
The Oberlin Review

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Special Issue

EARTH DAY 50

CLIMATE AND ENVIRONMENT



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Photo by Hannah Ball-Damberg, OC '14

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Letter From the Editors

Dear readers,

As student journalists studying the environment, we have always strived to incorporate environmental initiatives into our work at *The Oberlin Review*, from shifting to a paperless editing process — saving approximately 10,000 pieces of paper annually — to reducing our print circulation.

While we are certainly proud of these eco-friendly transitions in our workplace, we know that environmental and climate narratives are much larger than any person's, or newspaper's, individual choices. We still find ourselves intensely curious about the best ways to communicate about the climate challenges currently afflicting communities around the world, including Oberlin. In particular, we continue to strive for ways to further incorporate the personal and the human in our writing. In this curiosity, we began planning a special issue magazine — the *Review's* first, as far as we know — focusing on climate change and the environment.

This project is nearly one year in the making. It has been driven by a desire not only to engage with more long-form journalism and topics that matter to us, but also to explore them in a place that matters to us: Oberlin. There seems to be no better time to tackle these issues and questions than now, during a global pandemic that is laying bare collective challenges and failures in addressing the links between climate crisis and public health.

Additionally, we are beyond honored to publish this magazine as part of the Earth Day 50 symposium primarily organized by College fourth-years Madeleine Gefke, Olivia Vasquez, and Ora Hammel; College third-year Wenling Li; and College second-year Phoebe von Conta. We are indebted to them for their hard work and leadership in bringing this series together, and inspired by their commitment to using the symposium as an opportunity to bring together College and City communities, even as we are all so physically far apart. And the lineup they have assembled is impressive; we are overjoyed to have the opportunity to learn from leading scholars and writers like cultural geographer Carolyn Finney and climate writer Mary Anaisé Heglar, OC '06.

This magazine was only possible with the incredible, committed work of the staff whose pictures are at left. We are so grateful and humbled by the opportunity to work with such an insightful, dedicated group of journalists.

On the following pages, you will find reporting on the NEXUS pipeline and rising water levels in the Great Lakes; Q&As with Heglar and investigative environmental journalist Sonia Shah, OC '90; current Oberlin students translating their academic research into op-ed form; and everything in between. As we spend the 50th Earth Day reflecting on how far we have come and how far we still have to go, we hope everybody with some connection to Oberlin or any interest in the environment will have something to take away from these pages, which represent a true labor of love.

Sincerely,

Nathan Carpenter, *Editor-in-Chief*
Ananya Gupta, *Managing Editor*



Nathan Carpenter
Editor-in-Chief



Ananya Gupta
Managing Editor

A Dispatch From Oberlin's Climate Strike



Editorial Board Advisor and College second-year Faith Ward addresses the crowd assembled at Oberlin's climate strike last September. The strike was attended by more than 600 students and community members.

Photo by Emily Fiorentino

Faith Ward

Editorial Board Advisor

Editor's note: On Sept. 20, 2019, the Global Climate Strike took place in thousands of communities around the world, as millions of people rallied to support the urgency of climate change solutions. In Oberlin, more than 600 students and community members gathered at the grandstand in Tappan Square to join the global movement. The following was the rally's opening address, which has been edited for length and clarity.

Good morning, everyone. My name is Faith Ward, and I want to

welcome you to Oberlin's Climate Strike, hosted by Sunrise Oberlin. Thank you so much for joining us.

We're here today to address the climate crisis by examining both its symptoms and its causes. In these discussions, we tend to identify contributing factors like racism, corporate greed, and the patriarchy, but we often fail to investigate the role that colonialism has played, both in the roots of the climate crisis and the roots of its solutions. As such, it is absolutely necessary for us to acknowledge the role that we play in colonialism, as well as the role that it plays in our

actions. We are on stolen land. It is precisely because of colonialism and violence committed against Indigenous peoples that this event is even taking place here today. We must acknowledge that we are on the traditional territory of the Erie people. We must recognize and appreciate their historic connection to this place. We must acknowledge the contributions that they and other Indigenous peoples have made in shaping and strengthening this community and our country as a whole.

However, we, as settlers, must go beyond simple recognition. We must be committed to listening,

learning, and acting in order to bring justice to Indigenous communities — both in our fight against climate change and in our everyday lives. This applies, in particular, to the fight for justice for the missing and murdered Indigenous women and girls across our continent. We must continue forward with them in mind.

So why are we here today? In recent years, it has become increasingly clear that climate change poses an existential threat to our entire planet. A 2018 special report by the U.N.'s Intergovernmental Panel on Climate Change stated that we are rapidly approaching a point of no return. And in order to avoid it, the world needs to cut carbon emissions to half of 2010's levels by 2030 and achieve net-zero emissions by 2050. If we fail, we are going to experience more heat waves, rising sea levels, increasingly powerful storms, and droughts — among a myriad of other destabilizing effects. As a result, humanity will be faced with the displacement and deaths of billions of people.

We are in a climate crisis.

As we wait for climate catastrophe to strike on a global scale, its early effects and the anxiety they bring already pervade our daily lives. For me, this threat is deeply personal. As a South Florida local whose house sits at an altitude of four feet, rising sea levels mean the threat of displacement for my family and everyone I grew up with.

For many, these threats don't just exist in the future. Already, we see the insidious

creep of climate gentrification in inland, historically Black and Brown neighborhoods — like Little Haiti in Miami — where developers seek land beyond the reach of ever-rising tides. At the same time, changing atmospheric conditions have already yielded hurricanes of increasing strength that threaten both my home and those of our neighbors in the Caribbean. We already see these effects in places such as Puerto Rico and the Bahamas, which have been left reeling from devastating hurricanes.

However, as we practice compassion for our planet and each other, we have to look beyond our immediate vicinity. For me, again, this gets personal. A few years ago, the news was filled with headlines about a severe drought and water crisis in Cape Town, South Africa. For most of my friends, they were just

headlines. But for me, each one was a siren going off in my head. My dad was born and raised in Cape Town, and all I could think about was my family overseas. Having been forced from their land for race-mixing generations back — having suffered from systemic racism, poverty, and intergenerational trauma — my family would have to suffer even more. Each headline I read evoked a very specific type of pain, one from feeling so close to a problem but so desperately far away at the same time. And I felt that pain knowing that, as climate change progresses, such water crises will only get worse and devastate more communities.

Far too many of us have stories like these as we continue to watch deadly natural disasters and man-made environmental degradation wreak havoc on a global scale.

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Climate Strike attendees gathered at the bandstand in Tappan Square.

Photo by Chris Schmucki

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We have been demanding action from our governments for years, but it seems as if they don't care. Even here in Ohio, we have a state legislature currently passing bills like House Bill 6, which provides bailouts to nuclear and coal plants while gutting green energy standards and subsidies. They continue to fill their vaults with corporate money while ignoring the negative impacts their actions have on human health.

This is why we strike. We know that these policies endanger human lives, but fossil fuel companies and the politicians in their pockets don't care. Dangerous levels of carbon emissions mean that business is doing exactly what it's supposed to do. When the obstacle before us is one of this scale, with as much money as these companies have, individual action is not enough. Ditching plastic straws won't change the fact that just 100 companies are responsible for over 70 percent of carbon emissions since 1988, or that the U.S. military alone is a bigger

polluter than most mid-sized countries. We need collective action.

That is why we strike.

We stand in solidarity with frontline communities all over the world who are already facing the consequences of decades of apathy, who are already paying for the failures of our legislators with their bodies and minds, who have no choice but to wear masks to protect themselves from the unlivable conditions that have been imposed upon them. We stand with them, with our friends and families, with everyone who is already suffering and is going to suffer from the climate crisis.

We stand with them to demand action. For too long, our government has ignored this existential threat. For too long, they have put profit over people and numbered our days.

That is why today, people all over the world are hosting over 4,600 climate strike events across 139 countries to demand that international governments take action. In three days, the U.N. will be hosting an emergency climate

action summit in New York City to discuss solutions to this crisis. We're here today, striking in solidarity with millions of people across the globe, to show the U.N., the federal government, Ohio's government, and even Lorain County, that we mean business.

We demand the protection of Indigenous sovereignty. We demand environmental justice for marginalized communities. We demand the protection of biodiversity. We demand sustainable agriculture, and we demand a Green New Deal. We are making these demands today, alongside millions of people, because we know that we have to act not just for ourselves, but for everyone on the frontlines. No one can be left behind as we fight for a better future. We're here today out of desperation, out of pain, but also out of compassion for each other and our planet. We can't afford to forget that.

Growing up, my mom always told me a story about my *abuelo*, my grandfather, a man who cared for the land he lived on more than anyone I've ever known. She told me that one night at dinner when she was young, before they ate, she watched my *abuelo* take a pinch of sugar and sprinkle it at the base of the dining room table. She warned him that it would attract ants and asked him why he was doing it. He responded, "*Diay, mijita, ellas estaban aquí primero.*" "They were here first."

As we continue forward together — full of fear and anger, seeking change — I can only hope that we do so with the sort of compassion that's bountiful enough for even the ants. Thank you.



Students show the signs they created for the Climate Strike last September.

Photo by Richard Payerchin/The Morning Journal

Editorial Board Advisors Faculty Advisor

Throughout the process of producing and publishing this issue, the individuals below served as Editorial Board Advisors, providing invaluable input and feedback on content direction, as well as the editorial published below. The Editor-in-Chief and Managing Editor are ultimately responsible for all published content, including the editorial.

As the faculty advisor, Dr. Fiskio was consulted at various points throughout the production process, but was not directly responsible for any published content.



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COVID-19, Climate Justice Fundamentally Linked

Editorial Board

When this Editorial Board first met to discuss possible directions for our work in this issue, the possibilities seemed limitless. After all, environmental themes like resource overuse, air and water pollution, and environmental policy and racism all intersect with the Oberlin community in countless ways as climate change continues to impact life around the world, including in Northeast Ohio.

Now, as we complete this magazine while sheltered in place, our futures have changed in ways we had not imagined. The COVID-19 pandemic has come to encompass all aspects of daily life, and its intersections with the climate crisis — and how we think about personal responsibility,

equity, and public health — require our attention and focused effort.

An early tendency has emerged among American government officials orchestrating the public health response to refer to COVID-19 as “the great equalizer.” The inclination behind this sentiment is understandable; if you are a governor, for example, you want every single resident to exercise the utmost caution, regardless of their social and economic position.

However, the realities on the ground reflect a public health crisis that is anything but equal. COVID-19 is hitting hardest in communities that have endured environmental injustices for generations. From Louisiana’s Cancer Alley to Detroit’s most polluted zip codes, people in

marginalized communities — particularly Black, Indigenous, and Latinx communities — are dying at much higher rates than the rest of the population.

Harvard university researchers have already identified an early positive correlation between the presence of air pollution and COVID-19 death rates. Decades of discriminatory housing practices and disproportionate siting of high-pollution facilities in marginalized communities are now concentrating adverse public health outcomes, particularly in communities of color.

The stories that have emerged from this violent convergence are heart-wrenching. Just this month, developers in Chicago demolished the smokestack of the

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old Crawford coal plant. The demolition sent clouds of dust billowing into the community of Little Village, a predominantly Latinx, lower-income neighborhood already beset by a range of environmental justice concerns. Among these concerns is a high asthma rate, which results from the longtime operation of this facility and its twin, the Fisk coal plant.

After the dust settled on Little Village, Hilco, the responsible developers, apologized, saying that they had not expected the demolition to produce such a high quantity of potentially harmful dust. While Hilco did take steps to offer cleanup services and distribute masks to residents, much of the damage was already done.

The apology is particularly inadequate because, while Hilco maintains that it did not know the demolition would go so poorly, the residents of Little Village — who fought for years to shut down the Crawford and Fisk coal plants — knew exactly what was going to happen. They knew because the geography of environmental injustice in this country has, for years, clearly drawn the lines around whose concerns and health are prioritized and whose are not.

When politicians call COVID-19 “the great equalizer,” they may be well-intentioned, but they

also obscure the rifts of race and class that U.S. residents live with and within. We need to examine the role that the rhetoric of personal responsibility has played in how the pandemic is talked about in the United States, and the ways that it connects to how agency is framed in the context of the climate crisis and environmental issues more broadly.

There is widespread agreement that President Donald Trump’s administration has failed in its COVID-19 response. It ignored the warning signs and failed to ramp up testing capability in a timely manner. The unequal and devastating impact of COVID-19 on Black, Indigenous, Latinx, and immigrant communities is not just the result of a few capricious choices and an incapable leader, however. Environmental racism in what is now the U.S. has a 500-year history of genocide, colonization, enslavement, discrimination, mass incarceration, xenophobia, and militarism. Environmentalists have often failed to identify these structural injustices. Historically, this has resulted in xenophobic rhetoric and policies around population and immigration.

What the COVID-19 pandemic and climate disruption make clear is that we’re here because forces more powerful than any one of us as individuals have created an economic system so exploitative



Earlier this month, the demolition of the Crawford coal plant’s smokestack sent dust billowing into the Chicago community of Little Village in the midst of a global pandemic.

Photo by Tyler LaRiviere/Chicago Sun-Times



Louisiana's Cancer Alley, long known for the high presence of petrochemical facilities, is one of the places hit hardest by COVID-19. *Photo courtesy Giles Clark/Getty*

that it puts all of us at risk. That risk is unevenly distributed, falling disproportionately on communities of color, both globally and here in Northeast Ohio.

There is one notable difference between these dual existential threats: The pandemic shut down life around the world within a matter of weeks, whereas the onset of climate change has been a little more staggered, with wealthier communities being slower both to feel the impacts and react. But make no mistake — life has already been fundamentally disrupted in many communities as a result of climate change; to regard the pandemic as the present crisis and climate change as the future one would be a grave error.

In matters of both COVID-19 and climate, we must keep the larger players in view. Our fight is not with each other, but with the drivers of a globalized fossil fuel economy that have landed

us where we are today. As Mary Annaïse Heglar, OC '06, says on page 39, the narrative of climate change is not that complicated, and the villains are not that shrouded.

Still, beyond the general injustice of the entire situation, why comment on the public health implications of the COVID-19 pandemic — and a connected crisis in Chicago — in a publication geared primarily toward readers connected to Oberlin? After all, Ohio was among the states best prepared to handle its outbreak; we have already passed the peak in terms of daily necessary hospital resources, and have not come close to exhausting our statewide supply of hospital beds and other resources.

Because, while all of this is true, this is almost certainly not going to be the last pandemic of our lifetimes. Already, scholars and journalists — including Oberlin's own Sonia Shah, OC '90, whose interview is featured on page 51 —

have identified shrinking wildlife habitat as at least part of the reason COVID-19 was introduced to human populations. Other anthropogenic landscape impacts will only spread diseases further — including the melting of the polar ice caps, which are expected to contain viruses that have been frozen beneath the Earth's surface for thousands of years, never encountered by anything, or anyone, currently living.

While Ohio was fortunately well-prepared to weather this storm, we might not do as well the next time around. As discussed on page 24, Lake Erie's southeast coast is among the regions with the highest concentration of toxin-producing facilities in the U.S. — each one of these sites contributes to negative public health outcomes, which would only be expounded upon if the next public health crisis hits the state harder than this one did.

As we look toward the future, we know this incredibly painful moment will pass — although not for everybody. Many families, schools, churches, and communities will not be whole on the other side. In remembering those lives lost, we return to the words of author Arundhati Roy: “Another world is not only possible, she is on her way. On a quiet day, I can hear her breathing.”

We must meet this moment, as we should meet all painful moments: by taking the time we need to grieve and recover, and then imagining not only how we can be better, but also how we can shape the systems we've built to do better in the future. If they can't do better, we must work to cast those systems away and build better ones in their place.

Barefoot Dialogue: Seeking Connection to People and Land

Barefoot Dialogue is an experiment in the relation between humans and the land. Knowing that the care of humans cannot afford to be separated from the care of our environment, we work to listen fully and communicate vulnerably with each other as well as with the land around us. Gathered together in a circle, participants begin dialogues by sharing what strikes them about the centerpiece provided before and at the start of the session. The centerpiece is generally a text, movement, image, or exercise crafted specifically for each dialogue. While far from the experience of an actual dialogue, the writings below are loosely modeled after the Barefoot method, with five people familiar with Barefoot Dialogue responding to the centerpiece, holding the topic of climate and the Oberlin landscape in mind.

By Sam Bailey & Martha Hoffman

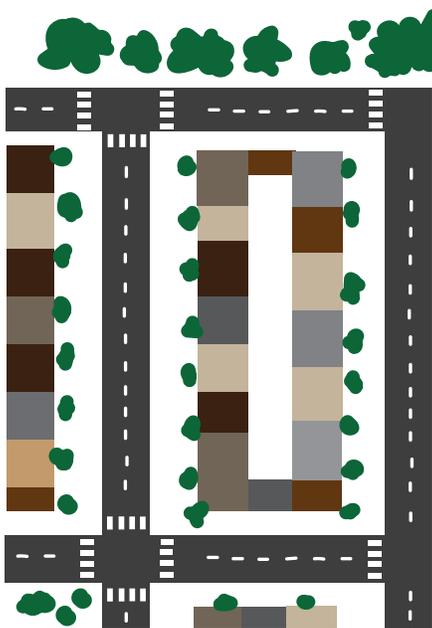
Layout by Lily Jones,
Graphics Editor

Centerpiece:

“Nature is always changing. And that’s why I think it’s important to focus on restoring our relationship to a place. That relationship stays the same: I need a landscape that will provide oxygen and water purification and berries to pick, a place where we can swim and where birds can sing in the canopy. Let’s work toward that relationship. The species composition might be different than it originally was, but if the water is pure and the berries can ripen, and if relationships of respect and reciprocity are restored, maybe we can live with that.”

Sahgar Gupta, College first-year, participant

For me, this piece emphasizes the importance of having a home in nature. If I can develop a familiarity with the universal dynamics of nature, and seek comfort in nature wherever I encounter it, I will have a home far greater than any house. I feel that I have already cultivated such a relationship with nature at Oberlin. The time I spend playing catch with a friend on the soccer field ties me to my natural environment in the same way that my time in my backyard at home does, despite the fact that I live hundreds of miles away.



Martha Hoffman, OC '19, sustained dialogue research intern

My friends back home on the East Coast call Oberlin “the middle of nowhere.” What does “the middle of nowhere” really mean? Recently, I biked west to Kipton. Honking geese drifted across the soy fields around me, distant from the sweet buzz of crickets here in the late summer. A jogger waved at my squinting smile. Last winter there was no one here to greet me, but I knew then and still know now that miles of these dry fields make me feel just as much as walking a city block. I crave this path that keeps changing.

Reggie Goudeau, College first-year, participant

One thing that I think of when imagining change that still keeps a landscape the same is the new housing scheduled for next year. I may only be a first-year, but it's still very pleasant to see another space of inclusivity. I love having the Afrikan Heritage House for that, and I truly want others on campus to have a similar place to this. A key part of understanding the landscape of Oberlin is seeing the sense of community that forms among students.



Sam Bailey, OC '19, sustained dialogue coordinator

Today I've found Kimmerer's words in the weather. There are skateboarders in the parking lot behind the Kohl Building — five shirtless teenagers with a Bluetooth speaker upped to the max — proving to me that "nature is always changing." It is 51 degrees Fahrenheit, sunny, but I have checked my weather app and know that a mix of rain and snow will be here by tomorrow, and that the parking lot will be empty then. The skateboards "crack" off the curb and the noise, ringing off the big jazz building, snaps my attention back to the world, the weather, as it exists right now.

Robin Wall Kimmerer,
 "Two Ways of Knowing:
 Robin Wall Kimmerer on
 Scientific and Native
 American Views of the
 Natural World," interview
 by Leath Tonino, *The Sun*,
 April 2016

**Shogo Ishikawa,
 College third-year, facilitator**

Having lived along the coast of Japan, water is more familiar to me than firm and stable "land." In my childhood, I heard fishermen shouting in auctions in the fish market. Whenever I would walk into the ocean, I could feel the water rushing on and off my feet — water and my skin connecting and disconnecting. There is no water like that in Oberlin, no fishermen shouting and no waves of the sea. But water has changed its figure here — to snow. Lying on a thick layer of snow, I sense its particles, which are soft and tender like water in my home.





PART I:

Pipelines and Pollution in Northeast Ohio

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Eight Years In, NEXUS Fight Continues

Nathan Carpenter
Editor-in-Chief

For the better part of a decade, Oberlin residents, City officials, and College students have been involved in a battle against NEXUS Gas Transmission, a 256-mile pipeline extension that was ultimately built through Oberlin city limits and continues to be opposed in court. The pipeline, which begins in the eastern part of Ohio and travels through the state before connecting to a transfer point in Michigan, is designed to carry up to 1.5 billion cubic feet of natural gas daily. The project represents a joint partnership between DTE Energy and Enbridge, Inc., and went into operation in September 2018.

Opponents of the pipeline have argued that, due to insufficient demand, building the pipeline was not actually in the public interest. NEXUS is undersubscribed, meaning that only a portion of its full capacity to transport gas is actually used. Further, a significant portion of its subscribed capacity is intended for foreign markets in Canada, not American consumers — nearly three-quarters of the gas transported by the pipeline every day is destined for Canada, the City of Oberlin argued in a brief filed March 2019. Opponents have further expressed concerns in court about the pipeline's proximity to residential structures, should some kind of disaster occur.

The federal agency that oversees the construction and siting of natural gas pipelines like NEXUS is the Federal Energy Regulatory Commission. Established in 1977,

FERC comprises five commissioners that are appointed directly by the president.

In recent years, some have critiqued FERC for a perceived willingness to greenlight pipeline projects that create undue environmental and health burdens for the communities they are sited within. Specifically with regard to NEXUS, the City of Oberlin has argued that FERC did not seek adequate justification in approving the use of eminent domain to provide space for the pipeline to be built through the city.

The most recent legal decision in the NEXUS fight came down in September 2019, when the District of Columbia Court of Appeals largely sided with the pipeline but did agree with the City of Oberlin that FERC needed to better address concerns about the gas it was transporting to foreign markets.

"[FERC] failed to adequately justify its determination that it is lawful to credit Nexus's contracts with foreign shippers serving foreign customers as evidence of market demand for the interstate pipeline," the decision read. Ultimately, the court decided to remand without vacatur, meaning that FERC will need to provide further justification for the decision but, in the meantime, the pipeline's operations can continue uninterrupted. As of yet, FERC has not officially responded, although attorney Carolyn Elefant, who represents the City of Oberlin, said that this timeline is not unexpected.

Last year's ruling represented just the latest development in a nearly decade-long saga that began in 2012, when NEXUS began to enter into precedent agreements to

transport natural gas. The intention of these long-term contracts was to demonstrate sufficient market demand for the pipeline, one of the prerequisites for FERC approval.

Between 2012 and 2015, NEXUS gathered commitments from eight different entities that represented approximately 60 percent of the proposed pipeline's daily capacity, according to the September court decision.

Then, in November 2015, NEXUS sought FERC authorization to construct the 256-mile pipeline extension under Section 7 of the Natural Gas Act, which grants FERC oversight of such projects. The City of Oberlin opposed NEXUS' application, arguing that the project had not effectively demonstrated demand for the gas it would transport, nor proved that building the pipeline would be in the public interest or protect public safety.

The City also cited the Oberlin Codified Ordinances, commonly referred to as the Community Bill of Rights. Codified in 2013, the ordinances are meant to prohibit the development of extraction infrastructure within city limits, including natural gas pipelines.

John Elder, OC '53, has been heavily involved in local efforts to oppose the pipeline through his role as vice president of the Oberlin-based organization Communities for Safe and Sustainable Energy. He said that when CSSE became aware of plans to build the NEXUS pipeline in 2013, members worked with the Pennsylvania-based organization Community Environmental Legal Defense Fund to put together the ordinance.

“CELDF provided the basis for our Oberlin Community Bill of Rights and Obligations Ordinance, which both affirms the rights of nature and bans fracking and fracking infrastructure,” Elder said. “CSSE is the organization that got that ordinance passed, so it became city law. It’s on the basis of that ordinance that the City of Oberlin has opposed the NEXUS pipeline, and [Oberlin] is at this point the only city that has carried all the way to the federal appeals court a petition to have a rehearing of the issuing of the license for NEXUS.”

Undaunted, NEXUS continued to press ahead with a planned construction route going through Oberlin as well as other Ohio and Michigan communities.

In July 2016, FERC released a draft of its environmental impact assessment, and allowed time for responses from petitioners — namely the City of Oberlin and the Coalition to Reroute NEXUS. Both groups filed formal responses in August of that year, and the final environmental impact statement was released in November. The final impact statement did not advise FERC one way or another whether to proceed with the project, but it did argue that “natural gas transmission pipelines continue to be a safe, reliable means of energy transportation,” citing safety standards imposed by the Pipeline and Hazardous Materials Safety Administration, an agency within the U.S. Department of Transportation.

“One reason FERC said that proximity didn’t matter was because pipeline safety laws don’t have any restriction on proximity to houses,” Elefant said. “The company said that they were going to abide by the safety regulations and that they would operate it safely. We argued that that was ridiculous.”



The NEXUS pipeline’s route through Oberlin. Photo courtesy of Bryan Rubin, OC ’18

The City of Oberlin’s March 2019 brief filed in the district court noted that the final environmental impact statement found 178 residential structures within 50 feet of the pipeline’s planned route, as well as another 62 residential and commercial ongoing development projects. Oberlin’s legal team hoped to use these concerns to shut the project down, but was unsuccessful.

“We said to FERC, look, even though [PHMSA guidelines] say it’s safe, there is a risk that if something does happen, it’s going to be catastrophic,” Elefant said. “So why don’t you just move it away? That would be a rational response. We didn’t get anywhere. They just said, ‘The company says they’re going to operate safely, [and] that’s all we care about.’”

The environmental impact assessment was one of the final

formal steps taken before FERC granted NEXUS “a Section 7 certificate of public convenience and necessity,” in August 2017. In granting the certification, FERC maintained that NEXUS’ precedent agreements sufficiently proved market demand and that the pipeline’s construction and operation did not represent a threat to public safety. Then, in late December of the same year, a district court ruled that NEXUS would be able to use eminent domain to acquire property necessary to the pipeline’s construction. In July 2018, FERC denied a request for a rehearing filed by the City of Oberlin.

Eminent domain is a process by which government agencies can compel private landowners to turn over their property for public use, provided that the landowners are compensated for the loss. In the case

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Students protest a settlement with NEXUS at a February 2018 City Council meeting
 Photo by Bryan Rubin, OC '18

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of NEXUS, the pipeline’s mission was deemed to be in the public interest, and eminent domain was approved. In May 2019, Carol Banta, an attorney representing FERC, argued that the use of eminent domain was minimal, as 93 percent of the pipeline was constructed without compelling landowners to sell their property.

“Even if it’s one percent of eminent domain needed, that’s someone’s property being taken, and that raises constitutional issues,” Court of Appeals Judge Robert Wilkins countered. Still, because the court did not find sufficient cause to halt the pipeline’s operations, the case was remanded and NEXUS’ operation was not interrupted.

As City officials and Oberlin residents, including Elder, have worked to oppose NEXUS through legal channels, Oberlin College students have also consistently organized around the issue.

“Different people had different reasons why they thought it was a problem,” said College fourth-year Rachael Hood, who is a leader in

Students for Energy Justice. “One that everyone agreed on is that the risk of pipeline explosion, especially [in] Oberlin, was really concerning because [NEXUS] is right next to a large residential development. ... And then I think, to different degrees, a lot of people — including myself and SEJ — are really concerned about fossil fuel industries and extractive industries perpetuating climate change.”

While students and City officials are largely united in their desire to stop NEXUS’ operation through Oberlin, there have been moments of significant discord between the two groups. In March 2018, during a regularly-scheduled meeting, City Council voted 4–3 against a potential settlement with NEXUS — a move supported by students (“Final Pipeline Vote Rejects NEXUS Settlement,” *The Oberlin Review*, March 9, 2018).

At the previous meeting, however, it appeared as though the council was ultimately going to go the other way. Caught off guard, students showed up to protest in a manner that rubbed

some councilmembers the wrong way.

“I am saddened by the suggestions — either implicitly or explicitly, some by those who don’t know me and some by those who do — that I lack integrity or principles,” Councilmember Kristen Peterson said.

Looking back two years later, Hood — who read a statement at the March meeting apologizing for the way that students’ actions had been perceived — said everybody was doing what they thought was right for Oberlin.

“There was definitely tension at that time, which is unfortunate,” Hood said. “I think, ultimately, everybody involved was just trying to do the right thing. A lot of the City Council members who were thinking about accepting the settlement had been really vocal against NEXUS. And the City put up a lot of money to pay for the lawyers in the legal battles with NEXUS. That’s really admirable — we just had disagreements over whether or not to accept the settlement.”

Today, NEXUS remains operational, although opponents in Oberlin remain hopeful that they may, one day, be able to shut it down. Elefant says there’s not necessarily a set timeline for what happens next.

“I think the problem for FERC is that they’re sort of stuck, because we did raise an issue that nobody saw coming,” Elefant said, regarding the argument that the pipeline could not simultaneously serve the public interest and be undersubscribed. “I don’t think they have a standard response. So, I think internally they’re trying to decide what to do. ... I think that they have to come up with some sort of way to justify the pipeline without that gas in there. And I’m not sure if they know how to do it at this point.”



Pipeline infrastructure in the Appalachian region.

Photo by Alexander Nazaryan/Yahoo News

Appalachian Storage Hub Development Sparks Concerns

Dan Kennedy
Features Editor

Appalachia has been a hub of fossil fuel extraction for over a century, and the Ohio Valley Environmental Coalition has been leading anti-pollution efforts in the region since Dianne Bady founded the organization in 1987. In 2017, months before her death, Bady was sifting through industry magazines and noticed several proposed projects related to plastic production. Slowly, she stitched together a picture of what was to come: a massive petrochemical complex, now

known as the Appalachian Storage Hub, spanning Kentucky, Ohio, West Virginia, and Pennsylvania. This facility would store fracked natural gas fluids in underground caverns and process these petrochemicals into the building blocks of plastic.

The coal industry has traditionally paid the bills for Appalachian families, but natural gas has been on the rise since the shale boom began in the early 2000s. Fracking projects swept across the region, along with pipelines to transport fracked natural gas — including the NEXUS pipeline that runs through

Oberlin. For more on NEXUS, see “Eight Years In, NEXUS Fight Continues” on page 18.

Still, the industry’s future is uncertain; it has expanded rapidly in part thanks to the low market price of natural gas. However, affordability is also one of the industry’s greatest challenges: it has prevented gas companies from generating the profits promised to investors.

“There’s just a glut of natural gas, with nowhere to go,” says Dustin White, OVEC’s project coordinator focusing on the Appalachian Storage Hub.

Continues overleaf

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Companies are looking for ways to increase demand for their product, and it looks like they may have found one in ASH.

It's important to understand the role of the proposed storage hub in the petrochemical supply chain. It all starts with natural gas, which, importantly, is not actually one type of gas; rather, it is a combination of methane, ethane, propane, butane, and more. It is usually extracted through a process called fracking, in which a briny liquid is used to drill down through layers of shale to release pockets of gas.

While methane is commonly used to generate electricity, heat buildings, and fuel industrial facilities, ethane is the primary chemical of interest for the Appalachian Storage Hub. If the petrochemical complex is built, fracked ethane will travel through a web of pipelines connecting extraction sites to the storage complex. Once there, it would be stored in giant underground caverns, mostly abandoned coal or salt mines. It would then travel via pipeline to ethane cracker plants, where the chemical would be heated and broken down into ethylene. The complex would also include propane dehydrogenation facilities, which convert propane into propylene. The ethylene and propylene would then be shipped overseas to manufacture plastic. The storage caverns and chemical plants will straddle the Ohio River from Northern Kentucky through southeast Ohio, across much of West Virginia and into southwest Pennsylvania.

Beyond the general picture, the exact scale of the project

and locations of specific pieces of infrastructure are being kept under wraps by Appalachia Development Group. The company describes itself as the "strategic driving force of the Appalachia Storage and Trading Hub."

"There are no exact numbers except for what is already in place," White cautions. "Appalachia Development Group has suggested up to five large ethane crackers with the potential of other smaller crackers, several massive underground storage sites, a potential "six-pack" of "thirty-two" inch pipelines running the length of the Ohio River, several thousand miles of feeder pipelines, and hundreds of additional chemical refineries."

Every type of proposed infrastructure and each stage of the petrochemical process can create environmental hazards. White describes this as "cradle-to-grave" environmental damage.

"From the moment the natural gas liquids are fracked to the plastic waste that is the end product, there's no way that it does not harm human health in some way," he said. "So it's completely overarching."

Many of these dangers are well-understood. Fracking wells are known to leak and pollute nearby groundwater: A 2017 study by *Environmental Science & Technology* examined 31,481 wells over a 10-year period and found 6,648 serious leaks. Fracking wells also release enormous amounts of raw methane — a greenhouse gas 84 times more potent than carbon dioxide — in the first two decades of release into the air. The storage hub's

role in propping up the domestic natural gas industry could also have negative consequences for the climate, further solidifying the U.S.'s dependence on fossil fuels.

These risks to environmental safety and public health are only the tip of the iceberg. The pipelines through which natural gas travels are largely shielded from government regulation and frequently leak or cause explosions. The cracker plants, in addition to emitting hazardous air pollutants such as carbon monoxide and particulate matter, would also release pollutants into surface water.

"There's more of a potential that the underground storage [facilities] will contaminate groundwater, whereas the facilities set above ground like the cracker plants will contaminate surface water," White said.

The entire complex is built around the Ohio River, thus jeopardizing the water supply of about 5 million people. Finally, increased plastic production would exacerbate plastic pollution in large bodies of water around the world.

Other dangers to public health are uncertain, in part because the industry is not releasing information about the cracker plants and other aspects.

"As far as a lot of the pollution and chemicals, there [are] a lot of them we don't know, for the simple fact that a lot of this stuff is proprietary knowledge," White explained. "But some of the pollution will cause things like cancers [and] increased asthma."

Destructive infrastructure projects are in no way new to



A sign protesting the ASH development in the Ohio River Valley.

Photo by Alexander Nazaryan/Yahoo News

Appalachia. As White recounts, this is just the latest in a long history of extraction and pollution in the region, which has taken a toll on residents' health.

"It really just compounds the issues that are already there," he said. "Instead of taking steps forward to clean up, we're actually taking steps back to make it worse."

These environmental hazards place the storage hub under the purview of several regulatory agencies, including state-level Environmental Protection Agencies. White describes a chaotic regulatory process.

"The industry has never built anything like this in our region," he said. "So we're kind of learning the regulations as the regulatory

agencies are making [them] up."

The Clean Air Act and Clean Water Act mandate that certain polluting facilities receive permits in order to limit their environmental impacts. A cracker plant planned for Belmont County, Ohio, has received two permits from the Ohio EPA — one for air and one for water pollution. The water permit allows the plant to release pollutants into the Ohio River, including 20 kilograms of phosphorus a day and close to four kilograms of zinc; the air pollution permit caps annual carbon monoxide emissions at 500 tons, nitric oxide emissions at 144 tons, and particulate emissions at about 72 tons.

According to the Ohio EPA, the permits were "written to

be protective of human health. Adverse health and welfare effects are not expected." The agency says it is "confident the facility will adhere to the permit." Environmental activists in the region say that regulatory agencies are too deferential to extractive industries and often fail to protect the health of local residents.

OVEC is wasting no time organizing opposition to the project, which is still in the early stages. As of right now, a company called PTT Global Chemical is still seeking financial support to build the previously mentioned cracker plant in Belmont County. The first of the hub's chain of underground storage facilities is also in the works, 12 miles south of the cracker plant in Clarington, Ohio. Both sites lie on the Ohio River.

At this point, OVEC is focusing on educating people who could be affected by the storage hub so that an engaged public can spring into action once construction is announced. In Belmont County, residents are just beginning to learn about the incoming cracker plant and larger petrochemical complex. No one knows when PTT Global Chemical will secure the necessary funds to begin construction. Barb Mew, a resident near the proposed ethane cracker plant in Belmont County, Ohio, told the West Virginia newspaper, *Charleston Gazette-Mail*, last August, "It's kind of a piecemeal approach where it's a little bit at a time, where you don't realize the scope of what's happening and by the time you do, it's too late."

PTT Global Chemical did not respond to request for comment.

In UCC Report, Northeast Ohio Identified As “Hot Spot” of Environmental Injustice

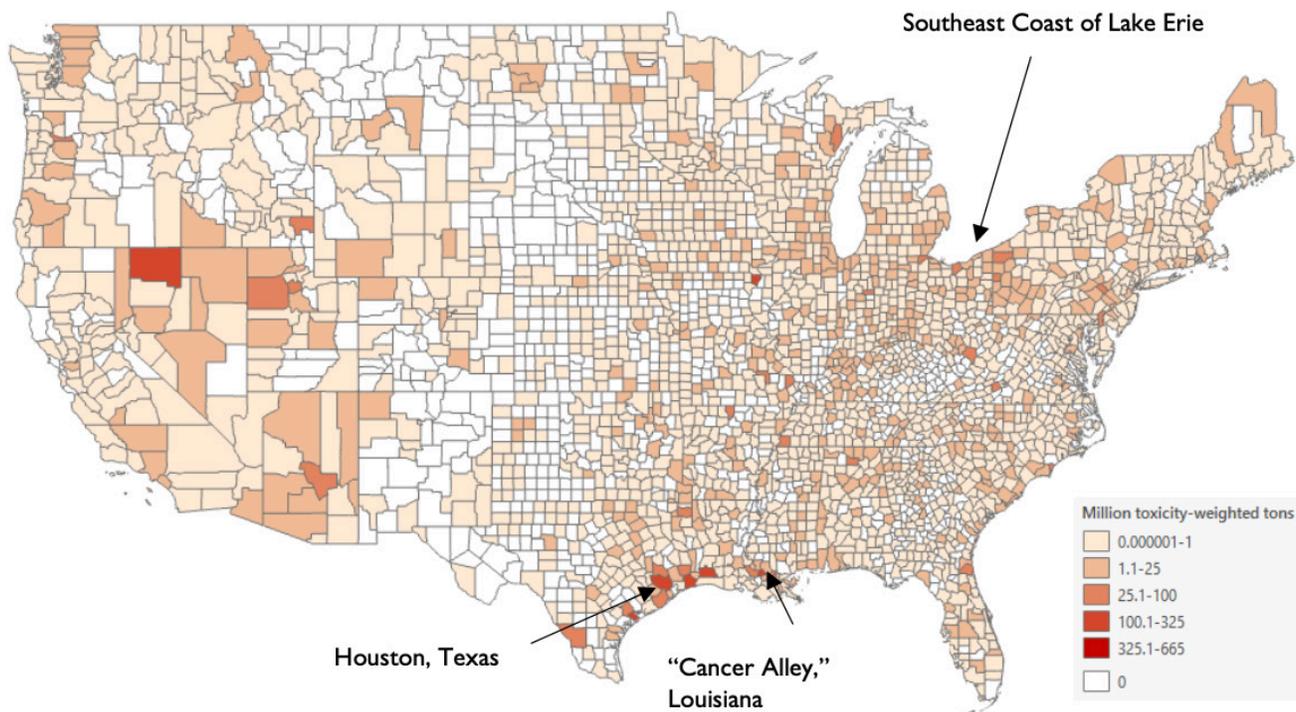
Nathan Carpenter
Editor-in-Chief

This past February, the United Church of Christ published a report on polluting facilities located in or near residential communities across the country. The report, titled “Breath to the People: Sacred Air and Toxic

Pollution,” focused on 100 “super polluters” throughout the United States, and especially on the impact of those facilities on children under the age of five living in their vicinity.

The report was primarily authored by Rev. Traci Blackmon, UCC associate general minister, and Rev. Brooks Berndt, UCC

minister of environmental justice. In assembling the report’s narrative, the authors chose to focus on three “hot spots” of toxic air emissions: the Houston metropolitan area, Louisiana’s Cancer Alley, and the southeast coast of Lake Erie, including Cuyahoga and Lorain Counties.



A report released earlier this year by the United Church of Christ identified three “hot spots” of environmental injustice, visible in the map above, which was included in the report.

Graphic courtesy of the United Church of Christ

For those not from Northeast Ohio, its inclusion on the list may come as a surprise, especially alongside a region like Cancer Alley, made notorious in environmental justice literature because of sustained exploitation by the petrochemical industry.

“Yet, it is not only the children in these well-known areas of toxic danger who command attention in this report,” Blackmon and Berndt wrote in the introduction. “Some of the facilities in the report’s Toxic 100 list have a seemingly inconspicuous existence. They hide in plain sight and threaten children in communities across the country.”

With a decades-long history in the environmental justice movement, the UCC has significantly advanced the study of practices enabling the disproportionate siting of polluting facilities within marginalized communities, as well as the devastating public health consequences of environmental racism. In 1987, the UCC’s Commission for Racial Justice published the landmark “Toxic Wastes and Race in the United States,” which found that race was the most important determining factor in where toxic industrial facilities are sited.

Then, in 1991, that same commission organized the First National People of Color Environmental Leadership Summit. The summit brought together hundreds of environmental leaders of color, who together drafted and adopted the 17 Principles of Environmental Justice,

which continue to be heavily referenced in environmental justice literature today.

All of this is to say that Northeast Ohio’s inclusion in the report is especially noteworthy given UCC’s long and sustained history of environmental activism, and places the region in the context of ongoing battles against environmental injustice.

In its Northeast Ohio section, the report discusses MPC Plating Inc, which is located in Cleveland’s Hough neighborhood and produces fabricated metals. The plant is responsible for high levels of air pollution, including many toxins that are carcinogenic.

According to the report, more than 7,000 people live within a mile of MPC, 91 percent of who are people of color — a much higher percentage than the overall population. Further, 71 percent of the people living within a mile of the facility are low-income.

And MPC is just the third most noxious industrial facility in the region when ranked by toxicity-weighted tons of reported annual air pollution. The BASF Corp. facility in Lorain County emits about five times as much toxicity-weighted tons of air pollution, with approximately 200 more people living within a mile of the facility. While the environmental injustice narrative is a little less extreme than in the Hough neighborhood — 23 percent of individuals living within a mile of the BASF Corp. facility are people of color, compared to 91 percent — this figure still exceeds state population averages.

Other dynamics persist in the region as well. Earlier this year, residents in the city of Lorain — just up the road from Oberlin — filed a \$41 million lawsuit, alleging that customers had been overcharged for water and sewer services for years. Petitioners further argued that the overcharging had led to water shutoffs, leaving low-income residents unable to meet their basic needs.

Water shutoffs are a well-documented issue across the Midwest; the past couple years have seen national outrage about the practice in both Chicago and Detroit, for example. It’s not as frequently, however, that you hear about these environmental challenges more commonly associated with urban environments discussed in a more rural context.

The UCC report, as well as Lorain’s developing water story — certainly only more pressing in the context of the COVID-19 pandemic — serve as important reminders that narratives of environmental injustice. These narratives, which too often break along lines of race, class, and ability, exist in our own backyard and demand pressing attention.

The coming years of climate change will drastically redefine environmental interactions in communities across the country and the world. As those with a commitment to sustainability and justice meet these challenges head-on, we will need to ensure that the needs of all communities are addressed, including those like Lorain County that sometimes escape the view of larger environmental narratives.

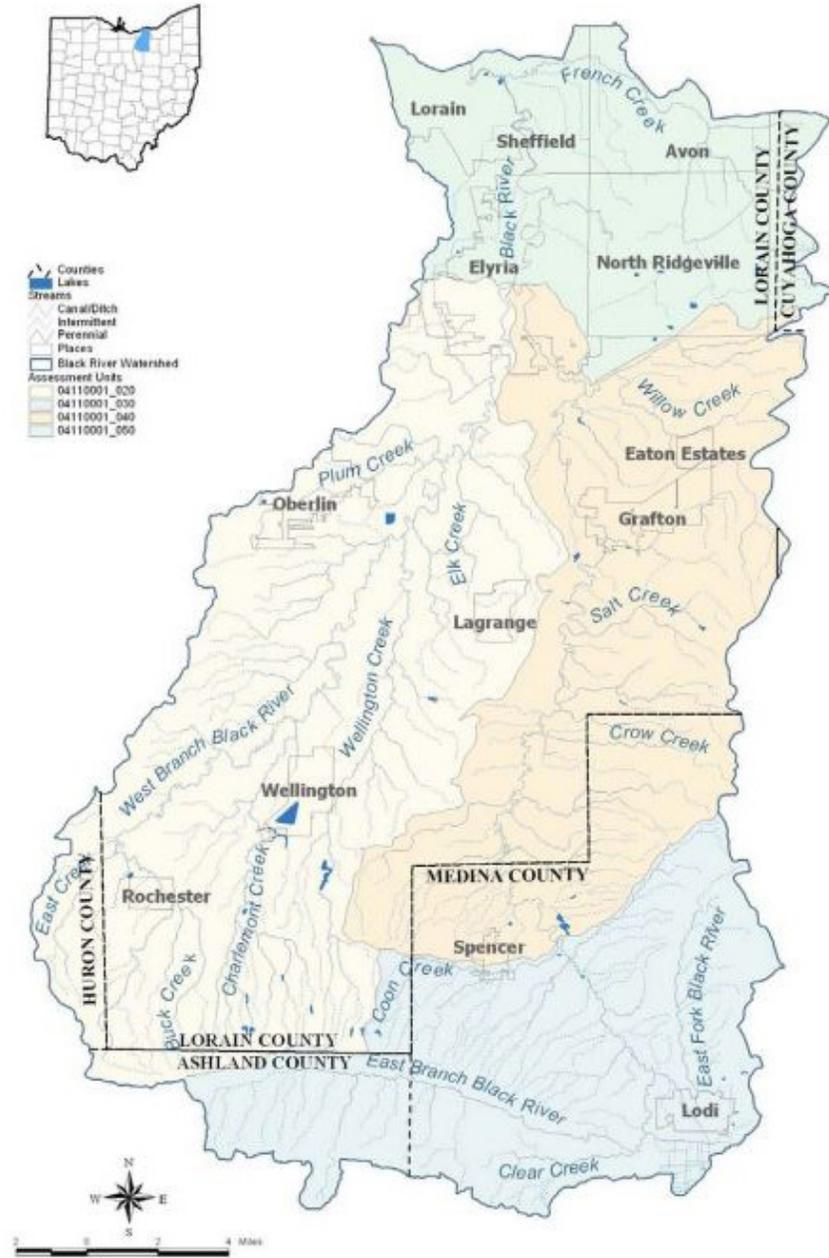
Water Management in Oberlin: An Overview

Ella Moxley

For decades, environmental activists and agencies in Northeast Ohio have worked to ensure safe drinking water for residents and safeguard surface water against pollution. In the mid-20th century, the picture was bleak: The Black River, a tributary of Lake Erie which runs through Oberlin, was nicknamed the “River of Tumors” because of dead fish littering its coastline. When the Cuyahoga River caught fire in 1969 as a result of industrial waste, Congress took action to pass the Clean Water Act.

“Cleveland has a special place in the history of environmental legislation in the sense that when people see rivers catching on fire, they find that troubling and they’re actually motivated to take action,” said Paul Sears Distinguished Professor of Environmental Studies and Biology John Petersen.

Like its much-larger neighbor, the City of Oberlin also has a long history with water management. Oberlin has operated a public treatment plant since 1887 to provide residents with safe drinking water. According to the Oberlin Heritage Center, before the construction of water treatment facilities, residents primarily obtained their water from private wells and Plum Creek. This put individuals at risk of waterborne diseases like typhoid. Additionally, use of these private wells in place of a centralized supply led to an inadequate response to a fire that swept through the downtown area of Oberlin in 1882. This incident prompted voters to adopt a bond measure to construct a city water supply system. With



The Black River Watershed, where the City of Oberlin collects its drinking water.

Photo courtesy of Ohio EPA

an additional small sum of money provided by Oberlin College, the City built Morgan Street Water Works.

Oberlin has always been a town and college of firsts, and water was no exception. OHC notes that Oberlin was the first municipality in America to install a lime-soda water softening plant. Soft water — water with low concentrations of dissolved minerals

— is easier to use for cleaning and bathing because it lathers with soap more easily.

Today, the city’s water treatment plant is located on Parsons Street. The water that Oberlin residents drink comes from the Black River, which is Oberlin’s local watershed. Unlike sources such as groundwater, however, water running on the

surface can be more easily compromised by industrial and agricultural runoff.

“The principal problem [in Oberlin] is farming,” said Petersen. “You get agricultural runoff. People worry about pesticides, but mostly the problem is fertilizers that travel into the river systems. And when they get into Lake Erie, they cause algal blooms.”

Hazardous algal blooms have been a severe problem for Northeast Ohio in recent years. When too much fertilizer makes its way into the water, it fuels the growth of algae, which depletes the water’s oxygen supply. When oxygen levels become dangerously low, they can create a “dead zone” in which aquatic plants and animals cannot survive. In 2014, an algal bloom in Lake Erie made Toledo’s drinking water supply unsafe to drink. Rivers are also potential breeding grounds for algal blooms, especially if they are slow-moving. For more on current challenges facing the Great Lakes, see “As Great Lakes Water Levels Rise, Connection to Climate Change Unclear” on page 60.

In Oberlin, the drinking water supply is generally safe to consume, as it currently meets the Environmental Protection Agency’s legal limits for contaminants found in the drinking water. Trace amounts of some chemicals are often found in municipal water supplies but may not be present in concentrations high enough to cause health or cosmetic damages.

The EPA regulates levels considered safe for consumption through the Safe Drinking Water Act. However, the National Academy of Sciences estimates that between three and 10 percent of municipalities violate safe drinking water standards each year.

Furthermore, some nonprofits feel that EPA standards are not stringent enough to sufficiently protect public

health. The Environmental Working Group is one example of an organization that sets independent standards for safe drinking water. Although Oberlin is in compliance with federal standards, the water supply failed to meet eight of EWG’s standards in 2019.

Oberlin exceeded EWG’s health guidelines for nitrates, a component of fertilizer that fuels algal blooms, and total trihalomethanes, which, at high levels, can cause cancer and adverse reproductive outcomes. Other substances, such as bromodichloromethane and chloroform, were also found in Oberlin’s water supply above EWG’s suggested limits, but these chemicals — all known carcinogens — are not currently regulated by the EPA.

One of the best ways to protect our drinking water is by preventing chemicals from entering into water systems in the first place.

“The most important area around the river system is the area most immediately adjacent to the river,” Petersen said. “Riparian area is the name for the area right along a riverbank. Vegetating the riparian area, legislating so that you regulate and expand that area. But the other thing has to do with when farmers apply fertilizer, how much they apply, and in what forms they apply a fertilizer.”

Northeast Ohio has made immense progress improving regional water quality over the last several decades. However, numerous threats to clean water remain, and past achievements can be reversed. In January, the Trump administration modified how the EPA enforces the Clean Water Act, allowing companies to dump pesticides and other pollutants into streams and wetlands. The struggle to secure clean water for local residents is one that will surely continue on in the years and decades to come.



Oberlin’s water treatment plant.

Photo courtesy of the City of Oberlin

“Don’t Frack With Us:” How to Stop a Pipeline

Rachael Hood

After staunchly opposing the construction of a pipeline through their community, some people will agree to settle and concede the fight while others take to the trees, putting their bodies on the line to stop the destruction of their land. What informs these different responses and why can they look so different for different people?

Pondering these questions as I reflected on the anti-pipeline organizing I have been involved in throughout my four years at Oberlin, I decided to do some research that later grew into a year-long senior thesis. Over the past six months, I have interviewed organizers battling two different pipelines: one in Appalachia, the other in the Rust Belt. Both groups fought hard to prevent the pipelines from being sanctioned. But once both pipelines received their inevitable approval from the rubber-stamping Federal Energy Regulatory Commission, the Rust Belt camp all but stopped fighting, while the Appalachian group’s struggle continued.

The truth is, if organizers recognize the problem of natural gas pipelines as rooted in larger systems of capitalism, colonialism, and patriarchy, rather than as simply a problem of regulatory inadequacy, they become more willing to fight both inside and outside of courts and regulatory agency processes. The Rust Belt camp largely played it safe and mostly fought within legal and regulatory means; though they put up important resistance, it was not enough to slow construction or stop it from being put in the ground.

On the other hand, the Appalachian camp has implemented a huge direct-action effort that also engages with larger systemic issues. This approach has been essential to delaying construction long enough that nonprofits and grassroots groups can keep working within the legal system to get construction permits revoked. The fact that the pipeline has not been completed two years after construction began, as one organizer put it, “is an amazing win.” Illegality, it seems, is necessary for the legal and regulatory system to operate as organizers believe it is “supposed to.”

In the Rust Belt camp, opposing this pipeline was the first organizing experience for many, and the group did not have the oral histories of subversion and resistance that many Appalachian folks carry with them. Appalachian organizers built resistance strategies that allowed for a variety of actions depending on individuals’ comfort levels, from baseline water testing and submitting public comments, to shutting down agency meetings and blocking excavators with their bodies — all while still supporting a common goal. The Appalachian camp has also created a community — one of folks who show up for each other, who feed each other, who make music together, and who create alternative systems of mutual aid. Organizers have found common ground and built community, in part because of preexisting networks in a place with a deeply-rooted history of resistance.

I asked organizers from both fights to define what success means to them in this effort. The Rust Belt camp was mostly focused on stopping the pipeline, or at least rerouting it, and educating localities along the way. The Appalachian camp, looking down the road to sustain activists for years, usually had an answer that boiled down to “carrying on to the next fight.” Facing the crisis of one fracked gas pipeline, they used that space to create a movement for so much more — a Green New Deal, climate justice, regulatory reform, and building a coalition of people who share the same passions. This is why they have remained in the metaphorical trees, rather than accepting what Rust Belt organizers have deemed an inevitable fate.

I am writing this article as Oberlin prepares to shut down campus for the semester due to community spread of COVID-19. I am thinking about the climate crisis, the global pandemic, and all of the other disasters facing our world. I am reminded of what I have spent years learning here at Oberlin: as Naomi Klein puts it: “the ‘shock doctrine’ allows the system to use our disorientation and fear to push through radical pro-corporate and unjust measures that punish marginalized folks.”

Whether we are tackling pipelines or a virus that endangers millions of people, we must not give into this fear. We are not isolated and alone. As the organizers I have talked to have taught me, our survival requires our shared humanity and community. We have to build something better together.



Photo by José Barrera



PART II:

The Politics and Rhetoric of Climate Crisis

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As Climate Movement Grows, Organizers Turn to Social Media

Aly Fogel

Today's young people largely share two things in common: pervasive use of social media and a collective anxiety about climate change. It's no surprise, then, that Twitter, TikTok, and other social media platforms have become epicenters of climate-related content.

For College second-year Grace Smith, creating memes is a part-time job. Smith is the social media coordinator for Sunrise Movement, a youth-led climate advocacy group with hubs across the country, including a chapter in Oberlin. Smith's work with Sunrise's national social media team focuses on "social humor, rapid response, and data analytics." One TikTok shared on the Sunrise Movement Twitter on Feb. 27 shows Smith in an Oberlin sweatshirt, staring at her phone, shocked and annoyed while the lights flicker and change colors. Above her head are text bubbles: "Can I come over?" the U.S. military texts her. Smith replies, "noo my hair is oily :(," and the U.S. military texts back, "On my way! #NoWarForOil" is featured in the text above.

While entertaining, such posts may come across as largely ineffective in the face of issues as large as American imperialism. However, Smith explained that social media can bring people into the cause; Sunrise, for its part,



A meme posted on the Sunrise Movement's official Twitter page. Social media has become an important venue for environmental activism. *Photo courtesy of Sunrise Movement*

has built an impressive and growing movement of youth activists across the nation.

"I started doing analytics reports, and whenever we had a surge of followers, it was because a meme went viral," said Smith.

The dream is that Sunrise's social media inspires others to create change, said Sunrise Oberlin's Communications Director and College second-year Rachel Serna-Brown.

"I think that when things do go viral, it gets more national attention and gets the attention of more established publications, which in turn ... gets more atten-

tion from politicians, which is really the main goal of all of it," said Serna-Brown.

However, raising awareness alone isn't enough. Online climate activists face a number of obstacles that prevent productive engagement with their content on social media. Instead of fostering real activism among users, social media sometimes enables passive supporters of a cause to mindlessly scroll through content on their feed.

For one, activist accounts may be preaching to the choir. Siloing is a social media phenomenon in which an algorithm shows

users content that is similar to what they've liked before. Allison Chaney, a researcher at Princeton University, found that these algorithms effectively sort users into "bubbles" of ideological consensus. In an interview with *The Conversation* last year, Chaney explained that "as people within a bubble behave more similarly, the bubbles start to shrink," further insulating users from unfamiliar ideas and information. This means that social media posts intended to educate users about climate issues or encourage action are most likely to be seen by people who are already educated and active, rather than reaching new people.

Even if important information does reach a new audience, there's no guarantee that people will read it.

"I found out that people do not like to read an article quote," Smith said. "I was shocked — they would rather like and share articles that are briefly summarized in, like, two sentences. ... And I looked at the share times — no one was reading [the articles]. They would just read the summary and be like, 'Oh yeah, that's important to share.'"

It's also entirely possible that, rather than inspiring social media users to take action, climate-related content can lead to defeatism and apathy. This is particularly true of memes, which is Smith's specialty.

"One of my posts that did the best ... was a meme that was very nihilistic," Smith said. "I'm always [asking myself], 'Does this do a better job of spreading a consciousness? ... Or is it contributing, not even consciously, but sub-

consciously to this idea of there is nothing we can do?'"

Negative climate messaging can make people feel like giving up on environmentalism. In College fourth-year James Cato's Psychology Honors project, he asked people to think about either an apocalyptic future, a sustainable future, or the present-day. Then he asked participants to write a paragraph about their neighborhood.

"We found that ... those in the apocalyptic writing condition made fewer actual pro-environmental choices in a task," Cato explained. "This relationship was marginally statistically explained by their level of anxiety." In other words, pessimism and anxiety don't lead to positive action — they cause people to hunker down and give up.

However, Cato's research suggests that positive photos of nature can make viewers appreciate the environment — even if it's just scrolling past a photo of a cute bird from the Audubon Society or a landscape image on National Geographic.

"Social media is a really important way to increase connectedness to nature as we move forward because we spend so much time indoors," said Cato. "It's a really important way to connect people to nature [who] otherwise wouldn't have a lot of contact with it."

Social media also allows activists to control their own narratives. College fourth-year and Students for Energy Justice member Rachael Hood explained that tools like Facebook Live are important because they allow activists to produce video evidence of what's happening at rallies without any editing from mainstream media.

"You can use social media to put a direct narrative into the world," said Hood. "You're not trying to publish it in a newspaper or get it on the radio. You can say exactly what you mean. I think that that's really important because a lot of mainstream outlets aren't going to run something that's really confrontational and ... talking about things a lot of people don't want to talk about."

For example, Hood explained, mainstream media misconstrued the Dakota Access Pipeline protests at Standing Rock. When some news outlets alleged that the protests were violent, the protesters were able to use Facebook Live to show that police had instigated the violence. Hood is currently working on a senior thesis focused on pipeline resistance activities.

Sunrise uses social media to defend its vision of a Green New Deal, which would otherwise be defined by Fox News anchors and other media figures who are skeptical of the proposal. They also attempt to use social media to inspire mass engagement and protest. Smith pointed to one Instagram post in which Sunrise members across the country are shown holding the same yellow and black signs. Activists in New York, D.C., Philadelphia, Maryland, and Colorado are all united with the same vision.

"I understand that this is a ridiculous job to have, but I kind of do feel a little good about myself sometimes when I do go over those numbers and I'm like, 'Wow, this got 350 people to sign up for this call,'" Smith said. "It makes me feel like it's not like a useless endeavor."

City Council Continues Environmental Emphasis



City Council members deliberate at a February 2018 meeting.

Photo by Devin Cowan, OC '18

Katherine MacPhail
Editorial Board Advisor

Following months of debate, Oberlin residents voted in 2017 to allocate \$2.8 million to realize the goals outlined in the third iteration of the Oberlin Climate Action Plan, originally envisioned in 2011. Broadly, the plan's current focus is to work toward carbon neutrality and to assist Oberlin residents who are interested in sustainable space heating and transportation opportunities. Efforts toward achieving these goals are currently underway.

The most recent plan reaffirms the goal of the 2011 CAP to eliminate the use of fossil fuels in electricity generation by 2050. According to Sustainability Coordinator Linda Arbogast, 85 percent of the City's power portfolio currently consists of renewable energy sources. Additionally, the 2019 update focuses heavily on the City's aim to "transition from fossil fuels to carbon-neutral alternatives in energy sectors for space heating and transportation."

The goals set in the 2019 CAP will be funded in part by the Sustainable Reserve Fund. This fund is sourced by the sale of Renewable Energy Credits, certificates proving that one megawatt-hour of electricity was produced from a renewable energy source. Green energy providers can receive RECs from a variety of certifying agencies. The REC system was created so that states could track their progress and compliance with their renewable portfolio standards. The City of Oberlin made \$2.8 million by selling their RECs on the open market between 2014 and 2018.

The REC revenue initially went into an Oberlin Municipal Light and Power System fund called the Sustainable Reserve Program, which can only be spent on electricity expenses. To avoid these restrictions, the City established a new fund — the SRF. According to Bryan Burgess, who has sat on City Council for the past decade and served as its president for the last two before reaching his term limit, Oberlin is the first city to engage in this kind of process to create a new fund.

However, the City of Oberlin only decided to dedicate these funds to the CAP's sustainability efforts after months of tense debate and disagreement. City Council was split between dedicating the REC sales to the Sustainable Reserve Program or returning the money to ratepayers by applying discounts to their monthly electricity bills.

"The [Council] election of 2015 was basically around that whole question of what to do with the Sustainable Reserve Funds," City Council President Linda Slocum said.

In 2016, City Council — with two newly elected members — voted to give 85 percent of the REC revenue to ratepayers and allocate the remaining 15 percent to the Sustainable Reserve Program.

John Elder, OC '53, and a resident of Kendal at Oberlin, is the founder of Communities for Safe and Sustainable Energy, a group that advocated for the REC money to be dedicated to the SRF. In response to City Council's decision, Elder; Councilmember Elizabeth Meadows; Jessa Klotz New,

OC '01; Associate Professor of Africana Studies Charles Peterson, and City Council Vice President Heather Adelman organized to put the issue up for a vote.

In November 2017, Oberlin residents passed an amendment to Ordinance 07-39 to allocate all of the REC revenue to the Sustainable Reserve Program, before the SRF was established in the summer of 2018. Elder explained his perspective on the debates that circulated at the time.

“One false argument was that Oberlin’s electric rates were high, whereas as a matter of fact, they are as low as — if not lower than — most comparable communities,” Elder said. “The second false argument was that giving a rebate would help people’s finances. What was obscured was the fact that if you give it prorated on the basis of the electrical usage, the bulk of the money goes to the big ratepayers — which would be the [Federal Aviation Administration], Oberlin College, Walmart. The less electricity you use, the smaller amount you would get. So there was no rebalancing of the economics.”

Under the rebate proposal, households would receive an average of \$89 per year for three to five years, reducing resident’s electricity bills by about \$7–\$8 a month.

SRF proponents argued that the money could be better used to weatherize residences and make them more energy efficient, improvements that had the potential to save small ratepayers more money in the long term.

“It was such a divisive issue,” Slocum said. “Council was split 4–3. It was a very difficult time,

but we made it through. And I’m pleased to say, I think we’ve come out a better council and a better city government for it.”

Burgess explained that the SRF enabled the city to set more deliberate goals than they had been able to envision in their previous plan, published in 2013.

“Even more ambitious targets were set, more specifically with the creation of the Sustainable Reserve Fund,” he said. “The first two Climate Action Plans didn’t provide funding mechanisms. [They] also didn’t provide many implementation mechanisms. With the adoption of the third Climate Action Plan most recently, not only did we establish the Sustainable Reserve Fund to help finance them, but we established the Office of Sustainability in City Hall in order to oversee and implement the policies.”

Arbogast works full-time to oversee the CAP’s implementation, which includes managing the SRF. Arbogast reviews proposals for SRF funding from organizations who are interested in collaborating with the City of Oberlin on sustainability efforts. The guidelines for SRF proposals specify that the proposal must directly address the goals of the CAP.

“The proposals can come from anyone — it doesn’t have to be a large established organization,” Arbogast explained. “I am really looking to make sure that as we look at all these proposals, that it is fair that people of all incomes get supported by this funding.”

In their most recent CAP, the city further elaborated on its goals to promote social equity.

“Social equity played a huge component in the third iteration

of the Climate Action Plan — recognizing that if we wanted to accomplish these goals of carbon reductions in our community, we had to find ways that we could make that affordable for everyone in the community,” Burgess explained.

While the plan reiterates the goal that the City of Oberlin set in previous iterations — to eliminate fossil fuels — it further highlights the challenges that space heating and transportation present, and emphasizes the need to assist residents who are interested in shifting to carbon-neutral alternatives.

“Gas for heating and for transportation are the largest sort of buckets of emissions that we feel like we can target at this point,” Arbogast said. “I’ve been working with [Efficiency Smart] to think harder about heating, and we are trying to gear up heat pumps. We’re going to be offering greater rebates for people who will electrify the heating of their homes through switching over from gas to using all electric. It’s a tough sell right now because [of] the fracking [in] Ohio. Locally, gas is cheap. We have to offer incentives to people to be able to consider that as an option.”

The City also has an ongoing annual contract with Providing Oberlin With Efficiency Responsibly, funded by the SRF. POWER is a nonprofit organization that works to help lower-income residents weatherize and repair their houses. Alongside these energy efficiency initiatives, Arbogast is also exploring different opportunities to make sustainable transportation more accessible in Oberlin.

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“We’re going to look at increasing our electric [car] infrastructure,” she said. “We’re going to look at offering incentives, but we’re also going to have an electric car rideshare so that anyone can utilize an electric car and start to become familiar with the technology.”

While Arbogast oversees smaller proposals, any project that amounts to funding of \$50,000 or more gets approved by City Council. Arbogast plans to bring City Council a proposal from the Cleveland start-up Sway Mobility, which hopes to bring two electric cars to Oberlin that residents could rent by the hour.

In addition to homeowners, Arbogast collaborates with large entities in Oberlin, including the College.

“The College has its own climate action plan that is more ambitious than the community one,” Arbogast said. “I work with a lot

of College faculty, students, [and] administrators, because our plan is comprehensive, so it obviously includes the College. We want the College’s plan to succeed because it supports our effort to succeed.”

The SRF has also been utilized recently to respond to the COVID-19 crisis. After the pandemic prompted Oberlin City Schools to transition to remote learning, the City committed to withdrawing up to \$26,000 from the SRF to fund a program that provides students with internet access in collaboration with the Oberlin Cable Co-op and Oberlin City Schools.

“Based on promoting resiliency and education and awareness, we provided some funds to the Cable Co-op specifically to assist families,” City Manager Rob Hillard said. “We believe this is consistent with the plan itself.”

The CAP set goals to increase community “education and outreach” and “resilience,” two issues

Hillard believes this initiative addresses during a time of increased need. Hillard stated that he did not believe this use of the fund would impact the City’s goals to eliminate fossil fuels from the power portfolio by 2050.

Although the establishment of the SRF was initially disputed, today councilmembers are largely supportive of the developments that have been made and look forward to exploring opportunities for increasing sustainability in the future.

“It isn’t easy being first,” Burgess said. “If we could point to another city that had done this and followed their example, we probably could have done this faster and better. But it’s interesting now seeing how other cities [in Ohio] have emulated what we’ve done ... [like] Athens and Cincinnati. And actually, those two cities have instituted some programs that I think would be fantastic to do here in Oberlin.”



John Elder, OC '53 and vice president of Communities for Safe and Sustainable Energy, speaks at a February 2017 City Council meeting concerning Renewable Energy Credits

Photo by Bryan Rubin, OC '18

From Oberlin High School to Kendal: Climate Activism Across Generations

Gigi Ewing
Production Editor

Looking back on his decades of climate activism, Vice President of Communities for Safe and Sustainable Energy John Elder, OC '53, remembers that his passion for environmental activism grew out of his childhood love of the outdoors.

“I was ingrained with an appreciation of our oneness with the environment,” he recalled.

The activism of Oberlin High School Sustainability Club President Sacha Brewer has different roots: a recognition of the pressing need for action in the face of the global climate crisis that her generation inherited.

“I think that I really got into [activism] my junior or senior year with ... Greta Thunberg and a lot of young climate activists coming out, and I

think that was definitely a big push for me,” Brewer recounted. “And then I saw a lot of people ... push aside environmental legislation, and I [thought] I need to stress this. I need to put my all into this.”

The different generational motivations for environmental activism reflect a growing desperation for climate action that is felt across generational lines. However, this desperation has profoundly shaped the perspective of younger activists who have come of age in a time of crisis. It also has broader implications for the methods of activism taking shape within and across generational lines. Brewer, for her part, sees the climate movement as primarily led by youth around the world.

“I think that it’s important when these movements are led by young people because we’re the ones that are ultimately going to be affected

by it,” Brewer stated. “I think that young activists now have done a really good job in influencing other young people to come out and speak about it — [they] have given young people power in that.”

Brewer, along with other members of the Sustainability Club and Sunrise Oberlin, organized a walk-out in coordination with the Global Climate Strike this past September. The goal of the strike was to raise international awareness for climate justice and push for national legislative action in the form of the Green New Deal, a framework grounded in justice and equity and encompassing all areas of policy. The strike also featured several activists, including Brewer, who spoke with infectious passion about their personal relationships to climate change and why they believe the Green New Deal is not only possible to achieve, but necessary for survival. (Event organizer Faith Ward’s opening speech is included in this issue, edited for length and clarity, on page 8.)

While this style of energetic mobilization aimed at increasing pressure on national leaders has been prevalent among young organizers, many adults with decades of experience in environmental activism feel that it isn’t enough.

Oberlin City Councilmember and Director Emeritus of Libraries Ray English, while generally supportive of striking, believes that direct efforts to change legislation should be the main target of climate activism. From his perspective, the only way



High school students rally at last September’s Climate Strike.

Photo by Richard Payerchin/The Morning Journal

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to move such legislation forward is through bipartisan cooperation.

“If someone wants to be part of a strike for climate change ... that helps raise the issue,” English said. “The more our country is aware of the issue, the more likely it is that we will actually deal with it. But for me, it all comes down to [this]: We simply will not deal with this issue unless [we] can get effective legislation through Congress.”

As a result, English’s activism has largely taken place with the Citizens’ Climate Lobby, an organization which lobbies congresspeople of both major political parties to support more moderate climate legislation.

“In getting into CCL, I saw an organization that potentially ... could get a bill through Congress that could be really effective,” English said. “It could be bipartisan, that is, have enough bipartisan support that in a future Congress — or with a different president — you wouldn’t run the risk that the other party would try to undermine it. For me, climate change is simply too important — it’s an absolutely critical issue.”

CCL primarily champions the Energy Innovation and Carbon Dividend Act, which grew out of the bipartisan Climate Solutions Caucus. The CSC currently includes 64 members in the House of Representatives, including 24 Republicans, and 14 members in the Senate with equal representation from both parties. The caucus, which CCL is largely credited with creating, introduces a version of the Energy Innovation and Carbon Dividend Act in every session of Congress. The bill aims to combat climate change by imposing a steadily increasing fee on carbon emissions, paid by upstream pollut-



Ray English, right, is a member of Oberlin’s chapter of the Citizens’ Climate Lobby.

Photo courtesy of John Sabin

ers like coal companies, in hopes of making fossil fuels economically uncompetitive and encouraging green alternatives. The revenue from the carbon tax would be distributed directly to households in the form of a monthly “dividend.”

However, other activists such as Elder see instability in this approach, citing the disintegration of the CSC in the House after most Republican members of the caucus lost their seats to Democrats in the 2018 midterms. The vast majority of Republicans that remain in Congress reside in gerrymandered, safe Republican seats. Their biggest electoral threat is not a Democratic challenger who could criticize them for denying climate change, but a Republican primary opponent whom they could invite by crossing the powerful fossil fuel industry. Even though 24 Republicans remain in the CSC in the House, only one is actually a cosponsor of the Energy Innovation and Carbon Dividend Act. This points to a broader issue: Republican support for climate action is extremely tenuous, and trying to attract bipartisan

support for serious climate legislation is a near-impossible task.

“The Republicans [in the Climate Solutions Caucus] lost their seats, and the climate change deniers won,” Elder remarked sadly. “But the fact that there is that national organization with the focus on getting bipartisan support of a carbon tax is a good thing.”

Despite his skepticism of CCL’s bipartisan approach, Elder concurred that legislative change should be the crux of climate activism. In his eyes, local politics presents an opportunity for effective organizing and real climate action.

“When you come down to the nitty-gritty, small change of saving the environment, it means working on detailed legislative projects and getting voters out at referendums and ballot issues and so forth,” Elder said. “And that gets very complicated and takes a lot of work door-to-door calling ... and attending boring city council meetings and so forth.”

During his years in Oberlin, Elder has contributed to many local environmental groups in connection

with the College, Kendal at Oberlin, and First Church in Oberlin. Most notably, Elder co-founded Citizens for Safe and Sustainable Energy in 2012. Through CSSE, he has successfully advocated for a local initiative known as the Sustainable Reserve Fund, which seeks to lower carbon emissions by subsidizing energy efficiency projects in low- and middle-income households. CSSE has also been active in opposing the NEXUS pipeline, which travels through Oberlin. (A history of the pipeline, and local opposition to it, is included on page 18 of this issue.) These achievements are concrete and enshrined in law, but they are undeniably much smaller in scale than the kind of change that Brewer and other youth activists are calling for.

Despite the tactical differences across generational lines and between activist groups, all three of these local leaders highlight the role of unity and collaboration in climate work — whether among young people, as Brewer outlined; within local communities, as Elder described; or between political parties, as English advocated for. Interestingly, none emphasized the importance of inter-generational collaboration.

For Brewer, however, a simple conversation could be all that's needed to initiate such allyship.

“I just would say to older activists to help encourage younger activists, because I know that burnout is a real thing, and [older] activists definitely know about it,” Brewer said. “So I think that [they could] just [be] encouraging [to] younger people, just by even sitting down and talking to them, inviting them for conversation. It should just really be about unity, you know — we love the earth, that's a beautiful thing. We should get together and fight for it.”

Q&A: Mary Annaïse Heglar, OC '06, Climate Writer

Mary Annaïse Heglar, OC '06, is a writer who focuses primarily on personal essays about the intersections of climate and justice. She also serves as director of publications for the National Resources Defense Council, and is currently a writer-in-residence at Columbia University's Earth Institute, where she is working on both short- and long-form pieces about climate change and its human impacts. Recently, Heglar has published on the COVID-19 pandemic, and the ways that grief over its spread mirrors her own journey through climate grief. Heglar claims the Gulf Coast as home and has written extensively about climate within that geographic context, including her reflections on Hurricane Katrina, which made landfall right before her senior year at Oberlin. Heglar is a speaker and panelist in several virtual events taking place this week as part of Oberlin's Earth Day 50 celebration.

This interview has been edited for length and clarity.



Mary Annaïse Heglar.

Nathan Carpenter
Editor-in-Chief

I was hoping you could start by talking about what initially drew you to write about climate change and climate justice.

I've always worked in nonprofit communications, and that led me through the arts and higher education, and eventually I was doing

Photo courtesy of Mary Annaïse Heglar

work with a social science research foundation. I decided I wanted to work on something that was more immediate, and I wanted to be part of telling the most important story. At the time, I decided that [story] was climate. So that was how I came to climate communications in particular. So my job at NRDC, I'm now the publications director, but I

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started as a policy publications editor. That means that you're working with these really wonky, really dense and technical reports about environmental damage, mostly, and how to solve it. And it's terrifying. It was really, really terrifying. I ultimately came to a place where I was like, "Well, I need a place to process my feelings about this stuff." That was what drew me back to writing because it's the best way I know how to process anything.

Were you thinking about this stuff while you were at Oberlin or does your current work in any way have roots in what you were doing while you were a student here?

It definitely related to a lot of stuff I did at Oberlin, which I didn't recognize until much later. I don't know if y'all still do The Word 'n' The Beat festival. Does that still happen?

I don't think so. Maybe it has a different name.

Maybe. It was still active up until like two years ago or something, with [Professor of Theater and Africana Studies] Caroline Jackson-Smith. I bring that up because, immediately when I got back to Oberlin after [Hurricane] Katrina — that was right before my senior year — I wrote a poem about Katrina, and Katrina as Emmett Till. And that was how The Word 'n' The Beat started. At the time I wasn't thinking of Katrina as climate [related], but I've got a whole-ass essay out here about Katrina now, so I guess so. So I've been writing about Katrina ever since Katrina happened. ... Also, when I graduated, I thought I was going to be a journalist and I did a summer at Oberlin with [John C. Reid Associate Professor of Rhetoric



Hurricane Katrina left destruction in its wake.

Photo courtesy of Reuters

and Composition and English] Jan Cooper. Is she still there?

Yeah, Jan's still here.

Jan kept me on as her student assistant over the summer and she was really interested in how environmental journalism was shaping up. She had me do all this research on it, so that she could use it to teach her class next semester. So yeah, [I] didn't know that that was going to become super pertinent.

What do you think makes an essay about climate change particularly compelling?

To me, what's compelling is the truth, and the whole truth. I think we've been not so good at telling it. I say that in terms of naming the villain; we've really been bad at connecting the dots to the fossil fuel industry. We sort of, as a community, have made it seem like climate change is just this thing that happens, and that to fight climate change you gotta go fight the air. No, we should fight the fossil fuel industry, and then it's tactile, something you can do. So I'm drawn to communications that name the villain. I'm drawn to communications that

allow space for emotional messiness, and that have a good bedside manner. I do think the reports that I was editing at NRDC, they're important, and they should be technical and they should be wonky, but that's when an expert is talking to a decision maker. That makes sense. But when we're talking person to person, that sort of cold, clinical language doesn't work. You try to fact people to death and that doesn't work either. And actually, we've talked about climate change like it's just this really, really complicated thing. It's not. It's really simple. It's an injustice: bad guys versus everybody else. It's like a classic story.

Similarly, what have you found — maybe in your own writing or reading other people's work — are the biggest challenges in writing about climate?

The biggest challenges are gatekeepers. At these big publications, there [are] a lot of editors who are really stuck in their ways and kind of feel like, "We know how to do this." What I think is, "You don't; if you did, it would've been done already." ... So I think that's a big barrier. And I think, up until recently, there were

a lot more and I think 2019 saw a lot of really important conversations in climate really get litigated. For example, individual versus collective action. For a long time, [climate action was seen] as the one thing you can do, which is like recycle your plastic bags or something. And that got interrogated last year and I think that narrative is out. There was also the narrative that people of color don't care about climate change; that myth got busted. So if you had asked me a year ago, I would've been able to name a lot more problems, but I feel like now, a lot of those barriers have come down.

To shift gears a little bit: You cite James Baldwin as your personal hero, and I'm wondering if you could talk a little bit about why.

I love James Baldwin for so many reasons. One, he was a fantastic writer. He had a really strong gift for naming beyond names, and describing things that you had felt before but never really had the language to articulate. That is basically giving you the weapons, the tools to dismantle your oppression — when you can finally articulate it, then you can change it. I think that's a quote of [his], it's like, "You write in order to change the world." If you alter the way people see reality, then you can change it. I thought he just was amazing at that. Another reason I admire him so much is because he really loved children and youth and he took them very seriously. ... There are lots of video interviews that he does, [and] whenever he's talking to a teenager or a young person, he's always very interested in what they have to say, and takes them seriously. ... Stokely Carmichael, who was a teenager when James Baldwin was in his thirties or something, they

had a great mentorship relationship because James Baldwin always showed up for them, took them under his wing.

Obviously, during the time in which James Baldwin was writing, people weren't necessarily talking about climate change in the terms that we do today.

No, not at all. I don't think it had been discovered.

I'm wondering if there are still lessons that younger writers can take from how James Baldwin approached his own writing that you think are applicable to writing about climate and the environment, even though that wasn't what he directly focused on.

Well, yeah. I take a lot of my cues for writing about climate from him. I try to find something that I don't think has been articulated well and really grapple with it, so not being afraid of messy ideas. The point of writing, I think, is to come to a conclusion. I think a lot of people feel

like you have to know where you're going before you start, and you don't. That's not the point of writing a personal essay, at least — it might be the point of writing a term paper. He was never afraid of foggy ideas, or at least didn't seem that way. And I think that the climate crisis is the outgrowth of not really healing the wounds of Jim Crow or slavery or etc., and that way his writing [makes] a very seamless connection.

If you were to be speaking to a room of students who are interested in writing about climate and the environment after they graduate, what's some advice or words of wisdom that you would give them?

Maybe don't expect it to be a full-time-paying gig at first. Not if you want to be good. Because if you make it your source of income, you're kind of beholden to editors. You might wind up having to write something that you don't fully believe in, and if you don't believe in it, I don't think you should write it.



Heglar frequently cites author James Baldwin as an inspiration in her own work.

Photo by Ted Thai/Getty Images

In Favor of the Green New Deal

Delia Walz

By now, it is clear that the world has until 2030 to limit the catastrophic effects of climate change by keeping global average temperatures from rising 1.5 degrees Celsius above pre-industrial levels. In order to meet this goal, global carbon emissions will need to drop 45 percent from 2010 levels over the next 10 years.

At our current rate, the world will not even meet the Paris Climate Agreement target of limiting global warming to 2 degrees Celsius above pre-industrial temperature levels by then, and the United States — due to years of inadequate climate action further enabled by the Trump administration’s regressive policies — has fallen behind. Without sweeping and immediate economic changes, we are on a collision course for widespread environmental disaster.

The Green New Deal currently exists as a resolution introduced into Congress by Representative Alexandria Ocasio-Cortez (D-NY) and Senator Edward Markey (D-MA). This resolution has several goals: net-zero greenhouse gas emissions; job creation and protection of labor; green infrastructure; health as a human right; and environmental justice. These goals will be accomplished through passing smaller bills like the Green New Deal for Public Housing Act — which would commit up to \$180 billion to retrofit, upgrade, and decarbonize the nation’s current public housing — introduced by Senator Bernie Sanders (D-VT).

Some may argue that encouraging change in individuals’ behavior or a market-based approach — such as a carbon tax — will better address cli-

mate change. But these approaches are unreliable and will not create the transformative change we need to actually address the problems in our political and economic systems — unbridled fossil fuel extraction and emissions; the market’s disregard for humans and the environment in pursuit of profit; and the disconnect between environmentally harmful actions and the people those actions affect.

While individual actions and behavioral changes — such as using reusable straws or eating fewer animal products — are helpful and well-intentioned, we must not fall into the trap of placing the burden of combating climate change on the individual. Since 1988, just 100 corporations are responsible for 71 percent of global emissions. There must be a comprehensive, systemic change to our economy and society. This type of change cannot happen without a mass mobilization to transfer our economy to 100 percent renewable energy, build accessible and affordable public transportation, upgrade and retrofit buildings, et cetera. The Green New Deal can use federal funding, investment, oversight, and regulations to achieve what encouraging individual behavior change or market-based incentives cannot.

We cannot rely on the inconstant

and uncaring market to stop facilitating the extraction and burning of fossil fuels, as it has for decades, and choose to magically address climate change instead. We cannot pretend that corporations and their CEOs will suddenly bestow their “benevolence” on us when they continue to profit off of our current system of rampant inequality and exponential production.

The burdens and impacts of climate change are felt disproportionately by low-income communities, Indigenous populations, and communities of color. The Green New Deal resolution specifically recognizes this unequal burden and will address it by prioritizing investment in marginalized communities; ensuring that local stakeholders have key roles and power in decision-making; engaging in restorative justice and cleanup efforts to redress recent and historical cases of environmental racism; respecting the autonomy and sovereignty of Indigenous peoples, especially in decision-making on local projects; and strengthening social welfare programs.

I will not pretend that the proposal is flawless, but it is by far the best policy option we have, and it is the only policy option that addresses climate change at the scope and scale of the crisis. We need a Green New Deal now.



Young activists rally for the Green New Deal.

Photo courtesy of Drew Angerer

To Find Success, GND Must Be Measured

Noah Auby

In the 1930s, President Franklin D. Roosevelt introduced a set of legislative proposals under a New Deal that sought to navigate the consequences and investigate the underlying causes of the Great Depression. With these policies, FDR emphasized reforming fiscal, banking, and monetary policies to allow most American citizens to enjoy a greater level of financial stability than ever before. These proposed reforms included major pieces of legislation such as the National Industrial Recovery Act, the Securities Act, the National Labor Relations Act, the Social Security Act, and the Housing Act. While a majority of these policy recommendations faced a great deal of backlash from — and now have largely been repealed by — political conservatives, at the time they were successfully enacted into law because of Roosevelt's measured approach; he found a way to satisfy the needs of the country without being overtly radical.

Nearly a century later, millions of Americans find themselves in a similar predicament of socioeconomic instability. This issue is even more pressing in the face of the COVID-19 crisis, which has led to significantly more unemployment claims than the Great Depression or the 2008 recession. Many solutions to our economic issues have been theorized, but the Green New Deal resolution seeks to save the economy and the environment. This resolution, officially proposed last year by Representative Alexandria Ocasio-Cortez (D-NY) and Senator Edward Markey (D-MA), consists of some ambitious

legislative proposals: a living-wage job guarantee, universal higher education, net-zero greenhouse gas emissions, and more — all to be implemented within a single decade. If successful, these proposals would go a long way toward rectifying many of the systemic problems that disadvantaged Americans face, especially as these issues relate to the ongoing global climate crisis.

On the other hand, the resolution leaves out precisely the element that was ultimately essential in propelling FDR's New Deal to success: measuredness. Indeed, a measured response to a major crisis, such as global warming, often requires transformative change. Exaggerating how rapidly this change could feasibly take place, while also failing to provide at least one viable source of funding, creates unnecessary room for valid criticism from both sides of the political spectrum. Rather unfortunately, this is exactly what Ocasio-Cortez and Markey's Green New Deal has done: Many conservatives have attacked the resolution's 10-year timeframe for being too idealistic and irrational, and even some progressives have critiqued their proposal for its utter lack of guidelines or options regarding fiscal policy. Essentially, although the Green New Deal is meant to save the environment by moving the country away from fossil fuels, its vague but radical language proposes slashing fossil fuels without clear plans for replacing the giant impact that oil has on the economy.

This naive oversight has been seized by critics on both sides; although they are few and far between, some progressives believe the Green

New Deal doesn't go far enough. On the right, conversations about the resolution are rampant with misinformation, falsely stating that it would effectively ban air travel and cows, among other ludicrous claims. However, disapproval from the left is more lucid, which significantly undermines the resolution.

This is merely to say that, while the resolution lays out non-binding, important goals for America to hopefully achieve in the near future, it also essentially functions as a framework for 21st-century progressive policy — the way that FDR's New Deal did in the '30s — and thus should be as foolproof as possible, which it is not. With respect to the resolution's timeframe, each policy should have its own timeline or no timeline at all, with explanation as to why. And in terms of how to pay for the proposals, there are multiple effective rhetorical options available to progressives such as modern monetary theory.

Ironically, perhaps the greatest consequence of leaving gratuitous space for plausible ridicule of the Green New Deal is that it serves the resolution's antithesis: climate inaction. Ocasio-Cortez and Markey's Green New Deal, if left wholly unrevised, will likely continue to deter the people otherwise ready and willing to solve the climate crisis from supporting the only existing policy framework that treats global warming as the existential threat it is. If, however, the Green New Deal is revised or made anew with efforts to preempt valid critiques, it may stand the test of time — perhaps even beyond the progressive reforms of FDR's New Deal of the 1930s.

Across the Country, Colleges & Universities Move to Divest

Arman Luczkow

As the issue of climate change has become increasingly salient, colleges and universities have come under increasing pressure to withdraw their investments wrapped up in different ways in the fossil fuel industry. These demands raise questions about the potential impact of fossil fuel divestment, as well as its financial and technical viability for educational institutions.

Last year, the *Review* reported on the College endowment's exposure to fossil fuels (College Maintains 'Minimal Exposure' to Fossil Fuel Investments," Dec 6 2019.) Although the College has not divested fully from the fossil fuel industry, the Board of Trustees published a Resolution for Divestment

and formed an Impact Investing Platform in 2014. According to Vice President for Finance and Administration Rebecca Vazquez-Skillings and Chief Investment Officer Jun Yang, the ceiling for Oberlin's current direct exposure to fossil fuels is two percent of the endowment. That figure represents direct investments in private funds that are exposed at some level to fossil fuel investments.

The Resolution for Divestment was written in response to student divestment campaigns focused on fossil fuel consumption, private prisons, and the Israeli occupation of Palestine. The two-page document outlines a basis for divestment.

"Instances so extreme that they shock the conscience, such as geno-

cide, ethnic cleansing, unjustified disregard of profound environmental degradation and other wide-scale acts of injustice, may call for an extraordinary response," the document reads.

According to Oberlin's website, updated on June 30, 2018, the College's total endowed funds added up to \$887.4 million. The College's Asset Allocation Policy lists the targets, minimums, and maximums for asset allocation. The target breakdown is five percent cash, zero percent fixed income, 25 percent global equity, 35 percent hedge funds, five percent private credit, 22 percent private equity, and eight percent real assets. It's not clear which, if any, of these investments are potentially or marginally tied up in fossil fuels.



University of Wisconsin students protest the institution's fossil fuel investments.

Photo by Molly Devore/The Badger Herald

Investments in global equity could be sold relatively quickly, and investments in hedge funds could likely be redeemed within a year. However, investments in private equity and real assets are the most difficult to sell. Real assets are physical assets — including real estate, natural resources, and equipment — whereas private equity accounts for companies that are not traded on a public exchange.

Private equity investment partnerships can often last for up to 10 years. In order for the College to divest from these investments, a buyer would have to take interest in buying the College's holding, a process that could easily take between six months and a year. This would put the College in a difficult situation; even if it wanted to sell these assets, it does not want to be a forced seller, selling the assets at a loss.

Information about the College's current exposure to fossil fuel investments is not totally clear.

"Oberlin still has minimal exposure to fossil fuel investments," Vazquez-Skillings and Yang wrote to the *Review* last December. "Given the little exposure, it is difficult technically and financially to divest fully."

However, more and more educational institutions are claiming that they have fully divested from the fossil fuel industry, citing financial risks and environmental considerations. In 2012, Unity College became the first educational institution to do so. As of 2018, 1,000 more institutions had followed suit, with combined endowments totaling almost \$8 trillion.

More recently, on Feb. 6, Georgetown University joined the divestment trend when its Board of Direc-

tors decided to divest from public securities of fossil fuel companies over the next five years, with a longer-term plan to divest from private investments over the course of the next 10 years. Georgetown's Board of Directors recognized both the environmental necessity and financial imperative of fossil fuel investment.

"Climate change, in addition to threatening our planet, is increasing the risk of investing in oil and gas companies, as we expect a more volatile range of financial outcomes," said Michael Barry, Georgetown's chief investment officer.

On March 4, Brown University announced that it will sell 90 percent of its investments in fossil fuel companies, with plans to liquidate the remaining portion. According to Brown University President Christina Paxson, the decision was based on the financial risk posed by fossil fuel holdings.

"The decision to halt investments in fossil fuel extraction companies reflects the view that, as the world shifts to sustainable energy sources, investments in fossil fuels carry too much long-term financial risk," wrote Paxson in a letter to Brown's campus community.

When student activist groups on Brown's campus led a divestment campaign in 2013, one year prior to Oberlin's own campaign, Paxson argued that entirely divesting from fossil fuels would have too small an economic impact on the entire fossil fuel industry to make divestment a worthwhile venture.

Still, the truth is that the fossil fuel industry is highly reliant on outside financial support. For one, fossil fuel companies are very capital-intensive, meaning they must make expensive down payments on phys-

ical infrastructure like coal plants or pipelines before they can bring in revenue. Additionally, the industry has struggled to turn a profit at all in recent years as the cost of coal production has risen and the price of oil and natural gas has fallen. Many natural gas companies have turned to Wall Street loans to avoid bankruptcy.

It's no surprise, then, that those who profit off of fossil fuel production are deeply concerned about their increasing inability to access financial resources. Shell has referred to the divestment movement as a "material risk" to its business model; analysts at Goldman Sachs have said that divestment is a major cause of the coal industry's decline; Peabody, the world's largest coal company, declared bankruptcy in 2016 and listed the divestment campaign as a reason why.

College fourth-year and Students for Energy Justice member Rachael Hood sees hypocrisy in the argument that divestment has little effect on the fossil fuel industry.

"You are profiting from the fossil fuel industry and yet you're holding values of sustainability ... so I just think that that's a very weak excuse," Hood said. "You could make that argument about any movement for social change. ... The point is that you take actions that are consistent with the values you say you hold."

Divestment is a complex process, but events in the recent days may bolster the case; Just this week, the global price of oil plummeted to a record low of negative \$38 per barrel, and has since fluctuated between negative and near-zero figures, forcing investors to consider fossil fuel investments as a potential financial risk in a challenged global economy.



PART III:

Global Environmentalism

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Hurricane Dorian Reveals Deep Roots of Climate Injustice in Bahamas



In the Bahamas, Hurricane Dorian left significant destruction in its wake.

Photo by Gonzalo Gaudenzi/AP Photo

Kush Bulmer

Officially, 70 lives were lost during Hurricane Dorian, the monster storm that hit the northern islands of the Bahamas in early September 2019. However, residents tell a different story; they claim that over 2,000 died. In February, I traveled across Abaco Island, which was hit particularly hard by Dorian. Months had passed since the hurricane, but still I saw more piles of debris — the wreckage of homes — than standing, livable structures. The winds had stripped the iconic Abaco pine trees of their leaves, save for a few tufts at their crowns. The saltwater that flooded the landscape had killed much of the other greenery. The island resembled a giant landfill, interspersed with long stretches of desolate forest. Boats — upturned, rusty, breached — littered the

island, including one that was said to be the carrier of Haitian immigrants to the Bahamas. This boat ended up crashing through the undocumented community of the Mudd, with a predominantly Haitian population.

Dorian was a Category 5 hurricane. It battered the islands of Grand Bahama and Abaco for over 24 hours. Gusts of wind, with speeds reaching up to 185 miles-per-hour, swept across the islands, bringing roofs, trees, and whole houses to the ground. Twenty feet of coastal flooding carried boats from their moorings into the center of the island. Storms like this one — slow-moving, essentially stagnating over the areas they hit — can affect the Bahamian economy in unexpected ways.

As tourism makes up a significant portion of the national economy,

and the bulk of the country's goods are imported, most Bahamians find work in the tourism sector. Four hundred thousand Bahamians provide services and shelter for the millions of tourists that visit the Bahamas at any point during the year. From an early age, Bahamians learn about the tourist economy in which they live. The message taught in school and embedded in the popular consciousness is that they are to be friendly and subservient to the rich, usually white tourists, upon whom their economy relies.

Dorian's destruction of Abaco displaced many, but its effects were disproportionately felt by the Haitian-Bahamian community. Haitians have emigrated from their nation to the Bahamas for centuries, but in the last 60 years this influx has increased. The 2010 earthquake that ravaged Haiti's infrastructure marked an increase in Haitian immigration to the Bahamas. These travelers often see the Bahamas as a stepping-stone on their journey to the United States. However, their dreams are dashed when they find that entering the United States is more difficult than they had anticipated.

Because of the Bahamas' restrictive citizenship and immigration laws, many of the Haitians in the country are forced to work in positions of menial labor — landscaping, maintenance, and general cleaning — for the resorts that rise up over the islands' coasts. Those with work permits sometimes find better jobs,

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or at least work that they are reliably paid for. About 60 percent of these Haitians in the Bahamas live below the poverty line. They have come to occupy the underclass in the Bahamian tourist economy.

Mainstream Bahamian society is often skeptical about the role Haitians play in their economy. Some say that Haitians usurp jobs from “true” Bahamians. Others describe Haitians as undesirable people; when I spoke to Haitian people on my trip, they recollected instances of being called dirty and criminal. In conversations with reporter Ava Turnquest and political economist Keisha Ellis, who are both from the Bahamas, they explained that Bahamians tend to blame Haitians for Haiti’s political crises, and attributed the Bahama-Haitian conflict to the country’s successful slave revolt of the 1780s. In the public mind, according to Turnquest and Ellis, Haitians fought against their colonizers and are now paying the price for it. The Bahamas, in contrast, merely moved from being a British colony to an independent nation in thrall to the U.S. — essentially a U.S. colony in less explicit terms.

Local human rights activists also told me about how the Bahamian government has previously attempted to rid Abaco Island of its Haitian neighborhoods, pejoratively known as shanty towns. Haitian neighborhoods such as the Mudd and the Peas on Abaco Island arose as halfway-housing for farmworkers. But the government’s threats to raze them repeatedly fell through, human rights activists say, because the residents hold squatters’ rights, the right to stay in an unoccupied space, over the land on which they have lived for almost 30 years.

The Mudd and the Peas were neighborhoods destroyed in the hurricane. But while the relief effort on the island has been slow-going, the cleanup of these communities came about very quickly. The once-bustling neighborhoods of the Mudd and the Pidgeon Peas have been cleared to make way for a fenced-off, empty lot. Tractors and trailers, some of the only ones in action on the island, work to clear the space so that the Haitian people have no chance to come back. It seemed as if the hurricane provided a perfect opportunity for the government’s threats to come to fruition.

Today, the Haitian survivors of Hurricane Dorian in those regions live in shelters and tents, many of them overcrowded. I saw 60–70 people sleeping in a single, small church with one bathroom among them. Non-governmental organizations provide their food and water. Their days are spent in fear. They have no mobility.

Immigration raids have become more frequent and more intense. Those who are undocumented and found are swiftly deported. Those who have permits are beaten and have their possessions stolen. These conditions only have more severe public health implications as the COVID-19 pandemic continues to impact public life around the world. Indeed, there have been deaths in the Bahamas and much of the Caribbean because of the virus.

Many Haitians are breaking their backs maintaining the castles of the rich, which tower above the rest of the island. Their access to the natural beauty of the Bahamas, their home, comes about only through their work at the resorts that dominate the shores. They live in constant fear, as their safety, livelihoods, and the homes they live in are not guaranteed. This insecurity has been severely compounded by the climate disaster of Dorian, although its roots, and the roots of climate injustice, are far deeper.



The Bahamas are known for popular tourist resorts.

Photo courtesy of Marriott International, Inc.

Engaged and Applied Science is the Future of Environmental Research



A photo of the author's research group in Cuba. Author pictured first row, second from right.

Photo courtesy of Joshua Brown

Monica Dix

After a mass transition away from industrial monoculture to organic agriculture in the 1990s, Cuba has rapidly become a model for organic agriculture research. The island remained largely inaccessible to American scientists until the Obama administration lifted embargo restrictions on National Science Foundation funding for collaboration with Cuban scientists as part of reestablishing diplomatic relations in 2014.

For the first time in more than half a century, a joint Cuban-American scientific team investigated the impacts of organic agriculture on water quality and erosion, and our goal was to assess outcomes in Cuba

and implications for international agriculture. Researching such an incredible natural experiment was exciting, but it quickly became apparent that the real value of our work was in building relationships across international tensions and practicing genuine, science-based diplomacy.

It is important for scientists to move beyond scientific methods to bring their discipline forward and engage with communities that their research directly concerns. For me, communication, outreach, and lasting professional relationships among scientists are essential in solidifying this practice. In an era of social and political strife, scientists need to put aside their satisfaction with simply stating implications,

and go above and beyond to make connections with people who would be impacted and create lasting change. As part of our research, our principal investigators spent time talking to journalists in-country, and supported travel to conduct workshops and present results at national conferences in Cuba.

Earth science and environmental research are defined by their fundamental connection to place, which offers an essential foundation for community engagement. As researchers, we have a responsibility to ensure that the knowledge we acquire is shared with those who are most impacted. The status quo dictates that, as scientists, we present at conferences and publish

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papers, but the ivory tower that restricts the impact of discovery to academic circles falls short when our data shows the need for meaningful change. The opportunity to forge collaborative relationships with Cuban labs was an immensely valuable part of our work abroad, which allowed our team not only to present our research at conferences in Cuba, but also to inform local land management decisions with our data. While we were ultimately published in a U.S.-based journal, we were able to share preliminary results at a conference in Havana as early as three months after collecting the initial samples.

Another significant benefit of this approach to research is its implications for decolonizing science.

While outreach, collaboration, and community engagement touch on this at a basic level, going further to forge supportive partnerships in international research is key to giving local communities agency over the science conducted in their region.

The outcomes of our Cuban-American science team are designed to answer questions asked by Cuban and American scientists alike. Our team has established a significant baseline of chemical denudation, water quality, and solute export levels that provide increased context to the geology of island systems in the Caribbean. We also learned that while *E. coli* runoff is a major water quality issue, central Cuban nitrogen levels were much lower than in other areas with intensive agriculture, such as the Mississippi River basin.

These early results support the basis of the Cuban organic agriculture natural experiment, and challenge us as American scientists to take this research back to our communities to continue the cycle of outreach, collaboration, and community engagement.

Other such partnerships are beginning to emerge between research teams in the U.S. and other nations. As demonstrated in its recent work in Puerto Rico, the U.S. Geological Survey has been one of the agencies most prepared to forge genuine partnerships with disaster response teams on the ground. Its continued support of the Puerto Rico Seismic Network sets the standard for lifting up local scientists and giving them the resources to address the needs of their communities successfully. Although first and foremost designed to address the needs of Puerto Ricans, this relationship fortuitously sparked a global interest in the data being collected.

Collaborations like these have entirely reshaped my values as a scientist. In Cuba, while our research was designed to assess the ramifications of social and political events, not all of our data was to that end. The chemical weathering data we collected established some of the first long-term baseline denudation rates on the island. In a discipline as comparatively young as geology, we still have plenty of fundamental questions to investigate that are centered on events at the dawn of time or thousands of years in the past. Projects that gather critical historical data and bring it into conversation with modern social, political, and environmental questions represent the kind of engaged work that scientists need to continue.



Researchers working in the field.

Photo courtesy of Joshua Brown

Q&A: Sonia Shah, OC '90, Investigative Journalist

Sonia Shah, OC '90, is an investigative journalist and award-winning author. She has written several notable books, including *The Next Great Migration: The Beauty and Terror of Life on the Move*, set to release in June 2020. Her writing is focused on the intersections of science, environment, human rights, and international politics. Shah has lectured at top-tier universities and appeared on global platforms such as BBC, CNN, Al Jazeera, and NPR. She has also been featured in acclaimed publications like *The New York Times*, *The Wall Street Journal*, *Scientific American*, and *Foreign Affairs*. This past February, Shah visited campus to deliver a lecture titled “*Science Journalism: Global Health & the Environment*,” and also to sit on a panel about independent book publishing as part of the journalism symposium co-hosted by the Review and The Grape.

This interview has been edited for length and clarity.



Author and investigative journalist Sonia Shah.

Photo by Glenford Nunez/TYP

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Can you talk a little bit about the growing connection between climate change and public health?

Our health is multifactorial, right? We know that our immunity dictates our health, like our diet and our interaction with the environment [do]. All of those things are part of what makes our health, so the climate crisis is going

to be a major driver of changes in what our health status is.

That said, in the area that I look at, infectious diseases, [climate change is] going to affect these diseases in different ways. For example, malaria: In some places you're going to have a lot more rain because of the climate crisis — now, that could do different things to the malaria ecology. A lot of rain can create puddles, and then puddles are where mosquitoes can breed. So then you have more malaria. But a lot of rain also can create flooding

and that could actually wash mosquito eggs away, and then you'd have less malaria.

There's no direct relationship between, “Okay, these are the places where there's going to be more malaria, and, these are places where it's going to be less.” And that's true for a lot of diseases. ... In some places, that might mean there'd be less of a certain disease. In some places, that may [result in] more of a certain disease. Basically, when you have populations that are new to a disease, they get sicker because they don't have the immunity. So ... just shifting the landscape of disease will have an overall effect of increasing the burden of disease, of people getting sick, at least with infectious diseases.

How did you end up deciding to focus your writing career on these particular topics — disease, public health, and climate change?

I think I was gravitating toward trying to understand inequality more generally and how that plays out. How, you know, corporations exploit inequalities between societies, within societies, and where they go to extract resources, where they actually sell those resources, all of that. I think

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health became a way of looking at inequality. Inequality itself is a driver of bad health outcomes. Even if you live in a society that has a really high Gini coefficient — the way they evaluate the difference between the rich and poor — that alone contributes to poor health outcomes. So, technically, global health was just a way of looking at inequality in different ways. And the climate crisis is the same thing. ... We created this crisis in one part of the world, and [now] it's affecting other parts of the world in different ways. The lopsidedness of all of these problems is what really interests me. I happened to look at climate and global health and those kinds of issues. But I think you could look at these same underlying problems through criminal justice — [there are] lots of other ways of looking at it.

There's a lot of conversation about using intentional language to describe climate change. You use the language of climate crisis, so I'm curious about that choice and why you think climate crisis language is more effective than other ways of describing the changes we're seeing.

I think we have to keep using new words to elevate the conversation. First, we were talking about global warming, then we [were talking] about climate change, and I think that became a neutered sort of term that didn't convey the urgency [of the fact] that we need political action.

The moment we're in right now is, of course, climate change. The climate is changing. But it has become a crisis because of the lack of a political response. And so when

I say climate crisis, it's to call that part out — that we're in a moment where we need to find political will to address a crisis. That's what you do in a crisis — you actually try to address it. When there's change, maybe you just accept change, you know?

Do you think that conversations about fear or crisis are more effective in helping people change their behavior than more positive or hopeful conversations?

No, I don't think so. I think you have to have a balance between complacency on one hand and panic on the other hand. There's just a tricky balance. People have to be vigilant and a little bit alarmed in order to feel like, "Wait, I need to change something about how I'm engaging with the world around me." But if you don't show people [that], "Well, here's a possible path forward," then that alarm can just become nihilism. [It becomes], "Well, I'm not gonna bother because it's all going to end anyway."

A lot of young people who are interested in becoming journalists, writers, or authors are increasingly interested in working with a focus on climate or environment because it's a pressing issue. I'm curious if you could speak to: a) what some of the challenges of your work are; and b) what advice you would give to those students, maybe at Oberlin?

Well, the challenges are always the same — getting people's attention, getting paid to actually do the work of it — [these are] all the challenges of doing journalism generally. But if I were starting over today, I would try to develop some

kind of expertise in one aspect of the climate change problem. I think what is, again, becoming increasingly clear to editors is that the climate crisis is not just a green issue. It's not just about energy; it's also about all these other things: education, crimes, disruption, politics, all the aspects of life that are going to be touched by the climate crisis ... in very particular ways. So if I were to start over again today, knowing what's going on with climate change and the climate crisis generally, [I would] kind of focus on one part.

I think the generalist approach was what we needed when we weren't talking about [climate] at all. But now the conversation is moving on, and I think that's where it's going in the next five to 10 years — we're going to need somebody who is a specialist in how settlement patterns and climate are linked, or how international law and climate are linked. I think that's what's going to be developing: only journalists who know how to do those kinds of stories.

Your book is expected to talk about how migration is a solution to climate change, and that migration is something that we should welcome rather than fear. What do you think are the challenges of such mass exodus — in terms of national resources and carrying capacities of nations — and how should nations prepare for such a mass migration?

I think what's happening now is [that] the fear of migration or of people moving around is already reshaping our politics. What we're already seeing is people saying, "We don't want that, so we're going to

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Environmental Peacebuilding in the Middle East

Antonia Offen

When Jordanian General Mansour Abu Rashid was a soldier in the Arab-Israeli wars, he never thought that one day he would help bring peace to the valley between Jordan and Israel. General Mansour, who was involved in the Jordan-Israel Peace Treaty of 1994, has been working toward peaceful cooperation with Israel for decades. The signing of these treaties opened a space for peacebuilding opportunities and environmental collaboration. It was from the pairing of these two fields that environmental peacebuilding arose in the Middle

East — the topic of my Honors thesis in environmental studies.

In the Jordan River Valley between Israel, Palestine, and Jordan work three environmental peacebuilding organizations, all of which were founded directly after the Oslo Accords — peace treaties signed between Palestine and Israel in the early 1990s — and the Israel-Jordan Peace Treaty of 1994. At the turn of the 21st century, General Mansour founded the Amman Center for Peace and Development, a non-governmental organization dedicated to promoting ecological cooperation between Jordan and other countries. The ACPD's

main project uses barn owls and kestrels as natural rodenticides in the fields of the Jordan River Valley, which sits on the borders of Israel, Jordan, and Palestine. Through ACPD, valley residents are brought into the same room for collaborative workshopping, where they are able to have discussions that do not revolve around the conflicts between these countries.

Water scarcity and conservation are of the utmost importance to the farmers in the area, as they depend almost entirely on rainwater and dwindling aquifers. Through these programs, participants can air concerns about water pollution and jointly decide how to save what water they do have at their disposal. In the context of ACPD's work, this process generally involves learning about the owls and building wooden boxes to house them as a group. By providing homes for the birds, farmers can cut down on chemical rodenticides and protect their shared waters.

General Mansour visited Oberlin in the fall of 2018 as part of a speaking tour sponsored by the Jewish Federation of Cleveland. It was at this talk that I first learned about environmental peacebuilding, which sparked my interest in the subject. After further research, I discovered EcoPeace Middle East and the Arava Institute for Environmental Studies — two other major groups practicing environmental peacebuilding within the Jordan River Valley. Together, these three



The Jordan River Valley.

Photo courtesy of Hoshvilim

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groups attempt to bring people together around shared resources.

Founded in 1994, EcoPeace Middle East is similar to ACPD, except it functions on a much larger scale. EcoPeace operates in Palestine, Israel, and Jordan, whereas ACPD works solely out of Jordan in cooperation with Israeli groups. EcoPeace matches communities across borders, hoping that their resource interdependencies and similarities will serve to cultivate trust between the disparate groups. In a moment of great success for EcoPeace, mayors from Jordanian, Israeli, and Palestinian towns jumped into the river together to symbolize mutual guardianship of its waters.

The Arava Institute for Environmental Studies is located deep in the Negev Desert, along the border of Israel and Jordan. The Arava Institute hosts a semester-long study program that brings students from Palestine, Israel, Jordan, and the rest of the world together to study environmental issues on a *kibbutz* — essentially, a cooperative Jewish farm where people live and work. Aside from classes focused on water issues in the area, the required Peacebuilding Leadership Seminar allows students to discuss grievances with the assistance of trained moderators. These classes, while often quite intense, are considered by students one of the most important parts of the educational system at the Arava Institute.

These three institutions are the main players in environmental peacebuilding in the Jordan River Valley. Over the last few months,



The Jordan River Valley.

Photo courtesy of Hoshvilim

I have had the opportunity to interview 16 people, from students to executives, who have been involved with these three organizations. These interviews have shed light on the challenges of working with nonprofit groups like these, as well as the successes and emotional moments shared among members of these communities.

At the moment, international and domestic politics have dampened environmental peacebuilding in the region. The rise of right-wing parties and politicians in all three countries has led to shame and fear associated with cooperation, pushing many away from these organizations. Many interviewees commented on their recent “quiet” activities that keep the organizations alive. One interviewee summarized their existing projects as the foundation for a prospective future peace, one which will need brave governmental support to flourish.

The number-one challenge these organizations face, aside from the political atmosphere,

is lack of funding. These institutions could not survive without resources from Europe and the United States. Given the escalation of violence around the border, international parties have increasingly withdrawn support from peace projects operating out of the Middle East. Donations have dwindled. Consequently, the activities of these institutions are shrinking.

ACPD, EcoPeace, and the Arava Institute meet many challenges in their day-to-day work. And yet these organizations and their employees continue to carry on, attempting to create peace in a space where many have claimed it will never come. What will it take to build peace in the Middle East? ACPD, EcoPeace, and the Arava Institute have made it pretty clear: continued involvement and the support of people-to-people programs like theirs. However, with many obstacles standing in their way, whether these organizations will survive the changing times remains uncertain.

The Promise of Bonaire



The author SCUBA-diving near Bonaire.

Photo courtesy of Susan Bernat, OC '97

Susan Bernat

I'm a certified SCUBA diver who believes that, while the ocean has no technical need for our species in its waters, divers can serve an important function as ambassadors for the ocean — in other words, keeping humans apprised of conditions underwater. As renowned oceanographer Dr. Sylvia Earle tells us, the world is blue. If there is no blue, there can be no green. Consider this: One of every two or three breaths that we take can be attributed to the oxygen production of marine microscopic phytoplankton.

The Dutch island of Bonaire lies in the southern Caribbean, a mere 50 miles off the northern coast of Venezuela. Privileged to have traveled with a SCUBA-diving group to the island in February, I recently returned to my home on the west coast of California with a renewed sense of hopefulness. In Bonaire, I received a hospitable welcome from warm people, experienced a true sense of community, and, perhaps most significantly, witnessed a

population with a strong and long-established environmental vision.

People from around the globe travel to Bonaire to dive among the island's healthy, attractive, and photogenic coral reefs, many of which are accessible from the shore. While diving along these shores, I earned a certification for reef renewal, meaning that I am certified to help repair coral reefs elsewhere on the planet.

Coral reefs are one of the most biologically diverse ecosystems on Earth. Pristine corals line the fringing reef of Bonaire during a time in which it is reported that nearly one-third of reef-building corals worldwide are threatened with extinction. Scientists predict that by the year 2050, almost all coral reefs will be in some kind of danger, and up to 75 percent of them will be critically threatened.

Specific threats include coral bleaching, caused by climate change-induced ocean warming; ocean acidification, which prevents shell-building marine organisms from producing shells for protection; pollution in the form of industrial and

agricultural runoff as well as plastic contamination; and destructive fishing methods that obliterate entire reef systems.

The Bonaire National Marine Park is protected under Stichting Nationale Parken — commonly known as STINAPA — which was founded in 1962 to protect nature in the former Netherlands Antilles. Today, visitors to Bonaire benefit from the enduring work of organizations like Sea Turtle Conservation Bonaire, as the island is home to three of the world's six endangered or critically endangered species of marine turtles. Reef Renewal Bonaire has established coral nurseries near shore, where divers maintain healthy staghorn and elkhorn plantings that are eventually transplanted to damaged reefs. The Queen Conch Restoration Project works to prevent overfishing of this marine invertebrate through educating the local population.

In 1969, Washington Slagbaai National Park was designated on land. Today, visitors to Bonaire may witness iguanas, lizards, land snails, 210 known bird species, and eight species of bats! Echo Bonaire protects the yellow-shouldered Amazon parrot by reducing poaching of chicks for the pet trade and restoring the parrots' dry forest habitat. The Flamingo Reserve safeguards Bonaire's signature bird by protecting its special breeding ground among the island's saltpans.

Through the Reef Renewal Foundation, Bonaire has become a model for other islands with failing reef ecosystems. This island enforces strict regulations with regard to tourism through laws and policies that were developed decades ago, proving that, even with an increasing number of island visitors, good

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management and oversight can indeed protect and conserve a vast marine ecosystem.

Following are a few examples of this strictly enforced oversight. Neither divers nor snorkelers may wear gloves while underwater, thereby precluding any temptation to handle living corals. No marine creatures — dead or alive — or shells may be removed from the waters around the island; if a marine creature besides a coral polyp is handled, it must be promptly returned to its original spot. Passengers disembarking from cruise ships may remain on the island only during the day and must return to their ship by nightfall, thereby preventing island overcrowding and any residual effects on marine ecosystems. Boat anchoring is forbidden inside the Bonaire National Marine Park; mooring buoys are provided. Spearfishing and building campfires on the beach are both prohibited.

We live in perilous times for all life on our planet. Yet the pristine reefs of Bonaire are visible testimony to a community that cares deeply about its island home, and eloquent proof that when our species values an ecosystem properly, we are quite capable of preserving it.

My appreciation for these efforts harkens back to my student days on Oberlin's campus, when I was introduced to the field of environmental studies in the Environment and Society course taught by Paul Sears Distinguished Professor of Environmental Studies and Politics Emeritus David Orr. That class changed my worldview, as I slowly began to appreciate the gifts of Nature, to observe Her more closely, and to understand that our species is not only a part of Her, but dependent upon Her.

This new vision led to a latent interest in science — in my case, marine science, fascination with ecosystems, love for nature photography, and an abiding interest in environmental issues at large. It was at Oberlin that I first learned about a sense of place and how a feeling of belonging and rootedness in a place has the power to shape one's life. It was from David Orr that I learned everything is connected.

Connection and a sense of place are gifts from the Bonairean people to every individual fortunate enough to visit their shores. And this diver believes it's worth the trip there just to experience harmony among all species, including our own.

Shah: From Oberlin to Climate Journalism

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build walls and close the borders and do travel bans,” and all of that. But I think, if you look at the bigger picture — I'm not saying migration is easy. It isn't; it entails loss and disruption. It's just [that] there's costs and benefits to it — not just costs. We usually only look at the costs of migration. Well, what are the benefits, not just for the migrant ... but also for the receiving society and the society that is sending the migrants? There's all these missing parts of the conversation.

I think when you look in that bigger picture, the fact is, throughout our history, humankind has migrated. We have been migratory peoples. And roughly speaking, that means the benefits outweigh the costs. I think if you look at that bigger picture and [ask] ... “Well, what drives migration?”

We know. Change is what drives migration. It's change, one way or another. [Migration] has been an adaptive response to change throughout our history. It's encoded in our bodies. It's part of the human condition — to move, to be able

to move. So, now that we're entering this period of really disruptive change, we should think of migration not as the problem to be solved, but [as a] part of the solution to the problem of rapid change.

So you began your journalism career here at Oberlin at the *Review*. Are there things that you learned while being on the *Review* staff that you continue to carry with you in your work today?

It's hard to say, because the *Review* is so formative. I mean, it was the first place where I actually got to practice journalism as a full activity, from acquiring stories, to thinking of stories, to [learning] how to weigh stories — which are important, how do you angle them, and how do you present them to people — then to writing them, editing them, [and] producing them in that whole process. I feel like [that experience] was so foundational that I couldn't really say that there was one piece of it that I keep coming back to — because ... everything came out of it. [The *Review*] was like the seed that planted it all.

East Germany in 1980s Gives Example of Effective Environmental Activism



A forest in eastern Germany.

Photo by Christian Pirkl

Celeste McBride

One of the most challenging aspects of working as an activist is that of mobilization — developing ways to inspire people to do work that they do not have to do. A precious few people get out of bed wanting to call 100 strangers to inform them that their senator is opposing a bill that would ban offshore drilling. Even fewer want to come home from work and make an agenda for a community meeting about how to tackle poor air quality.

Environmental activists frequently turn to scientific data to mobilize the public and political officials to address environmental problems. But environmental activists organizing in socialist East Germany in the 1980s could not do that because all data outlining declining forest health was classified as a state secret — even working in the forest service required a security clearance. Files and copy machines were kept under lock and key, and studying the causes of

decline was prohibited. Even worse, public activism outside of the Socialist Unity Party was prohibited in East Germany, so activists could not start a conventional social movement.

Instead, they did their organizing within the Lutheran Church. Environmental study groups and research seminars took place across the nation, in which they discussed the forest's retreat in theological terms, looking to the Bible's philosophy and ethics for guidance on how humans should relate to nature. They wondered how God could allow such degradation of His landscape, and concluded that it was up to humans to address, just as humans had stopped the evils of Nazism. They produced an ideology of creationism that called on all who are faithful to God to protect the world that He made. In short, activists made collective sense of their environmental despair and found guidance for how to address despair and fear in the face of their receding forestlands.

Inspired by that collective understanding, East German activists developed multiple ways to engage their religious community about the receding forest. They taught people to identify different kinds of trees in various states of health, spread stories of the human impacts on declining forest health, and produced a tremendous amount of writing, music, and art focused on trees and the environment. They may not have taught trees to speak, but they certainly provided people with many ways to talk about trees, even in the absence of authoritative environmental data.

Activist messaging today, much like anything else, is guided by the assumption that we need to compete for people's attention in the same way that the work of an advertiser or op-ed author needs to be eye-catching. Most people don't make it to the bottom of the article, the feed, or the email, and so we need to provide all of the important information as quickly as possible before our audience loses interest.

However, when activists — and environmental activists in particular — take the time to connect with the people they are mobilizing with on a human level, they create communities based on shared emotion, culture, knowledge, and action. A community like that just might inspire people to do the work we need to do.



PART IV: Seeking Place

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As Great Lakes Water Levels Rise, Connection to Climate Change Unclear



Water levels across the Great Lakes System are reaching record highs.

Photo by Justin Glanville/ideastream

Anisa Curry Vietze

Water levels in Lake Erie — and the Great Lake system overall — are higher this year than they’ve been in over a century, and for people who live and work next to the water, the impacts can be significant. This past winter alone, a beachside park in Northeast Ohio lost 45 feet of land in just 10 days due to erosion; homeowners around Lake Erie scrambled to build emergency shore protection to shelter their properties from high tides; and strong winds along the water encased lake-side New York houses in uncanny ice tombs. While these events are cause for alarm, it’s not yet clear whether they are the direct result of carbon emission-caused climate change.

The U.S. Army Corps of Engineers has been collecting data on water levels in all five Great Lakes since 1918. It’s normal for the lakes’ levels

to shift month to month and year to year, as the ratio of rainfall to evaporation changes with the seasons. Recently, however, Lake Erie’s water levels reached a record high.

“The records that we saw in February was the highest February level that we saw in the past hundred-plus years,” said Lauren Fry, the technical lead for Great Lakes hydrology at the U.S. Army Corps of Engineers’ Detroit district office. “I think it’s worrying to a lot of people.”

A host of natural and economic ecosystems are impacted when lake levels rise. Parks can be destroyed by erosion, and homes can become flooded. Wetlands are inundated with water, which can kill certain forms of aquatic vegetation. Both recreational and commercial boating are also affected.

“It’s something that impacts a lot of people because there [are] so many people across the Great Lakes on the

shoreline,” Fry said. “There [are] a lot of people who rely on the shorelines, either because that’s where their property is, or that’s where they ... have businesses. We hear about marinas [that] are having to close sometimes because their dock power is underwater, [and] that’s not safe. So certainly we worry about it.”

According to Assistant Professor of Geology Rachel Eveleth, who studies the Great Lakes, all water systems depend on three core variables: runoff, precipitation, and evaporation. However, unlike rising sea levels — which are primarily caused by melting ice glaciers and are commonly cited as one of climate change’s most dangerous consequences — the cause of the Great Lakes’ rise is a little more complex.

“If you’ve got high levels of precipitation and runoff, and those levels exceed the amount of water leaving by evaporation, then you’re going to

see an increase in water level,” Eveleth said. “Right now, water levels are at a record high, as we’re coming off of last spring’s record-high precipitation levels and really high runoff. That was related to the same precipitation events that caused all the flooding through the Midwest last year. ... That added just a ton of freshwater to the system, way more than was leaving from the evaporation.”

The Great Lakes’ water levels generally cycle between highs and lows over the course of several decades — before last year, record highs occurred in the 1980s, followed by lows in 2013. But there is considerable evidence to suggest that extremes on both sides will be exacerbated as a result of climate change.

“The amount of precipitation we’re receiving now is almost unprecedented,” said Scudder D. Mackey, chief of the Office of Coastal Management at the Ohio Department of Natural Resources. “Whether or not you can attribute [it] to climate change I think remains to be seen. But I think certainly the climate modeling that I’m familiar with predicts a number of things. One is ... more intense storms and more frequent storms. And also what we [will] see is increased variability in Great Lakes water levels.”

Fry agrees that, at least in theory, change in climate globally has the potential to deeply affect those who live around the Great Lakes.

“If you think just in the big picture, a warmer atmosphere can hold more liquid, and so we see more precipitation,” Fry said. “But I haven’t seen a specific attribution study to show that our higher lake levels at this point are a direct result of climate change. But just looking at the historical record, we’re certainly in an unprecedented time in that we’ve set

new water level records and we’ve had record amounts of precipitation recently.”

Warming atmospheres affect the lakes in other ways too. In the winter, ice and snow serve as a natural form of shore protection, defending against erosion. Additionally, without an ice cover on the lakes, water evaporates into the cold air and then condenses, producing what is called lake-effect snow. Lake-effect snow is notorious for its ability to deposit copious amounts of snow in a short period of time, sometimes encasing lakeside buildings in snow.

“We didn’t have any ice cover this year,” Mackey said. “With the gradually warming temperatures that we’re seeing — climate-induced, I believe — we’re seeing a significant reduction in the amount of ice cover on the lakes, which increases a degree of evaporation, which helps actually expand that variability.”

Because of these higher levels of evaporation, in future years the Great Lake system could see record-low water levels — also as a result of climate change. These lows can dry out wetlands and threaten animal life. Lows can also impact commercial shipping in Ohio for dredging in naval channels.

Dredging comes with its own host of environmental consequences — the practice can kill small fish, the loss of which impacts the ecological balance of an entire water system. Dredging also releases harmful chemicals such as mercury and other heavy metals that have accumulated deep in sediments, and can further exacerbate shoreline erosion.

“With climate change, we do expect an enhancement of extremes,” Eveleth said. “So it might be that our envelope continues to increase and we get higher highs in water level

and lower lows in water level as we go through those natural cycles.”

In addition to changes in water level, the Great Lakes face other threats. Invasive species, such as Asian carp, have damaged the health of native fish and other underwater creatures. Since 1800, over 25 species of invasive fish alone have entered the Lakes. But fish are only part of the problem: Zebra mussels and quagga mussels, known for reproducing and spreading rapidly, have detrimental effects on the lakes. The mussels suck the plankton out of the water, leaving most small fish with nothing to feed on and unraveling the base of the whole food web in the lake system.

Another concern for the lakes is the impact of agriculture. Fertilizers used on farms can leak into the waterways and run into the Great Lakes. These excess nutrients feed algae, causing a “bloom” in algal growth, much of which is bacteria.

“Those bacteria have toxins in them, and that can impact human health,” Eveleth said. “So when those toxins get into a drinking water supply, as they did in Toledo in 2014, the water plant has to shut down, and the town went without water for a short period of time.”

Mackey and his team are undertaking a variety of efforts to support property owners and others affected by changes in Lake Erie. They send coastal engineers to homes that are threatened by erosion to give individuals recommendations on how to protect their property. The team is working to get funding for homeowners to build shoreline protection infrastructure through a special improvement district.

“We’re trying to think outside the box, and we’re trying to be innovative and [come] up with new solutions to deal with this problem,” Mackey said.

Climate Change Hits Home

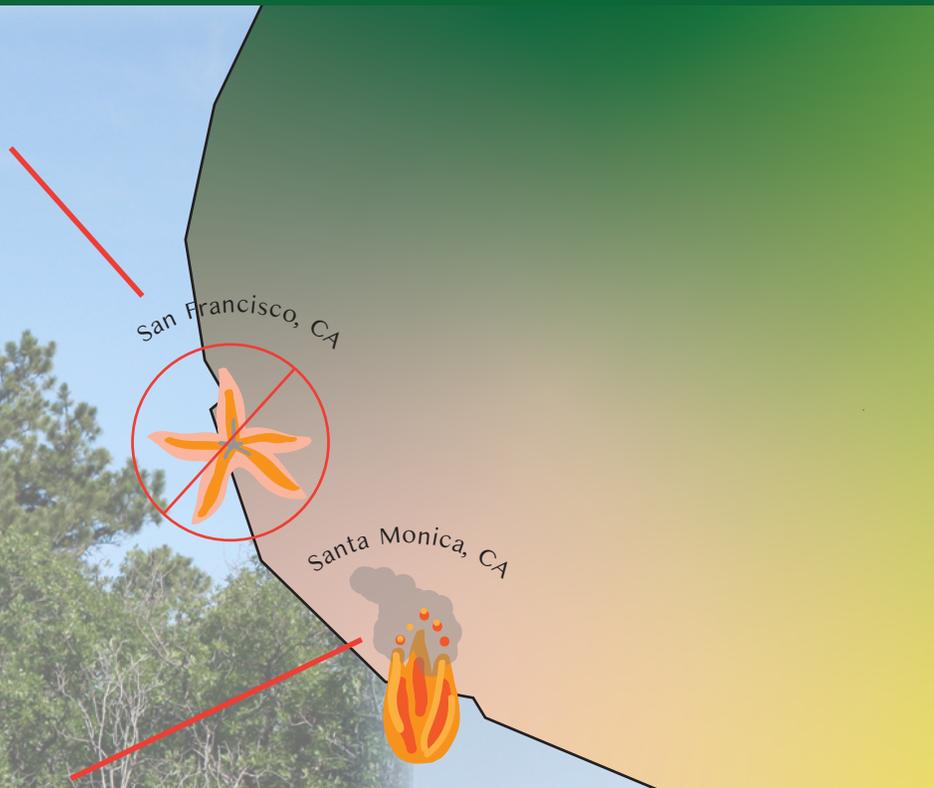
by **Nathan Carpenter, Editor-in-Chief** and
Nico Vickers, Commentary Editor

Layout by **Lily Jones, Graphics Editor**

The human-caused impacts of climate change, caused by skyrocketing carbon emissions and other environmentally harmful practices, have already touched countless communities around the world. In the years to come, these problems will only become more severe as rising sea levels displace communities and changing temperatures decrease crop yields. Understanding that climate change unfolds on a decadal scale and that, in many cases, it's still too early to know definitively what climate futures will look like regionally, we asked six members of the Oberlin community to talk about their observations of how climate change has impacted their hometowns. We've collected these responses below, organized geographically.

**Sofia Herron Geller, College first-year
San Francisco, CA**

I remember visiting tide pools along the Pacific Coast with my family throughout my childhood. However, as ocean acidification and climate change become increasingly problematic, the diversity of sea creatures, such as starfish, has begun to disappear. Starfish in particular are more susceptible to disease when ocean waters are warmer, and there are visibly fewer starfish living along rocks and piers today than in years past.

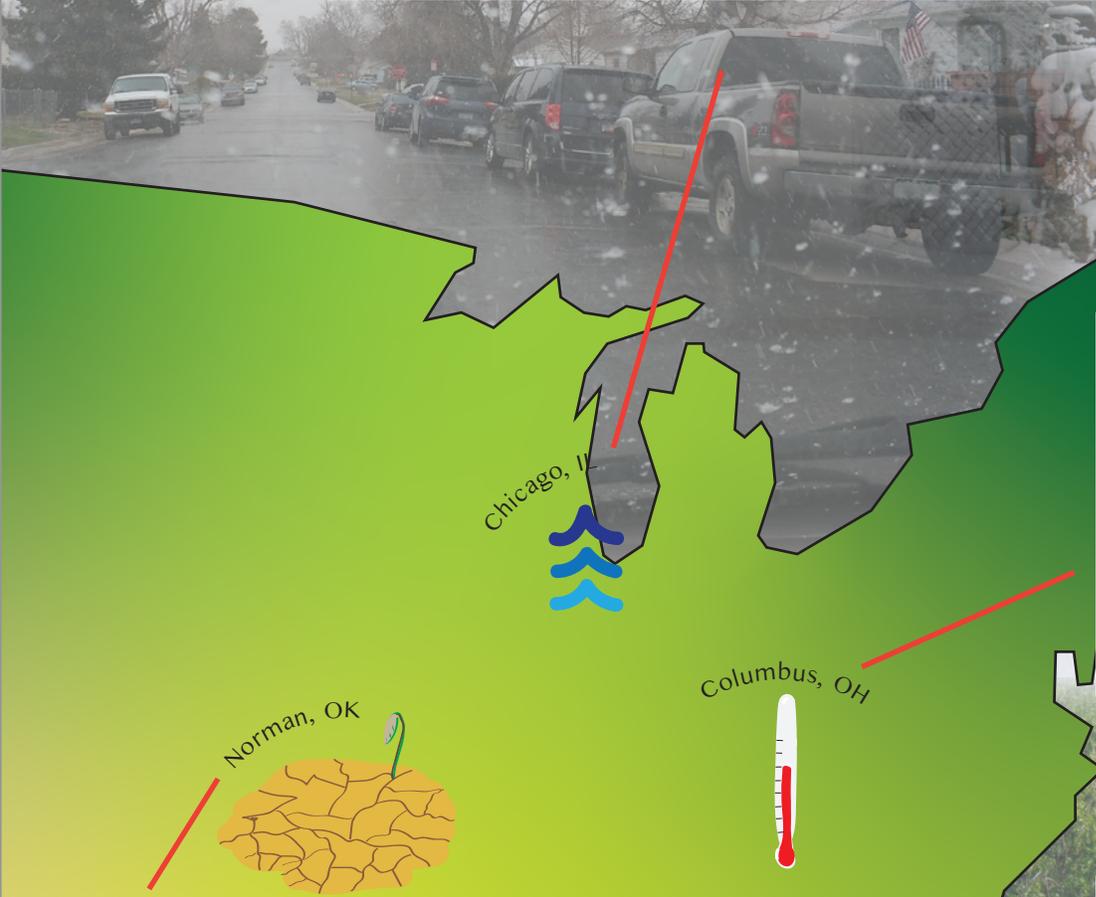


**Isabel Rosenstein, College fourth-year
Santa Monica, CA**

There have been fires very close to my neighborhood, and I have many friends and family members who have had to evacuate their homes. There have also been many fires in Northern California near my childhood summer camp. One summer when I worked there, we could see fire burning on the mountain across the valley, and ash fell from the sky like rain.

**Fatima Escalera, College fourth-year, Special Issue Features Editor
Chicago, IL**

Flooding in Chicago has only gotten worse each year. For low-income communities who are subject to environmental racism, these changes present as threats to home ownership. In addition, water quality in inner-city Chicago has continued declining with communities in the West Side and South Side being most affected by the toxicity of water.



**Sarah Naiman, College first-year
Columbus, OH**

Winters alternate between polar vortexes and unseasonal warmth. It's sad that kids won't grow up building snowmen, sledding, or wearing their pajamas inside-out in the hopes of a snow day.

**Antonia Offen, College fourth-year
Norman, OK**

Oklahoma is in the midst of an intense water battle. Drought has wracked the agricultural state for decades in an on-again, off-again struggle. Due to American water subsidies, farmers continue to irrigate at a deficit. I have not lived in Oklahoma for a long time now, but my childhood was riddled with fear of water scarcity. While it is rare for individual urban households to suffer from a lack of water, farmers' families are always worried that, without enough water, their crops will fail and their incomes disappear. And so, the water kept dropping out of the farmers' anxiety of its eventual expiration, which only worsened the situation for everyone involved.

**Lauren Waldman, College second-year
Fort Lauderdale, FL**

Fort Lauderdale is nine feet above sea level. I live close to the beach, and every time there is a king tide, there is so much flooding in the city that I often have to drive through a foot or more of water. In terms of precipitation, there is barely a dry season anymore. It rains so often that at times the canal at my high school floods and there are fish on the football field.

Creating a 21st-Century Landscape in Oberlin

Carl N. McDaniel

In December 2006, Mary and I decided to retire from our home in Troy, NY, where we had lived for 33 years — half our lifetimes. Our primary goal was to fulfill a long-held desire to replicate Hilltop, the home of our close friends David and Harriet Borton, that runs on sunshine. Trail Magic, our home in Oberlin, was inspired by the Bortons' home to attain the same energy outcome. With our focus on making our home completely powered by solar energy, the landscape received minimal attention, aside from keeping water from entering the dwelling.

Our five acres, located on the south side of East College Street, slopes gently down to Plum Creek, a stream that flows through Oberlin and is our property's southern boundary.

We dug a pond that would provide soil for raising the house site, there-



An image of the author's property.

Photo courtesy of Carl McDaniel

by permitting access to the city sewer. We created two swales that ran down the east and west sides of the house, with the west-side swale putting water into the pond and the east-side swale flowing down to Plum Creek. "Swale" generally refers to a sunken or marshy area with gently sloping sides. The builder installed house footer drains on the south side of the pond.

When we acquired the property, it was about half meadow and

half forest, and it harbored several dozen ash trees that were fated to succumb to the emerald ash borer that had not yet reached Oberlin; within a decade, there were almost no live ash trees in Northeast Ohio. The east side of the property, south of the house, was a meadow that ended in the Plum Creek floodplain, while on the other side there was a savanna prairie that ended in woods. A swale with invasive plants (multiflora rose and buck-



An image of the author's property.

Photo courtesy of Carl McDaniel

thorn that we've mostly removed from the property) was between the meadow and the savanna. A row of Osage orange trees in the swale extended south to a huge sugar maple just before a stand of 70-foot-tall mature ash trees. We cleared the swale except for Osage orange, maple, and black walnut trees and filled it with wood chips over several years. We then broadcasted tall grass prairie seeds and planted dogwood, American sycamore, white pine, and bare-root spruce plants. We put a four-foot fence around each plant to prevent deer from grazing on the young seedlings in the first years and then to keep bucks from girdling the young trees when they rub off antler felt in the fall.

We lumbered some 30 mature ash trees along with several mature red oaks and black walnuts to yield finished lumber that became beams, floors, shelves, counter tops and trim in the house and barn. We cut the treetops into firewood that we used, gave away, bartered, or sold.

We reforested the area below the pond with mostly native trees, including American sycamore, tamarack, dogwood, and river birch. As in the swale, we placed a fence around each bare-rooted seedling planted. We planted about 20 fenced trees — buckeye, dogwood, pawpaw, hawthorn, among others — in the front yard to create a wooded area that would require minimal mowing as the tree crowns grew to shade the yard. On the western side of the property above the pond, we made a 6,000-square-foot garden with an eight-foot-high fence to keep out deer.

Creating this garden was far more challenging than making a garden in Connecticut, Maryland,

New Jersey, or upstate New York where we lived before, because the soil is fine glacial clay that has zero perk — that is, if you put water in a hole, it stays there. I discovered this issue our first spring in Oberlin when I planted broccoli plants next to the barn and they did not grow; they drowned. We purchased several dump truck loads of sand and leaf-mulch soil to rototill into the clay to start making garden soil.

Our first year, carrots were about two inches long — the depth of the soil above the native clay. Over the next six years, we mulched with grass cuttings from our meadow and savanna fields, and hauled with our Toyota pickup truck many loads of free leaf-mulch soil gathered from where the city dumped collected leaves. By 2012, the garden was 6,000 square feet and the soil about half a foot deep. In the best years it yielded enough food to feed two people for about three months.

Wes Jackson, co-founder of the Land Institute in Salina, KS, impressed me with the productivity of the tall grass prairies that made 12-foot-deep Iowa soil among the

best agricultural soil in the world. We purchased a mix of tallgrass prairie seeds and planted an area in the backyard that, after nine years, has matured into a tallgrass prairie. Tall prairie grasses — big bluestem, switchgrass, and Indiangrass — put roots that sequester carbon six feet into the ground. Some 65 percent of the carbon they fix goes into the soil. When the prairie matures and its roots go deeper in the soil, the prairie absorbs more and more water.

Thirty years ago, the goal for managing water was to get it onto your neighbor's property as quickly as possible. Today, the goal is to keep all precipitation on your property. In order to achieve this goal, we designed our property to keep rainwater; our backyard tallgrass prairie was the first step. The second step was to fill in a trench in the bank of Plum Creek that allowed water from our land to flow into the creek. We had a dam constructed across the trench with an overflow pipe that would keep water on our property without putting water onto neighboring properties.

Continues overleaf



An image of the author's property.

Photo courtesy of Carl McDaniel

Continued from previous page

The forested areas of the landscape provide us with the annual cord of wood we use to heat Trail Magic. However, wood heating can produce pollutants unless done properly. Well-seasoned hardwoods should be burned and the stack temperature should be between 500 and 900 degrees Fahrenheit. We have heated with wood for 12 years, and our chimney and cap have no buildup of creosote, a harmful chemical that can sometimes result from burning wood. Some smoke is visible when lighting the fire, but the pollution is minimal. Beyond providing firewood, food, and sequestering carbon, our landscape provides habitat for myriad insects, small mammals, and food for a number of bird species, especially in the tallgrass prairie.

It should be noted that the house was designed for passive solar heating and lighting. Even on cloudy days, one can read in the living-dining room, bedrooms, and kitchen without turning on a light. Even if all lights in the house were turned on, less than 50 watts would flow, meaning in an hour only 0.05 kilowatt-hours would be used. The average two-person house in Northeastern Ohio annually uses about 2,800 kilowatt-hours for inside lighting, while we use less than 50 kilowatt-hours annually.

In summary, a landscape can reduce flooding; sequester carbon; provide food and energy (firewood); enhance biodiversity with its habitats and microclimates; allow for recreation, entertainment and education; promote health with the exercise its maintenance requires; and deliver aesthetic satisfaction by its inherent beauty.

In Shifting Away From Oil, Alaska Could Lead



Alaska's natural beauty.

Photo by Uma Prasad

Uma Prasad

Alaska is warming faster than any other state in the U.S., but its residents are of multiple minds when it comes to addressing the impacts of climate change. The state's largest city, Anchorage, is specifically caught between two extremes of environmental sentiment among its residents. There are people who spend much of their time outdoors and have a strong appreciation for and connection to their environment and land. They tend to rally for strict laws concerning salmon fishing, littering, and human interference with wildlife. On the other hand, Anchorage's economy largely depends on the oil industry, as Alaska is home to some of the largest oil deposits in the country. Moving away from oil and toward 100-percent renewable energy could lead to massive layoffs

at oil companies at every level of production, but also open up new jobs in the renewable energy sector.

Many Alaskans find that the value of the state's large oil reserves, as well as its copper and gold mines, pales in comparison to the value of preserving its untouched natural areas. After years of pressure from the public, the state now has miles of land in largely unoccupied areas marked as protected, even though massive amounts of oil lay below the surface. Because so many Alaskans take advantage of the unique opportunities allowed by a lack of human interference, such as fishing, the importance of natural resources is not taken for granted.

This discussion of land in Alaska — and the abuse it endures — is never complete without taking into account how these issues are affecting the state's Native communities.

Alaskan Natives make up about 15 percent of the total population, the largest per capita Native population of any state in the U.S., according to the 2010 census. Many Native communities in rural areas of Alaska live in completely removed systems. However, different settlement acts have given Native communities in the North Slope area significant discounts for oil company stakes, hence making the industry very lucrative. However, these lower prices were not offered to all Native groups. Because of unequal reciprocity among Native communities from these settlement acts, there is a divide between those who live off of the land — thus not profiting from the oil industry and experiencing the effects of climate change on their livelihoods firsthand — and those who do profit from oil.

Shifting away from oil will have major ramifications for many people

whose jobs depend on the industry. Nearly 20,000 Alaskans annually work manual labor jobs on oil fields and in mines.

At the same time, lessening dependence on oil would create more industrial demand for green energy, potentially creating new jobs that could make up for those lost in the oil and mining sectors. With its bounty of rivers and long summer days, Alaska has a lot of potential to produce both hydroelectric energy and solar energy. Currently, more than 20-percent of the state's electricity is sourced from hydroelectric power, though precautions have to be taken to ensure that hydropower projects do not interfere with salmon life cycles. Alaska is the largest producer of salmon in the world, and the salmon-fishing industry also makes up a large part of its economy. Keeping this in mind, the state already has a

number of successful hydropower projects that do not constrain salmon, and it passed a bill in 2010 pledging that half of the state's energy will come from renewable sources by 2025.

The shift away from oil and other fossil fuels is necessary for long-term environmental preservation, but we must remember not to forget the way the oil industry had its hold on these communities. Moving to renewable energy will displace people working on every level of the production process, from oil executives to engineers to rig workers. It could also have detrimental impacts on the Native communities that now rely on the wealth of oil for economic stability. But if done properly, Alaska could shift to gathering clean energy through solar, wind, tidal, and hydropower, and become a leader in the era of sustainable energy.



Alaska's natural beauty.

Photo by Uma Prasad

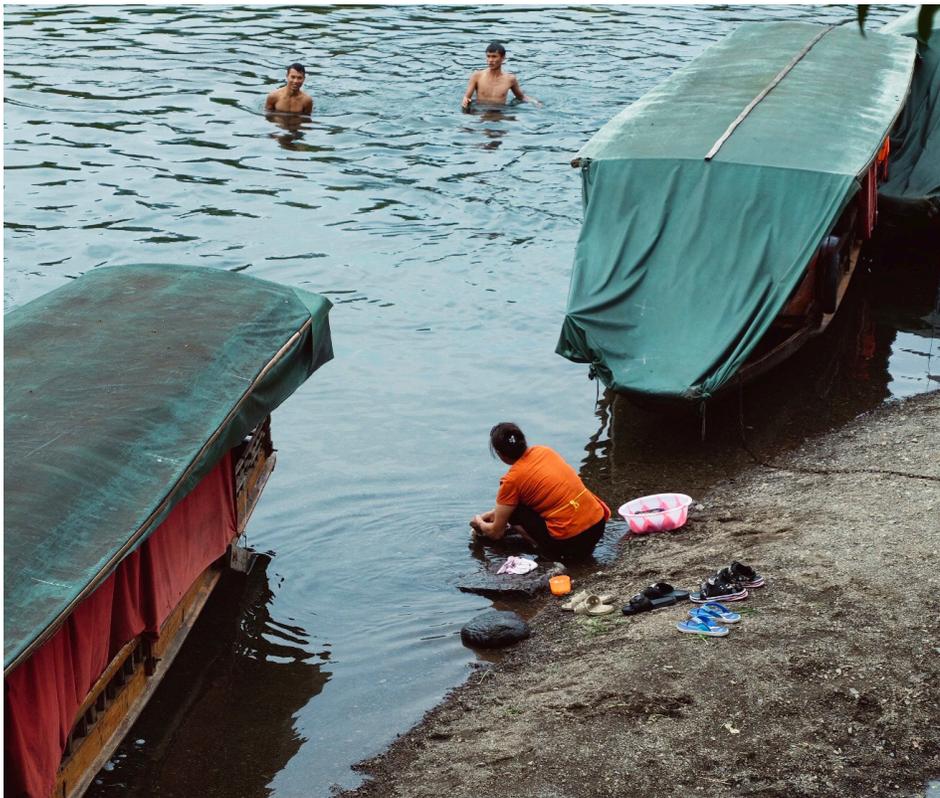


Photo Essay: Hunan, China

Editor's note: The passage by Shen Congwen is translated from the original Chinese by the writer.

For me, Hunan, China is not only a place of memories — it is where my maternal family lives and where I spent many of my childhood days — but also a place of surprise, as new ways of life are gradually replacing the old. This sentiment, one that is commonly felt by people who have left familiar places behind, is vividly described by Chinese writer Shen Congwen in his *sanwen*, or lyrical prose, “On the Boat and On the River.”

“Everything is overwhelmingly serene and beautiful, so much so that we feel melancholic — Yuan and I. We cannot stop but to listen

to the song, as if it's coming from a magic flute, to reminisce about the beloved and familiar rural things gradually disappearing. That song is one about farewell, carrying young people away from their homes into another world, on a quest for knowledge and hope. The tune changes over time, just as our boats are borne downstream, reminding us that we are further and further away from home. We can no longer stay to listen to this eternal song, not even for a second time!”

Through these photographs, I hope to preserve the memory of Hunan at a particular point in time.

Text and Photographs by Yan Jin





Photo by Nathan Carpenter, Editor-in-Chief

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