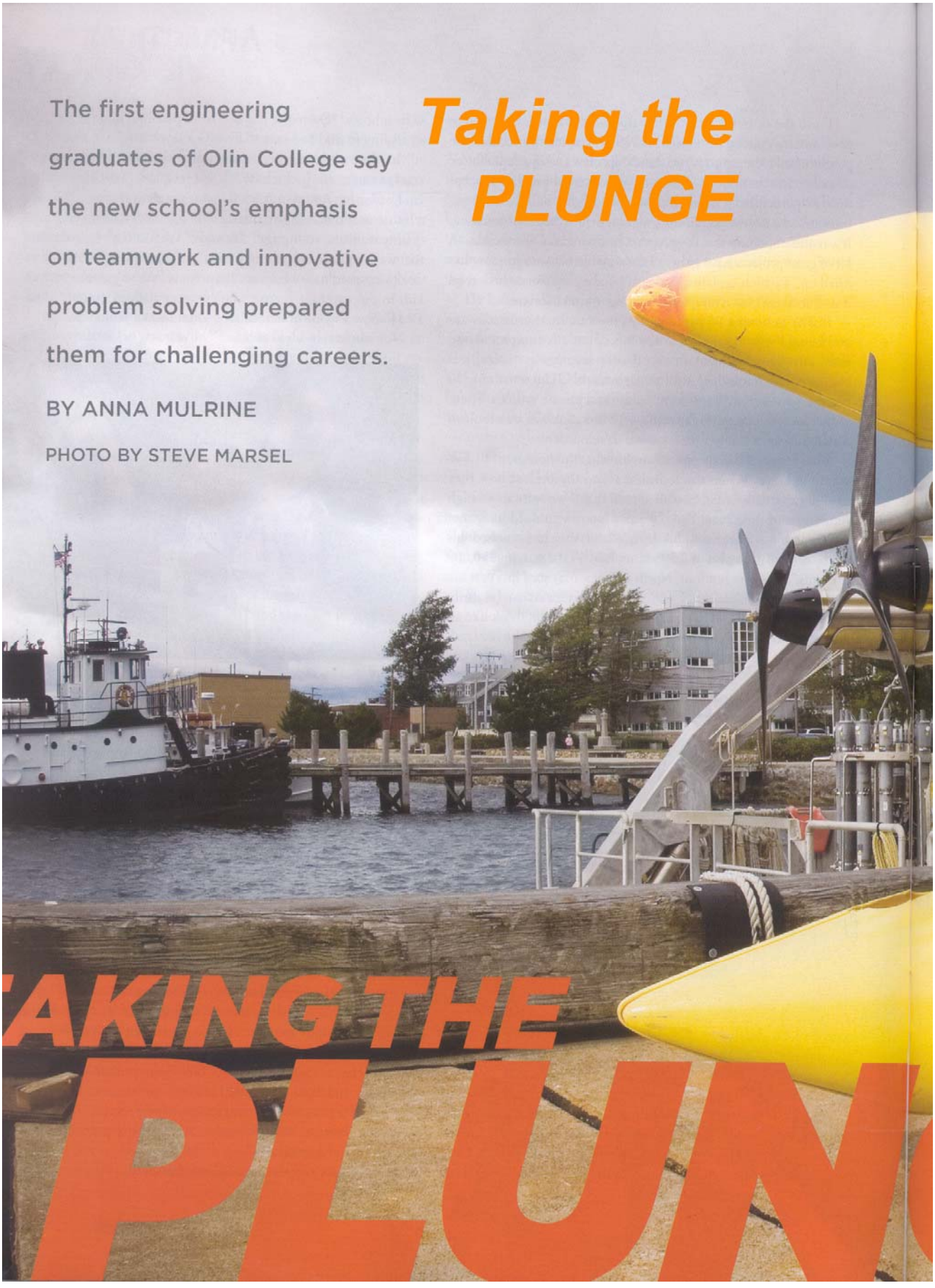
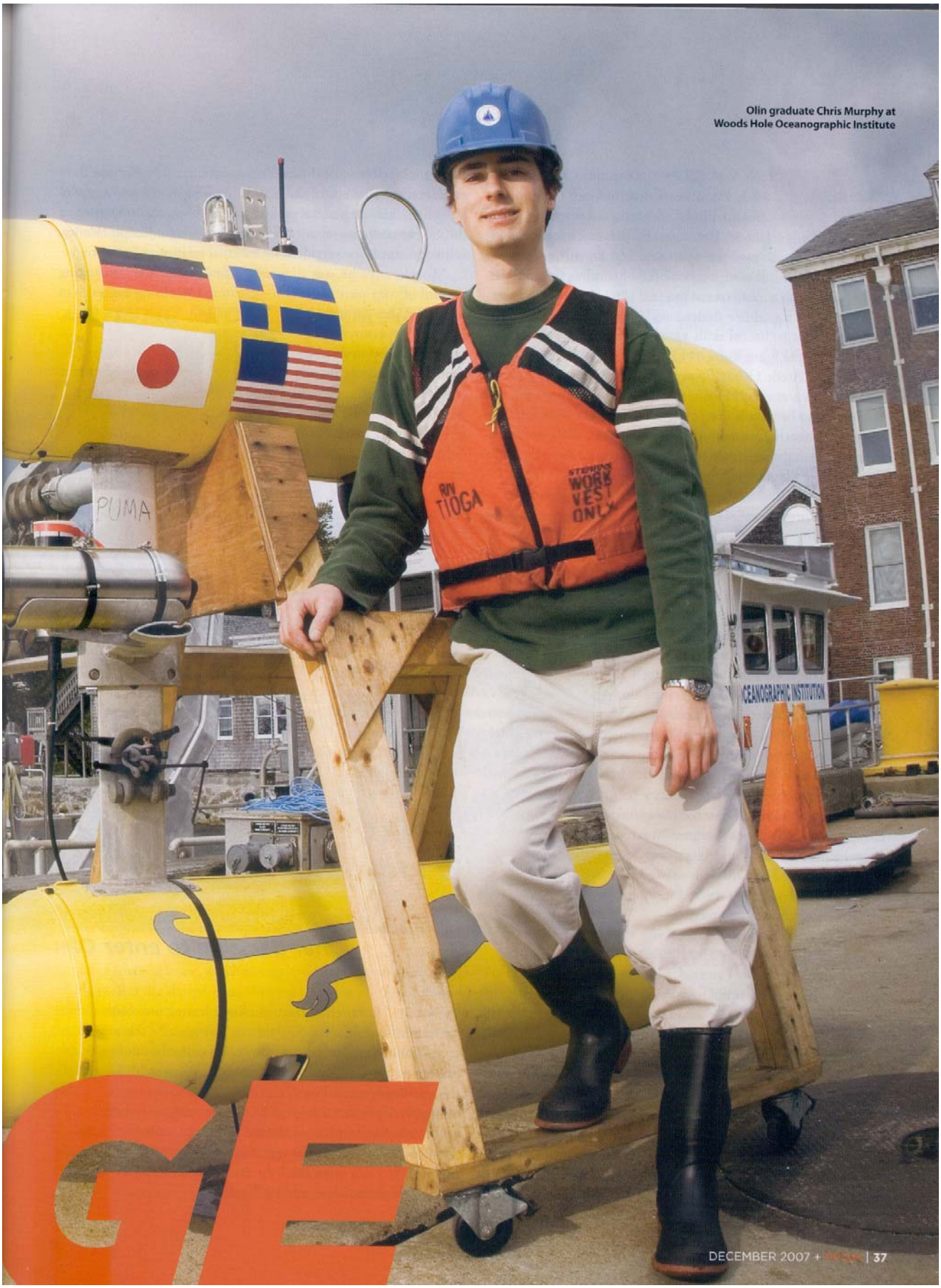
Taking the PLUNGE

The first engineering graduates of Olin College say the new school's emphasis on teamwork and innovative problem solving prepared them for challenging careers.

BY ANNA MULRINE

PHOTO BY STEVE MARSEL





Olin graduate Chris Murphy at Woods Hole Oceanographic Institute

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GROWING UP IN Vermont, Chris Murphy sailed and snorkeled on Lake Champlain. But the filmed adventures of oceanographers Jacques Cousteau and Bob Ballard pulled him toward the open sea, and he earned a scuba certification while still in high school. Now Murphy's youthful passion is paired with a more recent interest: electrical and computer engineering. As a graduate student working on undersea robotics, Murphy pits his technical skills against unforgiving waters in diverse regions, mapping shipwrecks off Greece and searching for geysers on the Arctic Ocean floor.

Murphy's career path tests a new kind of education. He is a member of the first graduating class at the Franklin W. Olin College of Engineering, which opened its doors in 2002 with a vision of producing engineers who possess both business skills and a strong grasp of the needs of the global community.

Following calls from the National Science Foundation to reform engineering education, the F.W. Olin Foundation, the legacy of a civil engineer and munitions manufacturer, decided to create a college from scratch. The foundation put up $460 million between 1999 and 2005—half the sum it has given away during its 70-year existence—allowing the college to build a state-of-the-art campus and lure a top-notch faculty.

Located in Needham, Mass., adjacent to its partner school Babson College, the new Olin engineering school proceeded to attract high-achieving students by offering each a four-year, full-tuition scholarship worth $130,000 and a curriculum that merges creative design classes, engineering, sociology, economics, and politics.

Murphy and 75 other pioneering freshmen were immediately thrown into a hands-on interdisciplinary approach to engineering—one that the founders believed would better reflect actual engineering practices. And for this, the school actively sought student input. The year before the inaugural class arrived, for example, some 30 student "partners" worked with the university to help design the curriculum and develop the school's first honor code. The university offered deferred admission to 15 more students, who worked in internships in the year between high school and college.

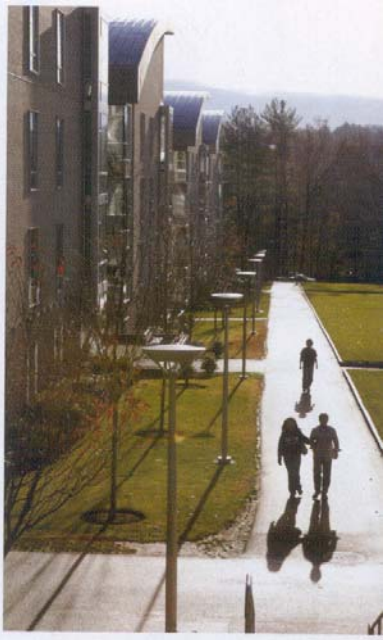
RAPID RECOGNITION

Despite its short life, Olin has already gained recognition, named by one college guide as one of 25 elite "new Ivies." It's a nod, students say, to a unique way of learning that has landed some of them choice jobs and spots in top graduate programs.

Academic peers have also endorsed Olin's approach; the college's three engineering degree programs recently gained accreditation from the Engineering Accreditation Commission, ABET, Inc.

The class of 2006 offers an early look at how Olin has prepared students for future careers and further scholarship. Of the initial entrants, 67 graduated. Fifty-eight percent of graduates are now employed, and of these, 68 percent have jobs that use their engineering or technical skills. Another 27 percent are in graduate school. Fifteen percent pursued fellowships or volunteering or decided to postpone their job search, according to Joseph Hunter, Olin's assistant vice president for external relations.

Murphy says he was drawn by Olin's emphasis "on taking control of your own education—creating something bigger than yourself." After joining the student government, "I got to be in meetings with the trustees and talk about high-level decisions." For Murphy, free tuition was a "huge gift," one that "eliminated roadblocks that would have made attending college more difficult."



For Que Anh Nguyen of San Jose, Calif., choosing to attend a brand new school was a difficult decision. "When I was in high school, I was basically in love with MIT," she says. After being accepted and visiting the school, she was so sure she was going to the Massachusetts Institute of Technology that, "I bought my MIT sweatshirts." But then she toured Olin, meeting professors and the students who would one day be her classmates. As she was offered comparable financial packages by other schools, the free tuition was less important than the fact that "I was just so blown away by the quality of people I met."

"I knew that if I didn't try it, I'd look back and regret it."

—Que Anh Nguyen, speaking of her decision to enter Olin

Nguyen was also intrigued by the rare chance to help build a school and "to be a part of history." Still, she waited until the last possible day to mail in her rejection of MIT and her acceptance of Olin. "It was a huge risk," she says. "But I knew that if I didn't try it, I'd look back and regret it."

Today, Nguyen is pursuing a Ph.D. in materials science and engineering at the University of California, Berkeley, specializing in alternative energy sources. She is creating nano-scale solar materials, an interest she developed during her senior year at Olin when her class worked with a start-up company marketing a less expensive alternative to solar cells.

ARTISTIC PROBLEM-SOLVING

Nguyen recalls a project from freshman year in which the team had to build an electronic polling device for classroom teachers. The device allowed students to vote anonymously to let teachers know when they understood a concept and when they didn't.

The project drew heavily on one of the cornerstones of Olin: its design curriculum, which focuses on working with clients and, most of all, figuring out their needs. "The first year of engineering

is a lot of math, science, and learning how to attack problems," says Murphy. But the design class "hits you with an entirely different way to attack problems—the artistic way."

In Murphy's design class, his project group set out to interview working professionals to find out what they needed to make their jobs—and lives—easier. Spending an entire Superbowl Sunday in an emergency room, "we watched people who came in drunk, injured from falling down stairs." They also watched the ER nurses "doing all this triage work." Then they sat down with the nurses in a troubleshooting session. Design ideas, some of them more off-the-wall than others, were thrown around.

"One of the nurses said she wished she could push a button that would make people stop throwing up on her," Murphy recalled. In the end, this particular problem remained unsolved, but the class did design a system to help the nurses better manage their patients' medication. "There were a lot of problems about drug interactions, reading doctors' handwriting," says Murphy. So the team developed a hand-held scanner "where the nurse could scan a drug and the (chart of the) patient, to make sure that the patients were okay to have the drug."

'NO ONE'S LOOKING OVER MY SHOULDER'

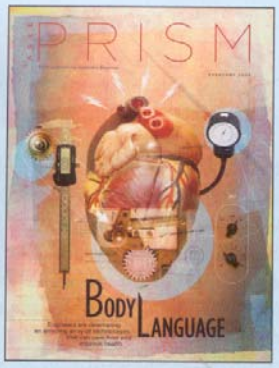
This kind of "outside the box" problem solving is what Olin graduate Dylan Sanders-Garrett now specializes in at Synapse Product Design in Seattle, Wash. Hired in July, 2006, as a mechanical engineer and designer, he has worked on such innovations as how to create a more comfortable heart-rate monitor.

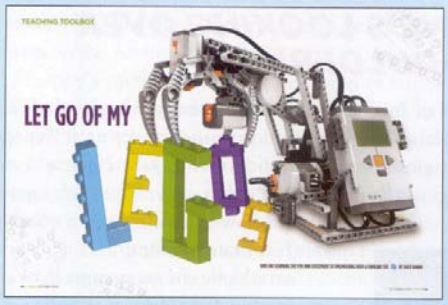
"An athletic company came to us and said 'we don't like the way it works—the strap is uncomfortable.'" Sanders-Garrett then spent a month researching possible ways to monitor heart rate from inside the body rather than using a device attached to the outside. He developed a prototype for an infrared light sensor that would take the measurement while passing through the capillary blood vessels.

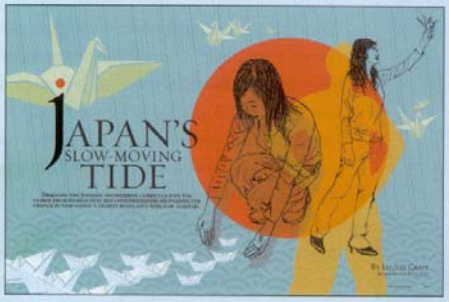
Now Sanders-Garrett is working on the design for an easy-release, inexpensive headphone mechanism for in-flight entertainment systems. It is intended to address the recurrent problem of passengers standing up with headphones still in or cupped over their ears, since airlines lose money each year on broken headphone jacks.

Olin prepared Sanders-Garrett for the challenges of design work as well as company structure. "Working here requires a lot of initiative and ownership. No one's looking over my shoulder and making sure I get things done. There is no hierarchy—just the three founders and everyone below." At Olin, the setup was similar. "We collaborated on almost everything," he says. "And the biggest thing about it was all of our team-based products."

Fellow graduate Frances Haugen credits her Olin education with helping her become an associate product manager at Google Inc. At Olin, says Haugen, "We spent a huge amount of time working in teams, and setting our own direction." Haugen recalls freshmen creating electronic lizards that could walk up walls. By the time their senior year rolls around, students are adept at being given "a very undefined problem and then going out and solving it."







TAKING THE PLUNGE

SWIMMING ROBOTS

Now at Woods Hole Oceanographic Institute, Murphy is a graduate student in an electrical engineering program run jointly by Woods Hole and MIT. While taking courses, he also works with a team that uses a robot to map the ocean floor. The device takes thousands of photographs to create a panorama of the bottom of the sea. It helps measure, for example, how the health of coral reefs has changed as ocean temperatures have risen.

Murphy traveled to Greece to map underwater shipwrecks as a guide for archaeologists. This past summer, he participated in a mission to search for hydrothermal vents and unique species on the seabed three miles below the iced-over surface of the Arctic Ocean. His team designed two robots, Puma and Jaguar, that can move independently and dive to great depths. A third, Camper, is powered by miles of cable attached to the ship, and is thus able to transmit real-time video images.

"We found evidence of lots of volcanic activity, and 'microbial mats'—large expanses of microbes living on the sea floor," Murphy notes of one such trip. Evidence of possible hydrothermal vents is still being evaluated.

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>
> *—Graduate Frances Haugen*

Murphy believes that the teamwork skills he honed at Olin allow him to see problems from different angles. And this ability is particularly suited to exploring the Arctic. Elsewhere, "if something goes wrong, the robot goes to the surface." But the ice of the Arctic often makes surfacing difficult, so he helped design a way for his team to communicate with the robots, "setting up rules so that we can tell the robot to go to a safe place and then surface—to make this entire system work in a totally new environment."

Olin, too, has a system of its own when it comes to the students' future, says Leslie Larocca, the school's director of postgraduate planning. "Obviously, we don't have a large alumni network," she says, so the school enlists parents to provide connections to employment opportunities.

This kind of approach fits graduate Haugen's memory of Olin: "Because it's so small, at school, early on, if you wanted something to happen, you had to do it yourself. If you wanted a music appreciation class—or a yearbook—you had to go make it happen."

Anna Mulrine is a freelance writer based in Washington, D.C.