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 Cameo-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.

Readers should send comments to: honors@maine.edu

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Francois G. Amar
Dean
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 gains? 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 electronic 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 Agriculture, and the 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.

**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 Szeged model is a voter-like model used to study consensus in systems where information flows outward from like-minded agents pairs.*

**Ethan Thibault** ’18, Biochemistry, and **Max Dorman** ’18, Molecular and Cellular Biology, presented at the SEAPhages 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 “Phag” — 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 two 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 Francois Amar. Ishiguro’s text follows the lives of three “donors,” donors 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.

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**Theresa 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 two semesters and hopes to potentially turn his work into an Honors thesis.

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CUGR AWARDS

**Summer 2015 Fellowships**

- Stephanie DeSousa (Electrical and Computer Engineering)
- Optimizing Power Usage of Modern Computing Systems

**Fall 2014–15 Fellowships**

- Geovarion Beacham (Biochemistry) Characterization of Ionogenic Regulation in the Cluster E Myboporophorphyry Uhelke Julia Sell (Physics) Development of a Combinatorial Deconvolution Method to Allow for Rapid Synthesis and Testing of Nanolamine Thin Film Structures
- Kathryn Liberman (Marine Science/Aquaculture) Developing a Zebrafish Model for Sarcopenia Panzeinaceae in Investigate Pathogenesis and Alternate Treatments
- Ethan Tremblay (Economics/Journalism) An Examination of the Pro-social Impacts of Local Food Purchasing
- Elizada Kani (Anthropology) The Genetic and Historical Ecology of a Barna Mississippian House at the Lawrence Gun Club Site in the Central Illinois River Valley
- Katrina Harris (Chemistry) New Approach to the Treatment of Type II Diabetes Using Inhibitors Based on the Acravinofamily of Natural Products
- Samuel Reynolds (Chemistry/Mathematics) Investigating the Role of NMDA Receptors in Long-term Entheminal Withdrawal

**2015 Academic Showcase**

- Danielle Waltzak (Journalism) 1st Place Oral Presentation Awards
- Fortan Back Young Peoples Search for Farming and Community in Maine Vincent Djupianni (Chemistry) 2nd Place Oral Presentation Awards
- The Groevonichy and Historical Ecology of a Burret Mississippian House at the Lawrence Gun Club Site in the Central Illinois River Valley
- Jarod Brill (Biology/Chemistry) New Approach to the Treatment of Type II Diabetes Using Inhibitors Based on the Acravinofamily of Natural Products

**INBRE AWARDS**

The 2015–16 INBRE research fellowships were awarded for projects in biomedical and genomic 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 and Characterization of Mycobacteriophage Uhelke Integration System

**2015–16 Honors Thesis Fellowships**

- Margaret Pasquale (Zoology) Exploring the Mechanisms Involved in Parasite Amelioration of Congenital Muscular Dystrophy in Zebrafish
- Katrina Harris (Microbiology) Characterization of the Integration Morphology of Mycobacteriophore ChipMunk Including de novo Assembly of the Genome
- Emily Whitaker (Molecular and Cellular Biology) Immune Recognition of Candida albicans in Zebrafish

**2015–16 Junior Year Fellowships**

- Caroline Curtis (Zoology) Defining the Drosophila Gut pH Evolutionary Energy Expenditure in C57BL/6J, Mice Emily Illingsworth (Biochemistry) Increasing Mycobacteriophage Diversity through Evolution with Novel Host Species
- Carolyn Lees (Microbiology) Comparing the Human vs. Zebrafish Subsets of the Giant Keyhole Limpet (Megathura crenulata) and the Red Abalone (Halostichus rufescens) for Immunoactivation
- Eric Sewell (Microbiology) Exploring Corelation of Mycobacterium chelonae and Intact Prephage Robert Soohey (Microbiology) Identifying Gene of Integration Gene Cluster E Myboporophorphyry Uhelke

**CHARLIE SLAVIN RESEARCH FUND AWARDS**

**Fall 2015**

- Cameron Solga (Mechanical Engineering) Computer Model of Clathrin-Clathrophor decoration in Myrornis In Common Sense E. Pasquale (Chemistry) Investigating Neurotransmitter Role in Neurodegenerative Diseases Using Synthetic Fragments

**2015–16 Junior 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 Barnacle Kattrin Lionn (Psychology)

**CLAS AWARDS FOR 2015–16**

- Toni Kaplan (New Media) Akekul Granger (Psychology) Patrick Menard (New Media) Jaymi Thibault (Political Science) Elizabeth Grant (Chemistry) Jacob Morris (Chemistry)
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.

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 Student ADVISORY BOARD

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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 Watt ’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 Mercalf ’17, Catherine Poulion ’16

- Partnering Across the Globe: The University of Maine and Tembusu College Experience
  François G. Amar, Catherine Poulion ’16, Laura Donovan ’15, Christopher Paradis ’15, Emma Oppewall ’16
FOR THE second consecutive year, the Honors College offered the opportunity for 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 in Singapore from June 29–July 24, 2015.

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 voluntarism 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 focus on three essential services; hunger, IQ, and health. It was 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.

“ ‘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 truly stepping out of my comfort zone this summer, 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.’

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.

“ ‘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

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.
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 my fundamental shift in career trajectory, whether it be the study of Epidemiology or the Construction and Dynamics of the Honors Classroom Culture published in the Journal of the National Collegiate Honors Council.

I currently work as the Health Outreach and Evaluation Coordinator for the Second 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 improvements 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.

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. She now works as the development assistant for Preble Street, a nonprofit that empowers people experiencing homelessness, hunger and poverty.

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 producers to end users.

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 departing 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’ll 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.

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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 reintegrate 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.
IN MEMORIAM

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 their generosity and “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 their generosity and 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 Bullought’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

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 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.

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

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 15 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 catalyst, enabling me to get into one of the most rich about life. After all, we are trapped very early in life in some discipline and they’re absolutely ignorant about 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. People today are very narrow in their thinking. They are so narrow that they don’t understand how I could spend two days a week at the university when he was paying so much money — $75 per semester.

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PM: What’s it being?”

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 education. I applied to Johns Hopkins. The director was interviewing young people from New England. He thought I was a bookworm. He said “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.

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 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 As, As, As. 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.

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.

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FGA: Regard the way you did on helping to avert nuclear war and bring attention to
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 that? 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 whisk — 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 can lead or predispose to disease. 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 doctors, minus the heart.” 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. 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 the meantime, I’ve been a social activist. I was active against the war in Vietnam; what we did was extraordinary, ingenuous 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 critters in 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 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, “Doctors, 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, “Send people, until we get 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.

“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.”

FGA: What paradigm can address this gigantic chill?
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 growing. India will exceed China by the year 2050. If we add all the other things we add up to 9 billion people. 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.
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 that it might be useful. “That is GREAT!” he exclaimed. Three weeks later I was standing in an auditorium as 500 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 preceptual 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 finest 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 chorographers 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?

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 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

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**RETIRED FACULTY**

**ALEXANDER GRAB**  
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 Greek and Rome part of the course. For the latter I added Giovanni Pico della Miranda’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 “mythical” 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.”

**JAY BREGMAN**  
Professor Emeritus  
Department of History

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

"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

**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, hail ing 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 Scholar Day, to recognize the graduating class’ accomplishments, and the second-annual 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 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, some one 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 Nadelfaith, 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 really 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.

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

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**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

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
  - Runner-up: **Afton Hupper ’17**, Ecology and Environmental Sciences

- **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 Eilsworth ’16**, Art Education
  - **Jesse Clark ’16**, Political Science

  **PROFESSOR MEUHN 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

  **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

  **SPECIAL RECOGNITION**

  **THE HONORS INDEX**

  **2015 Honors Graduates at a Glance**

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<td>Graduates who studied abroad</td>
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<td>Graduates from Maine</td>
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<td>Graduates from out of state</td>
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<td>Graduates planning to attend graduate school</td>
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<td>Graduates who submitted a Rezendes Ethics Essay</td>
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<td>Graduates with a family member who graduated from UMaine</td>
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<tr>
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<tr>
<td>Graduates from the Maine Business School</td>
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</tr>
</tbody>
</table>
Darryl Abbott
Biochemistry
Durham, CT
Coginchaug Regional High School

Exploring the Role of Chromosome Segregation 1-Like Protein in Zebrafish In 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 cct1 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.

Evam Amabile
Biology
Holts Center, ME
Bonny Eagle High School

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

ADVISOR: Seanna L. Amis

THESIS DESCRIPTION: Erysiphe vaccinii is a fungus of the order Erysiphales, a pathogen of Maine’s blueberry industries. 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 new hosts. To better control for this pathogen, this study utilized molecular techniques to properly discriminate it from other powdery mildews across new hosts.

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 T lysozyme regulation

ADVISOR: Lily Wolfe

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 lifecycle. 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.

Mary “Catie” Borer
Social Work
Religious Studies
Mt. Blue High School

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

ADVISOR: Stephen Glison

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.
**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 1930s. I examine economics, women’s suffrage, social construct, 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 for me.

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**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 Intervar 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 1930s. I examine economics, women’s suffrage, social construct, 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 for me.

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**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.

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**NINA CAPUTO**  
Chemistry  
Canaan, NH  
Mascoma Valley Regional High School

Fluorescence 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.

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**THERE BOWSER**  
Marine Science  
Austburg, OH  
George Stevens Academy

Arsenic Exposure of KITFish (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 lower levels of arsenic negatively impacting the fish.

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

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**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 Ranson

**THESIS DESCRIPTION:** My thesis research investigated the impacts of harmful algal 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 attending 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.

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**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 victim’s 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 affecting 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.

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**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’s Faunal Laboratory Collection. This includes a survey on the educational needs and uses of the collection by academic, professional, and public organizations. 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.
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

Exploring Organizational Culture of Restaurants Through Workplace Rituals
ADVISOR: Nicolas Erhardt

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

Davao-Agriculture: Past and Present The Emergence of Small Scale Urban Farming in Davao, Cuba
ADVISOR: Stefano TJijima

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 era. 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 organizations 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.

THESIS DESCRIPTION:

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. These 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 the park experienced since Dorr’s passing, and challenges Acadia faces today.

FUTURE PLANS: Following her graduation Rachael 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.

THESIS DESCRIPTION:

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.

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

THESIS DESCRIPTION:

ADVISOR: Gayle B. Zydekewski

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 in Science in Marine Biology.

THESIS DESCRIPTION:

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.

THESIS DESCRIPTION:

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 processes 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.

THESIS DESCRIPTION:

ADVISOR: Mary Shea

THESIS DESCRIPTION: This thesis examined 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.

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

THESIS DESCRIPTION:
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.

MARISSA GIROUX
Marine Science
Neuroscience
Richmond, 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
Fitch Senior High School

Detection of Staphylococcus equi from environmental samples using an ELISA

ADVISOR: Robert Caussy

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 streptococcal (S). It 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 am currently at UC Davis School of Veterinary Medicine.

ROBERT HALLINAN
Biology
Chemistry
Boothbay 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.
THESIS DESCRIPTION:
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 childbearing, 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.


COURTNEY HORTON
Biology
Chemistry
Newport, ME
Nokomis Regional High School

**A Method for Identifying Leaf Rust in Lowbush Blueberries**

*ADVISOR: Sevna Arnes*

**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 St. John’s 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.


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 Lawrence Gun Club Site in the Central Illinois River Valley**

*ADVISOR: Alix Kelley*

**THESIS DESCRIPTION:** This research examines effects of human habitation on soil geochemistry at Lawrence 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.


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.


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:** In March 2015, I directed Stephen Schwartz musical Godspell with help from UMaine’s student technical theater group SUMMIT. 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 fundraised, 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.


ELLIE KURTZ
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.


Samantha Kerner
Finance
Psychology
Lancaster, PA
Hempfield High School

**Financial Knowledge Among College Students**

*ADVISOR: Patie Miles*

**THESIS DESCRIPTION:** Financial knowledge among college students examines the impact of financial knowledge of UMaine students regarding investment and debt decisions. This research seeks 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.


NELLIE KELLY
Theater and History
Boothbay, ME
Boothbay Region High School

**Directing Godspell!**

*ADVISOR: Maria Douglas*

**THESIS DESCRIPTION:** In March 2015, I directed Stephen Schwartz musical Godspell with help from UMaine’s student technical theater group SUMMIT. 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 fundraised, 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.


Cameron Huston
Political Science
Legal Studies and Sociology
Wahburn, ME
Wahburn District High School

**Restorative Justice: A Comparative Analysis of Campus Implementation**

*ADVISOR: Robert Glazer 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.


2015 HONORS GRADUATES
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: 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.

JENNIFER LILIEHOLM
Mathematics and Physics
Hampden, ME
Hampden Academy

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

ADVISOR: Sam Hess

THESIS DESCRIPTION: Phosphatidylinositol 4,5-bisphosphate (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.

MACKENZIE MAZUR
Marine Science
Northbridge, MA
Nipmuc Regional High School

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

ADVISOR: Lazaris Cornell

THESIS DESCRIPTION: The effect of water temperature on paralytic shellfish toxins (PST) uptake in blue mussels (Mytilus edulis) and sea scallops (Placopecten magellanicus) was tested by feeding the shellfish toxic algae and subsequently washing the mussels and scallops. Temperature and pH were controlled in the experiment, while the effects of temperature on PST uptake were observed.

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 professor in psychology.

THOMAS McOSCAR
Chemistry
Chemical Engineering
Bangor, ME
Bangor High School

Functionalization of Nanocellulose Fibers for Use in Radical Reactions

ADVISOR: William Granich

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 corporations 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 in a profession in which I can help children.

SCOTT JAMES MERRILL
Biological Sciences
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 (FLC) 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 natural enemy community surrounding the larva of winter moth. Eight sites were sampled in “high” and “moderately” infested areas and relationships were explored between potential predators and caterpillar abundances.

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 Kraseczik. 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.
I plan to attend graduate school beginning Fall 2016 at honors.umaine.edu/minerva. After graduation, I will be an intern at the Rhode Island National Wildlife Refuge and after that I plan to return to Maine to start a family.

**THESIS DESCRIPTION:** Effects of Buckthorn (Rhamnus Cathartica and Rhamnus Frangula) on Native Flora Functional Traits

**ADVISOR:** Jordan LaRoi

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.

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**ADVISOR:** Andre Khalil

**THESIS DESCRIPTION:** Fractal Properties of Residue Sets Within Pascal’s Triangle Under Square-Free Moduli

**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.

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**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.

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**ADVISOR:** Nina Jerome Sutcliffe

**THESIS DESCRIPTION:** Fractal Properties of Residue Sets Within Pascal’s Triangle Under Square-Free Moduli

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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 traveling 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.

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

**ADVISOR:** Adisene 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 increasing 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.

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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 Ramos

**THESIS DESCRIPTION:** My thesis began as an investigation into the array of studies between four culture groups in a Balinese, 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.

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Developing and Testing a New Technique for Assessing Human Color Acuities

**ADVISOR:** Leonard Kass

**THESIS DESCRIPTION:** The focus of my thesis was to investigate potential differences in human color acuities — 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.

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

**ADVISOR:** Robert Nordington

**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.

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

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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 gpiaceris, which is currently considered a rare plant in the state. Based on my findings, the population in northern Maine is not part of Amelanchier gigaceris.

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

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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-ZrO2, 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.
 PATRIC SKIGEN

Journalism  
Film and Video  
Monroe, ME  
Belfast Area High School

Coming To  
ADVISOR: Josh Roland

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.

Kate Spies

English  
Pre-Medical Studies  
Topsham, ME  
Mt. Ararat 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  
Franciscan International School

A Study of Intent Behind Albrecht Dürer’s Watercolor Landscapes  
ADVISOR: Michael Grills

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 Maine, Germany. I plan to attend graduate school in Fall 2016 when I return to the US.

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: Azim Chaboun

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 March 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.

CAROLYN STOCKER

Human Nutrition  
Sustainable Food Systems  
Westfield, MA  
Westfield 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 Island 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 several 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.

JILL TENGETERS

Wildlife Ecology  
Millerton, PA  
Greenwood High School

Using the Real Food Calculator to Assess the University of Maine’s Dining Purchases within a Food System Context  
ADVISOR: Mark Hagerty

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.

ASHLEY THIBEAULT

Ecology and Environmental Sciences  
Sustainable Food Systems  
Hamilton, MA  
Hamilton-Wenham Regional High School

A Study of the Educational Gap, and Providing Students who are in Poverty Access to College through Education Reform  
ADVISOR: Tess Tacka

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

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

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 Vokasi

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

FUTURE PLANS: Upon graduation, I plan on applying to international development graduate programs before following a career in the development sector.
The purpose of this project was to establish honors.umaine.edu/minerva. The design, fabrication and testing of microfluidic chips aimed at studying host-pathogen interactions.

THESIS DESCRIPTION: The design, fabrication and testing of microfluidic chips that might facilitate in the study of Candida albicans' infectious behavior inside the host. Calcium Agar-based spheres were manufactured, characterized and tested against in vitro simulations to gauge the feasibility of implantation and further research in the host model zebrafish (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.

ADVISOR: Paul J. McEard

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

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.

ADVISOR: Harris Craig

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.

ADVISOR: Angela D. Myracle

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.

THESIS DESCRIPTION: park2:Mediated Modification of SOD1-ALS in Danio rerio: An Explorative Study

ADVISOR: Roger Sher

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ADVISOR: Harris Craig

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.

ADVISOR: Angela D. Myracle

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.

THESIS DESCRIPTION: park2:Mediated Modification of SOD1-ALS in Danio rerio: An Explorative Study

ADVISOR: Roger Sher
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.

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.

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 Gube

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.

2015 HONORS GRADUATES

honors.umaine.edu/minerva
JILL PELTO
Studio Art and Earth Science ’15

WHEN HONORS graduate, Jill Pelto 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 Pelto’s work, but also on the artwork. Jill’s thesis 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 charge when he said, “a most significant crisis is the climate one” (see page 21).

Pelto’s thesis explores effective ways to communicate science through art. Her main goal was to illustrate significant environmental topics. The positive feedback I have been receiving over time; it proves that people are responding to my message, and will help me to share it. “The headline of my website is Communication of Scientific Research through Art,” Pelto 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 over time; it proves that people are responding to my message, and will help me to share it.”

In the past Pelto’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 Zero Asian Bistro for the Bangor Art Walk. Pelto 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,” Pelto said.

“My thesis is a very important driver of my career,” Pelto 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.”

Pelto 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,” Pelto said. “The scientific research and data that fuel the content of my artwork provide intellectual content and the visual 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.

Climate Change Data, Jill Pelto
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 나오는 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 global melt and sea level rise, and the bars across the horizon depict numbers that represent the global increase in temperature, coinciding with the timeline on the lower x-axis.

On the Back Cover:
Salmon Population Decline, Jill Pelto
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 hydrograph. Consequently, the water level in the rivers the salmon spawn in is very low, and not cold enough for them. The salmon are subjected to swimming against the 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.

Increasing Forest Fire Activity, Jill Pelto
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.
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