WORKS IN PROGRESS

Edited by Allen Freeman

DAVID HAWXHURST

The Water's Commonwealth

One of David Hawxhurst's photographs shows dugout canoes outfitted with patchwork sails made of grain sacks. From the picturesque vessels, fishers cast nets into the Gulf of Ghana, pulling in a modest daily catch to make a living and help feed Ghanaian villagers. Through Hawxhurst's lens the boats seem works of art, but the stories locals tell him are not pretty. There, and elsewhere along the West African coast, industrial trawlers from around the world are rapidly depleting fish stocks, dragging enormous nets across the seafloor, some even pirating fish in shallow waters along the coast.

For Hawxhurst, who grew up near Maryland's Chesapeake Bay, the story of not enough fish to go around was familiar. The Chesapeake's harvest has been endangered by pollution and government mismanagement. And the Chesapeake's own culture of small-scale fishing is vanishing.

Hawxhurst created the Coastal Culture Preservation Project, an online photo archive of water scenes and watermen—both historic and contemporary. His incentive was learning that a family's trove of fishing photos had been thrown out in the small, declining fishing town of Saxis, Virginia. An interactive world map lets users select from among documented areas. He envisions the site as a place to teach the commonalities of coastal habitation.

Those he's photographed have proved to be an astute audience. People who are catching species related to the fish in the photos, he says, "are very interested in how others are doing it in other parts of the world." —DARCY COURTEAU

Graphic Poverty

In the spirit of James Agee and Walker Evans, who famously documented poverty in the Great Depression, a political reporter and a graphic illustrator have teamed up to survey struggles to survive in America today. Their book, *Days of Destruction, Days of Revolt,* will be published in June.

Chris Hedges is a former foreign correspondent for *The New York Times* who writes a column for Truthdig.com, and Joe Sacco is a journalism-trained graphic illustrator who contributed to Harvey Pekar's *American Splendor* and to *The Guardian* and *Harper's*. Two years in the making, their 250-page collaboration combines location reporting with panel illustrations. "To my knowledge, this is the first time this has been done," Hedges says. "The publisher is a little nervous."

"We focused on the damage that corporate pillaging has done to individuals, to communities, to the environment," Hedges says. The pair traveled to such places as Camden, New Jersey; Pine Ridge, South Dakota; Immokalee, Florida; and the coalfields of Welch, West Virginia, attending each other's interviews and going out together to look for images. "Joe brings to the book a kind of visual power that reporting alone can't match. All the emotional highs of the book we've turned over to Joe, because he can make it visual." —ELYSE GRAHAM

JOE SACCO & CHRIS HEDGES

Empathetic Vibrations

Some say that the opposite of love is not hate but indifference, and findings by researcher Emile Bruneau would seem to affirm that impression.

Bruneau, in postdoctoral studies at MIT, has long been concerned with conflict resolution, an interest that grew over the past two decades during his residencies in tumultuous South Africa, Northern Ireland, and Sri Lanka. He is working now with Rebecca Saxe in MIT's Department of Brain and Cognitive Sciences to understand how conflict and empathy are manifested within the brain.

A paper by Bruneau, published in March, detailed a surprising finding. He recruited Israeli and Arab subjects, then took MRI scans of their brains while they read stories about the suffering of Israelis, Arabs, or a neutral and distant group, South Americans. He focused on the regions of the brain associated with the processing of emotional pain and found that both Israelis and Arabs showed similar brain activity when reading about members of their own group and members of the opposing group. But reading about pain in the neutral group had a markedly smaller effect.

Next Bruneau plans to turn his attention to "empathic failures," specifically the ones that may be caused by a lack of information about those who are suffering. Ultimately he wants to be able "to image [via MRI] participants involved in conflict resolution programs before and after the intervention, to see if we can use it as a diagnostic of positive change." —EMILY OCHOA

Tough Questions About Clean Energy

The author of *Green Illusions: The Dirty Secrets of Clean Energy and the Future of Environmentalism,* Ozzie Zehner is a visiting scholar at the University of California–Berkeley. He serves on the editorial board of *Critical Environmentalism,* an interdisciplinary journal on the social studies of environmentalism. We asked him to pose five provocative questions about energy and the environmental movement.

1. Coinciding with the effects of rapid industrialization, 19th-century fictionists created a handful of ghoulish immortals—including Washington Irving's headless horseman and Bram Stoker's Dracula—that still can haunt our imaginations. A British economist and logician named William Stanley Jevons also wrote about a persistent phantom. Jevons's *The Coal Question,* published in 1865, starts out innocently enough, documenting how James Watt's introduction of the steam engine greatly improved efficiency. But, Jevons explains, higher efficiency was making steam engines more popular, ultimately driving coal use ever higher. The effect he described, termed the Jevons paradox, arises again and again in various incarnations throughout the history of energy use: *Increases in energy efficiency make energy services relatively cheaper, encouraging greater consumption.*

What strategies can we reasonably institute to ensure that efficiency gains won't be usurped by increasing overall consumption? Can we extend such initiatives globally?

2. There's an energy production corollary to the Jevons paradox. For example, proponents of nuclear power point out that nuclear plants yield less carbon dioxide than coal or natural gas facilities do. There is, however, little precedent for assuming that building a nuclear power plant in the United States will displace a coal-fired plant. In fact, just the opposite occurred. As subsidized nuclear power increased, the supply of electricity correspondingly increased, energy prices on the consumer level eased, and greater numbers of energy customers demanded more cheap power—a demand that Americans ultimately met by building additional coal-fired power plants, not fewer.

Subsidized alternative-energy production may likewise expand energy supplies, depressing prices, spurring demand, and finally bringing us right back to where we started: high demand and so-called insufficient supply. We create an energy boomerang—the harder we throw, the harder it comes back to hit us on the head. More efficient solar cells, taller wind turbines, and advanced biofuels are all just ways of throwing harder. We humans have been subject to the flight pattern of this boomerang for quite some time, and there is no reason to suppose we have escaped its whirling trajectory today.

These technologies might hold more promise in a different context. What specific political, legal, and economic structures or backstops will work to ensure that energy alternatives directly offset fossil fuel use?

3. Phantoms and boomerangs aside, the United States currently extracts taxes from the working class to fund expensive photovoltaic installations high in the gold-rimmed suburbs of Arizona and California. Yet any number of conventional energy strategies promise higher dividends than solar cell investments.

If utilities cared to reduce CO_2, then for a fraction of the cost of the Million Solar Roofs Program, a government-funded solar initiative, they could avoid twice the greenhouse gas emissions by simply converting one large coal-burning power plant to natural gas. If toxicity is a concern, legislators could direct subsidies toward low-tech solar strategies such as solar water heating, which has a proven track record of success. Or for no net cost at all, we could support strategies to bring our houses and commercial buildings into sync with the sun's energy rather than working against it. A house with windows, rooflines, and walls designed to soak up or deflect the sun's energy in a passive way will to do so indefinitely.

Fragile solar photovoltaic arrays, on the other hand, are sensitive to high temperatures, employ numerous toxic materials, oblige owners to perform constant maintenance, and require very expensive components to keep them going.

Should we redirect costly solar cell subsidies toward more potent conservation strategies?

4. It's unlikely that citizens of industrialized nations will willingly part with their high standards of living. It's even less likely that the world's poor will cease pushing to increase their own. As a result, Nobel Laureate Robert Laughlin argues, humans will continue to gravitate toward the least expensive energy options available.

Like it or not, Laughlin envisions that humans will eventually deplete oil and gas resources. Attention will shift to coal and the various fuels that can be synthesized from it. Finally, humanity will be left to draw on the planet's nuclear energy resources. Solar and wind power will remain on the sidelines, unable to compete on price.

Is Laughlin right? What interventions might prove him wrong, or perhaps lessen the risks that such a scenario would bring about?

5. We increasingly trust alternative energy technologies to solve our environmental challenges even though we might alternatively view the roots of these challenges as social, economic, and political. The technical character of the modern environmental movement often limits citizen involvement. Most people aren't trained as technicians. This leaves environmental enthusiasts, activists, students, educators, and others to passively drink the green Kool-Aid—driving the green car, buying the green product, or consuming the green energy. These green solutions play into conceptions of productivism and growth that conflict with the stated goals of the environmentalists themselves.

Before the technological turn, environmentalists couched their solutions in terms of governance and social fundamentals. How can we reintegrate environmental discourse into fields such as sociology, human rights, economics, ethics, international affairs, humanities, and other domains infrequently associated with environmental work?

COURTESY OZZIE ZEHNER

Scientists Warm Up to Thoreau

As scientists everywhere parse the effects of a warming earth on animal and plant life, Richard Primack (right) and his colleagues at Boston University have turned to an unlikely source: Henry David Thoreau's handwritten notes. From 1851 to 1858, the naturalist carefully noted the flowering dates for hundreds of species of wildflowers, as well as the first leaf-out dates for trees, the stirrings of animals, and the arrival of migratory birds near Concord, Massachusetts.

After poring over Thoreau's sprawling handwriting and working with botanists to interpret his 19th-century nomenclature, Primack's team set out in early spring in search of the petals of lady's slippers, red trillium, and trout lilies. Consistent with the rise in Concord's average annual temperature of more than two degrees Celsius since the 1850s, Primack found that 43 plants observed by Thoreau today flower approximately 10 days earlier.

Of the species Thoreau described, more than half are either no longer present in Concord or so rare that not enough specimens can be found for statistical comparison. Thoreau's Concord, a landscape of wet meadows, hayfields, pastures, orchards, and small woodlots, has become mature forest fragments interspersed with suburban housing interlaced with roads that drain commuters into Boston offices.

Changes of this magnitude do not happen overnight, but even when Thoreau lived in his cabin on Walden Pond in 1847, perhaps hearing the first brave chirp of an early spring peeper on a cold April night, he could also hear the cars of a recently built railroad shuffle by, its engine sending out a long trail of coal smoke that at that hour was still invisible.

—WILL YANDIK

JASPER PRIMACK

Moving Pictures

When documentary still photographers Dorothea Lange, Walker Evans, and Ben Shahn sent negatives from distant locations to Washington, they relied on the leisurely pace of the U.S. Mail. Employed by the government's Farm Security Administration and the Office of War Information, they supplied some of the 160,000-plus photographs the agencies commissioned between 1935 and 1943.

Now, with a marriage of computer modeling and historical curiosity, the full catalog of well-known Depression-era and wartime photos will become accessible in innovative ways. Yale University doctoral students Lauren Tilton (American studies) and Taylor Arnold (statistics) are working with Professor Laura Wexler and digital specialists to build a research tool and website called the Photogrammar Project that can search and map the FSA-OWI photos spatially, temporally, and thematically, and overlay them with historical census data.

The Yale team, which won a $50,000, two-year digital humanities start-up grant from the National Endowment for the Humanities, sees possibilities for visualizing the intersecting journeys of FSA-OWI photographers, for example, or plotting the percentage of military images collected by month and location. The Library of Congress website, where the images are now archived, is a static online repository, Wexler explains. Photogrammar's interactive platform will allow researchers to support or challenge accepted ideas about the FSA-OWI initiative and the period of American history it recorded by illuminating patterns undetectable when looking through the photos individually. The team believes this new methodology can be applied to other large archives as well. The website will launch this fall.

—CHLOE TAFT

PAINTING AIRPLANE WING, NAVAL BASE, CORPUS CHRISTI, TEXAS, 1942, HOWARD HOLLEM (TOP); AND VERMONT STATE FAIR, 1941, JACK DELANO (BOTTOM): FARM SECURITY ADMINISTRATION/OFFICE OF WAR INFORMATION/LIBRARY OF CONGRESS (2)

LIBRARY OF CONGRESS (TOP); DANIEL SPIESS (BOTTOM)

Digging Into Dickens

How a novelist tells a story affects the way readers perceive what's going on, says English professor Catherine Robson of New York University. Perhaps that's not an earthshaking observation, but consider Charles Dickens's *Bleak House,* a novel of unconventional form that Robson says changes our very conception of human conception.

A character, the illegitimate Esther, relates the story of *Bleak House* as a recounting of her past, with her storytelling alternating with a third-person narration by an unidentified speaker. For Robson, how Dickens presents the relationships between the narrator and the character is a way to understand the central mystery of the novel's plot: Esther's genesis.

One passage finds Esther outside the closed door of two newlyweds, feeling excluded from "the murmur of their young voices" within. "That splitting of narration," Robson says, "between an unlocated present-tense speaker and a single individual bears a relation, I'll argue, to the simultaneous connect and disconnect between the love-making of Esther's unmarried parents and the existence of their child.

"Nineteenth-century fiction's most carefully elaborated psychologies are grounded upon hostility toward the sexual act that both created them and cared nothing for their individuality," Robson says.

This year marks the 200th anniversary of Dickens's birth. Robson will elaborate her thesis at the annual Dickens Universe, a week-long immersion in the author's work to be held this summer at the University of California–Santa Cruz.

—TOM BENTLEY

Grape Expectations

Although fruit quality, harvest time, and storage of the juice are important in winemaking, the difference between a generic red and a truly excellent wine lies in the spontaneous fermentation by naturally occurring yeasts. But managing yeast microorganisms is fraught with unknowns because some wild ones can harm fermentation.

In an effort to help winemakers hone their craft, researchers in Germany have developed a biosensor that can discriminate between the wild yeasts that lead to spoilage and those that release chemicals that create the array of flavors and aromas characteristic of an excellent wine. The prototype device, about the size of a cell phone, contains 10 Plexiglas tubes, each lined with a protein that recognizes a specific yeast strain. The winemaker fills each small tube with juice, and a biochemical reaction causes a color change if a particular yeast strain is present. The team, led by Mark Bücking of the Fraunhofer Institute in Germany, has already identified 10 strains of wild yeast that are predominant during spontaneous fermentation of wine and is investigating the effect each has on flavor and aroma.

"There are a lot of techniques available to evaluate yeast in the laboratory, but the time you need to send the samples to the lab and to make the analysis can be critical when the fermentation is having problems," says Fraunhofer microbiologist Cecilia Díaz. With this one-use device, which is expected to cost no more than $65, winemakers can test within minutes which wild yeasts are present before fermentation has even begun. By monitoring the process more closely, winemakers can reduce the risks of making their top wines in larger batches.

—VANESSA SCHIPANI