SUMMER 2020

DESIGN JOURNAL

COOPER HEWITT

DIRECTOR'S LETTER

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SUMMER 2020

DEAR COOPER HEWITT FRIENDS,

The recent events of the Covid-19 pandemic have altered our world and lives. As the museum considers how we will serve our audiences in this changed landscape, it is essential to keep our mission front and center, while prioritizing the health and well-being of our staff and communities. In 2019, the International Council of Museums (ICOM) held its triennial general conference in Kyoto, Japan, and there was quite a bit of discussion about the evolving role of museums amidst the complexities of the 21st century. The topic of one of those discussions was a proposed new definition of what we mean by "museum." The resolution offers us much to think about. Here is an excerpt from the text:

> Museums are democratizing, inclusive, and polyphonic spaces for critical dialogue about the pasts and the futures. . . . They are participatory and transparent, and work in active partnership with and for diverse communities to collect, preserve, research, interpret, exhibit, and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality, and planetary well-being.

The Covid-19 crisis highlights how a museum must be multidimensional, providing audiences equitable access to its content and collections both physically and virtually. Cooper Hewitt shared its more than 210,000-object collection digitally in 2015 and is a part of Smithsonian Open Access, where the public can explore nearly 3 million images and data from across the Smithsonian's nineteen museums, nine research centers, libraries, archives, and the National Zoo.

Cooper Hewitt's commitment is to explore design's significant impact on crucial issues of our time. When systems are stressed, design emerges to search for new and innovative approaches, as it has already done in the case of the pandemic, and as it has been doing for years to address global climate change. Few topics are as crucial for maintaining our planetary well-being.

The contributors throughout this issue of *Design Journal* focus on climate change from distinctly different points of view. Included in these pages are 2019 National Design Award winners Mark Chambers, director of sustainability for the City of New York, and Director's Award recipient, and Kate Orff, principal of SCAPE, Landscape Architecture Award recipient; Katharine Hayhoe, atmospheric scientist; Whaleah Johns, member of the Navajo (Dine) tribe and founder of Native Renewables; Stuart Candy, associate professor of design at Carnegie Mellon University and pioneering design futurist; Tatiana Schlossberg, journalist and author writing about the environment and climate change; and Greg Herringshaw, recently retired head of Wallcoverings at Cooper Hewitt.

As acknowledged by another ICOM resolution passed in Kyoto, "museums, as trusted sources of knowledge, are invaluable resources for engaging communities and are ideally positioned to empower the global society to collectively imagine, design, and create a sustainable future for all." Design enables us to become active agents in our relationship with nature. As landscapes burn and ice sheets melt, the sense of urgency is palpable. At Cooper Hewitt, we're responding to the call.

John Davis
Interim Director

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Illustration of the Carnegie Mansion, home to Cooper Hewitt, Smithsonian Design Museum. Explore the Digital Mansion at cooperhewitt.org to discover the best of our online resources and a few of our favorite objects from Cooper Hewitt's collection.

BROKEN SYSTEMS: DESIGNS FOR A BETTER WORLD

*By **Tatiana Schlossberg***

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To those of us who don't design anything, it's easy never to think about design at all. If the design is good, then we probably don't even see it because it's too intuitive or easy to use or we are too distracted by the elegance or beauty to imagine that a person could have made it. If it's bad, we probably just get frustrated, or if it's *that* bad, maybe we never imagine that it was designed at all.

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I am not a designer, I am a writer. I write about climate change and the environment, subjects I have now covered for four years. Much of my work has focused on the environmental and climate impacts of the stuff we use, do, eat, and wear every day, and how those impacts connect each one of us both to the problems of climate change and environmental degradation, and to each other: how eating a hamburger in Connecticut might lead to rural drinking-water pollution in Kansas or the dead zone in the Gulf of Mexico (an oxygen-poor area in the sea, increasing in size, that cannot support fish or marine life); or how the demand for cheap cashmere has contributed to desertification in Mongolia, and more air pollution in Beijing and California.

That is not to say that I think individuals are responsible for climate change. I don't. We were all born into a world that burns fossil fuels for energy; we depend on systems for food, clothing, and shelter that depend on fossil fuels and create waste. The narrative of personal responsibility for climate change has been destructive: it puts the focus on ourselves and our behavior rather than on the larger structural challenges that make climate change hard to solve. (It also absolves the special interests that have let this problem of physics devolve into a political and planetary crisis.) I don't think we should feel individually responsible for climate change; I think we should feel collectively responsible for building a better world. Climate change is often framed as an issue of sacrifice and loss. It is also an enormous opportunity to do things differently—to build better and more just systems.

My work has forced me to think about systems—the climate system, sure, but also the food system, transportation networks, electricity generation, and the global supply chains that produce our clothes and technology. A well-designed system is streamlined, not waste-producing; rather, much like a house or building, it should be functional, responsive, and efficient. Understanding that the things we buy, eat, and do every day exist within the context of the systems that produce them can help us to understand why these problems need to be addressed on a collective, rather than individual, scale.

Even the Internet—something we think of as functional and efficient, and capable of nearly anything—lacks a logical design. We don't need to know how the Internet works in order to use it, and most of us don't know. But so much of the Internet exists as a work-around, cobbled together for a very different set of applications than what we use it for. It's a physical network that traces the railroad, our first transcontinental system, one that was also not logically designed. Railroad lines went where railroad companies wanted them to

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The simple light bulb holds enormous capacity to reduce our energy consumption. Alternative, more efficient options are available, if public policy enforced their use.

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Digital networks connect many aspects of our lives. But the infrastructure supporting these networks—and the older systems from which the networks were developed—is rarely optimized for the most efficient flow of information and power.

go, often following the paths of least resistance. This is why the first transcontinental railroad left from Council Bluffs, Iowa—the path from there to the West Coast had the most even grade across the continent. Telegraphs, telephones, and cable networks followed the paths laid out by the railroad. And so did the Internet, which helps explain why Facebook and Google have data centers in Council Bluffs.

And because the Internet was originally a creation of the Department of Defense—invented so that the president would have a way to talk to members of his cabinet in the event of a nuclear attack—much of the infrastructure of the Internet is in Northern Virginia, and sprawls out from there. If someone were designing the Internet today, it's unlikely that they would choose for 70 percent of global Internet traffic to pass through Loudoun County, Virginia, but it does.

We seem to be content with a world that works this way—inefficient, but acceptable for most of us—or we are willing to let it slide because a well-designed alternative would be hard to achieve. We can't exactly pause global manufacturing while we run tests on how to make it work better.

But we are reluctant to change even the things we can—the systems or elements of them that we know are inefficient, expensive, and unhealthy. For instance, it doesn't make much sense that now, nearly three hundred years after the invention of the coal-powered steam engine, we would still be relying on that same technology and fuel for our electricity—that we burn up dead matter from millions of years ago to turn our lights on. We're pumping carbon dioxide into the atmosphere to melt prehistoric ice to create an uncertain future—when we know we have better, cleaner, less expensive options.

These systems—the Internet or electricity generation—are bigger than each one of us; our individual behavioral changes, while important, are not enough on their own to meaningfully change the dangerous climate course we are on, or dramatically reduce the amount of waste we produce. Economies of scale have replaced good design as a rationale for existence.

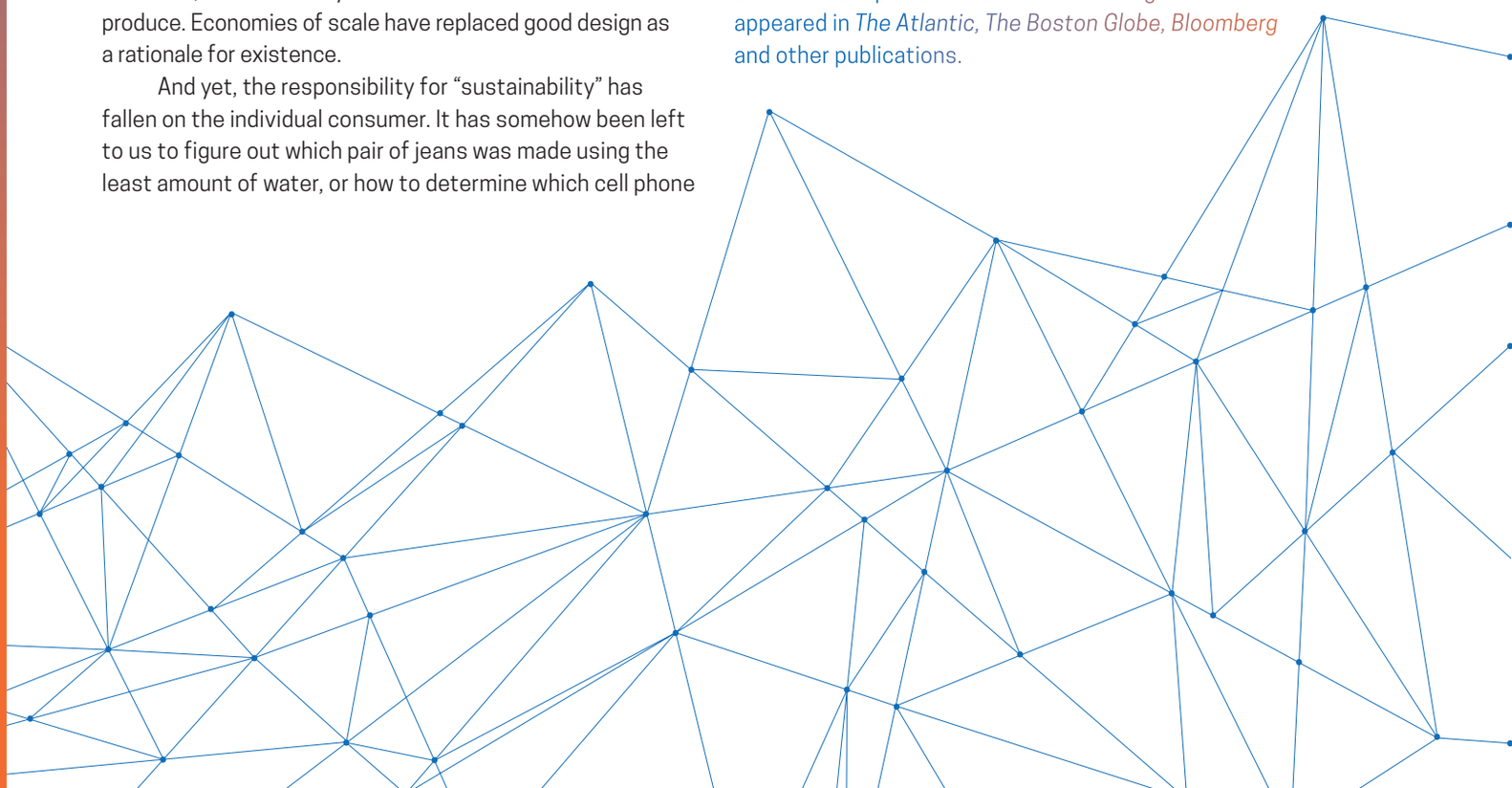
And yet, the responsibility for "sustainability" has fallen on the individual consumer. It has somehow been left to us to figure out which pair of jeans was made using the least amount of water, or how to determine which cell phone has the smallest carbon footprint, or what is the best diet for the planet. Making these decisions should not be the consumer's responsibility. Not only can we not shop our way out of this problem, but we don't have enough information to make the right choice, if such a thing exists.

Take the light bulb, for example. Incandescent and halogen light bulbs are wildly inefficient; this we know. These light bulbs were scheduled to be phased out beginning in 2020, according to a rule passed as part of the Energy Independence and Security Act of 2007. Getting rid of these bulbs entirely—and replacing them with more efficient alternatives—would save as much electricity as twenty-five large power plants produce in one year, enough to power all of the homes in New Jersey and Pennsylvania, according to an estimate by the Natural Resources Defense Council.

This regulation, taking the burden off the consumer to make the responsible light bulb choice, was weakened in 2020 by a rejection from the government of energy conservation standards for incandescent bulbs. At moments like this, it is easy to feel powerless and forgotten, particularly when the facts about energy sources and the science of climate change are indisputable.

But we are not powerless. We may not have designed our government ourselves, but we forget the most essential feature of government when we lose hope—that we are in charge. We decide who gets elected, and who is not reelected. It's not a perfect system—the design and the documents that lay it out have their flaws—but at least we can exercise our individual rights. If we design the future we want, we have the responsibility to carry it out, and we have the ability to do that if we work together to design a better world.

Tatiana Schlossberg is the author of *Inconspicuous Consumption: The Environmental Impact You Don't Know You Have* (2019) and a former *New York Times* science and climate reporter whose award-winning work has also appeared in *The Atlantic, The Boston Globe, Bloomberg* and other publications.



DESIGNING OUR WAY OUT OF THE CLIMATE CRISIS

By ***Mark Chambers***

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THE CLIMATE CRISIS IS A FAILURE OF DESIGN.

Over the last century, humankind has seen remarkable social progress, astonishing technological advancement, and phenomenal leaps in knowledge and understanding. We stretched towns into megacities and designed the modern metropolis; we conceived the microchip, we created indestructible materials, and we fabricated faster vehicles to travel farther. At each of these moments and with each advancement, we solidified our reliance on energy that requires the burning of dirty fuels to continue to fill our growing ambition. But in the developed world, we burned too much, too quickly. In achieving so much on the back of combustion, we selfishly and unintentionally locked in an expiration date for our resource-heavy way of life. We designed our way into this climate emergency and at the expense of our less culpable neighbors, no less.

And so we must design our way out.

This new decade before us is our fleeting chance to reverse many of the beautiful but ultimately destructive systems, materials, and services we designed throughout the twentieth century. I won't pretend this work is easy. As the director of sustainability for the largest American city, I work every day on the frontlines of environmental, social, and economic policy to fight a rapidly changing climate, and protect a coastal city of 8.6 million people. Recent global emissions analyses from other vanguard cities, the Intergovernmental Panel on Climate Change, and the United Nations Framework Convention on Climate Change tell us that even as more and more governments acknowledge the reality of climate change and commit to fighting it, we're still not doing enough, fast enough. *(Insert here the innumerable and terrifying facts about historic heat waves, oceanic dead zones, raging fires and floods, and an unfolding climate refugee crisis.)*

In an ideal world, federal governments would take sweeping action to dramatically reduce greenhouse gas emissions, and in

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Mark Chambers, director of sustainability for the City of New York, speaking at the announcement of New York City's Green New Deal, April 2019.

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turn, the mantle of response would not fall solely on cities in the United States and around the world to step up and fill the national leadership void. That is not, however, our present reality. The lack of urgent, credible, and comprehensive action is rampant at the most critical levels of leadership in government and business alike. In open critique of this reality, the growing global youth climate movement provides an inclusive and compelling cry of fear and anger at the failure to act at a scale equal to the dystopian crisis before us, and in the service of their generation—our children and grandchildren.

In New York City, we hear that call to act loud and clear. In 2019, our city passed the Climate Mobilization Act, a series of climate laws that together amount to the biggest climate solution legislated by any city, ever. The cornerstone of this act, and the first of its kind globally, is a mandate for large existing buildings in NYC to make aggressive cuts to greenhouse gas emissions during the next decade. New York City's one million buildings are responsible for nearly 70 percent of our city's overall greenhouse gas emissions, making them the most crucial front in our city's battle against climate change. The mandate will cut six million tons of carbon dioxide by 2030. That's the equivalent of taking 1.3 million cars off the road every year and will create at least 26,700 green jobs while catalyzing a high-performance design renaissance for our city's existing buildings.

And we've done more than that. We've strengthened our building codes and required solar or green roofs—or

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both—on every new building and major roof renovation in the city. We published Climate Resiliency Design Guidelines, which provide step-by-step instructions for how our city-operated buildings can make resilient design an integral part of the project planning process. We championed zero waste in NYC and designed the largest curbside organics program in the country, banned styrofoam food and beverage containers, and worked with our state partners to ban single-use plastic bags—and then coupled that ban with a five-cent tax on paper bags.

All these policies open inspirational new doors for a socially and environmentally just future. When New York City passes policies requiring greater building energy efficiency, it's an opportunity for architects and engineers to envision net-zero homes, schools, and businesses. When New York City passes

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Thousands of New York City students have participated in school walkouts over the past year to advocate for climate action, and joined the largest global Youth Climate March in September 2019. New York City public schools granted their 1.1 million students permission to skip school to join the march. More than 60,000 New Yorkers walked.

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The nearly seven-acre green roof on the Jacob Javits Convention Center was installed six years ago as part of a renovation project, and is the largest of its kind in New York State. Recognizing that rooftops are an underutilized asset and can play a valuable role in reducing carbon emissions and cleaning our air and water, New York City passed legislation last spring requiring new construction and buildings undergoing major roof renovations to be covered with solar panels, green roofs, or some combination of the two.

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The City of New York is committed to deploying 1,000 megawatts of solar by 2030 as part of its goal of achieving carbon neutrality by 2050. To date, approximately 200 megawatts of solar have been installed citywide.

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policies creating car-free zones, it's an opportunity for planners, technologists, designers, and artists to reimagine a healthier streetscape for pedestrians. When New York City uses city facilities and services as a proving ground for new low-carbon innovation, it helps shift us to a truly circular economy that is more efficient, less wasteful, and serves as a beacon of change beyond the five boroughs.

As an architect and public servant, I believe it is my responsibility to lay the foundation for the inspiring, inclusive, and impactful design that we desperately need right now. But policy and politics alone can't propel us forward. Designers and artists have always held the power to unlock the best in us, and now, more than ever, have a defining part to play in the fight against the climate crisis. No matter whether you are creating a service or a product or unpacking a beautiful experience in between the two, failure of design is no longer an option. Our future, quite literally, depends on you.

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Reducing emissions from buildings is a key strategy for achieving New York City's ambitious 2050 carbon neutrality goal. To drive this work forward, the City passed groundbreaking legislation in 2019 that requires the largest, most polluting buildings to cap their carbon outputs by 2030. In turn, the legislation discourages continued reliance on polluting fossil fuels, cuts down on harmful air pollution that causes respiratory illnesses, and saves building owners money over time by lowering operating expenses.

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One of over 2000 electric vehicles in New York City's Clean Fleet, the largest municipal electric vehicle fleet in the US.

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The first of 15 electric buses the MTA is rolling out in 2020. The MTA aims to have an all-electric bus fleet by 2040.

Mark Chambers serves as director of sustainability for New York City. He leads policy and programs to confront climate change and inequality. Previously, Mark served as the director of sustainability and energy for Washington, DC. He is the Director's Award recipient of the 2019 National Design Awards.

THE FUTURE CAN'T WAIT

Eden is burning. A small coastal town in Australia has become a household name in the past twenty-four hours, besieged by raging bushfires, coloring land and sky a surreal martian red, and causing residents to flee for the ocean, the safest refuge in a world aflame.

*By **Stuart Candy***

Today, under unprecedented emergency orders from the prime minister, the navy arrives to help with evacuation. The fires in Eden and dozens of other places have already torn through an area the size of Switzerland.

This is all a few hundred miles northeast of where my wife and I, both Australian, are on our annual pilgrimage back from the United States. Right now our family group is standing on the deck of another navy vessel, a World War II minesweeper, long ago decommissioned and turned into a small maritime museum. Normally the backdrop would be a spectacular Melbourne skyline. Instead we see a gray curtain that looks like fog, but isn't. The smell of smoke is unmistakable. The ongoing catastrophe is at once bodily present and utterly remote from our pleasant after-lunch walk.

A museum guide leads us to the crew quarters, pointing out a framed black-and-white photo of grinning sailors crammed into this space. I try to picture daily life during the war: dozens of servicemen eating, arguing, and playing mah-jongg endlessly, spending their nights in hammocks strung from the low ceiling. The central purpose of the exhibit is of course to help visitors connect to this earlier time—but even standing here, surrounded by historical paraphernalia and listening to stories from our knowledgeable guide, one struggles to imagine the lived everyday reality of a vanished era.

As with the present-day experience of others, especially in circumstances very different or distant from our own, so too when it comes to history. Considering it from afar is one thing; really comprehending it is another.

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Thinking about the future confronts this same problem, intensified. No one knows exactly what the future holds, so unlike the past or present we have no direct evidence to compare with what is in our minds.

Yet the collective task of properly engaging alternatives is among the most important we face. Fortunately we now have more effective ways to do it than ever before.

Prompted by the Second World War and the Cold War that followed, a pragmatic set of approaches for navigating large-scale change and uncertainty has arisen over the past few generations. The near-unthinkable stakes of nuclear conflict forced governments to develop big-picture "what if" scenarios, and investigate how they might influence events toward preferred futures, and away from non-preferred ones.

In the 1970s, oil companies and other organizations started exploring the advantages of an institutional capacity to think ahead. Parallel to these developments in the corridors of power, a more grassroots and humanistic tradition of futures workshops and education was also emerging, studying the "images of the future" held by individuals and groups, and how to understand, critique, and create them.

"Future" singular became "futures" plural. A new transdisciplinary field was born, known variously as strategic foresight, futures studies, or simply "futures."

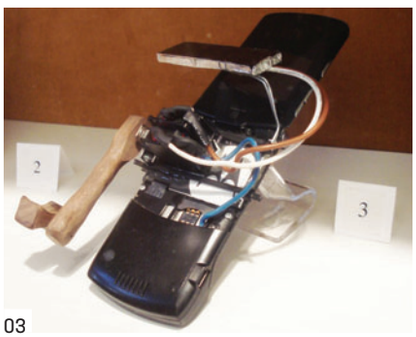
Now, paying intellectual attention to possible futures is a positive step, but it does not in itself guarantee an appropriate impact on present-day decisions. The bushfires blazing in southeastern Australia are a case in point. They have captured global attention as a kind of postnatural disaster: something long foreseen, and shaped directly and indirectly by collective choices, but for years not taken seriously in a political sense. This long-fuse, seemingly far-fetched scenario, well outside of anyone's lived experience, has now burst forth and is wreaking havoc in real time.

How then can we connect to possible, probable, and preferred futures viscerally, such that they feel real enough to make a difference, now? This vital question has become a focus for a community of practice building on foresight's foundation. At conferences and festivals, in classrooms and city streets, we are learning and using whatever it takes to bring futures to life, from physical artifacts, photo illustrations, and videos to online games and simulations, street art, guerrilla interventions, immersive theatre, and live-action role-playing. In recent years in the design world, speculative design and design fiction (an analogue to science fiction, but oriented to physical rather than literary creations) have surged to prominence.

This whole array of strategies is called experiential futures. If one wants to bring potential realities to life, and have them register with the body and make a dent in current choices, then all experiences that help achieve that are part of this design space. They can be used to explore any question or topic, bring any world to life. Here are a few examples of projects we've done on the themes at hand:

For the International Federation of Red Cross and Red Crescent Societies biennial strategy meetings, future artifacts dramatized a potentially changed landscape of humanitarian need. What if displaced coastal populations began to mobilize politically, across culture and language barriers, around their common plight?

For the World Bank's Climate Investment Funds, and Institute for the Future, we imagined far-reaching changes in the US federal response, creating a future advertising campaign around it. What if, in the late 2020s, climate inaction gave way to large-scale military mobilization? Strange echoes now of the deployments just announced in Australia.



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For the Hawaiian state legislature, to support public engagement with a sustainability planning process, we placed hundreds of policymakers and constituents in a quartet of parallel immersive scenarios for the islands, set in 2050. In one room, governance had been restructured around precolonial values and traditions; in another was a naturalization ceremony for climate refugees. And so on.

These are not predictions, but "what ifs" in four dimensions, aimed at improving the quality, accessibility, and impact of futures conversation. Miscellaneous approaches are coalescing into a systematic set of ways for humans to play productively with possibilities, and ranging beyond the standard technological questions by bringing life to often neglected social, cultural, economic, and environmental dimensions.

Becoming common practice brings the opportunity for deep impact. As well as spending time in the imaginary worlds of comic book heroes, for instance, we might spend time in potential future realities. We might debate and decide less on the basis of ideology and slogans, and more on the basis of collectively explored pathways and policies designed to shape them.

The museum has emerged as an indispensable platform for helping these developments along. If you haven't already encountered a major hybrid design/futures exhibition, at an institution like the Museum of Modern Art, New York, or the Victoria and Albert Museum, London, chances are you soon will. New facilities—essentially cultural institutions of foresight—like the Museum of Tomorrow in Rio de Janeiro, the ArtScience Museum in Singapore, MOD in Adelaide, and the Museum of the Future under construction in Dubai, have lately been established to let visitors encounter what could come to be, as much as what has been.

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Museums have always enabled the cultures they are embedded in to remember what matters; but memory and imagination are two sides of one coin. In a volatile era, we need all the help we can get to bring both into currency. What of the past should we hold on to—but also, how might things be otherwise, in better and wiser times to come, and what role can we each play in finding our way there? The rise of experiential futures is fueled by cultural need, and though the need is different everywhere it shows up, it shows up everywhere.

An important societal transition is just getting underway. Collections of speculative future artifacts are a promising start, but wider horizons of experiential futures—immersive, generative, participatory, and large-scale—remain to be explored, growing the collective capacity for foresight through our cultural institutions.

Today, Eden is burning. As the smoke clears, this moment will pass from headlines into history, a newly minted past to learn from to the best of our ability. Already apparent among its lessons to take to heart is our urgent need to get much better at thinking and feeling through what might lie ahead, too.

The good news is: we can.

Stuart Candy is associate professor of design at Carnegie Mellon University. A pioneering design futurist, he was the first Fellow of Museum of Tomorrow, and also of the Long Now Foundation. He has introduced strategic and experiential foresight approaches at leading cultural organizations including the BBC, Sydney Opera House, and UNESCO. https://futuryst.blogspot.com

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A climate-disrupted future was one of four immersive scenarios staged for elected officials and public attendees to experience at *Hawaii 2050*. Project codirected by the author at Hawaii Research Center for Futures Studies, for the state legislature's Sustainability Task Force. 2006.

02
US Earth Force, an experiential scenario exploring dramatic federal-level climate action. Project commissioned by IFTF & World Bank Climate Investment Funds. 2019.

03–04
Imagined historical artifacts from Hawaii, on display in the early 22nd century, two generations after Hawaii has closed its doors to the wider world. Collaboration with futurist Jake Dunagan and curator Sally Szwed, exhibited at CCA Wattis Institute for Contemporary Arts, San Francisco. 2008.

05
The Thing from the Future (2nd ed.), a generative card game widely used by creatives and leaders to imagine fragments from possible futures. Codesigned with Jeff Watson, published by Situation Lab. 2018.

06
A guerrilla futures artifact imagining the transnational political activation of climate refugees. Deployed at the biennial strategy meeting of the International Federation of Red Cross and Red Crescent Societies. 2017.

POWER IS IN OUR HANDS: NATIVE RENEWABLES

01

*By **Wahleah Johns***

Access to electricity is a human right, essential to people's health, security, and livelihoods. Of the twenty thousand families in the United States without access to electricity, three-quarters live on the Navajo Nation. Despite their lands providing fossil fuels that have powered the West for fifty years, these families have been left in the dark.

Native Renewables is an Indigenous, women-led organization committed to empowering these families with affordable, reliable, and clean electricity and catalyzing a just transition for the Navajo Nation. Engineers, solar entrepreneurs, and tribal members from the Navajo and Hopi tribes make up Native Renewables, whose mission it is to empower Native American families to achieve energy independence. Our values are to provide a holistic approach to clean energy projects with four pillars: tribal sustainability, regenerative culture, engagement, and a thriving organization.

Access to electricity for Navajo families is expensive, as power-line extension is costly and no financing options exist for low-income families to pay for power. With these limiting factors in mind, Native Renewables has designed a rural electrification program called the Navajo Clean Energy Program that will offer each of the fifteen thousand Navajo households access to a lease and an off-grid photovoltaic (PV) system + storage to power lights, a refrigerator, cell phones, and appliances. This program has a workforce development component to train Native American solar installers to build and maintain off-grid PV systems and generate solar jobs.

Native Renewables staff and contractors are from the communities that do not have access to electricity and know there is a demand for cost-effective renewable energy solutions to provide basic energy needs. Our team consists

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of tribal members with thirty-five years of solar experience, and renewable energy research and development. We have two mechanical engineers, three solar installers, one solar entrepreneur, and one grassroots organizer who have shaped our strategy to solve energy access on our homelands.

Tribes and Indigenous Peoples disproportionately represent both dirty energy and clean energy resources, where 80 percent of fossil fuels and 80 percent of the world's biodiversity are on and near Indigenous Peoples' lands. Indigenous Peoples' land base and ecological traditional knowledge can provide guidance and alliance toward solutions to heal the planet and communities.

The Navajo Nation is the largest Native American tribe in the US, with a landmass the size of West Virginia occupying northeastern Arizona, northwestern New Mexico, and southern Utah. The majority of Navajo families live in rural locations, comanaging miles of lands from previous generations. These families are pastoralists, farmers, ranchers, herbalists, healers, artisans, teachers, coal miners, coal plant workers, mechanics, builders, tribal employees, and entrepreneurs, all working with the terrains constrained by Wi-Fi/cell service, unpaved roads, no running water, and extreme weather conditions. The Navajo have an unemployment rate of 48.5 percent and average per capita income of $10,695, demonstrating the need for low-cost energy solutions.

Native Renewables' energy access strategy comes from eighteen months of researching Navajo families' fuel costs and the barriers to accessing electricity. We have engaged our tribal utility and US and international off-grid solar providers to help understand the market that matches customers with affordability, system size, and commitment.

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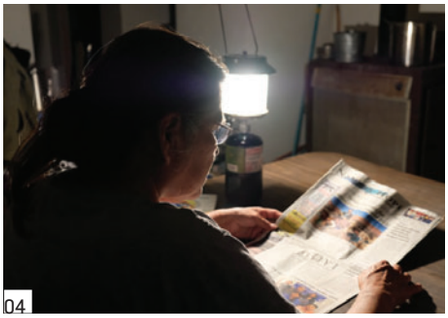
In order to scale off-grid PV knowledge and installation we've designed a solar workforce program that includes both in-classroom and hands-on learning. In October 2019, Native Renewables offered our first eight-week solar workforce training to teach trainees how to design, build, and maintain off-grid PV systems. We held the training on the Navajo Nation to create educational access for rural Navajo and Hopi applicants. Training includes the fundamentals of energy and PV systems; safety; electricity and wiring taught by a certified electrician; balance of system components; battery storage; design of systems; and site evaluation. The soft skills that are incorporated are customer service (Interface and education), marketing for services, and project reporting. In November 2019 we graduated all ten trainees of the solar workforce program, exceeding all of our expectations and preparing these ten off-grid solar installers for work.

The first phase of the Navajo Clean Energy Program is to deploy up to one hundred off-grid PV systems as a demonstration project to refine products, financing, key partnerships, installation, and service within one year. We will collect data and use the lessons learned to refine the economics and mechanisms to scale toward the remaining 14,900 homes on Navajo land.



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The Navajo Nation has some of the best solar resources in the world and seeks investment to spark a restorative economy that fits the needs of the people. With solar prices dropping and the coal industry becoming less economical, Native Renewables sees this as an opportune time to create a solar workforce and energy access program to tackle the growing unemployment rates and offer job training skills closer to home.

We see systemic change occurring at each home that uses off-grid solar—where the most underserved demographic in the US will become natural leaders of sustainable living by managing and owning their power with the sun and modeling Indigenous self-reliance and self-determination.

Wahleah Johns is a member of the Navajo (Dine) tribe and comes from the community of Forest Lake, Arizona, atop Black Mesa. She is cofounder and executive director of Native Renewables. Her work with the Black Mesa Water Coalition and Navajo Green Economy Coalition has led to groundbreaking legislative victories for groundwater protection, green jobs, and environmental justice. In 2019, she was awarded the Nathan Cummings Foundation Fellowship.

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Solar installer Nicholas Aberle works on the Smoke Signal off-grid photovoltaic (PV) installation.

02
The Native Renewables team (left to right): Wahleah Johns, Nicholas Aberle, Ella Lee, Gary Singer, Deb Tewa, Pete Dohi, and Suzanne Singer.

03
Deb Tewa (center) leads solar education community training.

04
Ella Lee, member of the Native Renewables team, reading by the light of a kerosene lamp.

UNMAKING THE LANDSCAPE

INTERVIEW WITH KATE ORFF, SCAPE

SCAPE is the recipient of the 2019 National Design Award for Landscape Architecture. In this conversation with Cooper Hewitt, Kate Orff, SCAPE's founding principal, 2017 MacArthur Fellow, and director of the urban design program at Columbia GSAPP, discusses the firm's practice and philosophy on the role of landscape architecture in the context of climate change.

01

"Unmaking the Landscape," Orff's 2019 lecture presented at the Architectural League of New York, centered around the role of landscape architecture as a field—in practice, culture, and pedagogy—and addressed the stresses and shocks of climate change. Increasingly, *"designing the social* must be paired with new forms of architectural expression like *un-making, un-doing, subtracting, reversing, decarbonizing, tearing out, ripping up, re-planting, softening, and connecting,"* according to the show notes.

This requires rethinking our relationship with infrastructure, shorelines, and living systems at all scales, and acting at the magnitude of the crisis—which is to say, with "rapid, far-reaching, and unprecedented changes in all aspects of society," in the words of the Intergovernmental Panel on Climate Change's (IPCC) *Special Report on Global Warming of 1.5C.* There were several benchmarks in the public conversation around climate change in 2018–2019: the rise of a youth-led global climate movement helmed by Greta Thunberg (Norway), Leah Namugerwa (Uganda), and in the United States, Mari Copeny (Flint, Michigan) and Xiuhtezcatl Martinez (Colorado); the introduction of draft legislation for a Green New Deal by House Representatives Alexandria Ocasio-Cortez and Ed Markey; and the release of the Fourth National Climate Assessment in November 2018. As this conversation becomes more amplified, pressing, and evident in the monthly coverage of wildfires, floods, and heat waves, what are the responsibilities of landscape architecture to address this reality?

01
Public Sediment for Alameda Creek / Subdivision adjacent to Alameda Creek, newly channelized by the US Army Corps of Engineers circa 1960.

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COOPER HEWITT: When did the shift happen from "making" the landscape to "unmaking" in your practice? What prompted the shift?

KATE ORFF: The climate crisis has triggered a shift in my perspective and relationship to design—this idea of "unmaking" came into sharp focus particularly after the publication of *Petrochemical America* (Aperture 2012). This book, developed with the photographer Richard Misrach, traced consumption patterns and the impacts of petroleum extraction at multiple scales throughout the American landscape. While making the book, we studied patterns of extraction and consumption in the American landscape, during which it became clear that major shifts in our energy and waste paradigms need to be advanced. Rather than think about design as something solely additive, we need to think about unmaking the environmental mistakes like damming rivers, concretizing streams, bulkheading our shorelines, and designing new energy landscapes at a much larger scale of impact.

I still value great design, the beauty of a line, or the texture and quality of a space. However, the additive or "beautifying" impulse is wholly insufficient today, relative to the world we have made. I value even more the sound of bird calls and plumage, the mystery of contiguous dense forests, teeming shoals and shallows, all of which are threatened. Americans have to consume less, drive less, extract less. We can't spend our way or design our way out of ecocide.

CH: How are you manifesting this in your practice?

KO: Projects like Public Sediment for Alameda Creek show what the act of unmaking can look like in practice. The San Francisco Baylands are drowning due to a range of factors, including sea-level rise, lack of sediment due to dam construction, and the collapse of biodiversity with once plentiful fish like the delta smelt and the steelhead trout down to very small numbers. Like many urban water bodies across the states, Alameda Creek in the Bay Area was channelized and concretized by the US Army Corps of Engineers in the 1970s, starving the adjacent San Francisco Bay of sediment needed to sustain tidal ecosystems and wetland buffers.

For the Resilient By Design: Bay Area Challenge, SCAPE and a large design team created a vision for the creek, redesigning upstream ecosystems to more sustainably transport sediment, engage residents and visitors, and provide habitat for anadromous fish cut off from their historic spawning grounds. This vision requires a significant shift in thinking about climate adaptation. We can no longer focus on shoring up and hardening the coastal edge. We must look at the upstream effects of sea-level rise, storm surge, and acidification on whole ecosystems and habitats—living systems that require substantial investment and regulatory reform to sustain.

Part of that reform involves undoing decades of hard infrastructure, reconnecting water resources and species, and creating functional spaces for communities to directly engage with the landscape. It also requires a shift in how we assign value. Fish, sediment, and the teeming benthic life in soft-bottom water bodies—to SCAPE, these are all "design clients" as much as any organization.

CH: By unmaking and taking away, what is it that you are ultimately adding to the landscape or larger environment and discourse?

KO: Whether it's managed retreat, de-development, depaving, ripping out, tearing up, a lot of intentional design in the future will be about the action of unmaking—taking concrete out of water bodies, jackhammering and removing roads from critical migration paths, densifying the high ground, or softening watery edges. We must add contiguity to landscapes, bring back vanishing

02
Public Sediment for Alameda Creek / Bird's-eye of sediment flows and a public greenway winding alongside a restored soft-bottom creek.

03
"Unmaking the Landscape" / Verbs as design imperatives from Kate Orff's fall 2019 lecture for the Architectural League of New York.

intertidal habitat, create corridors of movement for animals, and replant forest wherever possible.

CH: You also mention connecting as a key design impulse, can you expand on that?

KO: The landscape is fragmented across scales, whether it's northern hardwood forests, shallow water bodies, stream corridors, or local neighborhoods and towns. Because of this, we have put an extra emphasis on our connective corridor projects. SCAPE currently has a number of trail projects on the boards—from a one-hundred-mile stretch along the Chattahoochee River in Atlanta to a seven-mile stretch in the Hudson Valley. These have both been great opportunities to design immersive experiences in the landscape, repairing and knitting existing edges together.

The Chattahoochee RiverLands in Metro Atlanta in particular has been a master class in scaling up these ideas. The project, which extends across the jurisdictional boundaries of seven counties and numerous towns, has required community and stakeholder engagement on an unprecedented scale for SCAPE.

In the past year, the team has formed a "Chattahoochee Working Group" consisting of nearly sixty municipalities, counties, nonprofits, and other partners; subcommittees for three major project areas; and presented/gathered input on the RiverLands over the entire region through public forums, design charrettes, driving tours, river rambles, and focus groups.

This engagement has formed a crucial backbone for the project—but just as important has been an extensive analysis of environmental resources and services across almost one hundred miles. Ecological restoration, park acquisition, land conservation, and development standards can form a strong baseline for future efforts—protecting sensitive ecosystems, reducing habitat fragmentation, strengthening migration pathways, improving water quality, and bringing nonhuman species into the fold.

CH: What might the composition of a project team look like when you embark on a new project in 2020 and beyond?

KO: I see SCAPE as a "visionary coordinator" across a range of disciplines—including enlightened civil engineers, field ecologists, ornithologists, architects, planners, and policymakers. We are very interested in how our work can help inflect and shape policy change. As we head into the next decade, the Green New Deal and other policy efforts that aim to take on justice and decarbonization will be key.

CH: Economy, equity, and policy are three key components upon which unmaking relies. What is the role of education?

KO: I am a professor at Columbia University and director of GSAPP's urban design (MSAUD) program. Working with students on the world's most urgent questions has been so inspiring for me—in that context, you are free to try and experiment. No challenge is too big or too small to take on in a graduate urban design studio. We've worked in cities throughout India—Pune, Kolkata, Varanasi, Madurai, and others—to study water systems and how ancient systems of social and water infrastructure have been halted or destroyed. The student work that has come out of these studios hits at the intersection of social, landscape, city form, housing, and policy challenges. This year we are studying three cities along the Great Rift Valley as a sort of global transect to study climate, water, and migration.

CH: Who are your role models as a practitioner?

KO: In academia, I have admired Dilip da Cunha and Anu Mathur's unrelenting focus on representation, imagination, and power over the past few decades. In practice, I worked for Rem Koolhaas at OMA (Office for Metropolitan Architecture) back in the day—he's a role model, too. He is sharp, funny, fearless, and a biting critic. He both writes and practices as an architect, combining these modes of working to engage big urban questions with cities, clients, and patrons around the world who believe in him. With the publication of *Delirious New York* and *S,M,L,XL* he changed the conversation and the way architecture sat within a larger cultural discourse. I would aspire to bring landscape out of the realm of "professional services" and into a position of inspiring environmental advocacy and policy to take on the climate crisis.

04
Chattahoochee RiverLands / A 100-mile project area spanning the Metro Atlanta region.

05
Chattahoochee RiverLands / Community members geolocate experiences of the river.

WHY CLIMATE CHANGE MATTERS

01

*By **Katharine Hayhoe***

Nearly every aspect of our human systems is designed for a stable climate. Ensuring that we not only survive but continue to thrive requires changing the fundamental assumption of stability on which our infrastructure, built environment, resource, and economic systems are designed.

Everyone has a weather story: that summer when it was so hot you literally cracked an egg on the asphalt and watched it sizzle; that ice storm that brought the city to a standstill and canceled school for three days; the hurricane that forced you to evacuate your family and your pets—and when you came back home, your walls had water marks two feet up the walls.

If you don't have a weather story, just come visit me in Lubbock, Texas. Stick around a few days, and you'll have one, too. Back in 2012, when the Weather Channel held a competition for the wildest weather city in the United States, Lubbock won handily, beating out Fargo, North Dakota; Fairbanks, Alaska; and Caribou, Maine. Why? Because we get everything here: extreme heat, drought, and windstorms so big they have a special name, haboobs; but also floods, thunderstorms, hail, and tornadoes; ice storms, blizzards, even the remnant of the occasional hurricane. Pretty much the only thing we don't get is mountain floods, and that's only because we don't have any mountains.

To keep heads from getting too big, though, the same year a national realtor's association held a competition and Lubbock won that one, too. It was for the "most boring city in America." Which is hard to understand, because what's the number one topic of conversation (especially in these divided days of partisan politics)? The weather, of course!

Weather is something we understand and remember intuitively. But climate isn't. Climate is the long-term average and trend of weather over at least twenty to thirty years. Put differently, weather is one's mood, and climate is one's personality. To understand climate, one would have to be capable

01
A man walks past apartment city blocks during a heavily polluted morning in Ulaanbataar, Mongolia. During the harsh winter, Ulaanbataar ranks first as the world's most polluted capital, where half of the city's more than 1.4 million live in impoverished districts and over 200,000 households within this area burn coal to keep warm, exacerbating the pollution. UNICEF Mongolia has warned of a looming "child health crisis" linked directly to high pollution levels in winter months. Jan. 2019.

AS CLIMATE CHANGE IMPACTS REGIONS AROUND THE WORLD, SYSTEMS ARE BEING DESIGNED TO FORTIFY AND SUSTAIN THE PLANET.

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02
This stream of coal trains in Wyoming shows the scale of the excavation and transportation of this fossil fuel. Carbon dioxide increases in the atmosphere as fossil fuels are used for energy.

03
Wind has some of the lowest environmental impacts of any source of electricity generation. Wind power significantly reduces carbon emissions, cuts pollution, and saves billions of gallons of water per year. Wind farms leave a majority of land they are built on undisturbed.

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04
Flood devastation caused by the overflow of the Sunter River in Jakarta, Indonesia

05
At the Tana River watershed in Kenya, a resource management team tests water samples. Conservancy organizations partner with farmers along the watershed to better manage their land, preventing soil erosion, which can clog up the waterways for other uses.

of adding up the temperature—and the rainfall, humidity, wind data, and more—on every single day of the year for at least two or three decades, and not only for the weather station closest to where one lives, but for the entire region. That is something that none of us can do intuitively. Yet climate is the foundation on which much of our entire society and our economy is based.

What determines how our buildings are designed, and why the typical home in Florida looks and functions so differently than the typical home in Minnesota? How our infrastructure is designed, from storm sewers to airport runways? The types of crops we plant and where, when, and how we grow them? How our water resources are allocated, and how much energy (and what type) we will need in each season of the year? Even the type of clothing we have in our closet: parkas or jackets, snow boots or rain boots? It's all based on *climate*.

Our civilization is designed around the concept of a stable climate: a range of weather, from hot to cold and wet to dry, that can be anticipated based on the past. Historical events inform both the "worst case" scenarios such as the drought of record, the five-hundred-year flood zone, and the hottest and coldest records, as well as the long-term average. The idea that climate is stationary, and the statistics of weather extremes are well understood and bound by the past, is a fundamental assumption that we rarely take out and examine; yet it underlies nearly every decision we make in our societies.

Why? Because, for the majority of human history on this planet, the idea that climate was stationary was a reasonable assumption to make. Yes, there were naturally occurring regional variations in climate, and some of these affected people living in that region. In some cases, they presented new opportunities, such as facilitating Viking settlement of Greenland and northeastern Canada during the Medieval Warm Period. If you lived in Siberia at the same time, though, you would have called it the Medieval Cold Period—because the only way natural cycles warm one part of the planet is by moving that heat from one place to another. In most cases, though, even short-term regional climate changes can be harmful to a human civilization that depends on a stable climate, and past examples that have negatively impacted human well-being range from the Little Ice Age over northern Europe to the drought that contributed to the decline of the Mayan civilization.

Such regional climatic changes, however, are minor compared to the changes that have occurred over the last century and more. Since 1900, the planet has warmed by a full degree Celsius (1.8 degrees Fahrenheit), and we know who's responsible: it's us. According to natural factors, the planet should be slowly, gradually cooling right now. Instead, human activities—including burning coal, gas, and oil (that's about 75 percent of the problem) as well as deforestation and agriculture (that's about 25 percent)—are producing heat-trapping gases that are wrapping an extra blanket around the planet, causing it to warm.

The work my colleagues and I do, at universities and government labs around the world, estimates that warming over anticipated to occur over the remainder of this century will range from an additional 2 degrees Celsius (3.6 degrees Fahrenheit) up to as much as 5 degrees Celsius (9 degrees Fahrenheit). What determines whether we're at the top or bottom of the range? *Us*. Specifically, the choices we humans make over the coming decades regarding our use of fossil fuels and our production of heat-trapping gases.

A few degrees might not seem like much; after all, temperature outdoors can go up and down by tens of degrees over the course of a day. But at the global scale, the temperature of our planet over the history of human civilization has been as stable as that of a human body; and when our body temperature goes up a degree or two, and threatens to soar even higher, we understand the risks. It's the same for the Earth: it's a big deal. The increase in temperature and associated changes we are experiencing today as a result of this unprecedented experiment we are conducting with our planet, the only home we have, are causing heat waves to get stronger and more frequent; heavy precipitation events, more frequent and more intense; hurricanes, typhoons, and cyclones to get bigger and stronger, intensify faster, and dump much more rainfall; sea level to rise; permafrost to thaw; and wildfires to burn greater areas.

Here in West Texas, the land is flat and the roads are straight. Most of the time, driving down the highway, you could navigate by what your rearview mirror told you—because where you were in the past is a perfect predictor of the future. How does this connect to climate change? The same fundamentals apply: if we plan for the future based only on what occurred in the past, we'll run off the road. To stay on the road, we have to redesign our entire systems—our food systems, our infrastructure systems, even our economic systems—in order to build resilience to already unavoidable risks and reduce heat-trapping gas emissions to limit the amount of warming we experience in the future.

Our human civilization is in the crosshairs. The curve in the road is affecting our health, our infrastructure, our built environment; our food, our water, the economy; even national security and humanitarian crises are being exacerbated by what the US military calls "a threat multiplier"—human-induced climate change.

Humans are the reason why climate is changing, but that means we also have the power to shape our collective future. We are the biggest uncertainty, but we are also the biggest potential. Will we continue forward into an ever-steepening curve that eventually runs our entire civilization off the road? Or will we transition as quickly as possible to new clean energy sources that will enable us to continue to grow and thrive? That choice is ours.

Katharine Hayhoe is an atmospheric scientist whose research focuses on understanding what climate change means for people and the places where we live. She is a professor at Texas Tech University, she hosts the PBS digital series Global Weirding, and she has been named one of *TIME*'s 100 Most Influential People and *Fortune*'s 50 World's Greatest Leaders.

SUSTAINABLE WALLS, SUSTAINABLE PLANET

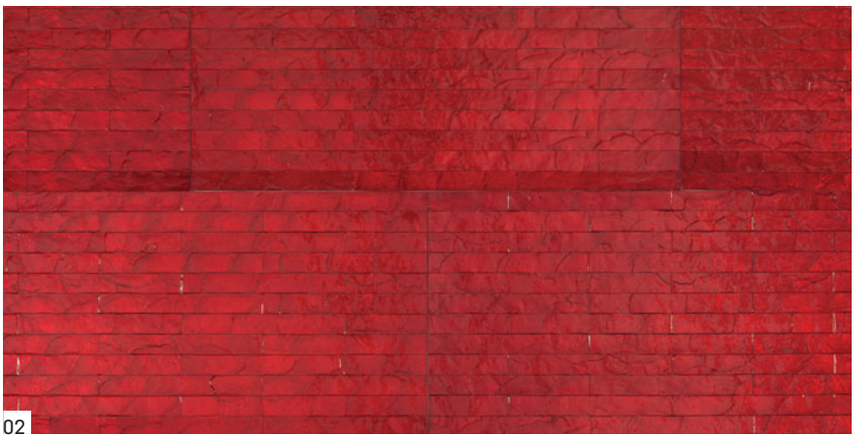
By ***Greg Herringshaw***

01

Wallpaper has been beautifying interiors for over three hundred years, but the mark some wallpapers have left on the environment and on people's health is not so pretty. Up until the twentieth century, wallpapers were produced using naturally sourced materials, but heavy metals in natural pigments, including arsenic, lead, and mercury, had dangerous side effects. Later, as manufacturers began experimenting with synthetic materials, additional toxic substances and harmful practices were introduced. Given the risk of global warming and health issues associated with harmful materials, manufacturers have begun thinking more sustainably.

The definition of what makes a product sustainable has changed over time—with early products promoting only their use of recycled and less harmful materials in order to conserve natural resources. Before long, the term took on a more multidisciplinary meaning, generally referring to the ability of the biosphere and human civilization to continue to coexist. Beginning in 2008, the Wallcoverings Association along with NSF International—founded in 1944 as the National Sanitation Foundation—began developing standards for sustainable wallcoverings, with the aim to promote transparency and make continual improvements in both environmental sustainability and social responsibility. This resulted in WA NSF/ANSI 342, the accepted US standard for what makes a wallcovering sustainable. NSF/ANSI 342 takes into account the entire life cycle of the product, from raw material extraction to production, distribution, use, and end-of-life disposal.

01
Wallcovering, Marble Barkskin, 2018; Made by Caba Company (Santa Fe, New Mexico, USA); Fig or mulberry bark, hand pounded, sun dried; H x W: 61 × 81.3 cm (24 × 32 in.); Gift of Caba Company, 7187.2.2019



02

The NSF/Ansi 342 standard establishes a consistent approach to the evaluation and determination of environmentally preferable and sustainable wallcovering manufacturing and distribution processes.

Up until the 1870s, all wallcoverings were printed with water-soluble pigments, which meant they were not appropriate for spaces with sanitary concerns or rooms where water or moisture was present. At this time, Sanitary papers and Lincrusta-Walton were both introduced. Sanitary papers were machine printed with oil colors using engraved metal rollers so they could withstand some moisture without damage. Lincrusta was a linoleum-like product and was the first waterproof wallcovering. The first vinyl wallcovering—introduced in 1947—was scrubbable and nearly indestructible and seen as the perfect solution for rooms with sanitary or water issues. Vinyl wallcoverings became all the rage in the 1960s–70s due to bold colorings and strong graphic patterns and expanded from service rooms into main living areas. While vinyl became one of the more fashionable wallcoverings of the period, it was also one of the least sustainable. Vinyl is composed of ethylene, made from crude oil, and chlorine, which forms polyvinyl chloride, or PVC. Vinyl also contains significant levels of phthalates and asbestos. Phthalates are commonly added to plastics to increase durability and flexibility, while asbestos fibers are durable, and increase fire resistance as well as flexibility. The health risks of both these materials are now well-known.

Today's vinyl wallcoverings are much more sustainable, with low VOC emissions and no phthalates, heavy metals, formaldehyde, or other toxic materials, resulting in better indoor air quality. Vinyl wallcoverings are also energy-efficient to produce, requiring only half as much energy to manufacture as a similar amount of paper wallcoverings. Many distributors of vinyl wallcoverings offer reclamation programs so unwanted vinyl can be recycled into new building materials, and there has been a 40 percent increase in postconsumer vinyl recycling since 2004.

The Vinyl Institute, a trade organization serving as the voice for the vinyl industry, included a sustainability initiative in their strategic plan for the first time in 2015.

Cooper Hewitt has recognized the importance of environment-friendly products and began collecting sustainable wallcoverings in 1992. The first sustainable wallpaper acquisition was produced by CoverAge, Inc. in 1990. Composed of 100 percent postconsumer recycled paper and cardboard, with wood bits gathered from old pallets and scrap wood, this textured wallpaper was produced with no formaldehyde. Newsworthy, designed by Lori Weitzner in 2010, is made from 100 percent recycled newsprint, with the coiled strips woven with nylon filament on traditional handlooms in India. The finished product does not receive any additional surface treatment. The Maya Romanoff Corporation uses the pearlescent appearance of capiz shells, which are rapidly renewable and ecologically harvested, to copy the look of mother-of-pearl. The candy-red surface coating is free of formaldehyde and heavy metals.

Their manufacturing techniques create little waste. A later advancement in sustainable wallcoverings is Biobased Xorel introduced by Carnegie Fabrics in 2013. Xorel is woven with polyethylene yarn derived mostly from sugar cane, a rapidly renewable material. The yarn is produced using 95 percent biogenic energy, while the fabric is woven using 100 percent renewable energy. After its useful life as a wallcovering, any Xorel product can be returned to Carnegie for responsible reuse. The museum recently acquired samples of Barkskin™ by Caba. Created using a process that dates to pre-Columbian times, this is an all-natural product that contains no additives, glues, or dyes. The bark of fig and mulberry trees, gathered from dead or fast-growing yearlings, is worked into a pulp then pounded by hand into flat sheets and left to dry in the sun.

The wallcoverings industry has made significant advances in making products more sustainable. Manufacturers and distributors are displaying a greater transparency, clearly outlining measures taken to improve manufacturing processes, reducing transport distances, offsetting their energy usage through the purchase of renewable energy credits, and offering more environment- and health-friendly production processes and reclamation programs. Any wallcoverings that meet the stringent certification criteria can carry the NSF/Ansi 342 label. As of October 2019, over two thousand wallcoverings have been certified to the NSF 342 Sustainability Standard.

Greg Herringshaw was the associate curator of Cooper Hewitt's preeminent Wallcoverings collection before his retirement at the end of March 2020. During his twenty-eight-year tenure, Greg catalogued the collection's 10,000 works, expanded its international holdings, and recently acquired a significant group of murals and drawings by Ilonka Karasz, and an eighteenth-century French decorative panel, The Three Graces. Greg was integral to the museum's popular Immersion Room, where visitors can digitally engage with the collection and design their own wallpaper.

03

02
Wallcovering, Flexi Mother of Pearl, 2011; Made by The Maya Romanoff Corporation, (Chicago, Illinois. USA); Inlaid capiz shells on nonwoven paper backing; Philippines; 30.5 x 61 cm (12 x 24 in.); Gift of the Maya Romanoff Corporation, 2015-13-1-a/j

03
Wallcovering, Newsworthy, 2010; Designed by Lori Weitzner (New York, New York, USA); Woven in India; Coiled newspaper woven with nylon filaments, paper backing; L x W: 457.2 x 123.8 cm (15 ft. x 48 3/4 in.); Gift of Lori Weitzner, 2010-15-1

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Poster, Earth Day '95, 1995; Designed by Paul Rand (American, 1914–1996); Offset lithograph on white paper; 90.2 x 61.0 cm (35 1/2 x 24 in.); Gift of Marion S. Rand, 2002-11-7

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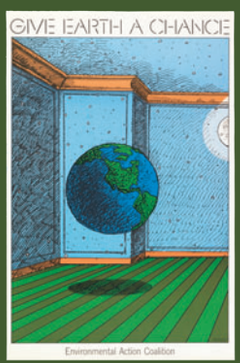
Poster, Give Earth a Chance, 1970; Milton Glaser (American, b. 1929); Lithograph on paper; 93.8 x 60.9 cm (36 15/16 in. x 24 in.); Gift of Uri Danyluk, 1970-18-1



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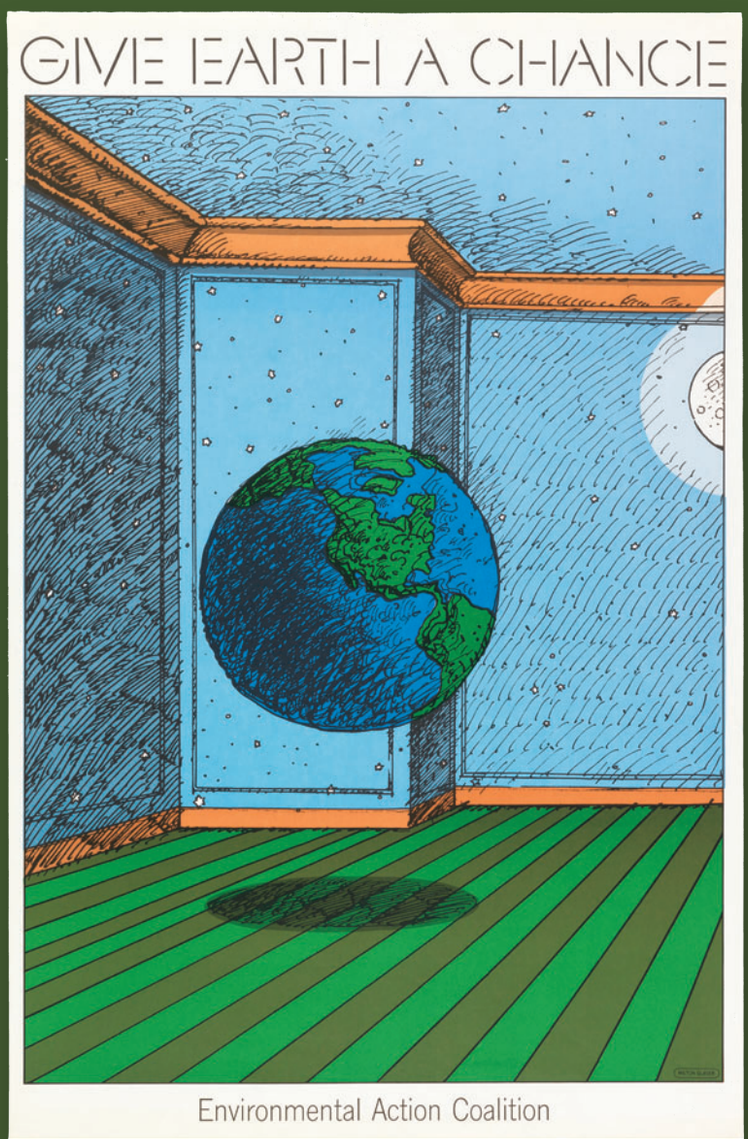

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