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Discovery: Six Students, Six Stories, Six Transformations

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DISC

Six Students, Six Stories, Six Transformations

They arrived as first-years with curiosity and ambition. With the knowledge and support of professors and others, they grew into: A budding geneticist. A premed student with an eye for public health. A small-town academic star excelling in a bigger arena. A sociology major analyzing the forces that shaped her own family. A philosopher/political scientist/farmer. A global studies major exploring global realities.

These kinds of transformations occur all the time on Mayflower Hill, during Jan Plan and study abroad, and after graduation.

EYES WIDE OPEN

FROM AFRICA TO APPALACHIA, ARIEL OPPONG IS ASKING TOUGH QUESTIONS ABOUT HEALTH CARE

The Jan Plan internship working in hospitals in Ghana sophomore year was supposed to be a sort of homecoming for medical school-bound Ariel Oppong '16.

Oppong's parents emigrated from Ghana to Ohio, and her childhood had been spent traveling to Africa to visit relatives. She bristled when people dismissed the country as "Third World," asking, "Have you *been* to Ghana?"

So Oppong was unpleasantly surprised when she saw that the hospital in Kumasi, while staffed with capable physicians, was shockingly lacking in resources like computers, even a generator. "I was like, 'I must be in the bad hospital. ...,'" she said. "I opened my eyes to something I didn't want to see."

Oppong has kept her eyes wide open ever since—and now has set her sights on public health.

A biology-neuroscience major, she started doing research at Colby the summer before her freshman year, when she worked in J. Warren Merrill Associate Professor of Biology Andrea Tilden's neuroscience lab as part of the Colby Achievement Program in the Sciences. She's continued her research in Tilden's lab—studying neurodegenerative diseases—as an independent study over four semesters and presented her work at the Maine Neuroscience Conference.

Oppong also has minors in chemistry and philosophy, the latter inspired by Critical Social Thought with Charles A. Dana Professor of Philosophy Jill Gordon. Add to all

“Where is the advocacy? Where is the publicity? Where is the compassion? Where is the health care? And why is this continuing?”

—Ariel Oppong '16 on substandard health-care conditions in Appalachia

OVERY

“I don’t think transformation works in any one way,” said Lisa Arellano, associate professor of American studies and of women’s, gender, and sexuality studies and winner of the 2012 Charles Bassett Teaching Award. “The blessing is that these students, all in different ways, have the opportunity to have that experience.”

Here’s a sampling of the journeys that begin on Mayflower Hill.

of that her exploration of the disparate world of health care. “I feel like there are systematic ways we need to change policy and people’s mindsets so other people aren’t put in these positions.”

She spent summer 2014 at the Harvard School of Public Health researching non-genetic Alzheimer’s risk factors. That was followed by a semester working with Native American populations in California, through a program at Pomona College. Oppong was a community health liaison encouraging middle and high school students to pursue higher education, specifically in the STEM fields. She spent spring break in depressed coal-mining towns in Kentucky and Tennessee. “They’re not dying from chronic diseases,” Oppong said. “They’re dying because they’re not able to access medications.”

She’s decided to try to right that wrong, most likely through a joint medical and public health program. But first she was off to Jamaica to spend the summer doing HIV survey work. Her determination knows no geographic limits.

“One day, after I contribute to America,” Oppong said, “I would like to do something about health-care reform in Ghana.”

SMALL TOWN, BIG PLANS

PAIGE SHORTSLEEVES TAKES EVERY OPPORTUNITY—AND RUNS WITH IT

Paige Shortsleeves ’17 knows something about grasping opportunity.

In high school in small-town Hiram, Maine, she took the limited number of Advanced Placement courses and supplemented them online. “I wanted something more,” Shortsleeves said. “I took forensics, psychology. It was technically a study-hall period but”



Being from a really small town, I was very sheltered [and] didn’t know that all these possibilities existed.”

—Paige Shortsleeves ’17



She wanted to become a neurosurgeon. And what might have seemed a youthful fantasy didn't fall away, despite obstacles: her high school didn't have science laboratories.

Shortsleeves's potential was recognized when she was selected for the Colby Achievement Program in the Sciences, which gives advance on-campus training to students whose science preparation has lagged behind their abilities. She spent part of the summer before her first year working with faculty, including J. Warren Merrill Associate Professor of Biology Andrea Tilden, Dr. Frank and Theodora Miselis Professor of Chemistry Whitney King, and others. "The professors are fantastic," Shortsleeves said.

It was an invaluable experience, she said. "I was at the top of my [high school] class. I thought I was really well prepared, and then I came here. I was like, 'Oh, my gosh.'"

Buffeted by the first wave of exams, she picked herself up and went back to her books. With faculty giving her new tools and urging her on, she hasn't looked back.

Her first Jan Plan she became certified as an emergency medical technician. The summer after her first year Shortsleeves enrolled in a summer medical and dental education program at Duke University. In addition to chemistry, physics, and ethics courses, a job-shadow at Duke University Hospital showed her her first neurosurgery—insertion of metal rods in a patient's spine to correct scoliosis—up close. Her reaction: "This is awesome!"

Back at Colby, neurobiology with Tilden fanned Shortsleeves's longstanding interest in the brain. "I think it's fascinating," she said. "If one little thing goes wrong, a lot of things go wrong."

And Shortsleeves wants to fix those wrongs.

This summer Shortsleeves is working at Sweetser, a health-care organization that addresses emotional disturbances, mental illnesses, and behavioral disorders in children. That work will be followed by fall semester in Copenhagen, Denmark, at a program on brain anatomy of psychiatric disorders. The opportunities keep on coming.

"Being from a really small town, I was very sheltered [and] didn't know that all these possibilities existed," Shortsleeves said.

She does now.

THE ROOTS OF THE PROBLEM

UNDETERRED BY CIRCUMSTANCES, MARNAY AVANT VOWS TO OVERTURN OBSTACLES FOR OTHERS

Even in grade school, Marnay Avant '18 knew something was wrong.

Avant's mother had taken her out of her inner-city primary school in St. Louis and enrolled her in a predominantly white county school in one of the city's suburbs. Avant flourished academically, but when she came home and hung out with her friends, she noticed the difference.

"It's a huge divide," she said. "What you learn and how you act and how you behave."

Avant realized that in troubled city schools her friends were falling behind, that her mother, a single parent with a high school



"I think of myself and how my identity as an African-American woman from the lower class, product of teenage parents, how I didn't internalize that label, how I stepped out of that."

—Marnay Avant '18, who is determined to lower obstacles for the disadvantaged

education, had to work tremendously hard to accomplish what others achieved more easily. And she also took a hard look at her own circumstances.

“My identity as a woman, my race, and my socioeconomic status all put me at a disadvantage,” Avant said.

Her vow: to redouble her efforts in school in order to someday help break the cycle of poverty and inequality she saw all around her. But it wasn’t until she arrived at Colby that she understood the causes of the root problems. “Interestingly,” she said, “my classes all linked together.”



“What’s really cool about what we’re doing is that everybody sees these negative impacts on the bees. There’s been a lot less focus on *why* we see these negative impacts on the bees.”

—Will Simmons '17J
(Cover photo)

In women’s studies she learned about the structure of the black American family and the reasons for it. “I just thought of it as something that just happened,” Avant said. “I didn’t think about mass incarceration, slavery, and how different things like that played a role. It was really eye-opening.”

In government class she learned about voter turnout and how some groups are disenfranchised through district gerrymandering and other schemes. During Jan Plan she learned about the history of Washington, D.C., and the backlash that often followed racial progress.

Avant studied the social structures that create social problems, including unnavigable bureaucracies. A course in rhetoric and social change taught her to present her arguments effectively. And in sociology she learned about symbolic interactionism, where society places a label on a group, including African Americans, and then members of that group internalize and carry that label.

Now she’s determined to use her new knowledge to break down obstacles that hold others back. “I think the track that I’m on is what I was meant to do,” she said, “why I was brought on earth. Social change and making the world a better place for everyone.”

ABUZZ OVER BEES

WILL SIMMONS TURNS A CHANCE MEETING INTO CAREER-CHARTING RESEARCH

Will Simmons '17J already had bees in hand—and in his bonnet. He needed a scientist to guide him.

This was the summer after his first year at Colby. Simmons, whose parents are entomologists, was working as a “lab grunt,” collecting bees at a Massachusetts botanical garden for a UMass population survey. A fellow asked what Simmons was doing. Simmons told him, and the man said, “Oh, cool. My son-in-law’s an entomologist. He works up at Colby College.”

The man’s son-in-law was Assistant Professor of Biology David Angelini, a geneticist who works with insects. Angelini, visiting with his family, met Simmons, and a relationship and an important research project were born.

“It was the largest chance meeting in my life,” Simmons said. “I wanted somebody who would take on a project with bees and, lo and behold, there’s Dave Angelini.”

Simmons’s idea was to study the cause of bumblebee colony collapse, a lesser known version of the malady that has decimated commercial honeybee populations in recent years. Emailing that summer and meeting frequently when they returned to campus, the pair refined the focus of the project.

The research looks at a widely used agricultural pesticide called imidacloprid. Considered nontoxic to humans, it’s proven highly toxic to bees—the most important crop-plant pollinator.



“It’s intellectual,
it’s manual, it’s
interpersonal. A liberal
arts life at its best.”

—Shelby O’Neill ’15
on small-scale
organic farming,
which he planned to
pursue after Colby

for that ‘why’ and trying to feed the body of knowledge that way,” Simmons said.

He marvels at the opportunities he and other students have to both learn from and collaborate with faculty to do real and important research.

“I came to [David Angelini] with this question. He thought it was interesting. We worked together and synthesized something completely new. ... The willingness for professors to approach it that way—it’s something I wouldn’t have expected. Frankly, it’s been amazing. It’s given me this incredible opportunity that hopefully will carry me on for many years to come.”

ORGANIC STUDIES

FOR SHELBY O’NEILL, POLITICAL SCIENCE AND PHILOSOPHY ARE FERTILE GROUND

In western New York State, where Shelby O’Neill ’15 is from, farmers plant hundreds of acres of corn and soybeans and hope that with favorable weather, government subsidies, and chemical pest control they’ll be able to turn a profit.

Growing up, O’Neill wasn’t drawn to farming at all. He is now—philosophically, politically, intellectually, intensely. The government major and philosophy minor has done three internships on small organic farms in Maine, including one this summer. “It was something that wasn’t even on my radar prior to coming to Colby,” O’Neill said.

So what happened? Heidegger happened. And Marx, Sartre, and de Beauvoir. O’Neill’s radar was fixed on academics, and he quickly immersed himself in sociology, political science, and philosophy. His voracious academic career was capped by a featured presentation of his honors thesis, overseen by William R. Kenan Jr. Professor of Government Sandy Maisel, before a packed Page Commons audience at the Colby Liberal Arts Symposium in April. O’Neill examined the socioeconomic factors that affect political participation, declaring, “Poverty within a society like the U.S., with strong individualistic cultural ethos, functions as a disciplinary power system that conditions poor people to internalize a sense of self-doubt. ... This self-doubt leads them to remove themselves from the political realm which they view fundamentally as the realm of a different class.”

And the farming? O’Neill discovered it in Maine, and found it went hand in hand with his studies.

In fact, he sees organic farming as a political task, an alternative to neo-liberal capitalism, which he says reduces us to the amount of capital we accumulate. “I see small-scale organic farming as a way to say, ‘Let’s try to break out of that system. Let’s start with how we deal with soil. Let’s start with how we value ourselves.’ That’s where we see the multidimensionality of farming—a way to rethink the way we see labor in this country, what it means to be a worker as opposed to what it means to be a human.”

Working in screened tents on the edge of campus, Simmons is administering a range of very small doses of the pesticide to bumblebee colonies, then measuring the effect on the bees’ production of antimicrobial peptides, crucial to the function of their immune systems. “If bees are stressed and the immune system doesn’t function, are they more likely to get infected by these pathogens?” Simmons is asking.

Getting the answers involves extracting RNA from the bees in Angelini’s lab and determining how much protein the bees are producing. Early results show increased antimicrobial peptides, possibly as the bees’ systems try to cope with the pesticide.

“What’s really cool about what we’re doing is that everybody sees these negative impacts on the bees. There’s been a lot less focus on *why* we see these negative impacts on the bees. We’re reaching

He's connected with Colby alumni farming in Maine, plugged himself into the food-to-table movement. In the process he's found a way to live authentically, he says. And while he is also thinking of pursuing an academic career ("I care a lot about the stuff I study," he said), he says he isn't just taking time off before grad school. "I see a lot more fluidity than that." Farming, he said, "is a different type of education."

So a small-scale organic farm in Maine, he said, is both "a way of living the politics," and work he simply enjoys doing, that, before Colby, he never imagined he'd be doing. "It's this incredible multidimensional task," O'Neill said. "It's intellectual, it's manual, it's interpersonal. A liberal arts life at its best."

A GLOBAL CLASSROOM

MACKENZIE KENNEDY PUTS NEWLY ACQUIRED KNOWLEDGE TO THE TEST

Mackenzie Kennedy '16 knew she'd study international development in the classroom. She didn't know that, in short order, she'd be doing it far afield, too.

Last semester Kennedy was in Geneva, Switzerland, studying international humanitarian law relating to Kenya, to which she was introduced by William R. Cotter Distinguished Teaching Professor of Government Ken Rodman, an expert on the workings of the International Criminal Court. Assistant Professor of Government Laura Seay put her in touch with an international organization focused on conflict in one of Seay's areas of expertise, the Democratic Republic of Congo.

The group is "working to reduce sexual and gender-based violence by engaging with the perpetrators of the acts and trying to understand what motivates people," Kennedy said.

A serious subject for an undergraduate?
For Kennedy, it's another challenge.

The Atlanta resident takes academic challenges in stride As research assistant to Rodman, she studied the workings of the International Criminal Court. As a member of the student committee for the Oak Institute for the Study of International Human Rights at Colby, she made policy recommendations asking the U.S. Department of State to pressure the Burmese state to release political prisoners.

And she's been inspired by her studies with Seay, including a crucial course called Politics of Development. And then Colby gave her wings.

During the summer of 2013, Kennedy assisted the director of the House of Hope Kandaria, David Okong'o, in Kenya, in developing Katito Hope School for orphaned and vulnerable children.

The existing option for education was a school in a nearby town, with makeshift tin-roofed rooms and a dangerous walking route to and from Kandaria. Most of the children have lost both parents, magnifying the obstacles to education. "It's important that they have that classroom because that's where kids learn foundation skills, like the basics for learning how to read," Kennedy said.

When she returned to Colby that fall, she pursued and won a Davis Projects for Peace grant—\$10,000 to fund the start of the new school—complete with a playground.

"The idea is that [the playground] would spur creative thinking so kids could be kids and get over the hurdle of some of the bad things that have happened in the past," she said. The playground ultimately aims to increase enrollment in the school's early childhood development program.

After researching playgrounds in the developing world, she designed one herself, featuring a seesaw and swings, and came up with a construction method that repurposed old tires and recruited young workers from the community. "The kids had never had a playground before, so they were like, 'What do I do with this?' And I'm like, 'You can swing on it!'" Kennedy said.

They did. ©

"It's important that they have that classroom, because that's where kids learn foundation skills, like the basics for learning how to read."

—Mackenzie Kennedy '16, who used a Projects for Peace grant to help open a school in Kenya

