



FEATURED STORIES

Schiller Institute Will Expand Study of Environmental Science

Real Food BC Settles Into Its 'New Digs' With Relocated Garden

Rob Nixon Talks Environmental Martyrs

Aerosol Research Seeks to Answer Questions About Climate Change

OUR TEAM

This newsletter is a monthly publication by EcoPledge of Boston College.

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Schiller Institute To Enhance Science Research and Education

The institute will lie at the center of a brand new 150,000 square-foot science facility, with construction beginning in the spring of 2019.

The Schiller Institute for Integrated Science and Society, made possible by the generous contributions of benefactors Phil Schiller, Apple's vice president of worldwide marketing and BC '82, and his wife, Kim Gasset-Schiller, will bring new research, new fields of study, and a new \$150 million science center to Boston College. An opening date for the center has yet to be announced, but construction will start in the spring of 2019.

The institute will introduce an engineering department and an integrated and applied science minor. It will facilitate interdisciplinary collaboration among the natural sciences, social sciences, and the humanities in order to engage and solve complex problems. Research and study at the Schiller Institute will be guided by three main themes: energy, health, and the environment.

But how exactly does environmental studies fit into the vision of the new institute?

Thomas Chiles, Vice Provost for Research and Academic Planning and Deluca Chair Professor of Biology, has played a central role in the planning of the Schiller Institute since the project's inception. Chiles predicts that research in the field of environmental studies will find a place in the institute because environmental problems cut across disciplines.

As an example, Chiles noted the problem of toxic waste exportation to low-resource countries. Obviously there is a health issue involved, but, Chiles observed, "You're not going to get very far unless you engage the political leadership of these countries—the exporter and the importer."

Such a problem must be approached with the social sciences in mind.



Graphic Courtesy of the Office of University Communications

"Complex problems such as pollution, or climate change, or global warming—the very nature of them now requires a transdisciplinary approach," he said. "They won't be solved by science and engineering alone. We're going to need the social sciences and humanities."

Chiles said economics, political science, and cultural studies are several of the fields which could be included in research.

"You need only look at what most of the major global public health projects are the world," he said. "Many of them have failed, despite the medicine, science, and engineering thrown at them. It's because we haven't taken into account the economics of the regions, the politics of the regions, and the behaviors of people and cultures."

This inclusion of disciplines beyond the sciences will set the Schiller Institute apart from programs at other universities. Future BC students studying integrated and applied science, a minor that Chiles said will likely grow into a major, will engage in this transdisciplinary approach. Chiles believes these programs will bring value to the sciences at the University.

"[Integrated and applied science] will give [students] not only the language, skill sets, and tools to do research across disciplines, but

will also teach them what I call 'the art of collaboration'—how to collaborate across disciplines."

How exactly this transdisciplinary research will be conducted is uncertain at this point. Those details will be decided by the institute's future director, Chiles said.

Noah Snyder, the director of the environmental studies program, predicts that the program will be closely involved with the institute's study of environmental issues.

"Clearly, the department and program will have an important role in shaping the environment focus area, and department and program faculty will certainly contribute to all three areas," Snyder said. "Environmental studies themes such as food and water sustainability and climate change and society fit nicely into the types of research envisioned for the institute."

The institute will also promote student creativity with makerspaces in which students can explore and develop extracurricular projects and ideas. Research opportunities will be similarly fluid, accommodating not only the environmental studies program, but any department seeking to conduct transdisciplinary research.

"In essence, the doors of the institute will be open," Chiles said.

After Two Years of Searching, Real Food BC Cultivates a New Home for Its Garden

Real Food BC built its first community garden in 2008 on Boston College's Brighton Campus. The 1500-square-foot garden flourished with crops until two years ago, when a member of the facilities department told Real Food that the garden would have to be moved, and the two would need to work together to find a new home for the garden. This fall, the group began to transplant crops into its newly-constructed garden on an area of campus just south of Beacon Street.

In 2015, Real Food was told that the garden would have to be moved from Brighton Campus to a new location because the space would be renovated in accordance with the University's institutional master plan. Much of Brighton Campus will be transformed into baseball fields, softball fields, and parking lots in the coming years, so facilities knew that the space could not be a permanent home for the garden.

Over the last two years, Gina Bellavia, director of landscape planning and services, has worked closely with Real Food to find a new spot for the garden.

"We didn't think it was a good permanent location," Bellavia said. "We knew that at some point it was going to have to be moved, and we wanted to find a permanent location."

The garden is now located in an area which Bellavia refers to as the "Hammond Triangle," a parcel of land bordered by Hammond St., Stone Ave., and Beacon St. The garden sits behind the Connolly House, which houses the Center for Irish Programs. Bellavia believes this is the best permanent spot for the garden that provides enough outdoor space, lighting, and exists in a secluded, yet accessible space for students. Real Food will continue to grow crops such



Photo Credit: Christopher Russo, CSOM '19

as tomatoes, onions, and kale in the new garden and share the harvest with members of the BC community at various dinners and other events.

Real Food has heard from several groups on campus that are interested in utilizing the new garden, including the Woods School for Advancing Studies, which recently added a certificate for sustainability to its list of programs. The Woods School may offer a class that focuses on food justice sustainability that would benefit from the use of the garden.

The environmental studies department is also interested in using the garden. Tara Pisani Gareau, associate director of the environmental studies program, teaches an agro-ecology and sustainable agriculture course that would greatly benefit from the garden. BC Dining has also expressed interest in working with

Real Food.

"The garden is on many more radars than it was before," Bellavia said. "I really think there's more interest than there ever was ... and I think it's going to continue to grow."

Although Real Food has transplanted some of its perennials to its new garden, the construction of the garden is not completely finished. Facilities allotted funds to start the construction of the garden earlier this fall, but it was not enough money to create the full-size garden that Real Food desires.

Four raised beds have been built so far. Real Food plans to apply for a Legacy Grant to help build six additional beds, as ten beds would allow the group more space to grow crops. The members of Real Food are also considering purchasing the materials and performing the construction themselves to cut costs. Although

facilities will not have a specific line in its budget to fund further construction of the garden, Bellavia said facilities would be happy to supply tools and other materials to aid in future construction efforts.

As it has in past years, Real Food will facilitate the planting of seedlings in the greenhouse in Higgins for the winter season. In the spring season these seedlings, which have sprouted into small plants, will be transplanted into the garden beds. Broccoli, kale, and beets are the most common spring crops. Tomatoes, eggplants, peppers, and squash are often planted for the summer season.

"The idea is to bring people together," Alison Kaika, president of Real Food, said. "We want to provide fresh and local food to our community but also to create a space where people can act communally and contribute to something that produces a product that can be shared and enjoyed."

Do you want to be involved in promoting sustainable practices on campus?

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Rob Nixon Discusses Impact of Environmental Martyrs and Their Lasting Legacies

Rob Nixon, the Currie C. and Thomas A. Barron Family Professor in Humanities and Environment at Princeton University, inspired students with his lecture on environmental martyrs on Nov. 16.

Nixon is the author of *Slow Violence and the Environmentalism of the Poor*, a book examining how the effects of climate change are often hard to notice and the disparity in the ways different socioeconomic classes are affected by the effects.

Nixon began the lecture by posing four questions he sought to address: 1) What is the relationship between the sacrificial figure of the environmental martyr and environmental zones that are treated as disposable?, 2) What is the relationship between the martyr and the movement?, 3) In what ways does the martyr bridge the living and the dead and the human and greater human society, and 4) What is the relationship between the figure of the fallen

martyr and the figure of the felled tree?

He set the tone for the lecture with his introduction of the linguistic relationship between trees and humans. He said that many of the same terms used to describe trees are also used to describe humans, such as "height." He also warned the audience about the mistake of romanticizing the idea of environmental martyrs, and he followed the warning with a brief background on one type of environmental martyr, the "tree-huggers," who date back to women in India protesting deforestation.

Nixon's lecture was dedicated to Berta Càceres, a well-respected Honduran environmental activist who was killed in her home last year. He used Càceres as an example of environmental martyrdom throughout his presentation, illustrating the way people view martyrs at the frontline of environmental activism.

There are a few countries

where the assassinations of environmentalists occur most prevalently. Among those include Brazil, Colombia, India, and Honduras. These countries all share common threads—heavy amounts of logging, beef ranching, and farming. These practices depend on deforestation to create space for production and are connected to land disputes.

Nixon examined the relationship between the martyrs and movements by pointing out that martyrs are often unaware of how impactful their images actually are. Chico Mendez, a renowned environmental activist in Brazil who brought to light rights of the forest and indigenous people, is an example of this. Mendez believed that the movement he started would end with him, but he was wrong. When Mendez died, people rallied and kept his movement alive and made his cause their own. What Mendez started was continued for years, and to this day there is a pilgrimage in his honor.

Nixon then pointed out the different types of environmental martyrdom that intertwine environmental and socioeconomic struggles. Environmental martyrdom often involves sustaining media attention, which Nixon called the "theater of suffering," or, the specific attention people pay to people suffering for their cause. The spectacle of the deaths of martyrs and their suffering speaks to larger audiences who relate to their pains.

He focused his presentation on the ways the "image of the dead persist within the living," highlighting the ways martyrs still stand today as an image of strength, inspiring people and movements across the world.

Nixon concluded the lecture by explaining how Càceres' image creates an identity with ordinary people who are suffering. He then quoted Mendez: "At first I thought I was fighting to save the trees ... now I realize I am fighting for humanity."

SPOTLIGHT

Davidovits Research Group Contributes to Climate Studies by Investigating Aerosols

The Davidovits Research Group, a group of researchers on campus, is performing several studies regarding the physical properties of aerosols and how they affect climate change.

The Davidovits Research Group is led by Paul Davidovits, a chemistry professor, Leonid Nichman, a postdoctoral researcher, and Timothy Onasch, a researcher from Aerodyne Research Inc. Yue Zhang, a postdoctoral researcher, Peyton Spencer, MCAS '18, Injae Jung, MCAS '19, and Brian Heffernan, MCAS '19, are also assisting in the research. The group is funded in part by the U.S. Department of Energy and the National Science Foundation.

Aerosols are the tiny particles of matter that float in the at-

mosphere. These particles can be natural, like dust, or anthropogenic, like soot from fuel burning. The group's research has large-scale implications for the field of climate study, but its work starts at studying aerosols at a microscopic level.

"We live in this environment of gases and particles flying around us," Nichman said. "Everything is mixed in this soup of particles and gases. All these components affect our health, precipitation, and climate."

One major effect of aerosols in the atmosphere is the formation of clouds. Water droplets or ice crystals cannot form without a core particle. There must be some aerosol present to allow the formation of the cloud. The subject of the group's research is how this

process occurs. Nichman studies how aerosols of different sizes and shapes "nucleate," or form, ice.

Nichman and his co-researchers also study the optical properties of aerosols such as black carbon.

"People talk about greenhouse gases, but there are not only gases, but particles flying around us," Nichman said. "Optical properties are important because of solar radiation. If the particle is absorbing the light, it will heat the atmosphere. Or, if it's reflecting the light, scattering the light, then there will be more cooling."

Clearly, the significance of the research is in the details. One kind of aerosol might contribute to global warming, while another might have a cooling effect. According to Nichman, the study of

aerosols at the level of individual chemical and physical properties is a relatively new field, but it's a field with grand implications for global climate study.

"Everything we do, all the parameters or properties that we find, are incorporated in models, and these models are used to forecast the weather or predict climate change," Nichman said.

A greater understanding of aerosols and their unique behaviors will boost the accuracy of climate models, allowing for more reliable long-term predictions, an advantage which may prove critical in the face of worldwide environmental issues, he said.

"All these models are constantly improving, but it takes time, and they need experimental results," Nichman said.