.C. Al Coda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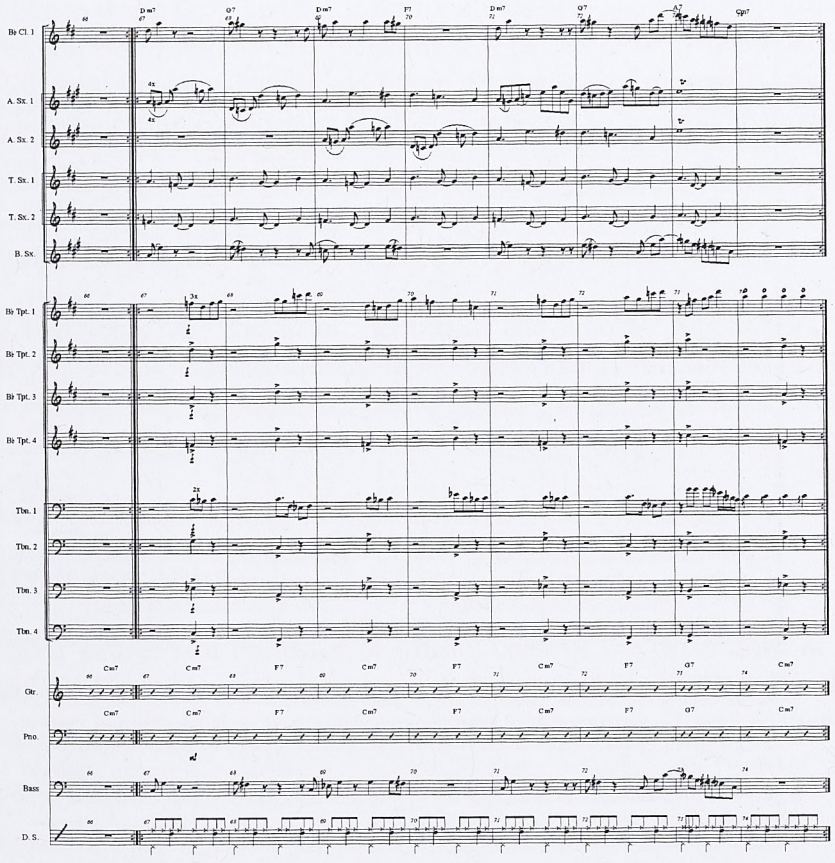
A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.
Fast
Monkish
A7
A♭7
D♭7
Cm7
F7
G7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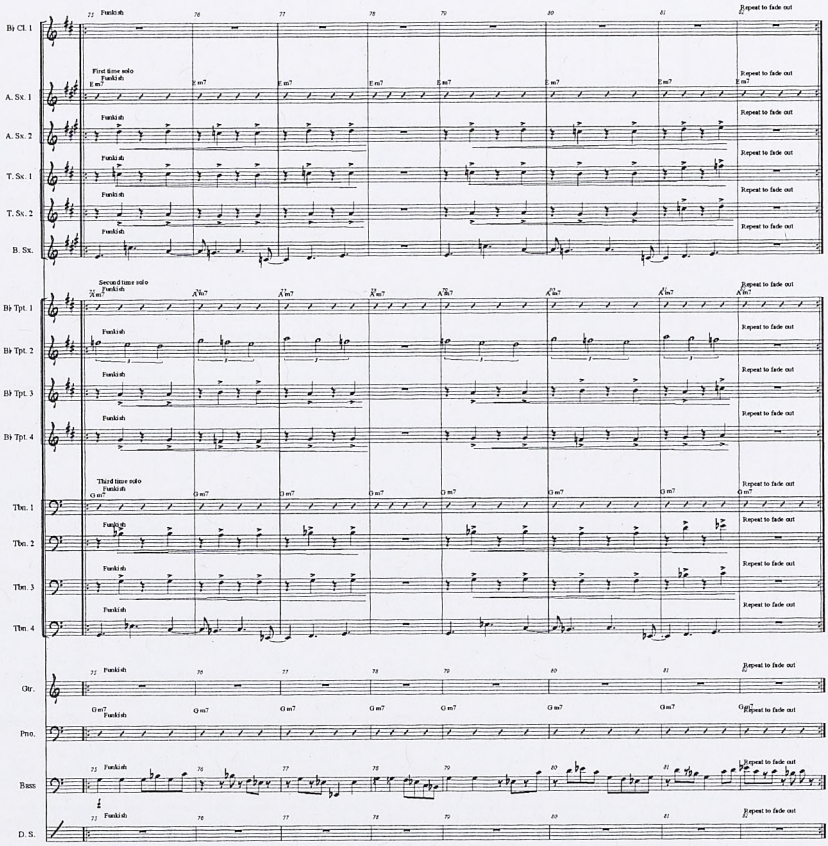
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.
Dm7
G7
F7
A7
Gm7
Cm7


B♭ Cl. 1
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A. Sx. 2
T. Sx. 1
T. Sx. 2
B. Sx.
B♭ Tpt. 1
B♭ Tpt. 2
B♭ Tpt. 3
B♭ Tpt. 4
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
Gtr.
Pno.
Bass
D. S.
First time solo
Second time solo
Third time solo
Funkish
Repeat to fade out

Acknowledgments

I would like to thank Dr. Charles Kinzer for all his help and guidance throughout the entire process of writing and preparing this piece. It is my hope that it will bring enjoyment to many current and future generations of musicians, and that it might spark the creative processes of other composers to write features for other instruments.

Student Biography

I am an avid composer, conductor, performer, and scholar. Since 2006, I have received numerous commissions for original works and performances. In addition to solo recitals, my works have been performed by Longwood's Jazz Ensemble A and Wind Symphony. I regularly perform jazz and classical music on multiple instruments.

Faculty Biography

Dr. Charles Kinzer is a Professor of Music, chair of the department of music and director of the jazz studies program at Longwood University. Dr. Kinzer is a respected musicologist and performer, and has premiered and written many original works.

3 The Natural Sciences

Investigation of the use of *Cucumis sativus* for Remediation of Chromium from Contaminated Environmental Matrices: An Interdisciplinary Instrumental Analysis Project

Kathryn J. Greenly, Scott E. Jenkins, Andrew E. Puckette
Faculty Mentor: Dr. Sarah E. G. Porter, Dr. Melissa C. Rhoten
Department of Chemistry

Abstract

In this interdisciplinary, semester long project cucumber plants (*Cucumis sativus*) were grown from seeds to study the ability of the plants to remediate chromium, a heavy metal, from contaminated soil. Phytoremediation strategies for environmental clean-up are presented as possible alternatives to chemical based clean-up methods. Our results and those of two previous classes lead to the conclusion that cucumber plants are somewhat effective rhizofiltrators, but are ineffective phytoextractors of chromium.

Introduction

In this interdisciplinary, semester long project, we studied the use of the cucumber plant (*Cucumis sativus*) as a phytoextractor for the removal of chromium from contaminated soil. This project has been conducted by the previous two instrumental analysis classes; however, each group of students chose a different set of experimental variables to investigate. The goals of this project were to:

1. Learn phytoremediation strategies.

2. Learn research methodology by planning and implementing our own experiments.

3. Use atomic absorption spectroscopy (AAS) as an analytical analysis tool.

4. Compare multiple project results to learn about the importance of data interpretation (both qualitative and quantitative).

Environmental contamination of soil and water has become an increasing concern in industrialized countries. In particular, trace metal elements such as Cr, Cu, Fe, Mn, Mo and Zn are introduced into our environment through human activities such as mining, traffic, and agriculture. Although some of these elements are essential nutrients at trace levels, at high levels they become toxic and can contribute to a host of human and animal health problems [11]. The speciation of metal contamination is also of interest, as chromium(VI) is a well known toxin while chromium(III) is an essential trace element [1][7]. Chromium is an environmental pollutant that can be introduced via the effluent from the leather tanning and stainless steel industries, where it can pollute streams and sewage that might be used as sources of irrigation for agriculture [3].

Remediation strategies are necessary for removing the contaminants *in situ* before they can be introduced into the food chain. Billions of dollars are spent each year on environmental clean-up of organic and inorganic pollutants in the United States alone [10]. Some chemical methods of clean-up for heavy metal contaminated soil and water include solvent extraction, activated carbon absorption, and large scale ion-exchange chromatography [11]. Methods such as solvent extraction create a secondary problem of solvent waste disposal and are costly to implement.

Clean-up methods that can help to alleviate this financial and environmental burden have gained popularity in recent years. Phytoremediation has shown promise for the in situ clean-up of contaminated soil or ground water. Broadly defined, phytoremediation refers to the use of plants and their associated microbes for environmental cleanup. Using plants as filters in wetlands or growing them hydroponically to filter polluted water is defined as rhizofiltration. Using plants to clean up pollutants from soil by accumulation in tissues is phytoextraction [10]. The use of phytoremediation as a clean-up strategy has been on the rise over the

past decade because of the relatively low cost associated with its implementation when compared to more expensive chemical remediation methods. Ultimately these strategies require far fewer raw materials and energy resources than their chemical cousins, making them attractive alternatives.

Various species of cucumbers have been shown in previous studies to effectively remediate organic pollutants such as 1,3,5-trinitro-1,3,5-triazine (RDX, an explosive residue), 1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane (DDT), and its degradation product 1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene (DDE) [8][13]. Additionally, cucumbers demonstrated phosphorus accumulation in the stems and leaves after 8 weeks of growth in contaminated soil showing that they may function as remediators for inorganic pollutants as well [6]. *Cucumis sativus* was chosen for this project because of its potential as a phytoremediator for inorganic pollutants.

There is a good deal of literature supporting the use of plants to remediate chromium. The family of plants known as brake ferns (*Pteris sp.*) has been shown to accumulate not only chromium, but other toxic metals such as arsenic and copper, from contaminated soil [2][16]. Other plants that have been reported as chromium remediators include cutgrass (*L. hexandra Swartz*) [14], bindweed (*C. arvensis*) [5], willows (*Salix sp.*) [15], Indian mustard [4], spinach, rye, and fenugreek [3].

Methods and Materials

A general schedule for a semester course is shown in Table 1. This schedule can easily be adjusted to study different growth stages of the plants as indicated by the asterisks in Table 1 or to account for different semester durations.

The general procedure that we used for growing the plants is as follows: Early Green Cluster cucumber seeds (Wyatt-Quarles, Garner, NC) were sown in vermiculite in glass baking dishes (13 x 9 x 2) and watered with deionized water. The pans were covered with foil and placed in an incubator at 30 °C for approximately 48 hours. After germination, the pans were uncovered and either left in the incubator or placed directly on a light cart for an additional 72 hours. The approximately one-week old seedlings were then transplanted into soil. The plants were

Table 1: General schedule for a semester-long course

Week	Task
1	Introduction to lab safety. Discussion of project and preparation of experimental design
2	Plant cucumber seeds in vermiculite. Prepare spiked soil. Prepare Hoagland's solution. Uncover seedlings (2 days). Transfer seedlings (4-7 days)
3-4	Preliminary AA analysis of environmental matrix
***	Harvest plants. Collect leaf measurements (if desired). Dry plants and digest for AA analysis
12	Perform AA analysis
14	Complete any unfinished instrumental analysis. Analyze data
15	All analysis finished
16	Final report due

allowed to grow with twelve hours of light and twelve hours of darkness, with a one-hour nighttime interruption to prevent flowering.

The plants were watered periodically with a standard fertilizing mixture called Hoagland's solution. It was prepared by mixing 2 mL of 0.5 M potassium dihydrogen phosphate, 10 mL of 0.5 M potassium nitrate, 10 mL of 0.5 M calcium nitrate tetrahydrate, 4 mL of 0.5 M magnesium sulfate, 1 mL of supplemental solution, and 1 mL of chelated ion solution. This mixture was diluted with deionized water to a final volume of one liter. The supplemental solution was composed of 45 mM boric acid, 9 mM manganese (II) chloride tetrahydrate, 0.7 mM zinc (II) sulfate heptahydrate, 0.3 mM copper (II) sulfate, and 0.1 mM molybdenum (VI) oxide. The chelated ion solution was composed of 70 mM ethylenediaminetetraacetic acid disodium salt (EDTA), 90 mM iron (II) sulfate heptahydrate, and 270 mM potassium hydroxide.

Chromium contaminated soil was prepared to have a known amount of chromium and is reported in mg Cr/kg soil. Potting soil without added fertilizer was purchased from a local greenhouse. Solutions of chromium (Cr^{6+}, Cr^{3+}, and/or Cr^{2+}) were prepared using an appropriate chromium salt and 18 M water (Millipore). These solutions were used to saturate a known mass of soil. The saturated soil was left open to the air for approximately one week and stirred periodically to facilitate drying. As an example, two liters of 85 ppm Cr solution were required to saturate about one kilogram of soil as received, which resulted in a contamination level of 170 mg Cr/kg soil.

Atomic absorption spectroscopy (AAS) was used to evaluate the amount of chromium in the plant material. A standard method for analysis of metals in plant tissues was used [9]. The plants were removed from the soil, traces of soil were rinsed off, and the fresh weight was obtained. The plants were dried in a 110 °C oven overnight and then ashed in a muffle furnace at 500 °C for 24 hours. Less than 1g of ash was generated from approximately 30 grams of fresh plant material. The ash was dissolved in 5 mL of 20% hydrochloric acid. The resulting solution was filtered through a 0.40 m hydrophilic syringe filter and diluted to 25 mL with 18 M water for AAS analysis.

A Perkin Elmer AAnalyst 800 with an air/acetylene flame and a multi-element hollow cathode lamp was used. The instrument was also equipped with an au-

tosampler. Each sample was aspirated into the flame for 30 seconds prior to measuring the absorbance of chromium at 357.9 nm. Each sample was read for 3 seconds in triplicate. Water (18 M) was used a reference blank to correct the measured absorbances. Calibration curves were prepared in Excel using the average corrected absorbance for the replicate measurements.

Results and Discussion

The results from previous classes indicated that cucumber plants were somewhat effective at rhizofiltrating chromium. The initial group found an inverse relationship between the amount of chromium present in contaminated water and the amount of chromium detected in the ashed tissues (roots and shoots) of the plants. In the presence of the highest concentration of Cr used (500 ppm), the growth of the plant was suppressed, which likely reduced the ability of the plant to remediate the metal. Interestingly, this group also initiated a study on the remediation of the nickel (II) ion from contaminated water. They found that even the lowest concentration of nickel studied (100 ppm) was toxic to all of the plants.

The second group chose to study the effect of hydroponically pretreating the cucumber plants with low concentrations of Cr(III) (0-50 ppm) prior to exposure to chromium-contaminated soil, based on literature reports that state that organisms often exhibit enhanced resistance to a toxin if they are treated with low levels of the toxin during early growth stages [12]. This group transferred the plants from the hydroponics media after 15 days of growth in an incubator to soil. The plants were allowed to grow for an additional 16 days before being analyzed by AAS. The concentration of chromium found in the ashed plant material is shown in Table 2. For each reported concentration, the material (roots and shoots) from five plants was dried, ashed, and dissolved in HCl for AAS analysis. Calibration standards were prepared from a 1000 ppm stock solution of Cr(III) in the range of 1-10 ppm. All solutions (samples, standards, and blanks) were analyzed in triplicate. The calibration curve was linear ($R2 = 0.981$) with a slope and intercept of 0.0265 ± 0.004 ppm-1 and 0.03 ± 0.02, respectively. The data in this table illustrates that there was very little difference (especially at lower levels) between the chromium detected in the plant material for pretreated plants grown in chromium

Table 2: Comparison of chromium detected in plant material as a function of pretreatment levels for control group and contaminated soil.

Plant #	*Cr* in pretreatment medium (ppm)	*Cr* in Contaminated soil (mg Cr/kg soil)	*Cr* detected in ashed plant material (ppm)
1-5	10	0	0
6-10	10	125	0.03 ± 0.01
11-15	25	0	1.24 ± 0.02
16-20	25	125	1.77 ± 0.01
21-25	50	0	7.49 ± 0.03
26-30	50	125	4.10 ± 0.00

contaminated soil and pretreated plants grown in clean soil (the control group). This group concluded that the chromium detected in the plant material was most likely due to remediation from the hydroponics media.

Our group chose to explore the remediation of different oxidation states of chromium in contaminated soil. We also sought to determine if the lack of phytoextraction found by the previous group was due to the relatively short growing period of the plants in the contaminated soil. In order to maximize the length of time spent in the soil, the seedlings were not grown hydroponically; rather, they were transplanted directly into soil after germination. The plants were analyzed after approximately 10 weeks of growth. The absorbances measured for chromium in all three of the plant groups had a signal-to-noise ratio of less than or equal to 5 for three replicate measurements, indicating that the chromium levels in the ashed plant material were below the limit of quantitation for this instrument under these conditions. We concluded, based on these results and the results of the previous class, that the cucumber plants were not efficient phytoextractors, at least not on the time scale that these projects were performed.

Incorporating this project into our instrumental analysis course gave us an excellent introduction to research methodology. At the undergraduate level, most

chemistry students in a traditional curriculum have done primarily standard, pre-written experiments in their laboratory-based courses. We had a greater appreciation for what goes into preparing for classroom laboratory exercises because we were responsible for determining what standards to prepare, how much of each solution was needed, and other details involved with setting up and carrying out an experiment. The results obtained by all of the groups will help to guide the design of future projects. Some possible extensions of the project include:

1. Phytoremediation of different metals using cucumber plants.
2. Phytoremediation of metals using different plant species (i.e., plants that may be better phytoremidators).
3. Investigation of the location of metal accumulation in plant tissues (i.e., roots vs. shoots).
4. Investigation of the metal speciation within the plant tissue.
5. Using ICP-AES as a detection method, if time and funding permit.

Conclusion

This project was an excellent way to introduce environmental chemistry to an upper level instrumental analysis class. It is designed to be a semester long group project that can be started early in the semester and combined with other laboratory experiments. Growing the plants from seeds and caring for them during the semester gave us a connection to the project and a stake in its outcome that is usually missing in cookbook laboratory experiments. Allowing us to determine the project focus taught a lesson about experimental design and research.

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The authors wish to acknowledge the assistance of Dr. Mary Lehman in the Department of Biological and Environmental Science at Longwood University for her assistance in growing the cucumber plants and providing the seeds.

Student Biography

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Faculty Bios

Dr. Sarah Porter is in her second full year of teaching at Longwood. She holds a Ph.D. in analytical chemistry from VCU, a master's degree in criminal justice from VCU, and a B.S. in chemistry from the University of Virginia. Prior to coming to Longwood, she held a position as a breath alcohol instructor at the Virginia Department of Forensic Science, and worked as a bench chemist for Wyeth Consumer Healthcare. Dr. Porter is currently teaching freshman chemistry and instrumental analysis.

Dr. Melissa Rhoten has been teaching chemistry at Longwood since 2000 and has served as the chair of the Chemistry and Physics Department since 2006. She holds a Ph.D. in analytical chemistry from VCU, and a B.S. in chemistry from James Madison University. She has received several awards during her time at Longwood, including a CHI commendation, an LU Citizen Leader Award, the Maria Bristow Starke Faculty Excellence Award, and the Faculty Recognition Award. Dr. Rhoten is currently teaching freshman chemistry and inorganic chemistry.

Development of GC-MS and Chemometric Methods for the Analysis of Accelerants in Arson Cases

Scott Jenkins
Faculty Mentor: Dr. Sarah Porter
Department of Chemistry

Abstract

Identifying accelerants by their gas chromatography with mass spectrometric detection (GC-MS) profile is of particular interest to forensic scientists working on arson cases. In this work, samples of accelerants were analyzed by GC-MS and compared using chemometric analysis. The chromatograms were assembled into a single data set and compared using principal component analysis (PCA). PCA was used to classify gasoline based on octane ratings and to distinguish amongst different types of accelerants. PCA reduces the dimensionality of a data set (X) and determine the number of components contributing to the data set. PCA by singular value decomposition (SVD) was used to find samples within a data set that were related. Replicate analyses of the gasoline and diesel samples constituted two sets of training data to which test samples could be compared. In addition to the gasoline and diesel data sets, samples of biodiesel (prepared from waste vegetable oil) and lighter fluid were analyzed. Different octane ratings could be distinguished using our method. Our method also makes it easier to distinguish between diesel and gasoline.

Introduction

Arson is defined as the willful and malicious destruction of a building or other property through burning. Nationally, 69,055 arson offenses were reported in

2006 to the Federal Bureau of Investigations Uniform Crime Reporting Program. Arsons involving buildings (residential, storage, public, etc.) accounted for 42.3% of the total number of arson offenses. The average value loss per arson offense was $13,325. Arsons of industrial and manufacturing structures resulted in the highest average dollar losses (an average of $66,856 per arson). In 2006, arson offenses increased 2.1% when compared with arson data from the previous year [3].

The identification of accelerant residues is often crucial to the success of the prosecution of arson cases. An accelerant can be defined as any ignitable substance (typically liquid) used to sustain a fire. Common accelerants used in arson include easily obtainable substances such as gasoline and diesel fuel. The identifiable difference between gasoline and diesel is the length of the carbon chains in the mixture. In gasoline there are chains of 4 to 12 carbons, whereas diesel typically has chains of 8 to 20 carbons [1]. As a consequence, diesel is heavier than gasoline. However, gasoline contains more aromatic compounds, which are rings of 6 carbons with alternating double bonds. Thus the chemical composition of gasoline is quite different from diesel and each is easily identifiable.

The current method of accelerant identification usually deals with the analysis of the accelerant using gas chromatography with mass spectrometric detection (GC-MS), and matching the chromatogram using visual comparison of the target compounds [2]. One problem with this method may be the lack of skill and experience of the person analyzing the data; the comparison of chromatograms can be subjective and difficult to interpret. The differences in chromatograms between some accelerants are easy to recognize because of their different compositions (for example, diesel and gasoline). Identifying different brands or different types of gasoline is considerably more difficult because gasoline is essentially the same composition from brand to brand. One way to avoid this problem is by using chemometric methods to analyze chromatographic data. Chemometrics is the application of mathematical and statistical methods to chemical data [4]. Methods such as Principal Components Analysis (PCA) and Artificial Neural Networks (ANN) have been shown to be useful in classification of gasoline by GC-MS.Doble, et.al [2], found from calculating the principal components and interpreting the scatter plots, that premium and regular gasoline could be distinguished. However, they did find some overlap for a significant number of the

samples, leading to classification difficulties. To overcome these problems, they used another method called the Mahalanobis distance. Mahalanobis distance is based on correlations between variables by which different patterns can be identified and analyzed.

This project used chemometrics to classify accelerants used in arson cases. Using GC-MS or GC with flame ionization detection (GC-FID), we attempted to classify six different samples: gasoline (87, 89, and 93 octane), diesel, biodiesel, and lighter fluid. Using the computer program Matlab, we performed PCA on the GC-MS or GC-FID data. Using PCA, the datasets collected from our GC-MS or GC-FID containing a large number of variables to be analyzed. PCA reduces the dimensionality of the data set (X) to determine the number of components contributing to the data set. PCA was able to classify the three gasoline samples based on octane rating. With this method accelerants can be identified faster than normal, allowing the results of an arson case to be returned in a shorter time. This result supports development of a new method for quickly and easily identifying accelerant residues of all kinds using this method.

Methods

The primary instruments used in this research were GC-MS and GC-FID. The GC-MS was a Varian 3900 GC and Saturn 2000 MS system controlled by the Varian MS Workstation (v. 6.6) and the GC-FID was a Shimadzu GC-2010 w/FID controlled by GC Solution. Our GC method used a helium carrier gas and flowed at a rate of 1mL/min. The injector temperature was set at 250 °C. The injection volume was 1L. There was a split injection at 1:10, which means a part of the sample/carrier gas mixture in the injection chamber is disposed through the split vent. The temperature program started at 50.0 °C and held for 2.50 minutes, then increased 15.0 °C per min to 300 °C and held for 5.83 minutes. The total run time was 25.00 minutes for each sample. All chromatograms were converted into ASCII text files and imported into Matlab (The Mathworks, R2007b) for PCA analysis.

For each accelerant studied, at least 10 replicate injections were carried out on the GC-MS and the GC-FID. In addition, weathered samples were prepared

by stirring a 100 mL aliquot of gasoline with a magnetic stir bar until a certain volume had evaporated. For example, the 13% weathered gasoline had a final volume of 87 mL.

Discussion and Findings

Using PCA, we were able to classify each octane rating of the gas samples. The chromatographic data collected was assembled into an n by p matrix X, where n is the number of samples, and p is the number of properties, or in this case, time points in a chromatogram. In PCA, a data matrix X is approximated using two smaller matrices, the scores and the loadings. The data is visualized in two dimensional space by plotting the first two principal components against each other. The principal components are related to the eigenvalues of the data matrix such that most of the variance of the data set is contained in the first few principal components. In this work, singular value decomposition was used to estimate the scores and loadings of the data set as shown in equation 1,

$$X = U * S * VT \tag{1}$$

where S contains the square roots of the eigenvalues of the matrix X, V is the R-mode loadings matrix, and US is the R-mode scores matrix. By using R-mode PCA, the relationship between objects (in this case, different accelerant samples) is determined.

Figure 1 shows a gasoline chromatogram (dotted line) overlaid with a diesel chromatogram (solid line). This figure illustrates that gas and diesel are very easy to distinguish visually by their chromatograms. Because the diesel mixture has heavier components, the resulting chromatogram has more peaks at later time points in the chromatogram than the gasoline. Figure 2 shows an overlay of three GC-FID chromatograms for 87, 89 and 93 octane gasoline obtained from the local Valero gas station. This overlay shows many similarities between the three types of gasoline. The outlined region shown is blown up in Figure 3 to show several peaks with similar intensities. It is very difficult to distinguish these three samples by visually examining the chromatograms. However, by applying the PCA algorithm, we were able to classify the different samples of gasoline.

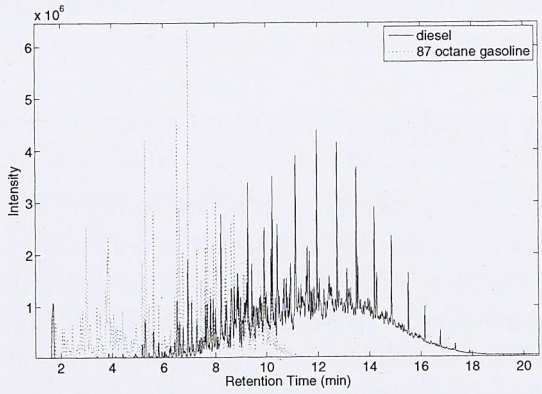

Figure 1: Comparison of chromatograms of 87 octane gasoline and diesel fuel collected on GC-MS

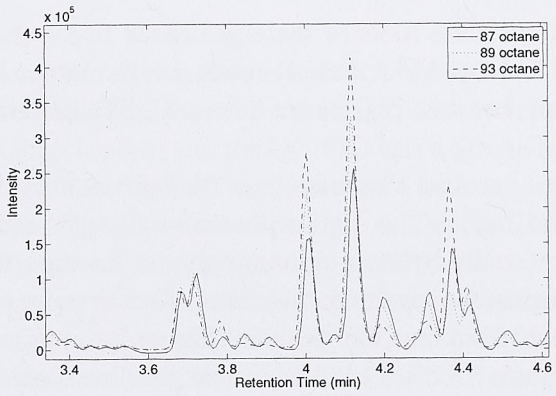

Figure 2: Comparison of chromatograms of 87, 89 and 93 octane gasoline collected on GC-FID

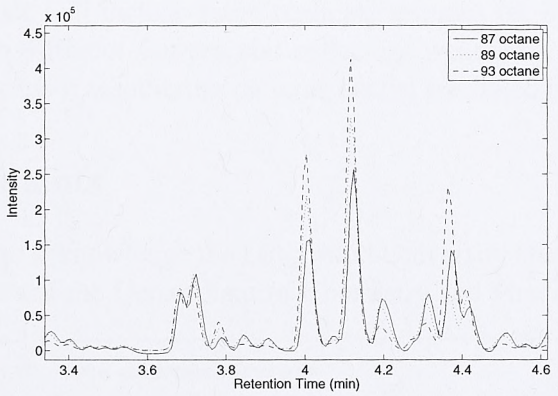

Figure 3: Selected region of Figure 2 blown up for clarity

Figure 4 shows the results of the PCA analysis of different gasoline samples. The R-mode scores plot represents objects (i.e. the different samples) that comprise the main part of the total variance of the data. This plot reveals the relationship between the samples by showing clusters of data. Each point on this plot represents a sample chromatogram. The clusters correspond to different octane ratings of gasoline, and different weathered samples. These results also show that once a sample begins to weather, its chromatographic profile changes enough that it can no longer be identified with its source. Weathering occurs when low molecular weight compounds evaporate, leaving behind the heavier components of the mixture. Accelerant samples that have been open to the atmosphere for any length of time may have started to weather, thus changing their chromatographic profiles.

Conclusions

PCA was successfully used to classify gasoline chromatograms based on octane rating. Univariate data collected from GC-FID was useful in identifying accelerant profiles. Weathered samples could be grouped but not characterized by octane

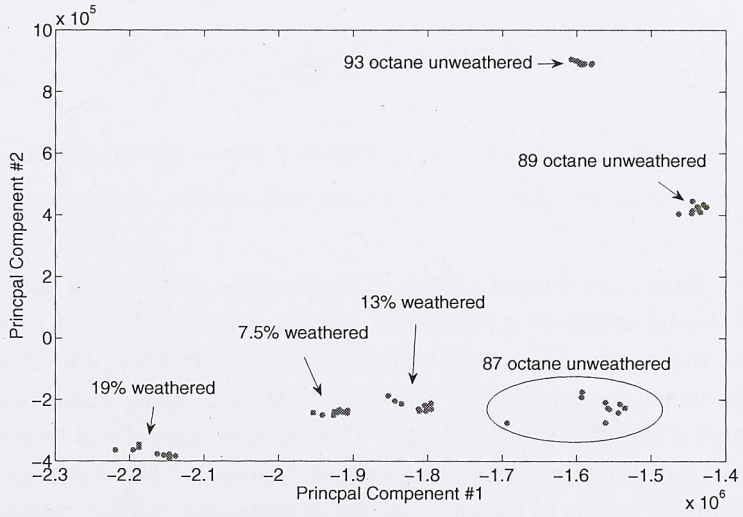

Figure 4: R-mode scores plot showing groups of data for gasoline samples. Weathered samples were 87 octane gasoline

rating. Future work will include more replicate samples for building PCA models, gasoline from different sources and collecting weathered samples at regular intervals to determine if weathering patterns can be predicted for gasoline.

Acknowledgments

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Student Biography

I am a senior Chemistry major at Longwood University. I am actively involved in Phi Mu Alpha Sinfonia Fraternity and Alpha Chi Sigma Fraternity, a professional chemistry fraternity. I will graduate in May 2009 and pursue a career in the chemical industry.

Faculty Biography

Dr. Sarah E.G. Porter is in her second full year of teaching at Longwood. She holds a Ph.D. in analytical chemistry from VCU, a Masters degree in Criminal Justice from VCU, and a B.S. in Chemistry from the University of Virginia. Prior to

coming to Longwood, she held a position as a breath alcohol instructor at the Virginia Department of Forensic Science, and worked as a bench chemist for Wyeth Consumer Healthcare. Dr. Porter is currently teaching Freshman chemistry and instrumental analysis.

4 Mathematics and Computer Science

Building and Measuring Scalable Computing Systems

Daniel M. Honey, Jeffery P. Ravenhorst
Faculty Mentor: Dr. John R Graham
Department of Mathematics and Computer Science

Abstract

No longer can the appetite for increased computing power be satisfied by conventional single processor architectures. The only way to satisfy the increasing demand for higher performance and the need to solve increasingly complex problems is to build scalable systems. To build effective scalable systems, both users and designers alike must understand the performance and programming issues associated with scalable computer systems. The goal of this research project is to answer fundamental questions about scalable systems: How does a user measure the performance of an application? How does an administrator characterize overall performance of a parallel computer? What is the most effective way to program such systems? Can your organization afford to move to the parallel domain? The Longwood University Cluster (LUC) Project seeks to demystify some of the issues of building and programming such a scalable system by investigating the procedures necessary to construct a parallel computing cluster.

The LUC project will build a cluster from discarded university computers. After construction, programming under various models will benchmark specific applications and overall performance. The project documentation will illuminate design decisions involved in the construction as well as experimental results obtained from the finished product. Supplemental documentation will provide construction and programming details to assist other organizations in replicating the LUC project. Finally, documentation will be provided and curriculum developed to enable effective use of the facility.

The legacy of the LUC project will be in the form of Longwood University's first dedicated resource for high performance computational research.

The project will give opportunities within all disciplines for new curriculum, research, and expansion of the cluster computer itself.

Introduction

Since the first mainframe constructed in the 1940's computers have been at the forefront of scientific and mathematical research. Today, the problems sought to be solved by scientists have only grown larger. Even with faster hardware in the there still exists an infinite amount of problems that simply cannot be solved by a single computer. To meet the needs of these computationally challenging jobs, the scalable system was designed. In computers science, a scalable system is a network of multiple computers designed to communicate and work together to accomplish the same task. Through specialized programming practices, the power of such systems are harnessed to complete problems that had once only been theorized or tested by small sets of trial and error experiments. These systems offer scientists the ability to exhaustively test problems and theories that would have taken unreasonable amounts of time to accomplish by hand. This method of computing is called distributed computing, in which each computer does a part of the problem. Distributed computing is challenging because programs must be designed and written to function in a parallel environment, communicating across multiple machines to process a final solution. The LUC is a scalable system that relies on this type of computing.

The purpose of the LUC project is to answer important questions regarding the construction and performance of such systems. Scalability is a large part of any system and one of the project objectives are to document the level of scale needed to produce a system with enough computational power capable of meeting the needs of researchers. How far the cluster needs to be scaled and the upper limits of its performance will be determined using various benchmarks and other system stats. How the cluster behaves during its operations is another important question that will help us discover the maintainability of the system. Taking temperature readings from each node's CPU (Central Processing Unit) will help us measure this aspect of the system. Aside form scalability and construction, the merits of parallel programming will be explored and compared to traditional

scalar programs. Measuring the difference in performance of parallel programming over traditional scalar programming and their respective algorithms in large scale problems is one of the most important questions the LUC project seeks to answer. All these questions are important when constructing a scalable system because they provide us with guidelines and standards we can use to predict the kind of system we need in the changing landscape of technology.

Ultimately, the cluster will be used to integrate parallel programming into the standard curriculum for the Computer Science program. Earlier steps to move in this direction include definition of available parallel programming techniques [4] and then identifying how to integrate these features into traditional CS classes [3]

Methodology

In order to answer these questions the LUC project team plans to first run a benchmark to measure scalability and potential performance of the cluster. To assess these properties the benchmark will be run on the cluster and a number of other modern systems. Results of the NASA EP (Embarrassingly Parallel) class A benchmark [1] will be compared allowing us to better comprehend the computational abilities of the cluster by today's standards. The benchmark source code was written using standard Message Passing Interface (MPI) code [2][5] which made minor modifications to the code needed to run on our configuration relatively easy. The parallel benchmarks provided by NASA give us a variety of tests to perform, the fist of which is the EP benchmark. The cluster will generate a range of random numbers defined by the class of the benchmark. Since each node only has about 512 MB (Megabytes) of RAM (Random Access Memory), class A and B benchmarks were used. The same benchmarks were also run on a range of every day modern systems, this is important because the cluster is composed entirely of surplussed university parts about 9 years old. Comparing the two sets of data is crucial because it helps us understand the limits of certain hardware implementations. Even though each node has a 2.8 to 3 GHz processor it may not perform as fast as a multi-core processor with almost half the clock speed. When factoring in the overall performance of the cluster benchmarks are proof that there are more factors than processor speed to be taken into account. The

32 bit Pentium 4 CPU in each node precedes the advent of multi-core processors, given its age you can take into account advances in instruction sets, bus speeds of the motherboard, and RAM, we predict a modern system to be slightly faster than a single node based solely on these facts. However since the cluster is composed of 32 nodes the advantage of performing massively parallel tasks belongs to the capabilities possessed by LUC.

As stated earlier, although the computational power of the nodes may not be up to spec with more modern systems, the real performance gain comes from the cluster being able to run programs in parallel on a much larger scale than any one system is capable of doing. In order to record the performance gain of parallel operations we will implement various programs commonly used on sequential systems such as sorting, and then in parallel to more accurately measure the abilities of the cluster with regard to real world problems. It is this aspect of the cluster's operations that we expect to see the greatest performance gain.

Implementation

One of the major challenges of the LUC project is actually implementing the cluster itself from the ground up. This is where a majority of the project documentation will come from as well insights on how to build a better system that can be used for future generations of researcher. Although the specs of each node weigh into the operational capabilities of the cluster, the first issue with construction lies in the dimensions of each node. Since LUC is composed of 32 nodes each stored in a rack of 48U, the case each node is stored in can only be 1U, about 1.7 inches in height. This is the smallest measurement possible for a node and since the hardware being used is not meant to be stored in such an environment two important modifications had to me made.

The first modification although, unexpected, was the most immediate. The audio ports on the motherboards were too high and would not allow us to install the motherboard into the case without modification. Therefore the top audio jack on the back I/O panel of the motherboard was removed with a dermal, this was done for every 1U node. Once again because of the limited space provided by the 1U case, all nodes using SATA (Serial ATA) hard drives required special right angle

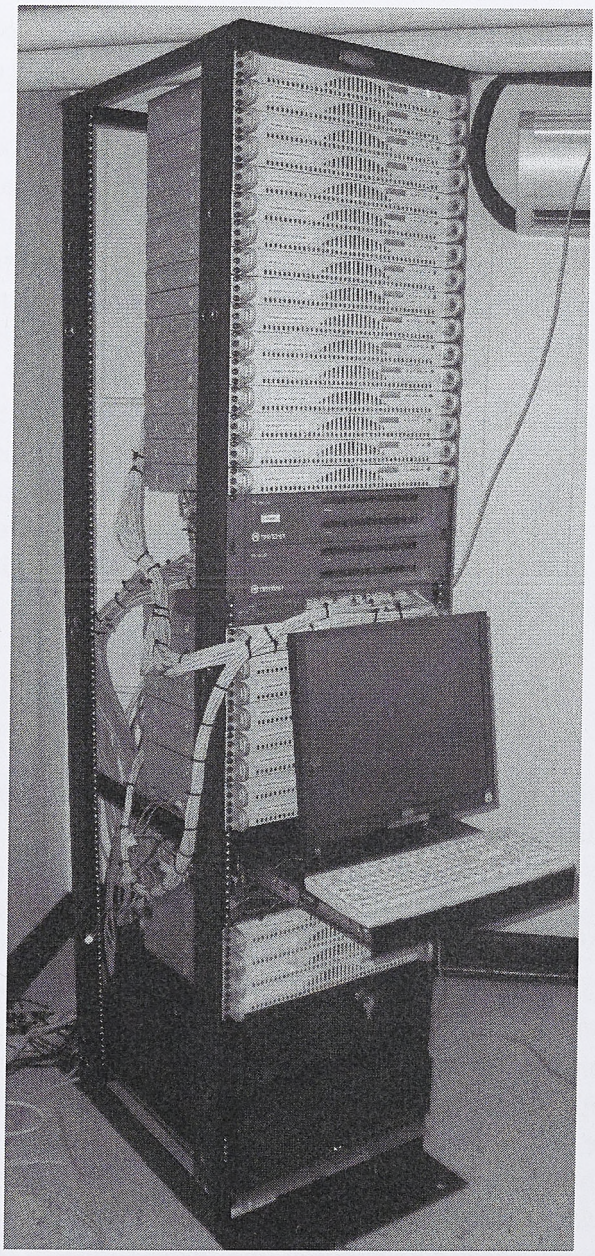

Figure 1: The Constructed Cluster

cables so the top of the case could be fitted. In order to make use of the front panel switches on the 1U cases converter cables were needed since the case design was proprietary. However, the most challenging aspect of constructing a cluster with 32 nodes was cooling, because the height of each case was so compact, smaller heat sinks for the CPU where needed. Half of these heat sinks came with special thermistor components that needed to be disabled. The thermistor component did not appear to be compatible with our motherboards and as a result the CPU fan ran at half the speed it was supposed to. This caused the nodes to crash because the heat buildup in each case was so bad. A solution was found by cutting a blue wire on the fan connector so that it could operate at full speed, we suspect the cut wire to be responsible for powering the thermistor. Overall the smaller space and compact heat sinks resulted in many nodes running much hotter than usual, some to the point of system failure due to heating. Strategies are still being formulated on how to best deal with heat distribution on a cluster of this size. The heating problem thus far has only affected approximately 3 nodes that sit at the very bottom of the cluster and accumulate the most heat.

Results

Figure 1 shows the completed cluster. The cluster is housed in the basement of the Hardy House which also house the High Performance Computing Lab (HPCL).

Figure 2 below shows the results of the NASA EP Benchmark. The important thing to note is that there is not a linear speedup when more processors are added. This is because code is optimized when using a number of processors equal to a power of 2 (2,4,8,16 ...) This results in the anomaly of 8 processors being faster than 10, for example.

Figure 3 compares the cluster to a Quad core processor (Four CPU computing cores on one chip). Although the cluster is significantly faster than a single quad core system, the results demonstrate to us the advantage modern systems have despite lower clock speeds. This advantage in computational speed is formidable since the basic essence of a node is just a CPU core and RAM. A cluster of quad core processors only needs be composed of 8 nodes to match the 32 single core nodes of LUC. This leaves better possibilities for cooling and overall performance

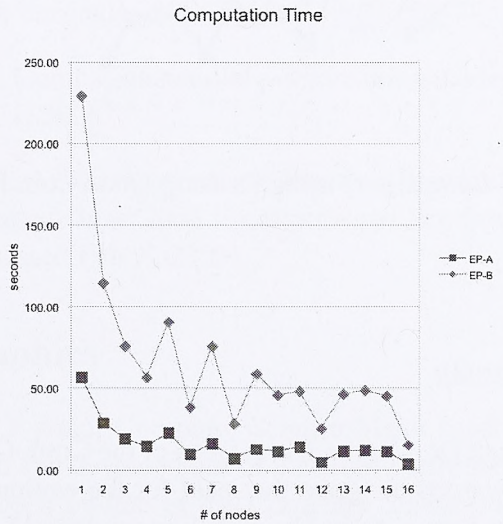

Figure 2: Comparison Using NASA EP Benchmark.

because of reduced network communication.

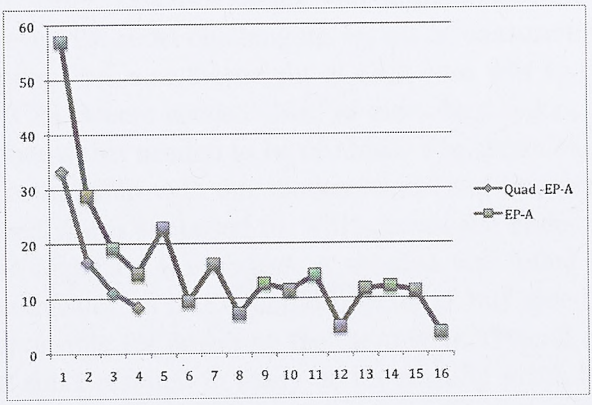

Figure 3: Comparison using Desktop Quad Core Processor.

Acknowledgments

We would like to thank Dr. Charles Ross, Dean of the Cook-Cole College of Arts and Sciences who awarded the grant that paid for the equipment need to build the cluster and Brian Kraus, formerly with Longwood's IT department for his assistance withacquiring the surplus computers that became the heart of the cluster.

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Student Biographies

Daniel Honey: I am a junior Computer Science Major from Fairfax, Virginia. I worked on the design and development of the High Performance Computing Lab (HPCL) which has been on-line in the Computer Science department for three years, as well as the cluster development. I was a member of the Varsity track team still run for enjoyment.

Jeffery Ravenhorst: I am a Senior from Lexington, Virginia. I have started a web design business and published several sites for small businesses. I am a member of Upsilon Pi Epsilon, the Honors fraternity for Computer Science.

Faculty Biography

Dr. John R. Graham is an Associate Professor in the Department of Mathematics and Computer Science in his fourth year at Longwood. He holds a PhD in Computer Science from the University of Delaware. His previous work at Delaware in

Parallel Processing and Operating Systems is the basis for this work. He has over 20 years experience in industry with Sun Microsystems, Eastman Kodak, NASA and others.

5 The Social Sciences

Nomini Hall: A Case Study in the Use of Archival Resources as Guides for Excavation at an Archaeological Site

Jamie Elizabeth Mesrobian
Faculty Mentor: Dr. James W. Jordan
Department of Sociology, Anthropology and Criminal Justice Studies

Abstract

Since 1993, Dr. James William Jordan has taken his honors students to Westmoreland County in order to conduct archaeological excavations at Nomini Hall. This had once been the home of Robert "Councillor" Carter III (a prominent gentleman during the eighteenth century) and his family. Longwood University students have been excavating and researching details of this property for many years. The main focus has been Philip Vickers Fithian's schoolhouse, where the tutor taught the Carter children and lived from 1773 through 1774. Fithian's journal[1] has been used in the discovery of a brick wall located on the site, once thought to be the schoolhouse. Now the question remains: where is Fithian's schoolhouse and how may further excavations prove to be successful in the discovery of this building?

Introduction

Since 1993, Dr. James Jordan and anthropology students from Longwood University have conducted archaeological excavations at Nomini Hall in Westmoreland County, Virginia. Nomini Hall was built by Robert "Councillor" Carter in 1728. He was a prominent leader in politics and trade during the latter part of the eighteenth century. His children's tutor, Philip Vickers Fithian, wrote a journal during his time at Nomini Hall. The diary contains descriptive documentation of the land

and buildings on the property, including dimensions. Using the descriptions and dimensions in Fithian's journal, and archaeological field surveying methods, Dr. Jordan and his team of Longwood students discovered a brick wall they believed then to be the schoolhouse where Fithian taught. However, after more recent research, it has been decided that this is not the wall of Fithian's schoolhouse, but, instead, a garden or boundary wall. The question now: Where is the schoolhouse? Within this article, I will present a research agenda and materials based off of personal research that may answer that question.

In attempting to locate the schoolhouse Dr. Jordan and Dr. Brian Bates, Director of the Archaeology Field School, have continuously turned to primary documentation. I, as well, have turned to researching numerous primary resources in order to help solve this mystery. The most important primary document used in the research of this site is the journal of Fithian entitled *The Journal and Letters of Philip Vickers Fithian 1773-1774: A Plantation Tutor of the Old Dominion*.

Fithian's journal gives students, professors, historians and other researchers from many different places, including the Colonial Williamsburg Foundation, an inside look at the life of a gentry family in Virginia during the eighteenth century. Descriptions include not only the property and buildings, but also daily events in the life of Fithian, of the 500 slaves on the property, and the Carter family. Philip Vickers Fithian's journal has helped researchers greatly when it comes to gentry lifestyles and their property, and the Carter family specifically.

Before examining details of the archaeology, an understanding of the Carter family and how Nomini Hall came to be acquired, is important not only for the reader, but also the students and professors involved in this project. Robert "King" Carter, the grandfather of Robert "Councillor" Carter, acquired the property for Nomini Hall and twelve other Westmoreland plantations in the early 1700s. Louis Morton in his book [3] writes about the extent of land ownership, "Carter patented for himself and his family altogether some 110,000 acres in the Northern Neck. These lands, together with the original grants in that area and additional grants beyond the Blue Ridge, now totaled close to 300,000 acres" (17-18). In 1730, only two years before his death, "King" Carter divided the land he had acquired among his four sons. The land on the Northern Neck, including Nomini Hall, went to his second eldest son, Robert Carter II. However, Robert Carter II was to die only four years later, and in his will gave the property to his son, Robert Carter

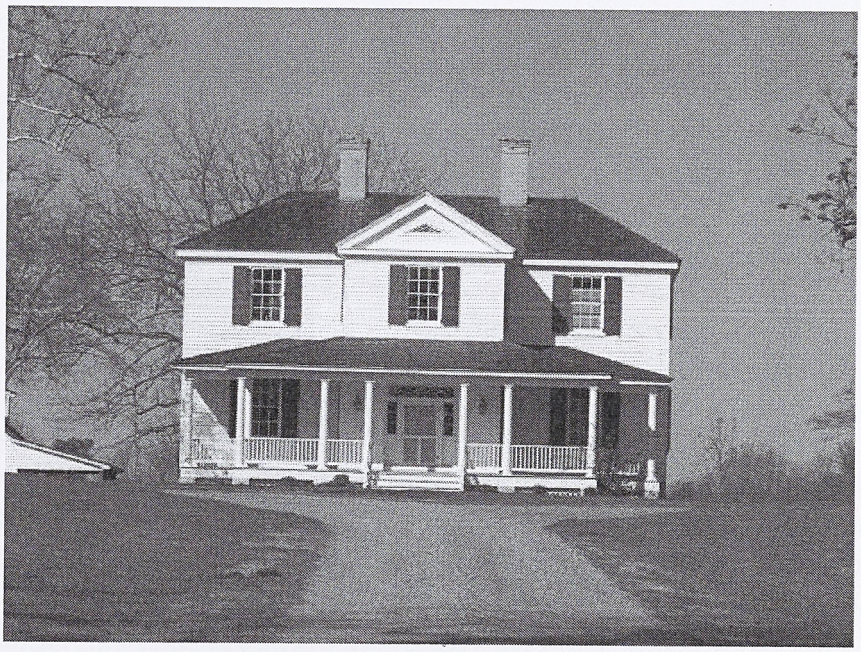

Figure 1: The Main House circa 1850

III, who was only four years of age.

Even though he had a number of responsibilities at such a young age, Carter did not crack under the pressure. In fact, he excelled. Going to school in England to educate himself in business for two years was one of the first steps that he took. After returning to Virginia, during a trip to Baltimore, Maryland, Carter met his future wife, sixteen year old Frances Ann Tasker. Morton states, "Robert Carter formed new and valuable connection. The Tasker family of Maryland was an honorable one, related by marriage to many distinguished families in America and in England" (37). The Taskers also owned the Baltimore Iron Works Company, in which Carter received partial ownership, raising his social and business status in the area. Even though he and his wife lived at Nomini Hall for a few years, they did relocate to the capitol city of Williamsburg for about ten years before concluding that Nomini Hall was where they truly wanted to be. After settling at Nomini Hall, where both he and his wife, along with their seventeen children, were to live, Carter developed a number of trades and businesses at the plantation including a brickyard, double mill, grainery and textile production. Robert "Councillor" Carter III became one of the most successful businessmen in Virginia, if not all of the colonies.

It is easy to see why the property and family hold so much importance in colonial Virginia history. The journal of Philip Vickers Fithian is critical to understanding the design and layout of building on the property. Adding to our understanding of the basic history surrounding Nomini Hall and the Carter family, Fithian provides an even more in depth coverage of the plantation:

> At equal Distances from each corner of this Building stand four other considerable Houses, which I shall next a little describe. First, at the North East corner, at 100 yards distance stands the School-House; at the North-West Corner, at the same Distance, stand the Coach-House; and lastly, at the South-East corner, at an equal distance stands the Work-House. These four Houses are the corner of a Square of which the Great-House is the Center (80-81).

With descriptions such as these, research at the archaeological and surveying standpoints has been made relatively easy. Those of us who have been researching and conducting archaeology on the site know where the main house was situated,

Figure 2: Spring 2008: students excavating the brick wall

the dimensions of it and with that knowledge we can calculate where other structures on the plantation were located.

Dr. Jordan and his students started excavations at Nomini Hall in 1993. It was during this excavation year that they set out to discover Fithian's schoolhouse. Using the description above with the statement that the schoolhouse was located 100 yards away from the north-east corner of the main house, the team of archaeologists set about measuring. They started out by taking measuring tape from the northeast corner of the house now standing, and measuring 100 yards away. Actual digging commenced by the way of sondages (a basic archaeology surveying method in which the students would shovel a trench to see if anything was underneath the sod level). They located these sondages where Fithian provided a description of the schoolhouse:

> First the School-House is forty five feet long, from East to West, twenty-seven from North to South; It has five well-finished convenient Rooms, three below stairs, two above; It is built with Brick a Story a half high with Dormant Windows; In each Room is a fire; In the large Room below-Stairs we keep our School; the other two Rooms below which are smaller are allowed to Mr. Randolph the Clerk; The Room above the School-Room Ben and I live in; the other Room above Stairs belongs to Harry & Bob (81).

With this description from the journal of Fithian, Dr. Jordan and the students were able to determine where to place their trenches after measuring off the initial 100 yards. The result of the archaeology survey was the discovery of a brick wall, believed to be the foundation of the schoolhouse. Continuing through the years, many students went to Nomini Hall as part of Dr. Jordan's Honors course in archaeology to conduct excavations at the brick wall that was believed to be Fithian's schoolhouse.

However, within the past three years, students, Dr. Jordan and Dr. Bates began questioning as to whether this was actually the schoolhouse. The main problems that arose were the length of the wall, the style of bricks and the depth. The wall continued, never stopping, at sixty-seven feet, with indications that the wall continues to go on in both directions. That is twenty-two feet longer than the wall of the schoolhouse in Fithian's description. Also, the other side of the wall had not been able to be located at twenty-seven feet to the north or south. Additionally, in looking at the style of bricks and the formation of the wall, it has become easier to see in recent years that the wall has a vault shape, is very thick, and goes down into the earth further than students have been able to excavate. This information, gained within the past few years, leads those who have been excavating at Nomini Hall to believe that this is some sort of boundary or garden wall rather than the foundation of the schoolhouse. The wall is far too long, elaborate and not built in the form of a foundation.

Over the years, several students have examined the possibility that this wall is not part of the schoolhouse. Jason Milne (now an assistant professor in the Department of Sociology, Anthropology and Criminal Justice Studies), the author of the paper used in this article [2], and Lisa Goodell, a fellow classmate of Milne's,

Figure 3: Dr. Bates, Dr. Jordan and students examining the brick wall

were the two students who first questioned whether this brick wall was the remains of the schoolhouse. Milne, in a paper for his Honors Introduction to Anthropology class entitled, "Fithian: Nomini Hall Discrepancies," wrote of these discrepancies: "When listing the four corners on page eighty, Fithian lists the schoolhouse, workhouse, stable and coachhouse, but on page eighty-one when addressing the area of the triangle he says that the triangle made by washhouse, stable, and schoolhouse is perfectly level" (8). Here he shows that Fithian at one point was calling the washhouse the "workhouse" in his descriptions. Milne continues to write: "For, the even 'square' which Fithian talks about the buildings forming, can only be appropriate with the washhouse being in the southeast corner. I believe that the workhouse is a structure that Fithian discusses that was back behind the house on the west end" (9). This seems to be a perfectly straightforward and reasonable assumption on Milne's part. It also goes along with the other descriptions within Fithian's journal on the rest of the property. With the discrepancies discovered by Milne and Goodell in 1996, and the information gained and assessed by me ten years later in 2006, it is easy to see that something is wrong.

Fithian is very detailed in his descriptions of the buildings and the property layout. In discussing the main house, Fithian writes, "This House is built with Brick, but the bricks have been covered with strong lime Mortar; so that the building is now perfectly white; It is seventy-six Feet long from East to west; forty-four wide from North to South, two Stories high; the Pitch of the lower story seventeen Feet, the upper Story twelve" (80). The original house that stood on the plantation when Robert Carter III lived there burned in October 1850. However, the front of the house that is there now stands directly over the original foundation. This is an important fact which will be discussed later on. There are other pieces of the property that Fithian describes,

> Due East of the Great House are two Rows of tall, flourishing, beautiful, Poplars beginning on a Line drawn from the School to the Wash-House; these Rows are something wider than the House, are about 300 yards Long, at the Eastermost end of which is the great Road leading through Westmorland to Richmondanother branch of the River runs on the West of us, on which and at a small distance above the House stands Mr. Carters Merchant Millto go to the mill from the

> House we descend I imagine above 100 Feet; the Dam is so broad that two carriages may pass conveniently on it; the Pond from twelve to Eighteen Foot water – at the fork Mr. Carter has a Granary, where he lands his Wheat, for the mill Iron from the Works (81-82).

These descriptions match perfectly with what is actually there. Dr. Jordan leads the students on walks around the property in which they visit the poplar avenue and double mill. The students also see the glade which Fithian mentions, the brickyard and kiln areas, and a slave graveyard. With so many of the places that Fithian describes accurately noted, it does not seem to me that he was mistaken when it comes to the measurement or placement of the schoolhouse. But the question remains: Where is the schoolhouse and how do we find it? I have recommendations regarding the discovery of the schoolhouse. First, I do not think that we should abandon Fithian. He is, in my opinion, a very accurate and reliable source of information. It is quite possible however, that we are surveying the land from another angle, with differences in measurement units and degree angles. Additionally, it is important to note that the modern house faces the east, instead of the south toward the river, as it did in Robert Carter III's time, which could have caused a difference in measuring and angling as well. I propose that in future excavations this be examined by surveying and mapping the land in the eyes of Fithian. Research on degree, angle and measurement differences must be conducted before the survey. Also, students must pay special attention to the measurements and angles after, figuratively, moving the front of the house to face the south as it did in Fithian's day. It is quite possible that by looking at the property in Fithian's eyes, and mapping and surveying it as such, that we might be able to discover new and different locations, thus possibly finding the actual location of the schoolhouse.

Constant reminders of the eighteenth century and the family are at Nomini Hall, from the poplar avenue drive on the way to the site, to the family graveyard on the south side of the property. Fithian describes a conversation with Robert "Councillor" Carter III about his burial, "He told us he proposes to make his own Coffin and use it for a Chest til its proper use shall be required – That no Stone, nor Inscription be put over him – And that he would chose to be laid under a shady Tree where he might be undisturbed, and sleep in peace and obscurity" (61). It is

Figure 4: Students during the Fall 2007 excavation. Photographs by: Joe Garcia, Stephanie Neeley, and Jessie Thacker

there that Robert "Councillor" Carter III continues to lay in rest, in peace with no marker other than the granddaughter of the Catalpa tree that he had once planted there at the head of his father, Robert Carter II.

Even though the archaeological excavations have not yet been satisfactory as far as the schoolhouse is concerned, there are new points of interest each semester. This past Fall 2008 excavation revealed one of the oyster bed roads that surrounded the property. It is a site that is very rich in its history. The Longwood anthropology students do not treat Nomini Hall as simply a job on which they work. It is a place that they respect at the highest levels. Also, a high level of respect is held towards Philip Vickers Fithian and the Carter family. Reading from the diary of Fithian in the classroom is one thing, but actually being on the location where these events took place, and reading it there brings on a whole new light. Even if the schoolhouse is never found, I believe that everyone who has ever worked at Nomini Hall can support me in saying this: we have gained respect for the use of primary resources and how they bring us back into the past.

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Student Biography

I am a double major in Anthropology and History. I have participated in four archaeological excavations at Nomini Hall, and two Archaeology Field Schools in Clover, Virginia. I will be entering University College London to begin study on a Master of Arts in Public Archaeology in September, 2009.

Faculty Biography

Dr. James William Jordan is a Associate Professor of Anthropology and Sociology in the Department of Sociology, Anthropology and Criminal Justice Studies at Longwood University. He received his Masters Degree in Sociology from University of Connecticut, and his Ph.D. at the University of Georgia.

6 English and Modern Languages

Two Stories – *In Ohio* and *How to Stay Out of the Brazilian Army*

Thomas Scott
Faculty Mentor: Mary Carroll-Hackett
Department of English

Artist's Statement

I began my semester studying experimental contemporary fiction quite frightened. Artistically, I believed I already had a grip on my own beliefs, which were shaped in the tradition of contemporary realism, following the narrative theories of Poe, Booth and Gardner. Focus on a heightened emotional state, showing instead of telling, progressing the story in a definable arc of rising tension — these were the tactics I employed in my own fiction, with varying degrees of success. Thus, I initially worried that these beliefs would cloud my reception to writers such as David Markson, who creates an entire novel using a collage of factoids and quotes, and Tom Phillips, whose novel *The Humanent* unfolds as a series of paintings imposed over the text of an obscure Victorian novel. These seemingly unbridgeable differences in style were also compounded by the difference in subjects. Italo Calvino's Enlightenment-era Italian aristocrats to Fernando Pessoa's belabored Portuguese philosophers didn't have much in common with my skateboarding, lower-middle-class protagonists, who tended not to think too heavily. I felt, at the beginning, like an apprentice farmer instructed to carefully observe the methods of a pyrotechnic engineer. What did these writers have to offer my fiction? Much more than I could have imagined, it turns out. Under the weekly guidance of Mary Carroll-Hackett, I began to understand how the finest works of contemporary experimental fiction succeed. With this came an understanding of the different levels of meaning in fiction, not limited to the relationship between the reader and the text. Writers

such as Eggers — those who understand and push the limits of the practices of contemporary fiction, the theories of Booth and Gardner — make deliberate violations in order to explore theories on the relationship between the reader and the author, the author's relationship with fiction, the relationship between the author and art, and the very process of creating art. I was then given the opportunity to explore different ways of telling stories using the works I had read as models. My attempts at writing experimental fiction modeled after Calvino and Markson showed the inevitable growing pains. However, if these stories were not entirely sound, my return to writing contemporary realism resulted in a heightened understanding of narrative theory, and an invaluable awareness of the possibilities to be unearthed if you trust to follow the story's way of telling itself.

In Ohio

I yell at each successive cow, all staring at me with bored dewy eyes. I drive past one, honk the horn, shout. Nothing happens. Well, it stops chewing, but only for a second, in a stately manner, as if too mature to react. I'm eight hours from Hampton, my home, and currently ten minutes west of Morgantown, a city of college-run smokestacks, where I left a cocktail party without laying nary an eye on Monica, she who always sports the purple denim pants. She said in rare and unsolicited text message a week ago that I should show up to the theatre house for a party. Type of invitation establishes expectations and a sort of protocol that will justify my spending a hundred dollars for gas (one way) battling mountain traffic and all three districts of Virginia — from Tidewater to Piedmont to Appalachian — in order to get to Morgantown for another sight of her purple denim pants and nose ring. Nary an eye on her last night. And would she have the common kindness to answer her phone? What a question. After the jilting sunk in, I administered myself turkey-baster shots of cinnamon schnapps from the punch bowl until I fell back onto the couch, surrounded, as it were, by overly hairy graduate school stage designers who were trying to decide if they knew me or not, and whether or not calling the cops was in order. When I woke up this morning, head in hands as I stood from the couch, I got back in the car for another eight hours back. I took a westward exit, because I had lost my sunglasses and I just wanted

to keep the glare out of my eyes for a little while. Which may explain the sign I see before me, at the end of the gravel road of the farm: Ohio Welcomes You (!). The exclamation point got tagged on in red paint.

This makes me want to initiate another one of those impromptu phone conferences with my friends. Guess where David is? Choice A: In his apartment, eating breakfast and inflating his user rating on eBay with alternate accounts. Choice B: In a Morgantown apartment, crouched in the bathroom with the door closed and the phone close so as not to wake Monica up, her pants lying neatly at the foot of the bed. Choice C: In the living room of the Morgantown apartment, surrounded by all the others who waited all night for her to arrive. Choice D: In Ohio. In Ohio. The scenery around me, it may look like certain parts of Virginia, flat and green and dotted with towns which contain disproportionately huge water towers. But let's not be fooled. I say it out loud, testing how it sounds. Maybe it will make me laugh! Here I am: hung over, twenty-four years old, still falling prey to youthful compulsions. "In Ohio," I say. "Say it with me, cows. In Ohio!" No dice — these two words have all the jaunty bounce of a bowling ball smacking the floor. And the cows go back to chewing while I try to find a spot to pop a U-turn.

How To Stay Out Of The Brazilian Army

Soon after your eighteenth birthday you will be required to declare yourself eligible for the military. You will go to the city barracks, where an overweight colonel from So Paulo will decide based on an interview whether or not you will serve. The day of the interview, tell your father to drop you off two blocks from the barracks. If the colonel sees you getting out of Mercedes — even a shitbox like your pops' — he might put you in the service just because he thinks you have not lived a life with adequate suffering and adventure. The colonel will have a shiny, liver-spotted head, an off-white mustache the color of cobwebs. He will sit behind a desk in the barrack's huge sandstone lobby, a state flag and a national flag on either side of him. Queue into the line of other boys, wait for your turn, and keep your mouth shut. Don't talk, don't give the colonel any reason to notice you before it's your turn, don't give him a reason to take an interest in your future. You probably won't be in chatty mood, anyway. You'll have spent the past month

trying not to listen to stories about those poor guys like your older cousin, smart guys who skipped into the barracks with plans to marry, to study in places like Valencia and Boston, guys who walked out of the interview stuck with four years of soldiering. And who knows why they got it, really? Maybe that day the colonel was in a crabby mood, or he had a toothache, or decided he had seen one too many stringy-armed curly-haired faggots pass through the line that day. He doesn't have to explain why he chooses anyone. Wear a tie — wear the least expensive tie you own. If your father still has one of the big ugly wide ones from the seventies, wear one of those. It's important that you don't dress too dapper. This is the opposite of a job interview. If you stand before the colonel dressed like some preppy doctor's son, then son, you're standing before a bull flapping a red flag, a big red flag which says, Put me in the army, Mr. Bull. Nothing would make the colonel feel better than to know he snatched some rich bastard's son out of the stone-walled section of town and placed him in uniform for four years, ruining his college plans, marriage plans, tumbling your future with a single signature. So dress humble. Don't shower the day before, or the day of the interview. But also make sure you don't overdo this. You don't want to be dressed like the neighborhood coke-fiend or stink up the lobby like Joe Calcutta, or the colonel might get the idea that the military would be the best place for your ass. The interview itself is the hardest thing to plan for. The colonel will open your dossier, turn a few pages, maybe read a few paragraphs. He could just be staring at the pages, for all you know. Try to keep your legs from shaking. But don't lock up your knees, or you will pass out. In your pocket you might have something for good luck, maybe a smooth river stone, or a guitar pick. They won't keep your stomach from cramping together as you watch the colonel page through your dossier. The colonel will ask a few questions about your education. He may notice that you are going to a private school. He might ask about your family, if you have any relatives in the army. Do not say, "Yeah, I have a cousin who is currently in the army because of your fat ass." Tell him you have a cousin who is in his second year of service. The colonel will then ask, in a slippery, casual tone, if you want to be in the army. You will have an immediate reflex, like when a rubber mallet hits your knee. You will want to say something like, "Are you kidding? Do I look like I want to be in the army? Do I look like I could survive a day in combat?" Do not say any of this. Take a deep, collective breathe, and say, "Well, I am of course willing to serve." Then, very

quickly, say, "But I have school right now, and I hope to go to college, and, you know, I hope to better the country through those means." The colonel will nod, his eyes widen as your explanation trails off. His expression will say: Really? Look back at him. It will seem the precise wrong thing to do, to stare — you've always been told it's not polite — but this is the point where you will know that you have to do it. Your cousin, he probably looked down. But you'll know then that you can trade four years of rain forest and riot gear and malaria and severed heads if you just give four seconds staring that colonel in the eye, trying to pull off that sincere look. And you might do it, even as you think the whole time, no no no no please no fuck no. Then, hopefully, after a minute, the colonel will close your dossier. He'll stand and you'll both turn to the nation's flag and recite the first half of the national anthem. Your stomach will feel like you've reentered the earth's atmosphere in a space shuttle. After you finish the first chorus — To the sons of this land thou art a gentle mother, beloved homeland, Brazil! –the colonel will sit back down and pull the next dossier from the top of the stack. You can leave. Try not to puke on the ride back in your dad's Mercedes — wait until you get home.

Student Biography

I am a senior English major at Longwood University and a native of Farmville, Virginia.

Faculty Biography

Mary Carroll-Hackett took the MFA in Fiction from Bennington College in June 2003. Her work has appeared in *Carolina Quarterly*, *Clackamas Literary Review*, and *Reed*, among numerous other literary journals. Her first book, *What the Potter Said*, was released in July 2005. One of her stories, "Placing," received a 2009 recommendation from the PEN/O.Henry Prize Stories Series. She currently directs Creative Writing at Longwood University in Farmville, VA, where she also edits *The Dos Passos Review* and administers the Liam Rector First Book Prize for Poetry with Briery Creek Press.

Forgeron des hommes/ Stealing the Steel in Zola's Men

Jay Crowell
Faculty Mentor: Wade Edwards
Department of English and Modern Languages

Abstract

Émile Zola, argues Colette Beckett, loved writing about individuals that were "en marge," trapped between two identities. These people were split because of some social or cultural factor. However, one factor that Zola found beyond question was a man's virility. Many of Zola's most famous works depict men who are unafraid of death and immune to pain both emotional and physical, but not every male character he details is so strong. These strong men are often paired with a weaker counterpart to highlight the Herculean strength of the greater man, as John Lapp notes[7]. But if one takes a close look at Zola's work, especially *Thérèse Raquin* and several of his "contes," one can see that even though Zola claimed that a man's virility was not subject to question, many of his "manly men" aren't quite what he would have claimed, making them "en marge" after all.

Version Française

Introduction

Émile Zola aimait bien écrire sur ceux qui se trouvent coincés entre deux groupes, ou bien entre deux identités comme, par exemple, ses héroïnes Nana et Thérèse Raquin. Colette Becker appelle cet endroit où se trouvent ces personnages "l'entre-deux" [5]. Ceux qui s'y trouvent sont perdus entre deux camps, et ne font pas partie de l'un ou l'autre clairement. Ce sont les oubliés, les exceptions, et les cas les plus intéressants pour un écrivain qui aime bien analyser comment agissent

les personnes comme aimait Zola. La plupart de ses personnages n'appartient pas clairement à aucun collectif. Que ce soit la religion, la classe sociale, ou le travail, au moins un aspect de la vie des personnages de Zola est fréquemment dans un état de changement perpétuel. Tandis que ces catégories sont exploitables chez Zola, le seul domaine où il ne cherchait pas ce doute, ce manque de sûreté, c'est la masculinité. Ses descriptions narratives nous montrent bien ses idées de ce que c'est qu'un homme, mais ses personnages masculins ne sont pas toujours aussi viriles qu'on imaginerait.

Cette étude cherche à identifier les hommes dans les premiers contes et romans de Zola qui ne sont pas aussi masculins que voudrait Zola. À cause de la limite de pages qui m'est imposée, je n'aborderai que ma recherché sur *Thérèse Raquin* dans cet article.

Méthodes

Pour cette recherche, la majorité de mon travail était de lire *La Faute de l'abbé Mouret*, *La Curée*, et *Thérèse Raquin*, et quelques-uns des contes zoliens afin d'analyser les personnages masculins et de les comparer aux personnages féminins. En plus, j'ai lu quelques articles et extraits des livres par Élisabeth Badinter, Colette Becker, John Lapp, Todd Reeser, et Eve Sedgwick[9] sur l'identité masculine et les luttes qu'éprouvent la majorité des hommes.

Fondement solide

Avant d'analyser les hommes peu masculins, il nous faut un homme idéal qui est tout à fait masculin. Nous trouvons cet homme dans le conte "Le Forgeron", écrit par Zola en 1874. Il s'agit d'un homme faible qui a perdu sa masculinité et la cherche en vivant chez un forgeron qu'il avait rencontré. Ce forgeron est décrit en tant qu'un Hercule moderne: "Le Forgeron était un grand, le plus grand du pays, les épaules noueuses, la face et les bras noirs des flammes de la forge et de la poussière de fer des manteaux" [6]. L'homme faible sans nom dit qu'il est sans cœur, sans cerveau, et complètement perdu. Bien que le conte ne soit que quelques pages de longueur, Zola mentionne plusieurs fois le corps fort et musculaire de son héros. Dès cinq heures le matin, il était au travail avec son marteau, "La

Demoiselle" qui pesait vingt-cinq livres. Tandis qu'il n'y a pas de femme dans ce conte, le nom de son marteau nous donne une impression de domination, surtout par rapport aux femmes.

Résultats

Dans son roman *Thérèse Raquin*[3], Zola décrit l'échec d'un homme et d'une femme, Laurent et Thérèse, qui tuent le mari de la femme en essayant de se marier et vivre ensemble. Le mari, Camille, est certainement un des hommes les plus intéressants que Zola a jamais créé, car il est énormément féminin: "petit, chétif, d'allure languissante; les cheveux d'un blond fade, la barbe rare, le visage couvert de taches de rousseur, il ressemblait à un enfant malade et gâté." Il est donc un complement du forgeron. Dans son livre, *Zola Before the Rougon-Macquart*, John Lapp nous dit que chez Zola "la campagne produit des enfants forts, tandis que ceux qui viennent de la ville sont souvent malades". Camille est un exemple pur, élevé par sa mère à l'intérieur d'une maison qui le protégeait du monde extérieur. En fait, Camille est si féminin que Zola montre que sa femme est la plus forte des deux; tandis que Camille a toujours besoin de quelque médicament que fournissait sa mère, Thérèse a une santé de fer. Nous pourrions dire que Camille ne fait pas partie de l'entre-deux, s'il n'avait pas eu un moment de masculinité quand Laurent essaie de le tuer. À part de ce moment court, il ne va pas de masculin à féminin comme suggérerait Pierre Bourdieu [8]. Quand Laurent et Thérèse décident de noyer Camille pour qu'ils puissent être ensemble, Laurent mène les trois au milieu de la Seine afin de tuer le faible Camille. En luttant contre les bras forts de Laurent, Camille devient une bête pendant un moment et arrache un morceau de chair de la gorge de Laurent, mais il fait ceci en demandant l'aide de sa femme. Bien qu'il se montre homme pendant un petit moment, il est trop féminin à survivre dans un roman de Zola. Incapable de nager à cause de son enfance urbaine, il ne lutte que quelques secondes avant d'être avalé par la Seine. Ici nous voyons le lien que Zola suggère entre les villes et la faiblesse. Le court moment de masculinité est important ici. Il est faible, pitoyable, mais chaque homme mérite son moment de puissance. Ce moment revient à plusieurs reprises quand Laurent imagine que la blessure redevient douloureuse.

Laurent, le plus fort des hommes dans le roman, est tout à fait différent de

l'homme qu'il cherche à remplacer. L'image du géant revient plusieurs fois dans les romans que Zola a écrits plus tard, mais Laurent en est le premier à part du Forgeron [7]. Énormément paresseux, tout ce que Laurent fait a comme but une vie plus facile, sans travail, où il peut profiter du travail des autres. C'est pour cette raison qu'il tue Camille et prend sa femme, profitant de la dotte que laissera sa tante après sa mort.

Bien qu'il soit grand, fort, et rustique, Laurent devient de plus en plus féminin après avoir tué Camille. Ce problème est plus prononcé à cause de sa maîtresse, Thérèse, qui cherche à dominer sur le plan sexuel pendant leur liaison amoureuse. Dès le moment où Camille mord le meurtrier, Laurent se laisse être dominé, non pas par Camille, mais par ses souvenirs du meurtre et par sa peur d'être découvert. Commençant avec les cauchemars, Laurent éprouve des hallucinations jusqu'à ce qu'il cherche sous son lit et dans tous les ombres pour le fantôme de Camille. Il se dit que la seule façon de dormir en paix sera de dormir avec sa maîtresse. Il est vrai qu'il a tué un homme, mais Elisabeth Badinter insiste que, "le mâle n'est mâle qu'en certains instants" [4]. Aucun homme n'est puissant du moment où il est né jusqu'à sa mort; dans la vie moderne il nous manque des épreuves qui vérifient qu'un homme est devenu homme. La puissance et la sureté dont il avait profité pendant ce crime l'abandonnent quand il est temps que Laurent profite de ses actions.

Il y a une scène dans le roman où un ami de Laurent constate qu'il est devenu plus mince, plus féminin. En plus, il dit que sa voix est plus douce, que ses mouvements ont une certaine grâce, et qu'il a développé des nerfs de femme. Cet ami nous donne le point de vue objectif que Zola cherche à montrer dans ses œuvres naturalistes: une voix à part du narrateur qui indique que la crainte de Laurent le rend peu à peu féminin. Le coup définitif vient quand Thérèse, afin de guérir ses peurs à elle, se met à détruire Laurent en le comparant constamment à l'homme qu'il avait tué. Tout ce que fait Laurent est toujours mis en comparaison avec ce qu'a fait Camille jusqu'au point où Laurent se croit sa propre victime. Il vit dans la maison de Camille avec sa mère, son ancienne femme, et tout ce qu'il avait utilisé pendant sa vie en entendant les plaintes de sa femme qui veut retrouver le "bonheur" dont elle avait profité au para avant. Sans cesse, Laurent est sous une pluie d'images de l'homme qui l'avait mordu sur la gorge.

Dans son œuvre *La Domination Masculine*, Bourdieu écrit que le habitus mas-

culin nécessite une relation de domination dans la vie sociale [8]. C'est évident que Laurent est dominé par ses souvenirs de Camille, donc il cherche à dominer quelque chose d'autre afin de se sentir fort. C'est ainsi qu'il devient violent, battant sa femme avec des poings serrés qui ne peuvent pas taper sur le mort qui domine chaque aspect de sa vie. Tandis qu'il est fort et virile, il n'arrive pas à faire face au meurtre, à la possibilité d'être découvert, de devenir l'homme qu'il a tué, et Laurent et sa femme se suicident.

Conclusion

En somme, nous voyons à travers cet exemple précis que les personnages de Zola dans ses premiers romans ne sont point aussi simples que le Forgeron, ni aussi forts. Chacun a ses problèmes et ses faiblesses. Certains deviennent plus féminins, comme Laurent, et d'autres plus masculins, comme Maxime dans *La Curée* [1], et parfois un homme est les deux. Il y a même quelqu'un qui cherche un état où il peut être un objet, Serge Mouret. L'homme zolien cherche toujours à montrer qu'il est homme, car comme disent Badinter et Sedgwick, un homme n'est pas un homme sauf quand il en fait la preuve. Mais dans le monde naturaliste les géants aux corps forts qui ne se plaignent jamais et sont toujours forts ne sont pas communs. Zola nous montre que chacun des personnages est le produit de son sang et ses obsessions, et qu'une lutte contre ses forces est inutile et vouée à l'échec. Évidemment, Zola avait du mal à réconcilier son idéal de l'homme et un style de littérature qui exige que les personnages et l'histoire soient croyables.

Remerciements

Merci à Dr. Edwards et Dr. Amoss, le yin et le yang de mon éducation. Bien que mes études à Longwood soient presque finies, je sais bien qu'il me faut tout une vie si je veux maitriser la langue qui nous est une passion commune.

English Version

Introduction

It is no secret that Émile Zola was one to write about characters seemingly trapped between two different identities such as his famous Nana and *Thérèse Raquin*. While these characters, stuck in "l'entre-deux" as Colette Becker refers to it, struggle to determine exactly where they belong and wrestle with the conflicting forces within them [5]. These characters wrestle with issues over class, religion, and profession, the virility of a man was something that Zola considered sacrosanct as evidenced in his later, more famous journalistic writings. This adamant claim that men were to be in all ways virile, however, conflicts with many of the men in Zola's early works. This study seeks to illuminate the androgynous men of Zola's early writing and point out what about them consistently falls short of traditional masculinity. Zola's definition of masculinity or virility, through his works, seems to be that men are to be strong providers, unafraid and self-sufficient individuals that provide for and protect others. It often also means physical strength and a sense of pride. In the interest of space, since an alternative version of this research in French is presented before the English version, I will restrict my discussion to my research on *Thérèse Raquin* and "Le Forgeron".

In addition to reading and analyzing *La Faute de l'abbé Mouret*, *La Curée*, and *Thérèse Raquin*, I also read articles and pieces by Élizabeth Badinter, Colette Becker, John Lapp Todd Reeser, and Eve Sedgwick in order to expand my understanding the masculine identity as it pertains to Zola.

Methods

For this study, the majority of my work encompassed reading a selection of Zola's early novels (La Faute de l'abbée Mouret[2], La Curéei[1], et *Thérèse Raquin*[3]) and short stories in order to analyze the male characters and compare them to one another as well as to the female characters. I supplemented this analysis with readings by Élizabeth Badinter, Colette Becker, John Lapp Todd Reeser, and Eve Sedgwick[9] on the masculine identity and the struggles that most men experience.

Basis for Comparison

In order to look for the weaknesses in Zola's male characters, I needed a basis for comparison that I found in his short story "Le Forgeron," which was written in 1874 and focuses on a mammoth blacksmith who works fourteen-hour days with a twenty-five pound hammer creating ploughshares for the entire surrounding area. Physically, he is described as the largest man in the land, with rippling muscles, his face and arms blackened from the flames in front of which he worked day and night. Although there are no women in the very brief short story, his hammer, called "La Demoiselle" (the young/single lady), serves as a replacement. The name of the hammer gives an impression of domination over women, and the fact that he creates ploughshares indicates that he is also master over the Earth. In the story, the narrator even mentions the pride of the blacksmith; without him, not a plough in the area would move and the livelihood of all farmers and their families would be put in jeopardy. Far from treating it as hubris, Zola describes this pride as well-deserved [6]. In this man we find the Herculean ideal to which we can compare the rest of Zola's male characters: he is strong, provides for the country, works tirelessly, and seems to have no weaknesses whatsoever.

Findings

In his novel *Thérèse Raquin*, Zola describes the failed struggle of a young man and woman, Laurent and Thérèse, who murder the woman's husband and attempt to happily get married and live out their lives together. The husband, Camille, is perhaps one of Zola's most interesting early male characters in that he is so blatantly feminine: he is small, puny, exudes a sluggish aura, and has pale blonde hair, a thin beard, and splotchy skin. He looks like a spoiled, sickly child . As critic John Lapp points out to us, Zola's work teaches us that "the country produces children both vigorous and wholesome, while the city product is both sickly and unnaturally precocious" [7]. Camille is such a man, if we can indeed call him a man, raised predominantly within the confines of his home rather than out in the country where his family lived during his childhood. In fact, Camille is so feminine that Zola even points out how his wife is stronger than he; while Camille is constantly taking various medications forced upon him by his controlling single

mother, which Zola may have intended as the root of his femininity, Thérèse's health is reputedly as strong as iron . As mentioned, he behaved like a sickly child rather than a proud man like the blacksmith, another way in which he greatly differs from the masculine ideal laid forth by Zola.

One could argue that Camille is not even in the *entre-deux* if it weren't for one moment of masculinity that he exhibits. Apart from this single event, he doesn't oscillate between the two poles of masculinity and emasculation as Pierre Bourdieu would suggest [8]. Once Laurent and Thérèse decide to finally get rid of Camille so that they can be together, Laurent rows the three out into the middle of the Seine to execute the murder. As Camille fights for his life against the large, strong arms of Laurent, some bestial fire ignites in him and pushes him to bite and tear a chunk of flesh from Laurent's throat. However, in doing this he is pleading for help from his wife who breaks into tears under the strain . Even so, Camille, as a weak, babied child nursed continuously by his mother, is too feminine for Zola to let live. Although he has a brief burst of animal rage, it isn't enough to save him from the churning waters of Zola's literary judgment. Unable to swim, another testament to his weak urban nature, he struggles briefly before being consumed by the Seine. Worth mentioning here is that even in such an extreme case as Camille's, Zola still provides him with one moment of virility a moment which seems to affirm a latent belief that all men, no matter how far gone, have this innate fire burning within them.

Laurent, the bigger, stronger male character in *Thérèse Raquin*, in appearance could not be more different from Camille, the man he seeks to replace. The image of the "torpid giant," as Lapp refers to it, comes back many times in Zola's later works, but this is his first true mammoth of a man [7]. This being said, the colossal Laurent is described as so lazy that his every action was geared towards producing a life devoid of effort in which he can benefit off the work of others. He seeks to do this in killing Camille and taking his wife, benefiting from the immense sum to be left to her by her aunt.

Laurent is large, strong, and a child of the country, but his murder of Camille marks the beginning of a gradual feminization that progresses throughout the rest of the book. This process is exacerbated by the almost masculine sexual fervor that Thérèse, his mistress, brings to the affair before the murder. From the moment Camille tears a chunk out of his neck, Laurent allows himself to be dominated, not

necessarily by Camille himself, but by his memory of the murder and his fear of being discovered. This starts with nightmares but proceeds to hallucinations to the point where Laurent is looking under his bed and in every shadow for the cadaver of Camille. He tells himself that the only way for him to sleep soundly is to be with his mistress . While he may have murdered a man, as Elizabeth Badinter points out, "the male is only male in certain moments" [4]. According to her, no man is virile throughout his life; while every man has moments where he proves his strength; no man is permanently in a state of virility. The strength he mustered for that fateful moment unfortunately vanished when it came time for Laurent to reap the benefits of his actions.

At one point in the novel we even see one of Laurent's former acquaintances remark that he has become slimmer, more effeminate. He notices that Laurent's voice is softer, he has developed an elegant sort of body language, and he has seemed to have developed the nerves of a woman . This gives us that objective point of view that Zola claimed was to characterize his Naturalism, a voice other than the narrator's to indicate that slowly but surely Laurent's fear was making him more and more effeminate. The final blow to Laurent's psyche occurs when his wife, to compensate for her own fears, decides to tear her husband down by constantly comparing him to the man he'd murdered. Everything Laurent does is described in relation to how Camille did it, to the point where he feels as though he himself has become the man he murdered. Living in Camille's house with his mother and wife and using everything that Camille had during his life while listening to his wife constantly berate him with mentions of her husband who he'd killed, Laurent is assaulted non-stop with images of the man who'd taken a chunk of flesh out of his throat.

In *La Domination Masculine*, Bourdieu tells us that the masculine habitus or life form "implies a relation of domination within social interactions" [8]. It is obvious that Laurent himself is being dominated by Camille's memory, so he seeks to dominate something else in order to compensate. He turns his anger on his wife, beating her violently with clenched fists that he can not throw against the corpse that has so pervaded every facet of his life. While a strong, virile man, Laurent is so unable to deal with the fear of murder, of being discovered, of becoming the man he'd killed, that he and his wife both commit suicide together once the strain becomes unbearable.

Conclusion

Zola's male characters in his early works came nowhere near the demi-God status of the blacksmith in "Le Forgeron." This may partially be due to the fact that although they are nowhere near as strong, they are also considerably more complex, each with problems and weaknesses, which of course could be related to the length of the works. While some of Zola's men become more feminine, others find their masculinity only to lose it, and some are almost without sex at all. When Zola tried to bring together his naturalist mindset and his masculine prototype, his masculine characters consistently failed to conform to the God-like ideal due to their more developed personalities. As Naturalism became more a part of his works, his masculine characters became increasingly malleable. The message that Zola develops, accordingly, seems to suggest that the more human a man is, the more susceptible he is to oscillation between masculinity and femininity.

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Student Biography

I am a French Education student at Longwood University and will be graduating in May of 2009. I am a member of the Honors program, have been with the radio station for three years, and have studied abroad for a semester at the University of Geneva, where I studied translation.

Faculty Biography

Dr. Edwards is the Associate Professor of French at Longwood University and lives in Farmville, VA with his wife and children. He teaches French Phonetics, among other courses, and has done a great deal of research on Emile Zola.

7 Visual Art

Paul Gauguin's Escape Into Primitivism

Sarah Spangenberg
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Abstract

When Impressionism was at its height in Europe, Gauguin sought escape. He felt Impressionism was frivolous and lacked meaning. As a result, he abandoned European civilization in favor of a primitive existence in the islands of the South Pacific, so that he might find inspiration to create more meaningful work and break away from the trend of Impressionism. My research included analyzing multiple books and articles on Gauguin's life and work in his time away from Europe, as well as analyzing Gauguin's writings that discuss his experiences in Europe and compare and contrast them to his experiences in the islands. Jehanne Teilhet-Fiske's writings were most beneficial to my research. He discussed the symbolism that Gauguin adopted into his work after his move to the islands and how his new environment affected his style. The results of my research show the positives and negatives of Gauguin's journey toward primitivism and meaning and where he was successful in his separation from Impressionism.

Paul Gauguin's Escape Into Primitivism

When Impressionism was at its height in Europe, Gauguin sought escape. He was "unimpressed by the comparatively narrow physical and emotional range" of many Impressionist painters [6]. He felt that Impressionistic works were frivolous and wrote that Impressionists "focused their quest on the eye, not on the mysterious center of thought" [2]. As a result, he abandoned European civilization and its associated comforts in order to live a more simple and primitive lifestyle in the islands of the South Pacific so that he might find inspiration to create more

meaningful work and break away from the trend of Impressionism. Gauguin was not always so disillusioned by Impressionism. Francoise Cachin observes that "the soft colors and divided brushwork of paintings like *Laundresses at Pont-Aven* show that at the time he was an exponent of an appealing, well-mannered Impressionism." [2]. Gauguin became a well-respected Impressionist, but he became dissatisfied with the movement. He felt that Impressionistic works were not expressive and did not make any effort to push any creative boundaries. He began to see Impressionism as being a very formulaic method of painting.

Gauguin's decision to leave civilization was not entirely the result of his artistic ideals. He also had no money. In a letter to his wife in early April of 1887, he wrote:

> My reputation as an artist grows bigger every day but meanwhile I sometimes go three days at a stretch without eating, which destroys not only my health but also my energy. The latter I want to recover and then I'm going to Panama. To live like a savage. I know a little island (Taboga) in the Pacific, a league out to sea from Panama it is almost uninhabited, free, and fertile. I'll take along my colors and my brushes and find new strength far away from people...I will no longer have to live this beggarly life which disgusts me. You needn't fear for my health, the air there is very healthful, and as for food, fish and fruit are to be had for nothing ...[3]

His departure from civilization in Europe also provided the opportunity to make a new identity for himself as an outcast, or rather, a "savage." Gauguin's idea of savagery was akin to rebelliousness. He was rejecting the dominant art movement of the time, abandoning the art capital of the world, and even his familial duties, as he neglected to bring his wife along to Tahiti with him.

According to Bronwen Nicholson [4], it was this "savagery" that had taken him to Tahiti in 1891 and had drawn him back to the South Pacific again in 1895. Gauguin's new life of so-called "savagery" proved beneficial to his artwork. Accompanying a 1927 retrospective, the Bulletin of the Art Institute of Chicago stated that, "Revolt against family life, against business, against the mockery of civilization as he saw it–these Gauguin practiced with a thoroughness that made him a self-ordained outcast from his familiar world" [1].

Almost every aspect of life in Tahiti was inspirational for Gauguin. He remarked in letters to his wife about the beautiful landscapes and vegetation, the overwhelmingly peaceful silence of Tahiti at night, the gentle and sharing nature of the native peoples, as well as the culture and mythology of the Tahitians. Gauguin sought to incorporate this Tahitian ambiance into his work. According to Yann Le Pichon, Gauguin "...attempted to capture this mood of tropical melancholy in portraits of his island women," [5] specifically in works such as "Tahitian Women (On the Beach)," which depicts a pair of Tahitian women resting in the sand. One woman is dressed in a bright red and white ensemble with a yellow ribbon tying back her hair, leaning onto her bare arm, with eyes closed. The other woman is wearing a concealing pink dress and is sitting cross-legged with slumped shoulders and her hands resting in her lap. Her gaze is directed sideways and off the canvas, away from her companion. Le Pichon described the look of these women as that of "contemplative listlessness," [5] which was exactly what Gauguin wanted to capture. This "contemplative listlessness" may have been at the core of what Gauguin admired about the primitive lifestyle. The freedom from the demands of civilization allowed time to dive into deep, unhindered thought. This is also perhaps why Gauguin thought the bulk of the Impressionist works were limited to pleasing the eye rather than stimulating spiritual consciousness.

Gauguin not only wanted to depict the lifestyle of the Tahitians, but their beliefs and culture as well. In his painting "Spirit of the Dead Watching (Manao Tupapau)," Gauguin shows a young Tahitian girl lying on her stomach on a bed, with her hands splayed across the pillow. She is looking toward the viewer with a fearful expression, while an older figure clothed in black stands in the background, looking on. In a letter to his wife, Gauguin explained the symbolism of the work.

> By tradition, these people are very much afraid of the spirits of the dead ...I had to explain the terror in as nonliterary a way as possible, such as it used to be done ...General color scheme: dark, sad frightening, like a death knell to the eyes ...There are some flowers in the background, but they are not supposed to be true-to-life; since they are imagined, I made them look like sparks. For Polynesians, the phosphorescence's of night are the spirits of the dead they believe in them and dread them [sic]. [5]

The influence of Tahitian beliefs in the supernatural also may have led Gauguin to use Tahitian imagery to personify the subject matter of other paintings depicting Christian scenes. Gauguin describes his painting, "We Greet Thee, Mary (Ia Orana Maria)" as "an angel with yellow wings point[ing] out to two Tahitian women, Mary and Jesus, also Tahitian. Nudes dressed in pareos, a kind of flowered cotton cloth that is wrapped as one likes about the waist" [3]. Another similar work is "Tahitian Repast (The Bananas)," which depicts three Tahitian children sitting at a white-clothed table that is covered with various tropical fruits, as well as a wooden bowl full of water, which is reminiscent of Leonardo da Vinci's "The Last Supper." Despite Gauguin's apparent preference for the Tahitian lifestyle, he uses its image and bends it to portray Western values, demonstrating his ability to produce creative work that is not merely visual, but requires attention and thought from the viewer to understand his use of symbolism.

The use of symbolism differentiated Gauguin's new work from the purely Impressionistic work he abandoned when he left Europe. This new work, in addition to departing from conventional subject matter found in Impressionism, such as colorful landscapes and bourgeois families in their daily lives, required viewers to consider the potential spiritual value of things represented. This meaning and depth is exactly what Gauguin hoped he might incorporate into his work when he decided to leave Europe.

Gauguin was less successful in his second reason for embarking to the South Seas' islands. He returned to Europe for a time in hopes that his new and innovative work would grant him popularity, and most importantly, the money he so desperately needed. Gauguin was disappointed and conflicted. He could no longer simply dismiss Europe and flee back to his so-called paradise in blind optimism as he had done in the beginning. Tahiti had become increasingly more Westernized with an influx of European tourists, and there really was no place for him to live a primitive existence any longer [7]. Regardless, Gauguin returned anyway, but not driven by creative ambition, as he was the first time. This time he was fleeing from personal responsibilities. He also felt the need to uphold the rebellious image he had crafted for himself. It was the continuance of this image that made a permanent return to Europe impossible. Regardless of whether Gauguin truly wanted to maintain his "rebellious" persona, he could not escape it [8].

Three years after Gauguin's return to Tahiti, he was considering suicide. He

was living in poverty and pain, the result of a broken foot, and was suffering from a chronic illness. These factors probably made the weight of his recent failure in Europe feel even heavier. He did not know how he could drag himself out of poverty when his work did not achieve the success he had hoped for and he could no longer feel any contentment in Tahiti, as it now so closely resembled the civilization he wished to escape. Gauguin lived for five more years, never able to free himself from poverty or unhappiness. Despite how much Gauguin criticized civilization in Europe and how he tried to flee from it, he could never fully disassociate. He still depended on it to support him financially, and even simply for his own ego, as his lack of success was such a blow to him. Gauguin's "flight from Western civilization to Oceania has become a symbol of modern man's romantic search for the pure primitive state," an idea that would be adopted by modern artists well into the 20th century. While Gauguin failed at achieving wealth while living in the simplicity of island life, he did achieve his artistic goal of separating himself from Impressionism and the conventions of European art in his time. Only a month before his death, Gauguin addressed his own success in a letter to the French author, Henri de Monfried:

> You were mistaken that day in saying that I was wrong to call myself a savage. I am a savage, and civilized people feel it, for there is nothing in my work which astonishes, perplexes, if it is not this 'savage-in-spite-of-myself.' That's why my work is inimitable. The work of a man is the explanation of the man.

Gauguin appeared to have abandoned all hope as a result of the lack of acclaim his work received in Europe, but it seems that he realized before his life's end that he had not really failed at achieving his goal. He sought to create his own "inimitable" style, with depth and meaning, and despite a lack of popularity or financial gain from it, he succeeded.

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Student Biography

I am a junior at Longwood University, majoring in art with a photography concentration. I have been involved in multiple student photography exhibitions on campus and am currently involved in the planning and production of future photography exhibitions.

Faculty Biography

Erin Devine is a Ph.D. candidate at Indiana University studying Contemporary Art. Her dissertation, is entitled "From Translation to Transgression: The Feminism(s) of Shirin Neshat". She has juried numerous exhibits and competitions throughout the Midwest, while also exhibiting her own work in painting, installation, and performance art both regionally and internationally. She has presented a number of works on race, gender, and post colonial issues in contemporary art at conferences in the U.S.

Lee Krasner, Abstract Expressionist

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Abstract

Lee Krasner evolved from an artist succumbing to social and gender pressures of the 1940's to an artist who reclaimed her life as an Abstract Expressionist. Lee Krasner precariously altered her paintings and her name to avoid gender recognition, yet in the face of tragedy she reemerged as an artist who began to paint from an emotional approach after years of a highly intellectual process that engaged dominant forms of 20th century modernism. This paper demonstrates how Krasner's post-Pollock work of the 1970's-1980's evolved to incorporate some feminist rudiments. Using the writings of Barbara Rose, David Anfam, Robert Hobbs and Anne M. Wagner, I suggest that Krasner evolved into an artist that painted through self-expression in her post-Pollock years regardless of the gender constructions that were imposed on her late work.

In the Beginning ....

Lee Krasner belonged to a group of artists from the New York School, who in the 1940's changed the focus of art in the Western world from Paris to New York. Through the New York School, a style would emerge called Abstract Expressionism. Lee Krasner was one of just a handful of female painters from the New York School to be active in exhibitions at that time (others included Elaine de Kooning, Hedda Sterne, Grace Hartigan, and Joan Mitchell). Eventually, she would be recognized by art historians as an Abstract Expressionist; yet social forces of the time held her back artistically. The impact of these forces is recognizable in

Krasner's inconsistent signature, using "Lee," "LK" or refusing to sign her work at all. This indicates her intentional avoidance of gender recognition. I will argue that Krasner consciously painted to avoid gender recognition, and I believe this affected the authenticity of her earliest works. Comparatively, I will explore how authenticity is reflected in her works of the middle and later stages in her life.

With the evolution of Krasner's painting styles, there was an evolution of how she signed her work. Lee Krasner was born Lenore Krasner in 1908, and Anne Middleton Wagner points out in her article that Krasner renames herself wittingly by toying with her name: "Lenore Krasner went by Lee Krasner ...making her name literally less "Krass" and more boyish, moreover, is only one of the variations she toyed with..." [6]. Krasner's changing her name suggests she was concerned about her perceived identity. Nonetheless, Lee Krasner recalled, that from a young age she wanted to be an artist.

After studying art in high school, Krasner facilitated her secondary art education by waiting tables. Despite the economic and social stress of the era, Krasner attended various schools like the Women's Art School, Cooper Union, and the National Academy. Krasner's style and approach to her art was repeatedly rejected in each school's venue. For example, when Krasner applied to take a life drawing class, her "Self-Portrait" was rejected because the committee didn't believe Krasner herself had painted it. The professors didn't believe she was trained well enough to execute such a self-portrait. Krasner's ambition to be an artist remained unchanged, until her energy and artistic style was recognized by Hans Hoffman at the School of Fine Arts in New York. Under Hans Hoffman, Krasner's style evolved from a surrealist to a Cubist abstraction.

David Anfam notes in his article "Lee Krasner: Brooklyn", "Krasner's move into abstraction in the late 1930's was inseparable from her studies under Hans Hoffman starting in 1937" [1]. Krasner's "Untitled 1940" (Appendix A) show's her Cubist-abstract style. Hans Hoffman is quoted to have told Krasner that her Cubist-abstract work was "...so good you would not know it was painted by a woman" [5]. In "Lee Krasner: A Retrospective", Barbara Rose states that there was no question as to whether Krasner had as much right to be a member of this group as her male peers. Krasner was respected among her male peers as an early pioneer of American abstract form as it surfaced within the New York artist circles; "Krasner was certainly among the first to emerge as a full-fledged

abstract artist with an early understanding of Matisse, Picasso, and Miro as well as Mondrian [4]." Krasner was a serious artist who critiqued her work against these great modernists. The group of artists under the tutelage of Hoffman, all of whom would become known under the phrase 'New York School', was serious about a new style of painting that would allow their work to gain more recognition through exhibition and by major art collectors and dealers.

This cooperative quest is explained by Amy Dempsey, author of "Art in The Modern Era: A guide to styles schools and movements 1860 to present," who notes that, "Like the Expressionists, they felt that the true subject of art was man's inner emotions, his turmoil, and to this end they exploited the fundamental aspects of the painting process- gesture, colour, form, texture for their symbolic potential" [2]. Dempsey's reference to "man's inner emotions" emphasizes the hindered status of the female artist in the 1940's. The group to which Dempsey refers was comprised of Caucasian males, who were under the consensus that women as well as other minorities were unable to achieve this universal visual language. Krasner's work did hold up with the Abstract Expressionists; but it is as if, for Krasner and Hoffman alike, a fantasy of 'masculine painting' is offered as the aim-achievement of her art [6]. Even so, Krasner struggled with the perception of gender in the group as they evolved into the Abstract Expressionists.

Krasner didn't agree with how women were treated in the art world. Amy Winters, in her article "Expressionism: Painting and Sculpture 1945-1954," states,

> The Bohemian world of art had room for women as mistresses or models; but not as serious artists in their own right. Some painters toiled in the shadow of well-known husbands or lovers and sacrificed their own opportunities to the careers of the men. Others simply couldn't get their work shown. [7]

Krasner was very sensitive to the term *feminine* being applied to her works and took care to conceal her gender identity. She continued to make her artwork appear gender ambiguous, and even endeavored to ensure that her work was devoid of *feminine* traits. As well as her obscurity in signing her artwork the use of heavy black outlining of shapes, intense bold color, and rough texture is a stark contrast to her earlier works at Cooper Union. Krasner's previous artwork contained organic curvilinear lines and a softer palette of toned colors. However, Krasner's

early work, influenced by Hans Hoffman, was rigid in its form; it has often been assessed as following too closely to the abstraction from a male's point of view.

The works during and after her marriage to Jackson Pollock in 1945 reflect her maturity as a person and as an artist. In Krasner's middle-life, the works during her time with Pollock from 1945-1956, we see indications of the realization of her own artistic vision by separating from the dominant lessons of Surrealism and Cubism. Initially, Krasner allowed the repressive gender norms of her time to limit her true expression. On the other hand, along with Jackson Pollock, Willem de Kooning, and Franz Kline who also studied with Hoffman, she became part of the Abstract Expressionist circle. These artists dedicated their time and resources to implementing their belief in a style of painting that would represent the efforts of American artists.

Krasner was careful not to compete with her husband's career as an artist. She believed in Pollock and his work, while strongly encouraging him to paint despite the drinking and emotional problems plaguing his career and their marriage. She took over as Pollock's manager and critic, as well as caregiver for his alcoholism and depression. The irony of her assistance to Pollock is clear; "Although Lee Krasner did manage business and worldly affairs after marriage, she made sure to choose a husband who would insist she continue painting" [4]. Anfam recognizes this downward spiral in Krasner's life as an extension of her struggles for authentication, stating that "During this period, Lee Krasner's identity gave way to that of Mrs. Jackson Pollock; simultaneously, her work began to founder [1]." Cindy Nemser, author of "Art Talk: Conversations with 15 Women Artists," quotes fellow Abstract Expressionist Grace Hartigan:

> I met both of the Pollocks in 1948. I thought that Lee's paintings were fascinating and remarkable but his has such a scope of power. She had just begun painting again. It was after a period of several years during which Jackson was so competitive that he couldn't bear another personality around him. I thought of them equally as artists but she was working against a barrier of ego. It took her a long time before Jackson would let her move, really move, as an artist. She deliberately submerged her personality to his genius, if I can use that word [3].

This identity confusion in Krasner's painting produces an artistic allegory. "After meeting Pollock, Krasner lost her faith. She stopped painting for at least a year, and when she began again in 1944 she could only produce thick, encrusted grey shins of paint-grey slabs, she called them [5]." These grey slabs were a metamorphosis of her reaction to no longer having to compete with other men, including her husband.

Between 1946 and 1949 she painted three significant cycles of works that she later called her 'little image paintings [4].' Compared to her later works, these pieces appear subconsciously confined, restricted, and squirming to be free. Krasner's "Stop and Go," ca. 1949 was a part of the little images series (Appendix A). The triangle and square shapes appear in various multiples in a chaotic fashion and the use of color in this series is again dark, with heavy use of black and primary colors. In addition, Krasner's support and devotion of Pollock's career came at the expense of her own. Krasner was Pollock's driving force behind his fragile self-esteem. It is fair to question that if by selecting a nontraditional man with outstanding potential but who had mental problems, she obfuscated the traditional role of wife in her marriage. While Krasner was certainly caregiver, she was also the managing force within the marriage that channeled Pollock's work toward artistic success, both financially and notably.

Pollock's untimely death in 1956 is often marked as the end of the dominance of the Abstract Expressionist movement in America. After the death of her husband, Krasner emerged as an individual with a distinct style and reputation with her artwork. "The final liberation of Krasner's art should have taken place only after Pollock's death [4]." Krasner re-invented herself, and her work began to incorporate more organic lines. As seen in "Easter Lillies, 1956" (Appendix A), Krasner began to use loose, flowing and organic brush strokes with a continuous fashion, complemented with pastel tints of yellow and pink. Here, Krasner has allowed her work to emerge and evolve without the influence of potential labels. Critics and biographers such as Robert Hobbs describe "Krasner's years immediately following Pollock's death as her most fruitful [5]." Pollock's death had a tragic impact on Krasner; her expression of the experience is clear in the work produced from it. Krasner's art resurfaced with a new vitality of self-expression while relinquishing control of gender interpretation.

Until her death in 1984, Krasner continued to allow more organic shapes in

her work, thus assuming an evolution of secondary colors like fuchsia and green as well as curvilinear lines that "worked out with feminine acuteness." In Krasner's work, we see a dense autobiography. She finds peace in the end by allowing greater self-expression in her art. The confinement of her earlier work began to loosen, slowly unifying with feminine overtones as seen in the smoothness of more representational organic images such as "Majuscule, 1971" (Appendix A). Here she referred to the position of women's art, and this was the growing concern among other women artists during the second-wave movement. After more than thirty years in the avant-garde circles of New York, Krasner was now part of the call to take works by women seriously and to position them in the canon alongside men; and eventually, even her own work became cataloged alongside her more famous husband.

Even with Krasner's evolution of work over her life, she is still most commonly known as the wife of Jackson Pollock. The ongoing critiques Krasner supplied for Pollock are today considered an important component of his success, and she is certainly tied to his legacy. This association also has had a clear influence on the interpretation of her artistic evolution. "...Krasner variously 'put Mrs. Jackson Pollock in the shade,' 'showed her true colors,' 'became an artist in her own right,' came 'out of the shadows to gain recognition,' moved 'out of Pollock's shadow,' and graduated 'from disciple to individualist' [5]". Krasner's late work symbolized a development in maturity about gender and its relation to her work. Her work following Pollock's death, and until the 1970's, reflected her distress at not being able to express her true artistic self due to social constraints. This artistic struggle raises questions similar to those which Krasner must have asked herself, chiefly why art with feminine overtones can or should not be held equally as dynamic and profound as art with overtones of its masculine counterpart, and hang proudly alongside it. Though the exclusion of gender and identity may at first have been an unconscious one, Krasner came to realize it was a disservice to women artists to censor painting what was inside her.

Krasner's artistic progression to more simple organic forms and limited palette was represented also with a change in her professional name, her signature as simply Krasner. However, "she had devoted her entire life to her art, never faltering even in times of great stress [3]." It was after his death that Lee Krasner continued to fuel Pollock's success while making her own work. She never gave up

the dream she had for both her own and Pollock's work by actively maintaining the preservation of his legacy. And yet when she died in 1984, she "[had] been reclaimed as an artist in the late 1960's and 1970's, particularly by feminist art historians, who, unlike others in those days, were able to see her as more than the best living source of information about Pollock [5]." As a result of Krasner's contribution to art history and to women artists, more women artists of her time are now recognized as significant contributors to the New York School, and based on the merit of their own work.

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[5] Anne Wagner. Lee krasner as l.k. Winter 1989.

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[7] Amy Winter. Review: [untitled]. *Womens Art Journal*, 20(1):61–63, Spring-Summer 1999.

Student Biography

I am a non-traditional student at Longwood University and a junior in the Art Department. My fine art studies are concentrated in Painting & Drawing. My work has been shown at the McCollum More Museum and Gardens, in Chase City

VA and is represented by the Galleria Art Gallery in Clarksville, VA. In 2008, I received the Barbara Bishop Scholarship for her "excellent work as an artist and scholar in the art department".

Faculty Biography

Erin Devine is a Ph.D. candidate at Indiana University studying Contemporary Art. Her dissertation, is entitled "From Translation to Transgression: The Feminism(s) of Shirin Neshat". She has juried numerous exhibits and competitions throughout the Midwest, while also exhibiting her own work in painting, installation, and performance art both regionally and internationally. She has presented a number of works on race, gender, and post colonial issues in contemporary art at conferences in the U.S.

Appendix A

Figure 1: Lee Krasner, "Untitled" 1940. Oil on canvas.

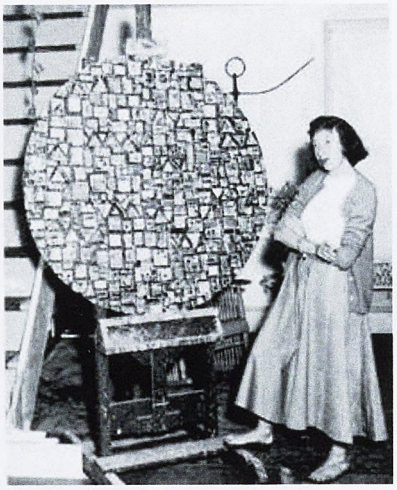

Figure 2: Lee Krasner with "Stop and Go" 1949. Photograph ca. 1949.

Figure 3: Lee Krasner, "Easter Lilies" 1956. Oil on Canvas.

Figure 4: Lee Krasner. “Majuscule”, 1971. Oil on cotton duck.

A Collection of Visual Art

Various Artists

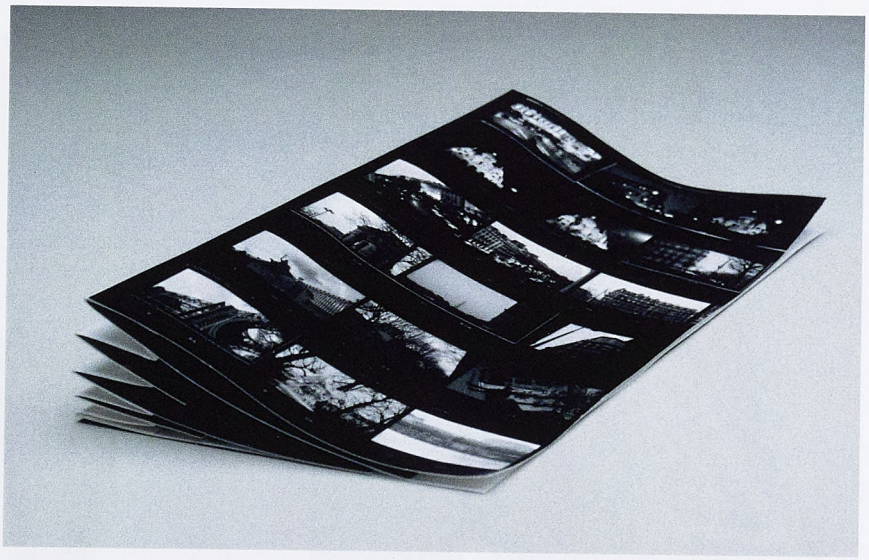

Figure 1: "Paris," Kenny Wolfe, 4.75 x 10 x .25, Contact sheets, sharpie, card stock, accordion fold

Artist's Statement – Kenny Wolfe

"Paris" is a reflection of my fascination with this city. I recently traveled there for a class to look at the museums and it has fascinated me ever since. Therefore, I wanted to make my first artist book on Paris and the aspects I love about it, or the sights in the city. I decided that I would be resourceful and reuse my black and white contact sheets to create the outside of the book and then to add to the inside I put a photo that I took of the Bastille, a turning point in French History.

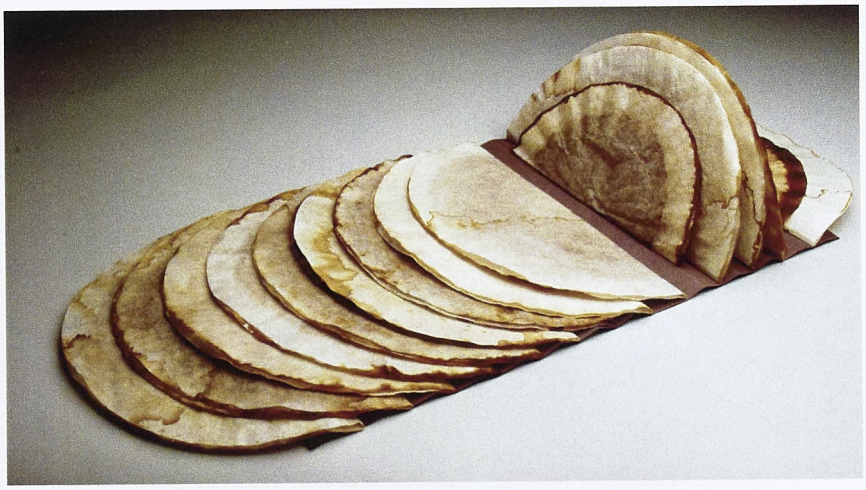

Figure 2: "Sequence of Every Day," Liz Hale, 9 x 18 x 1 inches, used coffee filters, canson paper, linen thread

Artist's Statement – Liz Hale

I love making books, traditional and sculptural. Seeing handmade books or books in unexpected forms makes people wonder what exactly a book can be. I enjoy testing these limits as well as showing the world what I find to be beautiful, such as coffee stains on filters. My piece speaks about an everyday occurrence (drinking your coffee), something most people think about subconsciously if at all. I like bringing this mundane activity to the forefront of their mind. This piece shows sequence without words or images; it is a story. My book was made using a pamphlet stitch multiple times to secure the pages to the spine. The pages are used coffee filters and the spine is Canson paper. It is sewn with waxed linen thread. I used coffee filters to show people beauty in something that is not simply ordinary but typically considered trash. My intention is for people to see this piece as a book of images telling a story about something that happens every day.

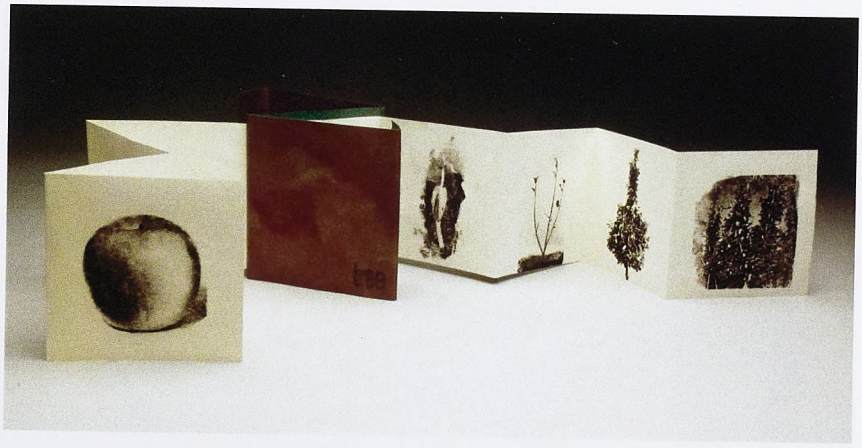

Figure 3: "Apple Tree," Rachel Bouchard

Artist's Statement – Rachel Bouchard

The apple tree book is an exploration of sequence. I was intrigued by the fact that from the same seed come both the apple and the tree that produces the apples. I used paste paper that I painted to resemble the bark and leaves of the tree and text transfers to make the book. At the center of the book, I have the image of the seeds. In an accordion style fold from both ends I show the growth and progression of the seeds. The book branches out in two directions, on one side the seeds grow into an apple tree and on the other side, they grow into an apple.

Figure 4: "Not so pretty in pink," Will Semonco

Artist's Statement – Will Semenco

When you have to draw random words out of a hat, the possibilities of what a sentence can be is endless. In "not so pretty in pink," the sentence I drew was, "Destroy that skinny freak." I could have easily thought of a way to do some social piece about anorexia and bulimia, but I wanted to have fun with this piece. What is a skinny freak that has annoyed me over the years?... Barbie. Barbie is the most annoying toy to ever come out. She can be anything: a firefighter, astronaut, marine biologist, and about anything else that can be thought of; all while being a tall busty blond bimbo.

As a kid, I always wanted to destroy that skinny freak! I finally got the oppor-

tunity to by the fate of magazine clippings. In a contextualized book, the text has to be placed somewhere on the piece. Is it a book? Sure it is. It has text, a cover, and the story is waiting behind the cover inside, all bound together by the not so pretty pink coffin.

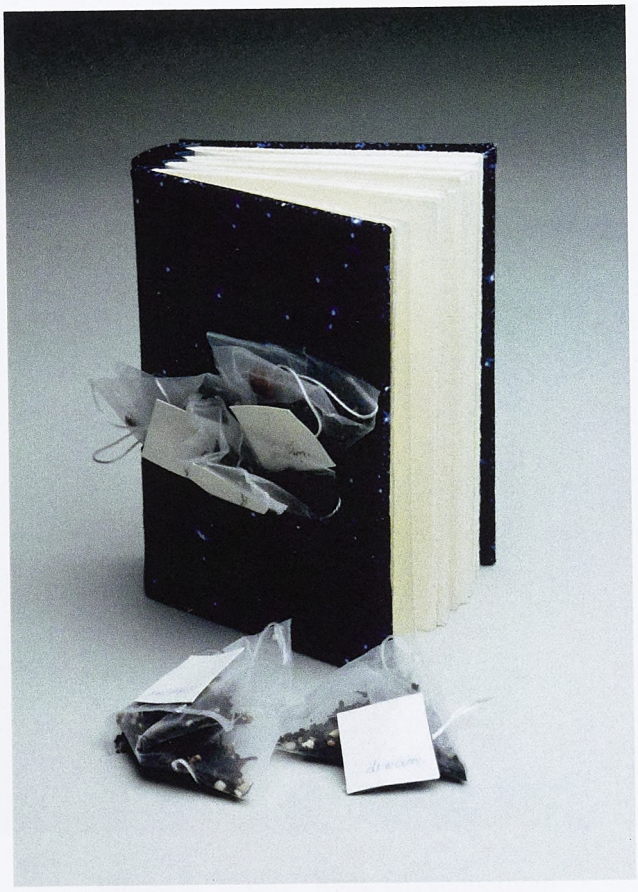

Figure 5: "Look into the Moon," Carley York

Artist's Statement – Carly York

I've been told my whole life that I had my head in the clouds. Well finally I put that accusation to good use in making this artist book. In our assignment we were given a group of words selected at random, make a sentence out of that word and

then create a book around that sentence. I not only made a sentence, I had my partner write a song verse for it. In the theme of dreams I made this book with extra space to fill with the words of one's dreams and completed it with teabags of nighttime blends to promote sleepy time.

Figure 6: “Extra,” Ryan Higgenbothom

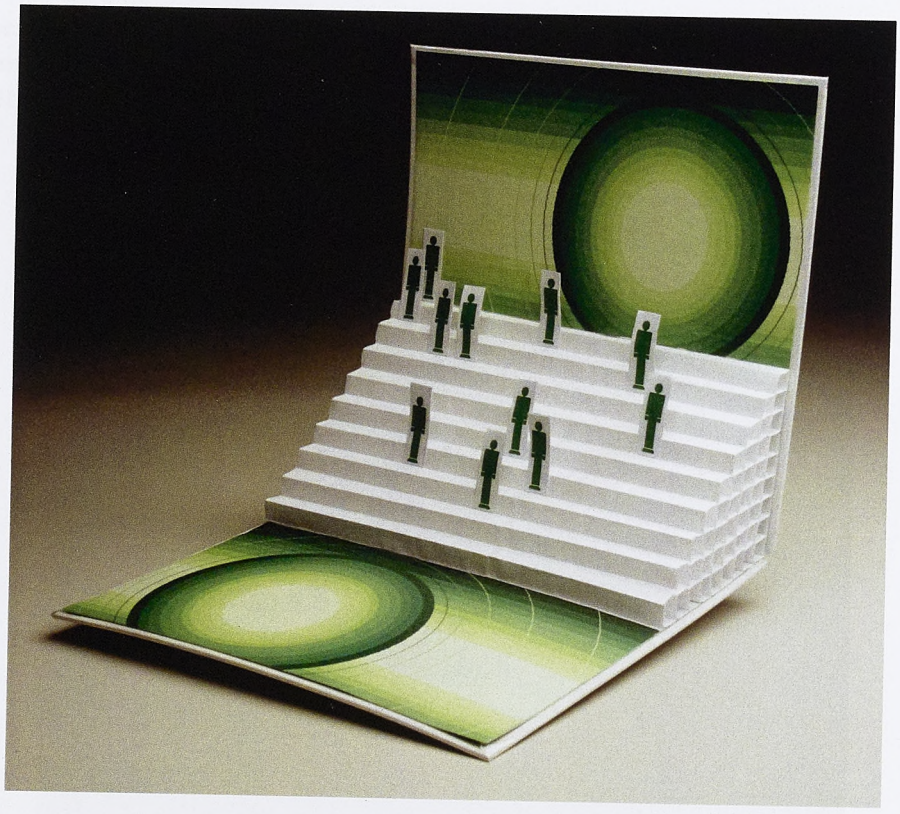

Figure 7: "Green," Ryan Higgenbothom

Artist's Statement – Ryan Higgenbothom

With this book, I wanted to explore new binding techniques. I knew that I wanted to make a book with lots of pages. By using supportive straps with my binding, I ensured that the book would hold its shape. A genuine leather belt from the secondhand store worked perfectly. Synthetic leather binding supports would have buckled under the strain of binding causing tears and stretch marks.

I chose to work with newspapers because, from working at a library, I had access to lots of them and I like the feel of the edges of the hand-torn newsprint text-block. Exploring the concept of sequence, I settled on letting the sequence be organic. The sequence derives from the binding process itself. Folios with full images also were put in the middle of each section for aesthetic reasons.

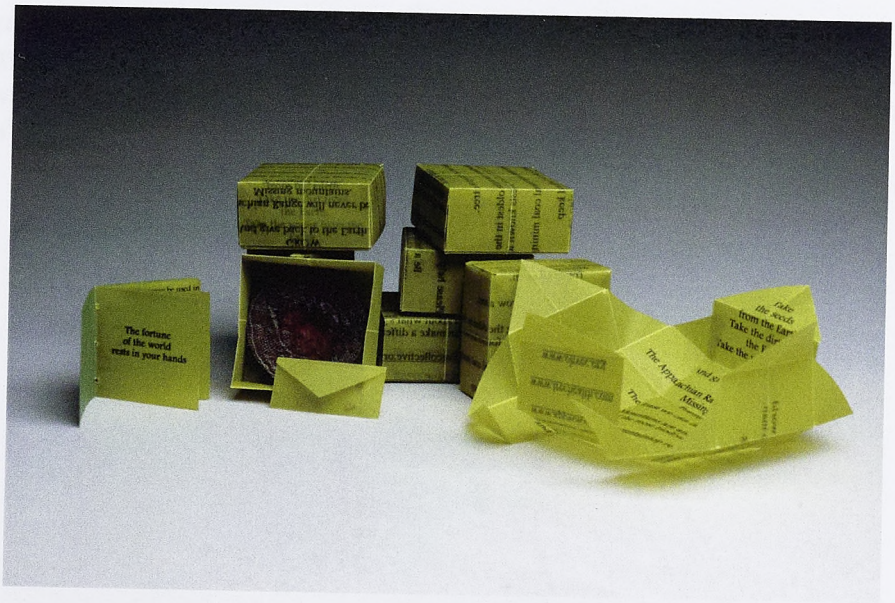

Figure 8: "Re-growing Appalachia," Adrienne Heinbaugh

Artist's Statement – Adrienne Heinbaugh

The need for more fuel has caused coal mining companies to move in on the Appalachian Mountains. The latest and most destructive coal mining method that is currently used is mountaintop removal. The effects of this process are devastating. It is poisoning the waterways, clogging streams, suffocating plant life with mining by-products, killing animals and destroying their habitat. In addition, thousands of people are displaced from their homes, while leaving some people severely injured or dead from the frequent flash-floods that have become so common in these mining areas.

The Appalachian Mountain Range contains the most bio-diverse temperate forests in the world. We cannot afford to lose this American jewel to the selfish, power-hungry coal corporations. Although, the fight to preserve the Appalachian

Range is aggravatingly slow, there are small acts that average people can do to help make a positive contribution to the Earth. This box holds the ingredients to create life. A dirt pellet, seeds, growing instructions, and an informative message are all contained in this package. The destruction of so many trees due to the mountaintop removal process requires us to help give life to new trees. Many of these Earth Care Kits were given out to average people in the hopes that each person may plant that treegiving back in a small way that over time can make a big difference.

Figure 9: “Cheeziest,” Melissa Dorton

Figure 10: "Uh-oh," Melissa Dorton

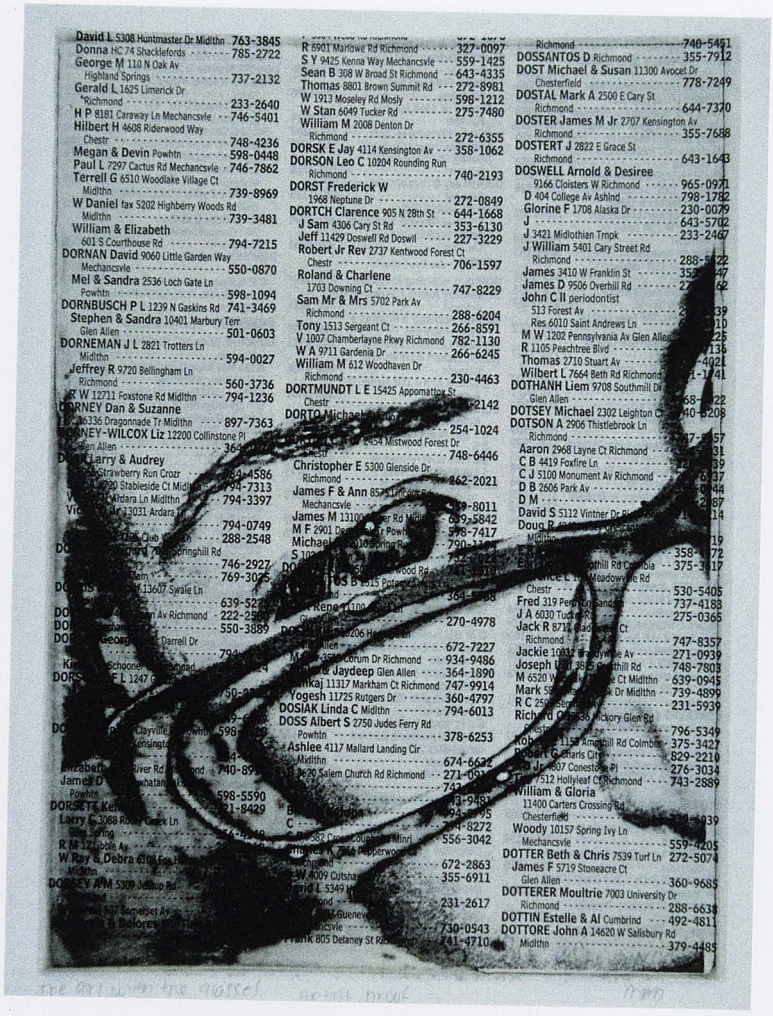

Figure 11: "The Girl With the Glasses," Melissa Dorton

Artist's Statement – Mellissa Dorton

"uh-oh" : Uh Oh is one of six from a series of children's food books I created while investigating unconventional material usage for artist books. I made pastepapers, a type of surface design treatment using actual the spaghettiOs mixed with methyl-cellulose, and hand painted the exterior of the can. This book encourages the viewer to look back on childhood memories of a simpler time. The smallest thing, such as a certain food, can trigger the enjoyment we used to get out of the small things in life.

"cheeziest" : This single section case book is one of six from a series of children's food books. Using an interesting surface design consisting of the cheese from the box of macaroni and cheese, I created covers for my single section book. The macaroni and cheese box container became the book holder and a macaroni pattern was placed on the interior for a decorative aspect. I also hand panted the exterior of the box in order to give it more of a simplistic, child-like feel. Cheeziest encourages the viewer to look back on childhood memories of a simpler time, and remember to always stop and enjoy the small things.

"girl with the glasses": I started wearing glasses in high school and ever since I have been described, referred, and known as the girl with the glasses. My glasses became not just an object which helps me to see clearly but my identity. It is the first thing that others view when they see me which allows them to associate me with this insignificant object that I wear on my face. I created this edition focusing on my glasses as a focal point to enforce my feelings of being known as the girl with the glasses.

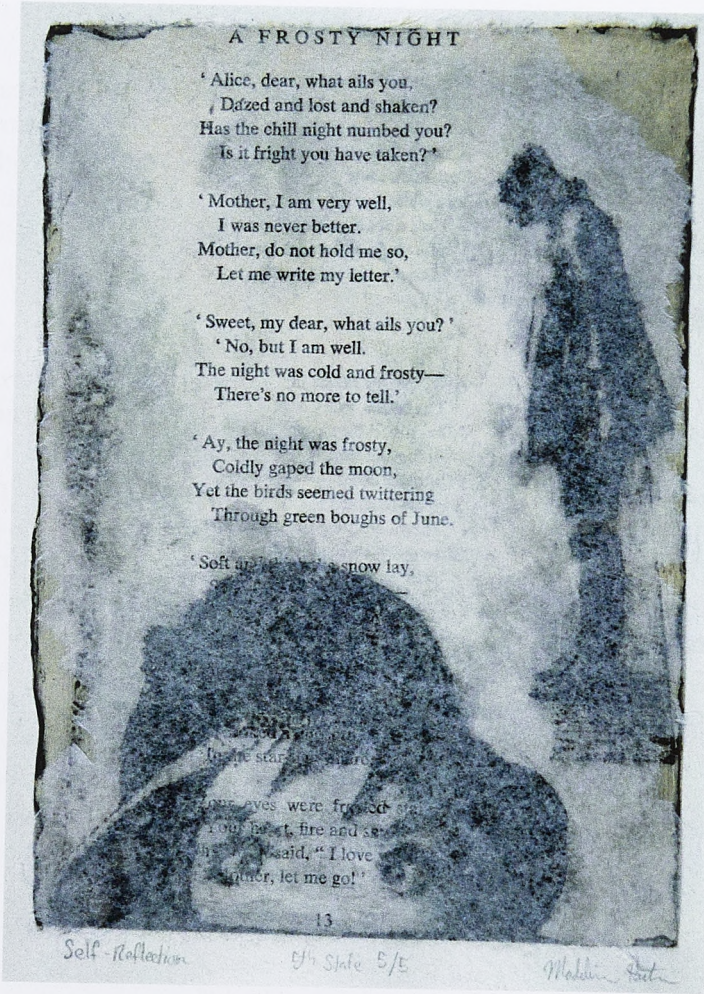

Figure 12: "Self-Reflection," Madeline Hunter

Figure 13: "Self-Reflection," Madeline Hunter

Artist's Statement – Madeline Hunter

Introspection is a peculiar concept. It seems perplexing to me that one can be playing a leading role in his or her own life while simultaneously being a spectator. Analysis paralysis.

Figure 14: "The Princess and the Frog," June Ashmore

Artist's Statement – June Ashmore

Why do I enjoy doing art? As a small child I was limited to what exercises I was allowed to do. This was due to a heart murmur that was diagnosed at birth. I then was given opportunities to go anywhere in books I could read and then even further to express my thoughts, feelings, and wants in an artistic way. Miss Sadie, from my home church was my first art teacher. She gave me paper, crayons, pencils and a topic. I would try and draw what she said and then begin my own backgrounds and topics of my drawing. It is always a pleasure to have someone enjoy what I have drawn and to make a heartfelt remark on the artwork itself. I guess I am a closet artist. I know I can draw, capture the essences of an item or scene, but am not refined in ways of how to do this. Thus my beginnings with art classes and furthering my experience through class assignments and teachers guided hands.

This assignment of a Fractured Fairy Tale was somewhat of a challenge to me. I knew how to put together a book, knew how to create a new story line and ending, but did I know how to say what was needed in my cut-out illustrations and with no words? I tackled the assignment with many plans and many changes. I had been

given the assignment to choose a fairy tale, twist the story-line, characters had to be animals, using a sustainability theme, and using NO, (yes, I said) NO words. My little cut pieces had to come together and show my story to my classmates. I can do this!

I decided to use The Princess and the Frog as my story, thinking of the frogs environment, habitat and water source. The story fell into place and thus the creation of my book was rewarded with a passing grade and oohs and ahhs from my classmates. The book I made was from scraps of my own scrap booking supplies and more from the classroom scrap pile! I love doing that, reusing and salvaging something that can be made into something. The color theme I chose was black, white, manila, and red. I thought the combination worked very well together with the actual color red emphasizing my critical points in the story. The book was fun and of course I added too many pages, too many scenes, but this is how I work. I want it completed completely. To actually keep drawing the person in who is reading it.

I do need to state that one factor in any of my art projects or creations, I tend to look for is the humorous side. I incorporate the humor of a situation, combining scenes that look impossible in following the storyline and cannot be counted as complete. So I suppose I am somewhat a joker of art! Any work I do, I end up putting some whimsical accent. I see the whole picture, the whole story and then throw in some fun, nonsensical parts to keep drawing the person back to my art. I want them to get the joy, the satisfaction of accomplishment and the fulfillment of knowing I had done my best and that there can be fun in doing it. Art to me is fulfilling, bringing an outlet to express my versions of typical things in everyday life. Even fractured fairy tales!

Figure 15: “Hunter’s Niche,” Clark Barkley

Figure 16: "The Wild," Clark Barkley

Artist's Statement – Clark Barkley

Natural succession is my key to freedom, my way down river, my environment. As a geological process, natural succession relates to the changes inherent in the creation of a single life form or an entire animal community. This theory is important to my works exploration of nature as a metaphor of personal growth. These elements inherent to nature spark my interests in the outdoors and have become the content of my work. Ecological forces drive me to change my work as summer leads into fall or winter becomes spring.

My exploration through printmaking has enabled me to represent my work in ways that show the forces of nature that inspire personal evolution. Hunters Niche portrays the inside of a deteriorating house, now consumed by nature. The hunter, waiting for an opportunity to harvest, develops a heightened appreciation for sunrise, the first light. The Wild depicts a hunter and the hunted. They coexist in the environment and survive on one another, yet they are distant to the rest of the world.

Over the years, art has provided a means by which I express these experiences in nature emotionally. Craftsmanship also gives me a sense of accomplishment and integrity. Together, art and the crafted object have proven an effective way for me to represent what only few experience in the wild.

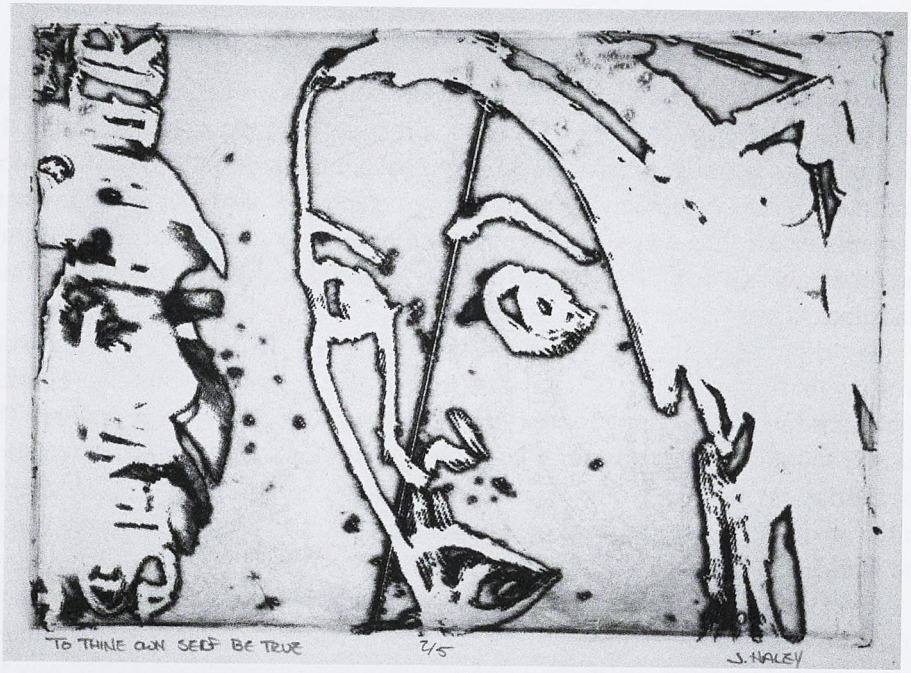

Figure 17: "To Thine Own Self be True," Jay Haley

Artist's Statement – Jay Haley

"To Thine Own Self Be True" is a self-portrait. It shows myself in the midst of drawing the portrait of my model onto a piece of broken glass. The words that lay over my reflection to thine own self be true are ones that I hold as a reminder and happen to be tattooed onto the models back. This is one of the few works that I have produced strictly for myself. Though this work was produced to hold meaning for me as the artist, it is displayed for you as the viewer to ask questions and find a meaning that looks into you. Therefore, your insight makes the work. It becomes personal to you as well as being personal to me.

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2. Joseph Mann's composition, *"Mike's Nite"*

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