

MINERVA

2015

A PUBLICATION OF THE HONORS COLLEGE AT THE UNIVERSITY OF MAINE



CELEBRATING 80 YEARS • A SIGNATURE AREA OF EXCELLENCE

François G. Amar, Dean

MINERVA

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On the cover:

Measuring Crevasse Depth, Jill Pelto

Measuring Crevasse Depth is a watercolor inspired by my field sketches and experience working on North Cascade glaciers in Washington. I received funding from the Center for Undergraduate Research to purchase equipment that helps me measure crevasse dimensions. In the watercolor I am using a Cam-Line Measuring Tape, designed to determine well depth, to find the depth of a crevasse. These measurements have allowed me to study the variance in crevasse size across the glacier, and analyze their changes over time.

For more about MINERVA's featured cover artist and Honors student Jill Pelto see page 53.

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MINERVA is produced annually by the staff of the UMaine Honors College, Thomson Honors Center, Colvin Hall and Estabrooke Hall, Orono, ME 04469, 207.581.3263.

Design and printing of MINERVA are underwritten through gifts to the Honors College.

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TABLE OF CONTENTS

From the Dean	3
Honors News	4
Lectures	5
Research	6
Honors Read	7
Awards	8
Community Engagement	10
Travel	11
Alumni and Friends	14
In Memoriam	16
Bernard Lown	18
Why Honors	22
Retiring Faculty	24
Special Recognition	25
Honors Index	27
2015 Honors Graduates	28
Jill Pelto	52
Support and Thank You	54



THE HONORS class of 2015, like its predecessors, is composed of extraordinary individuals with passionate interests in the arts and humanities, science, engineering, business and education. Each of them has identified a project or problem to be solved, or an issue to be addressed in depth in their Honors thesis work. As we look around to see the problems confronting our society and the world, it is clear that we need all of these individuals and their disciplines to work together to solve them.

The Honors College, now more than at any time in its 80 year history, is a center for gathering disciplinary perspectives that must be brought to deal with the “wicked” problems we confront. In the interview featured on page 18 of this issue of MINERVA, Dr. Bernard Lown '42H asks about the problem of population and productivity and whether Honors still asks its students to think about hard questions?

I'm proud to say that we do confront these difficult questions and, with the help of the students you'll meet in these pages, make some progress towards dealing with them. Along the way, the Honors College faculty, staff and friends have helped create outstanding opportunities for our students to travel, to create, to do research and to serve others. We take a moment also to acknowledge the contributions of several colleagues who retired this past year, as well as the passing of two extraordinary alumni who made critical contributions to Honors' growth and transformation at UMaine and really helped *ignite a passion for learning*.

François G. Amar
 Dean



ESTABROOKE FLOORS Converted to Dorm for Upper-Class Honors Students

IN AUGUST of 2015, the renovations of the third and fourth floors of Estabrooke Hall were completed, allowing students to move back into the building for the first time since 2012. Of the approximately 100 beds in the newly appointed space, about a quarter are reserved for junior and senior Honors students.



MELISSA LADENHEIM Associate Dean

DR. MELISSA LADENHEIM was appointed as the new associate dean of the Honors College on August 1, 2015. In addition to her other duties, Ladenheim will continue to teach in the first-year Civilizations sequence.



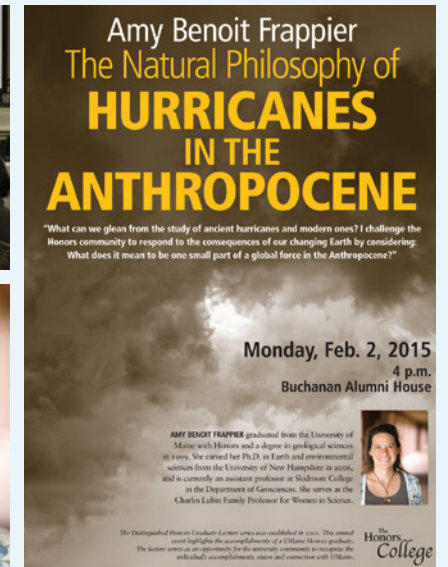
KATIE KURZ Financial and Personnel Manager

KATIE KURZ was hired in October 2015 to serve as financial and personnel manager for the Honors College. Her position is shared with the RiSE Center where she holds the same title for the other half of her job.

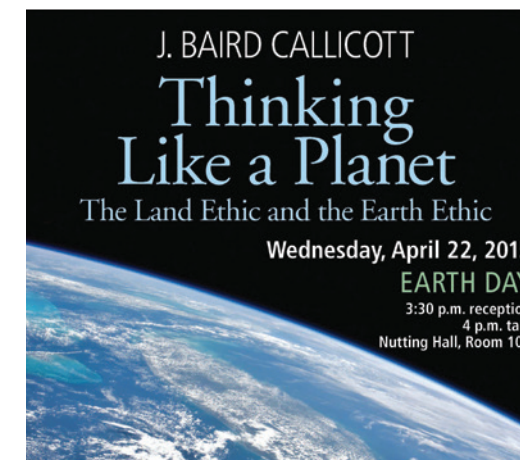
THE 2014–15 Honors year highlighted the issues surrounding climate change. Honors students and faculty considered the challenges facing the environment, beginning with the Honors Read, *Eaarth*, by Bill McKibben, and his lecture on October 7, 2014 (profiled in last year's MINERVA). In the spring semester, two lectures, the Distinguished Honors Graduate Lecture and the Rezendes Ethics Lecture continued the theme.

2014–15 Distinguished Honors Graduate Lecture: AMY BENOIT FRAPPIER

DR. AMY BENOIT FRAPPIER'S lecture on *The Natural Philosophy of Hurricanes in the Anthropocene* challenged listeners to consider several paradigm shifts, including humans now acting as a force that modifies the geology of our planet. Frappier discussed how her research on cave formations in the Yucatan can help climate modelers put constraints on their models. The variations in storm intensity we now see represent a significant change, which Frappier argues, helps us think about what is going on in our environment. Frappier considers Honors at UMaine to be “a crucial part of my development as a student and person.” She said that her Honors thesis experience helped shape her understanding of what it means to be a scientist. She is currently associate professor and chair of the Department of Geosciences at Skidmore College where she serves as the Charles Lubin Professor for Women in Science.



2015 Rezendes Visiting Scholar in Ethics: J. BAIRD CALLICOTT



DR. J. BAIRD CALLICOTT, university distinguished research professor of philosophy at the University of Northern Texas, delivered a lecture titled *Thinking Like a Planet: The Land Ethic and the Earth Ethic* on Earth Day, April 22, 2015. Callicott is a pioneer in the development of environmental ethics and philosophy, the philosophy of ecology and conservation policy, and climate ethics. In his talk, he argued that the timescale important to human beings — encompassing a couple of generations — is too short for the kind of long-term care that is needed to preserve the planet and maintain quality of life for future generations. If our ethic of care encompassed seven generations, as in the tradition of the Iroquois, would our society be able to lessen its focus on individual and short-term gain? Callicott argues a broader view is imperative if we are going to make the changes necessary for climate action.

National Science Foundation GRADUATE FELLOWSHIPS



JULIA SELL '15, Physics, began pursuing a Ph.D. in experimental condensed matter physics at the University of Maryland, in fall 2015. Sell was an undergraduate researcher at UMaine's Laboratory for Surface Science and Technology, where she studied the structural and electrical

stability of Pt-ZrB₂ nanolaminate thin films at temperatures above 1800 degrees Fahrenheit. The films have potential use as electrical contacts in a new generation of microelectronics that enhance the reliability and safety of high-temperature machinery, such as jet engines and industrial power plants. Her numerous awards for research and academic achievement include fellowships from UMaine's Center for Undergraduate Research and the College of Liberal Arts and Sciences, Bath Iron Works scholarships, and the 2015 Edith Patch Award.



GWEN BEACHHAM '15, Biochemistry, entered the Ph.D. track at Cornell University in biochemistry, molecular and cell biology in Fall 2015. Beacham was UMaine's 2015 valedictorian and the Outstanding Graduating Student in the College of Natural Sciences, Forestry, and

Agriculture. She received the Barry Goldwater Scholarship, a national award given to rising undergraduate juniors and seniors in the STEM fields, and the George J. Mitchell Peace Scholarship to study abroad in spring 2014 at University College Cork in Ireland. Beacham took a UMaine Honors course connected to the national Phage Genomics Program, sponsored by Howard Hughes Medical Institute. She also interned at the Boyce Thompson Institute for Plant Research, an affiliate of Cornell University, and the MDI Biological Laboratory.



LUCY COMASKEY '16, English, traveled to the University of Colorado, Boulder for the Conference on World Affairs with the support of the Rezendes family, Honors College, and the University of Maine Foundation.



DANIELLE WALCZAK '15, Journalism, published her thesis, *Forward Not Back: The odds are Millennial farmers will fail. Why the pursue the good life anyway*, and photos, as a multimedia feature in the Bangor Daily News in June 2016.



JOSEPH GARCIA '16, Engineering Physics, presented at the American Physical Society Meeting in Baltimore, Maryland, March 2016 with his advisor Susan McKay. Garcia's presentation, *Effects on long-range interactions in the one-dimensional Sznajd model* is a voter-like model used to study consensus in systems where information flows outward from like-minded agent pairs.



ETHAN THIBAUT '18 Biochemistry, and **MAX DORMAN '18**, Molecular and Cellular Biology, presented at the SEA-Phages Symposium at the Howard Hughes Medical Institute Janelia Farms Research Campus in Ashburn, Virginia, June 2015. Thibault and Dorman presented the research from HON 150 on the genome of the mycobacteria phage "Phaga" — identifying where all the genes start and stop, and in some cases determining the function of the genes.

ALLYSON ESLIN Political Science, Psychology, Economics



THIRD-YEAR HONORS student Allyson Eslin will work for Senator Angus King's D.C. office from January to May 2016. Eslin's opportunity to live in the heart of D.C. was made possible through UMaine's Peter Madigan Congressional Internship program. For Eslin, the congressional internship represents an amazing opportunity to develop the skills outside of the classroom she needs for her political science degree. "It's great to learn about the world from a book or a lecture, but it's another thing entirely to learn about the world by experiencing and shaping it for the better. Having a university that encourages and fosters learning in these 'non-traditional' ways is really a huge part of why so many successful alumni call UMaine home," she said.

"The Honors College is a big part of why I received this opportunity. I developed a number of critical thinking, speaking, and writing skills in the Civilizations sequence that have served me well to this day."

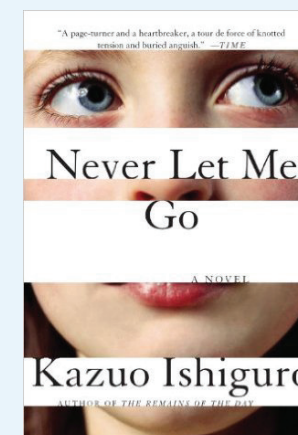
ISAIAH MANSOUR Marine Science



THIRD-YEAR HONORS student Isaiah Mansour was recently awarded a Maine Space Consortium Grant from NASA's Experimental Program to Stimulate Competitive Research (EPSCoR). The grant will help fund Mansour's marine science research on the respiratory protein of Abalone (a species of sea snail) blood, which exhibits many useful pharmaceutical qualities. Mansour will conduct his research through the next few semesters and hopes to potentially turn his work into an Honors thesis.

"Receiving the MSGC NASA EPSCoR Fellowship is an enormous honor that I do not take lightly. I am grateful to now have the ability to conduct a project of my own design, to turn a daydream into a reality, and with that I have already felt a growth spurt of maturity. When I got the letter, my first thought was, 'Well, this is serious,' the moment was surreal. I am excited to collect the data, and I look forward to sharing the results."

NEVER LET ME GO



NEVER LET ME GO by Kazuo Ishiguro was selected as the 2015 Honors Read by the class members of HON 309, the Honors Read tutorial taught by Dean François Amar. Ishiguro's text follows the lives of three "donors," clones of humans as they come of age and wrestle with their fate. Through the exploration of their creative identities and interpersonal relationships, they seek what it means to be human. Honors students were encouraged to question the integrity of the protagonist's recollections in regards to societal roles, and to challenge imposed preconceptions of our society and identities.

A panel of students and faculty was convened to approach themes and entertain questions regarding the text. Jennifer Cashin, a third-year anthropology student, nominated the text, which she found easy to connect to the Honors journey.

"Humanity is such a world of polar opposites; it's dangerous yet peaceful, defined yet undefined, full of joy yet full of hate. Students during the entire course will have to face these juxtapositions, so I thought giving them a book that lays it all out on the table is a good introduction to the sequence," she said.

CUGR AWARDS

Summer 2015 Fellowships

Spencer Desrochers (Electrical and Computer Engineering) *Optimizing Power Usage of Modern Computing Systems* **Zachary Mason** (Earth and Climate Sciences) *Increasing Resolution of Tropical Last Glacial Maximum Record with Cosmogenic Surface Exposure-Dating*

Fall 2014–15 Fellowships

Gwendolyn Beacham (Biochemistry) *Characterization of Lysogeny Regulation in the Cluster E Mycobacteriophage Ukulele* **Julia Sell** (Physics) *Development of a Combinatorial Deposition Method to Allow for Rapid Synthesis and Testing of Nanolaminar Thin Film Structures* **Kathryn Liberman** (Marine Science/Aquaculture) *Developing a Zebrafish Model for Saprolegnia Parasitica to Investigate Pathogenesis and Alternate Treatments* **Ethan Tremblay** (Economics/Journalism) *An Examination of the Pro-social Impacts of Local Food Purchasing* **Eliza Kane** (Anthropology) *The Geochemistry and Historical Ecology of a Burnt Mississippian House at the Lawrenz Gun Club Site in the Central Illinois River Valley* **Vincent DiGiovanni** (Biology/Chemistry) *New Approach to the Treatment of Type II Diabetes Using Inhibitors Based on the Acarviosatin Family of Natural Products* **Samuel Reynolds** (Psychology/Biology) *Investigating the Role of NMDA Receptors in Long-term Ethanol Withdrawal* **Bryer Sousa** (Chemistry/Mathematics) *Two-Temperature Model Molecular Dynamics Study of the Coalescence of Metal Nanoparticles* **Tyler Carrier** (Marine Biology) *Cellular and Molecular Responses of Sea Urchin Embryos to Dissolved Saxitoxins from the Toxic Dinoflagellate Alexandrium Fundyense* **Emily Whitaker** (Molecular/Cellular Biology) *Identification and Characterization of Mycobacteriophage Ukulele Integration Site attP* **Nathan Dunn** (Mathematics/Computer Science) *An Enhancement of the P301dx Application Using Advanced Statistics* **Isaiah Mansour** (Marine Science) *A Comparative Study of the Hemocyanins of the Giant Keyhole Limpet (Megathura crenulata) and the Red Abalone (Haliotis rufescens)* **Hina Hashmi** (Microbiology) *Is the Ubiquitous Antibacterial Agent Triclosan an Uncoupler of Mammalian Mitochondria?* **Joshua Deakin** (Maine Business School) *Rituals in Restaurants: Exploring How Newcomers Learn Organizational Culture* **Katrina Harris** (Microbiology) *Characterization of the Integration Morphology of Mycobacteriophage ChipMunk Including de novo Assembly of the Genome* **Nina Caputo** (Chemistry) *Fluorescence Monitoring of Contaminant Mixtures in Surface Fresh Water* **Nicklaus Carter** (Bioengineering) *Magnetic Properties of Iron Nanoparticles* **Zakiah-Lee Meeks** (Biology) *Methylation Patterns in OPRM1 and COMT Variants during Opioid Withdrawal in the Neonate* **Jay Knowlton** (Biology) *Transplacental Arsenic Exposure Effects on Mouse Hepatic Protein Expression*

2015–16 Academic Year Fellowships

Shania Evangelista (Chemical Engineering) *Extraction of Polysaccharides from Marine Biomass* **Grace Gould** (Chemistry) *Synthesis and Characterization of Ferrocene-Oxadiazole Complexes and a Study of Their Medicinal Potential* **Morgan Gustin** (Animal and Veterinary Science) *Efficacy of Maine Lobster Shell as Treatment for Parasitic Nematodes In Small Ruminants* **Katherine Lees** (Psychology)

Prosociality: The Effects of Religion, the Government and other Societal Institutions **Sarah Mullis** (Sociology) *Alleviating Social Isolation and Food Insecurity Through Community Gardening: How the Orono Community Garden Impacts Seniors* **Elias Pasquerillo** (Chemistry) *Investigating Neuromelanin's Role in Neurodegenerative Diseases Using Synthetic Fragments*

2015 Academic Showcase

Danielle Walczak (Journalism) 1st Place Oral Presentation Awards, *Forward, Not Back: Young People's Search for Farming and Community in Maine* **Vincent DiGiovanni** (Chemistry) 2nd Place Oral Presentation, *Chemical Degradation and Functionalization of Acarbose for the Creation and Study of Novel Alpha Amylase Inhibitors Related to the Acarviosatin Family of Natural Products* **Eliza Kane** (Earth Science) 1st Place Poster Awards, *The Geochemistry and Historical Ecology of a Burnt Mississippian House at the Lawrenz Gun Club Site in the Central Illinois River Valley* **Jacob Hatch, Jacob Posik, Cameron Marcotte, Harold "Trey" Stewart III, Adam Thibodeau** (Political Science) 3rd Place Poster Awards: *Confronting the Challenges of Studentification in Residential Orono Neighborhoods*

INBRE AWARDS

The 2015–16 INBRE research fellowships were awarded for projects in biomedical and genomics research. The fellowships were awarded to students in the UMaine Honors College, including two summer fellowships, four thesis fellowships and seven junior fellowships.

Summer 2015 Fellowships

Conner Lajoie (Biochemistry, Molecular and Cellular Biology) *Identification of Novel Germ-granule Regulators in the Germline* **Emily Whitaker** (Microbiology) *Characterization of Mycobacteriophage Ukulele Integration System*

2015–16 Honors Thesis Fellowships

Margaret Pasquarella (Zoology) *Exploring the Mechanisms Involved in Paxillin Amelioration of Congenital Muscular Dystrophies in Zebrafish* **Monique Theriault** (Microbiology) *Immune Recognition of Candida albicans in Zebrafish* **Emily Whitaker** (Biochemistry) *Characterization of Mycobacteriophage Ukulele Integration System* **Katrina Ventura** (Biology) *Anthocyanins Alter Endothelial Cell Morphology and Cofilin Regulation*

2015–16 Junior Year Fellowships

Caroline Curtis (Biology) *The Effect of Chronic Low Dose Ethanol Consumption on Energy Expenditure in C57BL/6J Mice* **Emily Illingworth** (Biology) *Increasing Mycobacteriophage Diversity through Isolation with Novel Host Species* **Conner Lajoie** (Biochemistry, Molecular and Cellular Biology) *Identification and Characterization of 5-HT₂ Receptor Calmodulin-Binding Domains in JC Polyomavirus Infection* **Isaiah Mansour** (Marine Biology) *Comparing the Hemocyanin Subunits of the Giant Keyhole Limpet (Megathura crenulata) and the Red Abalone (Haliotis rufescens) for Immunomodulation* **Erica Sewell** (Microbiology) *Exploring Coevolution of Mycobacterium chelonae and*

Intact Prophage **Robert Soohy** (Microbiology) *Identifying Genes of the Integration Cassette in Cluster E Mycobacteriophage Ukulele* **Stephen Soohy** (Molecular and Cellular Biology) *Aberrant mislocalization of RNA in Nuclei May Contribute to Neurodegeneration in ALS*

CHARLIE SLAVIN RESEARCH FUND AWARDS

Fall 2015

Cameron Seigars (Mechanical Engineering) *Computer Model of Clutching Systems in Modern Snowmobile* **Cain Landry** (Music) *Choral Composition* **Norah Bird** (Philosophy) *One act play — Zugzwang* **Kristen DiBello** (Biology) *Translating Findings Regarding Adipose Tissue Neural Innervation to Humans* **Aeleah Granger** (Psychology) *Measuring Prejudice by Threats and Emotions in Arab and Muslim Communities* **Elizabeth Grant** (Chemistry) *Quantification of Cyanogenic Glycosides in Elderberries* **Morgan Gustin** (Animal Science) *Efficacy of Maine Lobster Shell as Treatment for Parasitic Nematodes in Small Ruminants* **Katryn Liberman** (Marine Science) *Optimization of Sporulation of Saprolegnia Parasitica Isolates Utilized in a Zebrafish (Danio rerio) Infection Model* **Jade Maguire** (Education) *Pre-Service Teacher Self Efficacy for Teaching Mathematics* **Sarah Mullis** (Sociology) *Alleviating Social Isolation and Food Insecurity Through Community Gardening: How the Orono Community Garden Impacts Seniors* **Jaymi Thibault** (Political Science) *City of Bangor — Outreach Research Project* **Cecilia Thomas** (Biology) *Investigating Neurotransmitter Systems in the Function of Adipose Tissues* **Brittney Turnbull** (Music) *Folksongs of East Asia* **Steven Valentino** (Molecular and Biomedical Sciences) *Development of PCR primers for Detection of Leaf Rust in Lowbush Blueberry*

Carolyn E. Reed Pre-Medical Thesis Fellowship

Monique Theriault (Microbiology) *Immune Recognition of Candida albicans in Zebrafish*

Rendle A. Jones '65 and Patricia K. Jones '65 Honors Thesis Fellowship

Grace Kiffney (International Affairs) *Informal Economic Support Systems Among Asylum Applicants in Maine*

CLAS AWARDS FOR 2015–16

Toni Kaplan (New Media) **Aeleah Granger** (Psychology) **Patrick Menard** (New Media) **Jaymi Thibault** (Political Science) **Elizabeth Grant** (Chemistry) **Jacob Morris** (Chemistry)

MAINE MASONIC COLLEGE

On Saturday, April 15, 2015, nine UMaine Honors students and an Orono High School student joined Honors Dean François Amar, History Professor Liam Riordan and Provost Jeff Hecker at the Maine Masonic College's 5th Annual Celebration of the Arts and Sciences.

The participants were:

Nellie Kelly (Theater and History) *On Directing Student Production of Godspell* **Molly Hunt** (Sociology) *On the Childfree, Religion, and Stigma Consciousness* **Emily Illingworth** and **Eliot Gagne** (Biochemistry) *The Honors 150 Phage Genomics Course: Igniting a Passion for Investigation Based Learning* **Taylor Cunningham** (English) *Maine Hermitology* **Catie Borer** (Social Work) *Human Trafficking in the Media: Who, What, Where, and Why?* **Ciaran Coyle** (Philosophy) **Michael Flaherty** (Philosophy), **Jacob Hatch** (Philosophy) **Erin Luthin** (Orono HS) *Philosophy Across the Ages: a Humanities Collaboration*

Faculty ACHIEVEMENTS



ROBERT GLOVER (CLAS-Honors Preceptor of Political Science) was named an Educational Network for Active Civic Transformation (ENACT) Faculty Fellow by the International Center for Ethics, Justice and Public Life at Brandeis University.



SALLY MOLLOY was appointed NSFA-Honors Preceptor of Genomics in 2015–16 with funding from from UMaine's Academic Affairs, NSFA, Honors and the Howard Hughes Medical Institute.



MARK HAGGERTY (Rezendes Preceptor for Civic Engagement) was awarded tenure at the rank of associate professor.

Community ENGAGEMENT



HONORS COLLEGE students have opportunities for community engagement beyond the classroom. First-year Honors students in Penobscot, Colvin and Balentine Halls, Honors staff, and Student Advisory Board members started the 2015–16 academic year by packing 20,000 meals for Nigerian children in an End Hunger New England meal-packing event. Students packed the meals in 76 minutes, breaking the 2014 record by one minute, with fewer students than previous years. Organized by the nonprofit Outreach, participants work in assembly-style lines packing as many non-perishable meals as possible. Along with the Pack-Out volunteers, other Honors students joined UMaine in various service projects across campus and in the community as part of UMaine Welcome Weekend Day of Service where, students helped build a float with the Old Town Rotary for their Polio Plus campaign.

Honors Student ADVISORY BOARD



THE STUDENT ADVISORY BOARD is a student-run group connecting Honors students, faculty and staff. SAB members serve as ambassadors at public functions, help prospective students, plan events and provide peer-mentoring. Students are invited or may join SAB based on their interest and involvement in the Honors College. In 2015, the SAB held a well-attended Halloween event in Estabrooke Hall. They are also working on receiving student government recognition while setting up a student mentoring program. Members of the SAB presented about their work at the NCHC conference in Chicago in November 2015.

Honors Travels to Denver for the NCHC CONFERENCE

THANK YOU to Bill Leitch and the late Betsy Leitch for their support helping us send 26 Honors College members to Denver, CO for the National Collegiate Honors Council conference in November of 2014.



Presentations:

Honors 170: Challenges and Perspectives

Mark Haggerty, Molly Hunt '15, Gareth Warr '15

iCook 4H: Promote Culinary Skills and Family Meal Times to Prevent Childhood Obesity

Carolyn Stocker '15

Moving Toward a Balanced Honors Curriculum: Adding Adrienne Rich to the Conversation

Kathleen Ellis, Edie Elwood, Emma Oppewall '17, Lucas Roy '17

Negotiating a Balance: The Challenges and Benefits of Joint Honors Faculty Positions

Robert Glover, Mimi Killinger

The North Pond Hermit as Outlaw: Reactions to the Challenge of Maine Identity

Hilary Warner-Evans '16

Cuban Organopónicos: The Large Potential of Small-Scale Agriculture

Mimi Killinger, Blaise Collett '15

Creating a Successful Honors Class Blog: Ways to Challenge and Increase Your Student's Writing Potential

Sarah Harlan-Haughey

Up the Hill, Backwards: Meeting the Challenge of Creating a Humanities Lab

Sarah Harlan-Haughey, Hilary Warner-Evans '16

Promoting Honors Undergraduate Research through a Research Collaborative

Melissa Ladenheim, François G. Amar, Mark Haggerty, Danielle Walczak '15

Building a National Database of Engagement in Honors

Jordan LaBouff, Chris Paradis '15

Climbing Creativity: Artistic and Experiential Assignments in Honors

Samantha Jones, Jordan LaBouff, Christina Metcalf '17, Catherine Pouliot '16

Partnering Across the Globe: The University of Maine and Tembusu College Experience

François G. Amar, Catherine Pouliot '16, Laura Donovan '15, Christopher Paradis '15, Emma Oppewall '16

Left: Honors students participated in many meal packing events this year. The Student Advisory Board helped organize a meal packing event on MLK Jr. Day. It was featured in The Maine Campus and WABI.

Right: On Welcome Weekend, first-year Honors students packed meals. Students helped pack 43,000 meals between these two events.



Photo by Maggie Gautrau, The Maine Campus

James Robe '17, New Media and Jacqueline Stolo '15, Nursing
TEMBUSU COLLEGE
 Student and Faculty Exchange



FOR THE second consecutive year, the Honors College offered the opportunity for two students to take a summer course at Tembusu College in Singapore from June 29–July 24, 2015. The course, *Asia Now! The Archaeology of the Future City*, used the city itself to explore the tension between development and preservation of heritage, urban food production and urban housing. Third-year new media student James Robe, and fourth-year nursing student Jacqueline Stolo were chosen to study at Tembusu in 2015. Dean François Amar was invited to Singapore the previous March as a visiting scholar where he explored ways to enhance the budding partnership with Tembusu College. Tembusu faculty fellow, Dr. Adam Groves, came to UMaine as a visiting scholar in May 2015.

“The Honors College has challenged me to question the conventions of my culture. Traveling to Singapore allowed me to witness the expression of culture in a real-life context, rather than just through a book. I was introduced to a culture with more Japanese, Chinese and Malaysian cultural influences than I am used to in rural Maine. Singapore caused me to challenge my own cultural conventions, but I was most astounded by the similarities that can permeate culture. This reminded me of the fact that despite our differences, whether geographic or cultural, we all have a distinctly human aspect that allows us to relate to each other.”

James Robe '17, New Media

Josie Champagne '18, Nursing
LIMA, PERU
 Rezendes Global Service Scholarship



THANKS TO the support of J. Beau Rezendes and the late Dennis Rezendes, the Honors College was able to send one of our students to Lima, Peru with Global Volunteers. The Dennis Rezendes '57 and J. Beau Rezendes Global Volunteers Fund was established in conjunction with Global Volunteers to encourage student volunteerism abroad.

“The Rezendes Global Scholarship gave me an unforgettable experience that allowed me to explore the world, and make a difference while doing so. Volunteering in Lima, Peru gave me the chance to make a difference in a child’s life and my own life. I met remarkable people, I learned to trust my own instincts and I got to experience a whole new culture. Just like in all cities, you see very well-off people and very poor people. The rapid migration of people from rural areas into Lima made for many social problems in the city, one of which includes many homeless and neglected children. Global volunteers focuses on three essential services; hunger, IQ, and health. It was a very rewarding to be able to help children in another country and achieve these three essential services. Someday I would like to be a pediatric traveling nurse, and this scholarship gave me a glimpse into what my future may be like. I could not be more excited to continue my academic career to not only help children in Lima, Peru, but also all across the globe.”

Josie Champagne '18, Nursing

Elizabeth Proctor '17, Anthropology
BIRMINGHAM, U.K.
 Charels V. Stanhope '71 Study Abroad Fellowship



CHARLES V. STANHOPE '71 Study Abroad Fellows are Honors College students whose interest in study abroad embodies the passion for different cultures exemplified by Charles Stanhope’s life and work at the Library of Congress.

“I had a fantastic time at the University of Birmingham this past semester. For me, a big part of the Honors journey — especially since I just finished the Civilizations sequence — is not only understanding how other cultures interact with and shape each other, but how we each fit into the world. I did a lot of traveling, meeting new people and really stepping out of my comfort zone this semester, which wouldn’t have been possible without the Stanhope Scholarship. I had a great time revisiting some of the earlier works in the Honors curriculum: reading part of the *Odyssey* in my Ancient Greek class, seeing the Parthenon Marbles in the British Museum, and visiting Edinburgh, where Mary Shelley’s *Dr. Frankenstein* once visited. These obvious overlaps between my experiences abroad and my Honors experience weren’t something I was expecting and it was really cool. While the Honors journey isn’t a physical journey, it is all about challenging yourself and learning to really think about our culture and its foundations, and I did a lot of that on my study abroad journey.”

Elizabeth Proctor '17, Anthropology

Spencer Warmuth '15, Economics and Political Science
MUMBAI, INDIA
 Svasti Microfinance Pvt. Ltd. ISA-ELAP



THE HONORS tutorial requirement is waived for students who wish to capitalize on experiential learning opportunities outside of the University of Maine, including but not limited to study abroad, cultural immersion and summer research experiences. Students fulfill this requirement through the Honors Tutorial Alternative course, which requires a brief essay, photographs and a presentation to other students on their adventure.

“My experience in India was perhaps the most educational of all my lessons in life. In many ways, it was uncomfortable, frustrating and difficult. In others, it was beautiful, hopelessly joyful and often completely terrifying. From a purely professional perspective, the avenues that I hope to walk down throughout my career are something that one cannot really find locally. I’ve always been committed to poverty alleviation and international development, from both a personal standpoint and from a macro-scale. While there might have been opportunities to pursue work in administrative fields in the subject, I know from experience that there is nothing quite like putting ‘boots on the ground’ in the places where the work is needed most. This internship, working with the poor and poverty-stricken in Mumbai, put me squarely in the middle of a vast and misunderstood problem, and has afforded me both professional and personal experience that I would not have been able to find working for just any human rights organizations in the United States. For this field, nothing tops being on the ground where these conditions exist.”

Spencer Warmuth '15, Economics and Political Science



TJ PRESTON Chemistry '06

AN HONORS degree from UMaine is a special ticket. It's not free; you earn it. But you get to write in your own destination. The breadth and scope of the Honors thesis is a big part of earning that ticket. I worked in computational chemistry with Professor Amar, who is now dean of Honors, during my last two undergraduate years. After finishing my degree, the first destination I wrote on my ticket was Madison, Wisconsin to seek a Ph.D. combining experimental and computational physical chemistry. I got married during my six years in Madison, and my wife and I decided to take a leap across an ocean. Our next ticket said Bristol, United Kingdom. I worked at the University of Bristol and had many opportunities to explore the world, including a couple of work trips back to Maine. On one occasion I was fortunate enough to present a seminar in Aubert Hall, home to my former advisors,

professors and my first research lab. The three years of living abroad gave me the freedom and courage to search globally for permanent research positions. After interviewing for jobs on three continents, I finally wrote Oslo, Norway.

Even though the move here was the shortest distance I have moved — including moving from Minnesota to start at UMaine — it has been the biggest change of them all. It is my first time outside a university since 2002. It's the first time I can see the results of my chemistry experiments with my own eyes. It's the first time my peers aren't also chemists. I am the chemist among physicists and engineers, and together we work on solar energy research at the Institute for Energy Technology. The 600 people at our institute form a global team who focus on all aspects of energy research — petroleum, nuclear, solar, batteries for storage, and more — and

our work affects everybody from primary producers to end users.

The skills that are important to succeed in Honors are the same as those that brought me to where I am today. In Orono, I lived with and learned from many kinds of people. I agonized over some words of weekly writing assignments, but also learned to give myself the freedom of creativity. I became addicted to making projects my own, to following my own intrigue. Honors helped me understand how to contemplate simultaneously a problem in local and global frameworks. The rewards have been great. I make my own day and I make a difference. I feel the same about my time at UMaine whether I spell it "honor," "honour" or "ære."



MORGAN BROCKINGTON Anthropology '12

IT'S HARD to believe that almost four years have passed since I defended my Honors thesis and graduated from the University of Maine with a B.A. in anthropology and a minor in pre-medical studies. There isn't a day that goes by when I don't reflect on a fond memory or the knowledge that I gained during my time in Orono, and I am honored to provide an update on what I've been doing.

After graduation, I moved to Atlanta, Georgia and reconnected with my friend and fellow Honors College alumna, Kristen Kuhns, '10 anthropology and pre-medical. During my sophomore year, Kristen and I conducted an independent research project under the guidance of my wonderful mentor, Melissa Ladenheim. With the generous support of Bill and Betsy Leitch, we were able to share our findings at the NCHC Conference in Phoenix, Arizona. Following the interest that our presentation sparked, we were encouraged by our beloved Dean,

Charlie Slavin, to write up our work and were privileged to have *Ethnogenesis: The Construction and Dynamics of the Honors Classroom Culture* published in the *Journal of the National Collegiate Honors Council*. It was the collaboration, critical thinking and mentorship that the Honors College fostered that allowed me to realize one of my proudest accomplishments.

Through Kristen, I began working in the development sector and soon got a job as the development coordinator for the U.S. Diplomacy Center. After some time down south, my Maine roots pulled me home and I returned to Portland where I worked as the development assistant for Preble Street, a nonprofit that empowers people experiencing homelessness, hunger and poverty.

During the summer of 2013, I traveled to Guatemala to attend the NAPA-OT Field School, which teaches emerging leaders in applied medical anthropology and

occupational therapy to promote social justice in their fields. While there, I studied Spanish and public health and conducted ethnographic research on the surgical referral process in the rural highlands of Guatemala.

I currently work as the Health Outreach and Evaluation Coordinator for the Vital Village Network at Boston Medical Center, a nonprofit committed to maximizing child, family and community well-being in the three lowest income neighborhoods of Boston. I split my time between BMC, where I am supporting the quality improvement of Centering Pregnancy group prenatal visits, and Codman Square Health Center, where I am partnering with a team of providers to create a trauma-informed curriculum for group well-child care. I plan on applying to medical school and dedicating my career to caring for under-served and vulnerable populations as a primary care physician.

New Honors Associates:

DANIELLE WALCZAK & MOLLY HUNT

Journalism '15 Sociology '15



THE ASSOCIATES' journey began with two hats — one mustard-colored, one navy blue — purchased in Denver, Colorado on an Honors NCHC trip in their senior year — each departed with a feather in their cap. Post-graduation they both yearned for adventure. Danielle set off on a solo-road trip across the U.S. Molly moved to Chicago and began working for the Human Rights Campaign. They'd soon share an office together in Estabrooke Hall, Molly by the window, Danielle by the door. Now, the Associates strive to always be a resource for students while remaining approachable and willing to help.

Danielle graduated with a degree in journalism and minors in creative

writing and sustainable food systems. Danielle is pleased to stay connected to food systems work at the University while working on her production skills through fine-tuning the College's publications. After working in the Honors College, Danielle plans to do what makes her happy. She'll embark on a bike-touring adventure and later hopes to do freelance writing, while working on small organic farms or with programs that help them.

Molly graduated with a degree in sociology, concentrating in race, class, and gender, and minoring in music and psychology. From showing prospective students the outstanding opportunities Honors offers, to connecting current students with the resources they require to excel, this position has provided Molly with a chance post-graduation to give back to the University. When Molly's Associate term is through,

she hopes to find work with a nonprofit, ideally within the realm of women's issues. Molly looks forward to moving someplace new and finding a musical ensemble to join in her free time.

The Associates see themselves as ambassadors for student voices. During their tenure they worked to reinvent the Second Year Convocation into a celebration and workshop for students about staying with Honors. They organized a homecoming open house during Open University, where students interacted with the public about their research. They helped restructure HON 391 — Introduction to Thesis Research — and redesigned the Honors College brochure for prospective students. Collectively, their favorite part of being in Honors is connecting with students and helping them achieve their ambitions.



Left: Betsy Pullen Leitch
Center: Betsy as a student, playing in the snow with her classmates
Right: (left to right) Bill and Betsy Leitch with late Dean Charlie Slavin in the Colvin Hall Margaret Chase Smith Visiting Faculty Suite, which houses visiting lecturers and was made possible by the Leitch's donations.

Remembering BETSY PULLEN LEITCH

BETSY PULLEN LEITCH '55 was a loyal and generous patron of the Honors College who passed away on September 1, 2015. When remembering Betsy Leitch's legacy two images immediately come to mind: postcards and the phrase "what else can we do?"

Betsy identified herself and beloved classmates as "Colvin Girls," and she and her husband Bill spearheaded giving to the Class of '55 Reunion Fund toward the renovations of Colvin Hall. When Pat Cummings, Associate Vice President For Development and Alumni Relations at UMaine, visited Betsy and Bill to say "thank you" they asked, "What else can we do for UMaine?" They went on to name Leitch Commons and the Margaret Chase Smith Suite within Colvin Hall for the Senator whom they admired.

Betsy delighted in sharing her memories of UMaine. Bill, an MIT graduate, embraced her commitment to building the Honors community. They gave widely and generously from returnable bottles to throw student pizza parties, to start-up funds to create the Honors Associates positions.

Betsy's greatest satisfaction was in supporting the Leitch Research and Travel Fund. When students started sending postcards to the Leitches from a National Collegiate Honors Council Conference (NCHC), the postcard tradition began and many more followed from there and elsewhere. Inundated with appreciation, Betsy and Bill asked, as they had many times before and since, "What else can we do?" Their support enabled hundreds of students to explore Washington, D.C. over spring break and attend NCHC.

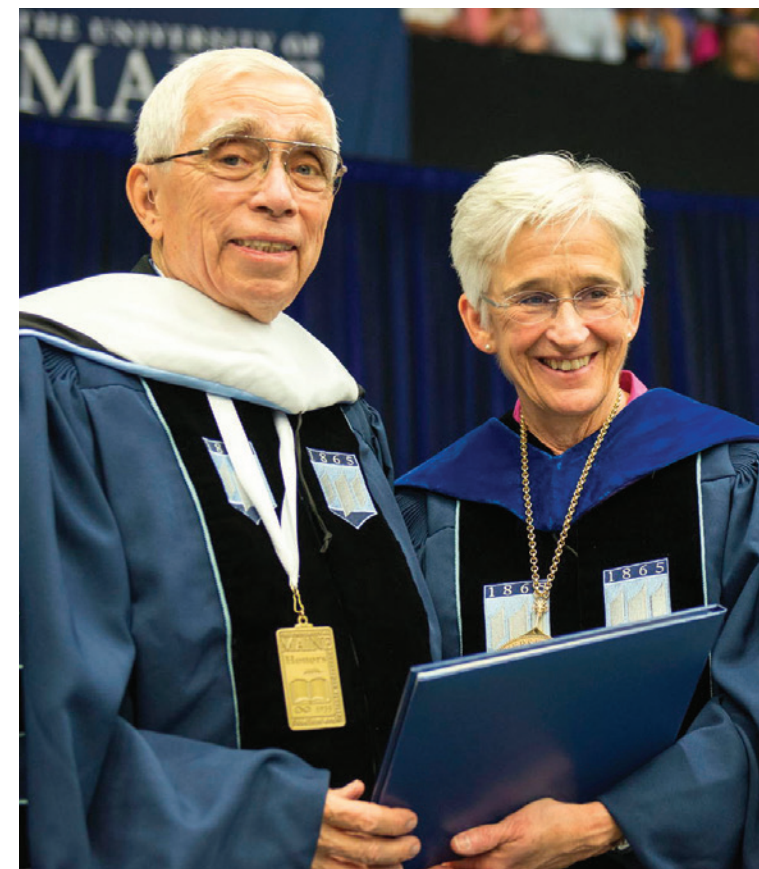
Betsy, who grew up in Brunswick and Camden, Maine, received a B.S. in economics from UMaine in 1955. She headed to New York City to "seek fame and fortune" and spent the next several years working on Wall

Street. Betsy married Bill Leitch in 1963 and they settled in Newtonville, Massachusetts where Betsy focused on raising their children, Elizabeth and Bradford, and doing community service. She was treasurer of the Grace Episcopal Church for many years, volunteered with the parents association, coordinated services for the homebound, and helped found the Bullough's Pond Association in 1983. In 1993, the Newton Conservators named Betsy and Bill Environmentalists of the Year for spearheading efforts to restore the pond.

As we commemorate the life and achievements of Betsy Leitch, we acknowledge our deep gratitude for Betsy and Bill's commitment to expanding the horizons and transforming the lives of Honors College students.

"Over many years, my friendship with Betsy and Bill grew through Honors and their constant ability to challenge Dean Charlie Slavin, Barbara Ouellette and me to think bigger and better for our students. Betsy's smile, big laugh, and generous heart are what I remember most. But I know that I am only one of ultimately thousands of UMaine Honors graduates whose lives are better, fuller, and richer because of Betsy and Bill."

Emily Cain '02



Left: Dennis Rezendes receives an honorary doctorate degree from UMaine President Susan Hunter at May 2015 Commencement.
Right: Dennis Rezendes and his family at the Rezendes Ethics Essay Luncheon in 2003.

Remembering DENNIS REZENDES

THE UNIVERSITY of Maine Honors College community is saddened by the passing of Dennis Rezendes '57, supporter, friend and benefactor. Rezendes was well known both on and off campus for his kindness, generosity and eagerness to support students in their endeavors. With his wife, Beau, he shared a lifelong commitment to public service, engaged citizenship, ethical responsibility and the arts as foundations for our society.

Dennis Rezendes grew up in Fall River, Massachusetts and spent six years in the United States Air Force before earning his bachelor's degree at the University of Maine. He went on to earn a Master's of government administration at the prestigious Wharton School of Business and Finance at the University of Pennsylvania.

His education was followed by a distinguished career in government service, business, finance and education, including in the development of Hospice in the 1970s. In May 2015, he was awarded an honorary doctorate of humane letters by the University of Maine in recognition of his work to firmly establish the Hospice movement in the United States.

Nowhere else is his commitment to service better exemplified than in this mission to revolutionize end of life care. Dennis Rezendes was one of the most important figures in the effort to transform how this country takes care of its terminally ill patients, establishing a practice that has improved the quality of care for millions of people and their families.

As a 1957 alumnus of the University of Maine, he continually returned to this community to become a powerful presence in its development. A role model for students in his support for ethics, global citizenship, and the arts, Rezendes created and supported the Global Volunteer Scholarship, the John M. Rezendes Ethics Essay Contest, and the John M. Rezendes Visiting Scholar in Ethics Lecture, both named after his father. The positions of Rezendes Preceptor of the Arts and Rezendes Preceptor of Civic Engagement were made possible through his generosity and have had a transformative effect on the Honors College.

Dennis Rezendes' legacy is one that we in the Honors community and beyond will continue to cherish in the generations to come.

An interview with UMaine alumnus and Nobel Peace Laureate BERNARD LOWN



Bernard Lown '42H and Dean François Amar at Lown's home in 2016.

THE FIRST grade that Nobel Laureate Dr. Bernard Lown '42H, received on an essay he wrote at the University of Maine was an F. He was 16 and still learning English, having immigrated to Lewiston, Maine from his native Lithuania a few years before. The concepts in his paper were "brilliant," according to his teacher, but the paper contained 13 different spellings of the word Czechoslovakia, leaving Lown with a failing grade. Despite what Lown describes as the backwardness of his home country, he already read Tolstoy, Dostoevsky, Balzac, Dickens, Hugo and Zola. He also learned geometry, geography, and philosophy in public school.

"When I came, I was a fish out of water," Lown said. The Honors Program, itself a recent arrival to the university, invited Lown to join. "That was one of the best things that happened to me," he said.

After graduating from the University of Maine in 1942, with a degree in biology, Lown went on to Johns Hopkins Medical School in Baltimore. He became a cardiologist and had a long career at Harvard,

where he, co-invented the cardiac defibrillator. In 1961, he called together the group that would found Physicians for Social Responsibility (PSR). PSR shared the 1985 Nobel Peace Prize with the International Physicians for the Prevention of Nuclear War (also co-founded by Lown) for its work on nuclear disarmament.

Dean François G. Amar (FGA) and Maine Folklife Center Director Pauleena McDougall (PM) interviewed Lown (BL) as part of an oral history project conducted by the University of Maine Alumni Association for UMaine's 150th celebration in 2015. Excerpts from that interview follow.

PM: Could you tell us a little bit about your undergraduate experience at the University of Maine?

BL: I entered the University of Maine in 1938 after arriving in the United States three years earlier. My English was quite poor, though I tried to learn. Honors had four subjects that interested me: philosophy, social history, Latin and Greek; and biology. And in each

one I had professors, by virtue of the times, who were extraordinary. I got a better education than I could have gotten at Harvard, and I know a lot about Harvard. For example, philosophy was led by Professor Ronald Levinson (who founded the Honors program in 1935). In Greek and Latin, it was a fellow named Leslie Smith from Scotland. A great teacher; I read Latin and Greek with him. In social history, there was a young woman by the name of Edith Wilson, who later became the head of the department in Princeton. In biology, there was a young fellow by the name of Benjamin Speicher, who was the head of the Biology Department where I majored in genetics. I would spend two days a week at UMaine, then would hitchhike back to Lewiston, because Lewiston was a much busier place than Orono. My father couldn't understand how I could spend two days a week at the university when he was paying so much money — \$75 per semester.

PM: That was a lot of money at the time.

BL: He thought I was cheating. He would get

the report cards and I would get A's, A's, A's. He thought I was making it up, so he called the university to find out (if it was true). I got a very-rounded education at UMaine and I am ever grateful.

FGA: You mention four extraordinary professors and four subjects you devoted your education to: How did they translate into a career in medicine?

BL: That's a good question; it all depends on the coincidences in one's life. In Lewiston, Maine, there was a refugee doctor from Frankfurt, Germany, Max Hirschler. He was a first-rate surgeon, very intellectual; his wife later became a professor at Bates. She was also a doctor, but didn't practice. In order for him to practice, he had to go through an internship in Lewiston. When he used to operate, all the surgeons from around came to watch him. One day, he invited me to join his family for Sunday afternoon tea. Why? I don't know. Joining us were some of their friends from Germany. They were close friends of Albert Einstein and they had a philosopher friend. The discussion shifted from German to Italian to French to English, and they were playing Bach. Talk ranged far and wide culturally, and I came to the conclusion that doctors are the most cultured people on Earth — an erroneous conclusion from inadequate data, but that's what I concluded. I also concluded that I wanted to be a doctor.

PM: It's interesting that what drew you in were the cultural things.

BL: Before that, I wanted to be a journalist. However, that Sunday afternoon shifted that. And then, of course, though I graduated summa cum laude, I couldn't get into medical school.

"Honors encourages deep cultural pursuits and a diversity, showing the great heritage we have. That's invaluable for people today."

PM: Why?

BL: There was a lot of anti-Semitism at the time. This was 1942 and many young people were entering the military. Pearl Harbor had occurred a year earlier. Eventually, I got into medical school by a fluke that related to culture. I applied to Johns Hopkins. The doctor was interviewing young people from New England. He thought I was a bookworm. He says "Have you read a book?" I say, "Yes." "Would you like to discuss some literature?" I say, "Which? Russian, German, Chinese, Indian?" We spent the next two hours talking about books, and he said, "You belong at Hopkins." Again, culture and literature were catalysts, enabling me to get into one of the best medical schools in the country.

FGA: You talked about these Honors experiences you had at University of Maine. It's fair to say that the details of that experience have changed for students today. We have a slightly different program; it's probably bigger and so on. But what are your thoughts on how that Honors style of education continues to be valuable today?

BL: I think it's more valuable today than it was in my time. People get pigeonholed, trapped very early in life in some discipline and they're absolutely ignorant about the world we live in. Honors encourages deep cultural pursuits and a diversity, showing the great heritage we have. That's invaluable for people today. Most people are very narrow; they are thinking of a career in chemistry, physics, business or whatever. They leave out what is most rich about life. After all, we are small passengers on a planet — transient passengers. We are here and gone, and in order to live the lives of many, how do you do that? By partaking of literature, you are exposed to a drama of lives that you would never have met, never encountered, never appreciated. The encouragement of that — the squeezing somebody out of their narrow little capsule is encouraging, stimulating, a thirst for an experience, the remote, the past. You can't deal with the future unless you study the past.

FGA: Regarding the work you did on helping to avert nuclear war and bring attention to

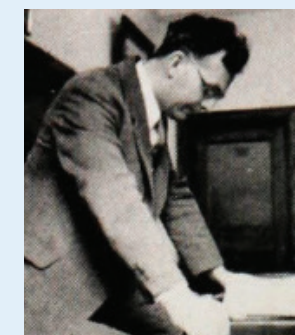
UMaine professors who influenced Bernard Lown



Edith Wilson



Ronald Levinson



Leslie F. Smith



Benjamin Speicher

An interview with UMaine alumnus and Nobel Peace Laureate Bernard Lown

the problem of nuclear weapons: How do you feel your education and background pushed or pulled you in that direction?

BL: It's very hard to explain why anybody does anything. Why do you do this? Why do you do this? Why did you marry this person? Why did you choose this career? Why are you at the University of Maine? It's a host of issues that get melded. I think my upbringing in Europe, my having escaped the Holocaust by a whiff — because my family that remained disappeared. If it wasn't for my coming over, I would be part of the dust and the detritus of Europe. Doctoring is about helping your patient. Now, clearly, the patient's health is not narrowed to his or her illness; it is to the conditions in which they live that conduce or predispose to illness. You have responsibility for society being more equal, because the leading cause of all disease, according to the World Health Organization, is poverty. If a doctor does not address poverty, he or she is not fulfilling his professional mission, really.

BL: This same argument would apply for war. By the 20th century, we killed off more than 100 million people, I'm guessing — enormous amounts of people. The doctor's responsibility is an old tradition. If you go back to the 19th century, the great Dr. Rudolf Virchow said, "Politics is nothing but doctoring writ large." When he was sent by the Kaiser to East Prussia to deal with typhus, and in his famous report, he says, "There is no way you can deal with typhus unless you deal with the misery and poverty and lack of shelter for people." Doctors have to be opposed to mass murder. The other thing that wasn't understood well, until we did what we did with Physicians for Social Responsibility, is that doctors have a powerful voice that is listened to, if it's not addressing self-interest. When doctors argue for better salaries for themselves, or this or that, the public looks askance and is skeptical. But when doctors talk about something in which they have no self-interest and which enhances the community, the physicians are more likely to be listened

to. I learned a lesson from Physicians for Social Responsibility because, in 1961 or thereabouts, President Kennedy was urging people to build shelters, and the shelters were a terrible, dreadful thing. People were digging shelters, stocking them with food, Geiger counters and guns. Why guns? To keep the neighbor out who wasn't smart enough to build a shelter. Suddenly, society was getting fractured; it was neighbor against neighbor. Our study, which is worth reading, was published in the New England Journal of Medicine in May 1962.¹ When our articles came out, there were headlines in papers all across the world. I was surprised. And within three months, the shelters were gone. Our studies proved that the worst place to be is in a shelter, because with the H-bomb, fire sucks out oxygen and you are asphyxiated before you are incinerated. I got

a call from President Kennedy's office about a year later to ask if we could help with the test ban agreement because we were so recognized as a group. Physicians for Social Responsibility was asked to put ads in papers in states where senators opposed the test ban agreement.

PM: I would like to thank you for doing that. I lived through that period and I remember the terror as a child.

BL: Yeah, duck and cover.

PM: Exactly, in school.

FGA: I remember the black and yellow shelter signs on the public buildings and always feeling a little bit afraid through my childhood, looking in the sky and thinking, "is it coming?"

BL: So that laid the groundwork for an international movement nearly 20 years later. In

¹ Sidel, Geiger, and Lown. The Physician's Role in the Postattack Period, NEJM, 266:1137-1145, 1962 for the analysis of the effects on the population and the medical infrastructure of a nuclear attack on Boston.

"We (Physicians for Social Responsibility) brought about 120 children to America. The publicity was enormous. This was one small grain of sand. And while a grain of sand is irrelevant, a beach stops the mighty oceans, and we had a very important impact."



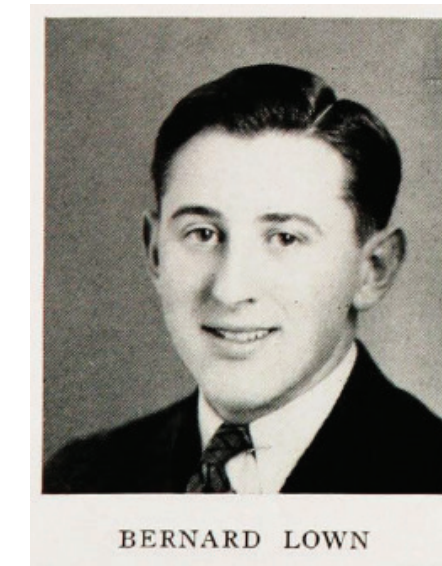
Bernard Lown '42H spoke to Honors students during his visit in 2007 as the TIAA-CREF Distinguished Honors Graduate Lecture Series.

the meantime, I've been a social activist. I was active against the war in Vietnam; what we did was extraordinary, ingenious and insane, but very effective. We brought napalm-burned-children to hospitals in the United States. If we brought over a napalm-burned-child to a hospital in Boston and all the big cities in America, the local media would respond to it, the community would respond to it, churches, synagogues would respond to it. The question was how to do it. We (PSR) decided to each contribute some money and take out a one-page ad in the Sunday Times — at that time \$10,000. We raised the money and put it in. You know, within several weeks, we got a million dollars. Then the question was how to we bring these sick children to the United States. We needed ambulance planes. Who has ambulance planes? The Air Force. How'd we get the Air Force to bring over the victims? I put together a delegation that included Dr. Sabin and the Archbishop of New York, and we went to the Pentagon and met with the assistant secretary, who was George Bundy's brother — very influential. I explained to him that Americans were out to win the hearts and minds of the people of Vietnam. I didn't pose the question: What the hell are we doing 12,000 miles from our shore, killing off 5 million people in that area. Instead, I said, "We're out to win the hearts and minds, but you don't do it with napalm." He said, "Doctor, you know we don't intend to kill children. We are sad about it. We would like to do something about it." I replied, "Well here is something you can do!" He says, "What a great idea! We will give you ambulance planes; we have all these empty spaces." We brought about 120 children to America. The publicity was enormous. This was one small grain of sand. And while a grain of sand is irrelevant, a beach stops the mighty oceans, and we had a very important impact. I've learned time and time again that you can make change if you work with others and if you get people to support you. Then the politicians are compelled to listen to you. We are now in a state of crisis on many fields — from environment and militarism,

to inequality of wealth and a host of things. The whole globalization of society; what will you do with all the people? Now perhaps 5 percent of the people can produce everything you and all of America needs. What will we do with 95 percent of the people? Do you pose these questions?

FGA: Yes, that's exactly the questions we pose.

BL: Good.



"The past is full of change against impossible odds, and that provides courage and a sense of optimism."

FGA: What paradigm can address this gigantic shift?

BL: These problems have to be exposed to people. Right now, for example, in order to give everybody a standard of living that is decent and adequate, we need two planets. We only have one planet. Where will we find another? The population is going up. India will exceed China by the year 2050 when there will be 2 billion Indians. When

you consider that our population in 1800 was 1 billion and now is 7.5 billion, that is a crisis. But a most significant crisis is the climate one.

FGA: And I think one of the issues you touched on was this sort of breadth of an education that promotes tolerance, because we see a kind of rise of unimodal vision in various quarters that feels limiting and dangerous.

BL: In part, this is because we never have dealt with the issue of racism in America. We have never faced up forthrightly and given reparations. I don't mean giving money, but giving reparations in terms of equal schooling, equal health, equal housing and all that for the wealth that we have acquired.

FGA: You have painted, in some ways, a grim picture of our future, and yet you carry on and you are thinking about making a better future. What do you say to our young people today who are faced with this?

BL: When I look back on my personal experience, the grim situations are the product of human behavior. The logical answer: What humans do, they can undo. They can redo, they can outdo and they can change. But in order to be able to do that, Orwell said, "Those who control the present, control the past and those who control the past, control the future." The linkage between past, present and future is such that we have to teach about the past. The past is full of change against impossible odds, and that provides courage and a sense of optimism. When I look back on my life in medicine and impossible situations in healthcare, we were able to change things — not everything, but many. That feeds an optimistic sort of agenda, but encouraging student activism is not always what a university wants. You want quiet, still, scholarly; I would like the turbulent, argumentative, protesting; urging the university to divest from (fossil) fuels, and this and that. Getting student activists would be a proud insignia of this great university.

WHY I TEACH IN THE HONORS COLLEGE



CHRISTINA ARRIGONI MARTELLI

History

I WILL never forget how I started in Honors. It was January and I was out cross country skiing on the frozen creek behind the house with my two dogs. Dean François Amar called and asked if I could do a lecture giving students necessary historical context from the fall of the Roman Empire to the Middle Ages. I paused, as hundreds of years of history raced before my eyes. “It is quite a long period, I know,” he offered. I replied, “Yes, it is.” François, not one to be easily deterred, informed me, “you can do whatever you want,” while I mumbled something about being an environmental historian and if that might be useful. “That is GREAT!” he exclaimed. Three weeks later I was standing in an auditorium as 300 plus students were packing the place to the rafters wondering if it would “work” (it did), but mostly reveling in the mounting energy streaming down towards me.

I wasn’t wrong about that energy; it is present in every preceptorial I teach. It is an honest and raw energy created when week after week the students make history (theirs, ours, mine) as they rigorously engage, grapple, live with and through texts that represent the collective memory of mostly Western civilization. Students do

this from within their own histories and memories with a wholehearted and admirable openness to change and opportunity as current events weave in and out. This is the way academia should be, this is the on-going and lifelong process that the Honors College instills, making it one of the freest places on campus.

It is January as I write this, the creek is frozen again and I am ten days away from starting spring semester with two sections of Honors students. I know the texts we will read, they have been around for a long time. What I don’t know is what will happen as two sections of choreographers and dancers, composers and musicians, doctors, economists, and computer scientists get busy tackling them head on, and often for the first time. The texts will become living matter, they will become new and pressing, and things will happen because of it — big things, small things, now, much later. While the ice melts, nothing will remain as it was and importantly so. If this is not the best reason to teach in Honors and the essence of a liberal arts education, then what is?



ROBERT KLOSE

Biology

WHEN I was invited to teach in the Honors College I was hesitant. I had been teaching biology for many years, and I had honed my skills as a lecturer to a fine point. The idea of being more of a facilitator of small-group discussion intrigued me, but I wondered how I would approach it, or if I would be good at it. I mean, in my biology courses the flow of information is downhill from me to the students: I lecture and they assiduously take notes. Discussion is not a significant part of the experience. (Can one really ask, “So, what do you think of the nucleus?”) But then I recalled something I had once read: “I have never begun any important venture for which I felt adequately prepared.” And so I took the leap into Honors.

Upon meeting my young, fresh-faced charges — most of them straight out of high school — I

immediately felt at home. In short order I realized that this is what I had envisioned teaching would be like when I first set out on my career. I discovered that the Honors approach, unlike a formal lecture, has no “from me to them” trajectory, but is rather a shared journey, where I make little jabs — cameo appearances during the discussion — to keep the chatter on track. I have grown so pleased with, and fond of, my students, that there are days when I’d just like to put the text aside, close my notes, sit back, and listen to them banter. Teaching in Honors has reminded me how good-hearted these young people are, and how their earnestness and verve can be channeled into an experience where they, and I, want to come back for more. In short, it is a singular pleasure.

HONORS THROUGH THE YEARS

Four Students, Four Stages of the Honors Journey



CAIN LANDRY

Music '16

FOR ME, the Honors sequence has been an incredibly transformative experience mentally and academically. Through preceptorials, I have gained a wide range of perspective on topics like philosophy, environmentalism, literature, religion, and sociology from both the texts and fellow Honors students. Working as a course facilitator for HON 180 has given me a deeper critical understanding of the arts. As a performer and composer, it is beneficial to hear and read student impressions of various art forms. The Honors College has also been helpful in allowing me to use my Honors thesis to fulfill my passion for composing. The formal and multi-layered nature of the Honors thesis has made my project a much more significant and rewarding experience.



ARDEN MCSWAIN

Civil Engineering '17

I AM a civil engineering student with minors in mathematics and construction management. An important skill for any engineer is communicating technical ideas to non-specialists. The intimate setting of the discussion-based preceptorials proved to be the perfect environment to develop this skill. The summer after my sophomore year I worked for an engineering company where I gained hands-on experience and fulfilled my tutorial alternative requirement. As a junior I am starting my Honors thesis, a research based project titled *Confinement Effects on the Fiber Pullout Response of Ultra-High Performance Concrete*. Honors has helped me to become a well-rounded engineering student and has given me the chance to interact with students in programs far different from my own.



CHRIS GILBERT

Wildlife Ecology '18

DECIDING TO enroll in the Honors College was truly a great decision. Within the Honors Civilizations sequence I was able to learn about other cultures and open my mind to different worldviews. It’s a great break from just having science and math related courses. I also got the opportunity to meet great professors who have helped me shape my entire college journey. Thanks to the connections I have made in Honors, I have had amazing opportunities like being a part of the Sophomore Owls, Student Advisory Board and the Honors Council.



ANA ELIZA SOUZA CUNHA

Biology '19

AS A pre-med student, a majority of my time is spent within large lectures of math and science. It can be easy to feel lost in the crowd, but the Honors College changed that for me. Within the Honors College, I am an individual recognized by my preceptor and allowed to contribute my own creative interpretations. Honors has lead me to directly interact with faculty, opening doors for research internship opportunities and teaching me to synthesize an argument, a point of view; which is an invaluable skill for any future academic or professional endeavor I will encounter.

RETIRING FACULTY



ALEXANDER GRAB

Professor Emeritus
Department of History

THE TWO-YEAR Honors core program is without a doubt one of the best and richest academic programs offered to students at the University of Maine. It is a rigorous and stimulating interdisciplinary academic program which is designed to contribute considerably to students' intellectual development. I have had a wonderful experience teaching Honors classes which explains why I have done so for such a long time. I benefited and learned a great deal from my teaching in the inspiring Honors program. While I was familiar with many of the works included in the curriculum, there were a number of books I had not read before and others I had read but had not consulted for many years. In sum, the program enabled me to read many important works I would not have had the chance to read otherwise and to delve into other books again with a different, probably more mature, perspective. Many of my students in Honors classes were excellent, well prepared, and eager to learn and explore the themes we have raised. The good and serious students certainly made my experience very rewarding. I also read some excellent Honors theses.

"Alex Grab's ability to make a deep connection with students while challenging them to rethink their beliefs and preconceptions will be missed here in Honors. I have always enjoyed his way of working with students on difficult texts and freely admitting that they were hard and worth ruminating on — together."

Dean François G. Amar



JAY BREGMAN

Professor Emeritus
Department of History

I TAUGHT Honors for many years, actually starting in the '70s when Bob Thomson was the director. My main contribution was introducing important texts and lecturing on some of them — all for the Ancient-to-Renaissance part of the course. For the latter I added Giovanni Pico della Mirandola's *Oration on the Dignity of Man*, which introduced a new concept of human potential and "free will" based not on standard rhetorical Humanist texts (e.g., Cicero), but on Neoplatonic and other "mystical" texts, including the Kabbalah and even some Islamic thought — accepting all traditions as valid, and painting on a broad Renaissance canvas at a time when new global perspectives (not only in painting) were being introduced. Also Willie Ruff's sound realization of Kepler's solar system — a neo-Pythagorean exercise in which a new scientific (still valid) calculation of planetary orbits was harmonized with Kepler's Platonic/Pythagorean views. This is important, also, because modern science was influenced by Renaissance Platonism and Pythagoreanism, which supplements the idea that Aristotle "invented" science, whereas as Plato was a "space cadet."

"I think Jay Bregman shared with all his students his passion for the classics and a deep understanding of how classical traditions and controversies remain relevant to current affairs. I have found that context to be of great value."

Mark Haskell '82,
Political Science

CELEBRATING BARBARA OUELLETTE

Honors College Assistant Dean Emerita

IN THE Honors College Associate Dean's office, on the third level of her bookshelf sits a pair of black and white leather high-heels. The toes are pointy; shoes Barbara Ouellette, the college's recently retired Assistant Dean would wear if they weren't so big. In front of the shoes is a yellow sign, it reads: "These are Barbara's Shoes: Adjust Your Expectations Accordingly."

If you were never involved with Honors you might still remember her. Each day, around noon, with her sister and Honors Administrative Specialist, Deborah Small, you could see Barbara walking, talking, laughing around the Mall. The two sisters, hailing from French Island, part of Old Town, Maine, spent their lunch breaks together walking around UMaine, taking in the campus Barbara has called home since 1976.

After retiring from a 38-year career, Barbara's influence on the Honors College is hard to separate from the college itself.

"She made me laugh just about everyday, she just had this connection with people and they would always go in seeking her advice, even though it wasn't her job," Deborah said of her sister. "She was a great listener not just with the students but with the faculty and they would seek her out. She's just really smart."

Family is one of the most important aspects of Honors culture for Barbara, but that family always extended beyond her close relationship with Deborah to students and faculty.

During her time with UMaine, Barbara organized a Maine Scholars Day, to recognize the graduating class' accomplishments, and the second-year convocation, to help prepare students for the thesis process, all while taking classes to finish degrees in Business Administration and University Studies with a minor in Women's Studies.

"I mean I actually grew up here," she said. "I was only 26 when I started working



Barbara Ouellette is trying to relax in retirement but often comes back to visit the Honors College.

in Honors, there's a lot of growth that happened, and probably a lot of growth happening if I hadn't been here, but being here in an academic setting everyday working with students and faculty, I think I grew more. My confidence grew."

As her confidence grew so did the Honors College's reliance on her.

Barbara began her career at UMaine as an administrative assistant. Every time she thought she was outgrowing her job, someone at UMaine offered Barbara a more tailored position to fit her needs and to support what she could do for Honors and for students. She was promoted to Coordinator of Student Academic Services, and then Budget as well. In her last year she was appointed as the Assistant Dean and she now is the Assistant Dean Emerita.

"She was the boss," Deborah said. "Even some of the [Honors] directors at the time said that she was the one that told them what needed to be done."

Of the approximately 1,600 Honors theses completed since 1935, about 85 percent were completed while Barbara worked in the program, but her impact transcends the written work of students.

"Directors and Deans come and go, [but] Barbara Ouellette was—and still is—the constant at the heart of what is now the Honors College." Dr. Ruth Nadelhaft, a former Director of the then Honors Program, said. "Barbara came in early and left late. She knew and remembered the names of students, even former students from years past. Barbara understood that the students were the real reason for the existence of the Honors program, and she mentored them as an advisor."

Like the shoes on the new Associate Dean's desk, Barbara's absence from the Honors College leaves big shoes to fill, but her legacy lives on in Honors culture infused with her spirit: "welcoming, intelligent, warm, and number one, family."

In her honor, the Barbara A. Ouellette Honors Thesis Fellowship Fund was established at the University of Maine Foundation with gifts from Honors College alumni and from colleagues, friends and family upon Barbara's retirement as Assistant Dean of the Honors College. The new fund when endowed will provide awards for students, with a preference for students with financial need.

SPECIAL RECOGNITION

THE HONORS College would like to recognize the following Honors College students for their outstanding achievements during the 2014–15 academic year. Congratulations!

Gwendolyn Beacham '15, Biochemistry

Valedictorian, Outstanding Student, College of Natural Sciences, Forestry, and Agriculture, and Frank B. and Charles S. Bickford Prize

Wallace C. and Janet S. Dunham Prize, College of Natural Science and Forestry: **Stephanie Wood '15, Biology**
Undergraduate winner of the 2015 Edith Patch Award for 2015: **Abigail Feuka '16, Wildlife Ecology and Julia Sell '15, Physics**

The Honors College annually recognizes Honors students with these special awards:

The John M. Rezendes Annual Ethics Essay Competition:

Impacting Nature: The Ethics of Energy, Ecology and the Environment

1st Place: **John William Mukose '16, Chemical Engineering** *The Ethics of Using Indoor Residual Spraying of DDT to Control Malaria in Uganda*

Runner-up: **Afton Hupper '17, Ecology and Environmental Sciences** *A World for Everyone: The Common Good Approach to Reaching Global*

Peace Through Sustainability

AWARDS AND SCHOLARSHIPS

THE JOHN FERDINAND STEINMETZ AWARD

This award was established in 1962 through a gift from the family of the late John Ferdinand Steinmetz '43. The fellowships are used annually as an award for first-year Honors students demonstrating outstanding character and appropriate need. The award is distributed through the University Bookstore account.

Jackson Foley '18, Biology

Anthony Crawford '18, Journalism

Steven Longfellow '18, Mechanical Engineering

ROBERT B. THOMSON MEMORIAL THESIS FELLOWSHIP

The Robert B. Thomson Memorial Awards were established in 1984 by family and friends. The income from the fund is awarded to outstanding Honors College juniors majoring in political science and art.

Naomi Ellsworth '16, Art Education

Jesse Clark '16, Political Science

PROFESSOR MELVIN GERSHMAN SCHOLARSHIP

The Professor Melvin Gershman Scholarship Fund was established at the University of Maine in 1998 with gifts from family, friends and associates. The scholarship is awarded to meritorious science students enrolled at the University of Maine.

Morgan Gustin '16, Animal and Veterinary Science

DR. MELAINE GERSHMAN-TEWKSBURY '77 SCHOLARSHIP

The Dr. Melaine Gershman-Tewksbury '77 Scholarship provides scholarship assistance to meritorious pre-medical students enrolled at the University of Maine.

Campbell Belisle-Haley '16, Biochemistry, Spanish

STANHOPE STUDY ABROAD FELLOWSHIP

The Charles V. Stanhope '71 Honors College Study Abroad Fellowship Endowment Fund was established at the University of Maine in 2008. Fellowships are awarded to students in the Honors College who study for at least a semester outside the borders of the United States.

Elizabeth Proctor '17, Anthropology

HONORS COLLEGE SERVICE AWARD

This award recognizes one or more graduates of the Honors College for outstanding commitment and contributions to the University of Maine Honors community.

Christopher Paradis '15, Psychology

SUSTAINABLE FOOD SYSTEMS RESEARCH COLLABORATIVE FELLOWS

The Sustainable Food Systems Research Collaborative brings students together with community partners to address problems of food production, distribution and access.

Alan Bennett '16, Journalism

Afton Hupper '17, Ecology and Environmental Sciences

Brady Davis '17, Business Management

Ginger Kieffer '17, Political Science

Sarah Mullis '16, Sociology

HONORS INDEX

2015 Honors Graduates at a Glance

3.72 Average GPA

7 Graduates who were student-athletes

14 Graduates who are published

18 Graduates nominated to Phi Beta Kappa

59% Graduates who worked while in school

46 Graduates who lived in Honors housing

37 Graduates who were officers in a student organization

5 Graduates who attended an Honors trip

24% Graduates who studied abroad

75% Graduates from Maine

34% Graduates who completed a tutorial alternative

25% Graduates from out of state

44 Graduates planning to attend graduate school

5 Graduates who submitted a Rezendes Ethics Essay

19 Graduates who participated in theater, dance, or music

15 Graduates with a double degree

5 Graduates with a family member who graduated from UMaine

91 Total graduates

44 Graduates from College of Natural Sciences, Forestry and Agriculture

36 Graduates from the College of Liberal Arts and Sciences

6 Graduates from the College of Engineering

5 Graduates from the Maine Business School

2015 HONORS GRADUATES



DARRYL ABBOTT

Biochemistry

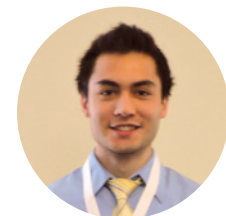
Durham, CT
Coginchaug Regional High School

Exploring the Role of Chromosome Segregation 1-Like Protein in Zebrafish Innate Immune Response

ADVISOR: Carol H. Kim

THESIS DESCRIPTION: Cystic fibrosis is a genetic disease that affects epithelial cells, causing symptoms in multiple organ systems throughout the body. It's the most common fatal genetic disease in communities of European descent. Results indicate that *cse11* has a role related to, but not solely dependent on, its interaction with CFTR, potentially advancing understanding of the role of CFTR in innate immune function.

FUTURE PLANS: Darryl looks forward to traveling after college and settling down in a new city to work on medical research.



DAMIEN AFFLECK

Biological Engineering

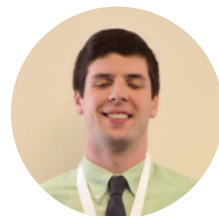
Enfield, NH
Kimball Union Academy

Reducing the Length of the Aging Process of Cask Aged Distillates

ADVISOR: Michael Mason

THESIS DESCRIPTION: This research seeks to prove that components of certain Scotch samples can be determined using Gas Chromatography Mass Spectrometry (GCMS) and Flame Ionization Detection (GCFID). These data sets will be used to discern the differences between the individual samples. Results indicate that GCMS and GCFID prove to be an effective means of determining the differences in chemical components in Scotch samples.

FUTURE PLANS: Post graduation, Damien plans to find a job in the greater Boston Area.



EVAN AMABILE

Biology

Hollis Center, ME
Bonny Eagle High School

Molecular Analysis of the Powdery Mildew Fungus: Erysiphe Vaccinii Using PCR Amplification of the ITS Region and Plasmid Vector Transformation

ADVISOR: Seanna L. Annis

THESIS DESCRIPTION: *Erysiphe vaccinii*, a fungus of the order Erysiphales, is a pathogen of Maine lowbush blueberries. Like other powdery mildews, it exhibits host specificity toward certain plants, reproduces via asexual and sexual spores, and utilizes wind currents to carry spores to new hosts. To better control for this pathogen, this study utilized molecular techniques to properly discriminate it from other powdery mildews across Maine.

FUTURE PLANS: After graduating from the University of Maine with a Bachelor of Science in Biology with a minor in Chemistry, he will be attending Virginia Commonwealth University in Richmond, Virginia in pursuit of a Master of Science in Occupational Therapy.



GWENDOLYN BEACHAM

Biochemistry

Farmington, ME
Mt. Blue High School

Complete annotation of the Cluster E mycobacteriophage Ukulele genome and characterization of Cluster E lysogeny regulation

ADVISOR: Sally Molloy

THESIS DESCRIPTION: Mycobacteriophages are viruses that infect mycobacteria. Mycobacteriophages are divided into clusters based on nucleotide similarity. Ukulele belongs to Cluster E, which is poorly characterized. My thesis is aimed towards identifying the genes in Ukulele that encode proteins involved in regulating Ukulele's lifecycles. I also used computational techniques to identify potential gene functions and regulatory elements in Cluster E mycobacteriophage genomes.

FUTURE PLANS: I will be attending Cornell University Graduate School for a PhD-track program in Biochemistry, Molecular and Cell Biology. I would like to be a professor of Biochemistry or Molecular Biology so I can do research and also teach.



TY BOLTE

Zoology

Des Moines, IA
Roosevelt High School

Vision Problems in Ecuador: Developing a Clinical Tool to Test Visual Acuity in Rural Populations

ADVISOR: Leonard Kass

THESIS DESCRIPTION: In many developing countries access to medical care is difficult, especially countries with large rural populations like Ecuador. For visual health, corrective lenses can be the difference between a life of poverty or well-being. This program is designed to determine Visual Acuity, a good indicator of eye health, and can quickly screen large populations to identify individuals with vision problems.

FUTURE PLANS: Ty Bolte currently works as an Advanced EMT with Maine Medical's Neonatal & Pediatric Intensive Care transport team. His future plans involve work in rural medicine and disaster management in developing countries. He is currently exploring medical school and residency options through the Navy with the Uniformed Services Medical School and the University of Iowa Carver College of Medicine.



NORAH BIRD (ST. PETER)

Philosophy

English
Orono, ME
Orono High School

Zugzwang — A One Act Play

ADVISOR: Bruce Pratt

THESIS DESCRIPTION: My thesis took a short play written during my honors tutorial and expanded it into a larger work of approximately forty minutes. My thesis culminated in a staging of this play. The piece revolves around a woman in an abusive relationship. In expanding the play I mapped this character's life as well as the life of her husband, examined the events leading up to the original setting of the play, and concluded the story. The specific goal I tried to achieve through writing this thesis was to create a work of merit that examines the important and confounding issue.



MARY "CATIE" BORER

Social Work

Religious Studies
Mendota Heights, MN
Convent of the Visitation School

Human Trafficking in the Media: Who, What, Where and Why?

ADVISOR: Stephen Gilson

THESIS DESCRIPTION: My research looks at news coverage of human trafficking. I took three newspapers from Delaware, Maine, and South Dakota (each state has a different level of laws around trafficking) and analyzed all the articles about human trafficking in 2014. I was able to research what themes were represented in each state – some universal over all states, some unique for one.

FUTURE PLANS: After graduation, I plan on gaining experience for a year or two before returning to further my education with a Master's in Social Work. In the long-term, I hope to work around the world in the field of international social work, addressing human rights issues with groups like refugees, human trafficking victims, and cult victims.

**ABIGAIL BOWDEN**

History
Business Management
Sedgwick, ME
George Stevens Academy

The Sun Shines, and Hitler is Master of This City: The Appeal of Nazism to German Youth During The Interwar Period

ADVISOR: Richard Blanke

THESIS DESCRIPTION: My thesis is a study of the causes of the widespread and largely voluntary endorsement of Nazism by German youth and young adults during the 1920s and 30s. I examine economics, women's suffrage, social constructs, political discontent, and voting patterns to explain this situation. I then consider the possibility of such an occurrence happening again in today's society.

FUTURE PLANS: I plan on working to earn money for travel before getting serious with the rest of my life. I am going to Trinidad for a week this summer for the World Steelband Panorama and Conference, and after that I plan to embark upon an epic roadtrip/adventure and see what life has in store!

**JORDAN CAMPBELL**

English
History
Watsonville, CA
John Bapst Memorial High School

1000 Days, or the Lessons from Riverside

ADVISOR: Gregory Howard

THESIS DESCRIPTION: *1000 Days, or Lessons from Riverside* is a novel, largely meant for a young adult audience, written with the intent to tell a story not just about a boy's last three years of high school, or even about a boy becoming a man. Rather, this novel is about a boy becoming a man of God.

FUTURE PLANS: Following graduation, Jordan plans to take a year off from further education, in order to work on getting his credentials to substitute teach, as well as work on several creative projects. He plans to have three published books by the end of 2016.

**TOREY BOWSER**

Marine Science
Austinburg, OH
Geneva High School

*Arsenic Exposure of Killifish (*Fundulus heteroclitus*) Embryos and the Effect on Fish Behavior*

ADVISOR: Rebecca Van Beneden

THESIS DESCRIPTION: I exposed fish to environmentally relevant levels of arsenic and then tested to see if it impacted their ability to survive in the wild. I tested their anxiety level, light level preference and swimming performance. My results were inconclusive but there were trends towards low levels of arsenic negatively impacting the fish.

FUTURE PLANS: I will be attending the University of Maine pursuing a Master's in marine biology.

**NINA CAPUTO**

Chemistry
Canaan, NH
Mascoma Valley Regional High School

Flourescence Monitoring and Parallel Factor Analysis of Contaminant Mixtures in Water

ADVISOR: Howard Patterson

THESIS DESCRIPTION: The utilization of a fluorescence spectrometer as a means of detection, identification and quantification of water contaminants. Specifically, this project aimed to improve the methodology of water contaminant detection, as current methods are expensive, inaccessible and time consuming.

FUTURE PLANS: I'm going to work for a year to take a break and earn money for graduate school. I plan to get a Master's degree in Public Health in an effort to become an aid/relief worker for disasters with a specialization in water sanitation, purification and distribution.

**TYLER CARRIER**

Marine Science
Barre, VT
Spaulding High School

*Influence of Saxitoxins and Alexandrium fundyense on Embryos and Late Stage Larvae of the Sea Urchin *Strongylocentrotus droebachiensis**

ADVISOR: Paul Rawson

THESIS DESCRIPTION: My thesis research investigated the impacts of harmful algae on sea urchin embryos and larvae. This study showed that dissolved toxins do not induce programmed cell death in embryos, and that the larvae are able to consume the toxic cells. These cells are only digested at low concentrations and in the presence of an additional, non-toxic alga.

FUTURE PLANS: I will be attend University of North Carolina at Charlotte to pursue a Master's in Biology with a concentration on marine bacterial meta-genomics. I will also be editing a book of reviews with a colleague from the University of Guelph, Canada titled the Evolutionary Ecology of Marine Invertebrate Larvae.

**NICKLAUS CARTER**

Bioengineering
Chemistry
Franklin, ME
Sumner Memorial High School

Physical Properties of Iron Oxide Nanoparticles

ADVISOR: Michael Mason

THESIS DESCRIPTION: With recent knowledge of harmful effects of current contrast agents, we've investigated iron oxide nanoparticles for potential use/replacement in magnetic resonance imaging (MRI) and other possible forms of medical diagnostic imaging. The experiment chemically synthesized iron oxide particles via two methods and implemented a gold coating to enhance bio-compatibility.

FUTURE PLANS: My plans after graduation are to seek employment in a medical related industry to further my education in the field.

**MELISSA CARRIGAN**

English
Political Science
Coeur d'Alene, ID
Lake City High School

Where are Victims' Voices?: Rethinking Sexual Violence Policy

ADVISOR: Sarah Harlan-Haughey

THESIS DESCRIPTION: Consent education through healthy relationship education is a way to reduce sexual violence and produce cultural change in how we address victims' needs. A new policy must be implemented which includes examining how effective prevention programs are and exploring studies conducted about young people's sexual activity. The key is to implement a policy effecting intimate relationships before people start engaging in them.

FUTURE PLANS: Upon graduation, Melissa plans to pursue a career working on policies related to Women's Rights.

**RACHEL CHANEY**

Anthropology
Psychology
Falmouth, ME
Falmouth High School

A Preliminary Needs Assessment and Collections Management Policy for the University of Maine's Faunal Laboratory Collection

ADVISOR: Marcella H. Sorg

THESIS DESCRIPTION: My thesis provides a needs assessment and preliminary collections management policy for the University of Maine Faunal Laboratory collection - a small teaching and research collection containing roughly 430 specimens. The needs of the collection were evaluated based on both the teaching and research functions of the collection. The policy includes a collection mission statement, as well as extensive policies and procedures.

FUTURE PLANS: I am currently working as a Pharmacy Technician at Apothecary by Design in Portland where I have learned so much about health, wellness, and the true meaning of pharmacy. Although I am enjoying my current position, I am planning on going to graduate school within the next year to continue studying Physical Anthropology. My long term goal is to pursue an academic career in Physical Anthropology with a strong focus in Paleoanthropology.

**RACHEL CHASE****Animal and Veterinary Science**

Warren, ME
Home schooled

Exploring Causes of Chronic Infection: Implication of NOD2 SNPS in Ovine Susceptibility to Infection with Corynebacterium Pseudotuberculosis

ADVISOR: Anne Lichtenwalner

THESIS DESCRIPTION: NOD2 protein activates by bacterial peptidoglycan and initiates the NFDB pathway production of Interleukin 8, necessary for neutrophil chemotaxis and stimulation. In this study, half of NOD2 exon 4, containing 9 documented synonymous and missense SNPS, was sequenced from DNA extracted from blood samples of 8 CL seronegative and 10 seropositive Katahdin sheep. Consensus sequences and genotypes for CL seronegative and seropositive animals were determined.

FUTURE PLANS: Following her graduation Rachel plans on attending the Ohio State University College of Veterinary Medicine starting in the fall of 2015 where she will pursue her goal of being a large animal veterinarian.

**SEAN COX****History**

Bar Harbor, ME
Mount Desert Island High School

Acadia National Park and the Efforts of George Bucknam Dorr: How the Preservation Frontier Moved East and the Challenges for Acadia's Second Century

ADVISOR: Richard Judd

THESIS DESCRIPTION: Through George Bucknam Dorr's and the Hancock County Trustees of Public Reservations' efforts, Acadia National Park fostered a preservation frontier. Three chapters of the thesis jump historical chronology: I- Acadia's accomplishments under Mr. Dorr's supervision; II- Evaluates assets protected by Acadia, and why there was a need for a park. III- Surveys problems the park experienced since Dorr's passing, and challenges Acadia faces today.

FUTURE PLANS: Upon graduation, Sean plans to pursue a Doctorate in United States history.

**BLAISE COLLETT****International Affairs**

Orono, ME
Orono High School

Cuban Agriculture: Past and Present The Emergence of Small Scale Urban Farming in Havana, Cuba

ADVISOR: Stefano Tijerina

THESIS DESCRIPTION: My research focuses on gaining understanding of Cuba's current organic urban farming system in its largest urban sector, Havana, and comparing it to past and agricultural eras. Questions tackled: how has Cuba arrived at the use of small-scale farming throughout its agricultural history? What specific factors caused the rise of organic farming systems in Cuba; how do these *organopónicos* function?

FUTURE PLANS: Upon graduation, Blaise plans to spend the summer on the mid-coast of Maine, doing personal training and teaching fitness classes in addition to waitressing full time at a fine-dining restaurant. At the end of the summer, Blaise will be headed to Bozeman, MT in search of a job in international affairs and business.

**JOSHUA DEAKIN****Business Administration**

East Millinocket, ME
Schenck High School

Exploring Organizational Culture of Restaurants Through Workplace Rituals

ADVISOR: Niclas Erhardt

THESIS DESCRIPTION: Organizational culture can be a competitive advantage to the extent of how employees learn underlying core values. Workplace rituals are symbolic mechanisms through which employees may learn to operate in a given particular culture. I examined four organizational cultures: clan, hierarchy, market, adhocracy. 16, semi-structured interviews with managers, owners, and staff, along with 5 field observations examine the link among rituals, learning, and culture.

**JARED DUGGAN****Business**

Buckston, ME
Bonny Eagle High School

Exploring the Relation of Service-learning Courses and Retention Rates at the University of Maine

ADVISOR: Faith Erhardt

THESIS DESCRIPTION: This thesis examines the relationship between service-learning and retention rates at the University of Maine. The thesis focuses on demographic factors that influence retention rates. These factors include gender, institutional connection, debt, college of study, and academic performance. The sample subjects were undergraduate students enrolled at the University of Maine.

**NATHAN DUNN****Mathematics, Computer Science**

Dover, NH
St. Thomas Aquinas High School

Pattern Recognition and Matching in Ice Core Data

ADVISOR: Sudarshan Chawathe

THESIS DESCRIPTION: The purpose of this research is to investigate the potential of applying concepts from machine learning, like pattern recognition and matching, to detect climatic signals in ice core data. While there are weaknesses in each of the main components of this project, this research serves as a successful proof of concept for the feasibility of applying machine learning techniques to ice core analysis.

**ELIZABETH DUNBAR****Marine Sciences**

Math, Music, and English

Southwest Harbor, ME
Mount Desert Island High School

Depth Preferences of Sturgeon in Critical Habitat

ADVISOR: Gayle B. Zydlewski

THESIS DESCRIPTION: The depth and vertical movements of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*) at Bucks Ledge (river kilometer 21) in the Penobscot River were examined to investigate sturgeon depth preferences and jumping habits. The purpose of this project was to expand knowledge on the endangered and threatened sturgeon populations in Maine waters.

FUTURE PLANS: I am currently attending graduate school at Northeastern University, pursuing a Master's of Science in Marine Biology.

**LAYLA EATON****Nursing**

Deer Isle, ME
Deer Isle Stonington High School

Nurses' Perceptions of Barriers to Pediatric Patient Advocacy in End-of-Life Care

ADVISOR: Mary Shea

THESIS DESCRIPTION: This thesis explored the many barriers that nurses perceive to exist that inhibit their ability to effectively advocate for the voice of their pediatric patients during end-of-life care. By identifying these barriers, proper interventions and solutions can be determined to improve the process of end-of-life care for nurses, pediatric patients, and the families.

FUTURE PLANS: Short-term goals include acquiring a job as an RN in a local emergency room as well as continuing work as an Advanced Medical Technician. Long-term goals include working as a flight nurse, traveling, and eventually graduate school to further my nursing career.

**JULIANNA ENNAMORATI****Economics and Political Science**Waldoboro, ME
Medomak Valley High School

Women In Politics: Measuring Political Capital And Legislative Effectiveness Of Female Legislators in the 113th United States Congress

ADVISOR: Mark Brewer

THESIS DESCRIPTION: This study quantitatively measures political capital and legislative effectiveness of female and male legislators in the 113th United States Congress. Political capital focuses on the relationships politicians have with one another and their constituents. The first part of my thesis measures the political capital of legislators and the second part focuses on whether these same politicians are effective legislators. My research questions focus on whether there is a gender effect in the making and attaining of political capital and in contribution to lawmaking in Congress.

FUTURE PLANS: Directly following graduation, I will be working at Stone Coast Fund Services in Portland, Maine as an Investor Services Representative. I am looking to get my Master's degree in Economics or Financial Economics in a year or two. Long term, I would like to get my PhD in Economics.

**AMY FISH****Animal and Veterinary Science**
Classical StudiesLancaster, PA
Hempfield High School

The Role of Macrophages in Resistance to Caseous Lymphadenitis

ADVISOR: Anne Lichtenwalner

THESIS DESCRIPTION: Caseous Lymphadenitis is a disease that affects mainly sheep and goats, and has been found to be present on up to 50% of Maine sheep farms. Some animals seem to be resistant to developing the clinical disease when challenged with the causative bacteria. This project explored whether differences in macrophage (a white blood cell) action could be responsible for resistance.

FUTURE PLANS: After graduation, I moved to Edinburgh, Scotland and began a four year course at the Royal (Dick) School of Veterinary Medicine. I am currently playing rugby for my veterinary school team, and enjoying exploring my new city. In the future, I hope to become a qualified veterinarian and work on exotic animals or production animals. I plan on living and working in a few more countries before settling down somewhere.

**ANDREW ESTRUP****Chemical Engineering**Kennebunk, ME
Kennebunk High School

Selective Hydrogenation of Furfural to Furfuryl Alcohol Over Copper Magnesium Oxide

ADVISOR: M. Clayton Wheeler

THESIS DESCRIPTION: Furfural is a byproduct of biomass hydrolysis and novel means of utilizing this platform chemical are at the forefront of biofuel research. This project investigated many of the various and viable means of catalytic upgrading of furfural to other value-added chemicals, before ultimately exploring the conversion of furfural to furfuryl alcohol over a copper catalyst on a magnesium oxide support.

FUTURE PLANS: After graduation, Andrew will spend four months in Hawaii volunteering with the Hawaii Island Hawksbill Turtle Recovery Project. After completing his time with this project, Andrew plans to find work in the energy industry.

**MICHELE GIRARD****Political Science**
International RelationsNorth Yarmouth, ME
Catherine McAuley High School

Trade and Transition: Russia's Agricultural Pitfalls and Prospects for the 21st Century

ADVISOR: Seth Singleton

THESIS DESCRIPTION: The thesis discusses Russia's current domestic agricultural climate as well as both historic and current problems within the system. The paper also includes a brief discussion of Putin's role in the development of Russian foods in the past 10 years. In 2014 the Russian government authorized a food ban, not allowing trade with certain Western countries. The thesis suggests other international trading partners as well as discussing the current status of International Agricultural Trade.

FUTURE PLANS: I plan to move to Washington DC and focus on International Trade and Relations whilst working for a member of Congress on Capitol Hill. My long-term goal is to attend graduate school for a Master's in International Development.

**MARISSA GIROUX****Marine Science**
NeuroscienceRichmond, VT
Mount Mansfield Union High School

The Effects of Arsenic on the Development and Behavior of Fundulus Heteroclitus

ADVISOR: Rebecca Van Beneden

THESIS DESCRIPTION: In large areas of the US including Maine, arsenic is present in aquatic systems. Killifish embryos from a Bar Harbor, ME, population were exposed to 7.5 to 75 ug As/mL (ppm). The time to hatching, length at hatch, and growth rate were determined. Results document effects of arsenic exposure on development, confirming the usefulness of early killifish developmental endpoints to explore toxic mechanisms.

FUTURE PLANS: Marissa will be going to the University of California-Riverside in pursuit of a Doctoral degree in the Environmental Toxicology Program.

**TARYN HALLER****Animal Science**Mystic, CT
Fitch Senior High School

Detection of Streptococcus equi from environmental samples using an ELISA

ADVISOR: Robert Causey

THESIS DESCRIPTION: I worked on developing a test that could be used in a field setting, on a rapid basis, to detect *S. equi*. *S. equi* is the bacteria that causes a disease called Strangles, which has a high mortality rate and causes the equine industry large financial losses. The development of a rapid test in the field can help get infected horses quarantined more quickly, keeping the disease from spreading.

FUTURE PLANS: I'm currently at UC Davis School of Veterinary Medicine.

**KYLE HADYNIK****Journalism**
Music and HistoryFreedom, ME
Mount View High School

How Journalism Influenced American Public Opinion During the Vietnam War: A Case Study of the Battle of Ap Bac, The Gulf of Tonkin Incident, The Tet Offensive, and the My Lai Massacre

ADVISOR: Kathleen Ellis

THESIS DESCRIPTION: I studied four different events during the Vietnam War, and how the American press covered these events to illustrate how journalism influenced American public opinion.

FUTURE PLANS: I am currently pursuing my Mass Communications Master's degree at UMaine. I am also a graduate teaching assistant for the CMJ department. I plan on graduating in Spring 2017.

**ROBERT HALLINAN****Biology**
ChemistryBoothbay Harbor, ME
Boothbay Region High School

The Influence of Sediment Characteristics on the Burrowing Behavior of Ensis Directus

ADVISOR: Paul Rawson

THESIS DESCRIPTION: In this study, I examined the burrowing behavior of large juvenile razor clams (shell length: 60-78 mm), analyzing the frequency and time of completion of the phases that contribute to the overall burrowing behavior in two sediment types: fine mud sediment and coarse sand-shell hash sediment. In addition, I used pressure sensors to observe variations in porewater pressure between the two sediment types during razor clam burrowing.

FUTURE PLANS: In the spring, I will be studying shark conservation as an intern at the Cape Eleuthera Institute in the Bahamas. Following this internship, I plan on attending graduate school to further myself in the field of biology so I can continue to conduct research and work on the water.

**ASHLEY HANNIGAN****Anthropology**

Biology

Houlton, ME

Houlton High School

A Descriptive Study of Forensic Implications of Raccoon Scavenging in Maine

ADVISOR: Marcella Sorg

THESIS DESCRIPTION: My thesis involves a case study of winter raccoon scavenging in Maine in which I explored the frequency and manner of scavenging by raccoons on pig cadavers in forested environments. This is potentially helpful in determining the postmortem interval and the time that a set of remains has been exposed.

FUTURE PLANS: I plan to enroll at the University of Alaska Anchorage to begin work on an M.A. in Anthropology.

**KATRINA HARRIS****Microbiology**

Ellsworth, ME

Ellsworth High School

Structure and Integration of the Mycobacteriophage ChipMunk

ADVISOR: Keith Hutchison

THESIS DESCRIPTION: This thesis includes my isolation of a virus named ChipMunk and my four years of analyzing multiple aspects of this organism both in a wet bench lab and computationally.

FUTURE PLANS: I am attending the University of Pittsburgh's Integrative Systems Biology PhD program.

**JACOB HATCH****Philosophy**

Legal Studies

Portland, ME

Portland High School

How One Ought to Live (Or, How Not to do Philosophy)

ADVISOR: Kirsten Jacobson

THESIS DESCRIPTION: I wrote a performative work that attempted to highlight the absurd nature of the undergraduate, academic process. Less specifically, I made an effort to fail.

FUTURE PLANS: I hope to teach in the Peace Corps. Afterward I plan to pursue a graduate education in Philosophy and/or English.

**SYDNEY HEBERT****English**

Business Administration and Professional Writing

Westbrook, ME

Westbrook High School

Studying Abroad Through the University of Maine

ADVISOR: Charlsye Diaz

THESIS DESCRIPTION: My thesis focused on whether or not students at the University of Maine considered the school's Office of International Programs to be a valuable asset in aiding students in their study abroad process, or if it instead hindered students' ability to understand the overall process and kept them from going abroad.

FUTURE PLANS: I intend to move home to Westbrook to decide whether or not I would like to pursue graduate school in the future or instead find a full-time job and begin my career.

**SHELBY HARTIN****English and Journalism**

Professional and Technical Writing

Crystal, ME

Southern Aroostook Community School

Ideologies of Empire: Perpetuating Imperial Culture through Definitive British Literature of the Congo

ADVISOR: Gregory Howard

THESIS DESCRIPTION: This analysis examines the impact of imperial ideology on subjects of empire during the time of King Leopold II's rule in the Congo. It uses the texts of Arthur Conan Doyle, Joseph Conrad, and E.D. Morel, analyzing the literary underpinnings of imperial culture present despite the authors' philanthropic inclinations. Manifestations of violence, national duty, and racism reveal an inherent sense of superiority, effectively perpetuating imperial culture despite their effort to correct its impact.

FUTURE PLANS: Following graduation, Shelby will work in the Sales Department at the Bangor Daily News. She will also be freelance writing. She will be researching graduate schools and programs and hopes to be pursuing a Master's degree in the Fall of 2016.

**HINA HASHMI****Microbiology**

Veazie, ME

Bangor High School

Is the Ubiquitous Antibacterial Agent Triclosan an Uncoupler of Mammalian Mitochondria?

ADVISOR: Julie Gosse

THESIS DESCRIPTION: Oxygen consumption rate is a parameter that's been used to study mitochondrial function, since most cellular oxygen consumption is via mitochondria. Triclosan at 10 μ M was shown to increase the cellular oxygen consumption rate in RBL-2H3 cells, demonstrating a similar effect as 1 μ M CCCP. Our data indicate that TCS is a mitochondrial uncoupler which disrupts mast cell signaling. This mechanism could underlie TCS toxicity in numerous mammalian cell types.

FUTURE PLANS: Upon graduation, Hina will be applying to medical schools with high hopes of attending in the Fall of 2016.

**MARISA HIGGINS****Anthropology**

Professional Writing

Stockton Springs, ME

Searsport District High School

Fortification of the International Defense of Cultural Property Trapped in Areas of Armed Conflict

ADVISOR: Darren Ranco

THESIS DESCRIPTION: My thesis is a discussion of the international laws that work to protect cultural property during armed conflicts, which are mainly the 1954 Hague Convention and the 1972 UNESCO World Heritage Convention. This discussion is then used to analyze the United States' participation in cultural property protection [CPP], the existence of CPP-focused organizations, and the destruction in the present-day Syrian conflict. For my conclusion, I discuss four areas for improvement within the laws and their application – "military necessity," academia in the military, property registration, and the idea of a "common heritage."

FUTURE PLANS: I will be working after graduation and potentially going to grad school in the spring.

**THOMAS HOFFMANN****Bioengineering**

Pre-Medical Studies

Hampden, ME

Hampden Academy

Investigating the Optimization of Zebrafish (Danio Rerio) Dechoriation for High-throughput Applications in Influenza Research

ADVISOR: Paul Millard

THESIS DESCRIPTION: Seasonal influenza infections pose a serious threat to our society every year. The use of animal models, specifically the zebrafish, can aid researchers in developing novel treatments to help combat this pathogen. Unfortunately, there are currently several bottlenecks in the infection process which limit their use. One such bottleneck is the tedious procedure of removing the chorion, the protective membrane of a zebrafish egg, from each embryo. This thesis focused on optimizing this dechoriation process, ultimately describing a novel method which uses hydraulic pressure to extrude individual eggs through small diameter tubing to induce dechoriation.

FUTURE PLANS: I plan on attending a software engineering bootcamp in San Francisco and ultimately getting a job in the city as a software engineer. Long term, I hope to combine my interests in bioengineering and software engineering in some unique way.



COURTNEY HORTON

Biology
Chemistry

Newport, ME
Nokomis Regional High School

A Method for Identifying Leaf Rust in Lowbush Blueberries

ADVISOR: Seanna Annis

THESIS DESCRIPTION: My project involves identifying a fungal pathogen of wild blueberries known as leaf rust and helping create a method that will quickly identify it. My research will be able to be used in detecting the rust pathogen, *Thekopsora minima*, on spore traps in blueberry fields. Blueberry growers will be able to use this information to help better protect their fields.

FUTURE PLANS: I will be attending Tufts University School of Medicine for my MD and MPH in the fall. My long-term goal is to come back to Maine and practice primary care medicine.



CAMERON HUSTON

Political Science
Legal Studies and Sociology

Wahburn, ME
Washburn District High School

Restorative Justice: A Comparative Analysis of Campus Implementation

ADVISOR: Robert Glover and Melissa Ladenheim

THESIS DESCRIPTION: This thesis studied the relationship between restorative justice and participatory democracy and how this relationship is present in the implementation of restorative justice on college campuses. Based on the participatory and flexible nature of campus restorative justice programs, restorative justice can be tailored to fit the needs of almost any college or university.

FUTURE PLANS: After graduating, I'll be attending the School of Public and Environmental Affairs at Indiana University to pursue my Master's degree in Public Affairs with a specialization in non-profit management.



MOLLY HUNT

Sociology
Music and Psychology

Bucksport, ME
Bucksport High School

On the Childfree, Religion, and Stigma Consciousness

ADVISOR: Amy Blackstone

THESIS DESCRIPTION: The childfree, or those who make the decision not to have children, are stigmatized in our society. Given that religion and religious institutions shape perceptions of family and childbirth, religion likely plays a role in stigma consciousness associated with being childfree. My study addressed the role of religious belief, religious identification, and gender on the perceived stigma of this choice.

FUTURE PLANS: This summer I will move to Chicago with some of my best friends. Long-term plans include new adventures in locations to be determined.



ELIZA KANE

Earth Science and Anthropology

Deer Isle, ME
Deer Isle-Stonington High School

The Geochemistry and Historical Ecology of a Burnt Mississippian House at the Lawrenz Gun Club Site in the Central Illinois River Valley

ADVISOR: Alice Kelley

THESIS DESCRIPTION: This research examines effects of human habitation on soil geochemistry at Lawrenz Gun Club (11Cs4) - a fortified, Mississippian period village in the Central Illinois River Valley. The work aims to determine the age of a prairie Mollisol, which appears to have formed shortly after site abandonment.

FUTURE PLANS: Upon graduation, Eliza plans to begin a career in geoscience before returning to school to pursue an advanced degree.



NELLIE KELLY

Theater and History

Boothbay, ME
Boothbay Region High School

Directing Godspell

ADVISOR: Marcia Douglas

THESIS DESCRIPTION: In March 2015, I directed Stephen Schwartz musical *Godspell* with help from UMaine's student technical theater group SUMITT. I directed this musical my senior year because as a theater major, I believe that experience directing would help round out my career at UMaine. Since I have been in *Godspell* five times as an actor, this show was the obvious choice. I wanted to find a creative outlet for myself in this project and create a community of collaboration for my fellow students. As such, the show was entirely student produced with an entire student production team, band and cast. I found, through directing, the importance of student collaboration and the need for student produced musicals at UMaine.

FUTURE PLANS: After graduation, I plan on spending a year working at the UMaine theater department. At the close of that year, I hope to move to a bigger city and begin to pursue a career in theater. Whether that is in directing, teaching or acting, only time will tell.



JAY KNOWLTON

Biology
Pre-Medical Studies

Camden, ME
Camden Hills Regional High School

The Effects of Transplacental Arsenic Exposure on Mouse Hepatic Protein Expression

ADVISOR: Rebecca Van Beneden

THESIS DESCRIPTION: I explored how arsenic exposure to mice influences the expression of certain genetic products that have been shown to be linked to diabetes and specific types of cancer. Arsenic is found throughout the state of Maine in levels exceeding FDA guidelines, making the study of particular relevance to the region.

FUTURE PLANS: After graduating, I spent my summer interning with the Daniel Hanley Center for Health Leadership, a small non-profit organization that focuses on leadership development programming for healthcare professionals. I am now working on a national healthcare payment reform collaborative (High Value Healthcare Collaborative) run by Dartmouth College. I am also attending the University of Southern Maine's Muskie School of Public Service, where I am pursuing my Master of Public Health degree on a part-time basis.



ANASTASIA KERNER

Finance
Psychology

Lancaster, PA
Hempfield High School

Financial Knowledge Among College Students

ADVISOR: Pattie Miles

THESIS DESCRIPTION: *Financial Knowledge Among College Students* examines the impact of financial knowledge of UMaine students regarding investment and debt decisions. This research seems to suggest that, in general, the more classes a participant takes in high school relating to the topic of finance, the more financially literate they are, enabling them to make wise decisions on investments and debt.

FUTURE PLANS: After graduation, I will be working for Primerica, a financial services company that strives to help families earn more income, become properly protected, debt free and financially independent. I will also be getting married in August, 2016 to my UMaine engineering sweetheart.



SAMANTHA KWOK

Molecular and Cellular Biology and Zoology

York, ME
York High School

Effects of Manganese Superoxide Dismutase (SOD2) on Early Motor Neuron Development in SOD1-G93A Transgenic Amyotrophic Lateral Sclerosis Zebrafish (Danio rerio)

ADVISOR: Roger Sher

THESIS DESCRIPTION: ALS is a fatal neurodegenerative disease. In Familial ALS, disease onset and severity can vary with genetic background. I used a zebrafish model to investigate SOD2 as a lifespan modifier of SOD1-G93A FALS. I manipulated SOD2 protein levels to view the impact on early nerve development and neuromuscular junction formation. Results support SOD2 as a candidate FALS lifespan modifying gene.

FUTURE PLANS: I plan on entering the scientific work force regarding genetics. I would like to explore overseas options.

**BETHANY LEAVITT****Psychology**

Hampden, ME
Hampden Academy

The Mediating Role of Objectively Received Support on the Associations Between Attachment Anxiety and Support Satisfaction in Romantic Relationships

ADVISOR: Douglas Nangle

THESIS DESCRIPTION: In a sample of 108 undergraduate students who were in dating relationships, the current study assessed the relationships between attachment anxiety, objectively received support, and relationship support satisfaction. The present study tested the hypothesis that the frequency of behaviorally-specific support mediates the association between attachment anxiety and support satisfaction.

FUTURE PLANS: Bethany will begin her Master's degree in Clinical Mental Health Counseling at Husson University in the Fall of 2015. She hopes to someday have a private practice, offering counseling therapy to a wide range of clients.

**JENNIFER LILIEHOLM****Mathematics and Physics**

Hampden, ME
Hampden Academy

The Motion of Phosphatidylinositol 4,5-Biphosphate (PIP2) in Live Cells

ADVISOR: Sam Hess

THESIS DESCRIPTION: Phosphatidylinositol 4,5-biphosphate (PIP2) is a membrane lipid that plays a role in many cellular processes, such as membrane organization. PIP2 molecules were imaged using FPALM, which is a super resolution microscopy technique. It was found that the PIP2 molecules formed eccentric clusters approximately 7,200 square nanometers in size and moved about the cell in paths that frequently reversed direction.

FUTURE PLANS: I will be working at Los Alamos National Laboratory over the summer before heading to the University of Washington to pursue a Ph.D in physics.

**THOMAS McOSCAR**

Chemistry
Chemical Engineering
Bangor, ME
Bangor High School

Functionalization of Nanocellulose Fibers for Use in Radical Reactions

ADVISOR: William Gramlich

THESIS DESCRIPTION: Cellulose is the single most abundant biopolymer on Earth. Many industries and those in Maine especially generate cellulose fibers as a byproduct. While these are often burned for energy, they present an opportunity for value added products that are renewable and easily sourceable. Simple chemical reactions on nanocellulose open new avenues for incorporations into existing technologies.

FUTURE PLANS: Following graduation I will be attending the University of Maine for a Master's of science degree in Chemistry, after which I intend to work while considering further education and travel.

**ZAKIAH-LEE MEEKS****Biology, concentration in Pre-Medicine**

Psychology and Chemistry
Bangor, ME
Bangor High School

Allelic Variants of Oprm1, Comt and ABCB1 on Pre-withdrawal Sleep-regulation in the Opioid Exposed Neonate

ADVISOR: Marie J. Hayes

THESIS DESCRIPTION: Neonatal Abstinence Syndrome (NAS) is a neonatal medical condition of prenatal opioid withdrawal, secondary to prenatal exposure. Our laboratory recruited more than 200 pregnant women who are in treatment for opiate dependence with methadone replacement therapy. We have found that NAS severity is modulated by the presence of allelic variants of OPRM1 and COMT genes, revealing a positive correlation between minor alleles of these two genes and severity reflected in length of hospitalization and treatment.

FUTURE PLANS: Throughout my gap year I have spent time training as a B-EMT and gaining my license. I also have been taking prerequisite classes to enroll in an accelerated nursing program to obtain my second bachelors this coming Summer 2016.

**MACKENZIE MAZUR****Marine Science**
Fisheries

Northbridge, MA
Nipmuc Regional High School

The Effect of Temperature on Paralytic Shellfish Toxin Uptake by Blue Mussels and Sea Scallops

ADVISOR: Laurie Connell

THESIS DESCRIPTION: The effect of water temperature on paralytic shellfish toxin (PST) uptake in blue mussels (*Mytilus edulis*) and sea scallops (*Placopecten magellanicus*) was tested by feeding the shellfish toxic algae and then testing the tissues for toxicity. Because of the high variability of the results and previously toxic scallops, relationships between temperature and uptake could not be determined for each species.

FUTURE PLANS: I am currently a first year dual Master's student in Marine Biology and Policy in the School of Marine Sciences at the University of Maine. I am researching the efficiency of the Maine lobster fishery and the social resilience of the Maine lobster fishers. I plan to work in the field of fisheries science and policy after graduate school.

**CHELSEA McLAUGHLIN****Psychology**
Child Development and Family Relations

Manchester, ME
Maranacook Community High School

Negative Problem Orientation as a Mediator Between Depression and Social Problem-Solving Ability

ADVISOR: Douglas Nangle

THESIS DESCRIPTION: Negative problem orientation (NPO) is a negative way of thinking about problems and one's ability to solve them. This study examined the relationships among depression, NPO, and social problem-solving (SPS) ability in a college student sample. Specifically, NPO was explored as a potential mediator of the relationship between depression and SPS ability. NPO was found to partially mediate the relationship between depression and SPS ability for the total sample; however it did not for males and females separately. Gender differences in levels of depression and NPO emerged, such that females had higher levels of depressive symptoms and NPO. Results suggest that more depressed college students' negative attitudes and beliefs about problem-solving may compromise their actual ability to effectively solve their problems.

FUTURE PLANS: I will be attending The University of Maine Graduate School to pursue a Master's degree in developmental psychology. My long-term plan is to work in a profession in which I can help children.

**SCOTT JAMES MERRILL**

Biology
Chemistry and Pre-Medical Studies
Scarborough, ME
Scarborough High School

A Multi-Institution Investigation of Educational Practices and Strategies in STEM Courses

ADVISOR: Michelle K. Smith

THESIS DESCRIPTION: My thesis is an analysis of teaching practices and self-perceptions of teaching practices of faculty participating in faculty learning communities (FLCs) at six institutions in a mixed methods study. I established a baseline from which to gauge effects of participation in an FLC on teaching practices and student learning outcomes.

FUTURE PLANS: I will be enrolling in Tufts Medical School this fall as a student in their Maine Track Program. After that, only the future can tell!

**HILLARY MORIN**

Biology
Concentration in Ecology
Brunswick, ME
Cheverus High School

*Winter moth (*Operophtera brumata* L.) Natural Enemy Diversity and Abundance in Infested Areas in Midcoast Maine*

ADVISOR: Eleanor Groden

THESIS DESCRIPTION: Winter Moth is an invasive species in Maine from Europe. Controlling this pest is important, as the caterpillar is an outbreaking generalist defoliator. My thesis sought to explore the potential native natural enemy community surrounding the larva of winter moth. Eight sites were sampled in "highly" and "moderately" infested areas and relationships were explored between potential predators and caterpillar abundance.

FUTURE PLANS: This May I will start as an entomology Master's student at Penn State University, working with biological control at the Penn State Fruit Research and Extension Center under Dr. Greg Krawczyk. I have a long term goal of a career in entomology back home in Maine, and ultimately would like to have a family and a girl scout troop.

**ELLIOT OSSANNA**

Mathematics
Statistics

Franklin, ME
Sumner Memorial High School

Fractal Properties of Residue Sets Within Pascal's Triangle Under Square-Free Moduli

ADVISOR: Andre Khalil

THESIS DESCRIPTION: Pascal's Triangle is a particular arrangement of numbers, the construction of which follows a simple rule, yet a plethora of complex numerical patterns appear because of this. If we replace each entry with its remainder upon division by a square-free integer, we find that the resulting pattern is fractal, and its dimension depends solely on the largest prime divisor.

FUTURE PLANS: In the fall of 2015, I will be a teaching assistant at the University of Hawaii Manoa, earning a mathematics MA, probably focusing in number theory. After Hawaii, I plan on pursuing a PhD in mathematics, from where I am unsure.

**CHRISTOPHER PARADIS**

Psychology
Sociology

Skowhegan, ME
Skowhegan Area High School

Assessing Achievement in Honors: A Look Into Personality Factors and Success in Honors at the University of Maine

ADVISOR: Jordan LaBouff

THESIS DESCRIPTION: This project analyzes personality factors which correlate with success in the University of Maine Honors College. Need for cognition, intellectual humility, and political bias are assessed in relation to grades and retention. Previous research in these areas is reviewed, and future directions for research are discussed. This project reveals the importance of assessment in a program.

FUTURE PLANS: I plan to look at graduate programs and internships in forensic psychology.

**JILLIAN PELTO**

Studio Art and Earth Science

Worcester, MA
West Boylston High School

Art as a Tool to Communicate Science

ADVISOR: Nina Jerome Sutcliffe

THESIS DESCRIPTION: This thesis explores effective ways to communicate science through art. My main goal is to illustrate significant environmental issues in a way that engages people emotionally and intellectually. To gain inspiration and ideas, I have researched and discussed a wide range of artists, past and present. This exploration has fueled the content of the body of artwork I have developed.

FUTURE PLANS: I plan to attend graduate school beginning Fall 2016 at the University of Maine to receive a Master's degree under Dr. Brenda Hall. I plan to build a career focused on the communication of science through art.

**ALEXANDRA PERRY**

Biology

Portland, ME
Deering High School

Effects of Buckthorn (Rhamnus Cathartica and Rhamnus Frangula) on Native Flora Functional Traits

ADVISOR: Brian McGill

THESIS DESCRIPTION: Two species of the shrub buckthorn are invasive in the United States, both are causing problems in Maine. Native plants in areas with and without buckthorn were studied to determine buckthorn's effects on native plants. Sites without buckthorn served as models of what the natural environment should look like and were compared to sites influenced by buckthorn to determine if buckthorn affected the structure of the community.

FUTURE PLANS: After graduation, Alexandra will be an intern at the Rhode Island National Wildlife Refuge and after that she plans to return to Maine.

**GEORGE PETERSON**

Civil Engineering

Auburn, ME
Maine School of Science and Mathematics

Bates Mill #5: A Case Study in Innovation, Past and Future

ADVISOR: Edwin Nagy

THESIS DESCRIPTION: My thesis is focused on the innovation fostered by Bates Mill #5, an abandoned textile mill located in Lewiston Maine. The building was constructed between 1912 and 1914 and was designed by Albert Kahn. The construction of the building took advantage of many innovations and its unique design requires innovation to be used either in redevelopment or demolition.

FUTURE PLANS: After graduation I plan to move to State College, PA to pursue a career in transportation engineering and eventually return to Maine to start a family.

**SHAYNE PLOURDE**

Mathematics
Computer Science

Byron, ME
Mountain Valley High School

Modeling the Growth of Breast Microcalcifications in Mathematically Generated Breast Tissue Environments Using an Agent Based Model

ADVISOR: Andre Khalil

THESIS DESCRIPTION: I built a computer model to simulate the growth of breast microcalcification clusters in five types of mathematically different environments. I analyzed the calcifications by calculating their fractal dimension and I also calculated their perimeter using an alpha shape. My results showed that the final morphology of the calcification clusters depended on which environment the clusters were simulated in.

FUTURE PLANS: I will be attending Ohio State University to obtain an MMS in Mathematical Biosciences starting this coming fall. After that I would like to continue my education and obtain a PhD in mathematics or applied mathematics and pursue a career in applied mathematics.

**MARIAH PICARD**

Psychology
Business Administration

Dayton, ME
Thorton Academy

A Study of the Effect of Dogs on College Students' Mood and Anxiety

ADVISOR: Cynthia A. Erdley

THESIS DESCRIPTION: This Honors thesis involved a psychological perspective of how dogs effected college students' anxiety, positive mood, and negative mood during their first year at the University of Maine. Students were either placed in the control group where they watched an informational video, or they interacted with a Yellow Labrador Retriever. Anxiety and mood surveys were completed before and after interactions.

FUTURE PLANS: Right after graduation I decided to stay at the University of Maine to complete my Master's in Social Work. After getting my Master's, I plan on staying in the state of Maine and start my career helping others.

**BENTON PURNELL**

Psychology

Oakland, ME
Messalonskee High School

Differentiating General and Heterosocial Competence as Predictors of Sexual Coercion

ADVISOR: Douglas Nangle

THESIS DESCRIPTION: This study tested the value of a measure of general social competence and a measure of heterosocial competence in predicting sexually coercive behavior. In males, it was found that heterosocial competence was a much stronger predictor of minor sexual coercion than general social competence which was not significantly related to sexual coercion. This finding may result from validity issues in the measure of general social competence used.

FUTURE PLANS: Upon graduation, Benton will pursue a doctorate in neuroscience at the University of Iowa.

**GABRIEL RIDGEWAY**

Marine Science
Mathematics

Round Rock, TX
Scotia-Glenville High School

A Review of Literature on Satellite Tagging of Sharks

ADVISOR: Emmanuel Boss

THESIS DESCRIPTION: Tags on sharks provide great data sets, but their limitations require analysis. Individuals can be tracked descending thousands of meters and traversing vast oceans which provides data that scientists normally cannot gather. This review focused on horizontal (not vertical) movements of five species of sharks, determining potential routes for migrations.

FUTURE PLANS: I plan to attend graduate school.

**TYLER ROY**

Biochemistry and Psychology
Chemistry

Lewiston, ME
Lewiston High School

Microglia-mediated Neuroinflammation's Role in Chemo-Brain

ADVISOR: Thane Fremouw

THESIS DESCRIPTION: We studied the role of microglia following chemotherapy in mice to see if it could be linked to the neurological damage associated with the long-term cognitive deficits often seen in cancer patients and survivors.

FUTURE PLANS: I currently work at The Jackson Laboratories as a research assistant for Elissa Chesler studying the genetic factors of addiction. I am also currently applying for medical school.

**LAUREL SACCO**

Wildlife Ecology
Neuroscience and Psychology

North Berwick, ME
Noble High School

The Influence of Group Familiarity and Resource Acquisition on Aggregation Behaviors of Armadillidium Vulgare

ADVISOR: Robert Northington

THESIS DESCRIPTION: This study was an investigation of the tradeoffs associated with aggregation behavior and resource acquisition and the role of familiarity in the propensity to aggregate. Relative preferences of leaf litter were assessed through *A. vulgare* selection of four leaf choices: terrestrial leaves with and without yeast and vernal pool leaves with and without yeast.

FUTURE PLANS: Upon graduation, Laurel plans to complete her Master's in biology and ultimately pursue a career researching animal behavior.

**JULIA SELL**

Physics
Mathematics

Cushing, ME
Georges Valley High School

Electrically Stable Nanocomposite Thin Films Formed by the Oxidation of Pt-ZrB₂ Nanolaminate Templates

ADVISOR: Robert Lad

THESIS DESCRIPTION: In this work, stable electrical behavior is demonstrated in Pt-ZrB₂, Pt-ZrO₂, and Pt-Zr thin films with nanolaminate architectures. The key to this electrical stability (up to 1300°C) is confinement of a tetragonal ZrO₂ phase to nanolaminate thicknesses < 15 nm which stabilizes a network of conducting Pt grains. Using a combinatorial approach, a range of nanolaminate film architectures were synthesized, allowing rapid screening of many nanolaminate architectures.

FUTURE PLANS: Upon graduating, Julia plans to continue on to graduate study on a National Science Foundation Graduate Research Fellowship at the University of Maryland, College Park in order to earn a PhD in physics. She hopes to become a professor of physics or research scientist at a national laboratory.

**MARISSA RUBLEE**

Food Science and Human Nutrition

Glenburn, ME
John Bapst Memorial High School

Worksite Wellness for UMaine Dining Employees: Healthful Eating for the Holidays

ADVISOR: Adrienne White

THESIS DESCRIPTION: My study — *Whole Grains for the Holidays Wellness Program* — was a three-session nutrition education series on whole grains with a focus on the holidays. It was a one-group intervention study with a pre- and post- assessment assessing increases in knowledge and intent to change behavior related to whole grain topics. Participants were UMaine dining service employees and the intervention was tailored toward participants' interests.

FUTURE PLANS: I will be attending the combined Master of Science Dietetic Internship program at the University of Maine in the fall of 2015. I will be working toward my goal of becoming a registered dietitian and hope to pursue a career in diet counseling. I would love to explore the world after graduate school but eventually I see myself coming back to live in the place that has always been home — Maine.

**RYAN RYBKA**

Earth Sciences and Anthropology
Native American Studies

North Yarmouth, ME
Greely High School

From the Rio Brave Conservation Area, Belize to the San Carlos Apache Reservation, Arizona: A Multi-Sited Ethnographic Investigation into the role of Archaeology

ADVISOR: Darren Ranco

THESIS DESCRIPTION: My thesis began as an investigation into the array of relationships between four culture groups in a Belizean, Mayan archaeology field school. It became multi-sited when I visited San Carlos, Arizona to better understand the Apache presence in Belize. Ultimately, I realized the necessity for a more decolonized archaeology, one that engages with cultural complexities through self-reflexivity and community engagement.

FUTURE PLANS: I am in the process of applying to graduate school for historical archaeology with a focus on indigenous archaeology. I would like to pursue academia to ultimately become a professor.

**JORDAN SERVETAS**

Biology

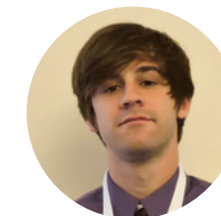
Hancock, ME
Mount Desert Island High School

Developing and Testing a New Technique for Assessing Human Color Acuties

ADVISOR: Leonard Kass

THESIS DESCRIPTION: The focus of my thesis was to investigate potential differences in human color acuties — that is, how well are people able to differentiate between certain combinations of colors. My study employed a computer-based "open-door" experiment, testing the subject's ability to identify a small break in continuity of a colored box on a different colored screen.

FUTURE PLANS: Immediately after graduation, I plan to travel to Scotland and do some traveling around Europe. After that, I'd like to gain some experience in the medical field working as an EMT before I decide whether or not medical school is the right choice for me.

**MATTHEW SHELTRA**

Biology

Hyde Park, VT
Lamoille Union High School

Relationships of a Northern Maine Population of Amelanchier (Rosaceae)

ADVISOR: Christopher Campbell

THESIS DESCRIPTION: I studied a population of *Amelanchier* in northern Maine using morphological and molecular data. The goal of my thesis was to determine if the population in question belongs to the species *Amelanchier gaspensis*, which is currently considered a rare plant in the state. Based on my findings, the population in northern Maine is not part of *Amelanchier gaspensis*.

FUTURE PLANS: I plan to find a job in botany and eventually attend graduate school.



PATRIC SKIGEN

Journalism
Film and Video

Monroe, ME
Belfast Area High School

Issue by Issue, State by State: The First Issue of a Digital Magazine Focusing on Environmental Issues in the State of Maine

ADVISOR: Josh Roiland

THESIS DESCRIPTION: I designed and developed a digital magazine, a website hosting journalistic articles, using WordPress as a content-management system. *Issue by Issue, State by State* focused on environmental issues in the state of Maine, and featured four in-depth, multimedia articles. The featured articles included photos, video, audio, interactive graphics and of course, written content.

FUTURE PLANS: Currently, I work in website design and development at a web design and marketing firm in Bangor, Maine. My short term plan is to continue my work in web design and development. However, my long-term goal is to start my own business, ideally one which would incorporate both my journalism and web design backgrounds.



JAMIE STEVEN

Ecology and Environmental Science and Economics
Renewable Energy Policy and Spanish
Bethel, ME
Telstar High School

An Analysis of the Solid Waste Management Hierarchy, and Recommendation for Future Implementation

ADVISOR: Aram Calhoun

THESIS DESCRIPTION: An analysis of the solid waste management hierarchy as it is written in law today, as well as an assessment of its inadequacies, including situations in Maine where this hierarchy has failed to work as intended. This research recommends additions to the hierarchy statute in order to effectively deter land disposal of waste in the state of Maine.

FUTURE PLANS: Post graduation I plan to move to Boston, where I will spend a year working at a urban education fellowship program tutoring students at Match Charter High School, a school committed to closing the educational gap, and providing students who are in poverty access to college through education reform. After this fellowship, I plan to apply to law school, as I hope to be able to study environmental law.



KATE SPIES

English
Pre-Medical Studies

Topsham, ME
Mt. Ararat High School

Coming To

ADVISOR: Josh Roiland

THESIS DESCRIPTION: My thesis is a nonfiction piece that explores the power of personal narrative in engaging with experiences different from one's own. It focuses on my experience with a fellow student, Daniella Runyambo, and an unbeatable mentor, Dr. Mimi Killinger, the Honor College's Rezendes Preceptor for Arts. *Coming To* endeavors to capture the personal change these people catalyzed within me.

FUTURE PLANS: I will be attending the College of Veterinary Medicine at Washington State University in Pullman, Washington, where I will be obtaining my doctor of veterinary medicine degree. Throughout veterinary school, I hope to explore my interests in animal health, human health, and communication — and how all three intersect. I also hope to acquire as many pets as possible; I have a particular hankering for a house-trained, pot-bellied pig.



CAROLYN STOCKER

Human Nutrition
Sustainable Food Systems

Westfield, MA
Westfield High School

The University of Maine Food and Fitness Environment: Is it Health Promoting

ADVISOR: Adrienne White

THESIS DESCRIPTION: An environmental audit of the UMaine campus was conducted using instruments developed by a multi-state research team. Vending, dining and recreation were assessed to identify supports for healthful lifestyles. These instruments provide information needed to understand environments such as the University of Maine. Results can be used to develop policies and programs to support lifestyle choices leading to good health.

FUTURE PLANS: I am currently in the University of Massachusetts dietetic internship to become a registered dietitian nutritionist (RDN). Fall of 2016, I plan to continue my education in exercise science with a concentration in strength and conditioning at Springfield College for a Master's degree. My long term goal is to become a sports dietitian at the college or professional level and focus on guiding athletes to healthy nutrition practices and to design physiologically sound programs to enhance their personal goals and athletic performance.



AMBER STREKER

Art History
Medieval and Renaissance Studies

Nobleboro, ME
Franconian International School

A Study of Intent Behind Albrecht Dürer's Watercolor Landscapes

ADVISOR: Michael Grillo

THESIS DESCRIPTION: In the early parts of his career Albrecht Dürer created approximately 32 watercolor landscapes that were vastly different than the prints that made him famous. Rather than focusing on the locations depicted in the works, focusing on Dürer's possible intentions gives these overlooked pieces the recognition they deserve, and utilizes them as a tool for unique insights into an already widely studied artist.

FUTURE PLANS: Following graduation I accepted a fellowship position in the 32nd Congress-Bundestag Youth Exchange for Young Professionals. Through this fellowship I am currently living, studying, and working in Mainz, Germany. I plan to attend graduate school in Fall 2016 when I return to the US.



JILL TENGERES

Wildlife Ecology

Millerstown, PA
Greenwood High School

Development of an Acoustic Monitoring Method: Leach's Storm-Petrels in the Gulf of Maine

ADVISOR: Brian Olsen

THESIS DESCRIPTION: Leach's storm-petrels are a tiny, nocturnal, burrow-nesting seabird found here in the Gulf of Maine. To better understand this mysterious species, I worked in collaboration with Maine Coastal Islands National Wildlife Refuge to conduct a pilot study on how passive acoustic monitoring could be utilized to survey nesting islands for breeding petrels.

FUTURE PLANS: I will be working at Kodiak National Wildlife Refuge conducting seabird surveys and working on other avian research projects for the summer after graduation. Then I'll travel for a while working on a variety of field jobs before maybe returning to the world of academia.



TESS TACKA

International Affairs
Political Science

Portland, ME
Waynflete School

Aid Effectiveness: A Case Study of the Millennium Villages Project in Africa

ADVISOR: Howard Cody and Kristin Vekasi

THESIS DESCRIPTION: This thesis looks at the effectiveness of the Big Push Theory in eradicating extreme poverty through the example of the Millennium Village Project. The majority of the thesis is made up of case studies of three of the Millennium villages: Sauri, Kenya; Koraro, Ethiopia; and Potou, Sénégal. Each village is analyzed using annual data from the Millennium Villages Project, as well as data from independent sources.

FUTURE PLANS: Upon graduation, Tess plans on applying to international development graduate programs before following a career in the development sector.



ASHLEY THIBEAULT

Ecology and Environmental Sciences
Sustainable Food Systems

Hamilton, MA
Hamilton-Wenham Regional High School

Using the Real Food Calculator to Assess the University of Maine's Dining Purchases within a Food System Context

ADVISOR: Mark Haggerty

THESIS DESCRIPTION: My thesis determined the percentage of "Real Food" that the University of Maine purchases using the Real Food Challenge framework. According to the Real Food Challenge, Real Food is ecologically sound, local, humane, or fair. I used two representative months of dining purchases to determine the Real Food percentage and to suggest ways to increase that percentage.

FUTURE PLANS: I intend to find a job related to food systems in my home state of Massachusetts to fully commit myself to achieving a sustainable food system. Once I get a stable job I hope to start considering working towards a Master's degree in a field related to sustainable food systems.

**ETHAN TREMBLAY**

Economics and Journalism

Bangor, ME
Bangor High School

Evaluating Prosocial Behavior in Local Food Institutions: An Experimental Approach

ADVISOR: Timothy Waring

THESIS DESCRIPTION: Local food institutions often rely on participants who behave cooperatively. This research used an experimental game to test consumers at a local food co-op and a grocery store. It found local co-op customers measurably more prosocial, a characteristic closely linked to cooperation. This finding is notable because understanding cooperation within groups is key for solving problems related to resource sustainability.

FUTURE PLANS: In the fall I will return to the University of Maine to pursue a master of science in Resource Economics and Policy. Before that, I'll canoe the Allagash (again). After, I'll pursue a career in public policy.

**ROSEHANNAH VACHON**

Food Science and Human Nutrition

Ellsworth, ME
Ellsworth High School

The Nutritional Chemistry of Grapes

ADVISOR: Angela D. Myracle

THESIS DESCRIPTION: Grapes are known to have high levels of phytochemicals, including polyphenolic compounds with antioxidant activities that may contribute to health benefits. They can be grown in a variety of locations and environments, including Maine. The goal of this study was to test thirteen Maine cultivated grapes for pH, sugar content, titratable acidity, total anthocyanins, and total phenolics.

FUTURE PLANS: After graduation in May of 2015, Rosie plans to spend a year working as a medical assistant before going on to a Physician Assistant graduate program.

**ANDREW VETTER**Biology
ChemistryPatten, ME
Katahdin High School

Park2-Mediated Modification of SOD1-ALS in Danio rerio: An Explorative Study

ADVISOR: Roger Sher

THESIS DESCRIPTION: This thesis looked at the interaction between a form of Aymotrophic Lateral Sclerosis caused by mutations in the SOD1 gene and a gene related to Parkinson's Disease, Park2. I sought to determine what effects changing the levels of Park2 in a zebrafish model had on ALS pathology in the fish as a predictor of potential targets for ALS therapies in humans.

FUTURE PLANS: I plan to attend the University of New England College of Osteopathic Medicine to obtain my medical degree. After residency, I'd like to practice an internal medicine subspecialty of some sort in Maine and provide outreach to rural communities, as they often have difficulty seeing specialists.

**JEFFREY VIGUE JR.**

Animal and Veterinary Science (Pre Vet)

Whitefield, ME
Cony High School

Prevalence of Oyster Parasites SSO, MSX, and Dermo In Natural Bed Populations Within The Damariscotta River Estuary

ADVISOR: Timothy Bowden

THESIS DESCRIPTION: The purpose of this project was to establish and execute procedures to investigate the current prevalence of oyster parasites MSX, SSO, and Dermo in one commercial oyster site as well as three natural oyster beds located within the Damariscotta River Estuary of Damariscotta, ME.

FUTURE PLANS: Starting in the Fall I will be attending Virginia-Maryland Regional Veterinary College studying Veterinary medicine tracking food animal and equine medicine. VMRVC Class of 2019! After graduating from VMRVC in four years I hope to return to New England to practice as a large animal veterinarian, giving back and lending support to the rural communities of Maine.

**ERIC VEITCH**

Biology

Guilford, CT
Guilford High School

Evidence for Aquatic Ecosystem Augmentation Across a Gradient of Increasing Terrestrial Subsidy Quality

ADVISOR: Hamish Greig

THESIS DESCRIPTION: The purpose of this study was to investigate the ecological importance of terrestrial resource subsidy quality (modified by climate change and pest outbreak management) to forested stream systems. Through a freshwater mesocosm experiment and field survey, I examined effect of detritus quality flux on ecosystem processes and macroinvertebrate community composition.

FUTURE PLANS: Upon graduation, Eric plans to travel across the United States visiting and working in national parks before returning to graduate school.

**ANDRES VELEZ LOPEZ**

Biological Engineering

Medelin, Colombia
Hampden Academy

Microencapsulation of Candida albicans as a model for studying host-pathogen interactions

ADVISOR: Paul J. Millard

THESIS DESCRIPTION: The design, fabrication and testing of micro-capsules that might facilitate in the study of Candida Albicans' infectious behavior inside the host. Calcium Alginate spheres were manufactured, characterized and tested against in vitro simulations to gauge the feasibility of implantation and further research in the host model zebra fish (Danio rerio).

FUTURE PLANS: I will be attending Boston University for a Master's in Neurobiology. I want to eventually get my PhD in Neurobiology specializing in the physiology of the brain. In the future I hope to find a job as a professor or research scientist studying the mechanism and phenomena of the brain.

**ARIANA WADSWORTH**Animal Science
Pre-Veterinary, Mathematics and ChemistryThomaston, ME
Georges Valley High School

Prevalence of Heamonchus Contortus on Sheep and Goat Farms in Northern New England

ADVISOR: James Weber

THESIS DESCRIPTION: A survey of sheep and goat farms in Maine, New Hampshire and Vermont in search of common parasites. The parasite counts were compared with current management practices that were in place on each farm that are thought to affect parasite numbers in these animals.

FUTURE PLANS: Veterinary school at Cornell University to pursue a Doctor of Veterinary Medicine.

**DANIELLE WALCZAK**Journalism
Sustainable Food Systems and Creative WritingLee, NH
Oyster River High School

Forward Not Back: Young Peoples' Search For Community and Farming in Maine

ADVISORS: Melissa Ladenheim and Jennifer Moore

THESIS DESCRIPTION: There is a growing trend in small, organic farming in Maine being led by young people choosing to live in the state with the oldest population in the United States. With a history of local agriculture and the back-to-the-landers, people in Maine promote a growing interest in the small agriculture movement. Yet the system still has flaws that need help before the movement can succeed. This thesis was a piece of literary journalism that explored the lives of five young farmers, each from a different region of the state, looking at their particular issues and what those issues tell us about moving Maine agriculture forward.

FUTURE PLANS: I will be driving across the country to California and back by myself, working on a farm on an island off the coast of Maine, and then starting my position as one of the Honors Associates.



SPENCER WARMUTH

Economics and Political Science
Renewable Energy Economics
and Policy
Brewer, ME
Brewer High School

The Impact of Sports Agents on Compensation in Major League Baseball

ADVISOR: Todd Gabe

THESIS DESCRIPTION: My project was essentially an analysis of the impact sports agents and representation have on compensation and salaries in Major League Baseball.

FUTURE PLANS: I took a year off to travel and work a job I never thought I'd be able to work (running group and corporate events at Sunday River), and am planning on returning to graduate school for the fall of 2016 to study international development. Long-term, I'd like to work in international development, specifically in the implementation of small scale renewable energy projects in base-of-the-pyramid populations.



ANDREW WILSON

Biology
Chemistry
Sidney, ME
Messalonskee High School

Towards a New Measure For Human Visual Acuity

ADVISOR: Leonard Kass

THESIS DESCRIPTION: My thesis investigated the relationship between the clinically used visual acuity charts like that of the Snellen, Landolt C and ETDRS and a computer based visual acuity program that was created in our lab. I found that there was no statistically significant difference between the Landolt C chart and our computer based program when measuring the visual acuity of subjects.

FUTURE PLANS: I am now attending the University of Maine as a Master's student and then plan to attend medical school.



GARETH WARR

Political Science
Legal Studies
Stonington, ME
Deer Isle-Stonington High School

A Historical Analysis of Cuba's Agroecosystem

ADVISOR: Stefano Tijerina

THESIS DESCRIPTION: My thesis discusses the evolution of Cuba's agriculture, focusing on the effect that colonial policy and foreign investment had on leading to food insecurity. It also discusses Cuba's attempt to reverse reliance on commodity crops with urban agriculture.

FUTURE PLANS: Working at Opera House Arts (in my hometown) before pursuing a career in sustainable agriculture.



STEPHANIE WOOD

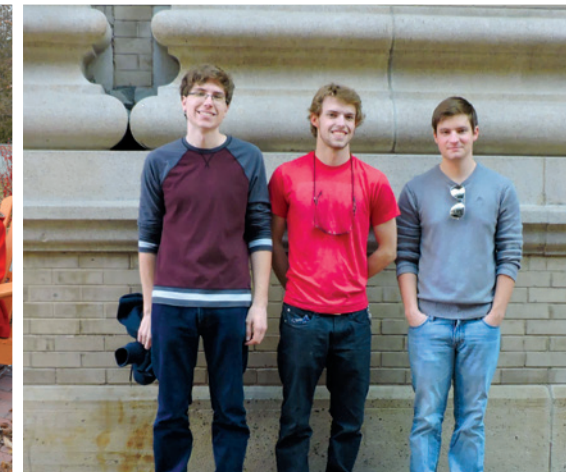
Biology
Florence, NJ
Holy Cross High School

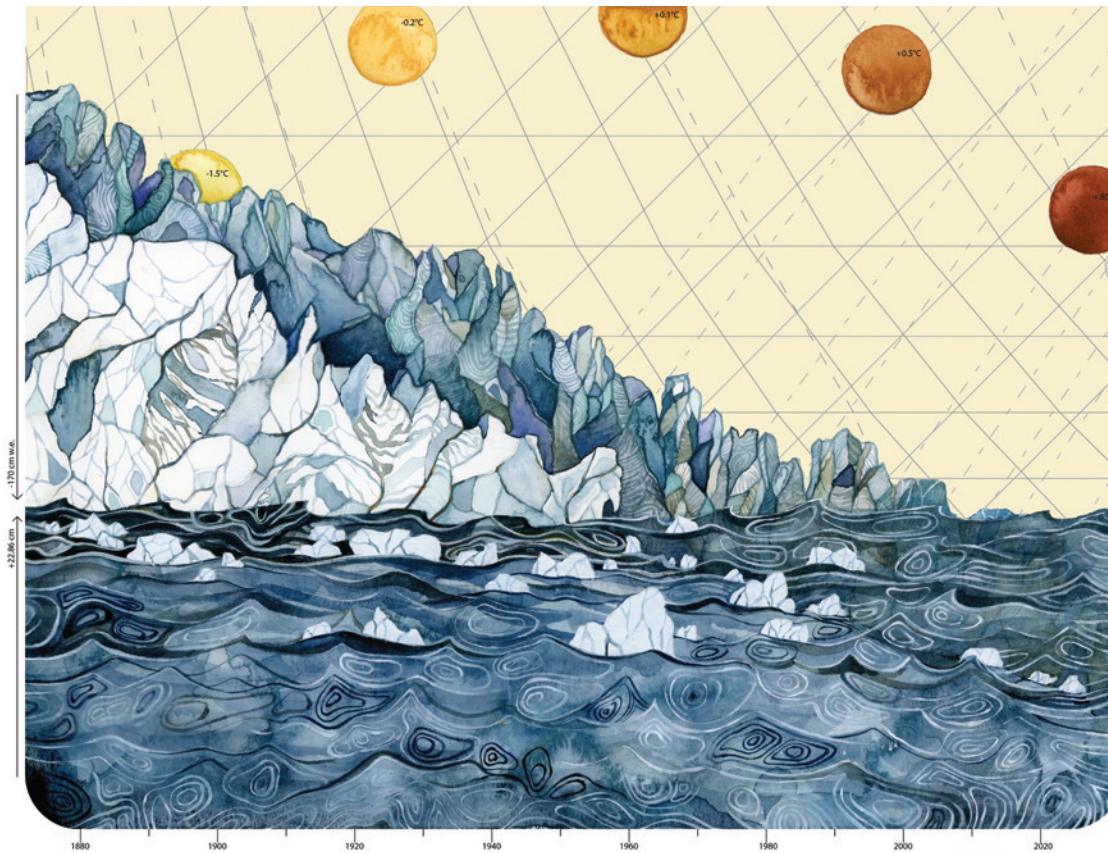
The Role Of RhoA in Haptotactic Cellular Migration

ADVISOR: Sharon Ashworth

THESIS DESCRIPTION: A complex series of extracellular interactions and intracellular signaling pathways are activated during angiogenesis. The formation of new vasculature in response to a wound or cancer or during development requires directed cellular migration or haptotaxis. Haptotactic migration is guided by an increasing gradient of extracellular matrix proteins such as fibronectin. We hypothesized the RhoA signaling pathway played a significant role in angiogenesis.

FUTURE PLANS: Upon graduation, Stephanie will be spending the summer working at Walt Disney World and exploring possible volunteer opportunities in a laboratory setting. Stephanie hopes to gain experience in her field for a year before returning to pursue an advanced degree in research of biomedical sciences.





Climate Change Data,
Jill Peltó

Climate Change Data uses multiple quantities: the annual decrease in global glacier mass balance, global sea level rise, and global temperature increase. I wanted to convey in an image how all of this data must be compared and linked together to figure out the fluctuations in Earth's natural history. One of the reasons scientists study what happened in the past is to understand what may happen now as a result of human-induced climate change. I represented this by illustrating that glaciers are melting and calving, sea levels are rising, and temperatures are increasing. The numbers on the left y-axis depict quantities of glacial melt and sea level rise, and the suns across the horizon contain numbers that represent the global increase in temperature, coinciding with the timeline on the lower x-axis.

JILL PELTO

Studio Art and Earth Science '15

WHEN HONORS graduate, Jill Peltó started using climate data from one of her favorite science news organizations, Climate Central, she never thought her art work would be featured on their website as well. When the article "These Paintings Turn Climate Data Into Art" was published it was the beginning of a growing stack of articles focused not just on the science of Climate Change in Peltó's work, but also on the artwork.

Jill's art encapsulates the work we do everyday in Honors to bridge multi-disciplinary research being done at the University of Maine. An example is the series of lectures on climate change organized by the Honors College in 2015 discussing the issues from three different perspectives. Bernard Lown echoed the climate change when he said, "a most significant crisis is the climate one" (see page 21).

Peltó's thesis explores effective ways to communicate science through art. Her main goal was to illustrate significant environmental issues while engaging people emotionally and intellectually. To gain inspiration and ideas, she researched and discussed a wide range of artists, past and present.

"The headline of my website is Communication of Scientific Research through Art," Peltó said. "The key word, communication, represents my main goal as an artist to raise awareness about important environmental topics. The positive feedback I have been receiving overjoys me; it proves that people are responding to my message, and will help me to share it."

In the past year Peltó's artwork has been featured in Climate Central, on PBS NewsHour, Maine Journal, Bangor Daily News, onEarth, Huffpost Green, Grist, and even Leonardo DiCaprio's Instagram, which focuses on climate issues. Her artwork has been featured at the group exhibition Ghosts of Carnegie Hall in Lord Hall Gallery at UMaine, at an exhibition of her fieldwork, sketches, and paintings at Rock & Art Shop in Bangor, and at a group exhibition at Zen Asian Bistro for the Bangor Art Walk. Peltó was also able to present her work on using art to communicate science, to Tony DeRose, Research Group Leader at Pixar, at the 2015 Maine Science Festival and her artwork was selected for inclusion in the



Dean's Exhibitions in Stevens Hall. She presented at the Bangor Arts Society's Monthly meeting in Feb. 2016.

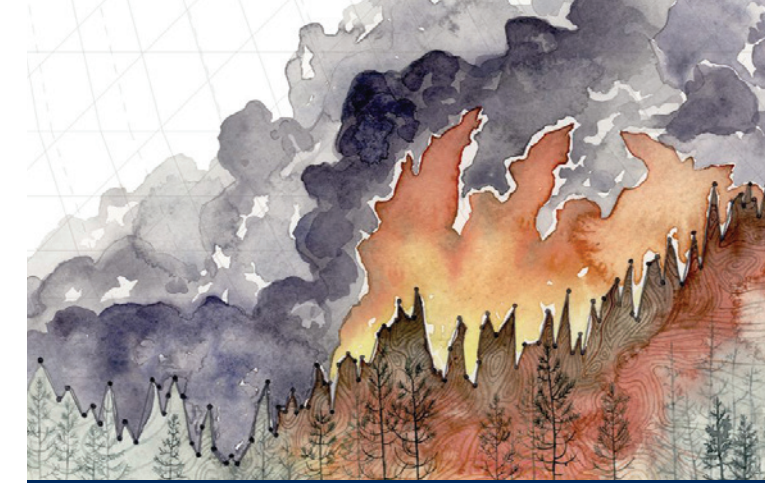
"I love the response purely for the reception of my artwork: I strive for an aesthetic beauty, and so it means the world to me when my pieces elicit emotion. I did not expect such a large response to my thesis work so quickly," Peltó said.

"My thesis is a very important driver of my career," Peltó said. "Working on such a large project challenged me immensely and inspired me to begin a body of work that I was proud of. It represents the foundation of my professional career as an artist and a scientist, and the influences of many creatives past and present. My thesis helped me explore the questions of 'how' I was struggling with: How can I combine art and science? How can I communicate important ideas? How can I make a difference environmentally? It took me a lot of time and research to begin to discover these answers, but the result of this endeavor was so beneficial in inspiring me to produce a professional portfolio."

Peltó will be pursuing a Master's degree in Earth and Climate Science at the University of Maine beginning in the Fall 2016 under the direction of Dr. Brenda Hall. She plans to build a career focused on the communication of science through art.

"Art is a uniquely articulate lens: through it I can address environmental concerns to raise awareness and inspire people to take action," Peltó said. "The scientific research and data that fuel the content of my artwork provide intellectual content and the visuals evoke emotions that are meant to inspire, not to discourage. The central topic in my portfolio is climate change data: melting glaciers, rising sea levels, threatened species. I hope to cover both positive and negative issues that depict the reality of our current ecosystem. While most of my imagery reveals negative changes, they also reveal the beauty of nature and are invoked with the knowledge that these downward trends can change. I have no doubts that collectively humans can adjust our relationship with nature in a major way. My hope is to inform people who know that climate change is happening, but don't understand to what extent, or what they can do to make a difference. Humans have the power to cause destruction to nature, that much is clear, but I truly believe we also have the power to slowly heal the damage we have caused."

For more of Jill's art see www.jillpelto.com.



Increasing Forest Fire Activity, Jill Peltó

Increasing Forest Fire Activity uses global temperature rise information from Climate Central. Fortunately, I was not near any of the massive forest fires that raged before, during, and after my two weeks in Washington this summer, but I was greeted with many smoke-filled days. On some days, when the winds blew from the fire toward us, the smell and taste of the smoke overpowered my senses, even though the fire was about 100 miles away. As temperatures increase, and drought or even drier than average conditions persist, forest fires become a huge threat to the forest, plants, animals and of course to people and structures.

On the Back Cover:

Salmon Population Decline, Jill Peltó

I wanted to create art about some of the major impacts of global warming that I witnessed in Washington State this summer. I developed a three-part series in printmaking using scientific data to show how the drought is devastating the state. *Salmon Population Decline* uses population data about the Coho species. Seeing the rivers and reservoirs looking so barren was frightening; the snowpack in the mountains and on the glaciers supplies a lot of the water for this region, and the additional lack of precipitation has greatly depleted the state's hydrosphere. Consequently, the water level in the rivers the salmon spawn in is very low, and not cold enough for them. The salmon are depicted swimming along the length of the graph, following its current. While salmon can swim upstream, it is becoming more of an uphill battle with lower stream flow and higher temperatures. This image depicts the struggle their population is facing as their spawning habitat declines.

SUPPORT AND THANK YOU

OUR GENEROUS donors are essential in helping us enrich the educational opportunities available to our students. Donors' gifts make possible the study abroad opportunities, research funding and thesis fellowships, conference travel for students, and our distinguished lecture series. The continued support for the Honors Legacy Fund this past year also showed the dedication and commitment of our Honors community. We truly appreciate all our donors do.

It is a pleasure to acknowledge the following donors to the Honors College from January to December 2015:

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John C. Olson and Jacqueline Staples Olson	Nancy Schuman	
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Peter J. Ossanna, M.D. and Melissa J. Ossanna, Ph.D.	Marilyn Leslie Sly	
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