

SAGE MAGAZINE

volume II, issue I

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UNTITLED (THE THINKER) • AMY SHAWLEY

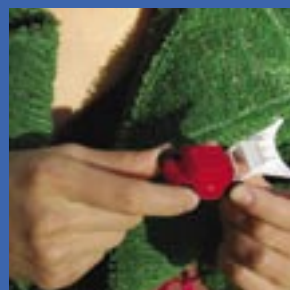


The cover image depicts agro-economic vulnerability to climate change on a Dynaxion projection, progressing from tan (least vulnerable) to red (most vulnerable).

Artwork by Laura Frye-Levine

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FROM THE EDITORS

A NEW PROJECTION

Hello readers,

Thanks for stopping by. It's already time again for another issue of **SAGE**, and we're just now digging out from under the mountain of love/hate mail that you all sent the last time. Thanks for the memories!

Hope your bags are still packed from the fall. If not, grab a toothbrush and a towel and let's go. In this issue, we're spiriting you all the way to a Syrian refugee camp and back to a factory farm in your own backyard, from moist Brazilian forests to seedy West African ports. **SAGE's** global perspective highlights the recurrent issue of environmental justice, not just on the community level but internationally as well. Just as poor, largely minority neighborhoods in American cities pay more than their share of the environmental price for our comfortable standard of living, some nations—even whole regions—are just on the wrong side of the tracks. Stick with us and we'll take you deeper inside of that simmering conflict.

The cover image depicts agro-economic vulnerability to climate change, just one small aspect of the broader climate story and of global environmental justice. The data represented is adapted from a study by Rosina Bierbaum, a dean at the School of Natural Resources and Environment at the University of Michigan. The data was published by the New York Academy of Sciences in a report titled "Confronting Climate Change." (www.nyas.org) Red areas have a high agro-economic vulnerability to climate change, primarily due to high reliance on a single important crop. Orange areas have an intermediate agro-economic vulnerability, while tan areas have low vulnerability. We have projected the data on an adapted polyhedral Dymaxion world map, developed by the late inventor and visionary Buckminster Fuller.

The Dymaxion map has several advantages over the worldview of more widely used projections. It provides less angular distortion than the Gall-Peters projection, and less spatial distortion than the Mercator. Most importantly for us, the map exposes our conventions of "up" as simple cultural bias, and allows us to take a fresh look at the relationships between the developed countries and a cartographically peripheral developing world.

Fuller's vision was singular and expansive. His ideas on design, society, ethics and sustainability have influenced human thinking in a variety of fields, from the global scale seen on our cover all the way down to the molecular scale. The emerging field of nanotechnology, explored in the *Innovations* department, has repurposed the engineering marvel of Fuller's signature geodesic dome, creating hollow spheres and tubes of carbon atoms using his patented geometry. These "buckyballs," as they are affectionately called, are currently the source of much nanohype: Studies have shown the new material to be harder than diamonds, and a possible anti-cancer agent to boot! But slow down, *Popular Science*—buckyballs have also been shown to deform DNA when dissolved in water. This new creation, and nanotechnology in general, must be pursued in a careful, studied manner to ensure their safe and beneficial development, and avoid replicating the negative impacts the development of the chemical industry has had on our planet. We have the knowledge now to do better this time. Let's hold true to Fuller's vision and keep our "spaceship Earth" healthy and flying . . . until the Sun melts us, of course.

Love,
SAGE

P.S. You can learn more about Buckminster Fuller and the Dymaxion Map at www.bfi.org.



UNTITLED (THE MODEL) • AMY SHAWLEY

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Diana Wagner is an undergraduate at Virginia Commonwealth University, majoring in sculpture and extended media. Her recent works include mixed media collage, photography and sculpting, and works cast in sugar. She is active in student organizations and volunteers in her spare time.

A Monument to Modernity: The Athens Metro

J. BRANDON BERKELEY

Athens, Greece is best known for the treasures of its past. The city is heralded as the birthplace of democracy and the jewel of the Golden Age of Pericles. More recently, Athens has become legendary only for its smog and sprawl, a less attractive claim to fame. It seems that the Golden Age has passed.

Looking out from atop the Acropolis today, the Greek capital appears as a vast grid of apartment buildings ensnared in electric wires. The city's famous monuments require near-constant cleaning and restoration to battle the corrosive effects of acid rain and smog, products of modern Athenians' devotion to the newest global goddess: the automobile. The city's decaying columns and haphazard development would suggest that Athens is the last place in the world to look for green design.

But something strange is afoot in, or under, the streets of Athens. In the fall of 2000, the Athens Metro began service for the 3.7 million residents of Greece's capital city. Since then, the Metro system has expanded steadily, with five extensions totaling 21 kilometers and 20 new stations under construction in 2006 alone. The Athens Metro has been such a success that the Greek government also drew up plans in 2006 to install a Metro in Thessaloniki, the nation's second-largest city.

This redesign of the urban transportation landscape in Greece marks a dramatic shift from exclusive reliance on private automobiles and buses toward a more sustainable transportation system with greater emphasis on public transit, a system

generally considered to be "greener" because of its reduced air pollution and potential to encourage denser human settlements. Already the new Metro has alleviated traffic congestion and improved air quality dramatically. How could such a turn-around have taken place after decades of poor planning and unchecked automotive pollution?



Inside the Athens Metro
J. Brandon Berkeley

In the 1980s, Athenian traffic was debilitating, and the city's smoggy air carried twice as much carbon monoxide and four times as much sulfur dioxide as the Los Angeles basin. A change in these conditions was imperative for Athenian economic and human health. The government entertained several proposals to expand the road system, but this measure would only have addressed one of the two problems, and at any rate the municipality lacked the funds to act on any of its plans. Luckily, the groundwork, so to speak, had already been laid for an even better solution, one that would both shorten Athenian commute times and allow residents to breathe easier.

In 1981, Greece became the tenth member of the European Union, then known as

the European Community. Along with the boost of EU status came pressure to clean up the country's air pollution and develop a functional urban railway system, like those found in Paris, London, Helsinki and Budapest. Greece had to upgrade its capital in order to upgrade its image.

Planners designed the Athens Metro project and broke ground within the decade. The

European Union has footed the tab for 90 percent of the Athens Metro project, via a combination of grants and loans to the Greek state. The result is, simply, monumental. The Metro is as much a museum as a municipal transit network—ancient marble statues and clay pots are displayed where they were unearthed during Metro excavation. The past and future lie buried together beneath the city; a 70-kilometer web of rails now weaves through the historic sites of the ancient plazas and public wells.

One thing remains the same: Greeks are just as fond of their cars as ever.

Like Americans, Greeks prize liberty above all else. But the practical concern of traffic congestion has overcome a cultural affinity for the automobile, and the Metro now carries over 410,000 passengers a day. This translates into nearly 100,000 fewer cars in the city center each day. Plans are underway for a fourth line to serve an additional 400,000 passengers in 2008.

The Metro snakes beneath the city streets alongside antiquities from the Golden Age of Pericles. Since that time, the city has been displaced from its central place in the international arena. Still, the Metro is a sign of the city's future, of renewal and revitalization. It is the physical offspring of Greece's accession to the European Union, and a monument to the future of European integration. ♪

Students Witness Alaska Warming

MATT SMITH

The chill April weather in Huslia, Alaska might make it appear a strange location for important research into global warming. The snow-covered landing strip and the roaring snowmobiles belie the previous year's April festivities—spring celebrations prompted by warm temperatures.

Orville Huntington, chairman of the Alaska Native Science Commission and lifelong Huslia leader, explained the renewed cold weather: "This was a normal year—the kind we always used to get. The problem is now we only get a normal year one year in ten. Those aren't good odds."

Huslia is an Athabascan Indian village on the Kuskokwim River in Interior Alaska, with a population of less than 300. Students here are combining traditional ecological knowledge and Western science to understand the extent and effects of local climate changes. Huntington's long view of winter temperature patterns is an example of traditional ecological knowledge: the integrated observations of the natural world that cultures rooted in a place absorb over generations. Newer to Huslia is the Western scientific method: measuring snow and ice depths and temperature, recording and compiling the data and running computer models.

A short snowmobile ride away from the landing strip is the high school where students are working on a University of Alaska-Fairbanks study called the ALISON (Alaska Lake Ice and Snow Observatory Network) Project, in which participants all over Alaska, soon to be all over the Arctic, measure lake ice and the depth of snow above it. The ALISON project's goal is to obtain more data to be punched into models in order to provide a detailed assessment of changes in snow and ice pack to policy-makers. The students are learning the importance of developing a quantitative understanding of the present state of the world in hopes of anticipating future trends.

At the lake, the students measure temperature and water depth at 21 sites. Huntington, pointing at the horizon, said, "We used to be able to predict the weather with some consistency, but now we can't—it changes too fast." There were buds on most of the trees, a sign that just two days earlier the temperature had been spring-like. It was ten degrees Fahrenheit outside, but the alders, tricked by unseasonably warm weather, already anticipated summer.

Between the high school and the lake, Huntington highlighted the wilted spruce trees peppering the flatlands. Their red and fallen needles had just appeared last summer, he said, the result of three months of ninety-degree weather. The effects extend beyond the trees themselves; the fallen needles acidify the soil, impeding other growth.

Kathy Turko, a Fairbanks radio host, leads students in a traditional ecological knowledge journalism project called the Climate Change Witness Program. The students each interviewed three elders about climate change in the Huslia area, then recorded and transcribed their interviews. The students will soon select segments from the interviews and add introductory material in order to form a script, which they will voice to produce a radio program.

"If you have these avenues to share the information, you can really change things," said Turko, working with the students. The voices of these students and elders will be heard across Alaska, with the intent of informing the public and hopefully gaining the attention of state legislators.

"When we went out and actually asked [the elders] about [climate change], they had a lot to say about it, about what's happened in the last 20 years," said Sheila Esmailka, a senior at the high school.

Those interviewed by the students concurred on many warming effects. For instance, the elders affirmed that the temperature never gets down to 70 or 80 below zero like it used to. The warmer and more unpredictable weather affects travel

on the Koyukon River during the winter, as well as game patterns—Huntington notes that he had his fish nets out last fall long after he should have switched to beaver trapping. Consistent heat waves also melt the permafrost and lead to coastal erosion. Two villages in the west of Alaska have been partially evacuated due to encroachment by the sea.

The ALISON project and the Climate Witness Project combine Western science and traditional ecological knowledge to gather information about and document the progression and effects of climate change. Just as importantly, these projects are organized and implemented by the affected communities, educating the Huslia youth to be mindful of the future generations that will bear the full impact of the changing global climate. ♪



Alaska from the air
Teresa Sarroca

MATERIALS

AÇAÍ

Can't Drink It 'Til You Say It

JEN LEWIS & ERIN BARNES

Açaí (pronounced ah-sigh-ee), an exotic South American fruit, has smashed onto the health food scene in the United States. The superfood has appeared on Oprah and preys on the pocketbook of American consumers seeking a tasty form of energy and nutrition. The black-purple açaí berries are high in antioxidants, amino acids and essential fatty acids. The antioxidants are thought to reduce premature aging in the same way red wine does, but without the headachy hangover. Even better, its potent juice also helps promote cardiovascular and digestive health.

Historically, açaí has been a predominant staple food of Amazonian Brazil; it represents approximately 30 percent of northern Amazonian caloric intake. Studies show that consumption of açaí in the principal port city of Belém is twice that of milk. Increased demand in Brazilian cities for traditional Amazonian products—like açaí—followed massive rural-to-urban migration from the 1980s through the

present. In northern Brazil, where the fruit is native, the thick liquid is eaten pure, as a complement to

traditional fish and manioc dishes. Since 1990, açaí has become popular in other parts of Brazil and the world, touted as an energetic health drink. Savvy marketing strategies have adapted this practice for the urban Brazilian; açaí is now consumed as a sort of smoothie-meets-ice-cream snack food, served in a bowl with sugar, ice and a tapioca topping. But in the United States, the power fruit is reduced to juice and sold in chic glass bottles: four dollars for ten ounces of this *en vogue* elixir.

Açaí berries grow in clusters on a palm tree native to seasonally flooded forests along rivers in South America. The pulp for most of these trendy new drinks comes from trees in the Brazilian Amazon; these same trees are the source of heart of palm, a tart, white vegetable. But, unlike açaí, harvesting heart of palm requires the killing of the entire tree. Intensive exploitation in the sixties and seventies resulted in a crash in heart of palm prices, mirroring the boom-and-bust natural resource cycles common in the region.

During the last 25 years since the crash of the heart of palm industry, a process coined "açaização" has resulted in increasing importance of açaí agroforestry in the region. Under an agroforestry regime, açaí is grown along with other traditional agricultural crops, such as cacão, to reduce the ecological and economic risks associated with monoculture. Açaí agroforestry is now a main agricultural activity of rural northern Amazonian residents, and production of açaí has increased sixfold in the past 15 years due to increased planting and management. Because of agroforestry's multi-faceted approach, açaí producers have a range of viable resources to draw on for sustainable livelihoods, should a crop fail or bust due to external market forces.

Due to the persistence of açaí palms within forested landscapes, the feasibility of

açaí extraction with simultaneous forest protection is potentially a win-win strategy for conservation and development planning in the Amazon. Perhaps açaí is the beacon of hope that lovers of sustainable industry have been waiting for: good for the local ecosystem, good for the local economy and delicious. Private companies, local governments and environmental NGOs are working together to develop sustainable protocols for production, marketing and integrated management techniques that will provide significant economic benefit to producers over time, as well as conserve valuable Amazon forests in the region.

In addition to providing nutrition, energy and a new way to look at food production and conservation, açaí juice is also thought to bring a whole new power to the human body. In Brazil, the sexy snack is advertised as "the natural Viagra," bringing with it what the Brazilians call "*força sexual*." What's not to love? ♪



Açaí berries
Photo courtesy of Sambazon®



Açaí berries on the tree
Photo courtesy of Sambazon®

NANOTECH

SCOTT LAESER

Sometime in the future, instead of white blood cells fighting an infection in your body, doctors might inject tiny nanorobots into your bloodstream to track down the culprit. A cancer, for example, might be tagged by a nanoparticle that the injected robots will recognize and destroy on sight. While such an application of nanotechnology remains conjectural, the age of nanotech has in many ways already arrived. Nanomaterials are already widely used in everyday life, occurring in clothing, cosmetics, televisions, computers and even chocolate chewing gum. Their use is predicted to grow rapidly in the coming years to a \$2.4 trillion industry by 2014, and applications like the one described above are becoming an increasingly real possibility.

The prefix nano- refers to something one-billionth the size of a base unit of measurement. To give an illustration, a nano-United States would be the size of just 1.4 New York city blocks! The smallest nanomaterials are about 1/10,000 the diameter of a human hair, smaller even than the individual cells in the human body.

Nanomaterials are synthesized from a wide variety of metals, ceramic materials, polymers and even carbon. Any substance that demonstrates new properties at different sizes—and this encompasses most forms of matter—is potentially useful at the nano-scale. Gold, for example, which has traditionally been valued for non-reactivity and longevity, becomes a much more reactive element at the nano-scale and could have applications as a catalyst in chemical processes. In response to a growing appreciation of the potential of nanomaterials, the U.S. government has more than tripled the funding it provides for nanotech research and development through the National Nanotechnology Initiative since 2001 to about \$1.3 billion a year, and the private sector is injecting billions of additional dollars into bringing nanotechnology to the marketplace.

A few industries are already employing nanomaterials on a commercial scale, but as these materials become better understood, their applications will spread. The performance of glass, eyeglasses, clothing and computer hard drives has already benefited from ultra-thin coats of nanomaterials, and cosmetic manufacturers employ nanomaterials widely in sunscreens to help block harmful UV radiation. In the next few years, the NNI predicts that nanomaterials will expand into solar cells that can be embedded in roof tiles, car tires that last longer and provide increased skid resistance and especially into the healthcare field, where nanomaterials could help with advanced drug delivery systems and with diagnosing diseases like cancer. Finally, the potential of applying the durability, longevity and superior strength of nanomaterials to new weapons systems has the U.S. Department of Defense salivating. The military may soon be able to use electromagnetic guns that can fire projectiles at a velocity of up to 20 kilometers per second, five times faster than current technology allows.

Although opportunities abound for using nanomaterials to make life better, significant concerns remain. Applying nanomaterials to new, more powerful defense and weapons systems raises difficult ethical questions, and researchers and consumer health advocates are already worried about inhalation of nanomaterial particles, which can be far smaller than the smallest particulate matter regulated under the Clean Air Act. Indeed, the effects on the human body of these new particles remain poorly understood. Because they are so small, nanomaterials can penetrate the skin and other membranes that ordinarily help keep substances out of the human body,

and there are worries that once inside, they might even be able to penetrate individual cells. Additionally, little is yet known about nanomaterial interactions with the environment. A study from the Georgia Institute of Technology demonstrated that carbon nanotubes can remain suspended in river water for up to one month, raising the possibility that they could disperse over wide distances and interact with a wide range of substances and organisms.

Nanomaterials are already bringing great benefits to society and are poised to provide many more. But as in the past, businesses are proceeding without full understanding of the consequences of their commercial production and widespread environmental distribution. Everyone hopes nanomaterials will be safe—and many people insist that they pose little risk to human health—but this anti-precautionary approach to justifying the rapid expansion of the industry is eerily familiar to that applied in the conventional chemical industry during the twentieth century. There, many products initially touted for their benefits, such as a number of organochlorine insecticides, were subsequently discovered to have severe environmental and human health impacts and have since been banned internationally. Even still, the long-term effects of many pesticides, plastics and other commonly used industrial chemicals are not well understood.

As society continues to benefit from these revolutionary nanomaterials, concerned individuals simply have to wait and see whether they prove to be a technological miracle, a potential nightmare for health and the environment, or something in between. ☿

Welcome to The Journal

ANDREA THOMAS

The United States Department of Agriculture's Economic Research Service documented in its December 2006 Outlook Report the continually growing market for organic poultry and eggs in the United States. Customers state a multitude of reasons for their choice to go organic, most often citing their desires to avoid consuming growth hormones, a preference for chickens raised on an organic diet, and a hope that organic chicken is treated more humanely. An interview with the manager of one of the leading commercial chicken factories in the country revealed that non-organic consumers may be unaware just what is on their plate.

Many people do not know that Virginia's Rockingham County, located about 150 miles outside of the nation's capital, is the fifth-largest producer of poultry in the country. Large factory farms such as Perdue, Pilgrim's Pride and Tyson Foods all operate out of the small city of Harrisonburg, and the industry provides over 11,000 jobs, making it the crux of the county's economy. The chicken industry also affects the environment of the surrounding Shenandoah Valley more than any other industry in the county.

Bob Carey* is the complex manager at a national chicken company's satellite factory in Harrisonburg. Carey oversees all production at his plant, monitoring everything from the health of the chickens to the temperature of the slaughterhouse. Boasting nearly 30 years of agricultural experience, Carey is very knowledgeable about the chicken industry and happily accepted a request to be interviewed about his factory and its environmental impacts. During the interview, Carey discussed the inner workings of his factory, touching on everything from his views on immigration to the actual slaughtering of chickens. Most of what he disclosed is readily available information, but when he

began to discuss his factory's policies on byproducts and waste management, some very interesting information emerged.

Carey's interview was focused primarily on byproduct management, which he described in great detail. In his factory, parts of the chicken that are absolutely unusable, such as chicken feathers, bones and the last bits of meat left on the carcass that cannot be removed, are sent to a rendering plant. There, according to Carey, the poultry remains are heated to 140 degrees Fahrenheit, producing in the end both liquid animal fat and a poultry meal. "The animal fat typically is used as an energy source, being fed back to the next generation of chickens or cows or pigs," Carey related. "So the typical feed lot or house animal will eat some sort of animal-source protein and energy as part of its diet." The liquid energy that comes from a rendering factory is mixed with bakery byproducts (such as rejected crackers and cookies) and becomes chicken feed. In other words, all of the chicken in his factory are given a feed that contains the remains of an earlier generation of chickens.

The most alarming part of Carey's discussion was not necessarily this admission, but rather his claim that by feeding this "energy mix" to his chickens, he is helping the environment. "The bottom line is, the leftovers from beef processing and pig processing and chicken processing, there ain't enough landfills in the country if we don't recycle it. If we don't recycle it, what's going to happen to it? There ain't enough landfills. So not only is it practical from a standpoint of nutrition of the bird, you're saving landfill space and all that."

Does Carey have a point or is his logic warped? Though the practice of recycling chickens may be shocking to some readers, it is a commonly known

and accepted practice in the agricultural industry. According to Dr. William Heuston, former associate dean of Virginia-Maryland College of Veterinary Medicine at College Park, a public health problem would arise if all animals were put into landfills, because "dead animals are an ideal medium for bacterial growth." From Dr. Heuston's point of view, rendering is a necessary evil of sorts. Yet rendering facilities are not helping the environment in ways that Carey and others in the chicken industry claim.

The Earth Island Institute and The Union of Concerned Scientists both warn that many other materials, such as plastics from flea collars, hooves, spoiled plastic-wrapped meat and dead domestic animals (often including horses and euthanized animals) can be sent to rendering factories. Although the USDA requires that plastic be removed from all animals and meat before rendering, there is no way to monitor all rendering factories in the United States. In 1995, Van Smith of the Baltimore City Paper exposed the Baltimore Zoo's practice of sending carcasses to a local rendering factory, which also received "thousands of dead dogs, cats, raccoons, possums, deer, foxes, snakes, and the rest that local animal shelters and road-kill patrols must dispose of each month." Though this information is somewhat dated, Smith's words were cited in a 2005 court opinion reviewing the USDA's decision to relax its ban on importation of Canadian cattle.

Because the rendering factory that Carey's company contracts with is in the Shenandoah Valley, it is unlikely that it receives the same menagerie as the Baltimore facility. However, it may still be receiving diseased farm animals. In fact, when asked if avian influenza-infected carcasses are sent to the rendering facilities, Carey responded, "It's been done in the past." Allowing all of these materials into the rendering plant inevitably releases toxic

* Name has been changed

ungle

waste, a result that clearly does not benefit the environment as chicken industry experts claim. In addition, these rejected meat products and animal carcasses are being fed to Carey's chickens, which not only presents possible dietary problems for his chickens, but also risks continuing a cycle of disease. In fact, this same process is considered to be a large component of the Mad Cow Disease outbreak in the United Kingdom, and a similar problem with chickens could develop in the United States if the industry is not more cautious.

If disposing of chickens in landfills is a biological threat, are there ways besides rendering to dispose of chicken carcasses? The Arkansas Livestock and Poultry Commission is currently trying to make composting chicken carcasses a standard operating procedure in state chicken factories. Carey referred to this practice in his interview as well, and it seems to be the most environmentally friendly of the available options for chicken carcass disposal. Composting chicken carcasses not only prevents toxic waste from being produced at rendering facilities, it also provides a solution to Carey's landfill problem and fertilizes the environment. Unfortunately, composting chickens safely is a labor-intensive process. Because of time and money constraints, most chicken factories opt to send their chickens to rendering facilities out of convenience.

Carey did reveal that there are other uses for the liquid chicken fat energy mix resulting from rendering, including acting as fuel for boilers. He claimed that the fuel burns cleaner than diesel, and is already starting to be used by many chicken factories. Carey further elaborated on the environmentally conscious uses of this energy source, discussing a new program within his company that focuses entirely on renewable energy. This project will not focus on greening the plant per se; rather,



DE-BEAKING CHICKENS • SUE COE

it will be focused on finding new uses for the chicken energy that comes back to the plant from rendering facilities. This project seems a very convenient move for the company. "I mean you just can't imagine how much poultry fat our company produces, and it basically goes into animal feeds now," said Carey. Hopefully, his factory will begin to envision its chicken energy byproduct as an alternative fuel resource and not simply as a necessary component to chicken feed. For there are certainly sources of protein for chickens besides meat of their own species, which may also contain toxic waste and disease.

Although the company Carey works for clearly has some unsavory practices, his industry is critical to the economy of the Shenandoah Valley. Keeping this in mind, it makes more sense to effect feasible reforms

on these factories than simply to shut them down, and this tactic has been successful in the past. Ten years ago, water chemists traced a large percentage of pollution in the Chesapeake Bay to the Shenandoah Valley's chicken waste; after the EPA became involved, this problem was improved. These factory farms are capable of changing, and it is important for citizens to become educated about the practices of these companies in order to push for people's health and safety to be valued more than the corporate bottom line. Until that day, purchasing organically fed chickens and their eggs is not only environmentally conscious, but also ensures that your meal will be free of the toxins and diseases sometimes present in chickens raised and slaughtered on commercial farms. ✕

FRONTIERS OF GLOBAL ENVIRONMENTAL JUSTICE

OBIDIMMA EZEZIKA



(From left to right): Batoma, Lavie, Issouf, Ba, Bai, Mahawa and Papee, all cousins in the Konte family, in their cotton field in Karangana, Mali
Scott Berendt

Last year, toxic waste dumping in Côte d'Ivoire brought to the world's attention the unequal distribution of environmental damages on a global scale. According to the United Nations News Centre, the Côte d'Ivoire incident occurred when a "ship unloaded 500 tonnes of petrochemical waste into a number of trucks which then dumped it in at least 15 sites around Abidjan, the West African country's largest city with about 5 million inhabitants," killing eight people and leaving 78,000 people seeking medical attention. Kofi Annan, then-U.N. Secretary-General, noted after the incident that the world "needs to be careful that the developing world, the poor countries, do not become the dumping ground for this type of waste."

The problem, however, is that Annan's plea might be coming a little too late, as these countries appear to have already assumed the role of repository for the developed world's waste. Dr. Kim Jung-Hoon, chairman of the International Committee of the Citizens' Movement for Environmental Justice, notes that the transboundary movement of hazardous waste still occurs and is indeed a violation of the environmental rights of developing countries.

Why do incidents of this nature continue to occur? Do they signal future trends in global environmental justice? Former World Bank President Lawrence Summers foreshadowed the current dilemma in a statement made 15 years ago: "[T]he economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that."

Look at the headlines today: "India, toxic dumping ground"; "Bangladesh becoming toxic dumping ground"; "Asian countries worried about toxic waste trade"; "Cambodia fears over toxic waste dump"; "Investigations continue into Paraguay toxic waste scandal."

The interconnections between global environmental problems and social inequities are becoming increasingly apparent throughout the world, and it is from these interconnections that the concept of global environmental justice emerges. The global environmental justice movement

is predicated on the idea that people everywhere have a right to live in a healthy environment—regardless of their nation's geography or GDP—and a responsibility to refrain from creating environmental problems that will harm people's health elsewhere in the world. Toxic waste generated in industrialized countries and dumped in developing countries with less stringent environmental standards provides one graphic example of environmental injustice.

It was scandals similar to the one in Côte d'Ivoire that led to the promulgation of the Basel Convention on the Control of

African, Caribbean and Pacific countries—such as the Bamako Convention and the Lomé IV Convention—have been negotiated subsequent to the Basel Convention to remedy its loopholes. Despite these efforts, toxic dumping, both documented and undocumented, continues to occur, with the Côte d'Ivoire incident a case in point.

As damaging as toxic waste dumping has been in the developing world, some environmental justice advocates and scholars think that this may not be one of the foremost global environmental equity challenges in the new century. Climate



HICKERS • SARAH RECORDS

Transboundary Movements of Hazardous Wastes and Their Disposal on March 22, 1989. This treaty was designed to eliminate the transfer of hazardous waste from developed countries to less developed countries. The ultimate success of this treaty, however, remains to be seen. The touchstone for judging the success of any treaty is to examine its outcome from the perspective of those the treaty was designed to protect. In this case, from the perspective of the least developed countries, the treaty has fallen below expectations; additional treaties from

change in particular has created growing concern over its inherent injustice: Poor and vulnerable nations and regions of the world that have contributed least to global greenhouse gas emissions will experience the brunt of climate change and sea level rise.

"Concerns such as climatic injustice are presently and will most certainly be at the forefront [of the global environmental justice movement]," says Robert Bullard, Director of the Environmental Justice Resource Center, "and these are the challenges the world will be facing 50 to 100 years from now."

Many environmental justice scholars, such as professor Amity Doolittle, director of the Tropical Resources Institute at Yale University, affirm that climate injustice will be a leading concern in decades to come. Doolittle points to the fact that climate change is connected to Western consumption, and it is the extent to which Western consumption is lessened that will determine the severity of environmental justice issues such as climate injustice in coming years.

Luke Cole, an environmental justice and civil rights lawyer in San Francisco and director of the Center on Race, Poverty and the Environment, agrees. "Climate change has to be the number one problem in this century," says Cole. And Cole speaks from experience: He has represented communities that have been forced to move from their ancestral lands in Alaska because of global warming. "These impacts are more on people of color and poor people than they are on whites and Europeans," he says. "If you look within the United States at where you are having climate change impacts, native Alaskans are really feeling it right now."

MEDUSA • SARAH RECORDS



access to clean water is becoming a pressing global environmental justice concern. According to U.N. Development Programme reports, almost 20 percent of the world lives without access to clean water. Professor Bullard notes that the problem of water pollution and inadequate sanitation is a key factor leading to poor overall health in numerous developing

around the world. They are not doing it out of the goodness of their heart. They are doing it because they are expecting to make money. When major U.S. multinationals are trying to make money by providing water to developing countries, that is a recipe for conflict and it is a recipe for those developing countries getting screwed."

Although climate injustice and water privatization are bound to be hot issues throughout the coming century, the most pressing global environmental justice issues of the future may originate in the realm of genetically-modified organisms or even nanorobotics. "I think one of the new issues 50 years from now is going to be the impact of genetically-modified organisms, because between now and then we are going to have some major disaster with some GMO and the environmental consequences are going to be profound," says Cole.

The track record of continued illegal toxic waste dumping in developing countries lends credence to the concerns about the GMO and nanotech arenas. Lax regulatory and enforcement protocols in these countries make it relatively easy for illegal toxic waste dumping to go ahead unabated with little outcry except when a terrible

incident occurs, as happened in Côte d'Ivoire. It is these same lax regulatory enforcement regimes that also make it possible for untested technology to enter into developing countries.

Compounding the problem of unregulated entry of GMOs and nanotech materials into developing countries is the fact that countries in the global South, especially the poorest ones, are less prepared to deal with the environmental consequences. "A number of countries in the South . . . are fighting the introduction of genetically-modified crops. . . There are fewer kinds of protection, as you saw in this whole disaster/tragedy in Ivory Coast with the dumping of the toxic waste," says Cole. "Somebody could do the same thing with a GMO and it will just race through the population. You have less

Every day, we see the negative impact and disparate effects of climate change on people of color and low-income people, making it a crucial environmental justice issue, both domestically and abroad. Some small island nations in the Pacific are literally going to disappear because of sea level rise. Millions of people—those relegated to high risk areas due to the lack of resources to move elsewhere—will have to vacate their coastal residences in southern Asian nations as sea levels rise, especially those living in low-lying areas in Bangladesh and India. Furthermore, future generations will likely bear the largest impact of the climate change caused by past and present generations in developed nations. In addition to the issue of climate injustice,

countries and poor communities around the world. The World Bank continues to encourage countries around the globe to privatize water access, promoting privatization on the basis of business efficiency. With the higher water prices that often accompany privatization, there is a danger that it may actually lead to diminished access for the poor. In Tanzania, "the water supply services in Dar es Salaam and in the neighboring places have deteriorated rather than improved since [a private] firm took over some two years ago," says Tanzania's Minister of Water Edward Lowassa.

"With the privatization of water around the world, you're going to have conflict over water," says Cole. "Big companies like Pepsi-Cola are investing majorly in water structures

Are current commitments and efforts on environmental justice issues around the world substantial enough to address the most pressing issues?

[developed] infrastructures to deal with it, less security apparatus to prevent it in developing nations than you do in the First World. The fact that I'm predicting is that there is going to be a catastrophe from GMOs in the next 50 years. I'm also going to predict that it is going to be in a Third World country."

It is easy to paint a picture of how a catastrophe could occur in light of the rate of scientific breakthroughs and the rapid advancement in applied science research. The export of untested genetically-modified organisms from industrialized countries, where regulations are stringent, to developing countries, where there is lax control, might seem impeccable to former World Bank head Summers. However, suppose that it wasn't toxic waste being exported, but application of a fully engineered oil-eating microbe. The first patent application for a genetically-engineered microbe that loved to eat crude oil was filed in 1971. It was an unusual application at the time. A microbiologist had pieced together different extra-chromosomal elements that contained genetic instructions for degrading the various constituents of crude oil, and the resulting bacterium was highly efficient at breaking it down. In 1980, the patent was awarded for the microbe.

Despite the promise of this organism in eating up crude oil, it was not used in the most ecologically devastating oil spill in U.S. history, the Exxon Valdez. Why? Because no one was sure what the microorganism would do once its job was over. Introducing genetically-modified microorganisms into the environment without precautionary measures is frowned upon until extensive research on their interactions with the natural environment has been done and proven *safe*.

Although conjectural, a future scenario might look something like this headline: "Oil wells in West Africa disappearing rapidly due to an as-

yet-unidentified biological phenomenon." How could this happen? An international research team approaches an oil-producing African nation with devastating oil spills, like Nigeria, saying that it could tackle their worst oil spills through the use of engineered microbes. It might be difficult for such research companies to conduct their tests in industrial nations due to tighter regulatory regimes. The research team goes ahead with its testing and it gets out of hand—the microbes begin to decimate the country's oil supplies. Is this environmental injustice, where poorer countries are exploited for their lack of resources, their poor regulations and their corruption? According to Cole, such concerns are going to be at the forefront of environment justice issues, especially with advancements in biotechnological research.

This same trend could also be seen in the testing of nanotechnology research in poorer countries. The risk in this case is that nanorobots, once designed, could have self-replicating capabilities, functioning in an autonomous manner. As such, they could quickly change their immediate natural environment into replicas of themselves, with devastating impacts.

The burgeoning wave of environmental problems sweeping our globe, from the pollution of the Niger Delta in Nigeria to the melting ice in the Arctic, unmasks the deep issue of environmental justice on a global scale. The core environmental questions emerge: Are current commitments and efforts on environmental justice issues around the world substantial enough to address the most pressing issues? Will other issues that are currently receiving little attention come to light as environmental crises decades from now?

The Citizens' Movement for Environmental Justice recently made a proposal to the United Nations for the creation of a new international environmental organization. The group states that: "[E]nvironmental issues between society and nature can be considered extensions of inequality issues, particularly racial, regional

and sexual discrimination. Just as social and economic justice is a systemic resolution to issues related to society, environmental issues can be resolved from the viewpoint of justice."

Daniel Esty, professor of environmental law and policy at Yale University, emphasizes that an important obstacle to be overcome is the ability of the international community to reach a consensus on what is "fair" and what is "practical" in dealing with environmental issues such as climatic injustice. "Agreement on the core values on these issues is going to be the major obstacle," he says. For example, how far is the international community willing to apply the "polluter pays" principle or the "beneficiary pays" principle in dealing with global environmental justice issues like climate injustice? Professor Doolittle proposes a total paradigm shift in the West that could come through environmental education: "To be really different, someone needs to reeducate and refocus Americans on global issues of local distribution of wealth and consumption."

Professor Bullard, speaking about the way forward, highlights the importance of long-term financial commitments. "Most of the money [spent internationally] is devoted to terrorism. If we're really to address [poverty eradication and water quality], we are to keep them at the forefront. What is needed is a timetable and a commitment in relation to concrete goals. A 25-year plan, for example. The level of commitment that we are currently bringing to the table is sure to make these problems worsen."

The ability to foresee and preempt future environmental justice problems, and thus make proper adjustments today that would address these challenges, is not only wise but also an expression of concern for inter-generational justice. As President John F. Kennedy rightly remarked, "time and the world do not stand still. Change is the law of life and those who look only to the past and present are certain to miss the future." ❧

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B O T H

L I V I N G I N S Y R I A , I M A G I N I N G P A L E S T I N E

Mohamad Chakaki

In an under-furnished classroom, on a stiff wooden bench, I sit among the third generation of Palestinian refugees. It is the first day of summer camp and these are the children of the Neirab Refugee Camp. Do not be fooled by its name. After fifty-nine years, Neirab Camp—which lies on the outskirts of Aleppo in northern Syria—looks more like a township than a tent-site. With privately owned farms hemming it in on one side and the Aleppo International Airport on the other, the camp has been growing into itself for decades. It is very urban and very dense.

I traveled to Neirab hoping to have a hand in improving the condition of the camp by contributing to the Neirab Rehabilitation Project, one of the very first efforts at camp upgrading by the United Nations Relief and Works Agency for Palestine Refugees. My work would entail assisting on a children's summer camp program and, as part of the rehabilitation effort, developing a concept paper for the greening of Neirab Camp. As a graduate student with a focus on the urban environment and a passion for environmental education, I could not have asked for a better assignment.

NEIRAB'S ROOFTOPS

Neirab Camp is best seen from its rooftops. Official visitors, particularly dignitaries and representatives of donor countries, are always taken to a certain spot in order to view Neirab from above. It is atop the girls' elementary school, looking north out onto the camp. With the exception of the sides of a few buildings that rise above one or two stories, all that can be seen from this spot are rooftops. Neirab Camp is that dense. There is virtually no open space in the camp, save the narrow

alleyways and small streets. A few of the houses have small courtyards—if they can be called that—with a fruit tree or a grapevine growing in the corner. Still, I imagine one could hop and climb from roof to roof in Neirab, weaving one's way on its concrete canopy from beginning to end.

At the heart of Neirab Camp lies the barracks area. Practically indistinguishable from the rest of the camp today, this set of unoccupied Allied army barracks is where the refugees took shelter when they first arrived at Neirab in 1948. There was once a good deal of space between the buildings, and a wide road that ran down the center of the camp. All that is gone now.

Very early on, the refugees began to extend their meager dwellings in a slow, almost organic process. First, curtains went up to partition the common space in the barracks shared by several families. These curtains turned into makeshift dividers and, over time, into more permanent walls. Outside the buildings, refugees erected fences to enclose plots of land they claimed for small gardens and outdoor kitchens. These fences soon turned into the walls of

additional rooms that the refugees built, in the place of their gardens, to accommodate their growing families. In this piecemeal manner—out of, around and on top of the original barracks—grew Neirab Camp.

Today, at 89 persons per 1,000 square meters, the density of this core barracks area is astonishingly high. By way of comparison, the population densities of the Gaza Strip, New York City and Mumbai are 3.8, 10 and 29 persons per 1,000 square meters, respectively. Neirab allegedly has some of the worst—if not *the* worst—living conditions of any Palestinian refugee camp in Syria. The worst-off houses, often a mere room or two in size, are intolerably hot in the summer and bitterly cold in the winter months. Moreover, with makeshift, dilapidated roofs, insects are a plague in the hot season and leaks are a constant battle during the wet winters. It is not unheard of to find an extended family of ten or twelve living in two rooms. There is no privacy or personal space in a setting such as this. Instead, there are very real and well-documented psychological effects that take their toll on children and adults alike.





POSTCARD OF A REFUGEE CAMP, 1950s

THE NEIRAB REHABILITATION PROJECT

It is this astounding population density, lack of open space and the substandard housing conditions at the core of Neirab Camp that led UNRWA to initiate the Neirab Rehabilitation Project. The project aimed to reduce the density in Neirab's barracks area by moving 300 families to newly constructed houses in a nearby Palestinian refugee camp, Ein el Tal. The resulting open space—after the demolition of substandard housing, of course—would be redeveloped into two and three-story housing units for the 918 families remaining in Neirab's barracks area. The plan also called for carving out a limited amount of public space from the camp's rooftop canopy.

My assignment on the project was to develop a set of environmental guidelines to guide the project management in the urban redesign of Neirab's barracks area. This was all very new to me: refugee camp redevelopment. I had taken graduate school courses on the urban environment, and on the theory of urban design. But I had no practical experience in anything like urban planning or urban redevelopment.

Many of my colleagues at UNRWA's office in Aleppo were refugees living in Neirab Camp. So I began by asking them a lot of

questions. I asked what they thought of the environmental conditions in Neirab and what improving them could feasibly entail. I cringe at how naïve I must have sounded to my colleagues early on. The more time I spent in Neirab, the more I realized that pulling off my assignment—and, indeed, the entire project—would be much more challenging than I had expected.

NOT MOVING

It wasn't very long before I noticed the first obstacle the project was facing. I spent my first day in Neirab Camp with the project manager and a refugee colleague, visiting families that had signed up to be among those to move out of Neirab to Ein el Tal. As we moved from house to house interviewing the extended families so common in camp households, it became clear that the decision to move was not only difficult to make, but also divisive. Not everyone in these families was in agreement about leaving Neirab.

In some families it was an elderly grandmother that refused to move, insisting on staying behind in the house in Neirab while everyone else left. For other families, it was the father that would have no part in his adult sons'

decision to move out. They and their small children could leave, but he would not.

By the end of that first day, it was clear that UNRWA was having considerable difficulty recruiting 250-300 families to move out of Neirab Camp, as the project's plans dictated. What's more, if extended families began to split over the decision to move out of Neirab, as many of them seemed to be doing, then UNRWA's aim of vacating enough houses in the camp to provide better housing or create open space would fail. It was of no use to UNRWA if part of a family decided to move to Ein el Tal. Entire houses needed to be handed over for UNRWA to create more space in Neirab.

But why were so many of the refugees refusing to leave Neirab Camp? Knowing full well that they would be moving to newer, more spacious and more adequately constructed houses seemed to make little difference for most refugees. A close examination of early project documents reveals that this reluctance to move out of Neirab should not have come as a surprise. As early as 2001, UNRWA undertook a survey of Neirab residents aimed at, among other things, assessing "the extent of interest amongst the barracks inhabitants in the possibility of voluntarily moving to



Two men squeeze blocks through an alley
Thomas Ramsler

Ein el Tal." The results revealed that three-quarters of the refugees surveyed (76%, to be exact) were either hesitant about moving to Ein el Tal or did not want to move at all. In other words, only 24% of the refugees surveyed in 2001 expressed any interest in the project and in moving to the other camp. By 2005, the summer I spent in the camps, UNRWA was having difficulty convincing an even smaller number of refugees to move out of Neirab.

I had spent only a few days on the project and a substantial obstacle to its progress had already surfaced. It was still unclear at that point why so many of the refugees resisted moving out of such difficult living conditions in Neirab Camp. Things would become more clear over the next few weeks in Neirab and Ein el Tal, particularly when the summer camp programs I was to help coordinate got under way. Only as I began to interact with their children did I start to gain insight into what the refugees themselves truly thought of their lives and living conditions within the camp.

THE VISION OF PALESTINE

That first day in the classroom, the children and I were listening to a community elder—a retired teacher—tell their story, their history. It was the story of how they went from their bountiful farms and villages in northern Palestine to this isolated camp in northern Syria. The elder spoke of a rich and verdant Palestinian landscape: In the hills, there were forests of pine and cypress, and endless orchards of olives. All of this was their playground. Along the coast there were groves of palms and citrus, to say nothing of the fruits of the sea. The Mediterranean itself was their pool. This was their Palestine.

It was all left behind in 1948—at the outset of the Arab-Israeli War—as they were forced to flee their homes and villages in what has come to be known as *al-Nakbeh* (literally, the catastrophe). The refugees of northern Palestine first crossed the border into southern Lebanon, and then traveled, some by land and others by sea, to Beirut. There they were boarded onto trains, in boxcars unfit for people, destined to land in cities

and towns they hardly knew existed. Their journey was difficult and dehumanizing. The very last of the refugees reached Neirab Camp outside Aleppo—the farthest camp from Palestine—to take up what has been their temporary residence ever since. This is the narrative of a people in exile.

I knew this story. I had read about it, watched it dramatized on television, and even had it recounted to me before personally by an old man who'd lived it. Yet this time, as I sat amongst those children,



Cookie-cutter homes against the sky
Mohamad Chakaki

Palestinian refugees themselves, it seemed different. It felt as if we were listening to much more than just their history. "Each one of you has a house in Palestine, trees in Palestine, and land in Palestine," the voice of the old teacher rang out. These children were at least the third, and in some cases the fourth, generation of Palestinian refugees to learn about their homeland in such a setting. They dream of and yearn for a Palestine that they know only through the stories their elders tell them. Moreover, the memories of their grandparents' childhood in the idyllic Palestinian countryside stand in stark contrast to the harsh reality of the overcrowded urban refugee camp they dwell in. Neirab Camp is an almost uninterrupted slab of concrete and asphalt.

There is an intriguing environmental implication to this vision of Palestine: The only nature worth having is not in the camps, but back in Palestine itself. The logic that this vision and its implications beget is powerful. "If we are going back to beautiful, bountiful Palestine," ask the refugees, "then why should we care about the conditions we live in here?" In Neirab Camp this has been on the minds of refugees for almost 60 years now. It seemed that this logic could actually lead to a

depressed environment in the camps—not that the refugees intentionally produced Neirab's harsh living conditions. But their vision of a paradisaical Palestine and their desire to return to it seemed to keep them from even considering any improvement in the camp's environment. While this logic makes for a compelling argument for why the refugees were so reluctant to leave Neirab for better living conditions in Ein el Tal, it does not do justice to the depth of the Palestinian refugee identity and their experience in the camps

ROOTED IN BOTH

The fact that the refugees were displaced from Palestine does not preclude them from continuing to experience it as a

The very tenuousness of life in exile seems to demand that refugees anchor themselves to something stable, something firm: their deep identity.

meaningful place. Clearly, the refugees do live in their vision of Palestine.

But they also live in the camps. And over decades—almost six of them already—the refugees have also managed to imbue their camps with a great deal of meaning. As a refugee colleague from Ein el Tal pointed out to me when I commented on the housing conditions in the camps, what I saw as imperfect and unfinished buildings actually represented something much grander. "These houses that you all [outsiders] find inadequate," he told me, "we built with our very hands and we take great pride in them."

Moreover, the histories of both Neirab and Ein el Tal show that the first refugees greened the camps through their own efforts. Within the first few years of their arrival, the refugees turned the bare red earth of Neirab green with small gardens that they cultivated outside the barracks. "We turned the rock at Ein el Tal," some of the elders of that camp told me, "into a garden paradise." Thus, greening the camps does not, in and of itself, seem to be antithetical to the refugees' vision of Palestine or their Palestinian identity.

There was more to the identity of these refugees than simply an abstract experience of a Palestinian landscape, no matter how vivid or how meaningful that experience was. In the 59 years that Palestinian refugees have lived in Neirab, they have succeeded in making the camp a very meaningful place. The refugees had their roots in Palestine, but they were now also rooted in Neirab. Is there a reason that they could not be rooted in both?

Liisa Malkki, an anthropologist whose research focuses on Hutu refugees from Burundi, calls into question the dominant notion that culture and identity are rooted in one place. "To plot only 'places of birth' and degrees of nativeness," writes Malkki, "is to blind oneself to the multiplicity of attachments that people form to places through living in, remembering, and imagining them." In other words, identity is shaped by all the places we have lived or imagine ourselves living in. It is not difficult to see how this relates to the identity of refugees, Palestinian or otherwise. More generally, this idea of being rooted in multiple places seems all the more relevant in a world where very few of us spend all of our lives in any one place.

ATTACHED TO NEIRAB CAMP

It was becoming clearer that the refugees' reluctance—or, depending on the case, outright opposition—to moving out of Neirab Camp had more to do with their desire to stay in Neirab than any inherent dislike of Ein el Tal. That their living conditions would be significantly improved by moving to Ein el Tal seemed to matter much less to the refugees than UNRWA—and, quite candidly, I—expected. Simply stated, the refugees had grown attached to Neirab Camp. The results of that early survey of Neirab barracks residents, while quantitatively convincing, lacked the qualitative nuance to explain why three-quarters of the refugees surveyed were resistant to moving out of Neirab.

Nell Gabiam, a fellow volunteer on the Neirab Rehabilitation Project and a doctoral student in anthropology at UC Berkeley, conducted a survey of Neirab barracks

residents in the fall of 2005, focusing on how these barracks area residents felt about their living conditions and the possibility of moving out of the camp. The refugees' responses to Nell's questions illustrate just how attached they are to their homes in Neirab and to the camp itself, more than any quantitative results could capture. Living conditions in Neirab may be harsh, but the camp was home. For the oldest refugees, the ones that lived through the *Nakbeh* and the exodus from Palestine, Neirab had been home for 59 years now. And for the rest of Neirab's residents, the camp is the only home they've ever known.

"I was born in this house," says Abeer, a housewife who shares a one-room house with her husband and their two adult children: "I got married but returned. Despite all the bad conditions, I love it. I don't want to go out of [it]." Abeer's response reflects a deep emotional attachment on the part of refugees to their houses and, by extension, their camp. Mohamad K., another resident of Neirab, admits that what keeps him in the camp—despite the crowded and unhealthy living conditions—are the social relations: "I wish there were something else to love."

Nell refers to these social relations as Neirab's "rich social fabric." The richness of this social fabric appears to be intimately related to the camp's crowded conditions. In other words, the camp's greatest flaw, the density of its urban form, gives rise to its strongest asset, its rich social network. Walking around the camp often felt like being in both a mini-city and a large village all at once. You could find just about anything in the camp, from fresh fish to spare tires

and DVDs. Yet, very much like a village, everyone seemed to know everyone else.

LESSONS FROM THE OLD CITY

Urban refugee camps as dense as Neirab, with their narrow streets and winding alleys, remind me of old cities in the Middle East. These old cities, from Morocco to Syria, are also conspicuously lacking in public open space; their enchanting labyrinths of narrow alleyways attest to this. Open space, in these cities, is reserved for the private realm; that is, the interior courtyards of private homes, from the most modest to the palatial.

I spent a great deal of my time while in Syria trying to understand this by visiting the old cities of Damascus and Aleppo, and observing how Syrians use open space. A friend of mine, Naeem Zabeeta, happens to be the architect in charge of the preservation and restoration of the Old City in Damascus. Naeem helped me understand that, historically, residents would leave the dense Old City and the stresses of urban life to enjoy time in the countryside just outside the city's walls. This escape still occurs today, though instead of the historic countryside, the residents now pass through the ancient stone gates to seek out the scattered parks and public spaces of modern Damascus.

Similarly, open space may be lacking within Neirab, but it is readily available and accessible outside of it, whether it be the farms and fields that surround the camp or the gardens and parks in the city of Aleppo. For many of the refugees, the problem isn't just a lack of physical space in Neirab Camp or restricted access to public space outside of it. Instead, the problem lies in the refugees' psychological restriction within the boundaries of the camp. They do not feel welcome in Syria. And, to a certain extent, they are not. They are treated as outsiders, not as people born and raised on Syrian soil.

LEVELS OF IDENTITY

Despite their status as outsiders within the country they inhabit, the refugees do possess a hybrid Palestinian-Syrian

identity, albeit a subtle one. The fact that many of the residents of Neirab refused to leave behind their established social and economic networks reflects this dynamic. After fifty-nine years, the camp—just a small piece of land in northern Syria—had become home. It is not difficult to imagine that there would be different levels to the Palestinian refugee identity. But this part-Palestinian, part-Syrian identity is not one you'll usually hear the refugees discuss.

"There is . . . a particular sense of achievement," writes Edward Said in his *Reflections on Exile*, "in acting as if one were at home wherever one happens to be." Said, a literary theorist and unflinching Palestinian activist, was born in Jerusalem, raised in exile in Egypt, and received his higher education in the United States. He was also a gifted pianist, so he likens this multiple sense of awareness of people in exile to a piece of music having two or more independent melodic lines: that is, contrapuntal. "Both the new and the old environments," writes Said, "are vivid, actual, occurring together contrapuntally." It is from this contrapuntal experience of place that the hybrid identity of Palestinian refugees emerges.

My first recognition of this hybrid identity was only brought about by my unfamiliarity with both *Falasteeni* (Palestinian) and *Halabi* (Aleppian) dialects of Arabic. Refugees of all ages still speak with a distinct Palestinian dialect. Confusion would set in when I spoke with younger refugees, in their teens or early twenties, and they used a word or phrase that was unfamiliar to me. This was not an uncommon occurrence in Aleppo, because of how distinct the *Halabi* dialect is, but when I asked the young refugees whether the word was *Falasteeni* or *Halabi*, I was surprised to learn that their generation often did not know the difference. Certain *Halabi* words and phrases had simply become part of their general vocabulary. A hybrid *Halabi-Falasteeni* identity has indeed emerged over the course of decades living in Syria.

But this hybrid identity does not occupy a high place in the minds of Palestinian refugees. At the core, they are Palestinians through and through, and only Palestine is home. This is their deep identity. It is reflected in the vision the refugees have of their homeland, and in their cultural narrative. It is this core identity that surfaced when second or third-generation refugees, asked where they were from,



Author (far right) with students on the playground
Ali Bangi

replied with the names of villages in northern Palestine that may no longer exist.

Edward Said concludes *Reflections on Exile* by admitting that living "contrapuntally" in exile is a risky, nerve-racking endeavor. The original displacement from place leaves refugees exposed and unprotected, ever vulnerable to further displacement. Indeed, Palestinian refugees who took refuge in the West Bank after 1948 were forced into yet another exile after the Israeli occupation in 1967. Palestinian refugees in Kuwait following the first Gulf War and, more recently, in Iraq, have fared no better. The very tenuousness of life in exile seems to demand that refugees anchor themselves to something stable, something firm: their deep identity.

I sense, from my experience in the camps, that it is precisely this aspect of their identity that refugees respond from when they are pushed or under duress. Is this what was happening on the Neirab Rehabilitation Project? Were the refugees reacting with this deep identity because they felt pushed and pressured into moving? I think so. If that is the case, what would not pushing the

Imagine *that* for a moment, not feeling at home in the only place you know.

refugees actually entail? Can one speak to the hybrid identity Palestinian refugees seem to possess and, thus, garner more support and cooperation on sustainable development projects in refugee camps?

ROOM TO BE BOTH

I was not to learn the answers to these questions. My time in Neirab had come to an end. Leaving the camp and the refugees behind was weighing heavily on my mind. The fact that I could just pick up and leave, crossing cultural boundaries and international borders as if they were no barriers at all, seemed unfair given the refugees' circumstances.

I am both an American and a Syrian citizen, yet all the time I've ever spent in Syria on holiday or at work does not add up to even two full years of my life. Most of the

Palestinian refugees in Syria have not only lived there their entire lives, they have never left the country. Syria is the only place they know. Imagine that for a moment, not feeling at home in the only place you know.

Both the Syrian government and the Syrian people need to make the refugees feel more comfortable and more at home in Syria. The same is true for other refugee host countries like Jordan and Lebanon, though the political and demographic circumstances there—and thus their attitudes toward the refugees—differ markedly from Syria's. Contrary to the dominant political opinion amongst the Palestinian and Syrian leadership, making the refugees feel more at home in Syria will not affect the depth of their Palestinian identity.

The refugees will continue to live their vision of the homeland. They will always be rooted in Palestine. In a deep subconscious sense Neirab Camp is not home to these refugees and it will never be. For nearly sixty years it has been their temporary abode. It will always be temporary.

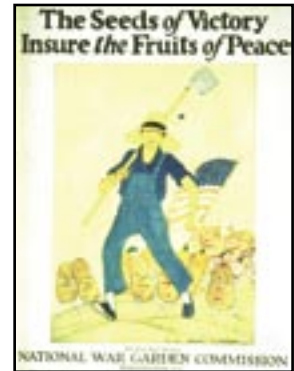
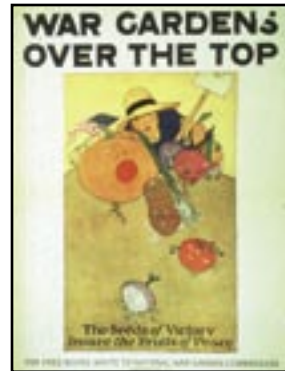
And yet Neirab Camp is also home. For nearly sixty years the refugees in Neirab have shaped that small piece of Syrian land, and been shaped by it. Their families and their memories are woven into the intricate social fabric that drapes the urban density of the camp. They are in exile, no doubt, but Neirab Camp is their home away from home.

People can be rooted in more than a single place. We need to understand that about ourselves, and about people in exile. What the Palestinian refugees living in Syria need most is to be accorded the right and the room to be rooted in both, Syria and Palestine. ✧



The roofs of Neirab
Thomas Ramsler

FOOD FOR THOUGHT



Images Courtesy of United States Department of Agriculture

Gardening to Victory

PETE RASMUSSEN

Today, the idea of the federal government issuing "How-To" pamphlets for "Growing Better Beets" or "Preserving Your Parsnips" is almost unthinkable. But there was a time not so long ago when food supply shortages combined with a war-indebted economy to create one of America's most prolific gardening campaigns: the Victory Garden movement. During World Wars I and II, the U.S. government heavily endorsed the planting of private gardens to subsidize the domestic food supply. The goal of the Victory Garden movement was simple: If Americans could learn to grow their own vegetables for household consumption, then precious industrially-grown food supplies could be sent to feed the troops abroad. "When I was seven months pregnant, I was out cultivating the rye in my front yard," recalls 90-year-old Maine gardener Carol Badgley. "During the war, everyone had victory gardens—it was the most patriotic thing to do."

The emergence of wartime Victory Gardens in the United States marks a chapter in the lengthy history of domesticated crop growth in North America. As early as 1500 B.C., indigenous agriculture from Mesoamerica reached the American Southwest, where Indian tribes planted America's first corn, beans and squash. Centuries later, European colonialists introduced new food crops. With the westward movement of the early pioneers,

simple gardens were an essential part of survival in America's rugged hinterland.

Today, agriculture in the United States comes in many forms, from commercial and industrial agribusiness to small local and organic farms, neighborhood community plots and home gardens. Although large-scale, commercial agribusiness dominates the agricultural sector in the United States, there is still an active community garden movement present today. Organized community gardening builds on the legacy established by Victory Gardens, reviving communities and transforming vacant lots into lush and nourishing community centers.

According to the American Community Gardening Association, the positive effects that gardens create within local neighborhoods are wide-ranging and diverse. The Association recognizes many benefits, including improving community cohesion, "stimulating social interaction, encouraging self-reliance, beautifying neighborhoods, producing nutritious food, reducing family food budgets, conserving resources and creating opportunities for recreation, exercise, therapy and education."

Some schools have embraced community gardening by providing students access to lessons found in the garden. "The garden looks beautiful, it smells great, it tastes like heaven," reflects Emily, a sixth-grade student at Martin Luther King, Jr. Middle School in Berkeley, California. "The

sounds are very calming, and the feel of the plants is wonderful." The school's Edible Schoolyard program integrates the organic garden into the school's curriculum and lunch program, using it as a learning tool and a means to provide healthy food for student lunches. "I learned to cook lots of different foods . . . and my mom wants me to cook something for her now," says Kent, a sixth-grader at the school.

The next step for the Edible Schoolyard is to provide information to schools nationwide in order to replicate for other youth this visionary food and gardening curriculum. The first Edible Schoolyard project outside of Berkeley is already under way at the Samuel J. Green Charter School in New Orleans.

From sowing the seeds of victory to giving students hands-on experience with making things grow, community gardening represents an important part of America's past and a growing opportunity for its future. things grow, community gardening represents an important part of America's past and a growing opportunity for its future. ♪

For more information about the community gardening movement and to find a community garden near you, please visit the American Community Gardening Association (www.communitygarden.org) or The Edible Schoolyard (www.edibleschoolyard.org).

BABBITT BREAKS IT DOWN

BRANDI COLANDER

Balancing Conservation and Development in the United States

*Bruce Babbitt, a long-standing public servant, recently visited Yale to discuss the environmental impacts of land use planning. Babbitt drew from his experiences as the governor of Arizona and as the United States Secretary of the Interior under President Clinton. I had the pleasure of talking with Babbitt about the views he outlined in his book, **Cities in the Wilderness**. The book describes his journey from "bewilderment to a clear vision" of effective partnerships between local and federal authorities in balancing development and conservation in the United States. Here, Babbitt looks more broadly at natural resource management, shifting his focus from dams to the larger issues of land use planning and building partnerships across levels of government.*

In *Cities in the Wilderness*, Babbitt argues that addressing the issue of land use planning is critical to bringing this clear vision to others. Using examples from his career, Babbitt demonstrates the unconventional nature of federal land use planning by contrasting it with the traditional notion that land use planning and implementation occur at the local level. In our interview, he observed that the "obvious way to get into this can be seen from the bottom up, by getting involved in local planning commissions, in watershed counsels, in land trusts and

grassroots groups which are beginning to look up and see watersheds and larger landscapes." However, engaging in planning at the community level will leave residents struggling to balance population demands and sustainable development as they attempt to be smart about land use.

To better understand Babbitt's framework for effective planning, I asked the former Secretary to define "smart growth." "The title [*Cities in the Wilderness*] was designed to get you to think of land use in two ways," Babbitt explained. "One on the urban side—smart growth, population growth and consumption. Simultaneously, you need to think of it from the outside towards the center and ask: What about the open spaces? How do we formulate land use plans that have real bite for protecting watersheds and open space?" Babbitt further proposed that there is a rift between traditionally inward-looking urban planning and landscape planning which has tended to focus on wilderness. "We need to think about bridging the gap," he said. "It is starting to happen. Landscape architecture used to be focused only on the built environment and immediate surroundings. Now they are looking at the nearby and the far away."

Cities in the Wilderness highlights Florida

and California as success stories with respect to effective partnerships between state and federal authorities, which Babbitt attributes partially to good timing and extreme natural events like hurricanes and droughts. I asked Babbitt whether or not he believed that we lost an opportunity to build a similar partnership after Hurricane Katrina in New Orleans. "Not entirely," Babbitt responded. "There is more bad news that is following in the Louisiana Delta which is going to force us to rethink the federal rules. New Orleans is basically on a track to reconstruction that could have been better with federal leadership."

Babbitt believes that federal leadership is required in rethinking how we deal with ecosystem changes that are inextricably linked to our use of land. "There are a million and a half people living outside of New Orleans in an area that will be underwater by the end of this century, and you can't protect them in a reasonable way with levees."

These million and a half people, along with countless others around the country, will be heavily impacted by climate change, which Babbitt identifies as "the overriding environmental issue of our lifetime, without any question." Given the intimate connection between climate change and energy dependence and generation, I asked Babbitt about his views on the future of energy in the United States. In particular, I inquired whether he thought that nuclear energy would become more prominent, and how new energy infrastructure could be incorporated into a national land use plan.

Babbitt responded that both renewable and nuclear energy need to be part of the plan, anticipating that cost and efficiency concerns will sort themselves out with a fair dose of market discipline. In terms of land use, Babbitt argued that "we should have a federal policy instead of letting

utilities build [plants] anywhere in any city that crosses their minds." For example, he states that "the federal government should be planning to locate thermal coal plants in those areas where sequestration has the most possibility of working."

I also asked Babbitt how the private sector fits into his idea of smart growth and our country's national land use vision. He explained that the national government has spent two hundred years subsidizing the private sector through infrastructure. He proposes an approach to the private sector called "conditionality"—conditioning federal infrastructures on land use plans.

Babbitt explained that the notion of conditionality could also be extended to highways, farmlands and Army Corps of Engineers projects, noting that such measures are beginning to manifest at the state level. In California, for example, these concepts have appeared in bond issues for transportation that have been tied to open space funding in an effort to increase voter approval. "The price from the environmental side is increasing bond money attached to conditionality," he said. "This [is] voter-driven conditionality as opposed to government/law conditionality, therefore we should first ask, what is the total framework in

I asked Babbitt whether or not he sees an opportunity for land use plans to incorporate infrastructure that is built in an environmentally sustainable manner, perhaps certified by the United States Green Building Council's Leadership in Environmental Energy and Design program. Babbitt responded that it is necessary to go a step further and invoke conditionality as a way of driving landscape protection. Highlighting the differences between green building and large-scale land use planning, Babbitt noted that "LEED is partially supported by the economics of energy conservation. It is one step ahead of the market. With landscape protection, there are voluntary examples [like] local land use trusts, but they work best when they are backed up by either tax credits or infrastructure conditionality in which there is some extra incentive." Babbitt noted that conditionality "has to have a degree of reality and restraint in order for it to work. If states would move towards land use plans which should include thinking of landscapes in terms of watersheds, that is a sufficient end in itself."

Throughout his book, Babbitt defines the scope of interest that the federal government should have with respect to land use planning. When asked what the limitations to this strategy were, he responded that as with any kind of planning, one has to articulate the proper relationships between federal, state and local authorities. Out of this process, one can find the limitations. "Land use planning on the larger scale does not say anything in detail on the urban form because it is not appropriate for schools and condo development to be managed at the federal level," he said. "It is the larger functioning landscapes. This is a limitation."

Babbitt's book offers a new way to think of land use in a rapidly changing environment, drawing on his wealth of experience in public service. Furthermore, his perspectives on cutting edge issues surrounding land use provide invaluable insight into our future as we continue to navigate through existing cities in the wilderness. ✧



Babbitt downs a dam
Mark Volkoff, International Rivers Network

"Conditionality essentially says, henceforth, for State X to get its 10 billion [dollars in] highway funds, the state has to produce a land use plan which protects open space," Babbitt explained. Given the federal government's lengthy history of private subsidies, conditionality with land use planning restrictions is an extension into the private sector of what has been taking place with federal infrastructure for years.

watershed protection and restoration that comes with it?" In saying this, the former Interior Secretary is pushing the envelope by taking into account the broader context of planning. Both watershed protection and restoration are components that must be managed at multiple levels of government. Finding the appropriate balance between the levels of government is what will ultimately lead to a coherent and effective land use planning framework.



UNTITLED • DIANA WAGNER

THE CA

FAUX NEWS: FAIR

Electric Cars Pick Up Speed

DINOSAUR PETERS

Seattle, WA – State lawmakers are expected to pass a bill that would raise the statewide speed limit for electric cars from 25 to 35 miles per hour, the current maximum on most municipal streets. The current 25 mile per hour speed limit was imposed in the early 1990s as part of the "Make Electric Cars a Huge Pain in the Ass" initiative rallied for by American car manufacturers and oil lobbies.

"Well, after we realized that electric cars could have the all capabilities of gasoline-powered cars, we got a little nervous," said Hoss Johnson, President of Let Us Help You Vote, a state-based lobbying group that represents Ford, Chevrolet and many multinational oil companies. "We decided the best thing to do would be to make these vehicles so goddamn inconvenient that only the biggest tree-huggin' hippies would drive them."

The initiative passed under the majority Republican House in 1993 and stipulated not only the 25 mile per hour speed limit, but also that dealers could not sell cars capable of going over that speed. It stated as well that the cars were not allowed to have cup holders, air conditioning, radios or seats. "That last part was basically just a big 'f\$%* you' to the hippies," Johnson said.

"After Ford and all the other fat cat car companies took their E-vehicles off the road in the nineties we thought we were done for," said local organic farmer and software engineer William Benton "Granola" Forsythe III. "We just want a chance to be on the road, just like everybody else. Driving is a fundamental human right. We should be allowed to express ourselves in any way we see fit."

The majority of the current electric vehicles are used for making deliveries, issuing parking tickets and in some cases charging iPods.

Proponents of the new bill are excited about the possibilities of raising the popularity of the electric vehicles. Car batteries cost \$800 to \$900 to replace, and can in theory last three to five years, local dealers say, although they rarely do.

"It costs two cents per mile to drive a light electric vehicle," Granola said. "And I think when the local student population finds out about this, they'll all want these cars."

"Holy s\$%*! I would *totally* drive a car like that!" said Biff McAclister, University of Washington student and Alpha Sigma Sigma pledge chair. "Unless the thing is like, really little, or doesn't have much pickup," he added. "Wait, what? It only goes 35? That's totally weak, dude."

Electric car boosters are optimistic about the bill nonetheless. ♪

Point

The Planet is Going to Hell and What Are You Doing About it, You Lazy Slob?



Hey, you! Yeah, you on the couch, with the High Life and the Krinkle Cut Lay's. I'm talking to you. Don't you realize we've got an environmental crisis on our hands? Haven't you heard about this little thing call 'global warming'? 'An Inconvenient Truth'? Sea levels rising? Deforestation? Invasive spec...Hey, wait, is that Grey's Anatomy? Oh, yeah? Did she really? Get out! You're kidding me. I can't believe I missed that. Hey, bump over. Now right, where was I?...Oh yeah, *you*. So, yeah, what have you done for the planet lately, huh? Your type of apathy makes me sick. It's lazy indifference like yours that's letting our environment go down the tubes. Mm, pass those pork rinds. What we need is to re-instill a land ethic in this country, Aldo Leopold-style, get people like you off their pathetic asses and out into the woods for an afternoon. Build a little character. That's right, you heard me. What we need is some good old-fashioned American...oh hey, commercial, can I check out the T-wolves score?

Coming Next Issue...

Point:

Increasing Utilization of Habitat Conservation Plans Has Breathed Much Needed Life Into the Endangered Species Act



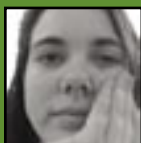
ABBAGE

AND UNBALANCED

UNTITLED • DIANA WAGNER



Counterpoint



OMG, Check Out This Tiny Mole on My Navel I Never Noticed Before!

I know, it's totally crazy, right? Just when I thought I knew everything about my navel, and now *this*. I can't wait to update my MySpace, upload a few new pix. I mean, this is OTT. I was totally IM-ing with Elise and Jen about, like, y'know, stuff, whatever, and then Steve called! I KNOW, I was soooo nervous. But he was, like, super sweet. So we were talking about piercings and stuff, and when I looked at my nav--wait. Ohmigod it's totally Steve! Hold on.

Hi Steve! Not much, what're *you* doin'? Uh huh. . . Uh huh. Totally. Yeah, Elise was just sayin that. Really? Um, yeah, sure! I think th-- 7:30? . . . Okay, cool! Bye!

AAAAAAAAAAHH! I can't believe this! Steve Walker, and me. At the Winter Wonderland Dance! He is sooooo cute. Ooh, I can't wait til Becky Waterman sees us together.



Counterpoint:

I Hate the Delhi Sands Flower-Loving Fly

New Species Discovered in Controversial Forest Burn

THOM WAITES

Kota Kinabalu, Borneo – Researchers today triumphantly announced the successful implementation of a new wildlife census technique, the Forest Burn, while in the process discovering a new species of hoofed mammal. Two dozen specimens of this previously undescribed ungulate were collected after researchers set fire to the last remaining tract of its remote habitat in the island's dry upland forests. The charred remains of these impressive deer-like animals, affectionately dubbed *Cervus nilcautiensis* by the research team, suggest that the animal stood nearly three feet high, weighed around 60 kilograms, and could well have provided excellent fur for coats and high-quality leather for handbags and shoes.

"This is a bittersweet day for science," said project leader Gretchen Luntz of the Philadelphia Museum of Natural History. "We are proud to have played some small part in advancing scientific understanding, but we regret that our discovery will be marred by the simultaneous extinction of this probably majestic species."

In the United States, news of the discovery and extinction was greeted by polite attentiveness and feigned interest by the general public. "Oh, wow, that's great," said

Chet Sanders, a man on the street. "Did you say they were called *nilcautiensis*? Hunh."

"I'd just like to share that I have never been more proud of my wife," beamed Michael Luntz, draping his arm around Gretchen's shoulder. "Well, wait, there was that time when she unclogged the drain in the shower—I was pretty proud of her then, too."

The response of the local Bornean highlanders was considerably less sanguine. "You've got to be \$^%*& kidding me," sputtered Ramelan, chief of the local Dayak tribe, in disbelief. The Dayak have relied upon these deer—which they call Dian—for hundreds of years. "I cannot believe they just torched our entire forest and killed all of the Dian! Why couldn't anyone ask us if there was something in there before they lit the place up?"

As disturbing as the Forest Burn method is to many, it is far less destructive than some of the other techniques recently employed to locate new species. For example, the Pearson Sea Vacuum, pioneered by researchers at the University of California, has proven remarkably efficient at removing ocean dwellers from their hiding places, along with much of the coral and portions of the sea floor. ☹

Ten Reasons Why Bananas are Awesome

10. They're delicious
9. You can hold two near your mouth and pretend you're a walrus
8. They reduce muscle cramps
7. They are natural antacids
6. Their natural sugars give you an energy boost
5. They contain tryptophan, which helps reduce depression
4. Lots of fiber
3. They can help regulate your glucose level and help the ladies with PMS chill out a bit
2. You can use the peel to reduce swelling on mosquito bites or kill off warts
1. You can put your hand inside your sleeve and hold the bunch of bananas like a hand and pretend you have a bunch of bananas for a hand

Two Good Reasons to Make Your Banana Experience Organic

2. The production and export of conventional bananas subject Central American workers to a gnarly cocktail of pesticides and toxics causing vomiting, dizziness and even sterility in some cases
1. Banana workers in Costa Rica recently have had a drop in wages, from \$250 to \$187, per month, and at the same time, these same workers have an increase in hours worked per day, 12 to 18

Top Seven Environmental Icons

7. David Brower (white, male)
6. John Wesley Powell (white, male)
5. Teddy Roosevelt (white, male)
4. Gifford Pinchot (white, male)
3. Aldo Leopold (white, male)
2. Rachel Carson (white, female – wait, how did she sneak in here?!!)
1. John Muir (white, male)

People Who Live in the Environment

3. Me
2. You
1. Everyone Else

Top Eleven Cities With a Heightened Environmental Ethic

(read: filled with tree-hugging hippies)

11. Madison, WI
10. Burlington, VT
9. Missoula, MO
8. Taos, NM
7. Any city in Scandinavia
6. Asheville, NC
5. Portland, OR
4. Boulder, CO
3. San Francisco, CA
2. Eugene, OR
1. The north half of California (shout out, Arcata!)

Top 10 Most Pesticide-Laden Fruits & Veggies*

10. Spinach
9. Grapes
8. Pears
7. Cherries
6. Strawberries
5. Nectarines
4. Celery
3. Sweet Bell Peppers
2. Apples
1. Peaches

*data from www.foodnews.com

Top Five Ways to Get a New WWWeltanschaung*

5. www.marumushi.com
4. www.english.com
3. www.ecorazzi.com
2. www.grist.org
1. www.visualthesaurus.com

*Weltanschaung means "worldview" in German



Activism has our industry looking for cover.

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Ecologically Responsible Jewelry

Q. What do the American Museum of Natural History, Goddard Institute for Space Studies and Lamont-Doherty Earth Observatory have in common?

A. Students at Columbia University's Department of Earth & Environmental Sciences

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One Half Life Ago

LENÉ GARY

I didn't know how pesticides could poison a person until the night I almost died. On Labor Day 1991, I'd just returned home from waterskiing when I began to vomit and my tongue started to swell. It swelled so large I couldn't hold it in my mouth; I panted for air. My right arm twitched. Then my eyelids. Then my lips. I couldn't speak anymore. By the time my father injected me with epinephrine, I was in full convulsions. I blacked out—limbs blue from lack of oxygen. My parents didn't know they were witnessing organophosphate poisoning in the flesh. They had no idea it could happen in five minutes or less. No one knew.

It's been 16 years—half my life—since that night. Other than a few hints along the way, I still don't know the many ways pesticides can poison. I still don't know if the golf course was to blame. We lived in that house on the sixteenth hole for just a few weeks before that night. I don't remember smelling a single thing.

I didn't drink it, spill it, spray it, or smell it, but I got poisoned. How do I know pesticides were the cause? At first the doctors didn't. They didn't ask whether the golf course had treated its greens, whether the farmers were spraying their fields, or whether the moving company roach-bombed the truck with our furniture in it (which they did—a common practice in the South). Instead, they asked if I ate shrimp or peanuts, if I was allergic to bees.

When I said no, they sent me home with another EpiPen for my purse, expecting I would be back. But they didn't know why.

The last emergency room doctor suggested I go to see Dr. William Rea at the Environmental Health Center of Dallas; he had a reputation for finding answers other doctors couldn't. He believed I was overexposed to pesticides. He was right. Blood work showed I had organophosphate pesticide poisoning. Had the ER doctors asked about the place I lived, they might have considered pesticides a cause. But they didn't. Not one doctor from six ER visits recognized symptoms of pesticide poisoning.

That was my senior year in high school and the first year that I lived with Multiple Chemical Sensitivity—a chronic condition I still contend with as a result of that first exposure. MCS goes by many names: Environmental Illness, Chemical AIDS, Gulf War Syndrome or Sick Building Syndrome. It's difficult to diagnose because of its myriad expressions. Some people develop MCS from chronic low-level exposures to chemicals, while others—like me—develop it following a single, significant overexposure.

The effects of MCS can be as mild as burning eyes, skin rashes and headaches, or as severe and debilitating as anaphylaxis, seizure and respiratory depression. These

symptoms are stimulated by what are often considered "safe," everyday levels of chemical exposure. The causes of MCS remain unclear, but an ever-growing subset of the population seems to suffer from it.

The most effective way I've found to control my symptoms is to avoid more chemical exposures, but this makes for a hectic life on the road. I've relocated more than 30 times since 1991 because of various environmental pollutants. Whether it's mosquito fogging with malathion, fumigation with methyl bromide, herbiciding with 2,4-D along the highways or hazardous waste from an abandoned mine, it doesn't seem to matter. It's always something—and it keeps me on the move.

I still don't know the exact route of exposure on that life-changing day sixteen years ago . . . only that it happened. That is the great mystery. Of pollution and my body. People like to tell me I'll grow out of this. *I'm 32, I say, It's been half my life.* People tell me that they'd rather die than live like me. I say, *We all do what we have to do.*

I have to tell this story. I have to explain that I lived like everyone else—and then one day, I didn't. One day, I woke up, water-skied with my boyfriend, returned home, and nearly died from nothing—from nothing I ever smelled, ever spilled, ever touched, ever drank. *That's right. Just like you, I say, I used to live just like you.* ❧



Images Courtesy of United States Department of Agriculture



DISINFECT • LÜTFİ ÖZDEN



the shutters start at the beginning. The wind whistled and clattered under my feet as it swept across the yard. The wind whistled and clattered under my feet as it swept across the yard. The wind whistled and clattered under my feet as it swept across the yard.

[illegible]

On the street yellow leaves were swirling about the
 them time. My twin stood there into a perfect
 stray branches scattered like let I know I wasn't a
 lodged into the office parking lot. So I knew I wasn't a
 So I knew I wasn't a

Yellow Lines recorded confirmation straight up. I don't see how we can do it and there are many others to get done. I'll take the backseat. Sit, and when you get your ticket please to get for me.

John

