SAGE MAGAZINE

volume III, issue I

Benson Gabler

The road well-traveled . . .

Kate Boicourt

John, Barack, and Hillary fight for the wheel of the flaming VW beetle.

Tara Moberg

The road toward cleaner air and a healthier environment.

John Nixon

Students gather together to raise the sculpture in the dark on the evening before the conference.

Where two roads diverge . . .

As a first year student at the Yale School of Forestry & Environmental Studies, Zack Parisa had a vision. He related it to friends on occasion, but mostly this vision sat filed away among other ideas in the back of his mind. This spring, he decided it was now or never. Inspired by the Conference of Governors on Climate Change (held at Yale April 17-18, 2008), Zack picked off the cobwebs and revived the dream. The vision was a collaborative climate change-themed art installation, centered around the concept that Americans face a pivotal choice. They can continue down the road they have been traveling, or they can forge a new path. At this place where two roads diverge, politicians and citizens have the power to choose the ultimate outcome. Over the span of a week and culminating in one final evening's construction, students came together to build two physical roads reflecting their ideas of "best" and "worst" climate change scenarios. The sculpture now sits on the lawn outside of Sage Hall, Yale University.

Cover image by Leigha Abergel

"Before and Again"

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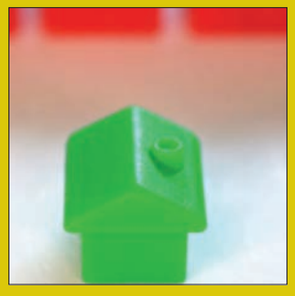

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sagemagazine@yale.edu

sagemagazine.org

SAGE Magazine • 205 Prospect Street • New Haven, CT 06511

FROM THE EDITORS

sage, *n.* and *a.*

1. A plant of the genus *Salvia*, N.O. *Labiatæ*; esp. *S. officinalis*, an aromatic culinary herb. Hence, the leaves of this plant used in Cookery.

2. A man of profound wisdom; esp. one of those persons of ancient history or legend who were traditionally famous as the wisest of mankind; hence, one whose exceptional wisdom entitles him to a degree of veneration like that which was accorded to these.

3. Of advice, conduct, etc.: Characterized by profound wisdom; based on sound judgement.

-Oxford English Dictionary

An ancient proverb asks: "Why should a man die if he has Sage planted in his garden?"

You hold in your hands tender flowers plucked from the branches of the plant *Salvia magazinus*. Notice the semi-gloss leaves and brilliant adaptive coloration. Inhale the pungent aroma wafting from the pages. Smear your naked thighs with its pollen. The unique chemical composition can produce results that are literally psychedelic.

S. magazinus thrives beneath the full sun, but even planted in barren soil and whipped with hard cold winds, it remains resilient. Some argue its origins are in Asia Minor, while others trace its deep roots to Mediterranean soils. Whatever its provenance, it continues evolving, adapting and sprouting anew in its New World habitat.

The name *Salvia* comes from the latin *salvere*, which means "to heal." The Romans revered the plant, using it for toothpaste (see the famous Roman proverb "toothiness is close to godliness") and harvesting it with a special knife. They also used it for its proven medicinal properties. (This magazine has been approved by the surgeon general for healing minor cuts and scrapes--as well as some sucking chest wounds. Ask your doctor.)

Love,

Editorialis chieficus

CONTRIBUTORS & CREDITS

EDITORS-IN-CHIEF
Simon Tudiver
Kate Boicourt

ART EDITOR
Kate Boicourt

DESIGN AND LAYOUT
Joshua Berman
Kate Boicourt
Laura Frye-Levine
Simon Tudiver

ASSISTANT & CONTRIBUTING EDITORS
Peter Christensen
Eva Gladek
Max Joel
Jake Munger
Stephanie Niall
Micha Rahder
Trisha Shrum

EDITORS EMERITAE
Joshua Berman
Laura Frye-Levine
Jed Holtzman

ADDITIONAL SUPPORT
Joshua Berman
Jed Holtzman

WEBSITE & OUTREACH
Meghna Agarwala

WITH SPECIAL THANKS TO OUR ADVISORS
Jane Coppock
Paul Draghi
Fred Strebeigh

SAGE OFFICE SPACE COURTESY OF
Tom Tuscano

LEIGHA ABERGEL is a Master in Environmental Studies candidate at York University in Toronto, Canada. Conservation and animal issues are the focus of her studies. She is an avid naturalist often documenting environmental scenes through photography, drawing and painting.

MEGHNA AGARWALA is studying at the Yale School of Forestry & Environmental Studies. She became a fan of waste writing this article and hopes that someday someone might want to mine the plastic in the oceans.

MITCHELL AKIYAMA lives in Montreal where he writes about cities, plants, sound, and seeing. He is also a musician and composer. Mitchell currently teaches film and media at Dawson College and is about to begin his PhD in Communications and Art History at McGill University.

GEORGIA BASSO is a 2008 Master of Environmental Science Candidate at the Yale School of Forestry and Environmental Studies. Prior to her arrival at Yale, Georgia worked as an environmental scientist in California, Nevada, Arizona, and New York. Georgia enjoys exploring landscapes through art and writing.

SONIA COOKE is a Los Angeleno who was brainwashed by the movie Fern Gully into thinking she wanted to spend her life saving the planet. A sucker for charismatic megafauna, Sonia hopes to make a career helping animals, or at least writing about the people who help them. She will graduate from Yale with a B.A. in Environmental Studies next month, and plans to celebrate by eating lots of raw donut holes.

SARA ENDERS lives in a
little yellow house,
With a vase full of lillies and
thoughts of sage grouse,
And a yard of stray cats and
a bike that she flies on,
And a realio love of the curving horizon.

Besides taking photos of giant carrots...
KARIN KLIEWER works at the Centre for Sustainable Transportation in Winnipeg, MB and has just completed her first year of graduate studies in City Planning. In her spare time, she rides her bike, makes good food, and has creative adventures. Her collaborator, TAMARA VAAGS is a closet photographer who loves capturing stories and personalities through her images. She hopes to take her story-telling international and explore the world's cultures. She loves a good curry and the Manitoba sky.

ELIZABETH ROSE is from Springfield, Illinois. She received her B.A Cum Laude in Fine Arts with a minor in Wilderness Studies from the University of Montana. Her work strongly reflects her interest in the environment, in landscape, and in folk culture, particularly of Eastern Europe. She has won many awards and exhibits her work in various venues.

JOHN-FREDERICK (J.F.) THYE is a 2010 joint degree candidate for the Master of Environmental Management/ MBA at Yale University. Graduated from Cornell University in Civil and Environmental Engineering, J.F. has since worked in commercial wind farm development. His passion for conservation developed during a 3-year sail around the globe in which he supported research and outreach in remote international marine conservation hotspots.

OUT & AROUND

A step (machine) in the right direction

Stephanie Niall

FEBRUARY 27, 2007, Hong Kong's California Fitness: Above the rows upon rows of exercise machines in the main fitness room, lit by the harsh fluorescent lights and braced against the air conditioned breeze, hangs a sign that reads "Powered by YOU." And so it is—well, sort of.

A little over a year ago, Hong Kong's California Fitness announced an innovative concept in gym design: in a trial run, 13 of its exercise machines were specially modified to enable them to generate energy when in use. This energy was then either used to power a specific light located above the machine or stored in a battery for later use.

According to Steve Clinefelter, President of California Fitness, a person using one of these machines is able to produce 50 watts of electricity when exercising at a moderate pace. An energy-saving compact fluorescent light requires only 8-20 watts, so this amount of electricity would easily produce enough light to enable exercisers to eye themselves in an adjacent mirror, providing an additional incentive to keep those calories burning.

Finally, the environmentally-enlightened world exclaimed, all that human energy channeled into treadmills, ellipticals and step machines in the exercise equivalent of an assembly line is now being captured and used as a renewable energy source. Brilliant.

Environmental bloggers from all over the world celebrated this particular initiative as an example of a long overdue innovation in the renewable energy world. One, aptly entitled "Ecogeek" (www.ecogeek.org), speculated as to whether this could lead to a treadmill-driven solution to America's energy crisis. Based on 200 million American adults exercising for one hour a day, every day of the year, they calculated a potential generation of 3,650 gigawatt hours (GWh) per year. Substantial,

A. Heinemann

but given that the International Energy Agency calculated that the United States consumed 3,720,342 GWh in 2005, people will have to peddle much harder before any real dent is made.

Even though California Fitness's project is most likely not a simultaneous solution to the obesity and energy crises, is treadmill-generated power at least economically viable? According to Jane Spencer of the Wall Street Journal, if all 13 of California Fitness's "green machines" were in use ten hours a day for a full year, they would generate approximately $180 worth of electricity. Given that this initiative was a $15,000 investment, she calculates that it would take 82 years for the gym to break even. Obviously, this is a slightly unfair analysis, as it ignores a number of economic factors.

The presence of the "green machines," for example, may have additional profit-related benefits aside from merely reducing electricity bills—including increased publicity. It does cast doubt, however, as to whether this venture is yet commercially viable on a larger scale.

Maybe this is a step in the right direction. Maybe one day California Fitness's dream that manufacturers will "reconfigure all gym equipment to cater for this option" will be realized, and gyms will be able to rely "solely on clean, sustainable energy." This is a truly commendable aim. But then again, maybe a step in a better direction would be for people to don a pair of sneakers and head to their nearest park. That is about as carbon-neutral as you can get.

Go green *and* go home

Jan Ferrigan

THE WORLD OF green construction is booming. If you want to build or renovate green, now is certainly the time to do it. The $7.8 billion a year green home industry abounds with materials, practices and certification programs. But navigating all these options is difficult. So where should the green-minded homeowner begin? Builder Doug Lowe suggests starting simply. "If I had a very tight budget and had to make a few choices, I would spend the money on the envelope of the house doing low-tech things, such as upgrading the insulation and upgrading the HVAC system," says Lowe, who is President of Artisan Construction, Inc., and who incorporates green design into many of his central Virginia projects. Lowe also recommends thinking about site selection, house orientation (to take advantage of shade and sun), environmentally-produced floor coverings and energy efficient windows.

For renovators, the advice is similar: Start with low-tech energy savers. One useful tool is the U.S. Environmental Protection Agency's ENERGY STAR Home Advisor (www.energystar.gov). Enter your zip code and some basic home information, and the Home Advisor spits back quick, effective ways to lower your home's energy appetite, such as plugging up air leaks.

Another route is to follow established standards. As Lowe puts it, "your first choice is to go green. Your second choice is whether you want to sign up for a certification program." Green certification usually requires paying attention to indoor air quality and site selection, and limiting waste of energy, materials, space and water. Arguably, the best-known certification program is the U.S. Green Building Council's national Leadership in Energy and Environmental Design (LEED) program. There are also many smaller programs specifically catering to residential buildings, often developed by local home builders' associations.

Opinions differ on the respective benefits of the different programs. Lowe says he likes LEED "because it has a higher level of rigor" than other programs. But he adds, "I don't want to shortchange the other ones in saying that. I want to encourage builders and homeowners to do anything they can [to go] green."

Others may prefer locally-developed programs, or simply draw satisfaction from knowing their home design is green. Roger Voisinet, a Virginia real estate agent and Ecobroker, received both Earthcraft and ENERGY STAR home certification on an ultra-energy-efficient house he built, which had many additional green features (such as reclaimed wood flooring, low VOC [volatile organic compound] paints and limited waste during construction). He stopped short of going through the LEED process because "it was just too onerous...I didn't feel like I needed that credential."

Besides the paperwork required, green home certification programs are sometimes criticized for producing ambiguous results. Bamboo flooring, for example, gets high marks under LEED standards, even though bamboo may displace natural habitats where it is harvested, and the flooring may be treated with toxic chemicals. The programs are also criticized for often overlooking a building's usage. For example, teachers in a LEED certified high school in Virginia have to supplement the school's heating system with electric space heaters because not enough heat is provided by the building design.

But LaTaunynia Campbell sees some utility in the certification trend. The LEED for Homes Manager at Southface Energy Institute, a non-profit that promotes sustainable design, says that the abundance of green home programs is "showing the market is ready for green building. It is getting—the residential market especially—to be more professional."

So how far are we from green going mainstream? Current building codes have not kept pace with the different certification programs, but some people are hopeful they will catch up. "Maybe in twenty years," Lowe suggests, "we won't need [green certification programs]." He also emphasizes that going green "doesn't have to cost substantially more—I am talking in terms of zero to two percent. It is easy to do this stuff." Lowe adds, "There is no excuse for not building a house now that is easily thirty to fifty percent more efficient than a house than was built even just ten years ago. It is not a cost issue, it is an implementation issue, and more and more, people are doing it."

MATERIALS

POISON PLASTICS

Holly Pyhtila

WHEN FUTURE ARCHAEOLOGISTS dig up our civilization, they may name this the "plastilithic era." The wood will quickly rot. Decades later, the steel will rust away. But a thousand years from now, plastic will be our most enduring contribution.

The world's population consumes almost 100 million tons of plastic every year. It's versatile, cheap, portable and virtually unbreakable. But cracks are beginning to form in plastic's solid reputation.

The first signs of brittleness came after the harmful health effects of phthalates were confirmed in the late 1990s. Concern about genital defects, liver damage and reproductive abnormalities surfaced after scientists found that the chemical leached from a flexible plastic known as polyvinyl chloride. This new information was enough to ban most phthalates from children's toys and products in places such as the European Union, China, Mexico, Canada and the state of California. The rest of the United States may see a similar ban, depending on the success of an amendment to the Consumer Product Safety Commission bill introduced in March.

But the problems with plastic do not end there. The newest health concern involves Bisphenol A or BPA, an estrogen mimicker that leaches from hard, clear plastics made of polycarbonate resin. Drink containers, the lining of cans and baby bottles often contain the chemical, but BPA is also found in adhesives, pipes, flooring, electronics, paints, helmets and even dental sealants.

Dr. Fred Vom Saal, a biologist at the University of Missouri, is an outspoken opponent of BPA. Based on more than three decades of research, Vom Saal warns that "putting female sex hormones into a male's body is a really bad idea. You'll see lower sperm levels, male breast development, and changes in fat distribution. In females you'll observe damaged egg cells, repeated miscarriage and genetic abnormalities in the embryos." According to Vom Saal, washing the plastic does not help: the older the product or the more it is scrubbed, the worse the leaching becomes. Other side effects of BPA exposure include obesity, diabetes, early-onset puberty, prostate and breast cancer, hyperactivity, hormonal disruption, neurological damage, and possibly ADHD and autism.

Despite mounting evidence of harmful health effects resulting from BPA exposure, polycarbonate resin is still available in developed countries, including the U.S. and Canada. Federal governing bodies approved BPA decades ago, while published studies on the chemical only began to surface around the year 2000.

Health Canada, the country's regulatory body for food and consumer products, recently declared BPA a dangerous substance—a label that could pave the way for a complete ban on baby bottles made using the substance. The decision came after a U.S. study determined that the chemical may be far more dangerous for infants than for adults, since infants lack the capacity to detoxify it.

Some Canadian sporting goods chains did not want to wait for an official request to pull the plastic. In December 2007, Mountain Equipment Co-op and Lululemon pulled Nalgene and other polycarbonate resin water bottles off their shelves.

In 2007, Los Angeles attorney Robert Weiss filed a landmark billion-dollar class action lawsuit against five leading baby bottle manufacturers. The case was filed on behalf of California babies who may have been injured by drinking out of plastic bottles that contain BPA. The case will proceed to a status hearing in Los Angeles Superior Court before May 2008, where Weiss will seek financial compensation and future mandatory labeling of bottles that contain the chemical.

If you'd like to avoid BPA, you might consider switching to glass. If mobility is an issue, stainless steel water bottles provide a good alternative (be sure it's not lined with plastic). Try to steer clear of canned products, particularly for your baby, and never heat food or drinks in plastic, as heating increases the degree of leaching by a factor of fifty. To identify plastics that contain BPA, be aware of the following: polycarbonate resin is often labeled with recycling number seven, the word "other," or the letters "PC." In general, BPA is found in most hard clear plastic, whether colored or not. Opaque plastic, on the other hand, is usually BPA-free.

Internet sites with information on BPA are numerous, but plastics industry websites abound to assure people that there are no health risks associated with using any type of plastic. Until the legal and legislative debates are resolved, consumers are left on their own to decide.

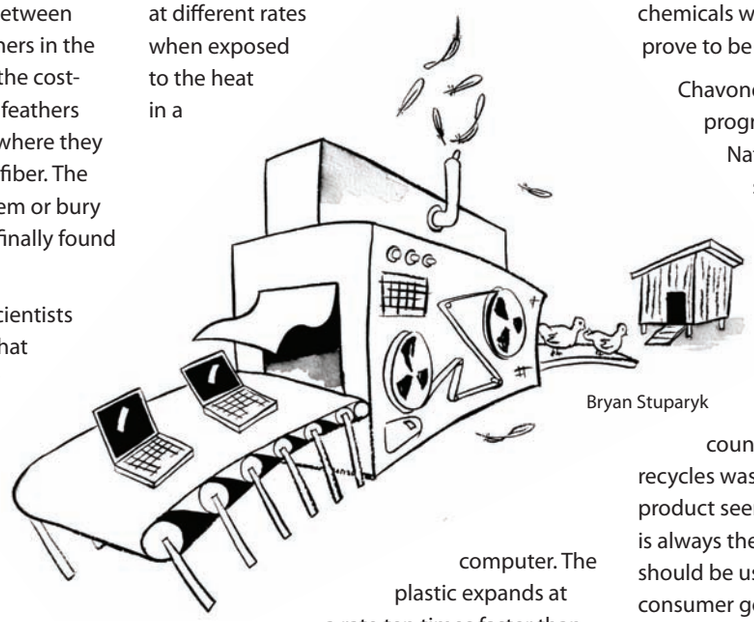
FAST & FEATHERWEIGHT

MELANIE STUPARYK

ON ITS JOURNEY from the coop to the plate, one chicken leaves behind approximately five ounces of feathers. Walter Schmidt, a research chemist for the United States Department of Agriculture's Agricultural Research Center, estimates those ounces pile up to between two and four billion pounds of feathers in the United States each year. Until now, the cost-efficient way to dispose of all those feathers was to grind them up for pet food, where they provided Fido with little more than fiber. The costly alternative is to incinerate them or bury them in landfills. But feathers have finally found their place in the future.

Schmidt and his team of research scientists in Beltsville, Maryland, discovered that chicken feathers, comprised mainly of a micro-crystalline protein called keratin, could be broken down and mixed with other materials to add strength and even absorption. By stripping away the downy hairs from the quill, Schmidt was able to grind down the feather fibers and form them into a sheet resembling a paper towel. Now, this USDA-patented technology is being put to work in laboratories across the country to change the way we make circuit boards, car parts—even diapers and insulation.

Dr. Richard P. Wool, Professor of Chemical Engineering and Program Director of the Affordable Composites from Renewable Resources Program at the University of Delaware, has been using the feather fiber sheets in combination with his newly developed "soyoil" resin to create lighter, faster circuit boards. Previously made from petroleum products like epoxy and fiberglass, Wool's soy and feather circuit boards are not only a more ecologically sound approach, but also a more effective one. As Wool explains, it has to do with speed and heat. In typical circuit boards, the copper and the plastic board on which it is printed expand at different rates when exposed to the heat in a computer. The plastic expands at a rate ten times faster than the copper, breaking connections. This forces information to be rerouted, which fatigues the computer and slows it down. The feather fibers are hollow, and the thermal expansion of the keratin fiber can be manufactured to match to that of copper to prevent breakage. "You get a faster signal speed and a cheaper lighter product," says Wool. "You've eliminated thermal fatigue and it's environmentally friendly."



Bryan Stuparyk

Pound for pound, Wool estimates his feather-soy composite saves its weight in fossil fuels. It is not perfectly green, but the technology has planted the seed for other potential uses, from diapers and absorbent wipes to automotive parts. Further experiments are being done to use feathers in place of paper products like air and vacuum filters, as feather fibers are finer than wood pulp and require no bleaching (industrial chickens are bred to be white). The environmental impact of using fewer trees and chemicals when producing these items could prove to be substantial.

Chavonda Jacobs-Young, a national program leader with the USDA's National Research Initiative, which is supporting Wool's research, points out that his work has benefits beyond finding a use for a waste material. "It can increase our national security by decreasing our reliance on foreign resources, and it can increase the viability of the farming industry in this country," she says. A technology that recycles waste and creates a biodegradable product seems to have no drawbacks. There is always the ethical question of whether we should be using animal products to make consumer goods, but Wool says that for now "the impacts are all positive, apparently."

This is just the beginning for feather fiber technology. Wool says micro-processing giant Intel has shown interest in his circuit boards, and his team has begun to experiment with carbonizing the feathers to create a more porous version of a carbon microtube. They are collaborating with NASA to use those microtubes to create a cost-efficient method for filling hydrogen fuel cells. To make hydrogen a viable fuel for the auto industry, "we need to store hydrogen at low cost and this could be one way to do it." Wool laughs, "So instead of a tiger in your tank, we're giving you a chicken."

Rediscovering Karukinka

Conservation at the edge of the world

John-Frederick Thye

On a miserable day in October of 2003, I sailed into Tierra del Fuego, an archipelago situated on the tip of the South American continent only 600 miles north of the Antarctic Peninsula. Gale force winds and hail pelted my ship and my face. The gray, turbulent Atlantic Ocean stirred in my wake, while off the bow lay a ragged ridge of black snow-capped mountains. I shivered and shook the ice off of my shoulders. Then I looked around and took in the sight of one of the most remote, wild and beautiful places on Earth.

One year later, in a climate-controlled boardroom in New York City, a group of Goldman Sachs investment bankers and conservation scientists from the Wildlife Conservation Society (WCS) pored over the same 70-year-old area maps that I had used for navigation. I imagined them debating vigorously with their sleeves rolled up. They were about to agree on one of the most globally significant gifts of private land ever made.

At stake was the future of a 1,150 square mile parcel of Tierra del Fuego in Chilean territory—an area approximately the size of Rhode Island. Goldman acquired this monumental hunk of land at the end of the world as part of a larger pool of distressed assets from the Trillium Corporation in 2002. The next year, Goldman transferred the notes to their corporate charitable fund, which was now in the process of gifting the land to WCS with the goal of turning it into an ecological reserve. Goldman and WCS went on to sign a three-year partnership to finalize deed transactions and raise a land and conservation stewardship fund.

For me, this trip to Tierra del Fuego, and later around much of the rest of the world, was part of a childhood dream. I had read stacks of dusty historical accounts describing the region. Famed explorer Ferdinand Magellan, whose men—beaten and discouraged by the inclement weather—committed mutiny here, christened Tierra del Fuego the "land of fire" in 1520. Its name was inspired by the ghostly and mysterious native bonfires burning in the hills at night. Magellan never did manage to come to friendly terms with the "giants of the wild," as he called the natives. They wore thick furs across their shoulders and pungent seal oil on their skin for protection against the elements. They must have seemed imposing and almost alien to the dejected, malnourished and dying European sailors.

Two Argentine WCS scientists accompanied my voyage. Our mission was to survey South American fur and elephant seal colonies and nurseries and to document right whale activity. These species are part of the extraordinary marine and terrestrial biodiversity that still defines the region. Tierra del Fuego's shores are

Wildlife Conservation Society

host to one of the world's last great fisheries, and its alpine meadows, old-growth lenga (southern beech tree) forests, peat bogs, and river systems support a wide range of wildlife, including Magellanic woodpeckers (a cousin of the fabled ivory-billed woodpecker of the southern United States), firecrown hummingbirds and Andean fox.

The guanaco, a member of the camel family and relative to the mountain llama, is the region's majestic signature animal. I will never forget the sight of silhouetted guanaco males standing motionless on hilltops, keeping watch over the females and young grazing in the valleys below. In 1832, Charles Darwin affirmed to the world that Tierra del Fuego was a natural treasure, writing: "A single glance at the landscape was sufficient to show me how widely different it was from anything I had ever beheld."

J.F. Thye

John-Frederick Thye in the Strait of Magellan with his ship *Wildlife*

Goldman and WCS's stated mission for Tierra del Fuego is to preserve the land for the Chilean people. But how, I used to ask myself, can an organization headquartered on the other side of the globe successfully manage land as ecologically sensitive and unique, as remote, and as politically disputed as this? Kent Redford, who is the Director of the WCS Institute and also responsible for WCS's conservation work in Patagonia, recently addressed my question in a phone interview: "The only way for WCS and Goldman to achieve their conservation goals in Tierra del Fuego is through careful scientific and financial planning—and equally important, through culturally and politically sensitive outreach to local stakeholders."

Tierra del Fuego is part of Patagonia, a region spanning the southern tip of both Chile and Argentina. The two countries have had military confrontations over the region as recently as 1984. Additionally, in the past 20 years, international corporations and individuals have acquired enormous tracts of the land, inciting new debates over land ownership and management. The Italy-based Benetton Corporation, for example, has become one of Argentine Patagonia's largest private landowners. They use prairie lands to raise sheep for wool. The hundreds of miles of fences that have been erected in the process have halted ancient guanaco migrations and devastated herd populations, an issue that is becoming politically contentious.

WCS has taken action to dispel concern over their commitment to conservation and respect for local cultural authority, well reflected in their selection of the territory's new name. "The property is therefore now called Karukinka, a word which means 'our land' in the language of the native Selk'nam people who once lived on Tierra del Fuego," Redford explained. The name's significance, I believe, speaks volumes about WCS's intentions.

According to Redford, WCS is developing a twenty-first century conservation model implemented by three partners: WCS, the Goldman Sachs Charitable Fund, and the Chilean government and community. This public-private-government partnership is the first of its kind and is an example of how corporations can productively support conservation.

The politics of involving a foreign NGO in such a high profile land deal have placed WCS center stage in the Chilean and international community. Governmental agencies, energy and mineral companies and purveyors, conservation groups, and donors from around the world are watching and learning, as well as critiquing. Redford's comments were therefore noticeably discreet when I asked about the financial agreements between the partners and any sustainable development activities that might be in the pipeline.

Contrary to the partners' 2004 press release, which included potential sources of income from ecotourism, income expectations are still in development now. Redford notes that Phase One is all about building relationships so that Karukinka can serve as a world-class conservation initiative whose management strategy can be applied across Patagonia. The partners are therefore in cooperation with a distinguished advisory council made up of Chilean scientists, historians, professors, and community and business leaders.

Although improved technology has made navigation safer, the experience of sailing Patagonia remains an intense one. Hundreds of ships have been destroyed in these waters over the years. And even now, yachts regularly disappear in Patagonia's hurricane-force storms and building-sized waves—a stark reminder that nature, though now in need of our protection through projects like Karukinka, still reigns supreme.

Inheriting Bhopal

A photo essay by Andrea Joyce and children of Bhopal: Kushbu, Kartic, Shifan, Sharukh, Ishrat, Armaan and Shabana

In 1984, Bhopal was host to what has since become known as the world's worst industrial disaster. Early in the morning of December third, an ill-maintained pesticide plant owned by Union Carbide leaked over 40 tons of poisonous gases into the night air in the Indian state of Madhya Pradesh. Over 3,000 deaths were officially recorded as a direct result of the disaster, but estimates of related deaths currently reach 20,000. Since that night, over 100,000 people have continued to suffer adverse health effects.

Now, 23 years later, the next generation of Bhopal is beginning school. Some of these children are also beginning to understand the meaning of deformities left to them as a result of the disaster. A non-profit organization called the Chingari Trust has been created to provide proper medical care for Bhopal children with malformations and brain damage.

This photo essay presents photos taken by seven of these children during their daily lives. A group of volunteers from Canada and India collaborated with Chingari Trust to distribute cameras to the children, giving them the opportunity to document their lives. The cameras also were given with the hope of fostering independent thought and action in the group of children, who rely on the help of others in their daily life. Each photo was taken by a different child, and accompanying text has been written by Andrea Joyce. These photos shine through the dark veil of Bhopal's history with a sense of the strength and resilience of the next generation.

For more about the Chingari Trust:

www.chingaritrust.org

Shifan

Gathered at the park that straddles the border between Old Bhopal and New Bhopal, the Chingari kids run wild. Disregarding a few stares, the children fearlessly take lots of pictures. Shifan, age 9, follows his sister to the slide. Shifan has cerebral palsy and is not usually allowed to hold anything fragile, lest it be dropped. This is Shifan's first time ever holding a camera.

Kushbu

Kushbu, age 12, gathers the children for a picture in the alley outside of their houses. This is Kushbu's first chance to use the camera and everybody wants to be in the photo. They have stopped the flourish of activity for a moment to pose. a

Shabana

Getting Shabana to use a camera was difficult at first. She had little interest, and did not understand its purpose. Most of these children have only had experience on the other side of the camera, photographed by journalists covering the effects of the Bhopal disaster.

Sharukh

Sharukh photographs his uncle inside his fabric shop. His uncle runs the shop in the chowk (market), where people can buy material for Salwar suits (also known as Punjabi suits). In India, buying clothes involves first choosing the fabric from the fabric store and then hiring a tailor.

Armaan

When asked if he wanted to join in the camera project, Armaan—who normally has trouble walking—was jumping up and down. Here, he photographs his younger brother who is also angling for the camera. The Chingari Trust has paid for Armaan to attend a state school. Armaan is unable to perform chores around the house, and is therefore able to attend school regularly.

Kartic

Inside Aishwarya State School for Special Needs Children, Kartic is snapping away. Here, he takes a picture of a classmate who is learning about colors and patterns with painted wooden blocks.

Ishrat

On the way to Ishrat's house, the Chingari Trust volunteers accumulated a following of about twenty children. Before taking this picture, Ishrat was playing with several children at the end of the alley. When the children realized that Ishrat had gone to retrieve the camera, they were overcome with excitement. The children began alternating screams of "Didi!" (meaning auntie, directed at me) and "photo photo" (to Ishrat). In India, everyone loves to pose for the camera in the classic portrait style. This rare candid shot was captured in between formal shots.

FOOD FOR THOUGHT

LOOK MA, IT'S RAW

Sonia Cooke

Tamara Vaags and Karin Kliewer

In the raw foods fad, one wonders whether uncooked foods are truly healthier, or just another Hollywood craze to be kicked to the curb the way of the grapefruit diet and Richard Simmons videos.

"It's good," my mom said sweetly with a gulp. "A little, um, rich." I had just offered her the product of a day's hard labor: freshly un-baked carrot cake. Its richness resulted from the fact that, like most raw desserts, it was 90 percent ground nuts. With nut sauce on top. My raw creation was not only rich but a little, um, moist too. After its debut, it sat, pudding-like, in a huge bowl in the fridge until I returned to college. I didn't inquire into its fate after that; even if I had created a culinary masterpiece, finishing it would have required a Herculean effort. Fifty dollars, two pounds of nuts and nine hours after starting, I had produced enough carrot "cake" to sate the Donner Party for weeks. Wondering where I went wrong, and lamenting the cookbook author's failure to grasp the concept of serving size, I swore never to use his book again. At least not until next break.

My latest foray into the world of raw cuisine wasn't exactly a triumph, but, in my case, it hardly ever is. Raw food concoctions litter my culinary career, and most could be described as "interesting" at best. Yet I keep coming back, drawn by the idea of living on nuts, fruits and vegetables that have escaped corruption by stove, oven or microwave. Apparently I'm not the only one: Raw food "uncookbooks" have invaded bookstore shelves, and raw restaurants are popping up in the nation's trendiest cities, serving painstakingly uncooked food to hipsters and health freaks in Los Angeles, San Francisco and New York.

The typical raw diet consists primarily of organic fruits, veggies, sprouts and nuts that have not been heated above 118 degrees Fahrenheit. According to raw foodists, beyond this Saharan temperature, living food becomes dead food—the heat destroys the food's natural enzymes, leaving our bodies to compensate by supplying digestive enzymes from our own finite stores. By eating foods with all the enzymes, or "life force," intact, raw foodists claim to live healthier, more energetic and longer lives.

Though it may sound exotic, a lot of raw food is of course no different from food we eat every day. Salad is raw. So are apples. And many raw foodists apparently see little problem with keeping it simple. One raw cookbook I recently glanced through included a recipe for banana pudding with the sole instructions: "Peel banana, mash banana."

But just when you start to think raw food is code for carrot sticks, along come chefs like Roxanne Klein and Charlie Trotter (better known for his decidedly non-raw five-star Chicago restaurant), whose co-authored raw cookbook features elaborate creations like Tengusa Seaweed Gelée with Sea Beans and Jalapeño-Lemongrass Vinaigrette. If basic recipes take only a minute to make, Klein's and Trotter's often require more than twelve hours, not to mention obscure (and expensive) ingredients like 25-year-old Villa Manodori balsamic vinegar.

Most raw food inhabits a middle ground between these extremes. Typical un-cooked dishes include spaghetti made by coaxing zucchini into long strands, cashew "cheese" ravioli with transparently thin beet slices standing in for pasta and sunflower seed crust pizza topped with pesto and olive tapenade. You need more than a fork to prepare this stuff: A Vita-Mix (high speed blender: $400), dehydrator (very, very slow oven: $200) and a juicer ($150) are de rigueur if you want to move beyond the banana pudding level in the world of raw cuisine.

Despite all working with what might seem a similarly restrictive ingredient list, raw restaurants all seem to take on personalities of their own. While Klein's defunct restaurant served haute cuisine in an appropriate homage

to eco-elite Marin County, raw chef Juliano's restaurant is a casual Santa Monica hangout for industry types and models looking to eat, well, not very much. (My mother and I spent a good deal of our visit pretending not to notice that Victoria's Secret Angel Karolina Kurkova was seated nearby.) Juliano's food is fancy but not fussy; unlike Roxanne Klein's French-inspired menu, he favors vibrant postmodern dishes that poke fun at American fast food. Juliano encourages eating dessert first (purportedly to ease digestion), and to begin, we dug into a deliciously creamy strawberry parfait sprinkled with Tibetan goji berries (don't ask me about the carbon footprint on that one). Then, uttering words that had never before passed this longtime vegetarian's lips, I ordered the Bacon Western Double, which, alongside its mushroom nut patty, sported paper-thin dried zucchini posing as bacon and veggie fries splashed with ketchup and mustard made from heirloom tomatoes. The riot of color and texture on the plate kept me delighted, even if the fries tasted like they had spent a little too much time in the dehydrator.

Other raw restaurants have also carved out their niches: Quintessence's relaxed atmosphere attracts young East Villagers and tiny, chic Cru is the ideal haunt for Silver Lake hipsters. Café Gratitude's hippie vibe fits its location in San Francisco's sunny Mission District. Each menu item is titled as an affirmation—an unabashed display of new-agey positivity that could be either cringe-inducing or inspiring, depending on how uptight you are. Being incredibly uptight, I avoided all eye contact with the waitress while ordering an I Am Eternally Sweet. The delicious chocolaty goodness (raw cacao and hazelnut "ice cream") almost made up for having to listen to the waitress earnestly affirm, "You are eternally sweet," while ceremoniously setting down my shake.

Raw foodists do indeed love dessert, although the ubiquitous reliance on dates and cashews in most raw dessert recipes often makes me wonder how throwing in a few extra medjool and some coconut can turn "cookies" into "donut holes." Even if these variations on a theme leave me feeling slightly duped when it comes to raw chez moi, most raw restaurants seem more than capable of differentiating their treats. Cru features a delicious chocolate fudge cake while Café Gratitude—along with its milkshakes—offers key lime pie and vanilla ice cream made from (you guessed it) nuts.

Tamara Vaags and Karin Kliewer

Living la vida raw may involve more than just changing what you eat. Preparation time and effort are often increased greatly in order to make foods similar to the ones we eat every day. Consider "baking" a raw cake . . .

Raw foodism attracts all the usual suspects: celebrities, hippies and health food fanatics. In fact, the history of the raw food movement reads like a right-wing parody of left-coast eccentricity. California's role as a hotbed of raw food activity traces back to the late nineteenth century, when a group of naturmenschen relocated from Germany to Palm Springs in the hope of escaping the growing materialism of a society in the throes of rapid industrialization. Taking up raw vegan diets, nudity and heliotherapy (a.k.a. sunbathing), the naturmenschen went back-to-nature before the hippies were even born. These pioneers soon attracted followers; the bearded, sandal-wearing "Nature Boy" even became enough of an icon to inspire a hit song by Nat King Cole.

The movement continued in the twentieth century through the activities of Germans John and Vera Richter (who founded America's first raw food restaurant, Eutropheon, in Los Angeles in 1917) and Lithuanian émigré Ann Wigmore who, according to legend, cured herself of cancer by imbibing copious amounts of wheatgrass juice. A few books advocating the raw diet appeared during the course of the century, but the modern movement truly began with raw chef Juliano, who—unaware of his German predecessors—went raw in his late teens after a revelatory experience wandering in the desert oases of Palm Springs.

Despite raw food's apparently timeless allure, the reasoning behind the movement is suspect. There doesn't appear to be any mainstream medical evidence to support the claim that eating cooked food diminishes our bodies' enzyme stores. It turns out that the stomach's acidic soup destroys most food enzymes before they aid digestion at all. And it might not be all that healthy to subsist on a diet that derives the majority of its calories from fat (nuts, olives, coconuts) and sugar (agave nectar, dates). "Uncooking" may have other drawbacks as well: The benefits of certain foods, such as cancer-preventing compounds in tomatoes, can only be released by heat, while kidney beans and other foods contain toxins in their raw form. Some studies have shown that those on a raw food diet tend to be underweight, and many nutritionists tut-tut about the dangers of malnutrition.

It seems a bit of a stretch to accuse raw foodists of insalubrity, though, when the standard American diet has left many Americans wider than they are tall. And medical experts who extol cooking's "sanitizing" effects seem to be under the impression that we have yet to escape the hazards of medieval squalor. Yet while no one (except die-hard germaphobes) would argue against eating more raw fruits and vegetables, most mainstream physicians consider raw food health claims pseudoscience. The distaste, evidently, is mutual: Perhaps sensing that the raw diet hasn't exactly made a splash with conventional medicine, one raw food website exclaims in defiance, "We're not doctors, we're mother nature!"

In the end, this scientific squabbling doesn't really matter, because raw diets have always been about much more than health. At its heart, the raw food movement speaks to the human desire to return to an Edenic existence. By eating food raw, "as nature intended," raw foodists attempt to evoke a prelapsarian world where humans live in harmony with animals and nature. (Notice that raw meat isn't usually on the menu.) In the world of raw food, one cannot commit the sin of gluttony; raw chefs unanimously tout the fact that, on the raw diet, you can eat dessert all day and not gain weight: a dieter's Paradise.

The Jungian yearning for a return to the Garden is no doubt inflamed by our modern alienation from the natural world. Writing of his transformative experience in the desert, Juliano described how an "eagle soared out from the distant trees down to the pool and ascended with a fish clamped in her talons . . . I, for the first time, felt a part of nature instead of a distant bystander watching the world on the tube." Juliano isn't alone: Many raw foodists ascribe their dietary choices at least in part to a desire to be closer to nature. Indeed, they invariably claim that eating food raw is the natural way, that the advent of cooking—the Fall—occurred only recently in human evolutionary history. In Juliano's words, "Raw was, like, before fire."

The irony, of course, is that modern raw cuisine relies heavily on thoroughly modern tools.By blending, juicing and dehydrating, we create foods that are distinctly unnatural. Cavemen didn't sit around $400 dehydrators for 16 hours waiting to extract their flax crackers. In fact, recent research has shown that fire was used even before modern humans evolved, by Homo erectus. Sadly, the Edenic lifestyle, like Eden itself, seems about as real as a mirage in the Palm Springs desert.

But raw reality shouldn't crush raw fantasies. Raw food lets us play Adam and Eve for a while, and if we don't take it too seriously, it can be fun. I, for one, will keep returning to my raw culinary exploits in an attempt to escape the weight of the modern world—at least until some sinfully sizzling fries catch my eye.

Tamara Vaags and Karin Kliewer

Quit playing games with your food: raw foodists champion the unadulterated vegetable. But, if creating raw dishes requires expensive equipment and extensive manipulation, one wonders when raw is still raw.

When it comes to dying, black may be the new green

Diane McDilda

So many green principles are forged in life, but what about death? Can the conventional formula of chemicals and fine polished wood be changed? Yes. When the Grim Reaper knocks, you can leave this world as greenly as you lived in it. New possibilities in eco-friendly dying combine customs from the past with contemporary values and procedures fitting for any environment.

Embalming, a product of the Civil War era, relies on toxic chemicals and solvents like formaldehyde. It destroys pathogens, staves off microbial decay and allows friends and family time to take a last look. But there are other options for evading the grip of time just a little bit longer. Those who choose to forego flushing embalming fluid through their lifeless bodies can opt instead for refrigeration in a hospital, morgue or funeral home, or can be packed on dry ice. Ultimately, returning the body to the earth as soon as possible is the greenest option, forgoing any need for artificial preservation.

What the body goes into is as important as what goes into it. Those choosing their final quarters can think outside the box—especially when it's an ornate mahogany casket or protective vault likely to run thousands of dollars. Companies like the Natural Burial Company offer products that biodegrade smoothly without the release of formaldehyde and other chemicals that are often found in the glues and fillers used in traditional coffins. Alternative containers include sturdy cardboard boxes, unfinished plywood coffins, woven baskets and Ecopods—colorful sarcophagi made from recycled newspapers. Even lower-impact options include burial shrouds or fabrics that are wrapped around the body and

Homo environmentalis, Jennifer Osborn
Mixed media, 12"x12"

serve as the partition between body and earth. The eco-conscious individual should consider entering the afterlife wrapped in a family heirloom or soft organic cotton.

Green cemeteries are also gaining in popularity. The Green Burial Council collects information on nature preserves across the country that welcome the deceased, and it is working toward a certification process for them. The Glendale Memorial Nature Preserve in the Florida Panhandle is one such place. With 350 acres of countryside, the preserve includes wetlands, creeks, boardwalks and bamboo groves, a stark contrast to the more sculptured confines and paved walkways of a commercial cemetery. The Glendale preserve, like many green cemeteries, bars the use of embalming fluids and burial vaults, but allows burial of both bodies and cremated remains.

Cremation is alive and well today, but its degree of eco-friendliness is debated. Less burial space is needed, and ashes can easily be spread in a favorite place or shared amongst loved ones. In addition, cremation can often be done before preservation is needed, thereby avoiding the embalming decision altogether. But cremation incinerates the body at a very high temperature, sending toxic compounds and chemicals into the atmosphere.

Indeed, crematoria release significant amounts of sulfur dioxide, nitrogen oxides, smog-forming volatile organic compounds, dioxins and other pollutants, yet they are not currently required to meet any federal air quality standards. Individual states can, however, impose their own emission guidelines. In Florida, cremation facilities are required to measure air opacity, particulate matter and carbon monoxide to determine if levels fall within acceptable limits. More recently, concern has erupted over the release of mercury (a by-product of the combustion of dental amalgam), which Florida—like most other states—does not require to be monitored. Already, the removal of teeth prior to cremation has been added onto proposed mercury emissions legislation, and as more citizens become aware of emission issues surrounding crematoria, battles over air quality are likely to ensue.

Undeniably, contemplating death is low on jocularity and not an easy task. But it is important to share the desire for a green burial with loved ones—or better yet, put it down on paper. Positive impacts on the planet don't have to stop when the death knell tolls. From the preparation of a body to choosing its final resting place, leaving a green legacy means reducing your footprint even after you are finished taking steps.

ARTIST'S PORTFOLIO

ELIZABETH ROSE

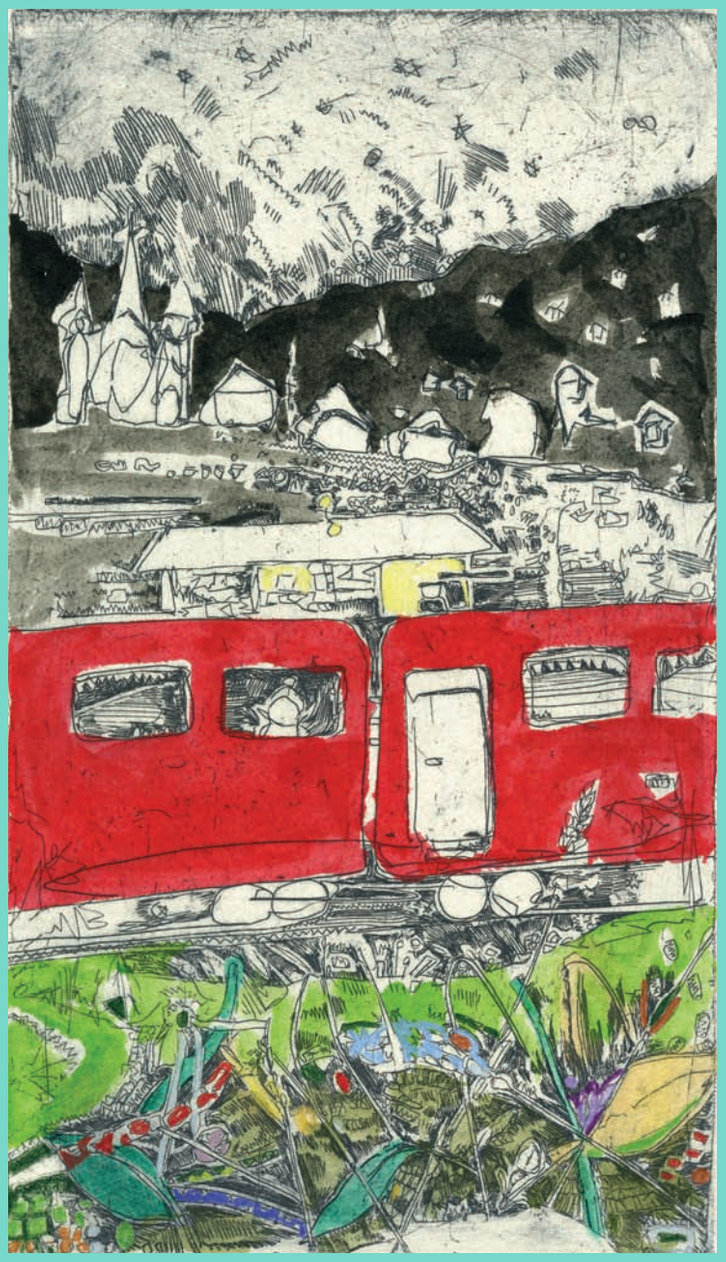
Listopad, 2006
Intaglio, mixed media 17.5 x 13.25 inches

Horizon Through Forget-Me-Not Pears, 2006
Hand-colored intaglio 6.75 x 3.5 inches

"My work focuses on the relationships between people and landscapes: what people create and observe within the environment, how the environment impacts people, and how living organisms adapt to social structures. My visual depictions embody the details of the biological world."

Under The Clouds, 2008
Drawing, 8 x 8 inches

"By observing diverse ecosystems and cultures, I try to convey the inspiration that biodiversity can provide to civilization. My goal is to help people gain appreciation for their ecosystems and cultures. I also aim to highlight aspects of wilderness that are overlooked and taken for granted."

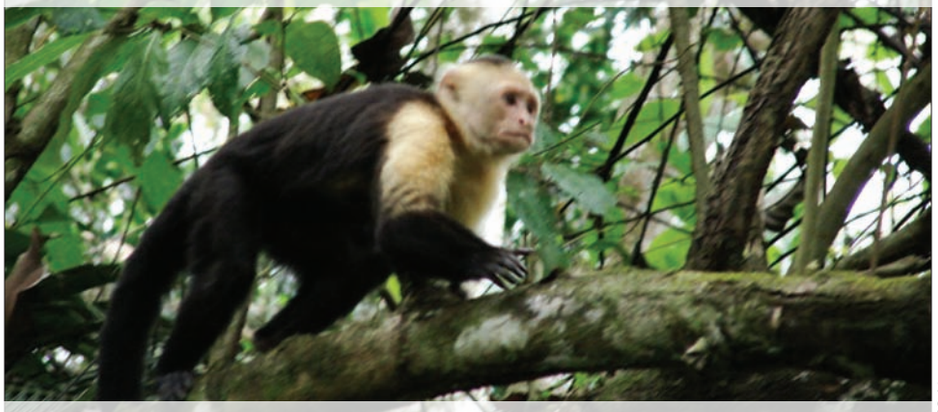


Night Train, 2006
Hand colored intaglio, 4.5 x 7 inches

"Often in our busy society, we are unaware of our relationship with the land and our inevitable impact on the environment. From a tiny clump of moss to a bird fluttering by, these encounters are part of life and have become increasingly rare to many people. This is too important to be lost in this rapidly changing world."

Conservation FOR SALE:

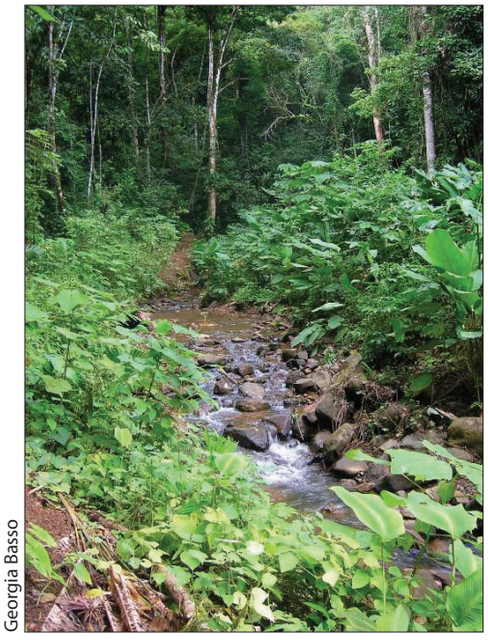
Can Working With the Enemy Save a Costa Rican Biological Corridor?



F. Cascante

Georgia Basso

In the Costa Rican jungle where I conducted field work last summer, everyone I spoke with seemed to hate real estate developers. Developers, environmentalists said, were building tropical suburbs that cut off wildlife from access to national parks. I kept hearing that developers chopped down the rainforest at night, caused rivers to run red with eroded soil, and engaged in illegal land deals. The potential for developers to harm the forest where I was working was especially high because this rainforest is not an endless expanse but rather a narrow green corridor.



Georgia Basso

Designated as the *Corredor Biológico Paso de la Danta* (Path of the Tapir Biological Corridor), this 31-mile-long strip is supposed to provide a passageway for some of Latin America's most endangered species, including the jaguar and tapir. Although years of hunting and habitat encroachment have reduced the number of jaguars and tapirs in this region, locals say that these animals still use the corridor. Tapirs, related to horses and rhinoceroses, weigh about 700 pounds and resemble large grey mice with short, elephant-like trucks. They use these flexible trunks to probe through dense jungle underbrush for leaves and berries. Throughout their 30-year lifespan, tapirs keep to large tracts of undisturbed forest. Today these shy jungle giants are found in precious few locations around the world. The Tapir Biological Corridor connects two of these areas: Costa Rica's stunning Osa Peninsula and the lush Los Santos Forest Reserve. These forests, also home to the jaguar, are two of the most biologically diverse regions in the world.

With large cities looming just outside the corridor's boundaries, this pathway is the only artery through which wildlife can safely travel. In the absence of zoning laws and adequate government protection, the fate of this entirely privately owned corridor rests heavily on the decisions of land owners. If developers and other land owners choose to keep natural corridors intact, animals like the jaguar and tapir may stretch their legs and their gene pools, traveling beyond the confines of national parks. Conversely, these land owners also have the power to narrow the corridor and squeeze the regions' vibrant life to extinction.

* * * *

I knew spending a day with one of the region's largest developers, a North American named Thomas Dolan, was risky business. But after three months of listening to conservationists talk about them as enemies of the jungle, I was determined to meet one of the corridor's most infamous. When my alarm rang at five a.m., the rainforest's moist heat was already hanging in the morning air. I pushed my notebook into my bag and walked quietly down the stairs in the house I had shared all summer with other researchers. Adrian Santiago was sitting in the dim light, sipping coffee at the kitchen table. For the past two months I had been working in the corridor with Santiago, a Costa Rican forest

scientist who, in addition to having an intense love for this jungle, is one of the corridor's leading biological experts. "Where are you going today?" he asked.

"To the field," I replied as I quickly laced my boots.

"Who is your interview with?" he probed further.

"Thomas Dolan," I said. Everyone in the community knew what Dolan was up to—building luxury homes in the rainforest. Santiago's face twisted up a bit. "I thought you were an environmentalist," he said to me.

I am an environmentalist. But I have noticed that many environmentalists are only willing to talk with people that they feel are acceptably green. Conversations were different when the corridor first began. In 1989, on a sticky July afternoon, a group of farmers, ranchers, and environmentalists first gathered to talk about the land and what they valued. Some said cows, others said money, or monkeys, or rivers. The conversation led to an exchange of ideas and eventually, the formation of the Tapir Corridor. Trust between diverse stakeholders and a willingness to jointly discuss their values had enabled the grassroots beginning of the corridor. These stakeholders felt that their common values would be upheld through the corridor's creation. They agreed to maintain and allow forest regrowth on sections of their land, linking these areas to forest patches on adjacent lands. Even though the corridor now exists to help tapirs travel from one protected area to another, narrow conversations obstruct their movement. I had heard stories of developers blocking the corridor's potential by placing buildings in highly sensitive areas. Even basic discussion with an ecologist could have led them to do otherwise. By going to meet Thomas Dolan, I was hoping to learn whether opening the conversation to include an exchange of ideas between environmentalists and developers could clear this path for tapirs and other critically endangered wildlife.

* * * *

At seven a.m., I knocked on the front door at the home of one of Dolan's most important managers, Juan Gomez. He answered with a broad smile and a cup of coffee. Gomez had agreed to let me tag along on his usual commute up to Dolan's development, Paradise Breeze Estates. As we jumped in Gomez's new Toyota 4Runner, he told me that Dolan, a retired dentist from California, was building 100 luxury homes across the ridgeline which runs along the spine of the Path of the Tapir Biological Corridor.

Gomez has seen a lot of change in the people and the land during his lifetime in the corridor. Up until the early 1990s, agriculture and ranching were the main industries for Costa Ricans, who commonly refer to themselves as "Ticos." "Many of the Ticos were very poor," he said. Then the pastures and fields started growing housing developments instead of cattle and corn. "Because of real estate, things are different for us now." This economic lift for Ticos is just one change that development has introduced. But Ticos see other, more surprising changes. "Thomas Dolan is a great conservationist," Gomez said. "Costa Ricans don't take care of the forest like gringos do. Before the gringos came, this land was all pasture. But gringos don't want cows, they want to see monkeys. So they re-grow and protect the forest."

When we reached the top of the mountain, Dolan greeted me with a warm handshake. He was a tall man with a certain kindness in his eyes. "I am glad you came," he said. "Usually environmentalists don't want anything to do with me." I scanned the dense jungle that surrounded us. Dolan owns 2,000 acres of it, an area nearly three times the size of the local wildlife reserve where Santiago works. With very little government regulation, Dolan's decisions reign over this landscape. "Let me show you what I am building," he said, like a boy eager to show off his latest Lego project.

He took me to his ocean view housing lots, areas of bare red soil, each ready to receive one large home. Nearly every exposed incline was blanketed in a tight green mesh that Dolan told me was a new tough but biodegradable erosion prevention technology. "It has never been used on this big of a scale," he said. Downhill from the green mesh, cement troughs lined roadside drainage ditches. Water traveling through these troughs would flow clean, on top of the earth rather than sweeping up soil in un-lined ditches on the way to the river. While cement troughs might not seem like state-of-

Georgia Basso

Illegal development often starts with complete removal of the forest underbrush. Trees are poisoned and gradually cleared so that the open space appears to have occurred naturally rather than as the result of rainforest cutting, which is illegal in Costa Rica.

the-art technology, they dramatically reduce erosion—one of the main environmental problems caused by development in the corridor. In the rainy season, entire mountainsides lacking vegetation can slide into racing rivers, turning the tumbling water a deep red color. When the rivers hit the ocean, they spew liquid soil like gushing wounds. This viscous glop smothers coral reefs, blocking out the sunlight they need to survive. Furthermore, erosion pulls trees and vegetation off the land, stripping away the jungle's dense cover and leaving dangerously exposed areas that tapirs and other shy jungle mammals hesitate to cross.

Georgia Basso

Erosion control techniques, including stabilized slopes and properly lined drainage channels, reduce the amount of sediment runoff, a problem which can be particularly detrimental to rivers and ocean ecosystems.

* * * *

Perched 2,000 feet up on the ridge, Dolan and I had a bird's eye view of three river mouths emptying into the sapphire blue water of the Pacific Ocean. "See that one there," he said, pointing to the right-most mouth, "That is my meter. That river flows through this mountain range." The water surrounding his river was a light coffee color, a sharp contrast to the other two river mouths which were surrounded by deep reddish- brown rings. The light water around Dolan's "meter" was the result of his $200,000 investment in green mesh and cement drainage channels.

These two important but unattractive tools will not appear on the front cover of Dolan's marketing brochure. And he and I both knew with the lack of strict government regulation, he could get by with a lot less. While I was still thinking about this businessman's decision to spend a bunch of money that he did not need to, Dolan quietly offered an explanation: "I do it, because it is the right thing to do."

As I looked out over the mountain, I noticed the road that Gomez and I had driven up. From my vantage point I could see that the jungle canopy had been sliced open and peeled away from the road's edge. It looked like a sterile neighborhood street in a manicured Californian suburb. I remembered what Santiago taught me a week earlier as we craned our necks to watch a troupe of 30 white-faced monkeys climb through the tree canopy that arched over a road near our home. "Leaving natural canopies really helps wildlife," an observation that is easy to miss if you are from North America where monkeys do not cross roads. Santiago has—along with his university degree in forest science—a lifetime of experience watching this jungle. I looked over at Dolan. His eyes were watching his meter. He never looked at the road. Maybe he just didn't think to. Gomez was right, Thomas Dolan was trying to develop responsibly. But he was doing it alone.

* * * *

Dolan and I breathed in a fresh gust of air off the Pacific. He was in no hurry to leave this beauty. Eventually we turned away from the ridge and toward the next stop on our tour. On the other side of the mountain, dense green jungle stretched up and down the corridor for as far as my eye could see. I was still scanning this lush stretch when Dolan redirected my attention to an oddly uniform, lighter section directly in front of us. The trees here resembled thousands of identical match sticks propped up in the soil. Dolan explained that the previous owners planted this 500-acre teak tree monoculture with the hopes of harvesting the wood. Creating a teak plantation brings in cash but pushes out local wildlife. Dolan realized this. He told me that he has seen howler monkeys in the jungle off to either side of this block of teak, but that they refuse to cross through it. "What I want to do is pull out the teak between these two jungle patches and connect them using native hardwoods," Dolan said, pointing to where the rainforest touched either side of the plantation, "I am going to create a corridor."

But creating a corridor within the Tapir Biological Corridor is not an easy task for a developer. "Where do you get your native hardwoods?" I asked. He told me that there were no local native plant nurseries large enough support this 500-acre reforestation project, so he had started his own. "I have five thousand trees in the nursery right now, waiting to go into the ground once the teak is pulled out," he said.

"How do you know what to plant?" I asked. I had expected that he would tell me about the local foresters he worked with, but instead he replied, "I got an old, out-of-print tree key. Then

I had some tropical tree books sent to me from Cornell University. All of my old botany classes started to come back. I learned about two hundred tree species, and there are about eight hundred tree species here." His ingenuity was impressive, but this California native was on a solo quest to learn the tree species in one of the world's most challenging classrooms. The diversity of species in Costa Rica is among the highest in the world, and reforesting tropical species takes specific knowledge. While Dolan has made it his personal quest to complete this task, most developers would not spend time digging up tropical tree guides and starting native plant nurseries in order to build a corridor.

Dolan brought me over to an old shed and pulled out five thick tropical forestry books. I immediately recognized three from Santiago's book shelf. One of the corridor's largest developers and one of its most knowledgeable conservationists were reading the same books but operating in entirely separate worlds.

Dolan was surrounded by the advice of his business partners, middle-aged American men who know how to fix teeth, read the law, and run a successful business. He confers with them when he notices that monkeys stop moving or a new road needs to come up the mountain. Nearly the entire corridor is owned by men like Dolan's partners. But they cannot give him the ecological, place-based knowledge he needs. In contrast, Santiago talks to people like the president of the Association of Friends of Nature. These people own relatively little land but have lifetimes of knowledge about wildlife movement patterns and tropical reforestation strategies. Most of Santiago's colleagues believe housing developments will cut the corridor off to animals like the tapir and howler monkey. They prefer not to speak with jungle enemies like Dolan.

* * * *

On my walk home from Dolan's, the afternoon rainforest storms set in. Large drops of cool water pummelled the dirt road like bullets, sending muddy splashes onto my legs. The peaceful blue rivers turned instantly into racing red veins, sweeping the mountains' soil toward the ocean. Looming uphill were five exposed slopes, evidence of some developers' shoddy work. I saw no drainage channels, no erosion controlling mesh—only gaping gashes cut into the jungle.

When I arrived back home, Santiago's boots were resting against the door, caked with red mud from a day in the jungle monitoring bird species. Next to his boots lay a book about connecting isolated forest patches to form corridors. I thought about the wide roads running up one side of Dolan's mountain and the corridors he was building on the other. I glanced at Santiago's book, realizing that corridors need more than just connections between forests. Corridors in the Path of the Tapir and in many human-dominated landscapes across the world need connections between people. If smart individuals like Santiago and Dolan can begin working together, large-scale development can also mean large-scale conservation.

The names and origins of some characters in this story have been changed to protect their privacy.

A. Redondo-Brenes

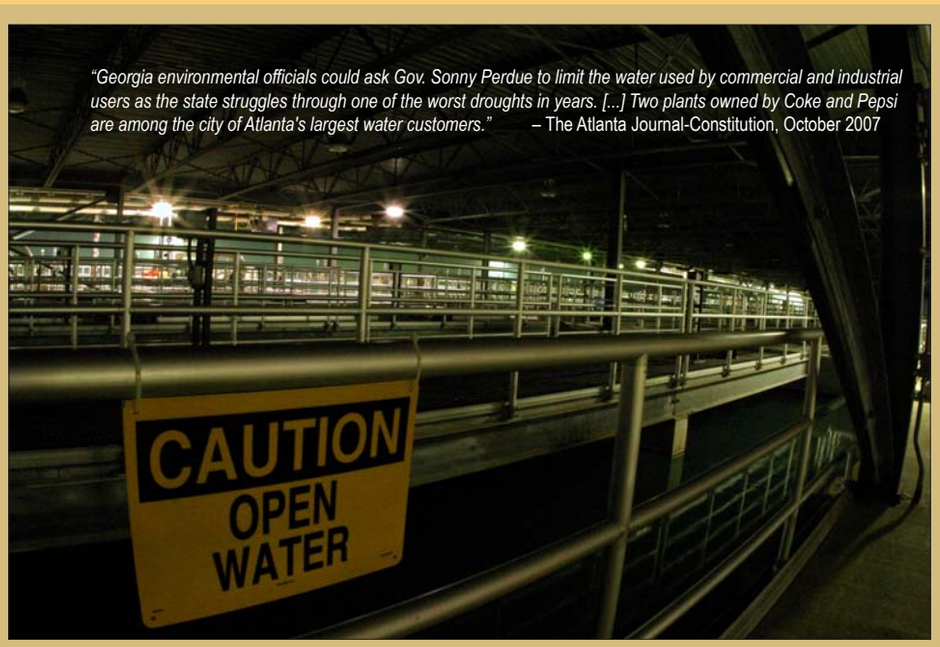
The HARD FACTS

Seve Ponce de Leon

What's In Your Bottle?

In today's interdependent global economy, many people are unaware of where their foods and beverages come from, and how they are produced. Some people feel they have more important issues to worry about; for others, ignorance is bliss. But the importance of what we put into our bodies should not be ignored, for it is from food and beverages that we acquire the energy and nutrients necessary for life.

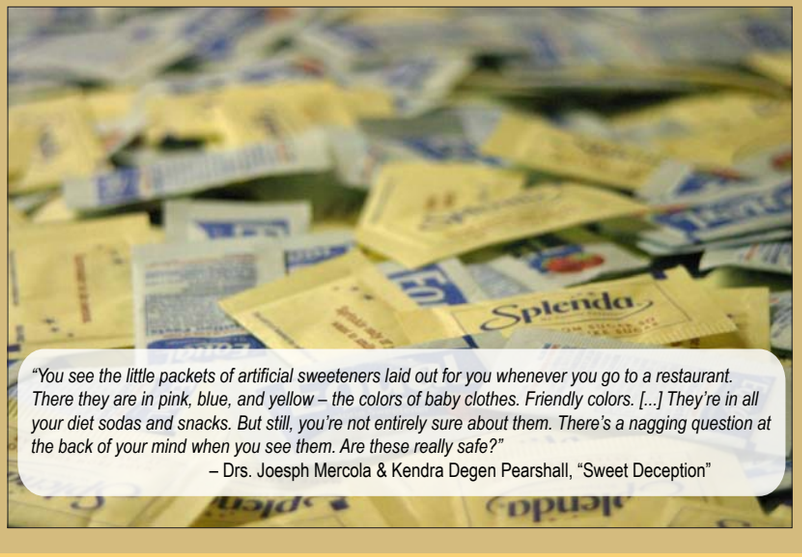
Soft drinks—which provide little nutritional value—are the single largest source of calories in the American diet. This photographic series offers an unabashed and often startling glimpse of what goes into a bottle of soda and its meaning for our bodies, our communities and the environment. Discover some of the main ingredients found in this seemingly innocuous beverage and trace the impact of the bottle itself to its final destination.



"Georgia environmental officials could ask Gov. Sonny Perdue to limit the water used by commercial and industrial users as the state struggles through one of the worst droughts in years. [...] Two plants owned by Coke and Pepsi are among the city of Atlanta's largest water customers." – The Atlanta Journal-Constitution, October 2007

Water, water everywhere: Incoming water collects at a treatment facility in Detroit, MI

Coca-Cola Enterprises (CCE) owns and operates 79 production facilities around the world. Of these, 72 draw the water they use from "public sources." In 2006, CCE used 38 billion liters of water, over 94 percent of which did not come from groundwater. So what exactly are the public sources that constitute such a large percentage of CCE's water supply? Municipal water systems. As much as 98 percent of most soft drinks is—after being treated, carbonated and flavored with a syrup concentrate—simple tap water.



"You see the little packets of artificial sweeteners laid out for you whenever you go to a restaurant. There they are in pink, blue, and yellow – the colors of baby clothes. Friendly colors. [...] They're in all your diet sodas and snacks. But still, you're not entirely sure about them. There's a nagging question at the back of your mind when you see them. Are these really safe?"
– Drs. Joesph Mercola & Kendra Degen Pearshall, "Sweet Deception"

Not all sweeteners are created equal

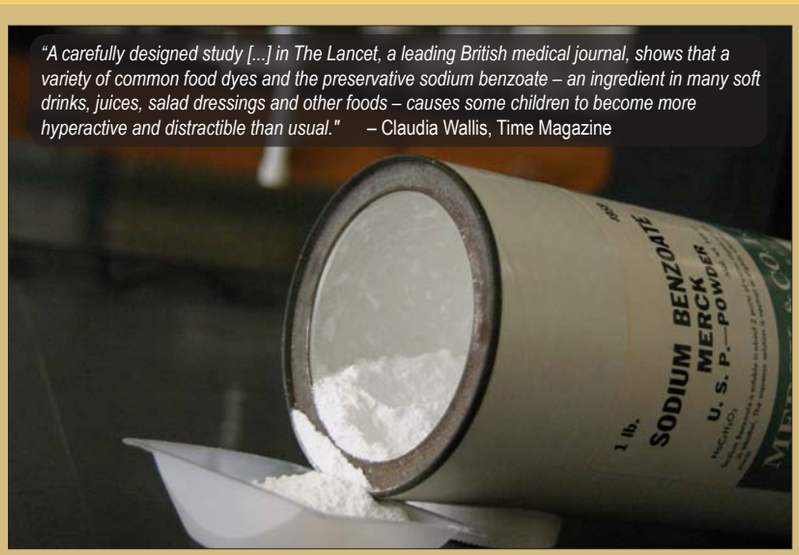
Although early studies indicated the potential neurotoxic side effects of aspartame, G.D. Searle & Company (who accidentally discovered the chemical in 1965) spent millions of dollars to conduct additional tests to prove its safety. Despite inconclusive and questionable results, aspartame was approved for use in carbonated beverages by 1983. While the three components of aspartame all occur in nature (phenylalanine, aspartic acid, and methyl esther), they never occur isolated from the other molecules that make them safely handled by the body. As a result, they have been found to metabolize into methanol and formaldehyde, among other chemicals. Since its approval, aspartame has been linked to migraines, cancer, epilepsy, Alzheimer's and depression.

behind soft drinks

"...the industrial food chain has made energy-dense foods the cheapest foods in the market, when measured in terms of cost per calorie. [...] Very simply, we subsidize high-fructose corn syrup in this country, but not carrots." – Michael Pollan, *The Omnivore's Dilemma*

Corn: the maize craze

Every year, more than 15 percent of all cropland in the U.S. is planted with corn, but less than three percent is actually eaten in its original form. By 1984, most soft drink manufacturers had switched from sugar as a sweetener to high-fructose corn syrup. In the last decade, corn farmers received over $51 billion in subsidies—almost half the money for all subsidized crops put together.



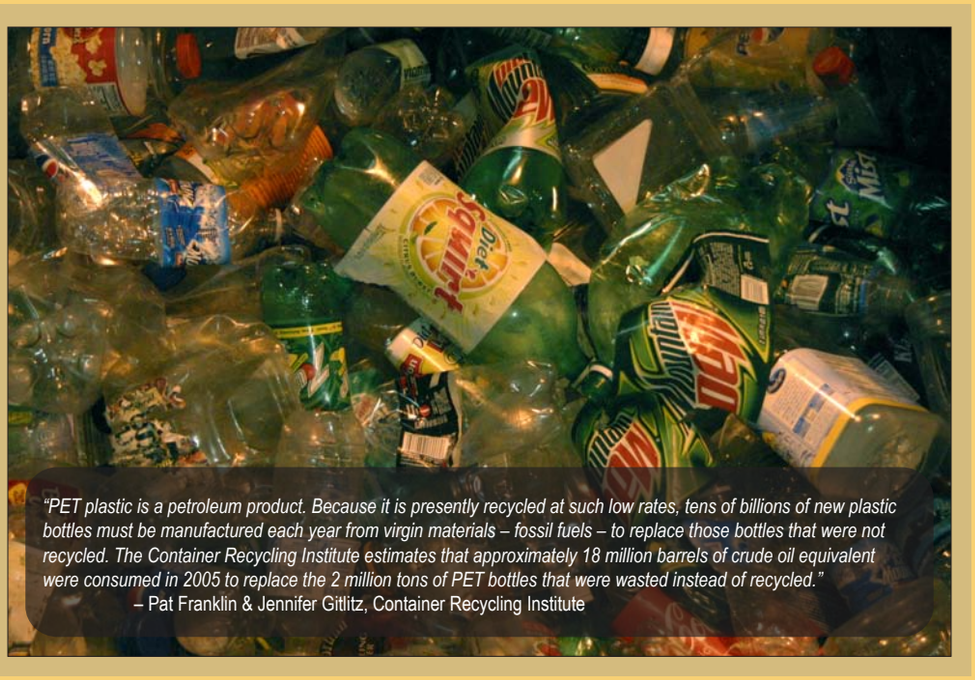
"A carefully designed study [...] in The Lancet, a leading British medical journal, shows that a variety of common food dyes and the preservative sodium benzoate – an ingredient in many soft drinks, juices, salad dressings and other foods – causes some children to become more hyperactive and distractible than usual." – Claudia Wallis, Time Magazine

Sodium benzoate: an ounce of preservation?

In 2006 and 2007, the U.S. Food and Drug Administration (FDA) sampled soft drinks containing both sodium benzoate (E211) and ascorbic acid to determine if together they were forming benzene, a known carcinogen. Although there is no standard for benzene levels in soft drinks, the FDA found ten drinks with levels ranging as high as 88.9 parts per billion, over 15 times the acceptable level for drinking water. While all ten have since been reformulated or discontinued, many soft drinks continue to use E211.

Plastic: the earth's biggest PET peeve

Although plastic soda bottles were introduced in 1970, it was not until the 1980s that the lightweight, durable, and clear polyethylene terephthalate (PET) surpassed glass in the market for bottled beverages. PET plastic comes from oil, a non-renewable resource. In 2005, the world consumed approximately 30 billion barrels of oil and had 1,312 billion barrels of proven reserves. Additional conservative estimates suggest the total amount of potentially economically recoverable oil may be around 2,000 billion barrels. Some people claim that could all be gone by mid century. Others argue new deposits will be discovered. Either way, the plastic keeps piling up in landfills.



"PET plastic is a petroleum product. Because it is presently recycled at such low rates, tens of billions of new plastic bottles must be manufactured each year from virgin materials – fossil fuels – to replace those bottles that were not recycled. The Container Recycling Institute estimates that approximately 18 million barrels of crude oil equivalent were consumed in 2005 to replace the 2 million tons of PET bottles that were wasted instead of recycled."
– Pat Franklin & Jennifer Gitlitz, Container Recycling Institute

RECYCLING

Ritual AND REALITY

Meghna Agarwala and Sara Enders

IT'S AN INCREASINGLY common sight: cardboard, plastic and metal lined up on the curb, filling up bins. More than half of all Americans have the opportunity to recycle at home, and for many, it seems to offer more than just an alternative means of disposing waste. Recycling also helps clear the conscience, the weekly trip to the curb serving as a kind of ritual environmental cleanse. But myth and confusion often surrounds the practice. Why don't they pick up pizza boxes? How well should I scrub this peanut butter jar? Should lids and tops stay on or go to the trash? To address some of these questions, we called up Tom Divivo, third generation owner of the Willimantic Waste Paper Company in Connecticut. We asked him about unscrewing the bottle caps. "Waste of time," he said. And the rinsing? "Waste of water."

The questions run deeper than just procedural minutiae. A recent report from England revealed that huge amounts of curbside recyclables there were being secretly burned or dumped. Could the same thing happen here? Or is it happening already? Where does all that junk go when it leaves the curb?

In 1989, The United States Environmental Protection Agency (EPA) set a goal of recycling 25 percent of the nation's trash (ten percent was being recycled at the time). The EPA set up national guidelines, but left implementation and enforcement to the states, which responded in a variety of ways. Some offered tax breaks to help companies adapt to using recycled materials, others simply made it illegal not to recycle certain types of solid waste. The strategy worked: the EPA goal was met by 1995, and then surpassed. Today, Americans recycle about a third of the more than 250 million tons of municipal solid waste they produce every year.

But not all of those 80-odd million tons of material are saved from the trash. The EPA's definition of recycling is to "separate or divert an item from the solid waste stream for the purposes of processing it or causing it to be processed into a material product." This definition conceals a lot of complexity. There are many legs to an item's journey between its initial diversion from the waste stream and the creation of a new product,

Joke Nijenhuis

and at various points along the way, off-ramps lead right back to the garbage heap. To really understand the fate of all those cartons on the curb, we decided to follow them as they get transported and transformed.

OFF THE STREETS

In the city of New Haven, Connecticut, it all starts at the curb. Recycling collection vehicles only have two compartments: one for paper, the other for non-paper (those who separate tin from aluminum might want to take note). Trucks carry the materials from the curb to a transfer center owned by the city and operated by a private company. At this point market forces really take over: the company pays Willimantic Waste Paper Company to haul the materials an hour and fifteen minutes northeast. There, Willimantic sorts, bales, and sells what it can to the highest bidder.

The Willimantic facility covers 40 acres, and processes 800 tons of recyclables every day. It never closes. On the sunny day of our visit, Tom Divivo volunteered his daughter Amanda to show us around. She took us to watch as trucks dumped freshly arrived material onto fields of asphalt. Bulldozers plowed the junk to the gaping garage doors that lined two buildings the size of airplane hangers. We followed Amanda's Ugg-booted footsteps over the colorful tailings from the mounds of material and up steel staircases to platforms overlooking a roller coaster of conveyor belts.

As the rolling belts filled with well-mixed junk and climbed toward the ceiling, sorting was clearly the name of the game. A flurry of gloved hands plucked items off the belts and tossed them onto other conveyor belts or into a large bucket. Plastic bottles and cardboard scraps rained through the air and landed softly in different streams heading in orthogonal directions.

Willimantic also uses magnets to sort metals, and Tom Devivo told us they had recently installed a Dutch-made system of screens and flow tanks to automate the processing of construction and demolition debris. Divivo says that the wave of the future will be single-stream processing, made possible by advances in automated sorting. High-tech machines like laser scanners will automatically sort glass by color. But for now, the vast majority of the sorting is still done in "picking lines" by human hands (most of them belonging to immigrant laborers). Eyes and hands have seconds to determine whether a pizza box is too saturated with oil for processing, or whether the plastic container you threw in with your mixed paper is high-density polyethylene or polyvinyl chloride. One result of this setup is that small items like plastic utensils may end up as trash because they are difficult to grab.

At the ends of the conveyor belts, piles of similar objects wait to be baled or otherwise bound together for sale. From there, many of them go to processing plants, where the material is more finely sorted. Plastics, for instance, are washed and then shredded or turned into pellets. This sorting is a process of greater technical precision, exploiting the physics of blowing, sifting, and floating to remove contaminants like lids, labels, and product residue.

It is a myth that all plastic caps have to come off before going in the bin. In fact, loose caps are hard to grab in a picking line, so leaving them on may increase their chance of being recycled. If the cap and the bottle are made of different types of plastic, they will likely be separated further downstream—after going through a chipper and being dumped in a water bath for separation by weight. But in some cases, two different materials can have the same specific gravity, making contamination by

Sara Enders

Joke Nijenhuis

caps a real concern. There is rarely any way for the consumer to determine the composition of a plastic cap. There are a lot of "gray area" answers like this one, which may explain the confusion over how much preparation is needed before putting the recycling out on the curb. Some level of product residue is acceptable, but too much can be a problem.

TO MARKET

While collecting recyclables is often a public service, higher-level processing is overwhelmingly the province of private companies. This means that the fate of your recyclables depends first on the cost-effectiveness of recycling in your area, and second on whether someone can make a profit reclaiming your post-consumer material. The proliferation of curbside recycling has been instrumental in generating enough material to make resale profitable.

In the United States, curbside recycling is most prevalent in densely populated parts of the country. Eighty-three percent of people in the Northeast have curbside pickup, but that drops to 39 percent in the South. Economics are largely responsible: where landfill space is scarce and disposal costs are highest, recycling makes more sense. In the Northeast, waste management costs may have been further inflated by a history of mafia price fixing. Local politics—pressure to expand recycling programs from citizens and NGOs—also play a large role in a municipality's decision to implement public recycling programs.

Most material that must be recycled under Connecticut law is in and out of the Willimantic facility within a week. There is enough demand for newspaper and metal for the company to purchase these materials. (Amanda tells us an old lady regularly brings in her aluminum foil, but usually they buy on a larger scale.) Some of these items can be resold locally. Low demand for other materials means that Willimantic charges to pick them up, and then sells them very cheaply—if at all—and often must comb for buyers much farther afield. The prices for recycled goods are volatile; fickle buyers change their minds on a weekly basis.

Whatever cannot be sold is thrown away by the cheapest means available. For Willimantic, this usually means exporting it to landfills out of state. This makes it cheaper for the recycling company to discard materials than it is for municipalities, which are often bound by contracts to more expensive local incineration facilities. Contracts expire on many Connecticut waste facilities in December of 2008, which could alter the profit dynamics of waste disposal significantly.

Some of the most common materials that don't make it to reclamation plants are plastics. "We recycle all numbers one through seven," says Dan Banning of Willimantic, referring to the resin identification codes that indicate a plastic's polymer type, "—in theory," he adds with an easy smile. Banning says that plastics other than numbers one, two, and five are hard to sell.

Willimantic is unusual in even accepting the complete suite of plastic types that sport the little numbered recycling symbol. Jeff Duval is Senior Operations Analyst for the Connecticut Resources Recovery Authority, a waste management company created by the state in the 1970s. He explains that FCR, one of the largest recycling brokers in the country, will not take numbers three through seven because they have nowhere to sell them. C. J. May of Yale Recycling says he chose not to recycle the higher-numbered plastics because he couldn't guarantee that they would be recycled. He says accepting them would have felt like lying.

Despite these difficulties, nearly 2,100 communities nationwide now collect "all plastic bottles," according to a 2006 survey conducted for the American Chemistry Council. (That's up from about 1,600 communities just three years earlier.) The biggest reason for this is that simplifying the collection process brings in ten to twenty percent more plastic bottles, many of which are the highly valued numbers one and two. And more supply means more opportunities to sell: Willimantic and other companies are finding a growing market overseas.

Sara Enders

OPPORTUNITY ABROAD

Some amount of almost every type of recyclable material finds its way overseas. Plastic is exported to China. Paper goes to Canada. Scrap metal often ends up in Asia. These overseas markets have made collecting recyclables in the U.S. more profitable.

"Twenty years ago, we didn't know what to do with PET bottles. No one wanted to buy it," says Reid Lifset, a lecturer at the Yale School of Forestry and Environmental Studies, Editor-in-Chief of the Journal of Industrial Ecology, and self-proclaimed waste enthusiast. "And then China developed a huge appetite for it and the market just boomed," he says.

Sara Enders

One problem with sending recyclables overseas is that many importers in the developing world have relatively lax environmental and labor standards. Groups monitoring enforcement of the 1992 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes have drawn attention to an uncomfortable relationship between the North American recycling industry and overseas reclamation processors. Observers from the Basel Action Network have described seeing small children spending hours sorting shards of shredded plastic by color. They found plastic being burned, which releases toxic fumes, and they documented waste products being dumped in the countryside.

The growing spotlight on these hazards in developing countries led China to adopt new standards on waste importation in 2006 that are comparable to those in Europe. There are some doubts about how effective this will be. The Chinese plastics industry is almost entirely made up of small companies that may not be able to comply with these new standards. But the new regulations speak to a greater awareness in the developing world, suggesting that overall the situation is improving.

One odd result of these overseas standards might be a decline in processing of recyclables in the U.S. But Lifset thinks the impact will be modest. "Depending on the regulation, we may see a drop in amount of recycling or a slight deceleration in the growth rate of the industry," he says, but a "fall in international demand might also stimulate domestic industry to increase its capacity, which could then absorb recycling waste."

Perhaps a more significant impact of the new regulations is that it may become easier to track materials. The repeated passing of the recyclable buck—from your recycling bin to a sorting facility to a distributor to a harbor in Asia—helps explain why figuring out exactly where your plastic bottle ends up can be next to impossible. Tom Divivo said it was a waste of time to take off plastic caps and rinse out product residues, but as the operator of a pre-reclamation processing facility, these factors do not affect his ability to sell the materials. What happens further down the pipe is someone else's concern and beyond his control. New regulations may help hold people accountable throughout the process.

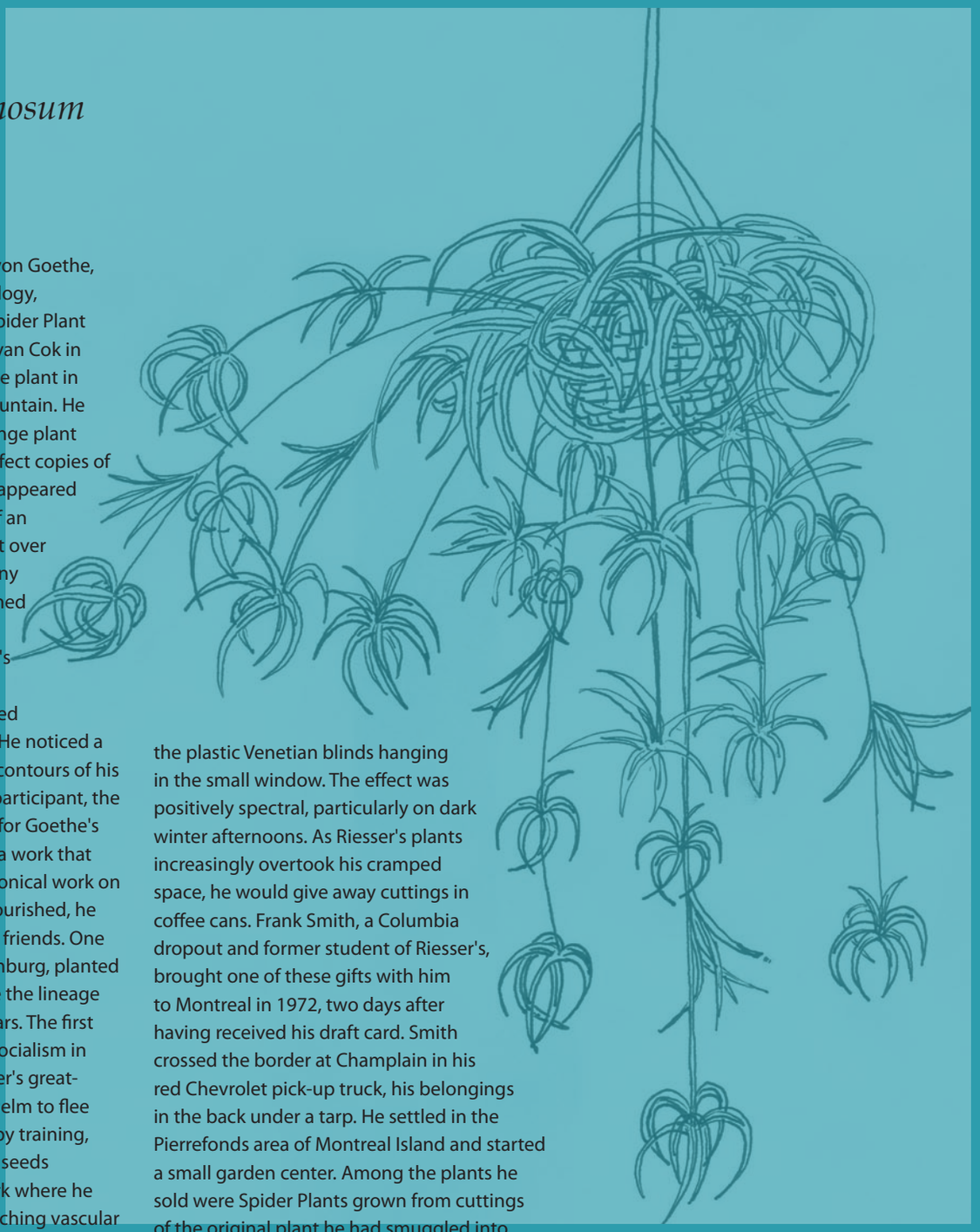
Recycling trucks that leave the curb and make straight for landfills are mostly the stuff of urban legend. But while you may be "doing your part" by piling bottles and cans on the curb, believing that's all there is obscures a whole world of conveyor belts and pellets and negotiations. There is a long journey that awaits that piece of plastic in your hand—a journey that is worth considering before you buy the plastic in the first place.

Sara Enders

Spider Plant

Chlorophytum comosum

Mitchell Akiyama



The German polymath, Johann von Goethe, during a short flirtation with biology, purchased the ancestor of our Spider Plant from a Dutch trader named Jan van Cok in 1782. Van Cok had discovered the plant in South Africa near Boschberg Mountain. He became enamored with the strange plant that seemingly gave birth to perfect copies of itself, dangling them from what appeared to be the botanical equivalent of an umbilical cord. He hung his plant over his writing desk. On a torrid, sunny day in August 1783, a prism, loaned to him by the Privy Councillor Buettner in Jena, caught Goethe's eye. He took the glass triangle from his desk drawer and squinted through it, rotating it delicately. He noticed a separation of colors around the contours of his plant. Although strictly passive participant, the Spider Plant was the inspiration for Goethe's controversial Theory of Colours, a work that threatened to sink Newton's canonical work on the subject. As Goethe's plant flourished, he made gifts of the plantlets to his friends. One such friend, Maria Riesser of Hamburg, planted several in her greenhouse where the lineage would be maintained for 150 years. The first rumblings of German National Socialism in the early 1930s compelled Riesser's great-great-great-great-grandson Wilhelm to flee to the United States. A botanist by training, Wilhlem Riesser brought several seeds from the greenhouse to New York where he obtained a part-time post researching vascular plants in the Faculty of Science at Columbia University. Back in Germany, the ancestral greenhouse was destroyed during the air raids of 1943. Most of the seeds Wilhelm had carried across the ocean sprouted and began to fill his small basement apartment. Neighbors found him to be odd; an eerie blue light seemed to constantly emanate from behind the plastic Venetian blinds hanging in the small window. The effect was positively spectral, particularly on dark winter afternoons. As Riesser's plants increasingly overtook his cramped space, he would give away cuttings in coffee cans. Frank Smith, a Columbia dropout and former student of Riesser's, brought one of these gifts with him to Montreal in 1972, two days after having received his draft card. Smith crossed the border at Champlain in his red Chevrolet pick-up truck, his belongings in the back under a tarp. He settled in the Pierrefonds area of Montreal Island and started a small garden center. Among the plants he sold were Spider Plants grown from cuttings of the original plant he had smuggled into Canada. Smith passed his business on to his son Richard in 1992. Richard then expanded the business, and began supplying plant stores all over the island. In 2003, a friend bought me a Spider Plant, a descendent of the Goethe plant, from the local plant store Florateria as a housewarming gift.

Heart-Leafed Philodendron

Philodendron oxycardium

Mitchell Akiyama

It is not entirely clear how the Heart-Leafed Philodendron came to hang from the lintel of our living room. I have been able to trace its genealogy as far back as the eighteenth century, but its earlier history eludes us. Captain William Bligh, returning from his second voyage to Tahiti (one that would finish less dramatically than his first), transplanted our *Philodendron*'s ancestor to the Royal Botanic Gardens at Kew in 1793. It was relegated to a dark corner of the Temperate House and obscured by the shadow of an enormous Chilean Wine Palm.

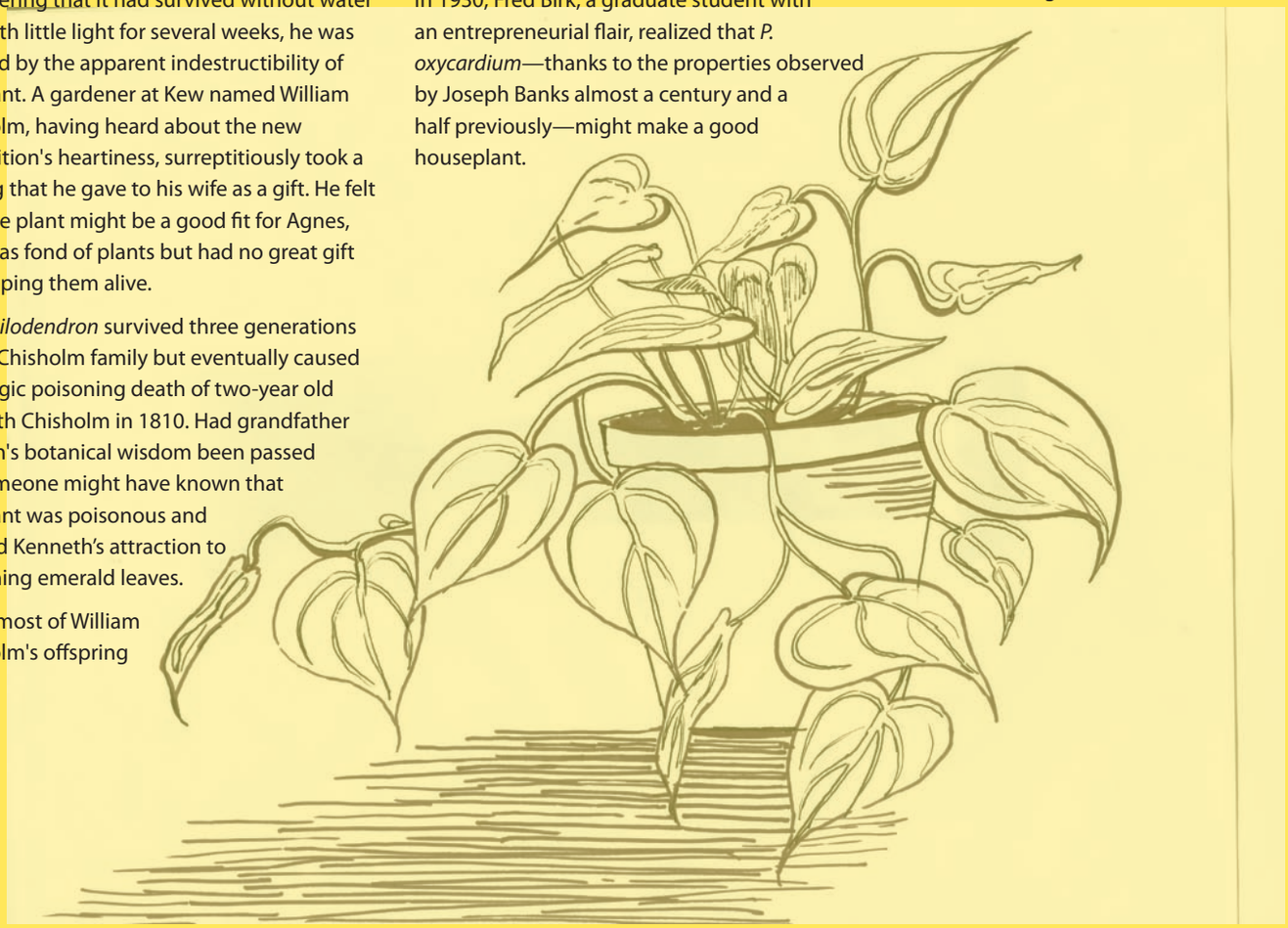
During the winter of 1797, the eminent naturalist and director of the gardens, Joseph Banks, rediscovered the *Philodendron*. Discovering that it had survived without water and with little light for several weeks, he was amazed by the apparent indestructibility of the plant. A gardener at Kew named William Chisholm, having heard about the new acquisition's heartiness, surreptitiously took a cutting that he gave to his wife as a gift. He felt that the plant might be a good fit for Agnes, who was fond of plants but had no great gift for keeping them alive.

The *Philodendron* survived three generations of the Chisholm family but eventually caused the tragic poisoning death of two-year old Kenneth Chisholm in 1810. Had grandfather William's botanical wisdom been passed on, someone might have known that the plant was poisonous and noticed Kenneth's attraction to its shining emerald leaves.

While most of William Chisholm's offspring had little interest in vegetation, his grandson Donald's inclination towards biology led him to a job as an assistant to Charles Darwin. Donald Chisholm, knowing that Darwin had mentioned the Philodendrons of Brazil in his 1865 work, The Movements and Habits of Climbing Plants, gave the naturalist a potted *P. oxycardium* that Christmas. That plant continues to grow in the greenhouse at Darwin's former home, Down House. In 1886, cuttings from the Philodendron made their way to North America with the eminent evolutionist and friend to Darwin, Alfred Russel Wallace. After a series of speaking engagements organized by the Lowell Institute in Massachusetts, Wallace gave Philodendron cuttings as presents to his American hosts.

In 1930, Fred Birk, a graduate student with an entrepreneurial flair, realized that *P. oxycardium*—thanks to the properties observed by Joseph Banks almost a century and a half previously—might make a good houseplant.

During the Depression years, thanks to its hardiness and affordability, the *Philodendron* soon became ubiquitous and, according to the Smith County Master Gardener Boots Oliphint, was "responsible for the birth of the houseplant industry." A plant from the Birk *Philodendrons* was eventually shipped to Knapps Greenhouses in Newburyport, Massachusetts in 1965. The species has been a steady seller for Knapps and in 2001, Peter Swartz, a psychologist living in West Newbury bought several. His daughter, Jenna Robertson, made cuttings in January 2004 and brought it from Massachusetts to Montreal, smuggled in ziplock bags and concealed under coats. Jenna and I hung the plant in March 2004 from the lintel in our living room.



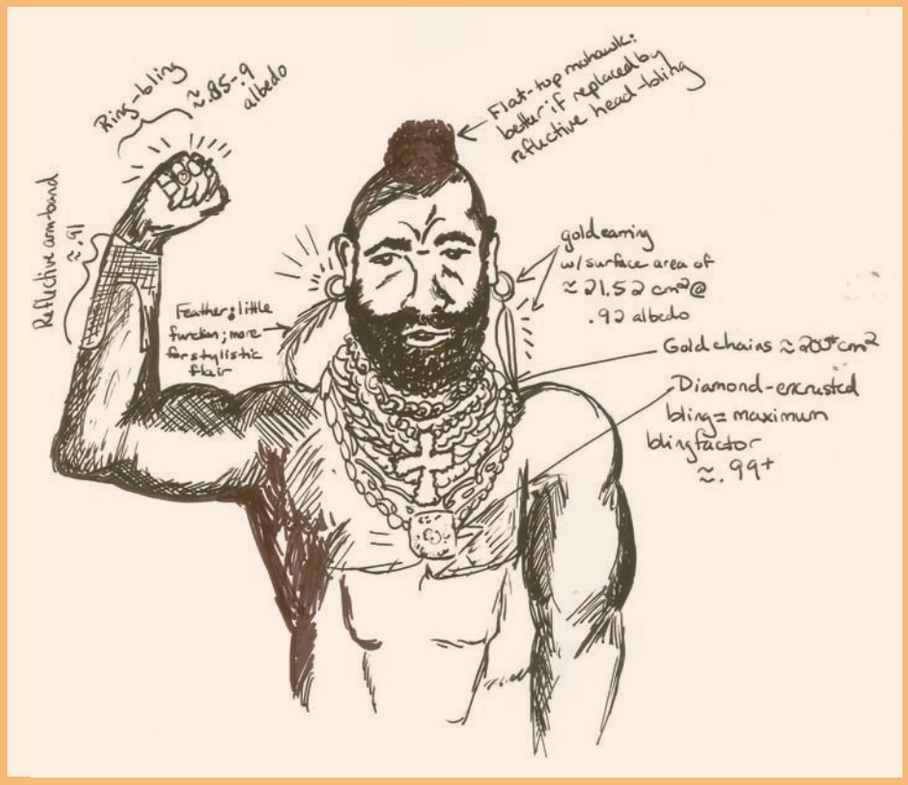
THE CA

FAUX NEWS: FAIR

It's getting hot in herre: hip hop style takes on global cooling

K-Boi Court

Scientists in U.S. cities like Miami, Los Angeles, and New York have recently made a shocking discovery. While running climate models, they noticed a distinct dip in temperatures unique to the cities, beginning in the 1980s and continuing through present day. After exhausting hours of attempting to account for this strange phenomenon, scientists decided to call a meeting to see if their confusion was shared. The meeting went into the early hours of the morning, until finally one of the scientists broke the code: "It's albedo ladies and gentlemen—bling albedo." Aghast that they had been blind to this factor, the scientists quickly ran some calculations, determining the correlation between the rise of gangsta rap, bling popularity, and approximate albedo effect of bling. Blingo—they had their white whale. Said climatologist Ernst Schlegenheimer, "It was about time to pass the Courvoisier."



Taking yet another lesson from Mr. T: One might say that, along with Run DMC, Mr. T was one of the great grandfathers of bling.

Fittingly referred to as "ice," bling is now being pushed as a promising global warming solution. The effect of bling is so great that scientists are saying "bling may actually be the one single factor keeping New York froze during the winter." When five-year old Johnny Trucks was interviewed at Rockefeller Center this past February, he said that indeed, "it was all iced out." Is bling the solution to global warming? "It's just part of the battle," says eco-conscious rapper Ol' Dirty Power Plant. "Right now there's just a big difference between 'Hott' and 'hot.' We're trying to bridge the gap between 'Hott' and 'cool.'"

In a meeting last Saturday evening at 11 p.m., a group that calls itself "Earth, Wind, and no Fire" met to discuss the new bling-filled rap and hip-hop movement. The going isn't all cake, however, as there has been a recent spike in the popularity of ceramic bling (sometimes referred to as "blong"), an affordable bling-substitute. The popularity of blong points to a critical issue: One of the major drawbacks of the bling movement is price. It's all about that paper dough. A debate is brewing between environmental rappers and corporations like "Eqwal-Mart," which take a social position, maintaining that affordability is about equality: "blong is the every man's bling." Debate will culminate in the next few weeks, when American Intergovernmental Panel on Climate Change scientists come together on July 14th with stakeholders to discuss project ICE-B: International Cooling Effect and Bling.

How big is the bling effect? Scientists say it largely depends on the composition and size of the bling. It is estimated that the dinner-plate-sized diamond-encrusted clock worn by Flava flav could have an albedo as high as .99 (for reference, asphalt is about .04, fresh snow about .90). That's about .99 parts of which carbon ain't one.

ABBAGE

AND UNBALANCED

Point

Eating Lower on The Food Chain
Enhances My Moral Superiority

Laura-Alex Frye-Levine

Did you know, that veal cutlet hovering just outside your lips took ten times as many acres to grow as the quinoa and herbed tofu salad I just scarfed down. Yup, that's right—ten times. Well, I'm no Rainman, but if my calculations are correct, that makes me a ten times better person than you. Only saying. . .

We herbivores are a noble breed: sleek, well-muscled, graceful, ever-watchful for an approaching carnivore to condemn with sharp looks of disdain. I can even trace my meat-free lineage back to first agriculturalists in the Fertile Crescent ten thousand years ago. I know, you're impressed. But I try not to let my impeccable heritage of consuming only from the lowest trophic levels swell my ego too much. If I lead a more virtuous life than then next man, I'll let my actions speak louder than my words.

Counterpoint

Drinking orange juice enhances
my throat mucus

Mmmmmm. Ice-cold, refreshing OJ! THAT is what I'm talkin 'bout. A long day of workin' in the yard is totally worth it when I've got a tall orange glass of Florida's finest to come inside to. Dude, super tasty.

Hey man, check this out. I can spit almost to the ground and then pull it back up. See how it just hangs there? It's the OJ, man! It gave me magical mucus. Check it out. Dude, look.

I can only think of two foods on God's green earth that give you this magic power. One you know about already (it's the OJ). And the other? . . . Give up? Milk! Milk, dude. Actually milk's sort of radder because it makes your spit whitish too. I wish I had some so I could show you. I wonder why OJ and milk make your spit so thick. Everything evolves for a particular reason, like the giraffe's neck is long to reach leaves that are high up, but I just don't know what it is in this case. Man, evolution is so awesome.

In the next issue:

Point:

All this hubbub about corn-based ethanol is making me sick

Counterpoint:

Sitting in the back of this crowded bus is making me sick.

LISTED

Top six words misspelled by Canadians

6. Color
5. Flavor
4. Stupor
3. Neighbor
2. American hegemony
1. The

Top nine sexy matings we'd like to suggest

9. Elephant and mouse
8. Salmon and pear (in a white wine sauce)
7. Horse and narwhal
6. Human and sheep
5. Amoeba and dinoflagellate
4. Centaur and mermaid
3. Walrus and carpenter
2. Applebees and Chilis
1. Walmart and iguana

Top five reasons the sky is cool

5. It's really high
4. Two words: Northern Lights
3. It's further from hell
2. It keeps all the gravity from seeping out into space
1. Lucy and diamonds

Top nine signs your environmentalism may have peaked a while back

9. You fly internationally to attend a meeting on climate change
8. You drive a biodiesel Hummer
7. You buy Kraft granola
6. You're bummed you can't get a fair trade frapuccino at McDonald's
5. Your vegetarianism has grown to include fish and beef
4. Networking now takes place on a golf course
3. You work for UNEP
2. You own a coal-fired power plant
1. You're totally over glaciers

Top five new organizations and their celebrity spokespeople

5. Bea Arthur for Golden Girls Gone Wild
4. Kid Rock for Metric System Now!
3. Run-DMC for The Shalom Eco-Retreat
2. Tom Cruise for the Union of Concerned Scientologists
1. The Hamburgler for The Association of Vegan Yoga Mothers

Top eight climate change cereal toys

8. Deforestation word search
7. The Four Horsemen of the Apocalypse decoder ring
6. Endangered species rookie cards
5. Make your own IPCC scenario (Now with "Business As Usual!")
4. Greenhouse gas scratch-and-sniff
3. Lump of coal
2. Famine connect-the-dots
1. Life jacket

Top six places that are way nicer above water

6. Maldives
5. Nauru
4. Venice
3. Bangladesh
2. New Orleans
1. Atlantis

Top eight elements I'm totally sick of

8. Carbon
7. Nitrogen
6. Boron
5. The fifth
4. Air
3. Einsteinium
2. Being in my own
1. Back left

Top eight rivers that no longer flow to the sea

8. Colorado
7. Indus
6. Nile
5. Rio Grande
4. Yellow
3. Jordan
2. Murray
1. Elbe

POETRY

Where Night's Self Darkly Burns
Daniel D'Angelo

Where nothing can be found
A noiseless shout
Crawls into your skin.
Licking fires to feel something,
Chase your own bones
To tame the marrows,
To chain them back to the body.

What little you find familiar
In the night where your eyes
Are only a dim light,
Filtered and confused.

But, you're there very often,
Appraising your wish and will.
Amid the destruction of a dream.
By yourself, so strange
You can't even find a name,
Only a sleeping beast
Knows who you are.

Dueling Global Warming Haiku
Jed H. Reducto and Josh B. Wasteful

cap it or tax it
but get on with it quickly.
i'm sick of carbon!

hybrids? why hurry?
there is always more oil
under Alaska

it's time leaders said
lightbulbs ain't gonna cut it.
we need big changes.

change means sacrifice:
do you want to be told you
can't drive your Hummer?

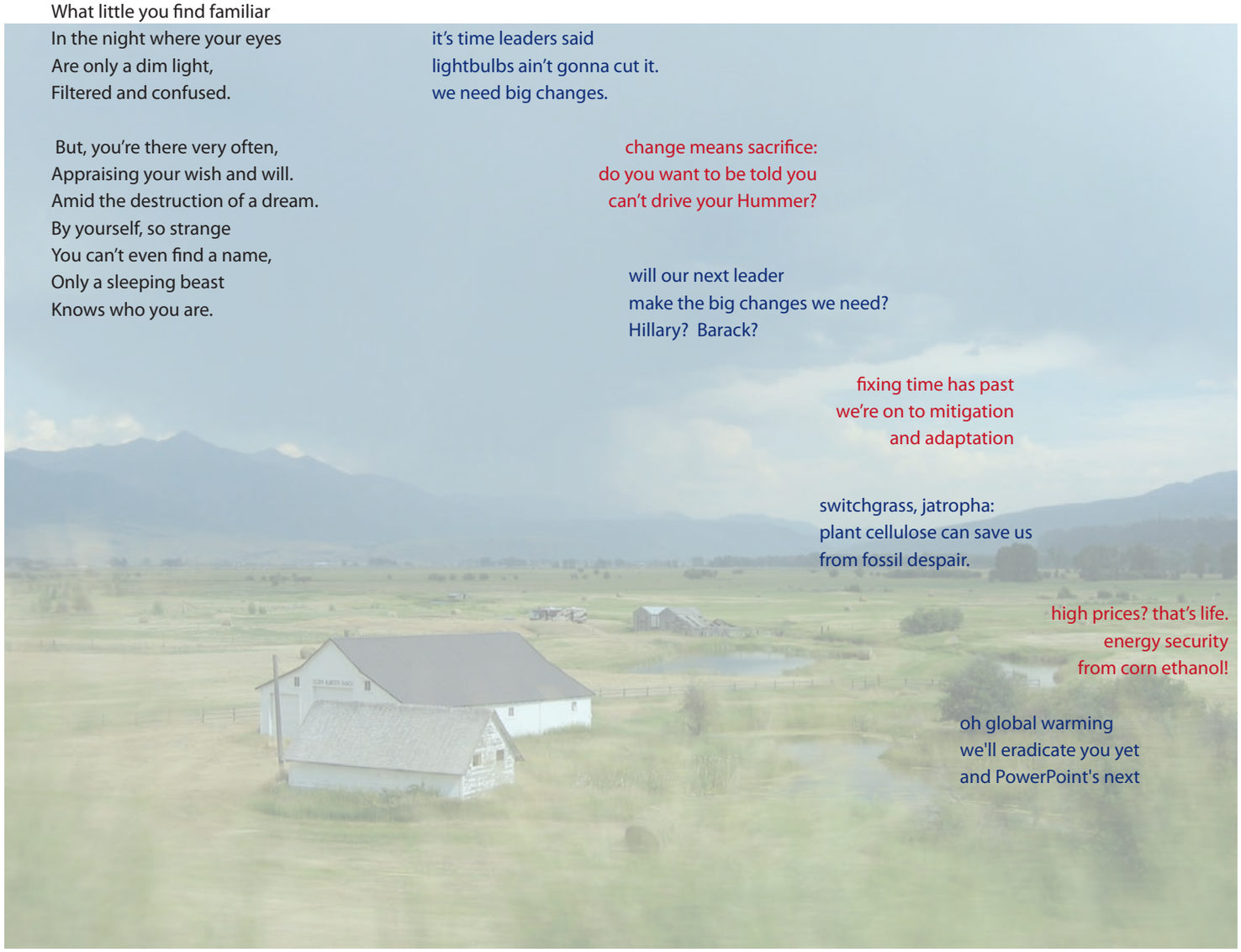
will our next leader
make the big changes we need?
Hillary? Barack?

fixing time has past
we're on to mitigation
and adaptation

switchgrass, jatropha:
plant cellulose can save us
from fossil despair.

high prices? that's life.
energy security
from corn ethanol!

oh global warming
we'll eradicate you yet
and PowerPoint's next



Kate Boicourt

LAST PAGE

RAINING AVOCADOS

Amy Cheng

With plastic bags in hand, the five of us followed Julio into his yard. We waded through tall grass that brushed against our knees, sweeping it apart with our hands. We had only ventured for several yards before Julio stopped—and for the first time, there I stood—under a great, tall, avocado tree. The magnificent giant was probably twenty feet tall and was just one of a dozen others. As I glanced up into the canopy, my eyes explored the kaleidoscope of emerald green leaves, Costa Rican blue skies, and specks of blinding sunlight.

Suddenly, I felt very small, and it wasn't because of the towering canopy. Seeing avocados in the wild for the first time, I realized I never even knew that they grew on trees. Back home in Canada, I routinely picked the fruit—but from a perfectly stacked pyramid under the cool glow of supermarket lights. I think of how often I had devoured them with chips and salsa and savored their buttery taste, but I knew nothing of their biology or origins. Curiously, I had never even wondered.

"Venga! Venga!"

The sound of Julio's voice jolted me from my thoughts. Shielding my eyes with one hand, I glanced up just as Julio began to climb the avocado tree. Quick and agile as a monkey, he hopped and swung from branch to branch. At about fifteen feet off the ground, he found a satisfactory spot and steadied himself with a firm, wide stance. In one hand, he held a long metal rod, curved at one end to make a wide, u-shaped hook. He motioned for us to back out from under the canopy. Suddenly, Julio hooked the rod on a branch above him, and then shook it with all his might!

Almost instantly, the fruit began to fall. Against a lush backdrop of foliage, avocados rained down all around us. Across my field of vision, all I could see were falling silhouettes. Each one fell fast and heavy, landing on the ground with a muffled thud. They disappeared in the tall grass, and awaited our search and rescue.

After several minutes, Julio stopped shaking the branches and the shower of avocados ceased. We scattered under the canopy, searching for the hidden fruits. It was tough to find them in the tall grass, but eventually, each of us emerged with full bags of warm avocados in each hand. We grinned at one another, amazed at Julio's generosity, and excited about our new bounty and the weeks of guacamole meals to come. As we walked back across the yard, I looked over and saw Julio peel one of the avocados and sink his teeth into the soft, buttery fruit, eating it like an apple.

Six years later and back in Canada, I return to harvesting avocados from my local grocery store. Standing before a pyramid of them, I pick one up. The dark green fruit feels cool and hard in my hand. I squeeze it gently, and my fingers remember the warm softness of the sun-ripened fruits as I picked them up from the forest floor. I can still see the lush and brilliant greens, the falling silhouettes, and Julio's smiling face. In this small piece of fruit, I feel the pulse of my questions as I stood beneath the avocado tree. I drop it in my basket and walk to the next pyramid.

Charles F. McNeil and his unexpected muse

Charles McNeil uses acrylic paints and melted water bottle plastic as an encaustic. In the past, encaustic paintings were executed in wax and pigments, but McNeil's method offers a new twist.

Water bottle plastic offers McNeil a way to make a statement about waste, as well as explore a new medium.

Darcy Dugan