

ATCOOPER

SPRING 2017 THE COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART





First impressions are powerful. Warmth, drive, compassion, creativity, innovation, aspiration—around every corner and in so many conversations, these have been my impressions of you, the Cooper Union community.

On the first day of classes, my family and I enjoyed meeting many students, faculty and staff for the first time and saying hello to the familiar faces I've gotten to know over the last few months during my informal transition to Cooper. While I have already started to get

to know some of you, I'm mindful that many of you don't know a whole lot about me or why I'm here.

Simply put, I'm here because I believe—as do many of you—that The Cooper Union is an American treasure. Throughout the search process, I learned as much as I could about Cooper: how it came to be, what it does for its students and the community around it, the values that have defined it—not just over these most recent few years, but over the course of its very long history—and what it could continue to represent in the context of an educational system in distress and a complex society that requires an engaged citizenry.

Peter Cooper's vision for education struck a deep chord with me, particularly given my professional and personal commitment to leveling the playing field by advancing access to financial and educational opportunity. His belief that an education should be holistic resonated with me—one that is not only technical or professional, not only intellectual, not only creative, but rather an education that combines all of these for a more powerful result and one that enables students to improve their own lives and contribute to the greater public good.

I also identified with the many challenges Cooper Union has faced in recent years. In my prior roles, I have seen what is possible—even in a contentious, crisis-driven context—when you combine a visionary strategy with rigorous execution, strong financial management and a culture of collaboration and common mission. That's what I am eager to build here with all of you.

I want to extend my sincere thanks for the warm welcome this community has shown me. I am so glad we are on this journey together, getting to know one another and working collaboratively to build on Peter Cooper's tremendous legacy with the goal of shaping what's next. With each day that passes, I am more and more confident that we have a bright future ahead.

Laura Sparks
March 2017

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Andrew Arnold | Managing Editor | aarnold@cooper.edu
Mindy Lang | Creative Director | lang@cooper.edu
Angela Starita | Senior Writer | astarita@cooper.edu
Charlotte Egerton | Alumni Communications Manager | cegerton@cooper.edu
Kim Newman | Media Relations Manager | kneuman@cooper.edu

On the cover: Chuck Close's portrait of Alex Katz A'47 at the 86th Street station of the Second Avenue Subway; see page 24. Photo: João Enxuto

Q & A LAURA SPARKS



Leo Sorel

BY ANDREW ARNOLD

Laura Sparks, the thirteenth president of The Cooper Union for the Advancement of Science and Art, and the first woman in the post, officially began her work here on January 4. We sat down with her for a chat, excerpted below. For the full conversation covering her background, her five-year vision and her admitted weaknesses, visit cooper.edu.

Can you identify a thread that has run through your career?

Much of my work has been about trying to find multisector and multistakeholder solutions to complex social problems. My aspiration is for everybody to have access to resources and opportunity in order to get a fair shake in life, regardless of the circumstances they are born into. We live in an increasingly complex world and there are very few problems that have a single lane to a solution. I have found that it is often a combination of the private sector, public sector and civic sector that is required to make something happen.

Q&A with Laura Sparks continued

How did that start?

In the second semester of my first year at Wellesley, I took two electives, Introduction to Moral Philosophy and Introduction to Macroeconomics, at the same time. That completely changed the way I looked at the world. Philosophy offered a framework for talking about big issues—theories of justice, religion, metaphysics—and having reasoned debate about them that I found incredibly appealing. Macroeconomics opened my eyes to an entirely different way of looking at the world's problems. As I started understanding economics, thinking about the connections in society between capital and investment and what's going on in underserved communities, I realized that I could potentially help people in different ways than I originally envisioned. So that launched me on a journey of thinking through ideas of social and economic justice and how those ideas intersect with a capitalist construct: this notion that the free market is premised on having “winners” and “losers” but that we are also part of a country built on the idea of equal opportunity. How do you reconcile those two things? That's what I spent my college years thinking about.

Your career seems to have taken quite a pivot in coming to The Cooper Union.

In some ways yes, and in other ways no. I've long thought that working in higher education is something I would like to do for a variety of reasons. My undergraduate experience was so powerful in my life. It completely changed my personal and professional trajectory, and it changed the ways in which I thought about the world. So I have always treasured that time in somebody's life as being really influential and important. During my time at the University of Pennsylvania, I saw the important role an institution can play in its community. Penn is an enormous institution with tremendous resources that borders one of Philadelphia's poorest neighborhoods. It was fascinating to see the positive impact that the institution could have on the community when its efforts were targeted effectively, as well as the negative impacts it could have—intended or unintended—when things weren't so well considered. In addition, my husband's work and research in the education sector have kept education issues front and center for us for over two decades.

Still, the current state of the place seems like a lot to take on.

It may seem that way, but when I really started trying to understand what was going on, it boils down to a few things: financial challenges that are significant, legal challenges that are largely behind us and cultural challenges. I looked at my time at the William Penn Foundation and at Citi, trying to lead teams through financial and leadership crises. I reflected on my enthusiasm about what this institution represents historically and currently and what the possibilities are going forward. I knew it was an opportunity I couldn't pass up.



Right: Laura Sparks and Bill Mea, Vice President of Finance and Administration, at the annual wreath-laying ceremony, February 2017.



Photos: Marget Long

How do you imagine Cooper Union continuing its legacy?

I interviewed for this position during the election season when our public discourse was unproductive and coarse. Regardless of one's political perspective, I think we can all agree that we don't seem to know how to have productive public discourse anymore. And when I look at what this institution represents, I see a huge opportunity for The Cooper Union to be a leader on that front. We can lead by example, and that excited me. I also got excited about trying to figure out the challenge around full-tuition scholarships at Cooper and how it relates to higher education across the country. Currently, we have a national approach that is unsustainable. As we work to try to restore full-tuition scholarships at Cooper, I hope we can play our part in demonstrating the value of higher education that is both excellent and financially accessible, serving as a model institution and influencing policy debates on this issue.

What steps did you start taking once you got the job?

The first thing the board and I did, with input from faculty and administration, was put together a transition plan that we shared with the community. I have been implementing that. I had over 65 different meetings with Cooper stakeholders prior to my official start date. The idea behind those meetings was really just to listen. I had done a lot of research about the place but it is very different to meet people and come to understand, genuinely, what this place is all about. That will continue.

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OUTREACH PROGRAMS

A PARALLEL UNION



BY ANGELA STARITA AND ALISON ADAMS

The Saturday Program, Cooper's oldest outreach program, provides free art classes to New York City high school students.

Mario Morgado

When Samer Houzayn, an engineer from Sixth of October City near Cairo arrived in New York, he started Googling terms such as “immigrant,” “education” and “helping immigrants.” He hit on The Cooper Union’s Retraining Program for Immigrant Engineers, but had his doubts when he learned that all classes were free.

“I said, ‘I don’t believe it could be true!’ But a friend of mine who had gone through the program said, ‘Yes, it’s real!’” After only four months in the United States, he found himself in a certificate program that allowed him to convert his skills as a petroleum engineer into becoming an MEP engineer—one who designs and maintains mechanical, electrical and plumbing systems—a skill set that is in far greater demand in New York.

According to Siri Comeau McDonald, Cooper’s new director of corporate and foundation relations, Houzayn is one of thousands of people who have benefitted from the many “outreach” educational efforts run at The Cooper Union that provide free or low-cost classes for working people and youth beyond its matriculated students. “Each year these outreach programs provide classes to a population nearly as large as Cooper’s full-time student body. This aspect of Cooper’s

service to the people of New York City may be less well known, but its impact on the lives of those with great need is no less meaningful,” she says. Comeau McDonald gathered data on these programs and discovered impressive results. As a kind of parallel union, outreach classes at Cooper offer a broad scope of subjects to students of varied ages and origins, and this past year, served more than 1,000 people. The programs demonstrate that, in an era of dwindling opportunities for the poorest and most vulnerable New Yorkers, Cooper is still helping people acquire skills for meaningful work.

“The Cooper Union is an oasis,” says Marina Gutierrez, director of the Saturday Program, the oldest of Cooper’s outreach efforts. “It’s the direct descendant of Peter Cooper’s imagining a world where it’s possible for all citizens to become literate and articulate in culture and politics.” The Saturday Program was founded by students of the School of Art in 1968 during a larger, national movement to make access to higher education more equitable by organizing alternative schools where college undergraduates would teach students coming from poorly performing school districts. This was exactly the spirit in which many of the outreach programs at Cooper began: a commitment to putting quality education within reach of all.

This past year, more than 1,000 people took classes in the school’s outreach programs

In 2016 alone, the STEM programs served 362 students. Most run at no cost to students.

COLLEGE PREPARATION

In 2015 alone, approximately 65 percent of high school seniors in New York City's public schools were deemed unprepared for college-level work, according to the city's Department of Education. This stems in part from schools that are overcrowded, with poor facilities and outdated technology. To make matters worse, the arts have been the focus of continual budgetary cuts because they're deemed elective subjects. But as copious research studies have shown, the arts are hardly ancillary; they are essential to effective learning for many students. That's why Cooper's tuition-free art programs for New York City high school students—the Saturday Program and the Outreach Pre-College Program—have proved particularly meaningful to students who had never before imagined that their interest in art could be anything but a hobby. “I had a very abstract idea of what an artist was,” says Jairo Sosa, a senior in the School of Art who is both an alumnus of the Saturday Program and now one of its sculpture instructors. Although he attended a highly rigorous public charter school, Sosa, a Bronx native, found that he had to actively seek art instruction outside his high school if he wanted to go to a competitive art school. He learned about the Saturday Program from a guidance counselor's bulletin board, applied and suddenly found himself part of a community of highly talented artists, undergraduates at Cooper whose virtuosity inspired him to push the limits of his own work. “To me, those teachers were superstars.”

The art programs include classes in drawing, painting, sculpture, animation, 2-D design, 3-D design, photography, graphic design, portfolio preparation and printmaking—the only free printmaking course available to New York high school students.



Left: Summer STEM students watch a demonstration by Professor Ruben Savizky ChE'98. Right: Sarah Benitez, a high school student enrolled in Summer STEM 2014, solders wires to control a motor that performs a step in a Rube Goldberg machine.

Cooper's multiple STEM (science, technology, engineering and mathematics) outreach programs are similarly designed to meet the needs of underprepared students while introducing them to science-related fields. In 2016 alone, the STEM programs served 362 students. Most run at no cost to them. The programs include Summer STEM, a six-week program for high school sophomores and juniors in which students work in teams to solve an engineering problem while learning

presentation and writing skills; STEM Saturdays, a 10-week, tuition-free program held twice during the school year that teaches high school students basic engineering concepts; STEM Days, one-day science workshops provided free of charge for fourth through twelfth graders; and High School Inventors, in which students from two neighborhood high schools are immersed in a rigorous, hands-on engineering project. After designing and building a Rube Goldberg machine, they compete against high schools from all over the region. Cooper Union students, who act as mentors for the younger students, teach many of these courses.

George Delagrammatikas, associate professor of mechanical engineering and the director of all of Cooper's STEM outreach programs, designs them with an eye to bringing in students who are not traditionally represented in STEM careers. Last year's Summer STEM session consisted of 86 girls, 42 percent of the 212 attendees. Almost half the group was made up of Asian students; 11 percent were Latino, and 10 percent were African American. “If the instructor or teaching assistant is a person of color or a woman, that's when the students get inspired and gain confidence that they can also achieve those positions,” Delagrammatikas, says.

In its 26-year history, the Retraining Program for Immigrant Engineers—which has no equivalent in the New York area—has served more than 4,700 people.

WORK PREPARATION

The Retraining Program for Immigrant Engineers has even greater diversity, with women making up a third of its approximately 225 students per year. In spring 2016, participants came from all points across the globe, including 30 percent from the Middle East and North Africa and 26 percent from Europe and Central Asia. Some are refugees; others are victims of human trafficking. The program is co-run with CAMBA, a nonprofit organization in Brooklyn, that provides in-depth workshops for resume writing, preparing for interviews and job readiness. They also pair students with industry-specialized job developers. Since the program teamed with CAMBA, job placement rates in engineering fields have risen. In fact, in spring 2016, 89 percent of the placements were in engineering-related jobs. In its 26-year history, the program—which has no equivalent in the New York area—has served more than 4,700 people.

Rustem Urmanshin, a software developer from Moscow who arrived in New York a year ago, attends the program to study software quality assurance, Structured Query Language, Linux and Java. “It's a great program for immigrants, especially



Professors and alumni from The Cooper Union teach courses to immigrant engineers, who update their skills to work on American engineering systems.

for engineering education because I have graduated in Russia from a technical university. All of the courses are in English. I'm an immigrant so I must study. I do my best," he says. Houzayn adds that the practicality of the courses makes them highly useful: "I take these courses in order to know what's going on in New York City," he says. "Also, these teachers are already in the field, so they transfer what's going on in the street."

Besides the students who take outreach classes, Cooper undergraduates who work as student instructors benefit mightily from the constellation of programs Cooper offers. As a Saturday Program instructor, for instance, Sosa received extensive teacher training. He is determined to teach his high school students both artistic skills and art-historical context. "I try to give them the best of whatever I've gotten from my Cooper professors. When they enter the program, they don't have a lot of cultural capital, so we try to ameliorate that." Sosa, who is Dominican, adds, "I look like some of our students and that makes a huge difference. Many people of color have been written out of art history, and students need to know that there were and are artists from all backgrounds."

KEEPING IT TUITION FREE: FUNDING OF OUTREACH PROGRAMS

Materials, instructor fees, overhead costs—all these add up to substantial expenses for these programs, most of which don't generate tuition. Even informing students about the programs is a big job—and an expensive one. Stephanie Hightower, a co-director of the Outreach Pre-College Art Program, notes that besides a faculty advisor, her program works with a professional recruitment representative to visit area public schools and add new content to the program's online information. "We have three annual art exhibitions with poetry readings open to the public on campus; we have a comprehensive, up-to-date database of contact information for



Pablo Diaz gave a demonstration of letterpress technique in the Peter Cooper Suite for students in the 2017 Winter Pre-College Outreach Program.

photos: Mario Morgado

more than 800 people who work with high school students, including counselors, teachers, principals and directors of cultural institutions. We mail and email exhibition invitations and send printed catalogs to our most key people."

All these costs are underwritten by an assortment of funders, who are consistently impressed with the innovative ways that the Cooper outreach programs fulfill many of the most important educational goals for underserved and underfunded New York City communities: academic preparation; social development exercises that teach students to collaborate; and a fusion of content with activities. Funders such as the Jacques and Natasha Gelman Foundation, the Altman Foundation and the Jeffrey and Paula Gural Foundation (among a host of benefactors) have consistently given to the Saturday Program and Art Outreach. To encourage individual donors to pitch in too, Richard Lincer, former chair of the Board of Trustees, matches any individual gift to the Saturday Program up to \$15,000 each year.

The Robin Hood Foundation, a group dedicated to funding poverty-fighting initiatives, has given generously to maintain the Retraining Program for Immigrant Engineers. A leadership grant from the Alfred P. Sloan Foundation and support from the Pinkerton Foundation let Cooper launch STEM Saturdays last year to reach more students during the academic year. Besides the funds needed for salaries and daily materials, these grants pay for the microcontroller kits and laptop computers that students use during the 10-week program. Those who successfully complete all the assignments and have perfect attendance are awarded the kits and laptops to keep at the conclusion of the program. Summer STEM's most generous donors include Con Edison, the Henry Sterne Trust and the Pinkerton Foundation. Their donations allowed more than half of last year's students to attend free of charge or at a discounted rate. The High School Inventors program is financed by grants from the participating high schools, LaSalle Academy and Grace Church School.

LONG-TERM IMPACT FOR STUDENTS AND CITY

No matter what they choose to study in the future, outreach students are highly likely to attend college. For instance, 94 of the 114 seniors in the 2015–16 session of the Saturday Program attended college the following fall. All of the 46 students in the Outreach Pre-College Program were accepted to college in the same year. And students already in college—namely Cooper’s undergraduates who act as mentors and instructors in the outreach programs—have reported that their work with high school students has both strengthened their own academics and broadened their sense of career possibilities. Yeeho Song, a senior in mechanical engineering who was one of 40 student instructors teaching in the 2016 Summer STEM program, says of his experience, “I get a chance to practice how to convey complex ideas in a simple method that people can easily understand, which I think is important in the field of engineering.” His colleague Max Summers, who is a senior in civil engineering, finds teaching “the most engaging and perhaps fulfilling job I have ever had. The experience has me asking myself many new questions about what I would like to be doing once I graduate from Cooper. The program has shown me that there is more to engineering than getting a job at a firm, or going to grad school to specialize in a subset of engineering.”

All 46 students in the Outreach Pre-College Program were accepted to college in the same year.

At the same time, these programs are helping ensure that the New York workforce will be increasingly diverse. Maureen Anyanwu, a senior chemical engineering student who worked as an instructor in the Summer STEM program, points out that the more women and people of color in science and tech fields, the greater innovation we can expect. Summers concurs: “Greater diversity in the field would result in breaking stigmas and opening opportunity to more and more individuals who are underrepresented and therefore unheard. This would have an immediate impact on the quality and diversity of new engineering ideas, solutions and even problems we didn’t know we had to solve.”

In describing the most recent class of High School Inventors—the students tasked with designing and building a Rube Goldberg machine, who participate in a regional competition—Delagrammatikas notes that a team from a low-income high school with students from all four grades won second place. They were competing against teams made up of seniors from some of the city’s best high schools. “These events show students from all socioeconomic and ethnic backgrounds that they are truly capable of achieving with the right mentorship and resources,” he says. “They become more confident as they achieve and struggle through the program, and gain a better understanding of what it means to be on

continues on the inside back cover

CREATIVE INQUIRIES

MENSCHEL FELLOWSHIP AT 20

BY CHARLOTTE EGERTON
AND ANGELA STARITA



photos: Michael DiVito

Above: View of 2017 exhibition, A Bowl of Ocean Soup, by Jenny Hsiao and Hui Rong Liu

Mr. Richard Menschel (c) and wife Ronay with this year's Menschel fellows at the exhibition, (l to r) Daniil Ashtaev, Kelsey Lee, Yu Kiu Chan, Anamika Singh, Sarah Schmitt, Jenny Hsiao, Hui Rong Liu

What if the horizon is not just a phenomenon that shows the limit of what the eye can see, but a sudden halt—the limit of the earth? Will we, one day, visit internet graveyards and lay flowers before digital tombstones? How is food security linked to cultural memory? Over the last two decades, more than 100 Cooper students have been given the chance to explore uncharted questions like these through the Benjamin Menschel Fellowship Program to Support Creative Inquiry. Purposely open-ended, the Menschel fellowships do not require answers to be presented, but instead culminate in the Benjamin Menschel Fellowship Exhibition, an annual public display of the year’s supported work that celebrates its 20th anniversary this year.

The Menschel fellowship was endowed by a generous grant given to The Cooper Union by the Horace W. Goldsmith Foundation to support studies in the fields of art, architecture, design and engineering. Richard Menschel, managing director of the Goldsmith Foundation, named the fellowship for his father, Benjamin. “Our desire was to attract intelligent, inquisitive, creative and articulate students and



Sophia Bennett-Holmes

Catherine Sanso, Wes Rozen and Tomashi Jackson—all Menschel fellows, talk about the ways their research inform their careers.

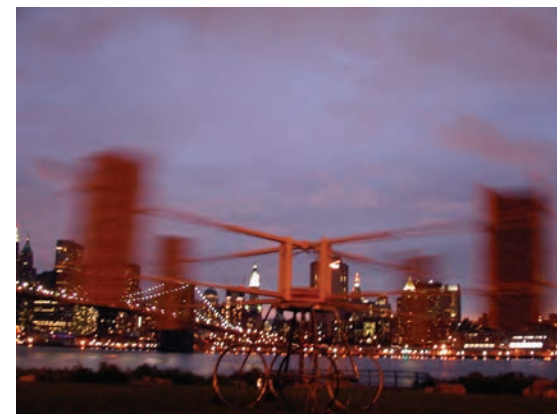
let them run with their minds,” Menschel and his wife, Ronay, say. “We like that every project provides a unique examination of its topic, which has enabled the participating student to learn far more about people, communities and traditions—as well as art and architecture—than probably originally conceived.”

Students apply for the fellowship in the spring of their junior year, or their fourth year as architecture students. The applications can be individual or as a group and must include a budget for the project, including materials for the final exhibition and travel expenses. Funding varies; it is typically capped at \$4,500. A committee of faculty members representing the schools as well as the Faculty of Humanities and Social Sciences reviews the proposals, considering each applicant’s project, academic performance and motivation.

Sohnya Sayres, associate professor of humanities, has served as the Menschel fellowship’s program director since 2009. “This program, which covers almost a year of preparing, competing, actuating and exhibiting an original project of the student’s or team of students’ own making is, in structure and sophistication, a graduate program,” she tells us. Students receive mentoring along the way but the fellowship is self-directed. “We are pushing our students into a professional relationship to their work. And, marvelously, they have always succeeded.”

The fellowship is unique in that there is no final report or deliverable product required. “I think a ‘product’ might be that one’s mind has expanded,” Menschel says. “However, we expected most students would want to ‘show’ something.” The culmination is a public exhibition in the Foundation Building, where students determine how best to display their experience. For some students, that is difficult to grasp. “It was hard for me since it wasn’t how fellowships work in engineering,” says Catherine Sanso CE’14, a 2013 recipient. “I think it’s the only project I’ve been able to work on that was solely for inquiry—solely because I am interested in this, and I don’t have to validate it to other people, even though I think it affects everyone.”

“The Menschel provides a space for students who have questions that are a little off the beaten path,” says Tomashi Jackson A’10, who used her fellowship to measure the everlasting nature of food waste products compared to the transience of cultural memory in Belize. As these topics are hardly ordinary, there’s



From top to bottom

Catherine Sanso traveled to Cambodia with her Menschel fellowship where she worked with a fishing community to develop a water filtration system.

Wes Rozen studied wind farms with his Menschel fellowship. In addition to documenting one in northern California, he built a machine that took photos based on wind speed.

Tomashi Jackson used her Menschel fellowship to study waste management in Belize and to find creative ways to reuse trash.

often no pre-existing discourse or existing research mechanism. “I met a lot of skepticism. People asked, ‘Why are you talking about trash?’ Jackson says. In Belize she conducted oral histories with residents of Dangriga Town and realized that, in a country with widespread poverty, a plastic bag can have a certain social cachet, as it demonstrates that the bag’s owner had had enough money to make a purchase. She documented their stories as well as evidence of environmental damage, while a colleague led workshops on turning Styrofoam waste into material for creating block prints. She then used drawing, sculpture and printmaking to translate her experiences for her exhibition back at Cooper.

Though the inquiries are unique, common themes have united Menschel projects over the last 20 years. Many students use the opportunity to travel, often to explore an issue close to their culture. In 2005, Edgar Pedroza A’06 engaged social, economic and architectural space in the region where his parents were born, Guanajuato, Mexico, to build a large monolithic land sculpture. Diana Yun A’14 went home to Kazakhstan to discover the music and community surrounding the *dombra*, a two-string lute specific to the Kazakh culture.

Cooper students have used the fellowship to explore topics that may be less conspicuous but nevertheless have a huge impact, including environmental and socially conscious issues. “The mission of Cooper Union is tied to the public in so many ways, I think it’s natural for us to think about the environment and things that are shared in society. Whether directly or indirectly, we were encouraged to take on some of the things society is wrestling with,” says Wes Rozen AR’05. Rozen’s project harked back to a childhood fascination with wind turbines. He documented the massive and elegant structures near his family home in the Bay Area by renting a helicopter and filming them from overhead. To further “capture wind,” Rozen built what he calls a “wind-catching, filmmaking machine”—essentially a cart with a windmill attached to it that would function at different speeds depending on the wind flow. He placed it on top of buildings and along a runway at LaGuardia Airport. The resulting images were, in a sense, created by wind, a force not seen in the photographs but integral to them.

Sanso also became interested in the natural world after growing up in the man-made environment of New York City. A native of Staten Island who saw firsthand the destruction waged by Hurricane Sandy, she traveled to Cambodia her sophomore year and discovered the dire need for clean water—both for drinking and for sustaining fish that the locals trolled. She used her Menschel fellowship to explore a solution, designing a pump and filtration system that could be used by local people with minimal technical knowledge. In addition, the system was built from local materials. She was proud to discover that it is still in use and has been fine-tuned by users. “Last time I looked they were doing a better version of what I had tried to implement. I’m sure they’re still making changes to it, but I can still see my original concept there.”

Alumni of the fellowship can trace their professional successes to their experience with the Menschel fellowship. For example, Jackson’s Menschel project led her to the Art, Culture and Technology program at MIT. “The research component of my project led me to want to be in a space where I could collaborate and learn from architects and engineers and planners,” she says. She continued her education at the Yale School of Art, receiving an MFA in painting. She is now on the faculty of the Massachusetts College of Art and Design. “The Menschel gave me the guts to pursue research as a part of a visual arts practice.”

Sanso’s career has been greatly influenced by her Menschel project. As a civil engineer at Thornton Tomasetti, an engineering design, investigation and analysis consultancy, she designs bioswales—green spaces around New York that collect and filter pollution from storm water, letting it return to the water table instead of combining with sewage wastewater. These small plots, called “rain gardens,” which have been inconspicuously placed all over the city by the Department of Environmental Protection, help alleviate the ever-increasing stress on the city’s sewage system. Sanso’s work, which includes site selection, soil borings, topographic and utility mapping, traffic analysis, vault inspections and plan preparation, focuses on the Flushing Creek Combined Sewer Overflow Tributary Area.

Rozen built his business, SITU Studio, with three AR’05 classmates—Basar Girit, Aleksey Lukyanov-Cherny and Brad Samuels—at the same time he was working on his Menschel project. SITU Studio is now a 45-person design practice and fabrication business. They also have a research division to explore spatial issues surrounding



Installation view of Daniil Ashtaev’s 2017 Menschel exhibition, Lake Baikal: The Lore of the Land

Michael DiVito

human rights. Their firm’s philosophy is similar to the type of thinking the Menschel fellowship encourages. “We take on things that we are curious about that might not exactly align with the traditions of a certain profession,” he says.

Rozen also credits his determination in part to this experience: “Through the support of the Menschel, the quirky interests of the students are legitimized and celebrated. As a 21-year-old, I found that very empowering. To have a personal interest supported in a meaningful way at a young age definitely gave me more confidence going out into the world and taking on things I cared about on a gut level.” ●

To learn more about the projects of Tomashi Jackson, Wes Rozen and Catherine Sanso and to hear a conversation among the three alumni, visit cooper.edu/at-cooper

ON COOPER ROOTED.EDU



DORE ASHTON 1928-2017
AN EYEWITNESS TO ART HISTORY, SHE TAUGHT GENERATIONS OF COOPER STUDENTS



WHAT'S BREWING AT COOPER
ENGINEERING PROFESSOR SAM KEENE'S CROSS-DISCIPLINARY COURSE, "THE SCIENCE AND ART OF BREWING," CULMINATED WITH AN EXHIBITION AND TASTING



HEJDUK BUILT WORKS
AN EXHIBITION, INCLUDING AN OUTDOOR SCULPTURE, OPENS MARCH 29

/AT-COOPER/SPRING-17



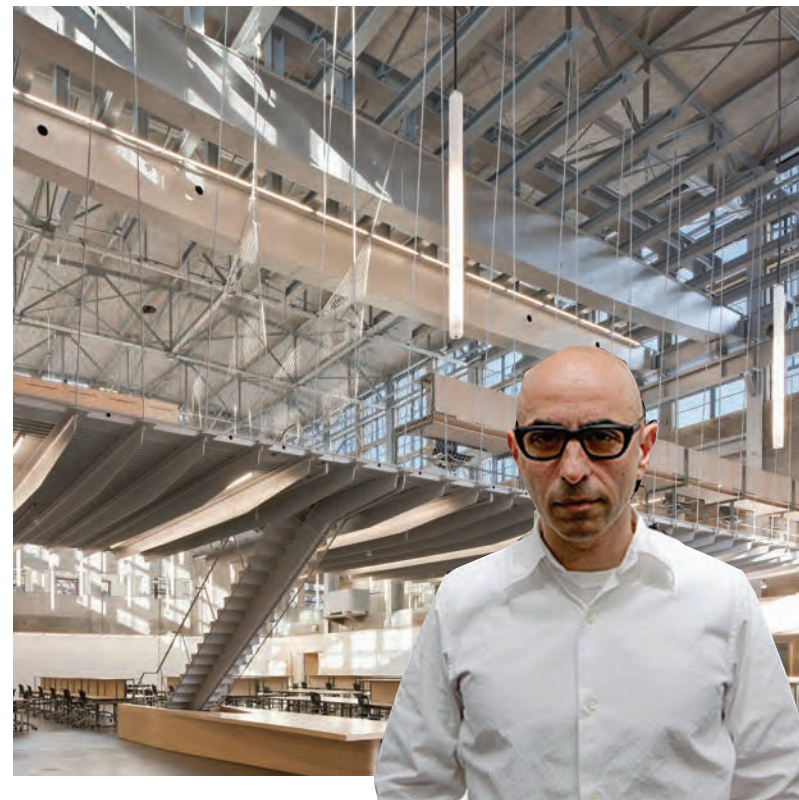
COOPER TO COOPER: THE ARCHIVISTS
THE COOPER UNION'S THREE ARCHIVISTS—ALEXANDER TOCHILOVSKY, CAROL SALOMON AND STEVEN HILLYER—DESCRIBE SOME OF THEIR FAVORITE OBJECTS



STAFF ART SHOW
THE TALENTS OF THE MEN AND WOMEN WHO RUN THE SHOPS AND WORK IN THE ADMINISTRATIVE OFFICES GET A RARE SHOWCASE



CLASS NOTES
MARISA LAGO PHY'77 NAMED NYC'S DIRECTOR OF THE DEPARTMENT OF CITY PLANNING



FACULTY NEWS
CURRENT WORK: NADER TEHRANI
DEAN NADER TEHRANI WILL PRESENT HIS WORK WITH NADAAA IN A PUBLIC LECTURE ON APRIL 5



FEC STATUS REPORT
THE FREE EDUCATION COMMITTEE RELEASED ITS ANNUAL REPORT ON PROGRESS BEING MADE TOWARD REINSTATING FULL-TUITION SCHOLARSHIPS IN A SUSTAINABLE WAY



ISELIN LECTURE
THE U.S. ATTORNEY FOR THE SOUTHERN DISTRICT OF NEW YORK WILL DELIVER THE JOHN JAY ISELIN MEMORIAL LECTURE ON APRIL 6



THE RETURN OF A BOLTED BOOK
RAFFAELE BEDARIDA, ASSISTANT PROFESSOR, ON REPRODUCING A RARE 1927 ART BOOK BY FORTUNATO DEPERO



OBSTACLES TO DIVERSITY IN STEM
THE COOPER UNION CELEBRATED MLK DAY BY CO-HOSTING A PANEL DISCUSSION WITH ESTEEMED SCIENTISTS WHO ADDRESSED THE PAUCITY OF WOMEN AND MINORITIES IN STEM FIELDS AND HOW TO TURN THAT TREND AROUND

REFUGEE RESCUE: WITNESS TO A CRISIS

BY ANGELA STARITA

When Helena Zhu, a third-year student studying civil engineering, completed a two-month study-abroad program in Madrid, Spain, at the Universidad Pontificia Comillas, she wondered what to do with the final month of her summer holiday. “It was too expensive to go home,” says the Guangzhou, China, native. “And I still had time left on my European Union (EU) visa, so it didn’t make sense to go back to New York early.” Instead, Zhu decided to buy a ticket to Thessaloniki, Greece, to volunteer with a Greek nonprofit group, Emergency Response Centre International (ERCI), helping it design a study center for refugees living in that city.

Zhu’s arrival in Greece wasn’t by chance: she had taken Professor Toby Cumberbatch’s Engineering Design and Problem Solving course (EID 101). In that course, Cumberbatch described his work in Ghana designing temporary shelters for refugees there. Zhu was excited by the possibility of applying her knowledge to solve immediate, critical problems. She had been charting the refugee crisis—almost 900,000 people arrived in Greece in 2015 alone—and had been thinking about how she could help when the opportunity with ERCI arose. But upon her

arrival in Thessaloniki, she discovered that ERCI had to postpone plans for the study center; the group hadn’t yet secured permission for its construction. She realized she would have to find another way to help. She paid for a plane ticket to the island of Lesbos, where thousands of refugees have landed since 2015 because of its proximity to Turkey. There, Zhu spent a month working eight-hour shifts as a lookout, scanning the Aegean for signs of the small rubber dinghies carrying refugees from Syria, Libya, Afghanistan, countries throughout Central Africa and Iraq.

Once on Lesbos, Zhu was assigned to one of two lookout posts that ERCI maintains on the southern coast of Lesbos. There she met volunteers from around the world, including a young man from Sweden who had already spent nine months on the island helping shepherd refugee boats to shore. Although Lesbos is only about 23 miles from Ayvalik in Turkey, getting to Greece—and therefore the European Union—is treacherous as much for political reasons as for physical ones. To start, the EU and Turkey came to an agreement in March 2016 that any refugees found crossing the Aegean would be sent back. Zhu witnessed the agreement’s results first hand: “If the EU catches a boat, they’ll send them back so a lot fewer are coming. So many have been turned back. We heard it on the radio as we were looking out for boats.” What’s more, rescue boats sponsored by private organizations cannot pick up or rescue refugees without risking being charged with human trafficking—a fate that befell two Danish and three Spanish volunteer lifeguards, well known in the area as active rescuers. They were arrested while out on patrol and are still awaiting trial.

Members of Emergency Response Centre International (ERCI) pull a boat of refugees to shore on Lesbos, Greece.



“I looked to my left and there were people climbing up the shore in the darkness. They didn’t have flashlights, they didn’t have anything, and I thought, ‘Wait, that’s not happening,’ so I ran over.”

—Helena Zhu ChE’17



Helena Zhu greets a young child who moments before had been pulled off a plastic boat used by her family and others to arrive in Greece.

The EU-Turkey agreement also caused more people to risk a crossing during bad weather: while the chance of capsizing is greater, choppy waters make detection by the Greek Coast Guard more difficult. That might explain why in Zhu’s month on Lesbos, she took part in only two rescues. They occurred on August 12 within six hours of each other on a night when the waters were particularly rough. She was working the night shift from 12 to 8 am with three other people: a medic, a Farsi translator and a Greek woman on her first day at Campfire, the code name of ERCI’s northernmost lookout spot.

“That night was really choppy and really windy,” Zhu says.

“That was the coldest night I’d spent there. Over the radio we heard a British ship saying to a NATO ship, “We see migrant activity,” and they gave the location of the boat.” At that point the four-person crew noticed a light flicking on and off in the distance: it was a flashlight signal from the refugees. It was about 2 in the morning and the medic and the translator left to patrol near the port, while Zhu and the new volunteer stayed at Campfire. They scanned the dark horizon for another 10 minutes; then the two women heard nearby sounds. “I looked to my left and there were people climbing up the shore in the darkness. They didn’t have flashlights, they didn’t have anything, and I thought, ‘Wait, that’s not happening,’ so I ran over.”

The group, primarily West African and Pakistani men, were panicked. Eighteen people in total came ashore, including one pregnant woman and a very ill man. Some had life vests; others didn’t. In English, they told her that two people had fallen into the water. She used the ERCI’s group message board to report the missing people and request help for the men and women who had just landed on shore. “The whole team woke up, they drove here, and they contacted the Hellenic Coast Guard so that they could pick the refugees up with a bus, and take them to Camp Moria. That’s where everything is processed on the island,” she recalls. In fact, Camp Moria was the site of a devastating fire just one month later (see sidebar).

The search for the missing refugees was on full-tilt: helicopters, ERCI’s boat, the Greek Coast Guard and Frontex, the EU border-control agency. “The radio was going nonstop because the ships were coordinating the rescue mission. Oh, man, that was a crazy night!”

Finally, at about 6 am the crew at Campfire got good news: Frontex was the first to reach one of the missing men; ERCI’s boat located the second. They had survived more than three hours in turbulent water.

THE NEXT NIGHT, Zhu worked the same shift, from midnight to 8 in the morning. She and the three other volunteers were about to leave Campfire as their shift was coming to a close. During one final scan of the horizon, a young man from Spain, who was working his very first shift, thought he saw something far in the distance, so far, in fact, that when the others looked, they weren’t quite convinced. Nonetheless, they alerted ERCI, and one of its boats went out to investigate: a rubber dinghy filled with people was making its way across the Aegean. Just over 24 hours since the last rescue, the group prepared for another. It asked its headquarters to bring blankets and clothing for the incoming group, who would need dry clothing after the crossing. The Swedish volunteer asked Zhu to videotape the rescue; ERCI likes to keep records of their rescues in case documentation of their work should ever be needed.



**THE VOLUNTEERS
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AS THE RAFT GOT CLOSER,
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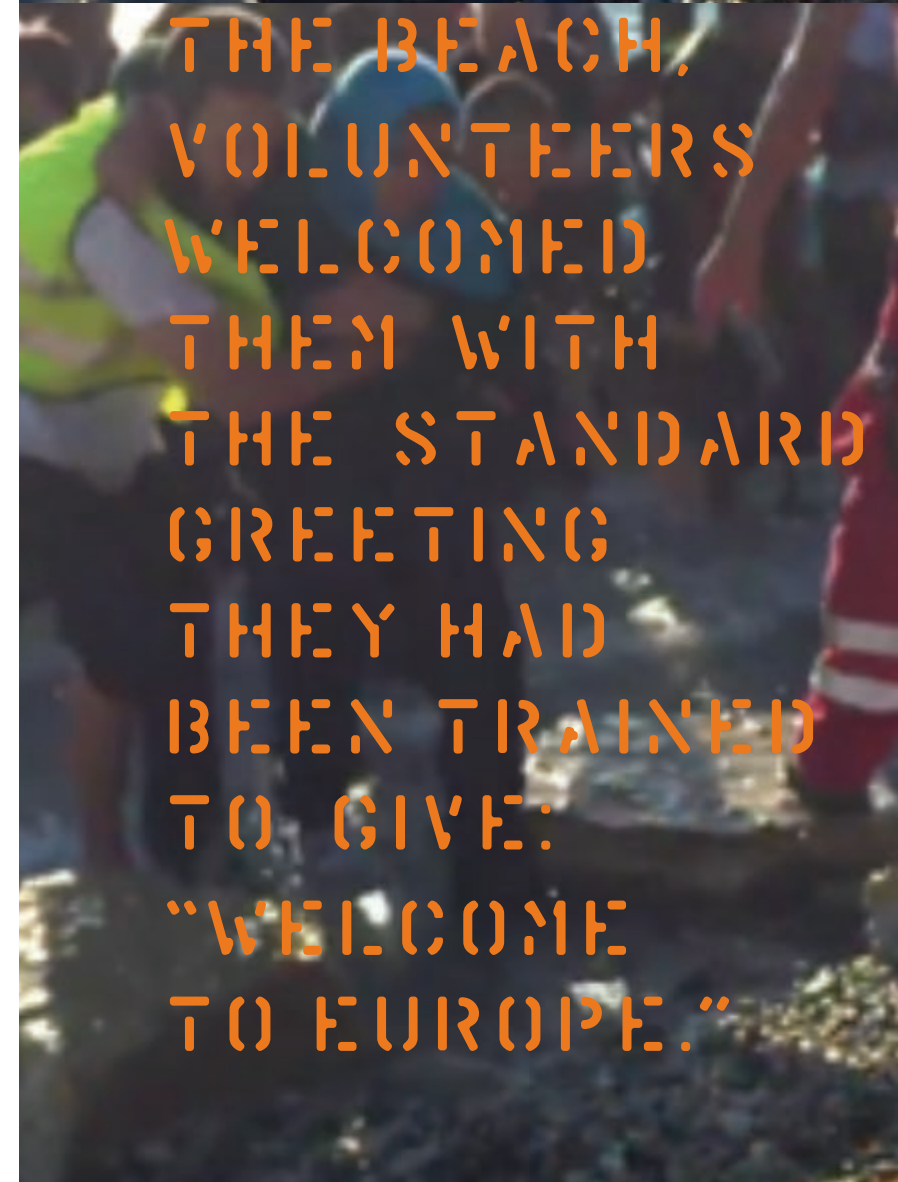
The volunteers finally got a glimpse of the neon-colored life vests of the passengers. As the raft got closer, its skipper began to panic: the boat was heading for rocks along the shore. ERCI staff tried to reassure the passengers, telling them to stay in the boat until they got closer to shore. As the boat lurched and pulled up against the rocks, volunteers carried some of the children from the raft. One of them, a little girl, ran up the beach and latched on to Zhu, who tried to comfort her while continuing to document the rescue. As refugees climbed onto the beach, volunteers welcomed them with the standard greeting they had been trained to give to ensure that disoriented refugees understood where they had landed: “Welcome to Europe.”



ERCI volunteers gather after a rescue in August 2016.

In the meantime ERCI’s vans arrived, filled with boxes of clothing. Volunteers gave out blankets and clothes to the refugees, providing impromptu dressing rooms for the newly arrived women. Separated family members found each other, including the girl who had clung to Zhu.

That was the last rescue Zhu witnessed in her month on Lesbos, but a few months later, the number of refugees attempting a similar route to Europe rose. The agreement between the EU and Turkey was disintegrating; the Greek Coast Guard often chose not to stop the makeshift boats. The last time she saw some of the men, women and children who had arrived during those two rescues, they were led onto a bus taking them to a refugee camp; Zhu recalls a Coast Guard member shoving a man forward, hurrying him to an unknown future. ●



Video stills courtesy of Helena Zhu

GREEK REFUGEE CAMPS UPDATE

Since Zhu’s time on Lesbos, circumstances have deteriorated further. To begin with, 30 percent of Camp Moria, the central camp on the island, burned down on September 20, leaving 4,400 refugees without shelter, including approximately 100 unaccompanied children. While there were no fatalities on that occasion, a month later another fire in the camp caused by an explosion of a portable stove killed two people. At the same time, more migrants were arriving, most trying to escape the violence in Syria. At the beginning of 2017, Germany vowed to return new asylum-seekers to the first EU country they entered—in many cases, Greece.

In addition, residents of Lesbos, already hard-hit by the Greek economic collapse, have lost much of the tourist-driven work they count on, due to the refugee crisis. Making matters even more complicated, there were more than 80 aid groups operating on Lesbos in addition to rescue teams formed by Lesbos natives, many of whose ancestors had themselves escaped Turkey by boat during the 1920s. While the number of people dedicating themselves to helping newly arrived refugees was heartening, the municipal government was concerned that having so many groups, particularly those that failed to register with the local government, added to the chaos instead of relieving it.

NOW ARRIVING

THE SECOND AVENUE SUBWAY OPENS

BY CHARLOTTE EGERTON



Jobo Enxuto

“Building a whole new subway line is no quick feat”



“It’s so clean in here!” “It smells so nice!” “This is really beautiful.” These comments were overheard not at the opening of a new store or art installation, but rather on a weekday morning in the 72nd Street station on the just-opened Second Avenue Subway (SAS) line. People took selfies with mosaics. A cellist played in a full tuxedo. Our first visit to the Second Avenue Subway felt less like a typical transit ride and more like an immersion in New York City’s vibrant cultural scene. The much-anticipated new subway line took its first trip on January 1, 2017. The line from 63rd to 96th streets is expected to serve over 200,000 people per day, reducing overcrowding on the Lexington Avenue line by as much as 13 percent and restoring a transit link lost when the Second Avenue elevated train ended service in the 1940s. The project was a true marriage of architecture, engineering and even art in the heart of New York City, so it comes as no surprise that graduates of The Cooper Union have played key roles in its 70-year history. We talked to a number of them to better understand the complexity of this megaproject.

In 2015, 1.76 billion rides were taken on the subway, the highest number recorded since 1948. Over 5.7 million people ride the subway on a typical weekday. The century-old system runs 24/7 and struggles to keep up with New York City’s surging population. Maintaining existing service on 36 lines and 472 stations is a herculean task. But in a state where the motto means “ever upward” (“Excelsior” is engraved in the new Second Avenue stations), expanding service to accommodate more riders has been a longstanding priority. The SAS first appeared on New York City’s agenda in 1920 as part of an ambitious expansion plan. A Harlem to Houston Street line costing \$800 million was approved in 1929, but was tabled when the stock market crashed.

Jean Shin’s Elevated series at 63rd Street station features the Foundation Building



**PETER CAFIERO CE’83,
DIRECTOR OF OPERATIONS
PLANNING, MTA**

Peter Cafiero first became interested in rail transportation as a Cooper student commuting from New Jersey. “During my freshman year there was a two-week subway strike. We were in the middle of midterms and were still expected to make it to school,” he remembers. “It was then that I became interested in learning why trains go where they go and work or don’t work. I knew I had to learn more or I would go crazy as a commuter.” After almost 30 years spent at the MTA, he has become an expert in understanding subway service needs, rider behavior and route planning. He was involved with many of the preliminary planning stages of the SAS as early as 1994, including the environmental impact statement, community outreach and geotechnical investigation. “Rarely in your career do you have the opportunity to be part of a project this big from the beginning to the end,” he says. “I went from seeing cross sections of earth and where the tunnel should be to going in the ground and seeing it tunneled to seeing a completed train line. I was lucky to be part of it and part of the team.”



**CECILIA YE CE'09,
COMMUNITY MEMBER**

The MTA actively engaged the Upper East Side community throughout the process, starting with community planning meetings. Once the construction began, the MTA published a monthly newsletter and created the Second Avenue Subway Community Information Center to serve as a hub for information. Cecilia Ye has lived on the Upper East Side since 2012. Her commute to SoHo has been reduced by 10 minutes since the opening of the Q line in her neighborhood. Ye previously worked as an engineer at Skanska and was able to visit the construction site in progress. "I feel the scale of the engineering and construction efforts that went into building this line is way more than what meets the eyes of subway commuters," she says. "Having seen only a small bit of its construction, I certainly have a deeper appreciation of seeing the first phase of SAS finally opened to the public!"

New York City's transit system was previously a combination of elevated and underground train lines. The Second and Third Avenue elevated lines serviced the east side of Manhattan and were a vital link for Cooper Union's commuting students in the early 20th century. As the subway system expanded, elevated lines, blamed for noise and blight, were torn down. Since the demolition of the east side els, the Lexington Avenue 4/5/6 line has been the primary option for residents, as evidenced by the rush-hour crowds. A 1947 *New York Times* article about the dire need for a replacement line read, "It is essential to take the strain off existing parallel lines now so crowded during rush hours that if cattle in transit were subjected to such treatment it would be a matter for humane society prosecution." Sixty years later, the conditions had not improved.

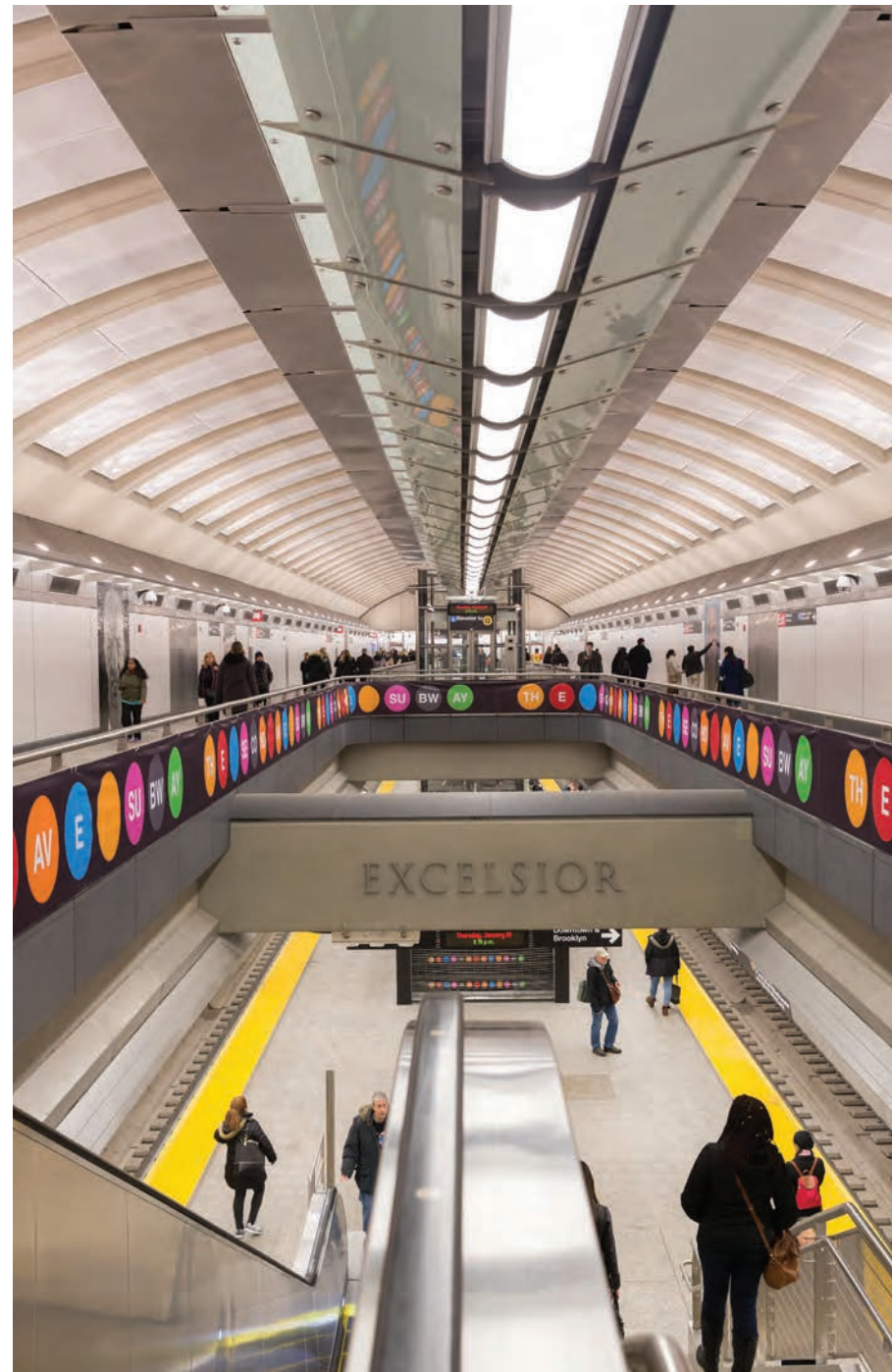
"The 4/5/6 trains would run faster if they weren't so crowded," says Peter Cafiero CE'83, director of operations planning for the MTA. "There are bottlenecks at popular stations such as Grand Central and 68th Street-Hunter College, which further adds to the congestion." Cafiero's department is responsible for designing and implementing efficient bus and rail service in New York City. This means planning routes, determining service frequency and improving performance and customer experience. His team has been involved in the project since the early 1990s, working on the Manhattan East Side Transit Alternatives Study, which revived the SAS plan. Some progress was made in the 20th century, including a groundbreaking in October 1972 and tunnel sections built at Canal, 105th and 120th streets. But when the city went bankrupt in the 1970s, construction was halted. In 2007, the phase I plan was approved and ground was then broken—again.

Once construction began on phase I, it took almost 10 years before the first Second Avenue train sped through a

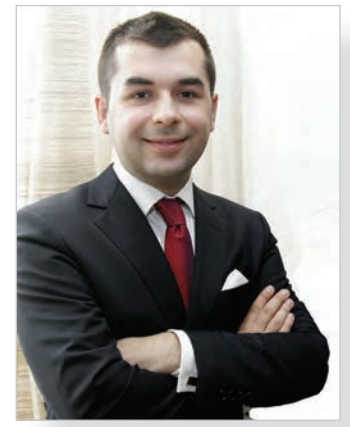


Historic photo of the Third Avenue Elevated train

Courtesy of The Cooper Union Library



Photos: João Enxuto



**VISAR ALIU, AR'13,
ARCHITECT, AECOM**

Megastructures, a Cooper Union class taught by Anthony Candido, sparked Visar Aliu's interest in large-scale projects. He joined AECOM in 2014 and asked to work on the SAS project, joining the team in the spring of 2016. This happened to be the final construction phase for the stations. "I came at the right time—it was the last push!" he says. "We would sketch by hand; then the contractors would build things right away. It was truly great exposure for a young architect." As a field architect, he spent a lot of time meeting with the construction managers and resolving issues on site. "A lot was done in the last eight months. It was kind of like pulling an all-nighter before a final at Cooper," he says.

The mezzanine level's high-ceilings reflect new design guidelines for subway stations.

All stations along the new line have escalator and elevator access.



DAVID M. PLOTKIN, ME'81, AVP, PRINCIPAL TUNNEL VENTILATION ENGINEER, AECOM

David Plotkin joined AECOM and the SAS project in late 2006 in the early stages of final design. He brought decades of experience in building and tunnel ventilation system engineering, starting with The Cooper Union Foundation Building renovation soon after graduating. "That was my first experience of the challenge of adding new systems into an existing space for a particular need," he tells us. This is a common challenge in designing subway ventilation systems. Ventilation systems in the tunnels and stations are necessary to create a comfortable environment for passengers when trains are operating normally, but also to respond to congestion and especially to a fire emergency. "The essence is to manage smoke flows in tunnels and stations to keep an egress path clear of smoke," he explains. "In open air, smoke goes up and away. In an enclosed space, smoke is trapped as if in an inverted bucket. In the tunnel, we design systems to make the smoke move one way or the other. In the station, we maintain a clear path to safety." The performance of the structure and mechanical systems as a whole is essential for operations and safety.

station. While newspapers took every opportunity to highlight the sluggish progress in the headlines ("A Century of Delays and Disappointments!")*, building a whole new subway line is no quick feat. Two 30-block-long tunnels were dug, displacing over 15 million cubic feet of rock and 6 million cubic feet of soil (over 200,000 yards of total material). Even the digging wasn't straightforward. The geological characteristics of the area dictated the phases of construction, as there were obvious break points where the type of underground material changed. Between 63rd and 92nd streets is Manhattan schist, a hard rock that can be efficiently drilled using a tunnel boring machine. North of 92nd Street is dirt, requiring a shallow cut-and-cover method that excavates material directly from the surface, which is more disruptive to traffic and the surrounding area. Nevertheless, the multiple engineering and construction ventures hired for the job completed the work without ever stopping traffic on Second Avenue, as was true when the original subway lines were built.

"In a complex project like this, most of your time is dedicated to problem solving. It's really half science and half art," says Alaeden Jlelaty CE'84/ME'98, project manager for the construction company Skanska, who oversaw the contracts on phase I. "This was the perfect project for Cooper Union alumni to handle."

Three brand-new stations were built and the 63rd Street station was renovated to include a cross-platform train connection to the F train. As station planners, Cafiero and his team worked with designers to meet their capacity goals while minimizing impacts to the community. The resulting modern stations are designed to different standards and with different principles than their older counterparts. Rather than multiple entrances at the street level that direct you to a specific point on the route, one or two main entrances flank each end of the stop, with long escalators leading to a mezzanine level. From the mezzanine, customers enter the turnstile and can access both directions of the train from multiple points. The open, arched ceilings fill with light; the large walkways and platforms are reminiscent of public plazas. Moving forward, the MTA plans to implement these new design guidelines, which make the stations more accessible and also more hospitable.

Once the line was in construction, the MTA Capital Construction agency (MTACC) took the lead while the MTA focused on operating and rebuilding the existing system. The MTACC was formed in 2003 to manage mega transit projects such as the SAS and the East Side Access project connecting the Long

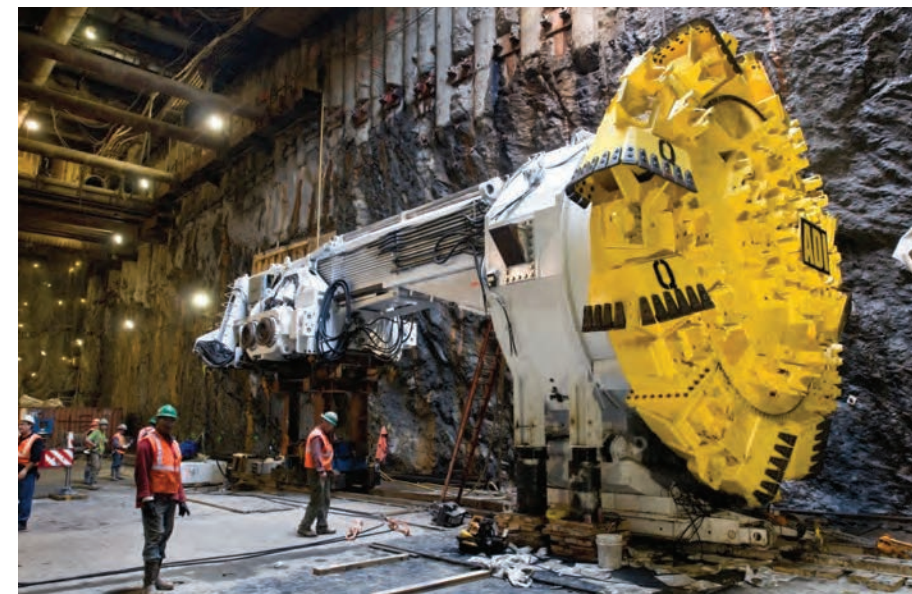
*Gothamist, December 21, 2016

Island Rail Road to Grand Central Terminal. MTA departments supported the MTACC when necessary, especially in the final stretch. "There was a push by our agency in the months and weeks prior to opening for testing and commissioning the new line," Peter Cafiero says. "We will continue to make adjustments along the way. Customers are still learning the stations and the tools we have created to make full use of the service."

MTA Arts & Design also commissioned dynamic public art in the Second Avenue stations from Chuck Close, Vik Muniz, Jean Shin and Sarah Sze. The Cooper Union is present in the mix—Chuck Close's iconic portrait of Alex Katz A'47, *Alex* (1993), is included in his series in the 72nd Street station, and Jean Shin's *Elevated* series at the 63rd Street station depicts historic scenes from the east side's past, including the Third Avenue elevated sweeping past the Foundation Building.

The architecture and engineering curricula at Cooper Union continue to include preparatory courses for the type of work involved in a project such as the Second Avenue Subway. Larry Lennon CE'78 teaches Urban Transportation Planning at the Albert Nerken School of Engineering, a course that reviews the relationship between land use and travel. "Transportation is a field that touches everyone every day. As transportation's role in economic development, and its impact on quality of life, have become better understood and appreciated, it has led to more ambitious capital programs and more challenging projects," he says. "I see our students bringing new energy and new ideas to the profession as they apply new information technology, data processing, communications, project visualization and design innovations to the projects they manage." ●

The tunnel boring machine in place



Alaeden Jlelaty



ALAE DEN JLELATY; CE'84/ME'98, PROJECT MANAGER, SKANSKA

The MTA defines the work of excavating, tunneling and laying the tracks as "heavy civil engineering." As the project manager at Skanska, Alaeden Jlelaty led this work for the 63rd through 96th Street section of the line. His team built the launch box, an underground support structure with slurry and secant walls, that served as the below-surface entry point for crews and machinery. "It was like putting a football stadium underground in the middle of Second Avenue," Jlelaty says. Creating the launch box and relocating utilities, necessary steps to begin tunneling, took about a year and a half. Their digging mechanism, the tunnel boring machine (TBM), had to be lowered into the ground piece by piece, then assembled. The TBM is a two-story, 2.5 million-pound mechanical marvel. TBMs have the advantages of limiting the disturbance to the surrounding ground and producing a smooth and stable tunnel wall. They excavate tunnels with a circular blade, applying a force equivalent to 16 Boeing 747 airplanes. Once the TBM was in action, the speed was unpredictable. "We had a few days where we exceeded 100 feet and some days where we barely moved a fraction of a foot," Jlelaty says.

COOPER TOGETHER

COOPER TOGETHER | NEW YORK



Photos: Marget Long

Cooper Together, the inaugural weeklong celebration of the birth of our founder, Peter Cooper, achieved our goals of honoring his philanthropic spirit and uniting the community near and far. From February 7 to 13, more than 400 people across the country joined together to celebrate the legacy and impact of Peter Cooper at events in Boca Raton, Chicago, Detroit, Houston, New Orleans, New York City, San Francisco and Washington, DC. Our generous supporters helped us raise an additional \$32,000 for Cooper students. Compared to last year's festivities, donor participation quadrupled over the course of the week. Thank you for celebrating Peter Cooper's gift with a gift of your own!



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COOPER TOGETHER | NEW ORLEANS



COOPER TOGETHER | BOCA RATON



COOPER TOGETHER | SAN FRANCISCO



COOPER TOGETHER | HOUSTON



COOPER TOGETHER DETROIT

While the Office of Alumni Affairs and Development organized regional events in New York City, Houston and Boca Raton as part of Cooper Together, the week was made more successful by volunteers in other parts of the country who hosted meetups in their area. In Detroit, longtime supporter Joe Fedullo ME'98 organized local alumni and friends at an iconic restaurant downtown to celebrate. "I am indebted to Peter Cooper, and the university he created, for providing the foundational tools that have enabled my success as an engineer and in life. It cost me nothing and provided so much, and for this I feel an obligation to give back," Mr. Fedullo says. The event brought together alumni from a wide range of years, including the most recent graduating class. The Detroit community often gathers for social or professional networking experiences. "It's always great to bring together many generations of Cooper grads, to compare stories of our experiences and talk about similarities and differences of each of our eras. Since we are all now transplanted to the Midwest, it's fun to compare stories of the city and the things we miss," he says. The Detroit community is already looking forward to their next event, a barbeque hosted by an alumnus, as well as other events lined up for the summer. Fedullo encourages alumni in other parts of the world to activate their community. "Making the time to set up events is difficult, however, the interaction with friends new and old makes it worthwhile."



Margaret Long

The Free Education Committee Status Report came out in January.

What's your view of getting back to "free"?

I will answer that in two parts. I am 100% committed to returning the school to full-tuition scholarships in the larger context of also returning the school to sustainable financial health. I very much believe there is a path back to "free" and I would not be here if I didn't. I presented to the Presidential Search Committee and to the Board that commitment and my thoughts on why I think it's possible. It won't be quick, it may not be soon, and it won't be easy, but I think it's important to do our best to fulfill this aspect of Peter Cooper's vision. I fully expect that a year from now, we will deliver a plan to the attorney general's office for returning to a sustainable full-tuition scholarship model. We will figure out over the course of this year what the timeframe for that is and which levers we can pull to get there.

I said I would answer in two parts because I believe this school is about so much more than free tuition and I don't want us to lose sight of that. I led in this answer with "free," because I know that's what is at the forefront of many people's minds, and I am personally committed to working toward that result. But "free" does not in and of itself equate to quality, and I don't want our focus on "free" to obfuscate all the other things that this institution represents that are of value: academic excellence; rigorous and creative ways to teach students; being a leader in solution-finding across many fields; a unique and independent student culture; Cooper Union's history as a space for civic debate and expression. All of these things are incredibly important to who we are and what we can contribute. ●

"I am 100% committed to returning the school to full-tuition scholarships in the larger context of also returning the school to sustainable financial health."

For more information see cooper.edu/at-cooper

a team and to think creatively. And they recognize very quickly that they can do anything that students from other schools can do."

The impact is even more immediate for students in the Retraining Program for Immigrant Engineers. While the average starting wage of participants in the past two years was \$9 an hour, after attending the program their starting wage was, on average, \$21 an hour. For instance, Craig Fagan, who moved to New York from Jamaica, took courses in National Electrical Code and Linux in 2016 and now earns \$44 an hour as a roaming engineer for T-Mobile. "The program brings immigrant professionals together, helps them expand their professional network and provides opportunities to take advantage of those connections," he says.

Besides having a direct impact on New York's economy, the program's alumni are working at jobs that keep the city running. In fact, one graduate, Ben Abanilla, is now employed as a senior electrical inspector for Parsons Brinckerhoff, where he works on the Second Avenue Subway, a project that abounds with Cooper alumni (see story on page 24).

"For nearly 50 years, The Cooper Union's outreach programs have shared the incredible wealth of talent and creativity found at Cooper with New York City's at-risk populations," says Delagrammatikas. "Cooper's program directors, faculty and students are removing barriers to education and employment. I like to think that Peter Cooper would be proud." ●



João Enxuto



• THE COOPER UNION MAINTAINS A NUMBER OF DEDICATED FUNDS DESIGNED TO ENHANCE THE ACADEMIC EXPERIENCE OF OUR STUDENTS:

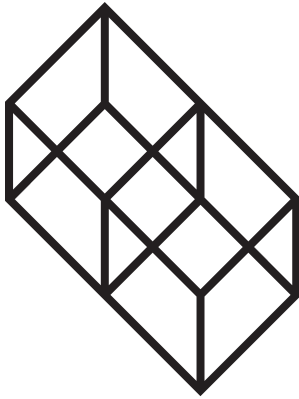
The Okun Faculty Development Fund was created by the family of Milton Okun, the esteemed music producer, whose father, brother and wife attended The Cooper Union. The Fund makes possible wide ranging research that keeps Cooper's faculty engaged with their fields and dynamic in the classroom. The Okun Fund has paid for post-production costs for films, material costs for painting and sound exhibitions, as well as travel expenses for faculty presenting at conferences.

The Student Emergency Fund provides monies for unforeseen events that might interrupt students' academic progress. In the past this fund has covered costs for students who have suffered from apartment fires, parental hardship, thievery or a deflation of their home country's currency. The Fund makes continued study possible in situations that create not only economic but emotional hardship.

• INNOVATORS SOCIETY

The Innovators Society is a new group for philanthropic giving made up exclusively of donors that contribute at or above the \$1,000 level to The Cooper Union Annual Fund. Benefits of being an Innovator include invitations to special receptions, like last year's holiday party in the Peter Cooper Suite.

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TYPOGRAPHICS

A DESIGN FESTIVAL FOR PEOPLE WHO USE TYPE

Now in its third year, Typographics was founded by Alexander Tochilovsky A'00 and Cara Di Edwardo A'85. The two became passionate about type while undergraduates. Then as professors at Cooper they saw the need for a forum where the history and future of type could be showcased. Their efforts have proved to be justified; the annual event has quickly become a leading event in the fields of typography and type design.

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