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The Intelligent Optimist

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How to reduce your water footprint

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A new era of consciousness is coming–and it will change everything

PLUS

Couples therapist Sue Johnson on how to rekindle your love

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The Intelligent Optimist

Intelligent optim

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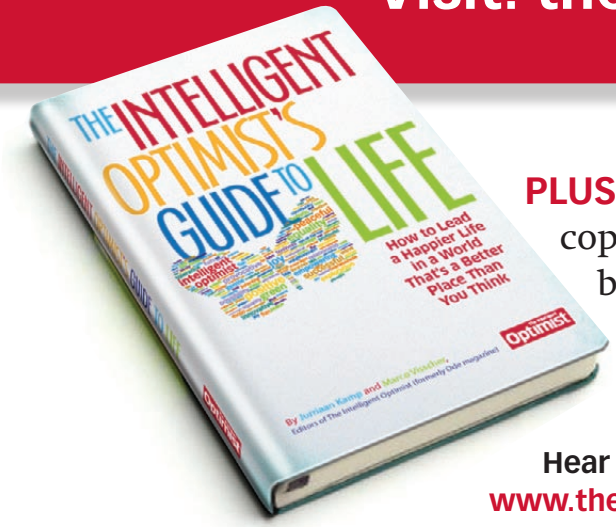

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The Intelligent Optimist

Table of Contents

January/February 2013

COVER ILLUSTRATION & THIS PAGE: TONY FOTI/TONYFOTIART.COM

No Contract

Better Sound and Longer Battery Life

NEW

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The Intelligent Optimist

FOUNDERS Jurriaan Kamp, Hélène de Puy

We are an independent international journal. We believe in progress, ongoing opportunities and the creativity of humankind. We contribute to progress by publishing stories about the people and ideas that are making a difference. We address society's problems too, because they represent opportunities for positive change. We publish the stories that bridge the gap between thinking and doing, between rage and hope and the painful gap between the rich and the poor. By doing so, we build peace and sustainability. This is the news we promise to deliver. We offer our readers the chance to connect with an international network of inspiration and cooperation, strengthening the forces devoted to respect, justice and equality. This way, we hope to invite you to make your own contributions to a more just and sustainable world.

LETTERS TO THE EDITOR editor@theoptimist.com
Correspondence may be edited for length and clarity. Please include your name, address and email address.

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San Francisco, CA 94104, info@theoptimist.com

NETHERLANDS OFFICE P.O. Box 2402;
3000 CK, Rotterdam, Netherlands

The Intelligent Optimist (ISSN 2168-8001) is published bimonthly: January/February, March/April, May/June, July/August, September/October and November/December by Global Light Media LLC, 268 Bush Street, #4419; San Francisco, CA 94104. Periodical postage paid in San Francisco, CA, and at additional mailing offices.

Letter from the Editor

Your attention, please

WE USED TO JOKE DURING OUR EDITORIAL meetings that each story always ended with God. That's not because of any specific religious affiliation. We realized that if we want to contribute to solving problems—and that's the core of our mission—we need to go to deeper levels. A law implemented to right a wrong in society often provokes "side effects" that cause new problems. Hence the need to go deeper and discover solutions that hold for generations to come. Ultimately that means solutions that address the way we think, where we put our attention and intention, what we believe. Sooner or later, we get to the level of spirit, to God.

I wrote the cover stories for this issue while President Obama tried to get legislation passed to ban the sale of assault guns in the U.S. Like many, the president is outraged that such weapons designed for soldiers in wars can be bought and used by ordinary citizens. A new law promises to protect peace in society.

Is there a more effective solution? Yes. An impressive body of research—carried out more than 20 years ago—has shown that violence and conflict in society can be reduced through meditation, more awareness, more God. The story (see page 43) is hard for rational Western minds, including my own, to believe, yet the evidence is compelling. At the most fundamental level, peace is not a matter of laws that ban guns but of our awareness.

While I was writing the story on the effects of group meditation on society, I had lunch in Seattle with an author who published a book on how to create our own realities. This topic already produced a long list of self-help books. But this book is different. The author grew up in poverty but acquired a fortune based on his vision of a new reality. His book is an authentic report on how to build a better life using your attention and intention. In a very different way, his message is the same as the message of the meditation research.

And then there is the unusual experience of shamanic healing with which I had a personal experience (see page 20): This offers one more example of deep material impact from rituals done at a different level of consciousness.

Back to our editorial conversations…God is indeed everywhere. And the most important message for you and me is this: It deeply matters what you think and how you visualize your life. Your attention, please.

P.S. *Our November/December issue reached most of you very late. We apologize for that. We are transitioning our subscription service , and that process has been challenging. We expect to be back on a our regular track shortly. In the meantime, please don't hesitate to contact us at support@theoptimist.com or at (800) 472-3571 with any questions you may have.*

JURRIAAN KAMP
Editor-in-Chief, jjk@theoptimist.com

PHOTOGRAPH: JORDAN LEBRECHT

Community

Intelligent Optimist

Nolan Love
San Francisco
FOUNDER OF POLLVAULT.COM

INTELLIGENT OPTIMIST

The popular vote

I AM INSPIRED TO NOMINATE NOLAN LOVE, FOUNDER AND ENGIN-eer of the non-partisan social voting website pollvault.com as Intelligent Optimist. Named for the personalized ballot it provides with the option to share your virtual ballot with friends you trust, Poll Vault is an idea Nolan conceived 15 years ago.

Nolan had been a biomedical engineering student at John Hopkins University before he moved to San Francisco. There, he changed his focus to the web domain after he found he had a passion for web engineering. Poll Vault was inspired by a series of experiences: being a first-time voter during the Clinton campaign era, his time in the Peace Corps—when Nolan was witness to riots in Guinea due to unfair elections in 1998—and the hanging chads election of 1999 wherein popular vote did not carry the day. These events motivated Nolan to consider the importance of democratic participation; since then, he has set out to support it.

When I met Nolan Love two years ago, what stood out to me as remarkable was his innate ability to make people feel understood even as he challenged them to reach a common resolution, the key being that he earned their trust, validated them and inspired authentic dialogue.

Poll Vault is the embodiment of this thoughtful communication planted in the exciting soil of social networking—a medium designed to remind us of the human element behind the content of the issues being discussed. The ballot he designed is also a forum between friends. I am excited to see what this will mean for the way we choose to communicate about future elections. | **JULIE THRALL, AN *INTELLIGENT OPTIMIST* READER | SEATTLE, WASHINGTON | FIND OUT MORE: POLLVAULT.COM**

ONLINE

The Intelligent Optimist online

IN 2012, THE INTELLIGENT OPTIMIST ORGANIZED numerous online events with thought leaders like management consultant Margaret Wheatley, shaman Alberto Villoldo and democracy expert Tom Atlee. Thousands of people all over the world have been participating in these events and writing to us about their experiences.

An Baert, who joined our series with Alberto Villoldo about the end of the Mayan calendar, writes, "The sessions have been meaningful for me. The topics you discussed and the do's and don'ts that were mentioned gave me a feeling of being understood on the path I'm walking."

William Early, who was part of John Kinyon's course on conflict mediation, says, "My sincere thanks for bringing such inspirational material to the attention of people. I am glad for the shift to a program-based, rather than a subscription-based, platform." Also, many shared suggestions about how to improve our courses and events; for example, some would like to receive PowerPoint presentations or outlines of the talks before the events. We'll do our best to upgrade our events and will bring many more online experiences to you this year! | **FIND OUT MORE: PAGE 12 AND THEOPTIMIST.COM**

PHOTOGRAPH: KERRY ROGERS; IKO/SHUTTERSTOCK.COM

★ **TOP TWEET** @ColleenLeonardi "Let's see ourselves as 'warriors of the human spirit.'" Margaret Wheatley: Warrior of the human spirit @OdetoOptimism

LETTERS

@JP_Ensor
Great issue, @OdeToOptimism. I'm reminded that with enough horsepower anything can fly.

Client knows best

Every workplace should be a happy workplace ["The employee always knows best," Sept./Oct., p. 58]. Ideally, such a workplace takes pride in making the customer happy. But some companies are alleviating employee stress by teaching them the mantra "You will have to file your complaint online." I wish stress on no one, but such workplace improvements can come at a high cost to the customer. When employees lose their concern for customer satisfaction, we don't win anything. If it is obvious that employees have learned to love the front office to the detriment of the service they provide, the customers might never come back. Sorry I couldn't send something more positive, but I get irked when people love money more than people!

Mark Edmondson
Las Vegas, Nevada

Growth is good

The article "Survival is not enough" [March/April, p. 54] was both brilliant and crystal clear in its simplicity. That it seems so irrefutable is a mark of the timely truth it expressed. I hope you continue with more of the same. Pico Iyer, one of my favorite writers, defines fundamentalism as how people respond when their fundamentals are threatened. Your article made me think of one more variety of secular fundamentalism: the fundamentalism of sustainability. Even helping those suffering the most can be an example of of holding onto an old idea of "helping the poor" as opposed to answering the question you raise: "What do you hope your children will become?"

Not long ago, Chef Anthony Bourdain was doing his television show in Brazil and commented on the "progressives" who want to protect the lifestyle of the native people in the Amazon rain forest. He explained that these people barely survive, that a man does back-breaking physical labor 12 hours a day in hot, humid weather to raise enough food for his family to eat and, maybe, a bit to sell for extra money. Like your article, he was trying to de-romanticize the way these people lived. The rain forest does need managing and protecting, but the dreams that such people have for their children are probably different from what they now have.

Alan Gray
Sonoma, California

Letters to the editor: editor@theoptimist.com.
Correspondence may be edited for length or clarity.

facebook

Make sure to "like" our brand new Facebook page, The Intelligent Optimist!

Josephine E. Sciortino: I'm reading an article in your recent issue: "True Grit." Luchia's story is inspiring—thanks for this! I also took the opportunity to become a member! "If you knock long enough and loud enough at the gate, you are sure to wake up somebody."

Dennis Miller: How utterly refreshing! I'm a huge pessimist, drawn there by 68 years of living and observing the collective impact of a mass of humanity on a vulnerable planet. News of that impact does not lend itself to optimism. I've always considered myself an intelligent observer, more aware than many around me—but being an observer has not led me to optimism. Perhaps if I hang out here for a while.

Samarah Riely: I have been a subscriber and became a member yesterday. I love the feeling of being a member. That is part of joining with this wonderful conscious community!

twitter

Out with the *Ode* and in with the new!
Our twitter name has changed to @OdeToOptimism

Greg Krauska (@gregkrauska) RT @OdeToOptimism: "Microfinance Must Return to its Roots in Charity" #microfinance 70% financing consumption? Wow!

Erika Becerra (@dynamicerika) An optimistic person makes me doubt things, but an Intelligent Optimist does make the difference.

Karen Black (@LiveWellCapeCod) Positive thinking: How does it affect your everyday experiences? #optimism

starcitydreamr (@starcitydreamr) @albertovilloldo @OdeToOptimism I love that! Beautiful ceremony today and conversation among the shamans. Thank you.

Ode to snow drawings COLORADO

A canvas of snow

ONCE UPON A TIME, ARTIST SONJA HINRICHSEN WAS walking through the snow in her new snowshoes. When she turned to look behind her, she was captivated by the beautiful pattern she had left behind. She wanted to create more snow drawings, so last winter she visited this snow-covered expanse in Colorado's Rabbit Ears Pass. With the help of a few residents from neighboring towns, she spent five hours drawing spirals in the snow. The next day, Hinrichsen climbed in a plane to take this photograph of the result. A few days later, the snow drawing was covered by a fresh layer of snow.

Hinrichsen hopes her art will inspire others to take to the snow. "The best comments I got were from families who told me that they took their kids outside and made their own snow art." The artist, who is originally from Germany and now lives in San Francisco, says she doesn't mind the transience of her artwork. "The world is saturated with man-made projects. I don't think I need to add more things to the planet." | ELLEKE BAL | SEE MORE PHOTOS AT SONJAHINRICHSEN.WORDPRESS.COM

PHOTOGRAPH: SONJA HIRRICHSEN

Ode to Miranda Gibson

SOUTHWEST NATIONAL PARK, AUSTRALIA

PHOTOGRAPH: ALAN LESHEIM

Saving the forest in the trees

FOR LONGER THAN A YEAR NOW, AUSTRALIAN ENVIRONMENTAL ACtivist Miranda Gibson has been conducting a literally elevated campaign—200 feet off the ground—to protect a forest on the island of Tasmania. On December 14, 2011, she climbed onto a platform in a eucalyptus tree in the state's Southwest National Park and hasn't set foot on the ground since. Her treetop vigil is focusing on the threat that industrial logging poses to the forest. Gibson hopes to convince the Tasmanian government to revoke logging permits.

The 400-year-old forest is not far from a nature reserve on UNESCO's World Heritage List. The area where Gibson is campaigning is home to several endangered animal species, such as the Tasmanian devil, the tiger quoll and the Tasmanian wedge-tailed eagle. From her perch in the tree, Gibson has a unique experience of this natural area. "It is so great to have the opportunity to experience the forest in a way that most people don't get the chance to," she says. "Its wealth, its seasons, getting to know the daily rhythm. My favorite moment was when it started snowing last winter. It was beautiful up here." Though she shares her experiences on her blog (a solar panel powers her laptop) and keeps in touch with journalists, activists and other interested

parties using Skype, she wishes people could experience the beauty of the forest for themselves.

Doesn't she feel like an intruder in the forest? "Animals were curious, but they got used to me, and now they don't mind me. Of course, people don't live here normally, but because of the media attention, a logging company left this area. Otherwise it would have been a clear field by now."

As Gibson picks up her laptop so she can give me a "tour" of her home, we hear a bird cry. "A currawong," she says. Part of her wooden platform is enclosed by walls of plastic. Behind them are a mattress and a few other things, such as a tiny gas stove, cans of food and a bucket she uses to wash herself. Once a week, the organization for which she works, Still Wild Still Threatened, brings her water and fresh fruit and vegetables. She pulls it up in a bucket.

How long her campaign will continue, Gibson cannot predict. Negotiations between environmental groups, the timber industry and unions ran aground at the end of October. "I want to get down, but more important is that the forest will be protected. I won't come down before that." | DEWI GIGENGACK | FIND OUT MORE: OBSERVERTREE.ORG

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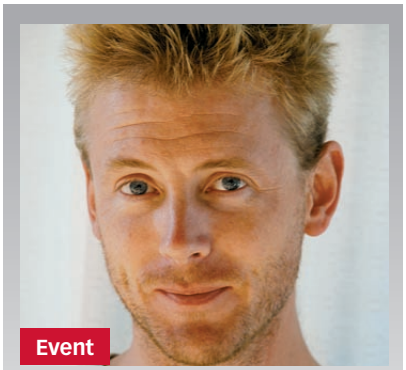
transformation to another level



Event

Hugh Sinclair
How to Support Good Microfinance
Hugh Sinclair argues that microfinance has been abused by people who want to earn money instead of help the poor. He knows how to improve the sector—and how you can support it.
February 28, Online

Event

Brant Secunda
Whole Spirit, Whole Body: A Western Shaman's Guide
In this intimate 90-minute event, Brant Secunda will explain how shamanism works and what it has to offer both our culture and individuals like you who seek spiritual advancement and better health.
March 13, Online

Course

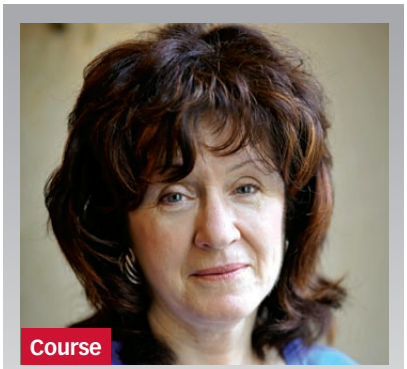
Ervin László, Claire Zammit, Lynne McTaggart and guests
The Revenge of the Spirit
We stand at the threshold of a revolution in our own consciousness—and it will change everything. That's the premise of this five-week course with five respected leaders in consciousness.
March/April, Online

Course

Margaret Wheatley
Perseverance and the Meaning of Life
Margaret Wheatley says that to change the world, you need to start over, become a "warrior of the human spirit" and learn to persevere. During this course, she will teach you how.
April 10, Online

Event

Lynn Stout
The Shareholder Value Myth
One of America's most distinguished legal scholars explains why putting shareholders first harms the public, investors and corporations. She suggests better ways to think about shareholders and their relationship to corporations.
April 17, Online



Course

Sue Johnson
The New Science of Romantic Love
Therapist Sue Johnson created Emotionally Focused Therapy for couples, which is proving very successful. During this three-session course, she will give you new insight into sustaining love.
May 10, 17 & 24, Online

PHOTOGRAPHS: AUGUST MILLER (WHEATLEY); CORNELL UNIVERSITY (STOUT); ADRIE MOUTHAAN/HOLLANDSEHOOGTE.NL (JOHNSON)

Healing with light

A ground breaking training program for therapists

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Did you know...

... that light can heal?

... that a groundbreaking, noninvasive therapy can cure even the most serious diseases and chronic illnesses with a phenomenal rate of success?

... and that you can complete a training program to learn how to heal people using light?

In the 1970s, German physicist Fritz-Albert Popp discovered that energy (light) determines the body's state of health. In his experiments, Popp—currently director of the International Institute for Biophysics in Neuss, Germany—demonstrated that cells emit electromagnetic signals. He called these light impulses "biophotons." These biophotons ensure that the right reactions occur at the right time in the body, according to Popp. And vice versa: when the body is sick, its light impulses are disrupted. Light directs the body's biochemical processes. At the most fundamental level, healing means restoring coherence to the body's light so that biochemical processes can proceed as they should. Modern medicine focuses primarily on manipulating biochemical processes through therapies and medicines. It will mean a revolution for the field of medicine if healing can be realized on the higher—more fundamental—level of biophotons. That, Popp is convinced, is where the future of medicine lies. This revolution is already underway. Inspired by Popp's work, Johan Boswinkel developed an instrument 30 years ago that can be used to measure a body's "state of light"—and thus state of health—simply and easily. Boswinkel also succeeded in realigning disrupted frequencies using his device. In the past 25 years, Boswinkel's approach has cured tens of thousands of people around the world of a variety of diseases and chronic ailments. The method, which is being continuously improved, has a success rate above 80 percent. The first scientific studies on the remarkable results achieved through Boswinkel's approach have recently been published. Boswinkel is the founder of the Institute of Applied Biophoton Sciences (see www.biontology.com). The institute offers a biontology training program for those interested in becoming therapists.

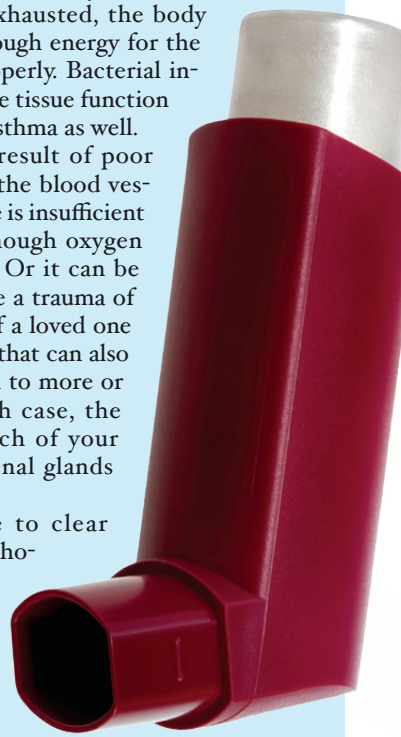
Certified therapists can continue their studies to earn a master's degree in complementary medicine at the University of Graz in Austria. The new discipline of biophotonics is a central component of this degree program. There is great demand for biophoton therapy, and the world needs more therapists in order to help more people. This is a unique opportunity for those interested in a new challenge who want to help spread this new method of healing without side effects.

For more information about training programs:
healthangelacademy@gmail.com

Asthma

Asthma can have various causes. One possible cause is a whiplash, because that is more often a neck problem that impacts the throat area where important glands are. According to traditional Asian medicine the lungs are ruled by the thyroids.

Asthma can also be caused by the adrenal glands. If they are exhausted, the body does not produce enough energy for the lungs to function properly. Bacterial infections can hinder the tissue function and that can lead to asthma as well.



Asthma can be a result of poor blood circulation. If the blood vessels are calcified, there is insufficient exchange and not enough oxygen can get to the lungs. Or it can be emotional: if you have a trauma of some kind, the loss of a loved one or anything like that, that can also cause the lung system to more or less collapse. In such case, the trauma takes so much of your energy that the adrenal glands are affected.

I am always able to clear asthma with the biophoton treatment, but I need a lot more treatments when people have been heavily using an inhaler. The inhaler contains cortisone, which is a suppressant, so the symptoms don't come out, but the cause is still there. That is why people have to keep using the inhaler, because the cause is not solved. When you solve the cause they don't need to use the cortisone anymore. But when people are using cortisone, the number of treatments is three times as high.

The biophoton treatment works, but it doesn't work as fast as when there's no cortisone in the body.

We have to go through the source. It's the only way you're going to solve something. If I am finished with a patient, then I never want to see them again. We want to really reset the body so it's capable of healing itself again.–*Johan Boswinkel*

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Possibilities

CULTURE

Occupy the stage

TEATRO VALLE BECAME THE MOST VISITED THEATRE IN ROME AFTER IT WAS SQUATTED BY 60 ACTORS AND THEATRE TECHNICIANS.

PHOTOGRAPH: ROBERTA PERRONE

THE BANNER AT THE TOP RIGHT MIGHT NOT be the first thing you notice in this packed theater. But it's the reason Rome's Teatro Valle still exists. For a year and a half, 60 actors and theater technicians have been occupying the building. During that time, the site of Teatro Valle Occupato ("Occupy Teatro Valle") has become the most visited theater in the city.

Teatro Valle, built in 1726 between the Pantheon and Piazza Navona, is Rome's oldest theater. Like a lot of European cultural institutions, it used to rely on government subsidies. When they were axed, the theater was forced to close. After the 2010 –'11 season's final performance of *Romeo e Giulietta*, the building was earmarked to be privatized, its fate unknown. Daniele Russo was there when Teatro Valle was squatted on June 14, 2011. "The idea was to occupy the theater for three days as a protest," he says. "But we got so much support from inside and outside Italy, we decided to stay. People have joined in from all over the country, and they're helping us keep the theater going, with everything from tech to programming."

Sitting in the audience, you wouldn't know the place was a squat. It's only when you go backstage to the dressing rooms that you realize dozens of people are sleeping here every night, keeping watch. The risk of eviction remains present. Francesca Di Santo has been staying overnight about four

times a week since August 2011. "Sometimes there are rumors that the authorities want to kick us out," she says. "But I think they know better. They'd have the entire city to answer to."

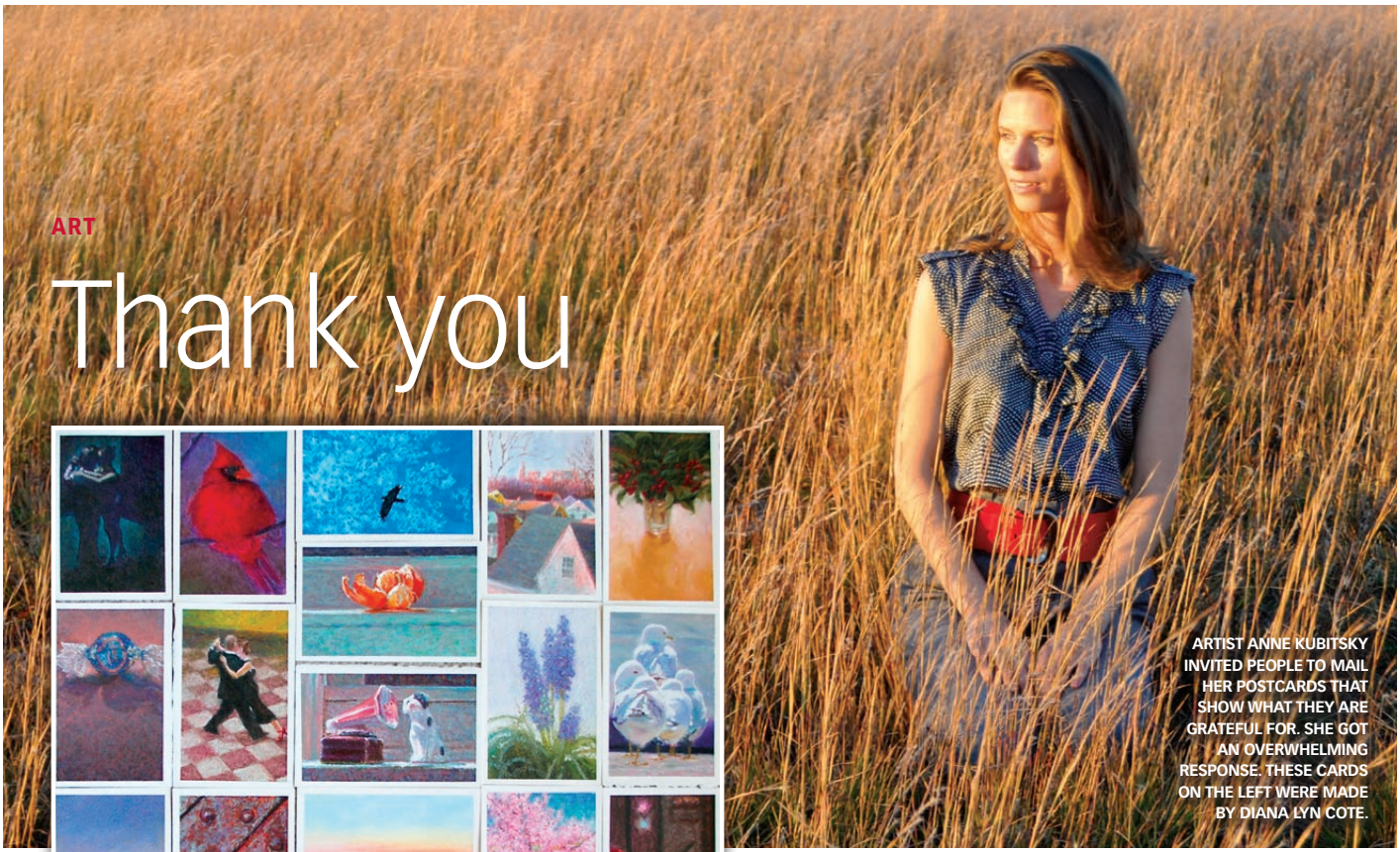
Since being squatted, the theater has hosted hundreds of performances, more than 100,000 visitors and 2,000 artists from Italy and beyond. Performing here has become an honor for the artists, who often come onstage to a packed house. They receive no pay. Visitors give the theater voluntary contributions that may cover some of the expenses.

The occupiers ultimately aim to establish a foundation that will run the theater. They are well on their way to reaching $320,000. "Until then, we'll at least keep it going, take good care of it and keep it open to the public," says Di Santo.

Teatro Valle Occupato has become a symbol of change and progress for Italians. "It's very Italian to complain from the sidelines," Russo says. "But this theater shows everybody that if you disagree with something, you can take positive action." | **EVELINE RETHMEIER** | **FIND OUT MORE: TEATROVALLEOCCUPATO.IT**

ART

Thank you



ARTIST ANNE KUBITSKY INVITED PEOPLE TO MAIL HER POSTCARDS THAT SHOW WHAT THEY ARE GRATEFUL FOR. SHE GOT AN OVERWHELMING RESPONSE. THESE CARDS ON THE LEFT WERE MADE BY DIANA LYN COTE.

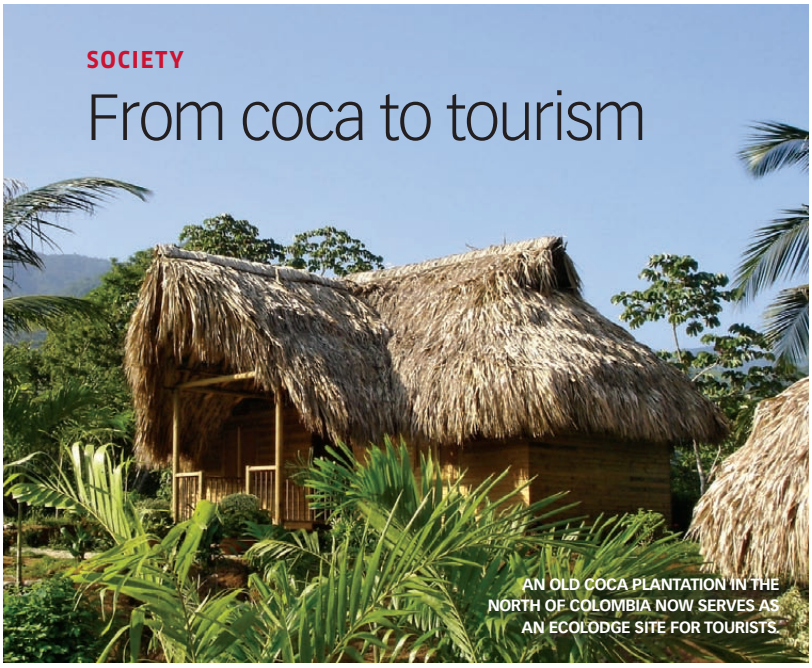
ANNE KUBITSKY RECEIVES LOTS OF POSTCARDS. LOTS AND LOTS of postcards. That's not just because the artist and writer from Old Lyme, Connecticut, has so many friends. It's because she invited others to show their gratitude by mailing it to her. When she launched the Look for the Good Project a year ago, Kubitsky distributed postcards in parks, libraries and cafés in her community, asking people to "write or draw something they are grateful for." Within weeks, she had received cards—"many of them very beautiful," she emphasizes, from all over the world.

Kubitsky is convinced that gratitude makes us resilient, discerning and able to bounce back. "I think it also gives people a sense of grace," she adds. "It clarifies your motivation and moves you beyond toxic thoughts, giving you a wonderful feeling of abundance." She also points out that "gratitude enables you to identify with something larger." Kubitsky has a background in marine biology and became inspired to work on this project by the story of a whale that was rescued from fishing-line entrapment off the coast of California in 2006. The 50-ton humpback whale returned to the place where she was trapped shortly after it was cut loose and nuzzled the divers that had rescued her softly in the chest. "Obviously grateful," Kubitsky says. A book featuring a selection of the postcards Kubitsky received will be coming out in the months ahead. | **SOPHIE BLOEMEN** | **FIND OUT MORE: LOOKFORTHEGOODPROJECT.ORG**

PHOTOGRAPH: LISA SOBOLEWSKI; ILLUSTRATION: DIANA LYN COTE

SOCIETY

From coca to tourism



AN OLD COCA PLANTATION IN THE NORTH OF COLOMBIA NOW SERVES AS AN ECOLODGE SITE FOR TOURISTS.

COCAINE ISN'T AN EASY HABIT TO BREAK. NOT FOR USERS AND not for the farmers who grow it. Yet five ecolodges run by ex–coca farmers on the Colombian coast prove it's possible to change.

The Caribbean beaches of northern Colombia are a brilliant white and, aside from the occasional Kogi Indian, deserted. It's the perfect place for the tourist who isn't scared off by the Colombian reputation for guns and guerrillas—or by coca farmers. In the mountainous jungle that borders the beaches, these farmers are free to do their thing. Nearby harbors make it easy to smuggle their "white gold" out of the country.

Fifty-four-year-old Celso López is one of many farmers who decided to plant coca—five acres of it—among his coffee crops after years of economic uncertainty. "I had no choice; my family needed to eat," he says. The uncertainty, fear and need to maintain anonymity were an acceptable part of the bargain. López, in rolled-up pants, black jackboots and a straw hat, takes a sip of coffee. This organic coffee is the product of his own efforts; the fields he once razed to plant coca are back to growing *Coffea*. He serves it to guests at his own ecolodge, San Rafael, a cluster of five huts—with thatched roofs and hammocks on the verandas—half a mile from Tayrona National Park, where the beautiful beaches have earned it the moniker "the Thailand of South America." Lopez says proudly, "Tourists come from around the world, from Canada to Argentina, and they're all amazed at how beautiful and peaceful it is here."

López is a member of Familias Guardabosques, a joint initiative of the Colombian government and the United Nations. Farmers who want to transition to legal activities sign a contract in which they promise to destroy their coca plants and not resow them. In exchange, they receive 18 months of financial support and assistance in making the transition. López and 118 area families voluntarily destroyed their coca plants and used the financial aid to buy 875 acres of forest. They built five ecolodges and replanted their fields with cocoa, coffee, pineapples and bananas. "Now you can buy fruit beside the road," López says. "We used to have to drive to the city for it; you couldn't find it here anymore."

Fourteen thousand new familias guardabosques joined the program last year. Combined with the other families that have joined since 2003, they keep 1.3 million acres of rainforest coca-free. In addition, 2,500 acres of coca land have been given a new purpose, usually for growing cocoa or coffee intended for export to the United States—just like the coke.

With 158,000 acres of coca, Colombia provides some 90 percent of American cocaine. The country receives billions of dollars per year from the U.S. for its efforts to combat drug cultivation. But finding and destroying these crops isn't enough, says the UN's Carlos Zambrano. "Only when you provide an alternative can the situation permanently change."

The switch from coca to tourism has completely changed López's life, he says. "I live without fear, and I contribute to peace. Coca is the engine of the drug war." Coca's disappearance—in 2011, the number of acres of coca in the Sierra Nevada dropped from 630 to 153—is making the region a safer place. And safety has brought in tourists. Exactly what López needs. | **STEPHANIE BAKKER** | **FIND OUT MORE: POSADASTURISTICASDECOLOMBIA.COM**

PHOTOGRAPH: STEPHANIE BAKKER

RURAL LIFE

Weed them out


WEED DATING IS COUNTRY-STYLE SPEED DATING.

WHAT DO YOU DO WHEN YOU'RE A LONELY farmer who doesn't know how to meet the love of your life? You try "weed dating"—speed dating, country style. Farmer couple Jean and Wendy Palthey were working on their knees in the dirt one day when they got to talking with their farmhand. The conversation turned to love, and he told them it was hard to meet young single women in the country. "Many people who are over 20 leave town for the city," explains Wendy Palthey, who runs an organic farm with her husband in the small Vermont town of Tunbridge. "When you're a farmer, you spend all your time on the farm, so it's difficult to meet new people." The couple joked that weeding was a great way to get to know potential partners. A light went on, and weed dating was born.

Palthey emailed the Northeast Organic Farming Association to tell them about the idea, and they loved it. A few weeks later, the first weed-dating session took place at the Paltheys' farm. A dozen participants spent seven minutes chatting with each potential partner while pulling up plants. "By the time you've weeded a couple of rows, you know whether you want to go out for dinner together," Palthey says. "You immediately know if this person works hard, if he's used to being on the land, and if he knows how to have a conversation."

Palthey, who met her husband in college 20 years ago, says she can imagine young rural people might be uncomfortable speed dating in a bar or café. "You're just staring at each other. It's actually much easier to start a conversation when you're doing something." Another advantage of weed dating is that you can show up in your jeans, she says. "You can just be yourself."

She says she doesn't know whether any romances have budded since the session at her farm, though "there was an exchange of contact details." Meanwhile, the weed-dating phenomenon is growing like you-know-what. Sessions have already taken place in Maine, Idaho and other Vermont towns. And things are going well for the farmhand, Palthey says. He's met someone, though not through a weed date. | **ELLEKE BAL**

TECHNOLOGY

Small message, big impact

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OLIVIA NALWEYISO HAS THREE CHILdren—"and no more," the 32-year-old Ugandan firmly declares. Nalweyiso lives in a fishing community on the banks of Lake Victoria. Large families are the rule here, but Nalweyiso has deliberately made herself an exception.

Since 2009, she has been learning about all kinds of health topics—from family planning to the importance of vaccinations—through the Dutch development organization Text to Change. Twice a month, Nalweyiso receives a text message with a quiz. As soon as she answers, Text to Change sends her more information. The free service also encourages recipients to visit the nearest clinic for checkups. "That's how I've learned about different birth control methods," says Nalweyiso, "and that it's a good idea to think about how many children you want to have."

Many developing countries suffer from a lack of medical knowledge and health education. The result: People with HIV don't know that they must take their medicine every day; parents have no idea how to prevent the malaria that kills their children. "Text messaging is a powerful means of communication that can help spread this kind of information," says Bas Hoefman, Text to Change's director. "Text messages are cheap and interactive. Moreover, the technology is simple—any cell phones can send and receive text messages." The organization, with an office in the Ugandan capital, Kampala, is currently running about 50 educational campaigns in Africa and South America on health themes, education and the environment. Campaign response is usually high.


THROUGH TEXT MESSAGES, TEXT TO CHANGE PROVIDES INFORMATION TO PEOPLE WITH LITTLE ACCESS TO HEALTH CARE.

Nalweyiso also consults the health clinic more often. She's not alone. An awareness campaign about HIV and AIDS in Uganda recently doubled the number of people getting tested for HIV. As for Nalweyiso, Text to Change can't send her enough messages: "The more I can learn, the better my life and that of my family will be." | **MAARTEN VAN DER SCHAAF**

| **FIND OUT MORE: TEXTTOCHANGE.COM**

PHOTOGRAPHS: AP PHOTO/JESSIE L. BONNER; BAS HOEFMAN

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Commentary
Lynn Stout

This is an edited excerpt from *The Shareholder Value Myth: How Putting Shareholders First Harms Investors, Corporations, and the Public* (Berrett-Koehler), by Lynn Stout.

The fallacy of shareholder value

BACK WHEN I WAS A LAW-SCHOOL STUDENT IN THE early 1980s, my professors taught me that shareholders "own" corporations and that the purpose of corporations is to "maximize shareholder value." I was just out of college at the time and not very familiar with the business world, so this made sense enough to me. When I first began lecturing and writing in business law myself, I incorporated the shareholder-value thinking that I had been taught into my own teaching and scholarship.

It soon became apparent to me that there was a problem with this approach. The more I read business-law cases, the more obvious it became that corporations are not required by law to maximize share price or shareholder wealth. My first reaction was puzzlement and frustration. Shareholder-value thinking was almost uniformly accepted by experts in law, finance and management. Why, I asked myself, wasn't it required by the actual rules of corporate law?

Shareholder-value thinking is endemic in the business world today. Fifty years ago, if you had asked the directors or CEO of a large public company what the company's purpose was, you might have been told the corporation had many purposes: to provide equity investors with solid returns, but also to build great products, to provide decent livelihoods for employees and to contribute to the community and the nation. Today, you are likely to hear about only the maximization of shareholders' wealth. This sort of thinking drives directors and executives to run public firms with a relentless focus on raising stock price.

In the quest to "unlock shareholder value," they sell key assets, fire loyal employees and ruthlessly squeeze the workforce that remains; cut back on product support, customer assistance and research and development; delay replacing outworn and unsafe equipment; shower CEOs with stock options and expensive pay packages to "incentivize" them; and drain cash reserves to pay large dividends and repurchase company shares, leveraging firms until they teeter on the brink of insolvency.

They do these things even though many individual directors and executives feel uneasy about such strategies, intuiting that a single-minded focus on share price may not serve the interests of society, the company or shareholders themselves.

It's time to rethink the wisdom of shareholder value. Turning first to the managers who run corporations, the new work on corporate purpose teaches that directors and executives do a disservice to their firms and their investors if they use share price as their only guiding star. Managers must focus on the long term as well as tomorrow's stock quotes, and must sometimes make credible if informal commitments to customers, employees and other stakeholders whose specific investments contribute to the firm's success. Moreover, emphasizing share price can harm shareholders' other economic and personal interests, including the prosocial interests of shareholders willing to sacrifice some profits in return for greater corporate social responsibility.

Second, if we want public corporations to remain a vibrant force in the economy, policymakers and would-be reformers need to stop reflexively responding to every business crisis or *scandal du jour* by trying to "improve" corporate governance through making boards and executives more "accountable" to certain shareholders' demands.

Third, investors themselves—including individual retail investors, but especially institutional investors like pension funds, which are ultimately supposed to serve the interests of their individual beneficiaries—need to rethink the common assumption that anything that raises the share price of a particular company at a particular time necessarily serves investor welfare.

To help corporations do their best for investors and the rest of us as well, we need to abandon the simplistic mantra of "maximize shareholder value" and adopt new and better understandings of the legal structure and economic functions of public companies. ■

Corporations are not required by law to maximize share price or shareholder wealth

PHOTOGRAPH: CORNELL UNIVERSITY

The Intelligent Optimist live

The Shareholder Value Myth
With Lynn Stout, April 17

Read more about this online event on page 12.

CLICK FOR VIDEO!

Ancient healing *in the* modern world

Shaman Brant Secunda practices the energy medicine of Mexico's Huichol Indians. BY JURRIAAN KAMP

BRANT SECUNDA BEATS ON HIS drum and mumbles incomprehensibly. Now and then I catch the name Wali, which is the name of my son, who is sitting beside me. We both stare at the smoke rising from the little dish of glowing coals on the table before us.

Secunda stands and brushes Wali's body with a bunch of feathers. Then he places his fist on Wali's belly. He purses his lips and sucks firmly on the opening formed by his fist. Secunda spits into his hand and scrutinizes the fluid before dripping it onto the coals. It sizzles briefly as he guides the steam and smoke upward with his feathers. Secunda sits back down and continues chanting.

The entire session, in the hills above Santa Cruz, looking out over the Pacific, has taken maybe 20 minutes when Secunda suddenly stands up with a satisfied smile. He looks at Wali and says, "Kind of strange, huh? It doesn't matter whether you believe in it. It'll work anyway."

On the day of this shamanic healing ritual two years ago, Wali had been suffering from Lyme disease for four years. Lyme disease is a miserable, increasingly common bacterial infection that is extremely difficult to cure. We'd already been through a laundry list of treatments, from mainstream antibiotics to ozone therapy, Chinese herbology to vitamin and mineral supplements. We saw some improvement, but not complete recovery. A few weeks after our unusual experience with Brant Secunda, we noticed that Wali was doing better than he had in years, though he was no longer receiving any other treatment. Now, two years later, we say he's fully recovered.

Does this mean that shamans like Secunda can effect real healing through what seem to be extremely primitive methods? Though there are many similar stories of amazing recoveries, the rational mind can barely register them as convincing evidence. But there may be an element in the shamanic approach that touches on recent scientific insights into healing.

Studies have shown that the healing process for hospital patients recovering from an operation goes more quickly, with fewer complications, if people elsewhere in the world pray for them. If prayer can have a positive effect on healing, you can imagine that shamanic rituals might, too.

Shamanism is thousands of years old, but it touches on an upcoming new vision of health called energy medicine. Energy medicine posits that at its most elementary level, all substance is made up of frequencies—ultimately, light—and that disease is caused by disruptions in those frequencies. In that context, healing means returning natural processes to their original balance.

In Secunda's words, "Energy spirals around every healthy person. When someone is sick, we speak of an energy blockage. A blockage looks murky. The shaman tries to remove the blockage by using his hands

PHOTOGRAPH: DANCE OF THE DEER FOUNDATION

and feathers—the X-ray machine of the Indians—to create movement in the sick person's energy field and by actively giving him energy. The shaman tries to give light to the sick person, so that his body can heal itself."

According to Secunda, shamanism is focused on restoring a person's harmony with nature; nature ultimately does the healing. "The shaman is the bridge between nature, which heals, and the person who has forgotten he is an inseparable part of that nature," he says. "The shaman helps people use rituals to reclaim the balance in their lives. The modern world has swallowed us so entirely that we forget we are spiritual beings."

Secunda has been asking his patients the same question for years: "Tell me about your best experiences in life." Almost without exception, people relate experiences with nature. "Apparently we do know what's good for us, but we lead our daily lives as if we've

Exploring a sacred science

A documentary reveals how shamanic techniques can complement Western medicine.

IT'S NOT EXACTLY A HOSPITAL, AT LEAST NOT AS WE TEND TO think of them in the West: a wooden hut, tucked deep within the humid, sticky rainforest of the Peruvian Amazon, without a toilet, without running water, where batting away the insects is a full-time job. Yet this is where the protagonists of the documentary *The Sacred Science* found healing, after Western hospitals failed to help them.

Two years ago, director Nick Polizzi journeyed to the Amazon with eight Western patients and a film crew. For a month, shamans and medicine men treated the Westerners for conditions including breast cancer, Parkinson's, diabetes and depression. The camera followed the eight men and women as they drank herbal potions, took part in shamanic healing rites and spent lonely days and nights in their hammocks in tiny forest huts.

GRETCHEN STASEY, ONE OF THE EIGHT PATIENTS BEING TREATED BY SHAMANS IN THE DOCUMENTARY *THE SACRED SCIENCE*.

Gretchen Stasey was one of the eight. The accountant had been suffering for years from irritable bowel syndrome, which caused her daily pain from stomach cramps. She also experienced frequent headaches and chronic anemia. Doctors could do nothing to help her. She was on a steady diet of muscle relaxants and painkillers. "When I heard about this trip to the Amazon, I signed right up," she says. Stasey's family and friends were uncomfortable with that choice. "But I knew I wanted this," she affirms. "I wasn't satisfied with the solutions Western medicine was offering me."

In Peru, Stasey lived in her own tiny hut, as did the other seven patients; shamans believe that seclusion from the stimuli around us is an important component of the healing process. A shaman who had treated many intestinal problems prescribed a variety of medicines for Stasey, among them aloe vera and uña de gato (cat's claw). She participated in healing ceremonies. And she had a lot of time to think.

Stasey discovered that she had never processed a significant childhood trauma. "I suddenly saw everything very clearly," she says. "I had unfinished business in my head, which I had to confront before my body could heal." After three weeks, Stasey was symptom-free. The traditional doctor who regularly visited all eight patients in the jungle declared her anemia gone after just two weeks. She hasn't experienced cramping or headaches since her stay in the Amazon. Her blood counts and blood pressure were normal when she came home to America—her doctor had never seen a patient make such an astonishing recovery.

"In the West, we believe that our medical knowledge puts us in the vanguard," Polizzi says. "But we have no cure for very many diseases."

Polizzi's inspiration for the project began four years ago, when a friend was diagnosed with Parkinson's and he wanted to help find a way to cure him. He stumbled across statistics from researchers, such as tropical-plant expert Mark Plotkin, which showed that nearly 30 percent of Western medicines are based on plants and herbs that originate in the Amazon. Plotkin told Polizzi, "If you think of the Amazon as an encyclopedia of medicinal plants, then the shamans are the index and the table of contents."

A few weeks later, Polizzi met Roman Hanis, a shaman who invited Polizzi to the jungle. The plan to make a film was born there. Polizzi put out a call for patients willing to travel to the Amazon and promptly received 400 applications. He had to rigorously prune them. "A lot of people backed out when I told them what life was like in the jungle," he says, referring to the diverse fauna, which includes poisonous snakes, and the moist, sticky heat.

The filmmaker hopes *The Sacred Science*—available on DVD and through iTunes—will open people's eyes to new ways of healing. "Western medicine doesn't have all the answers," he says. Those who think of an old man sporting a feather headdress when they hear the word *shaman* will be surprised. The shamans in the film walk around in jeans, and mix their medicines in soft-drink bottles. But, Polizzi says, they possess knowledge that has been passed down from generation to generation. How valuable that knowledge can be is evident at the end of the documentary, when five of the eight patients come home from the jungle fully cured. | **ELLEKE BAL** | **FIND OUT MORE: THESACREDSCIENCE.COM**

PHOTOGRAPH: SACRED SCIENCE

forgotten," Secunda says. "Why else do we browse through tour guides looking at photos of exquisite natural spots in unspoiled locations? Those are the places where our souls can most easily connect with Mother Earth and where worry, stress and fear disappear."

Shamanism is benefiting from alternative medicine's growing popularity and is on the rise around the world. Introductory courses are being offered in many places, and suddenly the shaman no longer seems the outdated representative of a dying profession. But Brant Secunda is no "workshop shaman." More than 40 years ago, Secunda chose the path of adventure after graduating from high school. He traveled through Mexico until he met a village schoolteacher who was a member of the Huichol people. The teacher told him about the Huichol and encouraged him to visit the tribe.

Some 30,000 Huichol Indians live in tiny villages in the remote mountains of the Sierra Madre Occidental, where there are no major roads. The Huichol are considered the last tribe in North America to have been able—through their isolation—to preserve ancient shamanic traditions from before the time of Columbus. Today the Huichol still use largely the same rituals and ceremonial cycles their ancestors used.

Back then—and today—a visit to the Huichol meant a five-day walk from the civilized world. Three days after he began his journey, Secunda ran out of food and water. He realized he was irrevocably lost in the wilderness of the Sierra Madre. He wrote a letter to his parents, began to hallucinate and ultimately passed out along the roadside. He woke to see a pair of Indians bent over him. They told him that the shaman in their village—a two-day walk away—had dreamed they must rescue Secunda.

The event changed his life dramatically. "Up to that point, I had never ascribed meaning to dreams," Secuanda says. "It's earth-shattering to hear that someone you've never met has dreamed about you." The shaman's dream made him decide to join the life of the Huichol and to share their destiny. He trained for 12 years with Don Jose Matsuwa and became the first and only non-Huichol to be recognized by the tribe as a shaman.

To be recognized as a shaman, you must demonstrate that you can heal people. The Huichol pose an additional requirement: Shamans must be able to make it rain in the dry mountain regions, where there is no irrigation for the sparse crops the Huichol grow. Rain ceremonies last for days, and Secunda is convinced they are effective. Proof linking the several-day ceremonies and the rain's arrival may never be found, but once a shaman has been recognized, his life is no longer his own. "You belong to the community," Secunda explains, "and you're expected to use your talent to help those who need it. You never turn anyone away."

That principle fits Brant Secunda like a glove, and his warm personality makes him an ideal healer. He treats 15 to 20 patients per week and leaves it up to them how much they pay (see his website, danceofthedeer.com). Despite numerous miraculous recoveries, he remains down-to-earth about the success of his treatments. "The Huichol say it's ultimately up to the gods whether someone gets better. And that's true. If it's time for the leaves to fall from the tree, they'll fall." He adds with a laugh, "My father always says that's a good excuse."

Secunda, whose son Nico is also a shaman, says the Huichol view disease as an opportunity to discover what's off-kilter in your life and thus what you can improve. This means that attention to health isn't something confined to periods of illness. "Healing is a way of life," Secunda says. "It's a constant search for the balance between man and nature."

At the end of Wali's ceremony two years ago, Secunda made a chocolate sacrifice. According to the Huichol, chocolate forges the bond between mortals and the gods. If we eat more chocolate, the Huichol believe, we'll love life and the world more. It's a simple prescription, but perhaps an effective one—and delicious to believe either way. ■

JURRIAAN KAMP *wonders whether his passion for chocolate actually reflects latent shamanic talent.*

PHOTOGRAPH: VOLOSINA/SHUTTERSTOCK.COM

CHILDREN IN IVORY COAST ARE BEING TESTED FOR RIVER BLINDNESS THROUGH A PATCH TEST. THE PHARMACEUTICAL COMPANY MERCK AND THE WORLD HEALTH ORGANZATION DONATE FREE DRUGS TO COUNTRIES WHERE RIVER BLINDNESS OCCURS.

PHOTOGRAPH: UNIVERSAL IMAGES GROUP/GETTY IMAGES

A cure *for* neglect

How do you get more and cheaper medicines to poor countries? Wim Leereveld has an answer.

BY DEWI GIGENGACK

THE BLACKFLY IS NO ORDINARY fly. When this insect bites you—and that can happen in Africa—it may transmit a parasite that multiplies in your body. These tiny worms carry a microbe that can damage your eyes and cause blindness: river blindness, it's called. According to the World Health Organization (WHO), the microbe has already blinded half a million people.

In many countries where river blindness occurs, the pharmaceutical industry is absent. These countries aren't commercially attractive; the people are too poor to pay for medicine. Who wants to invest large sums in a cure for a disease when it won't produce a return on investment? River blindness is one of many neglected tropical diseases that strikes victims who have the misfortune of being poor.

Yet there is a cure for this disease. Mectizan is manufactured by the American pharmaceutical company Merck. The company developed the drug in 1987 for animals, but when it turned out to be effective against river blindness, Merck decided to donate it to countries where the disease was present. Given the economically challenging times and demands for shareholder value, it would have made solid business sense for Merck to stop manufacturing and distributing Mectizan. But Merck decided instead to expand

WIM LEEREVELD DEVELOPED THE ACCESS TO MEDICINE INDEX, WHICH REVEALS HOW THE 20 LARGEST PHARMACEUTICAL COMPANIES PERFORM IN TERMS OF MAKING DRUGS AVAILABLE IN DEVELOPING COUNTRIES.

PHOTOGRAPH: PATRICIA WOLF

the program, in partnership with the WHO, and recently has even been working to eradicate the disease entirely. None of this work earns Merck a penny.

To Wim Leereveld, Merck's example illustrates a fundamental change in the pharmaceutical industry, in which he was active for 15 years. Leereveld himself is a contributor to that change. Since 2008, his foundation has published the biannial Access to Medicine Index, which reveals how the 20 largest pharmaceutical companies perform in terms of making drugs available and affordable in developing countries. "The index is my contribution to a more egalitarian world," Leereveld says. "It's a positive way of stimulating companies in this area."

Among other things, the index investigates how much research and new drug development pharmaceutical companies are doing for diseases in developing countries. Do they set lower prices for the poorest? Do they share their patents with companies in developing countries? Who's responsible for making it happen—the CEO or some minor department in a forgotten corner of the company? And how transparent are they about their attempts to make medicines available to the areas with the least access?

When I interviewed him, Leereveld and his team were still frantically finalizing the third edition of the index in strict secrecy. When it was published at the end of November, GlaxoSmithKline again hold the No. 1 spot, as it has in the two previous editions of the index. But other companies are closing in. "The entire field is moving forward, so those who do nothing extra will be left behind," Leereveld says.

In general, the pharmaceutical industry does more for the poor than it used to. Drug companies develop more medicines for tropical diseases and reduce their prices for certain populations. But there is room for improvement, the index notes: Companies should be more transparent about lobbying practices and release research data sooner so those in developing countries can obtain generic drugs.

According to the WHO, at least one-third of all people in the world—more than 2 billion people—have no access to medicines. "That's an incredible number of people," Leereveld says. "The fact they die from infections that can be cured using simple antibiotics is a problem that belongs to all of us—to politicians, to aid organizations, to society as a whole and to Big Pharma."

LEEREVELD, SITTING AT A LARGE wooden conference table in his office in downtown Haarlem, the Netherlands, speaks with the passion of an entrepreneur making a sales pitch. Now and then he stands up and paces the room as he gestures, or he points out something on the flip chart that holds the index from 2010. In the bookcase is a photo of him with Margaret Chan, the WHO's director general. He prefers to leave the door to the street open, he says, "so I'm in contact with the city."

Emergency kits from aid organizations aren't enough to solve the problem of those 2 billion people, Leereveld says. Even more activist-oriented organizations, such as Oxfam Novib, which tell the pharmaceutical industry what it's doing wrong, are not yet achieving the desired result. And the WHO, founded to promote the health of all the world's citizens, can't do it alone.

"If we want to do something about it, we have to work together," Leereveld says. "By encouraging companies to do something good, you create a different dynamic than the one you get when all you do is criticize. Besides, without Big Pharma, the rest don't stand a chance."

The pharmaceutical industry certainly is big. According to figures from Datamonitor's 2012 *Pharmaceuticals: Global Industry Almanac*, the global pharmaceutical market had a value of $733 billion in 2010. The world's most profitable pharmaceutical company is Pfizer, with more than $10 billion in profit in 2011, according to the *Fortune 500* list. Are these publicly traded giants capable of corporate social responsibility? Do they care about the children in developing countries who die from infections because they cannot get antibiotics?

Not many people believe so. According to a 2012 report by Harris Interactive, only 31 percent of Americans have a positive attitude toward the pharmaceutical industry. Leereveld understands the skepticism. But it isn't that cut-and-dried, he says. Sometimes poor countries are attractive to companies; after all, they're emerging markets. That's what drives Johnson & Johnson to work with the Chinese Ministry of Health to combat infant mortality from lack of oxygen. Hospital personnel are trained in first aid for babies and in the use of portable oxygen tents for newborns. In exchange, Johnson & Johnson hopes to be able to do more business in China.

Leereveld believes the greatest change the index has affected in the pharmaceutical industry is openness: "Thanks to their poor reputations, companies were reluctant to make information public, even about the good things they do. All that's changed. Now they even give us sensitive information, such as research into new drugs, so we can evaluate them."

Leereveld was able to convince companies to line up against his yardstick because he knows the pharmaceutical world from the inside. After brief training in andragogy (the science of teaching adults), Leereveld spent 15 years at the helm of Bugamor, a company that sold services such as databases

and information systems to pharmaceutical companies. He was constantly visiting pharmaceutical companies for his work. "I noticed they were particularly interested in the question 'What's the competition doing?' They were very focused on that." When his company went public in 1994, it freed Leereveld to do the work he wanted to do.

He bought a building in Haarlem and fixed it up. "The first thing I did after that was commission this table." Leereveld places a hand on the large, square piece of furniture, which nearly fills the room. "I wanted people to sit around this. How or what for, I didn't yet know, but it needed to be something with social relevance."

He started the Global Companies Foundation to link businesses with opportunities for development work. He visited Africa Day celebrations in the Netherlands, became politically active with the Dutch Labor Party, read books on global issues and took out a subscription to *Ode* (the forerunner of The Intelligent Optimist). "In short, I was orienting myself," he says, "and I realized we need to do something about these issues. I felt the pharmaceutical industry also had a role to play."

The idea of comparing pharmaceutical companies came to Leereveld in 2002, when he saw an overview of how transparent companies were regarding their policies on corporate social responsibility. It was a eureka moment. "I thought, *That's it*," Leereveld remembers. "We have to compare these companies with each other on a variety of points. That will stimulate them to make improvements. Because while pharmaceutical companies respect social organizations and governments, they respect each other more. They don't want to play second fiddle to a competitor."

Leereveld goes on to recount presentations at WHO and UN conferences and to large pharmaceutical investors. He traveled around the world—to Geneva, London and New York, where the decision makers were. To Africa, too? "No, I won't go to Africa just to see how pitiful things are there."

At first, hardly any companies were willing to participate in his index. Even GlaxoSmithKline, which had always been at the forefront, was afraid it would fare poorly in comparison with others. Elsewhere, his story was convincing. Key figures such as Margaret Chan and Mary Robinson, the former president of Ireland and the UN high commissioner for human rights, began to believe in the index's value. Ultimately, every major player joined him. Group pressure helped convince the pharmaceutical companies to open up.

Leereveld succeeded in publishing the first index in 2008, and it got him into the *Financial Times*. Since 2009, Bill Gates has also supported the Access to Medicine Foundation, contributing more than half a million dollars per year through his own foundation.

Complete industry cooperation is no mean feat. "We ask a lot of them," Leereveld emphasizes. He lists the requirements: Companies must state how much they invest in new medicines to treat tropical diseases, how the packaging and instructional leaflet are adapted for the index countries, how they participate in public discourse on access to medicines, how they share knowledge with stakeholders and how they share their technical expertise on the manufacture, storage and administration of medicines with the index countries. "Sometimes they have to put 80 employees to work on our behalf," Leereveld says, "but they do it."

The index also garners occasional criticism, such as from non-profit organizations that believe companies present their policies in a better light than the reality supports. Another point critics make is that many new medicines primarily serve the interests of the pharmaceutical industry, and the index should do more to change that. "It's true, we can't always check the veracity of the data provided to us," Leereveld responds. "But companies keep such a close eye on one another that lies would soon be exposed. And no one is eager to generate negative

> "By encouraging companies to do something good, you create a different dynamic than the one you get when all you do is criticize"
>
> **WIM LEEREVELD, FOUNDER ACCESS TO MEDICINE FOUNDATION**

publicity. It's a self-regulating system."

Earlier this year, 13 pharmaceutical companies made a promise: By 2020, 10 neglected tropical diseases will be eradicated or, at the very least, "under control." Diseases they want to attack include sleeping sickness, which is caused by a parasite transmitted by the tsetse fly and leads to death if untreated; leprosy, an infectious disease, active primarily in Southeast Asia; and black fever, a parasitic infection transmitted by sand flies that kills 50,000 people each year. "That's spectacular," Leereveld says. And he's proud to have heard that his index "was apparently an important catalyst" for this development.

Yet the industry has a long way to go. There is still much research to do into new medicines for tropical diseases, and companies must further adjust their prices in certain countries. The index will be necessary for quite some time to come, Leereveld believes: "The ultimate goal is to free countries from dependence on Big Pharma and enable them to manufacture medicines themselves. That's good for employment, too. But for that to happen, companies will have to open up their patents."

The pharmaceutical world is driven by money, Leereveld concludes, but that's changing. He even believes that the pharmaceutical industry can serve as an example to other industries. "It isn't them-against-us," he says. "It's *our* industry, and we have to help them do the right thing. Inside those companies, there are all kinds of people who are permanently stationed in Africa and who fight internally against the real hardliners who only think about money. With the index, we've put a weapon in those people's hands."

DEWI GIGENGACK *counts herself lucky to work at* The Intelligent Optimist*'s editorial office, where there's little chance of contracting river blindness.*

Prizes, not patents

WHEN KANA SURESHAN WAS 14, HIS MOTHER WAS BEDRIDDEN with tuberculosis. To earn some money, Sureshan had to work throughout high school and college. Every weekend and many after-school hours, he worked to provide for his mother and his siblings. Years later, Sureshan, by then a young researcher trained in organic chemistry, learned about a prize challenge to design an innovative method for creating tuberculosis medicines. He came up with a solution—simplifying the chemical process needed to create a promising medicine. Sureshan, a senior scientist at the Institute of Life Sciences, based in Hyderabad, India, was awarded the $20,000 prize in 2007.

The prize was organized and awarded by InnoCentive, a company based in Waltham, Massachusetts, that offers monetary prizes to those who solve technological challenges. Innovation prizes such as this one can stimulate the development of medicines for the poor. As little as 10 percent of the global expenditure on research and development in health is dedicated to problems that affect the world's poorest 90 percent, according to a much-cited figure from the Global Forum for Health Research. At the same time, patents keep prices high for new medicines.

A PARAMEDIC CHECKS THE BLOOD PRESSURE OF A MAN WITH SUSPECTED TUBERCULOSIS IN MAKASSAR, INDONESIA.

Innovation prizes, by contrast, can stimulate research into medicines that lack a profitable market while also improving affordability, since prizes can help prevent a patent monopoly. That last part may even be key, as universal access to medicine can be achieved only when prices are kept down. Prizes have shown they have that potential.

To those involved with Doctors without Borders/Médecins San Frontières, experience with treating patients in developing counties has made it clear that "the current incentive mechanism based on high prices just doesn't work for poor patients," says Judit Rius Sanjuan, U.S. manager of MSF's Access Campaign, based in New York City. MSF has promoted monetary prizes for a diagnostic test for multi-resistant tuberculosis as well as for a better cure for Chagas disease, a debilitating and often fatal tropical disease. Meanwhile, innovation prizes are high on the agenda at the World Health Organization as it attempts to create a global framework for financing R&D to promote health in developing countries.

Since 2001, InnoCentive has awarded thousands of monetary prizes, ranging from $500 to more than $1 million, for a variety of technological challenges. Some are medical, like the $1 million prize in 2004 for a major milestone in developing a biomarker for combating ALS, a fatal neurodegenerative disease. InnoCentive's clients are nonprofits, businesses, governments and private foundations—in Sureshan's case, the Rockefeller Foundation—that cough up the money to have problems solved. Innovation prizes not only help fight diseases that may otherwise be neglected; their inclusive nature and the financial reward can drive any researcher with a clever idea to contribute to the process of innovation, which is typically shrouded in secrecy. "Open innovation" appears to be an alternative to the current innovation model. "It allows for the technology to spread beyond the labs of Big Pharma," says Rius Sanjuan. | **SOPHIE BLOEMEN**

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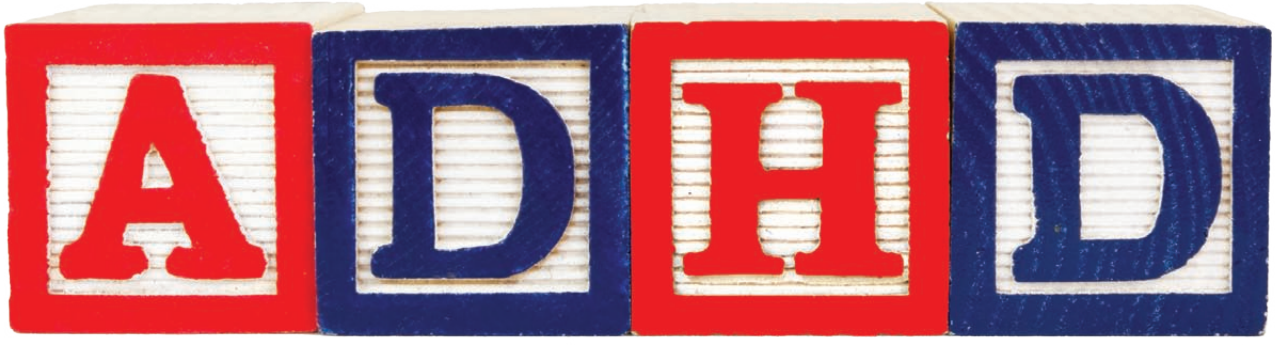

How researcher Lidy Pelsser defeated skeptics and succeeded in treating ADHD through diet. BY HANNY ROSKAMP

TWELVE-YEAR-OLD RUBEN IS SITting on a podium in front of a room full of academics and journalists. He's beaming, as is his mother beside him, and doesn't seem the least intimidated by the learned audience. Ruben had attention deficit hyperactivity disorder (ADHD)—past tense. Initially, there appeared to be no solution for his symptoms other than Ritalin. "But it made me really sad," he says, speaking candidly about the time he took the medication. "Suddenly, out of the blue, and I didn't know why."

Yet the solution to his hyperactivity disorder lay in a relatively simple eating regimen called an "elimination diet." For the past year he's been avoiding a handful of foods—tomatoes, eggplant and potatoes—and "now I feel normal," says Ruben. "I don't pick as many fights and my parents don't get angry at me so much." His mother adds: "He's turned into a really nice, sweet kid."

In the auditorium of the University of Nijmegen in the Netherlands, mother and son are guests at the doctoral ceremony of Lidy Pelsser. She is a scientific researcher who started her career as a veterinarian and spent 10 years studying hundreds of children to clarify the relationship between food and ADHD. "ADHD disappears among 60 percent of the children we treat with the elimination diet," Pelsser says. "The child returns to normal; he gets his youth back."

The first four weeks of the elimination diet involve removing all foods that are known to cause health problems. What remains is a strict but healthy diet. If the symptoms disappear, the second phase begins and foods are reintroduced step by step and then rotated. As soon as something triggers problems, it is placed on the list of "bad foods." Following completion of the diet, the list usually contains three to six foods that cannot be eaten. The diet works for over 60 percent of children with ADHD, a result that was published last year in *The Lancet*.

For years, sugar and artificial additives like coloring agents were targeted as a potential cause of ADHD. The idea that it had something to do with our "unnatural" diet was popular among alternative healers. Scientists also researched this possibility, but their studies revealed no connection. Sugar temporarily makes all children a little hyperactive, and artificial colors occasionally have an effect by triggering hypersensitivity reactions, but there is no indication that they lead to ADHD. And now Pelsser's study proves that ADHD is related to food, albeit usually normal, healthy food. "It isn't due to 'poison' or 'artificial colors,' but normal foods, healthy foods that some children react to," Pelsser says.

Pelsser is now busy training doctors so even more children can be helped. At the same time, she is drafting a protocol whereby

PHOTOGRAPHS: JOE POTATO/ISTOCKPHOTO.COM; JADER ALTO/AGEFOTOSTOCK.COM


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ADHD is approached first as a condition that can be treated using the elimination diet. Medication should only be considered if that proves unsuccessful.

Important work, it would seem, given that the increasing numbers of adults and children with ADHD have great difficulty functioning in society. They lose things, can't sit still, forget appointments and find even simple recordkeeping impossible. This not only makes their lives incredibly difficult, but their families also suffer from the chaos and stress associated with ADHD. The children are unmanageable and are moreover stigmatized as difficult, which seriously undermines their self-esteem.

> "ADHD disappears among 60 percent of the children we treat with the elimination diet. The child returns to normal; he gets his youth back"

More and more children are prescribed Ritalin because it calms them down. Like other amphetamines, Ritalin increases the dopamine levels in the brain. This, in turn, increases concentration and motivation.

In the U.S., nearly 10 percent of children between the ages of four and 17 are diagnosed with ADHD. The number of American children with the diagnosis is increasing 3 to 5 percent each year. And 2.7 million of those diagnosed with ADHD are prescribed medication, according to the Centers for Disease Control and Prevention.

Ritalin or Concerta, the more expensive alternative that is taken just once a day, only reduces symptoms. The effects of using Ritalin have not been sufficiently investigated, but it is clear that children whose brains are still developing run greater risks than adults. Addiction is a known risk. And sleeplessness, depression, high blood pressure and an accelerated heart rate are generally recognized side effects.

For Lidy Pelsser, dedicating her life to ADHD was not a foregone conclusion. But Pelsser, a friendly yet firm woman with bright eyes and loads of energy, discovered she was beginning to find people's problems more interesting than those of animals she worked with as a veterinarian. This reinforced her interest in psychology and psychiatry.

She became fascinated by a completely different approach to mental and physical disorders. "A doctor who sees someone with a stomachache first looks to see if his patient has appendicitis or 'just a little gas,'" she explains. If he didn't, he would quickly be summoned to appear before the Medical Practitioners Disciplinary Tribunal. But as soon as it concerns a mental issue—like ADHD—other standards apply. "Psychiatrists and psychologists start treating symptoms without looking for the source," she says, adding that she could not reconcile this with her scientific background.

While researching her Ph.D, Pelsser discovered that a number of studies had been published by child psychiatrists in Germany and the UK who had successfully used the elimination diet to treat ADHD. They found that the symptoms disappeared within a few days to weeks, and the child returned to normal. "These child psychiatrists were already advising application of the elimination diet," Pelsser says. "But nothing was done with their advice. That intrigued me. Why is this systematically ignored?"

Pelsser wondered whether the studies were flawed or something was overlooked. "I couldn't imagine that food could have such an enormous effect on behavior. I

PHOTOGRAPH: URSAHOOGLE/ISTOCKPHOTO.COM

thought it couldn't be true and that I needed to redo the research, and do it better."

Because the advances for children are, in Pelsser's terms, "gigantic," she now considers her ADHD work an integral part of her life. "It's gut-wrenching each time I hear how a child is after the diet compared to before," she says. "The enormous difference, the enormous impact of food!"

The truth is, no one is sure what exactly ADHD is, including the patients themselves. Neurologists can see the deviations in brain activity on scans. And parents are filling out questionnaires to help give the psychiatrist an idea of the child's behavior. But the spectrum of concentration problems and impulsivity is very broad and impossible to define. Nor have reseachers found a clear cause of ADHD, let alone why certain foods could be a trigger for some but not for others.

In 2009, the Dutch National Institute for Public Health and the Environment said that given the results of Pelsser's study, further research is needed into the link between food and ADHD. And yet the institute recently suggested there must be a placebo effect involved, because the study was not adequately double blind. After all, children, parents and doctors could have influenced the results because they knew about the dietary measures. In a truly double blind study, they would remain unaware of such measures.

The American ADHD expert Russell Ramsay also considers this a limitation to Pelsser's research. "The extra attention and structure [the diet] adds in a family setting might already help improve behavioral problems, in addition to parents' expectations that the child will get better." But he adds that it is a very positive step that the link between ADHD and food is being seriously investigated. He also calls the research "an important contribution to the discussion" and hopes for a follow-up study.

Pelsser doesn't pay much attention to the criticism. She says that within the structure of the study, she got as close as possible to the double blind ideal. "It is very distressing, particularly for children with ADHD, that people are so closed to new developments."

Still, Pelsser is gaining increasing recognition internationally. She recently addressed a conference of 500 psychiatrists and psychologists in Copenhagen. Over half champion the idea of applying the elimination diet as a standard approach for children with ADHD and favor including "food-induced" ADHD in the *Diagnostic and Statistical Manual of Mental Disorders*, the classification system of psychiatric disorders. "I consider that a breakthrough," she says.

NO MATTER HOW BIG THE BREAKthrough, there are disadvantages to the elimination diet. It is not easy to stick to, particularly in the early phase when the diet is very strict. Constantly focusing on what you're eating is no fun, especially for children. However, it becomes clear within a few weeks whether food is the culprit. If not, there is always medication. But if the diet works, the child enters the phase of adding different foods and figuring out which ones are "bad" when symptoms reappear.

Once that phase is completed, the diet becomes easier. The child only has to avoid a handful of foods that trigger symptoms. Moreover, these children experience such a big difference in how they feel that most are motivated to eliminate foods. There are, of course, children who give up and simply cannot get through the first difficult weeks.

Pelsser is eager to develop methods that can uncover more quickly which foods a child will react to so the elimination diet is no longer necessary. It is possible that ADHD is an allergic reaction. Most children with ADHD also have physical complaints that could point to an allergy, such as intestinal complaints or eczema. This prompted her to compare the results of the elimination diet with the outcomes of existing allergy tests. However, these comparisons revealed no connection. Pelsser thinks that in time, the immune system may prove to play a role and that there may be a way to diagnose food-induced ADHD via the blood. But that role has yet to be clarified.

Another disadvantage to the elimination diet is that there is still a shortage of physicians qualified to apply it. As a result, there are long waiting lists. But Pelsser is against the idea of quickly training a host of nutritionists, because ADHD involves child psychiatry. "If we can't conduct a proper investigation, the results will be equally unacceptable," she says. "That would be incredibly unfortunate for the children. At a later stage, once it's clear which foods the child reacts to, a nutritionist can play a role in helping to guide the family."

Unfortunately, there is also no standard list of foods that most commonly lead to symptoms. It is an individual diet. The doctor must first determine whether the child even has food-induced ADHD and, only then, which foods might be triggers. These will differ for each child, although several are nearly always involved – generally three to five. Says Pelsser: "If I say fish is usually more of a trigger than beef, everyone will start avoiding fish, perhaps unnecessarily. That wouldn't help these children. If we came up with a random list, we'd be using them as guinea pigs. Bad foods for one child might be fish, tomatoes and oranges while for another it might be fish, strawberries and chocolate or beef and eggs."

Pelsser is eager to develop methods to determine more quickly which foods a child will react to so the elimination diet is no longer necessary

Ruben has been helped, along with an increasing number of children who followed the elimination diet. His diet hasn't yet been perfected and is still sometimes challenging for him, although the list of allowed foods is growing steadily. "You can't just eat what you want, and that's hard, especially with friends," Ruben explains. "If everyone around you is eating french fries or chips, you want some too, which is tough. But I know why I'm doing it so it's ok." ■

HANNY ROSKAMP *has often been diagnosed with ADHD–by friends, not by experts.*

PHOTOGRAPH: BERT JANSEN

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The revenge *of the spirit*

Humanity stands at the threshold of a new era: the era of consciousness. After conquering the external world, human beings will discover their inner selves.

BY JURRIAAN KAMP

WE NEED SOMETHING NEW. The daily news makes the case for very different approaches and solutions. Whether it is the next storm of the century that some say is linked to our own behavior, the political stalemate in the U.S., the financial system that keeps failing most people or expensive health-care structures that don't truly heal, the call for change is everywhere. Not just change. *Fundamental change*.

Future scenarios do paint a radically different world. However, most solutions are cast in terms of ever more clever technology. In fact, if today's society is characterized by the interplay between technology, communication and the market economy, the conventional view of the future is more of the same: *more* technology, *more* communication and *more* market. Simply put: We are waiting for an even more compelling iPad. Add to that *more* speed, and the future becomes an accelerated extension of the past. But that's exactly what the hunter thought before the farmer replaced him. And the coachman never saw the automobile coming.

No, our future probably won't be one in which technology, communication and the market dominate even more. "I don't believe the science fiction like *Star Trek* where people are essentially the same 400 years in the future," says renowned physicist Stephen Hawking. He predicts that biological systems will continue evolving to keep ahead of electronic ones and rejects the idea that technological inventions will remain the focus in a world devoid of new social breakthroughs.

Could it be that our ancestors foresaw our challenges? Many ancient traditions have predicted a new era at this time. The Mayan calendar with its end date of December 21, 2012, is a sign of such a new beginning. The stories of these traditions speak about a new phase of our development that is not about technology but about harnessing our inner potential. The promise is that we are at the threshold of a consciousness revolution. Some compare the opportunity to the cultural renaissance of 15th-century Italy, which made room for humanity in a world ruled by an omnipotent god. The new, spiritual, renaissance opposes our god—the power of the market and technology—and offers humanity a new social place.

In past centuries, humanity has enthusiastically pursued the discovery of everything that can be seen and touched. The overwhelming question regarding the "why" of our existence—the understanding of consciousness—was shoved aside. But that doesn't mean evolution can escape the question. Physicists have been discovering ever-smaller particles. There is no smallest piece of matter. It seems that matter is ultimately dissolving in energy. At the same time, brain research shows that our thoughts—the proof of our consciousness—are energy as well. So it may well be that the science of matter is bringing us closer to our biggest "why?"

History offers hope. Evolution is marked by trendbreakers. Problems lead to new solutions. Once, millions

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of years ago, oxygen was a poisonous gas produced by the first bacterial life on Earth. It became concentrated in the atmosphere and threatened to suffocate the tender life below. You might call it the first gigantic environmental crisis. Salvation came through the development of organisms that took in that oxygen and started "breathing"—organisms that *lived on* oxygen. We owe our existence to an unprecedented environmental disaster.

These examples are everywhere. When hunting and gathering became unwieldy for the growing population, agriculture was born. Harvesting crops made it possible for people to settle in one place. The industrialization of the past century was an answer to the social constriction of the feudal agrarian society. The rise of industry brought with it the free life of the city. With the Industrial Revolution came human rights, democracy and the welfare state, but since then material progress has run aground in social alienation. Consumer society is suffocating in worldwide pollution. Thus the same industrialization that once offered an innovative breakthrough for society is creating more problems than it solves. It is hard to imagine that more technology, better iPads, will provide an answer to this systemic problem.

It is more likely that Albert Einstein will once again prove right: Problems cannot be solved at the same level at which they were created. Like the bacteria that transformed themselves into breathing organisms, life must develop to survive.

Perhaps environmental pollution and the painful gap between the rich and the poor do not constitute the major challenges of our civilization. Perhaps the real challenge lies in the way humankind meets the world—that is, in human consciousness. Consciousness is what makes us unique in the history of evolution. But we have yet to embrace fully what it means to be human.

For psychologist Sigmund Freud, man was determined by elemental, material passions: the need for food, sex, security. Matter does indeed provide security, but ultimately more matter does not provide more security. The serious problems of modern civilization can be attributed to the fact that advancing material development has not gone hand in hand with spiritual development. External evolution requires internal evolution. That was the dimension Abraham Maslow added to the basic Freudian needs: our search for meaning. We strive to develop our consciousness, to achieve self-actualization.

Spiritual development as humanity's ultimate goal is not new, of course. It's a theme that's been around 6,000 years. Enlightened spirits such as Lao Tse, Confucius, the writers of the Indian Upanishads and Rig Veda, Buddha, Socrates, Plato, Moses, Christ and Mohammed all devoted their lives to this pursuit (Author's note: I know many women have led this lineage and shamefully, their names are not in the history books.) But they were lone voices in their day. The Information Age has put consciousness at a more prominent place on the agenda than ever before. The Internet links billions of us together, and we influence and inspire each other ever faster and more often. That means new insights are finding their way more easily. Jesus didn't have the Web at his disposal.

An interesting research project seems to confirm that we are all part of a collective consciousness. Laboratory experiments had shown that human intention could induce small but significant changes in the output of so-called random number generators. Such instruments randomly flip virtual coins. Over time, there should be roughly as many heads as tails. However the experiments showed that human intention could change the outcome of these machines.

This research inspired Roger Nelson, a cognitive psychologist at Princeton University, to start the Global Consciousness

Project in 1998. In cooperation with scientists around the world, Nelson put 65 machines generating random numbers at sites around the world. In the past 15 years, Nelson has seen global events resulting in collective emotions add structure to the random data of the instruments. The best example is provided by 9/11; when the World Trade Center fell, the instrument readings changed radically and remained constant for more than two days. The death of Princess Diana is another good example, as is the 2004 tsunami. Could these examples show that the Earth has a holistic response to what happens to her residents? Is there a global mind?

Nelson's work with the Global Consciousness Project points toward a promise held in almost all cultures of a oneness, an interconnection fundamental to life. Yet in his experiments this connection is unconscious. A different dimension may open if we deliberately direct our awareness to achieve certain results.

Experiments by British biologist Rupert Sheldrake suggest many more possibilities for communication than we realize. Sheldrake has shown that if a group of people completes a newly created crossword puzzle, which is then broadcast to millions on TV for viewers to complete, a new group that has not seen the puzzle will finish it significantly faster than the original group. Sheldrake and fellow researchers have also conducted experiments showing that we can sense the thoughts and intentions of others across space and time.

AUTONOMOUS DEVELOPMENT, OR self-direction is the logical next step in human evolution. Self-direction is the new definition of freedom. People will be more and more involved in designing their own lives. We will become masters of our brains. For centuries, external direction has been the model. Humanity has thought and lived within the framework of dominion: Humanity ruled nature, man ruled woman, rich ruled poor. There were rules that had to be followed, and examination and police were the instruments for compelling obedience. That "totalitarian" system has shaped the conditions for the next phase of individual autonomy.

The time has come for the spirit to escape from institutions, organizations, structures, strictures and systems. The development of the economy, technology and society is bringing human autonomy closer and closer. Modern individuals have infinitely more opportunities to organize their own lives than did those of previous generations. We are at the threshold of a revenge of the spirit. This is the top of Maslow's pyramid: self-realization. Consciousness separates the human being from other living creatures. We are all recognizably unique and our desire is to fulfill that uniqueness. The next phase of evolution is about becoming conscious beings that direct ourselves. That's the way to happiness, vitality, intelligence and health.

This vision of the autonomous individual should not be confused with the current culture of individualism. At a higher level of awareness, the autonomous person realizes her independence relies on the respect and tolerance of others. As more and more people find their own way to spiritual development, they realize that every person, every creature, is part of a greater whole. This growing awareness is changing society. Personal development on a large scale—in sharp contrast with the collective mass hysteria of the various religions—adds a new dimension to the evolution.

If the expansion of consciousness is the mark of the future, it will have a profound effect on the way we equip and organize our world. As awareness rises, equality and community become stronger forces at the expense of old-fashioned, overly controlling

rules and overly dominant institutions that promote competition. We will see less emphasis on power, more space for self-organization. That will amount to less winning or losing and more spontaneous synergy on the road to a common outcome.

We are discovering that the pollution of the mind gave rise to the pollution of the environment and that ecology is not just about preserving resources and nature but about realizing humanity's place in the creation of the universe. "Self-realization will make us spontaneously inclined to value and defend the integrity of the world around us," said Arne Naess, the founder of the deep ecology movement.

Self-direction will transform standardized education systems, as children cease to be asked to parrot what they read in books selected by their teachers and parents but learn to discover, develop and capitalize on their own talents. Self-determination is also crucial for our health. Autonomous individuals are more healthy individuals. And so increased consciousness will dismantle the expensive, rule-bound system of health care.

Yes, there will be more technology. But that technology will continue to support, not dominate, humanity. More conscious human beings will find even better ways to communicate. Telepathy, for instance. Why should we make a phone call if we can read each other's thoughts?

The expansion of consciousness will change the world beyond anything we can imagine. Peasants living in the agrarian society of a few hundred years ago could hardly have foreseen that one day everyone would be able to read and write. Yet that became the norm in the Industrial Age. In the same way, "consciousness literacy" will soon be a universal feature too. The flood of spiritual books, yoga studios, workshops and retreats points in that direction. All those readers and students are searching for more in their lives than material prosperity. That development will generate the future. People have always imagined things before they created them.

> Self direction is the new definition of freedom. People will be more and more involved in designing their own lives

During the Second World War, Manhattan Project scientists discovered that the energy contained in the nucleus of the atom could be used to create a bomb a thousand times more powerful than any explosives then available. Peter Russell, British author of *The Global Brain* and *The White Hole in Time*, is now calling for an "Inner Manhattan Project" to realize the potential of human consciousness. If that force is released, we will discover solutions to problems that seem insoluble today (see our article on building peace through meditation on page 42).

In the end, what an Indian master once told me accurately describes our mission: "The greatest journey we can make is the journey within. While going nowhere, while staying right here, we can travel an even greater distance inside." That journey begins with feeling, listening, looking and experiencing, and sometimes by taking a moment in our busy lives to experience our connection with creation, to invite the future in, to discover that happiness is more than matter or property, to learn that health is, first and foremost, an individual, inner experience.

We have been on this journey for some time. Sages have told us about the "why" of our existence for thousands of years. We are swiftly reaching a turning point. We have known our new direction for a while. Who doesn't remember the song "Aquarius" from the musical *Hair*?

When the moon is in the seventh house
And Jupiter aligns with Mars
Then peace will guide the planets
And love will steer the stars

Come, let's invest in our dreams of a world renewed, trusting that a new era is now supporting our longing. "It is our duty—as men and women—to behave as though limits to our ability do not exist. We are collaborators in the creation of the universe," said French philosopher Pierre Teilhard de Chardin. And we should never forget that we are here to trust and realize our dreams. There's no more fundamental change. ■

JURRIAAN KAMP *is sharing the Oneness Declaration by Ervin László (see page 42) with his friends and encourages you to do the same.*

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The Oneness

★ **I AM PART OF THE WORLD. THE WORLD IS** in me, and I am in the world.

★ **I AM PART OF NATURE, AND NATURE IS** part of me. I am what I am in my communication and communion with all living things. I am an irreducible and coherent whole with the web of life on the planet.

★ **I AM PART OF SOCIETY, AND SOCIETY** is part of me. I am what I am in my communication and communion with my fellow humans. I am an irreducible and coherent whole with the community of humans on the planet.

★ **I AM MORE THAN A SKIN-AND-BONE** material organism. My body and its cells and organs are manifestations of what is truly me: a self-sustaining, self-evolving dynamic system arising, persisting and evolving in interaction with everything around me.

★ **I AM ONE OF THE HIGHEST, MOST** evolved manifestations of the drive toward coherence and wholeness in the universe. All systems drive toward coherence and wholeness in interaction with all other systems, and my essence is this cosmic drive. It is the same essence, the same spirit, inherent in all the things that arise and evolve in nature, whether on this planet or elsewhere in the infinite reaches of space and time.

★ **THERE ARE NO ABSOLUTE BOUNDARIES** and divisions in this world, only transition points where one set of relations yields prevalence to another. In me, in this self-maintaining and self-evolving coherence- and wholeness-oriented system, the relations that integrate the cells and organs of my body are prevalent. Beyond my body, other relations gain prevalence: those that drive toward coherence and wholeness in society and in nature.

★ **THE SEPARATE IDENTITY I ATTACH** to other humans and other things is but a convenient convention that facilitates my interaction with them. My family and my community are just as much "me" as the organs of my body. My body and mind, my family and my community, are interacting and interpenetrating, variously prevalent elements in the network of relations that encompasses all things in nature and the human world.

★ **THE WHOLE GAMUT OF CONCEPTS** and ideas that separates my identity, or the identity of any person or community, from the identity of other persons and communities are manifestations of this convenient but arbitrary convention. There are only gradients distinguishing individuals from each other and from their environment and there are no real divisions and boundaries. There are no "others" in the world; we are all living systems and are all part of each other.

★ **ATTEMPTING TO MAINTAIN THE SYSTEM** I know as "me" through ruthless competition with the system I know as "you" is a grave mistake: It could damage the integrity of the embracing whole that frames both your life and mine. I cannot preserve my own life and wholeness by damaging that whole, even if damaging a part of it seems to bring me short-term advantage. When I harm you, or anyone else around me, I harm myself.

Declaration

Sixteen hallmarks of the new consciousness. BY ERVIN LÁSZLÓ

★ **COLLABORATION IS THE ROYAL ROAD** to the wholeness that hallmarks healthy systems in the world. Collaboration calls for empathy and solidarity, and ultimately for love. I do not and cannot love myself if I do not love you and others around me: We are part of the same whole and so are part of each other.

★ **THE IDEA OF "SELF-DEFENSE," EVEN OF** "national defense," needs to be rethought. Patriotism if it aims to eliminate adversaries by force, and heroism even in the well-meaning execution of that aim, are mistaken aspirations. A patriot and a hero who brandishes a sword or a gun is an enemy also to himself. Every weapon intended to hurt or kill is a danger to all. Comprehension, conciliation and forgiveness are not signs of weakness; they are signs of courage.

★ **"THE GOOD" FOR ME AND FOR EVERY** person in the world is not the possession and accumulation of personal wealth. Wealth, in money or in any material resource, is but a means for maintaining myself in my environment. As exclusively mine, it commandeers part of the resources that all things need to share if they are to live and to thrive. Exclusive wealth is a threat to all people in the human community. And because I am a part of this community, in the final count it is a threat also to me and to all who hold it.

★ **BEYOND THE SACRED WHOLE WE REC**ognize as the world in its totality, only life and its development have what philosophers call intrinsic value; all other things have merely instrumental value: value insofar as they add to or enhance intrinsic value. Material things in the world, and the energies and substances they harbor or generate, have value only if and insofar as they contribute to life and well-being in the web of life on this Earth.

★ **EVERY HEALTHY PERSON HAS PLEASURE** in giving: It is a higher pleasure than having. I am healthy and whole when I value giving over having. The true measure of my accomplishment and excellence is my readiness to give. The amount of what I give is not the measure of my accomplishment and excellence, but the relation between what I give and what my family and I need to live and to thrive.

★ **A COMMUNITY THAT VALUES GIVING** over having is a community of healthy people, oriented toward thriving through empathy, solidarity and love among its members. Sharing enhances the community of life while possessing and accumulating creates demarcation, invites competition and fuels envy. The share-society is the norm for all the communities of life on the planet; the have-society is typical only of modern-day humanity, and it is an aberration.

★ **I ACKNOWLEDGE MY ROLE AND RE**sponsibility in evolving a planetary consciousness in me, and by example in others around me. I have been part of the aberration of human consciousness in the modern age and now wish to become part of the evolution that overcomes the aberration and heals the wounds inflicted by it. This is my right as well as my duty as a conscious member of a conscious species on a precious and now critically endangered planet. ■

PHOTOGRAPH: OLAF SPEIER/SHUTTERSTOCK.COM

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When monks rule

Rigorous research shows that group meditation reduces conflict and violence in society. BY JURRIAAN KAMP

ONCE, LONG AGO, RULERS IN INDIA KEPT monks close to their courts. They knew the ascetics' daily meditations had a calming effect on the populace. The kings took care of the monks so they could care for society. Even in medieval Europe, villages felt protected against robbers in the presence of a nearby monastery.

This ancient wisdom is being rediscovered. The idea that groups of meditating people can influence the societies around them challenges scientific understanding. Yet perhaps the most fascinating body of research on consciousness seems to prove just that: Meditation has the potential to reduce violence and conflict in the world—and at a fraction of annual military spending.

In the geographic center of India lies a fledgling village. Twenty years ago, this area—miles from any road—was covered with dense forest. In its place now is a growing community of Vedic pandits—Hindu priests—2,000 in all, adhering to a daily meditation schedule. In time, their number is expected to swell to 9,000, the square root of 1 percent of the world population…and they will bring peace to the world.

Hard to believe, yes. But if the idea that higher levels of consciousness will change the world has a stronghold, this is it. "I think the claim can be plausibly made that the potential impact of this research exceeds that of any other ongoing social or psychological research program. It has survived a broader array of statistical tests than most research in the field on conflict resolution. This work and the theory that informs it deserve the most serious consideration by academics and policymakers alike," says David Edwards, a professor of government at the University of Texas at Austin.

What research? What theory? The story goes back some 40 years. Maharishi Mahesh Yogi, the Indian guru known both for founding the Transcendental Meditation (TM) movement and for entertaining The Beatles in India, had begun introducing TM to the U.S. and had established a university in Fairfield, Iowa. Maharishi knew that according to ancient Sanskrit scriptures, violence could not occur in the presence of those experiencing unity, or oneness, so he suggested his students study the impact of meditation in places where at least 1 percent of the population was practicing TM.

The findings were startling, even to Maharishi. In "TM towns" where communities of meditators had sprung up, crime rates had fallen 8 percent since residents had begun meditating—and according to Federal Bureau of Investigation (FBI) statistics, crime rates had risen 8 percent in the same time frame within towns of similar makeup, in lockstep with the national trend.

Maharishi was uncontainable. "Through the window

PHOTOGRAPH: STASYS EIDIEJUS/SHUTTERSTOCK.COM; ILLUSTRATION: TONY FOTI/TONYFOTIART.COM

of science we see the dawn of the age of enlightenment," he said. Therein began a cascade of research funded by the TM movement and by grants.

One of the most credible studies to come from that period, the peak of the conflict between Israel and Lebanon in the 1980s, involved a group of 600 to 800 TM practitioners who gathered around the world, particularly in Israel, Lebanon and other areas of the Middle East, to perform seven experiments. All of the experiments showed a clear relationship between the number of meditators and the levels of conflict. When the number of meditators was largest, violence and conflict fell dramatically. An average of 12 people were killed every day during the two-year study. But when the groups meditated, fatalities dropped to three a day, a 75 percent decrease.

Astonishingly, the effects weren't limited to Lebanon. Crime in Israel plummeted, too. Even car accidents and fires—events that don't typically correlate with wars—became less frequent. "The likelihood that the reduction of violence was simply coincidental—a statistical fluke—was less than one in 10,000," says John Hagelin, a former Stanford particle physicist who teaches at the Maharishi University of Management and leads the TM movement in the U.S.

In the health-care industry, a discovery with that much impact—a 75 percent reduction in fatalities or even symptoms—would have produced a billion-dollar drug and a gigantic pharmaceutical success. But public response to the publication of the Israel-Lebanon study was lukewarm at best—and at worst, generated disbelief and criticism. Despite the scientific rigor of the experiments, the response seemed to suggest that the results were beside the point.

It was three long years before the study was published in the respected *Journal of Conflict Resolution* at Yale University, and the editor included a special note: "The following article presents and tests a hypothesis that will strike most readers (myself included) as, to say the least, unorthodox. … This hypothesis has no place within the normal paradigm of conflict and peace research. Yet the hypothesis seems logically derived from the initial premises and its empirical testing seems competently executed. These are the standards to which manuscripts submitted for publication in this journal are subjected."

Encouraged nonetheless, the TM organization in Fairfield sponsored more than 50 studies, in every case scrutinized by independent scientists and published in leading peer-review journals. All confirmed the effect of group meditation on society. All failed to win credence from leading policymakers. So in a bold attempt to convince the world of the power of collective consciousness, TM researchers designed a groundbreaking experiment to be held in Washington, D.C., in the summer of 1993.

At the time, the District of Columbia was seen as "the murder capital of the world." Before the start of the project, Hagelin, its lead researcher, met with the chief of police in the nation's capital and asked what would constitute a meaningful reduction in violence. The police chief offered a figure of 20 percent—but, he added, "It's going take a foot of snow in June to reduce crime by 20 percent." This was a reference to the fact that crime rates tend to go up with higher temperatures. People stay out later and are typically more agitated.

The Metropolitan Police Department of the District of Columbia, the FBI, 24 independent criminologists and social scientists from major institutions like the University of Maryland and the University of Texas collaborated on the study. Meditation sessions were held in locations around the city throughout that summer, and gradually, the number of participants swelled.

AT THE BRAHMASTHAN CAMPUS IN THE HEART OF INDIA, IN THE STATE OF MADHYA PRADESH, MORE THAN 2,000 VEDIC PANDITS MEDITATE DAILY. SCIENTIFIC EXPERIMENTS SHOW THAT THE PRACTICE PROMOTES PEACE THROUGH ITS COHERENCE-BUILDING EFFECT.

> "This technology creates self sufficiency and self governance. It leads to smaller government"
>
> **ED MALLOY, THE MEDIATING MAYOR OF FAIRFIELD, IOWA**

When the group reached between 2,500 and 4,000 meditators about halfway through the experiment, crime rates began to fall. In the end, the study showed a 23 percent reduction in homicide, rape and assault.

THIS YEAR MARKS THE 20TH ANNIversary of this remarkable piece of research—and the talk in Washington this winter is all about gun control through complex legislation. Meanwhile, how many politicians are even familiar with this radically different, effective and cheap way to bring violence down—and how far are we from embracing groundbreaking new thinking and implementing effective solutions?

Those are my thoughts as I drive through the plains of the American Midwest to Fairfield, Iowa, which after the death of Maharishi in 2008 remains home to the Maharishi University of Management and the worldwide headquarters of the TM movement.

Fairfield is an unusual place. The front doors of homes, stores and offices face east as Vedic architecture prescribes—though this positioning gives the city of 10,000 a quirky, devil-may-care-about-conventional-city-planning look. About a quarter of Fairfield's inhabitants practice TM—and, yes, crime rates have been exceptionally low ever since the meditators landed there.

Ed Malloy, the town's first meditating mayor, has been re-elected unopposed since 2001. He welcomes me warmly at a local restaurant for a discussion of the meaning of the research on the effects of group meditation and the lack of political attention it has received, and as we finish our meal, makes a comment that should resonate in some Washington circles: "This technology creates self sufficiency and self governance. It leads to smaller government."

But first, it has to find acceptance. TM scientists have done no further research into the effects of group meditation on society after the summer of 1993 in Washington. Instead, they have been providing scientific arguments for their findings. Unlike more recent experiments with remote healing, wherein study participants focus on the health of someone at a distance, those involved in the TM experiments didn't try to generate peace. "The meditators are not focusing on any outcome. They are just practicing their simple meditation technique. There are no specific intentions for any specific effect," says David Orme Johnson, a former professor of psychology at the Maharishi University of Management and the author of many articles on the effects of transcendental meditation.

TM scientists at the Maharishi University of Management reason that the meditators create more coherence in their own brains—this is visible on an EEG scan—and that more coherence contributes to a corresponding increase in the brains of the people around them. "When the tide rises, all boats rise. Likewise when one individual settles for a higher level of consciousness, that lifts everybody else," says psychologist and Maharishi University of Management professor of Maharishi Vedic science Fred Travis. Travis earned his Ph.D. with research that showed that someone meditating alone in a room could have a positive effect on another person doing a cognition test in an adjacent room. The increased coherence of the meditator "spilled over" to the non-meditator, who was not aware of the meditator in the other room. The conclusion: When the brain coherence of the non-meditator was better, she did better on the test.

Organizations like the HeartMath Institute in Boulder Creek, California, have shown that brain coherence correlates with higher intelligence, better performance, lower stress, improved health and less violent behavior. "People who meditate regularly are more awake. They see a bigger picture. They are less overwhelmed by negativity and they

"If we look to principles of quantum physics, an effective 'virtual fence' against terrorism can indeed be created"

JOHN HAGELIN, DIRECTOR OF THE TRANSCENDENTAL MEDITATION MOVEMENT IN THE U.S.

feel more part of a larger system," says TM's Travis. The reverse is true as well. People with more chaotic brain patterns tend to be more distracted, and they are more likely to be drawn to violent movies, war and other chaotic or negative experiences.

Importantly, the coherence-building effect becomes even stronger when meditation is practiced in groups and brainwaves synchronize. Four years ago Roger Nelson, who leads the Global Consciousness Project at Princeton University (see page 50), measured the impact of 2,500 advanced meditators in Fairfield during a 14-week summer program. The group meditated for an hour both morning and evening, and he correlated these times with the activity of machines that generate random numbers, which the Global Consciousness Project has installed worldwide. Nelson is unequivocal in his conclusion. "When human consciousness becomes coherent and synchronized," he says, "the behavior of random systems changes."

Former particle physicist John Hagelin has an explanation for that. When loud speakers are in synch, he explains, their waves reinforce each other and their power, sound level, becomes not just double—wave + wave—but squared—wave x wave. This, says Hagelin, leads to an increase in orderliness and cooperativeness: "A universal principle in nature is that internally coherent systems possess the ability to dispel disruptive external influences, while incoherent systems are easily penetrated by disorder from outside," Hagelin says, pointing out that, similarly, meditation can create a coherent state in the collective consciousness that destructive outside forces cannot penetrate. "If we look to principles of quantum physics, an effective 'virtual fence' against terrorism can indeed be created," he says.

According to Hagelin and other TM scientists, a sophisticated "fence" like this will have be created by groups of highly skilled meditators—not just you and me during our morning meditation or even by the thousands of ordinary meditators who came together for the experiment in Washington in 1993. Advanced meditators like the Vedic pandits in Brahmasthan, they say, create a much stronger coherent field. So if the power of meditation *increases* at the rate of squared numbers, the scientists reason, the square root of 1 percent of the world population will be enough to bring coherence—i.e, peace—to the world. That's where the magic number 9,000 comes from. When that threshold is reached, they expect—based on their earlier findings—less violence and conflict and more peace.

BACK HOME IN THE SAN FRANCISCO Bay Area, I present Hagelin's thinking to Peter Russell, British author of *The Global Brain* and *The White Hole in Time*. Russell originally studied mathematics and theoretical physics, moving into experimental psychology when he became fascinated by the mysteries of the mind. "The results are solid. Let's accept them and live by them," Russell says from his houseboat in Sausalito about the TM research on the effects of group meditation on society. But he is "very dubious" about the ongoing need to explain the findings. "We live in a world where reason is predominant. In order to accept something, we need a scientific explanation. Two hundred thousand years ago we would have said, 'That came from God.' And that would have been sufficient explanation. Now, to believe something we need a reason. In the past we needed a miracle to believe. The problem is that because there is a theory, we are now having a debate about the theory—rather than accepting the evidence. Let's just do what the results say. Let's value the effect that meditation has on the others around us."

Russell has a point. There seems to be more than enough compelling evidence to support the ambitious TM project in India. Harris Kaplan, Brahmasthan's leader, estimates that it takes $250 per month to support a pandit there. That means it will take $2.25 million a month or $27 million a year to keep 9,000 pandits meditating. That is 0.0018 percent of world military spending last year.

But there are practical challenges. "You cannot just run to the store to buy a pandit. They have to be trained from 10 years old," says Kaplan, speaking on Skype from Brahmasthan. Leaders of the TM movement are struggling to collect the necessary funding. That was Maharishi's main focus until his last days (see interview with Paul Gelderloos on page 50).

In Fairfield, I heard the story that Wal-Mart founder Sam Walton, who was known to practice TM, was once asked by Maharishi to fund the group of pandits, who then numbered only 7,000 because the world population was lower at that time. Apparently Walton replied, "I cannot see how 7,000 people sitting with their eyes closed can create peace."

If an insider doesn't see the value of meditation, it's clear that a lot of resistance remains to be overcome. But Walton died 20 years ago, and times are changing. After 9/11 David Edwards of the University of Texas accompanied John Hagelin on a mission to meet with government officials in Washington, D.C. He reports that senior officials at the Defense Advanced Research Projects Agency (Darpa) as well as an official some levels under then Defense Secretary, Donald Rumsfeld, expressed great interest in the TM research. "Nothing came of it", Edwards says unsurprised, "People are afraid they will be seen as stupid." He adds that he nonetheless thinks that the TM peace technology is "infinitely preferable and cheaper than fighting wars to resolve conflicts."

The implications of the experiments are mind blowing. They show that we are capable of a consciousness revolution and that our attention and intention matter. The sages have told us so for thousands of years, I remember thinking as I drove out of Fairfield. It is strange but scientific proof does help to convince my mind. I look forward to my next meditation experience. ■

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E IS FOR ENTREPRENEURSHIP

MEET THE ENTREPRENEUR

Shannon McElyea | Head of Business Development | Zingaya, Inc.

What role does EFactor play in your professional life?

"I just started with EFactor and I have already told other entrepreneurs to join and garner the plethora of resources available. I have connected with some wonderful people, however honestly I've not had the time to utilize the services and take full advantage. I attended a couple of the functions and made valuable connections, for which I am eternally grateful."

What have your professional experiences taught you about the importance of networking?

"I think everyone networks differently. For me, I must have in-person contact to be effective. There is nothing like coming together for a common purpose – listening, learning, meeting people, and actually doing business deals on the spot. The network provides contact, event, and background information necessary for initial contact, as well as follow-up."

What makes EFactor important to you?

"Be adventurous. Listen, learn, get out, make mistakes, start over, keep going, and make it fun. I'm saying this primarily from seeing and hearing vs. doing, however. Except for the 'get out' and 'be fearless' part – that is critical. Making it fun, getting out – that is truly magical."

How would you define the importance of networking?

"Networking is a must. As Deepak Chopra says – there is Syncrodestiny (synchronicity combined with destiny). Trust, love, and networking all coming together in an abundance of success. Yes, I made up the 'trust, love, and networking' phrase, but it works."

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A SHORT HISTORY

In March 2008, the EFactor website was established as the first online community for entrepreneurs, a place to share experiences and support each other. As of April 2012, EFactor has one million members in 185 countries. It has attracted entrepreneurs and investors in more then 90 industries. All three founders are serial entrepreneurs who previously built their successes from OHM, Inc., a global enterprise dedicated to assisting emerging technology companies in selling their products to Fortune 2000 corporations throughout Europe and the United States.

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Levitating for a better world

Selling his telecom company made Paul Gelderloos rich. Now he plans to spend millions reducing world poverty—through meditation. BY JURRIAAN KAMP

WAITING FOR PAUL GELDERLOOS ON the terrace of the Amstel Hotel in Amsterdam, I try to imagine his life. I've talked to successful entrepreneurs before, but Gelderloos is also a practitioner of Transcendental Meditation (TM) and the chair of the Dutch TM organization. People who meditate aren't unusual these days, but as a businessman who's been doing it at least four hours a day for 35 years and seeks to use it to change the world, Gelderloos is of an entirely different order.

I catch myself picturing long-haired men wandering the Himalayas in orange robes. Then Gelderloos comes out onto the terrace in a blue blazer, a neat dress shirt and gray pants. He wears his hair in a fashionable longish style, but there's no mistaking him for an Indian *sadhu*, or wandering monk. "The purpose of meditation is enlightenment," he says later in our conversation. "Enlightenment isn't about floating around in woolen socks. It's not less practical; it's more practical. It's about making life better. That's the way of spiritual development."

In late 2008, Gelderloos made a fortune with the sale of his telecommunications company Scarlet—which had 180,000 broadband Internet customers—to the largest telecom company in Belgium, Belgacom. Scarlet went for about $225 million; Gelderloos owned more than 40 percent of the shares. It was an impressive entrepreneurial achievement, especially for someone who'd trained as a psychologist and embarked on his telecom adventure as a meditation experiment, without benefit of business experience.

One day, Gelderloos says, he heard an American claiming meditation could create business success. "I thought, 'How do you measure success?' I started a company to try to find the answer to that question. A friend in the United States had a telecom company that wanted to start a European division. That was in 1992, and I thought, 'I'll do this for five years.' After that, everything I touched turned to gold, and I didn't know what else to do but continue." He hastens to add that he also went through the Internet crisis and the collapse of the telecom market. "I saw crazy things. But when I survived and successfully sold my company, it only convinced me further."

According to Gelderloos, the secret to success is living in harmony with the forces of nature and the laws of the universe. "Transcendental Meditation teaches you to go deep inside yourself, to let go of the surface

PHOTOGRAPH: PIETER DE SWART


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THE IDEA OF VICTORY OVER GRAVITY APPEARS IN EVERY RELIGIOUS TRADITION. HERE, YOU SEE A PAINTING OF THE CATHOLIC SAINT, GERARD MAJELLA, WHO LIVED IN ITALY IN THE 18TH CENTURY.

"Transcendental Meditation teaches you [...] that you're not alone in this world; you've got all the power of nature behind you. That's enlightenment, and that's also where success begins"

PAUL GELDERLOOS, ENTREPRENEUR

layers of your mind and experience your deepest self. On that level, you will experience harmony with natural law. You feel that you're not alone in this world; you've got all the power of nature behind you. That's enlightenment, and that's also where success begins."

As a 15-year-old high school student in the Dutch town of Harderwijk, Gelderloos had a stirring mystical experience. He later went on to study psychology, "to better understand what had happened to me," he says. Gelderloos experimented with various consciousness-raising techniques, but he didn't have another mystical experience until the early 1970s, when he became acquainted with TM, the meditation doctrine then being introduced in the West by the Indian guru Maharishi Mahesh Yogi, who passed away in 2008 and was best known in his early days as the Beatles' teacher.

Gelderloos' epiphany must have been intense. In the decades since, he says he can "count on two hands" the number of times he's missed his daily meditation. But his clockwork rhythm doesn't result from the kind of rigid attitude you sometimes encounter in New Agers who've suddenly seen the light. "I'm an experience guy," he says. "I wouldn't be able to keep doing it just because the teacher said I should."

It's the experience of meditation, Gelderloos says, that keeps him doing it. He says he can't think of a more rewarding way to spend the four hours a day he devotes to meditation. "I still reach new peaks daily." The intensity of his practice put Gelderloos in the vanguard of perhaps the most controversial experiment TM undertook under Maharishi: yogic flying.

Ancient Indian tradition uses sutras—Sanskrit formulas—to train the mind. Sutras help meditation pupils achieve coherence between individual consciousness and the frequencies and forces of the all-encompassing universe by teaching them to practice virtues such as compassion. The highest sutra, which leads to maximum coherence, is known as the flying sutra, since it causes the meditator to experience levitation. "The first time I practiced this sutra, I immediately noticed I was being lifted up," Gelderloos says. "When I do this meditation practice, it's harder for me to sit still than not to."

Notwithstanding the fact that the idea of victory over gravity appears in every religious tradition, the levitation phenomenon defies all understanding. In the early 1980s, as a correspondent in New Delhi, I witnessed one of TM's first yogic flying experiments. For hours, I stood and watched as cross-legged meditators rose about a foot off the ground and then landed on a mattress in a kind of hopping movement. Technique, neat trick, spiritual tour de force, miracle—whatever it was, I tried it then, and again later, in vain. Gelderloos says he understands people's skepticism: "When Maharishi introduced yogic flying in 1978, the reaction within TM was furious too. A lot of people quit. We were called utter fools."

Gelderloos himself continues to practice the flying sutra because it brings about the most intense meditation experience. "The purpose isn't to feel good during meditation," he says. "You're supposed to maintain that feeling all day, and as far as that's concerned, it makes a big difference how deep you're able to go during meditation."

Paul Gelderloos speaks matter-of-factly about a phenomenon that provokes strong resistance from the rational mind. "I wouldn't do it if I wasn't convinced it was good for me and even for the world," he says.

In a sense, meditation has been his 35-year scientific experiment. After his first TM experience, he started working as a psychologist at the Maharishi University of Management in Fairfield, Iowa, where the movement was feverishly conducting studies in an attempt to prove meditation's beneficial effects scientifically. Maharishi, after all, was teaching that it should be used to advance world peace. "I'm pretty rational," Gelderloos says, "kind of a doubting Thomas. I could see how meditation could be good for your health. But the idea that

ILLUSTRATION: GIANNI DAGLI ORTI/THE ART ARCHIVE AT ART RESOURCE, NY

meditation by groups could influence collective consciousness and have an effect on society seemed incredible to me. I wanted to find out for myself."

For years, Gelderloos took part in numerous extensive studies, which do indeed seem to show that TM, when practiced by groups of thousands or even hundreds of experts, has a calming effect on society—the so-called Maharishi Effect. "It really has been indisputably proven that meditation is good for people and society," Gelderloos says. He ads that he is a realist: "Scientific proof doesn't mean people will act accordingly. People aren't scientific creatures. We know smoking is harmful, but a third of the world population smokes anyway."

Gelderloos, however, was sufficiently convinced by the evidence that he found his life's mission. "I see it as my duty to implement the scientific insights," he says, "because Maharishi never managed to. Transcendental Meditation isn't a niche [thing]. Meditation needs to become mainstream because it has highly practical applications for schools, hospitals, fighting crime and other things. People watch psychics solving crimes on television. It's fun, but is it going to change the world?"

OF ALL THE INDIAN GURUS WHO'VE come to inspire Westerners in recent decades, Maharishi stood out as a remarkable figure. Fifty years ago, he chose to deliver a message centered less on his followers' salvation and more on working toward a better world for all. Today, the TM movement operates in 120 countries, with special educational, health care and agricultural programs. "Maharishi was constantly going on about what a scandal it was that billions of people were living in poverty," Gelderloos says. "Everything that isn't perfect should be made perfect—that was his message, because the core of life is abundance. He worked all day to make things nicer and better and constantly opposed the attitude of passively looking on and saying it didn't matter."

Whether you want to quit smoking, solve structural poverty or drive down violence, Maharishi and the TM movement have one prescription: Consciousness must be raised, since matter—reality—follows consciousness. "At church, they used to say matter was bad and spirituality was everything," Gelderloos says. "But meanwhile, we live in matter all day. There's nothing wrong with materialism. We just have to realize that matter is 100 percent an expression of the mind, of consciousness."

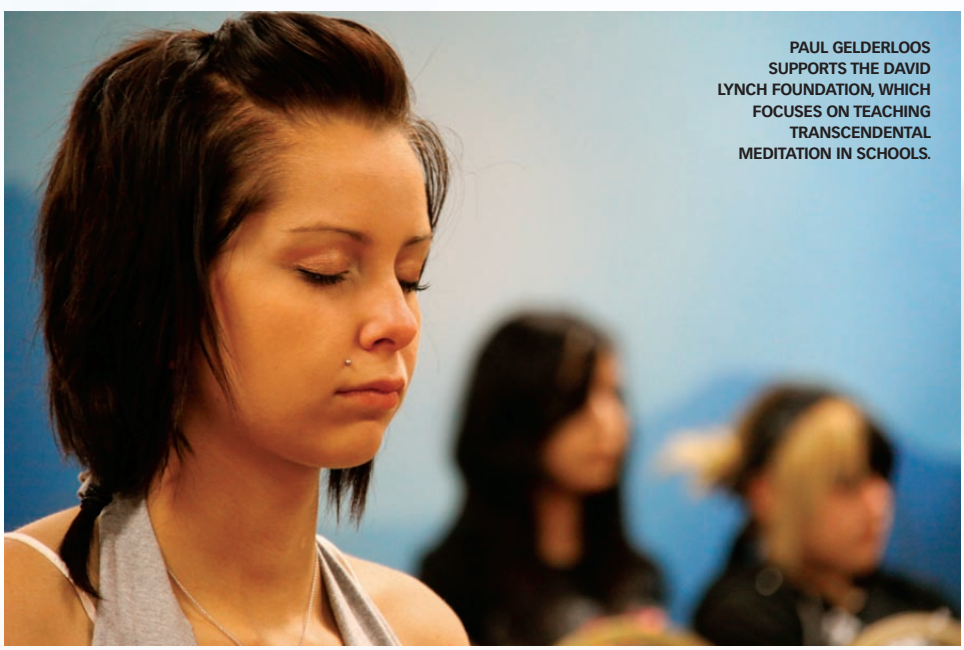
That's why TM philosophy says you shouldn't try to stop smoking; instead, you should start meditating, which will bring about physiological changes that will make you quit. Similarly, it holds that meditation is the way toward a sustainable economy. "You can send around as many Al Gores and do as much research as you like," Gelderloos says. "Ultimately, it's not about changing behavior, it's about changing consciousness. If we aren't able to understand and experience that we're all part of the same creation, our actions won't change."

In TM philosophy, even combating poverty begins with consciousness. In 2009, Gelderloos helped to organize a big benefit concert in New York produced by the filmmaker David Lynch and featuring performers like Paul McCartney, Ringo Starr, Sheryl Crow and Pearl Jam's Eddie Vedder. The profits went to the David Lynch Foundation, which actively supports Transcendental Meditation, and are being used to teach a million children to meditate.

"Of course food and economic aid are important," Gelderloos says. "But meditation gives children self-awareness. That's of vital importance. The majority of the Third World consists of countries that possess abundant natural resources. How is it possible that most of these countries are being exploited by resource-poor countries? That, too, has to do with the collective consciousness in the poor countries. Africa needs a different consciousness to achieve economic independence. And that begins with the realization that a country can take care of its own resources and doesn't need any help from another country to do it."

Maharishi's original view on fighting poverty ultimately led to an innovative plan, which the guru failed to realize during his lifetime. The TM movement has built a campus, Brahmasthan, in the heart of India where a group of 9,000 highly trained meditation practitioners—Vedic pandits, Hindu priests—will be meditating for progress and to maintain world peace (see page 42).

Gelderloos has started a joint venture with Belgacom to mass-market broadband Internet connections in the Middle East and Asia. "I'm going to keep setting up broadband networks to make enough money to finance Brahmasthan," he says. "I want to use the talents I have on behalf of the 2 billion people who are barely able to survive every day." Meanwhile he keeps floating for a better world.



PAUL GELDERLOOS SUPPORTS THE DAVID LYNCH FOUNDATION, WHICH FOCUSES ON TEACHING TRANSCENDENTAL MEDITATION IN SCHOOLS.

PHOTOGRAPH: DAVID LYNCH FOUNDATION

ILLUSTRATIONS: MARC KOLLE/MARCKOLLE.COM

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Stop searching for happiness

Embrace the "backwards law," and you will discover that experiencing more negative emotions will lead you to happiness. BY OLIVER BURKEMAN

FOR A CIVILIZATION SO FIXATED on achieving happiness, we seem remarkably incompetent at the task. One of the best-known general findings of the "science of happiness" has been that the countless advantages of modern life have done little to lift our collective mood. The awkward truth seems to be that increased economic growth does not necessarily make for happier societies, just as increased personal income, above a certain basic level, doesn't make for happier people. Nor does better education, at least according to some studies. Nor does an increased choice of consumer products. Nor do bigger and fancier homes, which instead seem mainly to provide the privilege of more space in which to feel gloomy.

Perhaps you don't need to be told that self-help books, the modern-day apotheosis of the quest for happiness, are among the things that fail to make us happy. But for the record, research strongly suggests that they rarely help much. This is why, among themselves, some self-help publishers refer to the "18-month rule," which states that the person most likely to purchase a self-help book is someone who, within the previous 18 months, purchased a self-help book—one that didn't solve all his or her problems. »»

At best happiness can only be glimpsed out of the corner of an eye, not stared at directly

When you look at the self-help shelves with an impartial eye, this isn't especially surprising. That we yearn for neat, book-size solutions to the problem of being human is understandable, but strip away the packaging and you'll find that the messages of such works are frequently banal. *The Seven Habits of Highly Effective People* essentially tells you to decide what matters most to you in life, and then do it; *How to Win Friends and Influence People* advises you to be pleasant rather than obnoxious and to use people's first names a lot. One of the most successful management manuals of the past few years, *Fish!*, which is intended to help foster happiness and productivity in the workplace, suggests handing out small toy fish to your hardest-working employees.

There are good reasons to believe that the whole notion of "seeking happiness" is flawed to begin with. For one thing, who says happiness is a valid goal in the first place? Religions have never placed much explicit emphasis on it, at least as far as this world is concerned. Philosophers have certainly not been unanimous in endorsing it, either. And any evolutionary psychologist will tell you that evolution has little interest in your happiness, beyond trying to make sure that you're not so listless or miserable that you lose the will to reproduce.

Even assuming happiness to be a worthy target, though, a worse pitfall awaits, which is that aiming for it seems to reduce your chances of ever attaining it. "Ask yourself whether you are happy," observed the philosopher John Stuart Mill, "and you cease to be so." At best, it would appear, happiness can only be glimpsed out of the corner of an eye, not stared at directly: We tend to remember having been happy in the past much more frequently than we are conscious of being happy in the present. Making matters worse still, what happiness actually *is* feels impossible to define in words; even supposing you could do so, you'd presumably end up with as many different definitions as there are people on the planet. All of which means it's tempting to conclude that "How can we be happy?" is simply the wrong question—that we might as well resign ourselves to our inability to find the answer, and get on with something more productive instead.

But there could be another possibility, besides the futile effort to pursue solutions that never seem to work, on the one hand, and just giving up, on the other? After several years reporting on the field of psychology as a journalist, I finally realized that there might be. I began to think that all those psychologists and philosophers—and even the occasional self-help guru—were onto something. The startling conclusion at which they had all arrived, in different ways, was this: The effort to feel happy is often what makes us miserable. And it is our constant effort to eliminate all that is negative—insecurity, uncertainty, failure or sadness—that makes us to feel so insecure, anxious, uncertain and unhappy.

They didn't see this conclusion as depressing, though. Instead they argued that it pointed to an alternative approach, a "negative path" to happiness, that entailed taking a radically different stance toward those things that most of us spend our lives trying hard to avoid. It involved learning to enjoy uncertainty, embracing insecurity, putting less effort into thinking positively,

becoming familiar with failure, even learning to value death. In short, all these people seemed to agree that in order to be happy, we might need to be willing to experience more negative emotions—or, at the very least, to learn to stop running quite so hard from them. Which is a bewildering thought, one that calls into question not just our methods for achieving happiness but our assumptions about what "happiness" means.

These days, this notion certainly gets less press than the admonition to remain positive at all times. But it is a viewpoint with a surprisingly long and respectable history. You'll find it in the works of the Stoic philosophers of ancient Greece and Rome, who emphasized the benefits of contemplating how badly things might go. It lies near the core of Buddhism, which counsels that security lies in the unrestrained embrace of insecurity—in the recognition that we never stand on solid ground and never can. It underpins the medieval tradition of memento mori, which celebrated the life-giving benefits of remembering about death. And it is what connects New Age writers, such as the best-selling spiritual teacher Eckhart Tolle, with more mainstream recent work in cognitive psychology on the self-defeating nature of positive thinking.

This same "negative" approach to happiness also helps explain why so many people find mindfulness meditation so beneficial; why a new generation of business thinkers are advising companies to drop their obsession with goal setting and embrace uncertainty instead; and why, in recent years, some psychologists have reached the conclusion that pessimism may often be as healthy and productive as optimism.

At the bottom of all this lies the principle that 1950s–'60s countercultural philosopher Alan Watts (echoing writer Aldous Huxley) labeled "the law of reversed effort" or the "backwards law": the notion that in all sorts of contexts, from our personal lives to politics, all this *trying to make everything right* is a big part of what's wrong. Or, to quote Watts, "when you try to stay on the surface of the water, you sink, but when you try to sink, you float," and "insecurity is the result of trying to be secure." In many cases, wrote Huxley, "the harder we try with the

"Be comfortable with being uncomfortable"

IF WE WANT TO BE HAPPY, WE NEED TO BE less optimistic. This assertion by writer Oliver Burkeman might appear to be at odds with *Ode*'s recent name change to *The Intelligent Optimist*. And indeed, there's a simple, naive form of optimism wherein one refuses to face reality in its entirety and chooses to focus only on the positive. But that's not our kind of optimism. The optimism we appeal to in our readers and seek to propagate is the kind that sees the total picture. Our kind of optimist views reality in all its beauty and ugliness and looks for possibilities in the knowledge that human beings possess an inborn ability to solve problems.

Do you agree that there's a difference between naive and intelligent optimism?
"I certainly think there's a difference. I oppose the idea of trying to convince yourself that everything is going to be perfectly fine while denying realities about life that aren't so great. Just look at the cult of optimism in the corporate world, where people like to think that we can achieve great things by setting and pursuing unrealistic goals. That is counterproductive."

Right. But even so, pessimism can make people become afraid and stop pursuing their goals as well.
"Absolutely. But what doesn't work is to shut negative thoughts out. Better is to try to be comfortable with being uncomfortable. That's more powerful than thinking everything is going to be wonderful all the time."

You argue that experiencing more negative thoughts will lead to more happiness. How can feeling sad, lonely or insecure make us happier?
"By letting emotions and feelings arrive and not struggling against them too much. Also, ask yourself what you mean by the word 'happy'. In my book, I tried to examine that word. There is a higher kind of happiness that involves feeling all emotions in the spectrum. One important emotion is awe, which involves a combination of wonder and fear. There is a liveliness that's going from negative emotions that makes them deeper. Take failure. If you're going to study the things that went wrong instead of push them out of your life, you will be in a better position when you try next time."

One way to practice the "negative path," you write, is by being stoic. What can we learn from the ancient Greeks and Romans who practiced stoicism?
"The key stoic insight is that it's not the world which causes stress or anxiety; it's our beliefs about it. If you align your beliefs with how things really are, you can keep calm and distant about it. It's what the stoics call the 'premeditation of evils': When you depict how badly things could go, you'll realize it won't be that bad. Also, you'll realize that relationships are fragile and learn to enjoy them more. Positive thinking does the opposite: The more you convince yourself of a good outcome, the more you reinforce the idea that if it doesn't work out, it would be unbelievably terrible."

It seems the negative path is closely related to Buddhism.
"What you can see in the earliest writings of Buddhism is the idea that we don't need to think of our thoughts and emotions as things that need to be controlled or manipulated. Meditation is a way to achieve that. A common equation is that thoughts are like the weather, and the mind is the sky. If it rains, it's not a problem for the sky. I think that's an interesting way to learn to resist the urge to think positive." | **DEWI GIGENGACK**

conscious will to do something, the less we shall succeed."

The negative path to happiness is not an argument for bloody-minded contrarianism at all costs: You won't do yourself any favors by walking into the path of oncoming buses, say, rather than trying to avoid them. Nor should it be taken as implying that there's necessarily anything wrong with optimism. A more useful way to think of it is as a much-needed counterweight to a culture fixated on the notion that optimism and positivity are the only possible paths to happiness.

Of course, many of us are already healthily skeptical when it comes to positive thinking. But it is worth noting that even most people who disdain the "cult of optimism," as philosopher Peter Vernezze calls it, end up subtly endorsing it. They assume that since they cannot or will not subscribe to its ideology, their only alternative is to resign themselves to gloom, or a sort of ironic curmudgeonhood, instead. The "negative path" is about rejecting this dichotomy and seeking instead the happiness that arises *through* negativity, rather than trying to drown negativity out with relentless good cheer. If a fixation on positivity is the disease, this approach is the antidote.

This "negative path," it should be emphasized, isn't one single, comprehensive, neatly packaged philosophy; the antidote is not a panacea. Part of the problem with positive thinking, and many related approaches to happiness, is exactly this desire to reduce big questions to one-size-fits-all self-help tricks or ten-point plans. By contrast, the negative path offers no such single solution. Some of its proponents stress embracing negative feelings and thoughts, while others might better be described as advocating indifference toward them. Some focus on radically unconventional techniques for pursuing happiness, while others point toward a different definition of happiness or to abandoning the pursuit of it altogether.

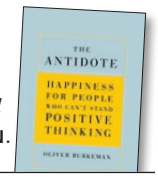
"There are lots of ways of being miserable," says a character in a short story by Edith Wharton, "but there's only one way of being comfortable, and that is to stop running around after happiness." This observation pungently expresses the problem with the "cult of optimism"—the ironic, self-defeating struggle that sabotages positivity when we try too hard. But it also hints at the possibility of a more hopeful alternative, an approach to happiness that might take a radically different form. The first step is to learn how to stop chasing positivity so intently. Many of the proponents of the "negative path" to happiness take things further still, arguing—paradoxically, but persuasively—that deliberately plunging more deeply into what we think of as negative may be a precondition of true happiness.

Perhaps the most vivid metaphor for this whole strange philosophy is a small children's toy that's known as the "Chinese finger trap," even though the evidence suggests it is probably not Chinese in origin at all. In his office at the University of Nevada, psychologist Steven Hayes, an outspoken critic of counterproductive positive thinking, keeps a box of them on his desk; he uses them to illustrate his arguments. The "trap" is a tube made of thin strips of woven bamboo, with openings at each end roughly the size of a human finger. The unwitting victim is asked to insert his index fingers into the tube, then finds himself trapped: In reaction to his efforts to pull his fingers out again, the openings constrict, gripping his fingers ever more tightly. The harder he pulls, the more decisively he is trapped. It is only by relaxing his efforts at escape and pushing his fingers further in that he can widen the ends of the tube, whereupon it falls away and he is free.

In the case of the Chinese finger trap, Hayes observes, "doing the presumably sensible thing is counterproductive."

Following the negative path to happiness is about doing the other thing—the presumably illogical thing—instead. ■

This is an excerpt from The Antidote: Happiness for People Who Can't Stand Positive Thinking *(Faber and Faber) by* **OLIVER BURKEMAN.**



Column
Paulo Coelho

Author of international bestsellers, including *The Pilgrimage* and *The Alchemist*.
paulocoelhoblog.com

All ears

THE LANGUAGE OF THE ASS

The sage Saadi, of the Persian city of Shiraz, was walking along a street with his disciple when he saw a man trying to get his mule to start walking. When the animal refused to budge, the man began to insult him with the worst words he knew.

Saadi stopped him. "Do not be silly," he said. "The donkey will never learn your language. It is best to soothe him. And begin to learn *his* language."

As he walked away, Saadi said to the man, "Before entering into a fight with an ass, be it animal or human, think of what just happened."

THE HORN THAT DROVE AWAY THE TIGERS

A man came to a village, bringing a mysterious horn that had red and yellow cloth, glass beads and animal bones dangling from it.

"This is a horn that will make the tigers go away," said the man. "Starting today, for a modest daily fee, I'll play every morning, and you will never be devoured by these terrible animals."

The villagers, terrified at the threat of attack by a wild animal, agreed to pay what the newcomer asked.

Many years passed, and the owner of the horn became rich and built a beautiful castle for himself. One morning, a young man who was walking past asked who owned the castle. Upon hearing the story of the man with the horn, he decided to go there and have a talk with the man.

"I heard that you have a horn that drives away tigers," the boy said, "but it turns out that there are no tigers in our country to drive away."

The man summoned all the villagers to come to his castle immediately, and once they had gathered, he asked the boy to repeat what he had said.

"Did you hear exactly what he said?" shouted the man to the villagers as soon as the boy was finished. "This is the irrefutable proof of the power of my horn!"

UNDERSTANDING SILENCE

In a desert in Africa, a master and his disciple were walking. When night fell, the two set up a tent and lay down to rest.

"What silence!" said the disciple.

"Never say, 'What silence!'" replied the master. "Instead, always say, 'I'm not able to listen to nature.'"

MATISSE AND RENOIR DISCUSS

The painter Henri Matisse had been visiting the great Pierre-Auguste Renoir weekly at his studio since Matisse was a young boy. When Renoir was attacked by arthritis, Matisse began to visit him daily to deliver food, brushes and paints, always trying to convince the master that he was an artist, too.

One day, noting that every stroke made Renoir groan in pain, Matisse could not contain himself and said, "Grand master, your work is already vast and important. Why keep torturing yourself like this?"

"Very simple," Renoir answered him. "The beauty remains; the pain passes."

"The beauty remains; the pain passes"

PHOTOGRAPH: SYLVIA FEUDOR

Sustainability & Innovation

Walking on water

As vital as water is for our survival, we don't treat it very well. One man's odyssey to retrace and reduce his water footprint.

BY LARRY GALLAGHER

PHOTOGRAPH: FANCY PHOTOGRAPHY

UNTIL ARJEN HOEKSTRA COINED the term, one might reasonably consider Jesus to have been the only guy with a water footprint. Hoekstra, a professor of multidisciplinary water management at the University of Twente in the Netherlands, came up with the concept in 2002 as a way to highlight hidden aspects of water consumption.

While we are all more or less conscious of the water we put through our pipes at home, that is on average only about 10 percent of the water used on our behalf, or the water needed for the production and delivery of every good and service we consume. Not just food, clothing and shelter, but the things we *really* can't live without: smartphones, tablets and flat-screen TVs. In the U.S., the number is pegged at 750,000 gallons per person per year, which works out to about 2,050 gallons a day. In the Netherlands, that figure is 387,000, just above the global average of 365,000. Globally, the biggest draft goes into agriculture, which drinks up roughly 70 percent of the freshwater we use.

These numbers are crucial because there are too many spots around the globe where there is not enough of a clean, reliable supply to keep the land and people healthy. Once mighty rivers like the Colorado and the Yangtze are being sucked to a paltry trickle before they hit the sea. Ancient underground aquifers like the Ogallala, which underlies a good swath of America's heartland, are getting lower by the year. Once great lakes like the Aral Sea and Lake Chad are being systematically drained and turned into desert. Many of the world's poor have trouble getting the water they need to survive, not to mention the dubious quality of what they end up with. Existing supplies are being compromised by agricultural and industrial runoff. The recent discovery of a vast reservoir of groundwater in Africa is good news for that continent and might help Africans through tough times. But since the reservoir is a nonrenewable resource, the problem of water security—and the need for solutions—remains just as urgent.

The irony is, there is no actual shortage of water. Some 70 percent of the earth's surface is covered with the stuff; 97 percent of that is saltwater, 2 percent is locked up in the poles and in glaciers and 1 percent is all the freshwater circulating through the hydrological cycle. Except for any fluids astronauts happen to jettison in space, all that water stays here on the planet, in one form or another. So it's not the volume of H20 that makes the difference, but the quality, location and timing of its distribution—and the consequences that result when we affect any of the above.

There are many causes of this situation: overuse of flood irrigation, growing populations, failing infrastructure. And there is a simpler, albeit paradoxical, explanation for all the water we use: As vital as it is for our survival, we don't value it that much. So it is into the heart of this disconnect that I aimed my investigative odyssey: to comprehend and take responsibility for my share of the great river of water that flows through the world. In so doing, I found solutions in my own life, in the food that I buy, the energy I consume, and all the way back to the spigots in my own backyard.

Hoekstra and his associates at the Water Footprint Network (WFN) have set themselves a formidable task: to offer nations, corporations and individuals a set of tools with which to evaluate their direct or indirect water use and the effects of that consumption. On waterfootprint.org there are links to studies as well as some readily digestible statistics breaking consumption down by country and product. A cup of coffee takes 37 gallons of water to produce, for example; a bottle of beer takes 30, and a single sheet of paper takes 2.64. (For more water use stats, see "Can I have some water with that?" on page 66.)

What WaterFootprint.org doesn't contain are simple prescriptions for lowering our water footprints. "Simple messages are very attractive, but there are always catches," says Hoekstra. Water footprint averages are taken across widely ranging conditions: rainfall, soil types, climate and farming methods. Meat, especially beef, with all the grass and grain it takes to produce it, uses a huge amount of water. But, as Hoekstra points out, even this calculation is not so simple. If the cattle eat grass on a well-managed rangeland, fed mostly by rainfall, the numbers drop way down. Contrast that with heavily fertilized legumes grown with injudicious use of pesticides on irrigated land. "If you compare badly grown pulses with very well-produced beef, by a number of measures it is actually better for the planet for you to eat the beef," says Hoekstra. Corporations have come to the realization not only that they need water to keep their operations running, but that public perception of their water usage could seriously affect their bottom line. The most prominent example is Coca-Cola, which in 2004 was forced to close a bottling plant in the Indian state of Kerala because of protests over its use of local water supplies.

As a preemptive measure, a number of independent agencies are setting up voluntary programs that will allow corporations to disclose water usage in their production and, more important, their supply chains. The Carbon Disclosure Project is putting together a water adjunct, presumably so

"If you compare badly grown pulses with very well-produced beef, by a number of measures it is actually better for the planet for you to eat the beef"

ARJEN HOEKSTRA, PROFESSOR OF MULTIDISCIPLINARY WATER MANAGEMENT

WATER GURU BROCK DOLMAN HAS CREATED A SYSTEM TO CAPTURE AND MAINTAIN RAINWATER LONG ENOUGH TO ENABLE THE SOIL AND PLANTS ON HIS LAND TO ABSORB IT.

that corporations can be rewarded for improving their water usage. The Nature Conservancy is ramping up a similar program. Still, it will take some time before this information makes its way to the consumer in a comprehensible form.

A recent ad campaign by Levi Strauss illustrates some of the problems with existing approaches. In 2010, the company marketed a line of jeans called Water<Less, which they claimed used 11 gallons less water per pair in the stonewashing process. What they didn't mention was that it takes nearly 2,250 gallons just to grow the cotton for the pants, with the final tally closer to 3,000 gallons for the finished product. Nor would it likely boost sales if they mentioned that conventionally grown cotton is among the most heavily sprayed crops on the planet, using a staggering 30 percent of all pesticides while covering only 2.4 percent of cultivated land.

The rest of the world is still catching up with the WFN. In the meantime, for us end users the water footprint concept's usefulness may not be attached to individual products, but may be generally consciousness-raising. Knowing that we can't consume anything without consuming water offers another incentive to move beyond the culture of disposability. And as for the things we can't help consuming, the best guideline is to learn as much as we can about the food and fabric we buy and to buy the most consciously grown products we can afford. Having set that high standard for myself, I set off to see if it was remotely achievable.

If you had told me it was possible to power a dairy on cow manure befouled water, I would have said you were full of cow manure. But at the Straus dairy in Marshall, California, a shotgun blast east of the San Andreas Fault on Tomales Bay, they have been doing it for years. Every day they sluice dung from the milking barn downstream into a chain of ponds. In the first pond, much of the solid material is extracted with a giant screw, to be scattered on pastures as fertilizer. The liquid flows into a second pond covered with a great rubberized tarp. Anaerobic bacteria digest the remaining nutrients therein, producing methane, which feeds a generator that dumps electricity into the grid. This is enough power for not only the whole dairy, but also the electric Rav4 that Albert Straus uses to drive to the creamery every day.

But that water is not done yet. After the methane is extracted, it moves to a third pond to settle. Eventually, it is pumped through the generator to capture the waste heat and used once again to clean the barn—and the cycle continues over and over until, drop by drop, the water evaporates back into the air.

I made the hour-plus trip up from San Francisco to the dairy to witness this part of my water footprint. My wife and I are already consumers of Straus's organic yogurt, butter, cream and ice cream, although I admit when I am feeling out of pocket I

PHOTOGRAPH: ISAAC HERNANDEZ/MERCURYPRESS.COM

opt for a slightly cheaper competitor. But I had read good things about Straus and water usage, and I wanted to see in person the ways Albert is stewarding water on my behalf.

"All my life, we have never had enough water," says the 61-year-old Straus, who converted the family farm to organic in 1994, started the creamery, and instituted the many innovations I have come to witness. He admits that local limitations on water supply have helped power innovation. But having little available water also gives him a good excuse to pursue a personal obsession of reducing the ecological footprint of his operation. Water use is even tighter at the Straus Family Creamery, six miles down the road, where the milk generated on this and three other affiliated dairies is processed into the product that I see in my grocery store. Straus moves about 9,500 gallons of milk a day through the creamery, which is small compared to modern mega-creameries. Still, they produce enough product to participate in markets in six neighboring states.

Due to logistical circumstances, the creamery is forced to truck in the water it uses for its day-to-day operations. Because of this, Straus has installed a number of systems, some of his own design, to clean and re-circulate 90 percent of the 10,000 gallons of water used daily for cleaning equipment. Capturing water from making condensed milk products alone nets him 3,000 to 4,000 gallons a day. The wastewater from the creamery is then trucked back to the farm, where it goes through the methane digester and back into circulation.

Standards for organic farming have been around long enough and have been codified in such a way that consumers can use their buying power to encourage farmers to do the right thing with land. But similar initiatives to encourage wiser water use are still nascent. A group called the California Institute for Rural Studies has included Straus among its California Water Stewards, alongside vineyards that are recycling water and others using dry-land farming techniques. On a larger stage, the Stockholm International Water Institute awards prizes each year to corporations and individuals working out enlightened solutions to world water issues. Albert Straus is not waiting for awards to catch up with him. When you meet him, it becomes apparent that he is not the PR engine promoting his dairy's alternative vision to the world. There is a quiet intensity to him, but nothing slick in his delivery. As he walks me around showing me the innovations he has initiated, you get a sense of the shy kid in your fifth-grade science class who builds a working steam engine in his garage.

I suggest perhaps he has hit the limit of how much productivity he can squeeze out of a gallon of water, but he'll have none of it. This year he has set up company-wide incentives to lower not only his water usage by another 20 percent, but also natural gas by 20 percent, and waste by 30 percent. Says Straus, "I'm not stopping."

> While we are all more or less conscious of the water we put through our pipes at home, that is on average only about 10 percent of the water used on our behalf

ENERGY IS WATER; WATER IS ENERGY. When you open the tap, out flows energy. When you turn on a light switch, you are burning water. In the industrial world, there is no separating the two. Nearly all the energy we use requires water to produce. And it takes energy to move, treat and pressurize the water we use.

Look at electricity. The U.S. Department of Energy estimates that 40 percent of freshwater withdrawals are used in thermoelectric power generation. Whether nuclear, coal-powered or thermal-electric, electricity generation involves the heating of a liquid to the boiling point, whereupon the steam energy drives some kind of generator. Once the steam has been used to drive the turbine, the liquid must be re-condensed before it loops back through the cycle. It is in this cooling phase that most of the water is used. And yes, varying with the cooling technologies employed, most of that water is returned to lakes or rivers, but not without environmental consequences.

Ditto petroleum products. The 800 million gallons refined each day in the U.S. consume two billion gallons of water, which works out to between 2 and 2.5 gallons of water for each gallon of gas. Bumping up our use of biofuels would only increase this number, to about 3.5 gallons for every gallon of ethanol or biodiesel. And anyone who has been paying attention to natural gas knows of the controversial technique of hydro-fracturing, aka fracking, which has been implicated in the contamination of groundwater supplies in many places in the U.S.

On the positive side, every water saving brings with it a diminution of carbon footprint, and every spared watt saves a drop of water. If you need another reason to get behind renewables such as wind and photovoltaic solar, here it is: Their water use is tiny compared to the others.

We have the most direct control over the water we use at home. Mitigating our home use helps mitigate our "hypocrisy footprint," which few of us are without. Information on how to minimize water use at home is easily found. Between water-efficient appliances, flow restrictors, low-flush toilets and conscientious use, most of us can easily cut our usage in half. For those who have already taken these measures, or for water conservation freaks like myself, there remain two paths for pushing the envelope: rainwater catchment and greywater.

Of all the ways to minimize one's water footprint, rainwater harvesting is the most fun, possibly because it doesn't require using *less* of anything. How much of your

water usage you can minimize depends on the rainfall patterns where you live. The Mediterranean climate in San Francisco is actually among the worst for these purposes, since the city gets most of it water in half the year. In places with more even distribution of rain, you can move four to five gallons for every gallon of storage you have.

The general rule of thumb about catching rain is that you can get 60 gallons for every 100 square feet of footprint, per inch of rain. I set myself up with nine 60-gallon barrels, which waters my small vegetable garden for most of the summer. In addition, I installed a special 60-gallon tank on the exterior wall of the bathroom that will supply me with water for laundry throughout the rainy season. Since I will be constantly draining this tank over the rainy winter months, I figure I can put 1,200 gallons through this tank alone.

One of the unintended consequences of installing a rainwater catchment system is that you realize both how cheap water is and how much of it we use in our ordinary lives. For example, a study in Australia showed that when people started catching rainwater, their usage went down 20 percent to 30 percent, even discounting the water they put through their system. The best way to use this water is to send it via gravity feed to water landscaping, but in extreme climates it can be used as drinking water, with the right type of filtering to remove potential animal-borne parasites.

Do the math on the economics of rainwater catchment and you'll realize just how cheap water is. According to Robert Glennon in *Unquenchable*, the cost of water for the average homeowner in the U.S. is $2.50 for 1,000 gallons, or a quarter-cent per gallon. In Germany, those same 1,000 gallons would cost you $23, although you could get the same amount in Italy for more like $5. Even at the relatively exorbitant price of 2 cents a gallon (including the sewer fee), it will take me 23 years to break even on my investment. So a better way to rationalize my investment is that in the event of an earthquake, everyone will be coming to me for drinking water.

Then, of course, there is the fun factor, which you can't put any numbers on. When

ILLUSTRATION: EXPLORATION ARCHITECTURE

THE SAHARA FOREST PROJECT COMPRISES GIGANTIC GREENHOUSES IN DESERT LOCATIONS THAT ENABLE THE PRODUCTION OF WATER, ENERGY AND FOOD.

The technology of clouds

How do you create a cool, damp climate in a bone-dry desert?

CHARLIE PATON HAD AN IDEA WHILE ON A BUS RIDE THROUGH MOROCCO. AS PASSENGERS stepped in from the rain, the moist heat from their bodies hit the cool windows, forming condensation. Paton realized he couldn't make it rain, but he could create water wherever warm and cold air meet. He founded Seawater Greenhouses to do just that, setting up indoor farms in the stifling, arid heat of the Canary Islands, United Arab Emirates, Oman and Australia.

"As far as the eye can see, there are no houses," Paton says of Port Augusta's scrubby, deserted salt marches in the Australian Outback. Inside Seawater's first commercial greenhouse, though, the climate is humid, and bright red tomatoes are everywhere. The glass building is 1.5 miles from any kind of water. What it has in abundance, however, is warm air. When this warm air hits the greenhouse, it passes through a cool, honeycombed wall that desalinates it and funnels the condensation into an underground cistern. The room is cooled with the help of energy created by solar panels, providing an internal climate ideal for growing crops. The harvested water is used to nourish plants. And when the cooled air hits the back wall on its way out, it condenses again, releasing yet more water. The salt taken from the air is converted into sea salt for foods.

Paton's technique turns otherwise valueless land into prime agricultural plots. "If you've got tens or hundreds of acres of greenhouse," he says, "you'd be evaporating millions of tons of water."

This type of architecture can help heal other cracked landscapes. In Tenerife, where Paton successfully used the same techniques in the 1990s, the rocky landscape was once lined with trees, an ecosystem that naturally harvested water from the air, producing enough dew to form a wet haze. When the Spanish came through in the 15th century, though, they cut down the trees because the trees helped shield locals from attack. "The water stopped because the source of water wasn't rain," Paton says. "It was, in a sense, a cloud." Paton is bringing back the clouds. | **GREG T. SPIELBERG**

everyone around me is cursing in their galoshes, I'm catching pennies from heaven.

LAURA ALLEN NO LONGER REFERS TO herself as a guerrilla, but that doesn't mean the struggle is over or the war has been won. When Allen cofounded a group called the Guerrilla Greywater Girls in Oakland back in 1999, gray water was far enough out of the mainstream that just the act of disconnecting the runoff from a sink was already considered civilly disobedient, if not outright revolutionary.

The term applies to the waste that comes from sinks, showers and laundry. Contrast that with black water, which is what you flush downayour toilet, and you will get how the color scheme works. Back at the turn of the century, it was illegal in California for any wastewater to be routed anywhere but a city's sewer system or septic tank. But with the increasing strain on the water infrastructure, city and state officials are coming around to revising plumbing codes to allow redirection of certain drain waters for the watering of landscapes.

And so, with time, Allen and her associates changed their name to the less subversive Greywater Action, although her work remains essentially unchanged: teaching people how to extend the useful life of their drain water. I invited Allen over to do a graywater assessment on my house.

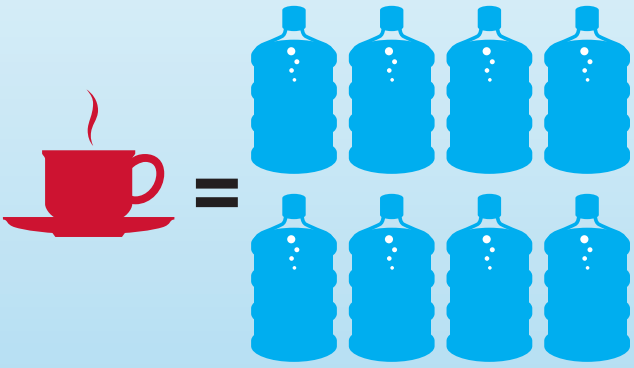
As Allen explains, using greywater responsibly is actually trickier than you might imagine. Though the dangers are arguably exaggerated, there are good reasons why municipalities don't want people hurling it out their windows, like in the Middle Ages, as it could theoretically be a vector for disease. Shower water and laundry water can contain small amounts of fecal coliform bacteria, basically via direct or indirect contact with your bottom. Sprinkled on lawns where children are playing or on vegetables that could be eaten raw … you get the idea. So the preferred route is to deliver the greywater slightly underground, where the vibrant flora in the top layers of soil quickly eat up any questionable bugs that come down the pipe with the water.

Another tricky thing about greywater is that you can't store it for more than 24 hours, as the resident bacteria quickly turn it into a skanky mess. Likewise, the solids contained therein will quickly clog the small holes in drip irrigation lines, and you don't want to be dumping the stuff on root vegetables or salad greens.

In a place like San Francisco, which dumps its treated wastewater back into the bay, the benefits of gray water are many. Every gallon used to irrigate plants is a

Can I have some water with that?

The actual water footprint of specific products can vary wildly according to location and methods of production, so these numbers should be considered loose averages.



Product/service	Gallons of water needed to make it
Cup of coffee (brewed)	37
Plastic water bottle	0.8
Avocado	42
1 lb. ground beef	1,581
1 lb. chicken	468
1 lb. turkey	286
1 regular pizza, 10-inches	312
1 pair leather shoes	2,113
1 wool sweater	594
1 queen-size mattress	2,878
1 queen-size cotton sheet	6,663
1 computer	10,556–42,267*
1 piece of paper	0.19
1 printer	9,510
1 television	3,900–65,500*
1,000 square feet synthetic carpeting	14,750
1 clothes dryer	16,909
1 side-by-side refrigerator	25,363

* = depending on type

SOURCE: THE GREEN BLUE BOOK *BY THOMAS M. KOSTIGEN*

gallon that doesn't have to be stolen from Yosemite snow runoff and pumped and treated, with the accompanying energy footprint. The plants sequester carbon and minimize the urban heat effect and, under the right circumstances, can even be used to grow food.

After surveying my situation, Allen recommends a "laundry to landscape" system, taking the outflow from the second story and sending it down to an infiltration bed in my front yard. We find a spot with partial sun where I can build a bed in which to plant a patch of raspberries, which love plenty of water. She tells me about a program sponsored by the San Francisco Public Utilities Commission subsidizing the conversion kits and offering a free class that will teach me how to hook it up, what kind of soaps to use, and what kind of plants like gray water.

I suggest that this collusion with the authorities further undermines her status as a guerrilla. She smiles with a twinkle in her eye, which suggests there are still many more boundaries to cross, and rides off on her bike to liberate another drainpipe.

All this reckoning of gallons is starting to tighten up my mind a little bit, fueling my natural predilection toward squirrel mind. So to broaden my sights, I hopped on my bike and made a trek north to sit at the feet of Brock Dolman, the resident water guru at the Occidental Arts and Ecology Center (OEAC), in the hills of western Sonoma County in California.

Dolman is a proponent of what he calls "conservation hydrology," an approach to water management that focuses on the level of the watershed, an area of land defined by the water that flows through it. Through his lectures and his consulting work, Dolman hopes to shift our collective perspective on water away from a commodity to be extracted from nature, and toward water as the lifeblood of the landscapes it inhabits. On the day I visit, he is in the middle of coteaching a two-week course on permaculture design, but he takes some of his downtime to walk me around the property and show me some of these principles in action.

THANKS TO A RAINWATER TANK, EMILY MURPHY OF QUEENSLAND IS ABLE TO WATER HER PLANTS. THE AUSTRALIAN GOVERNMENT SUBSIDIZES THE TANKS AS PART OF AN EFFORT TO FIND SOLUTIONS TO THE SERIOUS DROUGHTS PLAGUING THE COUNTRY.

PHOTOGRAPH: EDWINA PICKLES/THE NEW YORK TIMES/REDUX

The standard approach to hydrology has evolved into a paradigm that Dolman, no small fan of alliteration, has coined "Pave it, pipe it, pollute it." He is talking about our tendency to cover the earth with impervious surfaces, like buildings and asphalt, which concentrate runoff in rainstorms and carry all the nasty stuff that falls off our cars downstream into rivers, lakes and oceans."Slow it, spread it, sink it" is the alliterative paradigm he coined to replace it. The idea is to do everything you can to keep the water around longer, to give the soil and the plants a chance to soak it up, filter it and let it recharge into aquifers right before it exits the watershed.

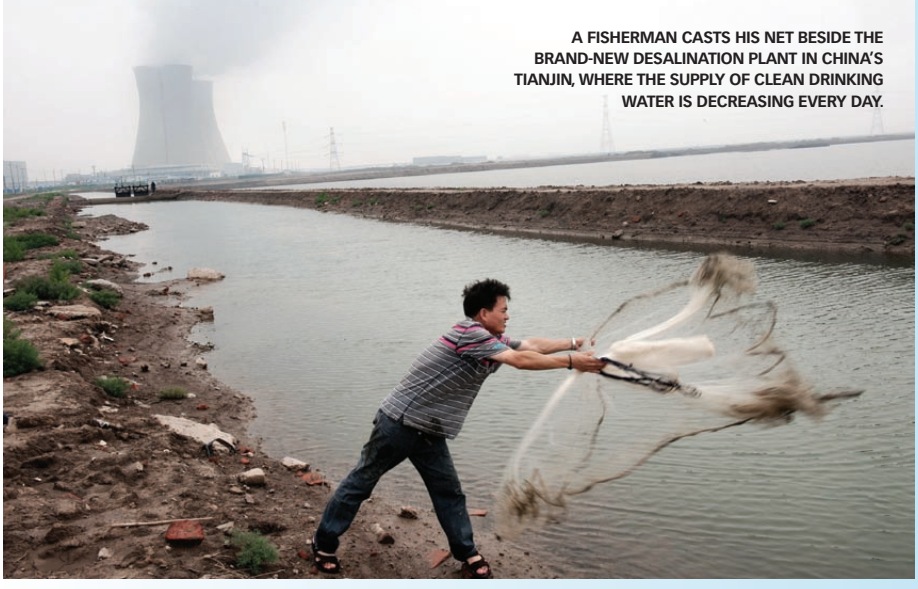
Dolman gives about 60 talks a year around the world to spread his message. Under the auspices of the Water Institute, he also acts as a consultant on many local and regional water projects, helping ranchers, farmers and environmentalists come together around gnarly water issues. It is while serving this last function that he often gets to play the role of the "eco-comedian," a sort of court jester whose foolery defuses the tension that can occur around community water issues.

He is a fearless perpetrator of the bad pun—"pun-ishment," as he puts it—delivered in a kind of deadpan that brings to mind a younger Bill Murray. When the severity of the situation calls for it, he has been known to show up to county hearings in a full foam-rubber Salmon outfit, offering testimony as the spirit of the Coho salmon before leaving

Drinking from the sea

In an effort to provide their populations with enough drinking water, China and the Middle East are becoming global pioneers in desalination.

THE FIVE MILLION RESIDENTS OF THE Chinese city of Tianjin are well aware that there is plenty of water on the planet. After all, they live on the Bohai Sea, a large bay on the Yellow Sea in northeastern China. But ironically enough, a combination of drought, economic growth and huge water consumption has left the Tianjin city dwellers destitute, with just one-tenth of the water available to the average person worldwide. A brand-new desalination plant is meant to be their salvation. The Chinese authorities spent billions of dollars to construct the Beijing Power and Desalination Plant, where the residual warmth from a power facility is used to desalinate massive volumes of seawater.



A FISHERMAN CASTS HIS NET BESIDE THE BRAND-NEW DESALINATION PLANT IN CHINA'S TIANJIN, WHERE THE SUPPLY OF CLEAN DRINKING WATER IS DECREASING EVERY DAY.

The demand for desalination is on the rise in many parts of the world. According to Sabine Lattemann, a researcher in desalination at the University of Oldenburg in Germany, it is "the most promising way to create more clean water supplies." Of all the water on the planet, 97 percent is salty seawater. Desalination is increasingly applicable on a large scale, which makes it cheaper. "If you want clean drinking water, this is a cheaper and better alternative compared to bringing water over huge distances to places in need or building another large dam," Lattemann says.

Plants in the arid Middle East produce half the world's desalinated water. In Kuwait, for instance, 90 percent of the population is dependent on desalinated water. And in Saudi Arabia, the world's largest desalination plant, completed in 2010, supplies three million people with their drinking water. Construction of these plants is unstoppable, says Lattemann. China is one of the countries highly committed to this trend. This is not surprising, given that Tianjin is only one of 400 Chinese cities facing daily shortages of clean water.

Meanwhile, the rising number of desalination plants makes it important to study their environmental impact. "Desalination is a good thing, but you have to minimize energy use and the local impact on nature of building those plants," says Lattemann. After all, desalination uses a great deal of energy, especially plants that use the so-called thermal distillation process. This technique requires that water be heated to boiling point. Then the steam is captured in a cool area where it condenses into clean water droplets, while the salt remains behind in the boiler.

A modern variation on this process is reverse osmosis, in which membranes play a major role. These plastic filters with microscopically small pores allow water molecules to pass through, but not salt. This requires less energy because the water doesn't have to be heated.

Lattemann points out another important problem with desalination: the residual salt, which often contains chemical particles that cannot be tossed back into the sea. In the new plant in Tianjin, the salt is processed so that it can be used for other purposes. And revenues from the sale of the residual salt are sorely needed in Tianjin because the plant is still operating at a los.

But ultimately, China sees its investment in desalination as important to its future: it will help ensure that the country doesn't, quite literally, dry up. | **ELLEKE BAL**

PHOTOGRAPH: GILLES SABRIE/THE NEW YORK TIMES/REDUX

with a trail of orange Ping-Pong-ball spawn.

As we walk around the property, he shows me the many "micro-hydrological" projects that permaculture students and interns have carved into the landscape: strategically placed earthwork swales and berms and bumps that nudge water this way and keep it from picking up speed and scouring the soil on its way downhill. Over months, it will gradually leak through the land into the creeks that drain the area, keeping the creeks running year-round and aiding the return of the native salmon, one of the projects closest to Dolman's heart. "I'm just a freaky-assed little kid who was into catching snakes and got pissed at hominids who kept f***ing up my habitat," he says. "That's literally how I got here."

OAEC sits on an 80-acre piece of property about 50 miles north of San Francisco. Dolman and four other friends bought the land in 1994 and have turned it into a nexus of ecological education and activism. In the summer, demonstration gardens explode with flowers, vegetables and medicinals, lit up with the buzz of a million bees. They've got a new greenhouse in which they raise the starts they sell each week and a theater where they hold musical events for the community. The buildings and yurts, nomad's tents, serve as demonstrations of the low-impact technologies they espouse: solar hot water and natural building. Kiwi vines grow over trellises, forming natural gazebos. It's a kind of woolly paradise, retaining some traces of the hippie ethos that spawned it a generation ago.

While it is obvious how this type of landscape restoration helps this small niche of rural Sonoma County, I ask him what relevance this work has for the rest of us. He points to the Sun Valley Project in Los Angeles' San Fernando Valley as an example of conservation hydrology writ large.

For years, that part of the city has been subject to horrendous flooding. Instead of paying the Army Corps $60 million to create drainage ditches to shuttle the water into the Los Angeles River, a local nonprofit called Tree People came up with a plan to create a system of underground chambers that would buffer the water to both relieve the flooding and recharge the aquifers. Although the price tag was higher at $100 million, according to their calculations the city would make that extra bit back in 40 years, largely due to the decrease in water that they would have to suck out of the overtaxed Colorado River.

Dolman thinks the watershed approach to water management will become increasingly relevant with the increase in "global weirding," as he calls it.

Climate models and recent events predict that weather is going to swing harder in both directions: bigger floods and hurricanes in some places and intensified droughts and desertification in other places. Pakistan in 2010 is Dolman's favorite example of this trend: "They got three months' worth of monsoons in four days. Yet in the upland terraces, they were still in the midst of catastrophic drought."

The prudent way to buffer against future uncertainty, says Dolman, is to re-localize our relationship with the water that passes through our watersheds, to make better use of the water that we get, and to attempt to live within our "hydrological budget."

As I make my way back to the city, through the back roads of Sonoma County, I suddenly start noticing all the creeks draining that beautiful patch of earth. Salmon Creek, Ebabias Creek, Estero de San Antonio… one by one I pass them by at 15 miles an hour. I don't think I ever stopped to pay any mind to these living arteries, carrying life back and forth between land and sea. Maybe I've got water on the brain. Or maybe all this talk of watersheds has begun to alter my perspective on the land around me.

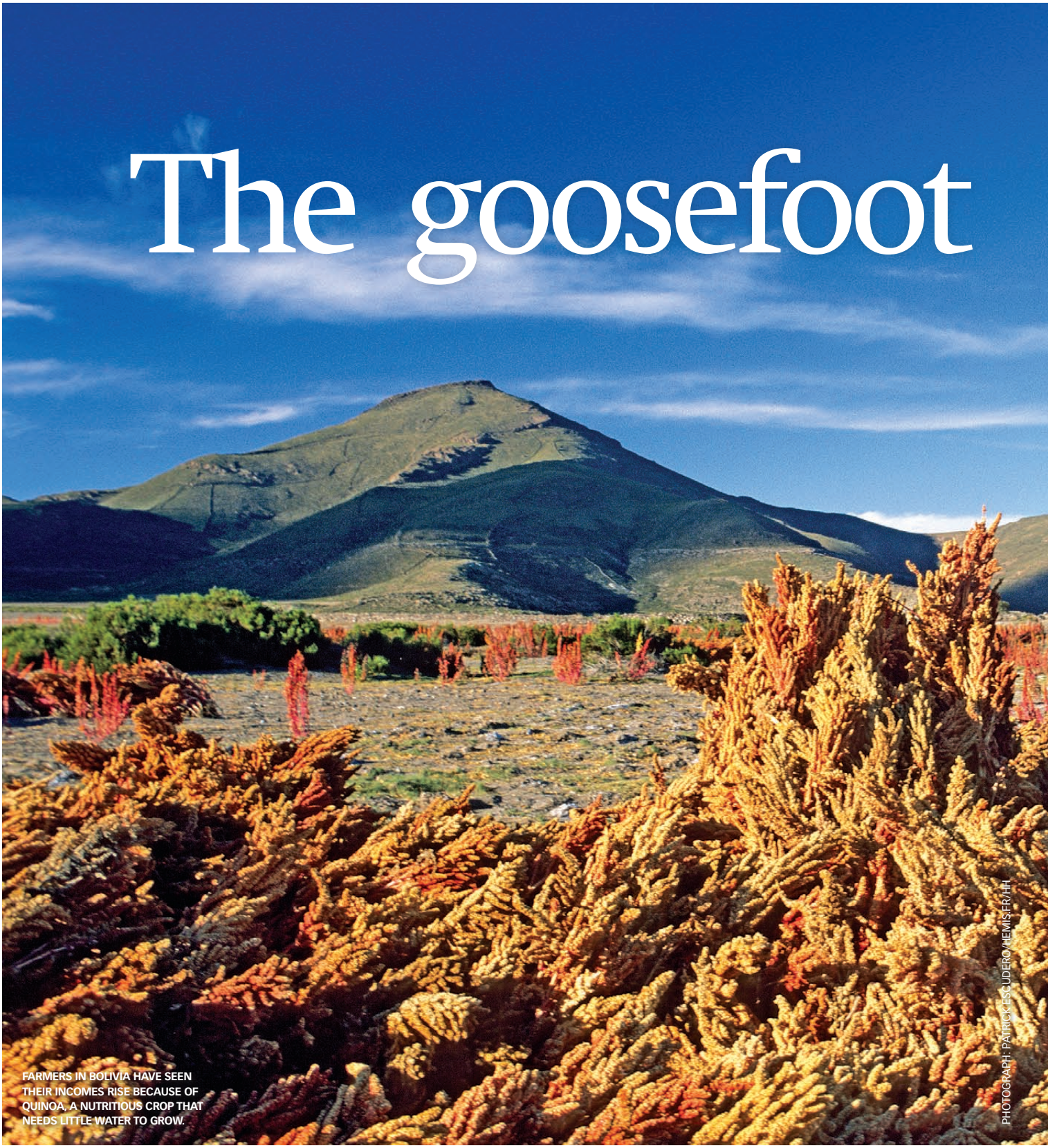
Either way, I will be thinking about water a lot more in the years to come—and, for better or for worse, I won't be alone.

IN THE SCOTTISH ECOVILLAGE FINDHORN, THE COMMUNITY'S WASTEWATER IS PURIFIED THROUGH A TREATMENT PROCESS THAT INVOLVES VARIOUS TANKS.

PHOTOGRAPH: MARTIN BOND/STILL PICTURES/THE IMAGE WORKS

Since 60 percent of **LARRY GALLAGHER** *is made of water, it can be said that water wrote this article about itself. The author took a similar approach to soil in our March 2010 issue.*

The goosefoot



FARMERS IN BOLIVIA HAVE SEEN THEIR INCOMES RISE BECAUSE OF QUINOA, A NUTRITIOUS CROP THAT NEEDS LITTLE WATER TO GROW.

PHOTOGRAPH: PATRICK ESCUDERO/HEMISFER/HH

CLICK FOR VIDEO!

revolution

Quinoa, an ancient South American crop, could offer a solution to rising grain prices and global food demand.

BY GERBERT VAN DER AA

IN THE SAND SITS A BLUE TRUCK. Beside it, bulging sacks wait to be loaded. In a field near the village of Buena Vista in southwestern Bolivia, the quinoa harvest is in full swing. Men lay cut stalks on the ground so they can run over them with the truck. Then they separate the grains from the flattened plants using a wooden box with a screen bottom. Some of the farmers have brought their wives; the women scatter the sifted quinoa onto a piece of canvas from a height of several feet so the wind will separate the grains from the last fragments of plant. Meanwhile, children play in the field, and a baby sleeps on a blanket.

"The harvest is good this year," says Dionisia Lutino, who's here with her husband. Dressed in a wide skirt and the bowler hat favored by all local women, she puts the quinoa grains into a jute sack. "There's been a lot of rainfall," says Lutino, who estimates the yield is quadruple that of last year. They'll sell the quinoa to the farmers' cooperative ANAPQUI for about 13 bolivianos ($0.82) a pound—more than double the price of a few years ago. She smiles. "There's plenty of demand for quinoa," she

says. "Whatever we produce we're easily able to sell."

Droughts in recent months have caused corn and grain harvests to fail in the U.S. and other countries. Food prices are rising on the world market, causing financial problems, especially for urban populations in poor countries. Other, lesser-known crops that require relatively little water are part of the solution, according to the UN. Expectations run high for quinoa, a nutritious plant that's also known as goosefoot. "It is a crop with high potential to contribute to food security in various regions worldwide," according to a recent report by the UN's Food and Agricultural Organization (FAO). The UN has dubbed 2013 the International Year of Quinoa. The idea isn't that far-fetched: Quinoa could soon come to play a key role in the global food supply, particularly in Africa.

Quinoa, part of the *Chenopodium* genus, is a traditional crop that's been used for thousands of years in South America. It's packed with amino acids, proteins and minerals, and it's gluten-free. Nutritionists say quinoa can serve as a complete meat replacement. It needs little water to grow and can be cultivated even in the semidesert of Bolivia, which can receive less than eight inches of rainfall a year. The plant produces its own insect repellent, meaning it needs fewer pesticides. The Incas called quinoa "the mother of all grains." Though it resembles a grain, the plant is in fact a relative of spinach.

It's harvested mainly on Andean plateaus; one of the main growing regions is the Bolivian Altiplano, which has an average altitude of 10,000 feet. Exports from the country, the biggest producer after Peru, rose by 36 percent in 2011 to a value of more than $64 million. Farmers in Bolivia—South America's poorest nation, according to UN statistics—have seen their incomes rise accordingly. Interest in quinoa is increasing in Europe and the U.S. Quinoa is often available in stores like Trader Joe's and Whole Foods and in the natural foods section of large supermarkets like Costco.

The FAO is researching quinoa cultivation in other parts of the world. Its leaders see potential "especially in those countries where the population does not have access to protein sources or where production conditions are limited by low humidity, reduced availability of inputs and aridity," the FAO's Alan Bojanic wrote in last year's report, *Quinoa: An Ancient Crop to Contribute to World Food Security*.

Only the hottest agricultural areas, such as large parts of the African Sahel region, present no opportunities to introduce quinoa successfully. Otherwise, the possibilities are endless. The crop can tolerate several degrees of night frost, though not temperatures over 90 degrees. The seeds like water but require less than corn

PHOTOGRAPH: TOM VAN DER LEIJ/FOTOTOM.NL

A WOMAN IN BOLIVIA WORKS ON THE QUINOA HARVEST IN THE ALTIPLANO AREA. HERE, SHE SEPARATES THE SEEDS FROM THE COATING.

PHOTOGRAPH: RENS KUIJTEN/DUTCHQUINOA.BLOGSPOT.COM

and grain. Once they've germinated, they thrive best in dry conditions.

Kenya is one of the countries that have seen successful experiments with quinoa. East Africa benefits from a milder climate than West Africa because of higher altitudes. The Kenyan test fields achieved a yield of 3,570 pounds per acre, considerably higher than the average crop in South America. The plant can also be grown in other East African countries, such as Ethiopia. Outside Africa, quinoa has proven it can do well in countries like India and the U.S.

BOLIVIAN PRESIDENT EVO MORALES wastes no opportunity to draw attention abroad to quinoa's unique properties. The International Year of Quinoa was his idea, and the FAO recently named him a special ambassador. As Bolivia's first Indian leader, Morales regards quinoa as part of the national heritage. He likes to point out that the Spanish colonizers tried to make farmers grow grain instead of quinoa from the 16th century onward. It was only after NASA discovered that the plant worked well as astronaut food that it begin to make a comeback.

Farmers in Bolivia are profiting from the world's interest in quinoa. "Life in the countryside is getting a new boost," says Primo Lucas, head of the village council in the mountain hamlet of Huanaque. "For decades, life was very hard for farmers, but now quinoa cultivation is bringing new opportunities." Lucas switches the light on in Huanaque's new community center—the village recently installed solar panels. "Almost everyone here has seen their lives improve in the last few years," he says.

Almost all the houses in Huanaque, which has only a few hundred residents, are made of boulder, with thatch roofs. A herd of llamas grazes in an open space. Bred for slaughter and for their wool, the animals serve as a primary source of income for local farmers, along with quinoa.

New pieces of farmland in the mountains around Huanaque have been brought under cultivation in recent years. President Morales has set up a special credit fund to expand quinoa cultivation to 494,000 acres from the current 124,000. Interest among farmers is so great that clashes over farmland are on the rise. In April, the army sent hundreds of troops to restore order after people sustained injuries in fights between two plateau farming communities.

Not all of the experts are optimistic about quinoa's potential to improve global food security. "It's complicated getting farmers to switch over to new crops," says Ken Giller, a professor of plant science at Wageningen University in the Netherlands. "They'd rather plant crops they've known about for generations than new ones that haven't proven themselves yet." Giller says he understands their reluctance. "That conservatism isn't negative per se. New crops often produce good results at first. But a few years later, things go wrong, partly because it takes a while for plant diseases to reach maturity. How quinoa farming will work out in practice in other parts of the world is still far from clear."

What is certain is that the introduction of South American crops elsewhere has led to impressive results in the past. The potato, which originates on the same Andean plateaus as quinoa, is one of the best-known examples. The Spanish took the tuber home with them in the 16th century, greatly increasing food security in Europe. Persistently recurring famines ended, thanks to the potato. In the coming years, the world will find out whether quinoa can start a food revolution of its own. ■

GERBERT VAN DER AA *is a journalist with a special interest in areas of low rainfall.*

COOK WITH QUINOA

After all this talk about quinoa, it's time to get into the kitchen!

Zesty Quinoa Salad

1 cup quinoa
1½ cups water
½ sweet potato, diced and parboiled
½ red pepper, diced
3 kumquats finely chopped (and some for garnish)
1 tablespoon olive oil
1 tablespoon high-grade maple syrup
1 tablespoon chopped cilantro (and some for garnish)

Soak the quinoa in hot water for five minutes. Strain and rinse. Put in a pot with the water and bring to a boil. Lower the heat, cover, and cook until water is absorbed and quinoa is tender, about 20 minutes.

Transfer the cooked quinoa to a large bowl. Add the sweet potato, red pepper, kumquats, olive oil and maple syrup and mix. Add the cilantro and lightly toss. Serve hot, at room temperature or cold. Garnish with chopped cilantro and sliced kumquat.

Recipe from katherinemartinelli.com.

Column
Amy Domini

Founder and CEO of Domini Social Investments and author of several books on ethical investing. amydomini.com

Live off the land

AS I WAS FUSSING ABOUT IN THE BACKYARD, TAKING the steps I take each fall in preparation for the winter months, I found myself ruminating about how different my garden experience is from that of my forebears. Although I'm a lifelong gardener, I am a novice compared with any early settler in Colonial New England.

In March 2004, *The New England Quarterly* published "To Forward Well-Flavored Productions: The Kitchen Garden in Early New England" by James E. McWilliams. It's a treasure trove of basic gardening advice. By extension, it is also a deep dive into what can be accomplished by those seeking self-sufficiency.

By 1660, Colonial New England had evolved into a network of towns and hamlets, each governed through a form of communal meeting, generally at the local church. There was no currency for most of the population and no major industry that employed the people enough to create an economic bond like the one we know today. Self-sufficiency, particularly as regards food, was a simple necessity for survival.

From the article, I learned that the average allotment of land was one acre. On this acre, the family would build a home, perhaps a shelter for animals and other outbuildings, and would grow the groceries they would consume that year. This seems impossible to me: Surely an acre was far too little space for the job. Clearly, the early settlers did not need a park space, but even assuming every inch was spent on gardens, could it be true?

Certainly there was a healthy barter system in place. Early records show that women were just as active in commerce as men, trading a bolt of newly woven linen for construction of a sheep pen or turning a collar for a handful of nails. But when it came to food, trade played a minor role. The growing was what mattered.

Although I'm a lifelong gardener, I am a novice compared with any early settler in Colonial New England

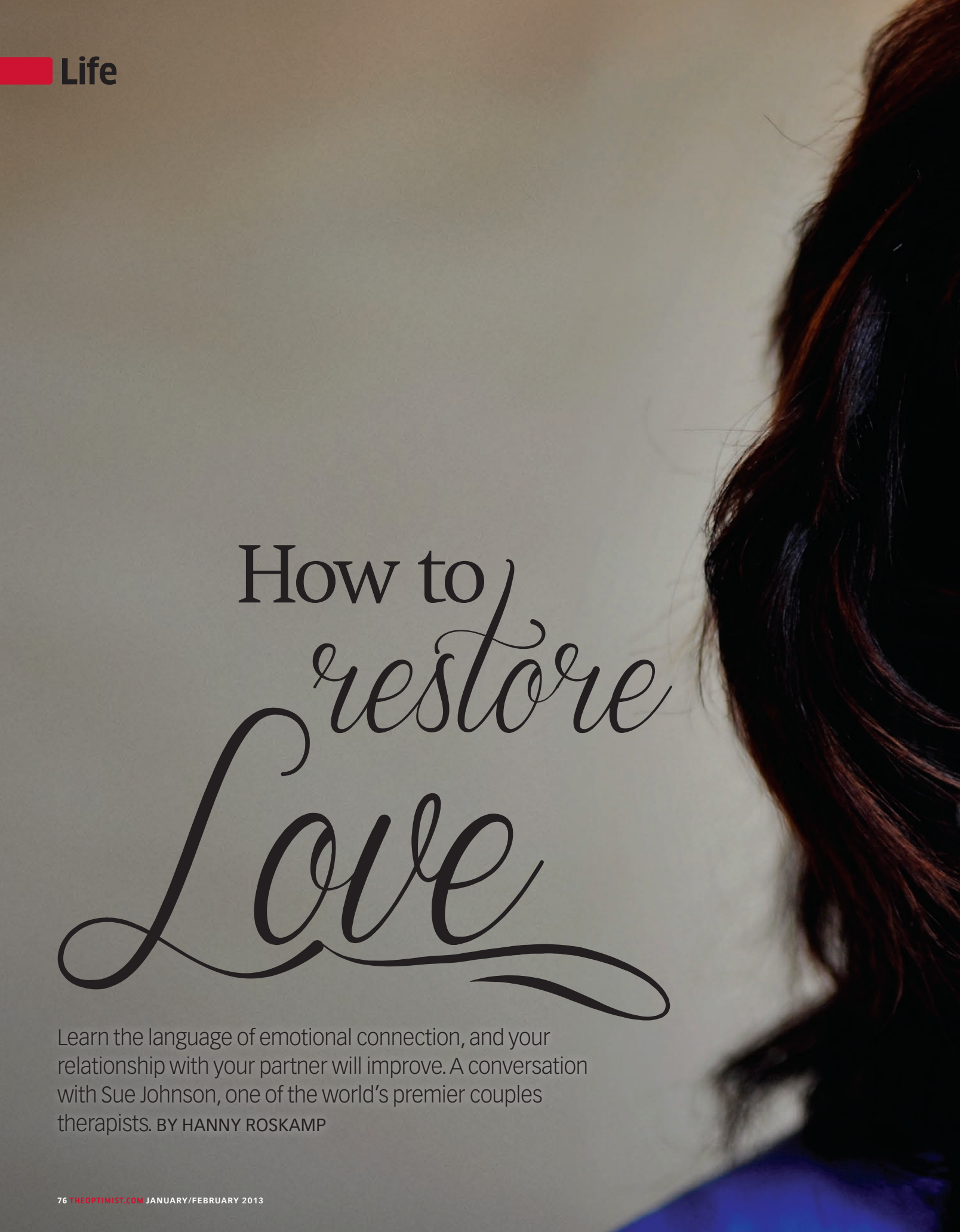
The effort required to live off the land was enormous. One early diary tells us that the woman of the house planted turnips and cabbage stumps on May 9; the next day she planted cucumbers and three kinds of squash. Two days after that she planted squash and cucumbers while her husband mended the fence. And this was simply one of the chores she faced each day as she raised her children, cooked, cleaned, made and sewed fabric and perhaps carried on some sort of trade.

Gardens demand more than plants, and so the man of the house would also be busy, splicing new types of apple, plum and cherry branches onto established trunks. An acre would probably have four fruit trees, each providing three types of its fruit. The soil was treated with horse manure for trees and cow manure for vegetables. January was a time to destroy nests and sharpen tools. February meant it was time to hack through the frozen earth to plant garlic, potatoes, horseradish and even cabbage. It was the time to repair walkways and turn the compost heap.

I don't do much in my garden during January, February or March. In April or May, I have enough to keep my weekend afternoons busy, but it is nothing like what our ancestors took for granted. And when it comes time for harvest, I don't save the seeds and bulbs. There are no baskets of apples in root cellars, nor any carrots. My harvest goes directly into an electric refrigerator, and I don't overly concern myself with using it quickly.

We've lost so much routine knowledge. How to sort the strongest seed to store and use next spring. What sort of soil in what location is best for what sort of vegetable. Using the south-facing wall as a ripening spot and planting fruit against it. Will my children know even less? It is a pleasure to feel my hands in the soil and to sense a connection to the generations that have passed, but I know that precious knowledge is being squandered and that the direct line to the past is being lost. And yet today I read that in a poll of Americans, gardening was named their favorite hobby. It makes me glad, and I hope that this timeworn pastime will continue to instill an appreciation for practical knowledge. ■

PHOTOGRAPH: PAK FUNG WONG



How to restore Love

Learn the language of emotional connection, and your relationship with your partner will improve. A conversation with Sue Johnson, one of the world's premier couples therapists. BY HANNY ROSKAMP


CLICK FOR VIDEO!

SAY SOMEONE ASKS YOU TO DANCE—BUT he's never done this particular dance before and neither have you. While you're dancing, intense emotions surface in both of you for inexplicable reasons. The result is an overwhelming sense of isolation from your partner.

This, says couples therapist Sue Johnson, is precisely how most of us approach relationships. "If I take a step forward, you take a step back," Johnson says, who—not coincidentally—is a tango dancer in her spare time. "If things go well, we dance in perfect rhythm. If things go wrong, the dance becomes demonic."

Things often go wrong. Divorce statistics show that since the 1970s, the number of divorces in the U.S. has more than tripled. One in four American children lives in a single-parent family. The consequences are farreaching: Children from broken families run a greater chance of divorcing as adults.

Of course, there's couples therapy. That sometimes helps and sometimes doesn't. Many couples therapists believe their clients should become more independent or less needy or learn to state their boundaries. To do that, these therapists coach their clients to communicate better with one another, to negotiate and make agreements—*You take out the trash, and I'll do the dishes*. According to Johnson, who has been married for 24 years, that amounts to being angry or jealous more politely.

She doesn't buy it. "We've tried to teach partners to communicate better, but the emotions break right through," she says. "Communication skills are therefore a waste of time. If you want to understand love, you have to understand emotions. Emotion is what creates the dance."

That insight led the professor of clinical psychology at the University of Ottawa to develop Emotionally Focused Therapy (EFT) for couples in the 1980s. EFT focuses on the underlying emotions we are inclined to repress, which Johnson believes makes it hard to achieve true intimacy. EFT helps partners connect with their emotions and thus acknowledge their needs and desires. Often, people seek safe emotional connections with their partners but turn out to be too afraid to allow such intimacy to happen.

Through EFT, partners learn not to see each other as enemies but as hapless players in the "demon dialogues": vicious cycles of negative interactions. They learn to recognize the pattern of their relationship, to name their fears and needs within that pattern and to step out of it. By voicing their feelings for each other, partners break the cycle and find new ways to relate.

EFT is gaining increasing recognition around the world as an effective approach to marital problems. A 1999 study published in the *Journal of Clinical Psychology* showed that more than 70 percent of "problem couples" are satisfied with their relationship and stay together after completing a series of EFT sessions. In 2005, Nathan Wood at the University of Utah compared several forms of couples therapy and published his findings in *The American Journal of Family Therapy*. EFT performed significantly better than other types of couples therapy.

Human beings have a fundamental need

"Are we okay?"

A struggling husband and wife renew their relationship through EFT.

JEFF, 30, AND ERIN, 27, HAVE BEEN TOGETHER FOR EIGHT YEARS. THEY SHARE A HOME and work side by side as photographers in their jointly owned company. Their marriage is loving and strong, yet every so often an emotional conflict would get out of hand. That left them fearing that their arguments would eventually drive them apart. They would fight about trivial things such as an empty refrigerator. Jeff would fly off the handle periodically.

"That kind of thing made me feel I wasn't important enough to her, that she didn't love me. I knew she loved me, but I didn't feel it. In those moments, our connection was completely gone," Jeff says. Adds Erin, "And then I'd think, we don't belong together at all. It had a tremendous effect on how I felt."

EFT helped them discover why Jeff responded so forcefully. "As a child, I could always count on my mother being there for me. So if I thought Erin wasn't there for me, this is what happened." When they describe the moment they had a "hold me tight" conversation, they beam at each other. "I remember how emotional it was," Jeff says. "That she told me how important my opinion of her was. She had said it before, but now it finally got through to me. That was an extremely emotional moment."

"When one of us is stressed now, I ask, 'Are we okay?'" Erin says. "And when Jeff says 'Yes,' it's very reassuring."

Jeff agrees. "We still have issues," he says, "but now we have a way to work through them together in a positive manner." | **H.R.**

PHOTOGRAPHS: ADRIE MOUTHAAN/HOLLANDSEHOOGTE.NL

for connection with others: with our families, with our social groups and above all with our romantic partners. People are social creatures. That quality has helped humankind survive harsh conditions throughout our evolutionary development. Our brains are built to "read" others' emotions and to communicate. Healthy attachments calm us and regulate our feelings. They also make us healthier: The risk of cardiovascular disease drops and minor wounds heal faster when we are part of healthy, intimate relationships. We are made to bond with others.

Johnson takes this primal human need as the starting point for what she calls "hold me tight" conversations, in which partners reveal their deepest feelings of loneliness and their desire for love. When one partner surrenders to vulnerability, the other can soften and open up, allowing them to reestablish their bond.

During a "hold me tight" conversation, Johnson believes stress levels drop and couples produce greater amounts of the "cuddle hormone" oxytocin, which plays a role in linking social encounters with pleasurable feelings in the brain. The conversation is so extraordinary because it dislodges vital words that many people never learned to speak as children. "At most, perhaps 15 percent of people are fortunate enough to have had parents who showed them how to keep a relationship intact, what love looks like," Johnson estimates. "The rest have to figure it out in the middle of the struggle."

That led Johnson to make the "hold me tight" conversation the core of her therapy. EFT appears to have a highly positive effect on a couple's sense of connection and intimacy. Trust between partners increases, painful experiences are forgiven and feelings of depression decrease. Moreover, the results are lasting. Couples have a tool to help them take what they've learned even further, so they feel better and better.

Johnson herself grew up in her parents' pub. Her parents fought constantly, but even then she was fascinated by what goes on between two people. Her most important lesson: Arguments and conflicts aren't actually about what we think they're about. It isn't the dirty kitchen, the open tube of toothpaste or even the affair we're angry about.

> The last thing most warring partners do is simply say, *I feel so alone; please hold me!*

The fear of losing the other lies at the heart of nearly every marital problem. That fear is so great, Johnson says, that it can cause an emotional short circuit.

A healthy relationship doesn't mean a couple never argues and never loses that connection. "Loving partners know how to reconnect and restore the bond between them," Johnson says. "They don't give up, and after a while, trust begins to grow."

According to Johnson, the most crucial thing we want from a lover is a sense of safety and security—the safety we felt with our parents. In this respect, EFT extends British psychiatrist John Bowlby's attachment theory.

In the 1970s, Bowlby's colleague Mary Ainsworth studied the emotional bond between mothers and children and discovered three basic styles of attachment: secure, avoidant and anxious. A fourth style was later added: fearful avoidant. It turns out that adults also follow one of these four styles in their romantic relationships (see sidebar). Parents can transfer their attachment styles to their children, but attachment styles aren't immutable; they can change through positive or negative experiences.

The fear of abandonment causes people to panic. A person who is securely attached can handle that fear and draw her partner closer through words. Most couples that visit therapists are unable to do that. They have an avoidant or anxious attachment style, and they shut their partners out or avoid contact. "If someone shuts down their emotions and locks down their facial expressions, it can create a massive panic response in the other," Johnson says. "That person can then become more demanding or pushy, driving their partner even further away."

The result is guerilla warfare. One partner's tiniest action can suddenly seem like an attack on the other partner's security. If he goes out for drinks with friends on

What's your attachment style?

Four attachment strategies shape our relationships. Which one describes you?

Secure
You protest if the other is distant or unresponsive and seek proximity. You feel comforted when the other turns back toward you, and you are able to turn to and explore your environment with confidence, knowing that the other has your back.

Avoidant
You rarely seek affection and show little stress when the other leaves. You barely respond when the other returns, ignore the other or turn away and make little effort to seek contact.

Anxious
The feeling that you are separated from the other causes great anxiety. You panic when the other leaves and are angry and unable to welcome him when he returns. You seek contact, but remain angrily resistant when that contact occurs.

Fearful avoidant
Your behavior is characterized by contradictions; you want connection and push for it, but when it is offered, you find yourself unable to trust, and you retreat. | **H.R.**

Johnson says learning to communicate better with your partner is a waste of time. "If you want to understand love, you have to understand emotions"

Friday night, she feels lonely, helpless and abandoned. If she complains that he leaves his junk lying around everywhere, he feels unloved and misunderstood. The last thing most warring partners do is simply say, *I feel so alone; please hold me!* But those are precisely the words that can restore peace and strengthen the emotional connection.

Johnson says she is deeply moved every time a "hold me tight" conversation unfolds. "As soon as couples open themselves up, it's like their hearts melt," she says. Her eyes begin to shine even more than usual as she talks. "I feel like I'm walking on holy ground. Something that's so extraordinary that it's almost too much that I'm there. I usually slide my chair back a little, so they can give themselves over to the moment."

After several EFT sessions, partners learn what lurks behind their aggressive or cold behavior, and they learn to accept their feelings of fear and loneliness. Johnson gives an example. "If an angry wife can say, 'Yes, I'm mad, but mainly I'm scared and lonely, and I want you to comfort me, but I don't know how to ask and that's why I keep complaining and yelling at you,' it changes everything. If the husband can then comfort his wife, the emotional bond changes even more."

According to Johnson, we pull the wool over our eyes so we won't have to feel and express our emotions. We constantly invent reasons why our relationship isn't working and never will. That's why we claim that romantic love lasts at most a few years and cannot continue forever. Or we have to love ourselves before we can have relationships. We have to learn to stand on our own feet.

Johnson calls these misconceptions. "People are not sufficient unto themselves," she says. "Learn to turn away from others and close your heart—how could that be healthy? You don't grow up and become independent by turning away from people; you do that by forming a bond with others."

She also believes there's something contradictory in all those reasons for avoiding a relationship—because even though our romances keep going wrong, we keep trying again. "When a relationship fails, we look for a new one. We don't give up."

According to Johnson, our brains are programmed to choose and hold onto attachment. She describes studies in which long term lover's brains were observed with MRI scanners while they looked at photos of their partners. "On some scans you can literally see the love," she says.

"Freud was wrong. Sex and aggression are not our strongest instincts; attachment is. If you show people a safe route to connection, they will always take it." ■

HANNY ROSKAMP *confesses to a difficult relationship with relationships, but she isn't giving up.*

SEE PAGE 1

VISITOR RATES TO THE "ENCHANTED" GALÁPAGOS ISLANDS HAVE MORE THAN TRIPLED OVER THE PAST 20 YEARS, UP TO ALMOST 200,000 IN 2012.

CLICK FOR VIDEO!

Fantastic voyage

From Ecuador's Andean cloud forests to the Galápagos Islands, an eco-voyage reveals how locals and tourists can work with nature—to the benefit of all. BY SERENA RENNER

PHOTOGRAPH: GALEN ROWELL/MOUNTAIN LIGHT/ALAMY

WE AWOKE TO A CA-cophony of birdsong—chattering, wing-batting birds, heralding the sun's ascension over Santa Lucía Cloud Forest. The layer of haze that had cloaked *el bosque nublado* (the cloud forest) the evening before was sliding behind the hilltops, leaving only wisps of orange sherbet clouds and endless primeval forest to admire through the glass wall of our wooden cabana.

I step out onto the balcony, stilted over the treetops, to take in the mountainous landscape, coated in a thick carpet of deep green trees. The air is crisp, and any remaining moisture from last night is draining from mossy branches onto our tin roof. The birds start up again: A whistling quetzal, cackling flycatchers and a honking toucan-barbet harmonize with buzzing insects and water droplets. I hear voices, too, carrying from the main lodge. Breakfast is served.

"When you're in the business of conservation, and you watch other people who are interested in plants and insects, slowly you realize that everything plays a role in the ecosystem"

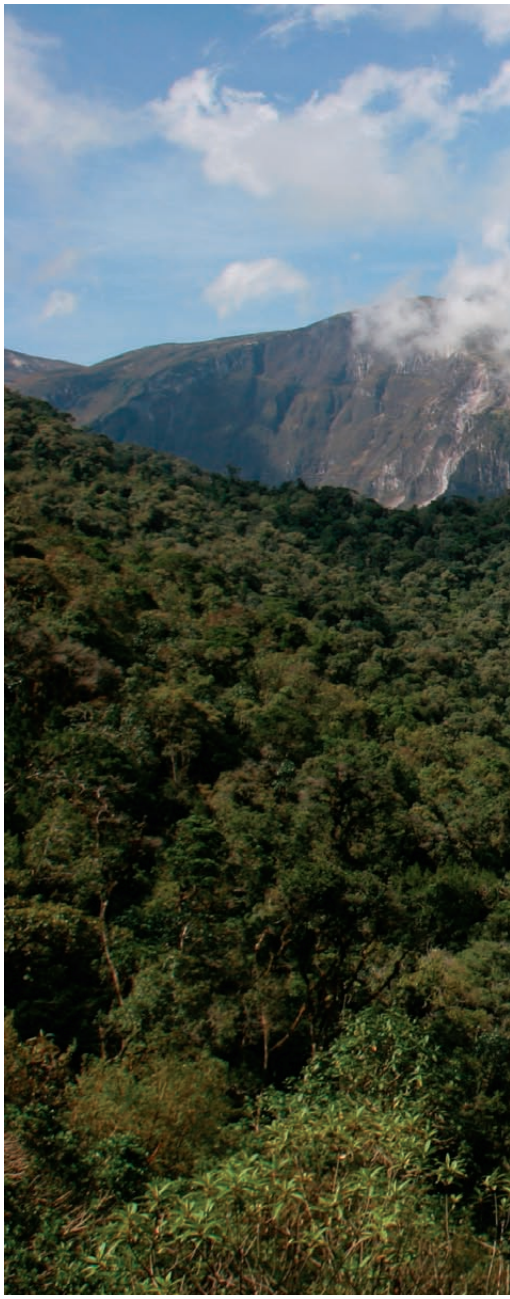
EDUARDO TAPIA, ECOTOURISM PROJECT SANTA LUCÍA

SERENA RENNER TRAVELED TO ECUADOR AND THE GALÁPAGOS ISLANDS WITH HER BOYFRIEND, KEVIN SCHNEPEL.

The 1,850 acres (750 hectares) surrounding the Santa Lucía lodge and cabins—roughly 50 miles (80 kilometers) outside Quito, Ecuador—hasn't always been this alive. Like much of the country, the area has fallen victim to logging, hunting and farming. In 1976, 20 *campesino* families bought the plot for an agricultural cooperative that raised cattle and grew blackberry and *naranjilla* (tree tomato) crops. Then in 1988, 35,000 acres (14,000 hectares), including Santa Lucía, were declared protected as part of the Maquipucuna Biological Reserve. The measure threatened the livelihoods of the landowners, but it brought about the kind of future they desired.

"The alternative was ecotourism," Eduardo Tapia, the father of one of the 12 families still involved in the project, told us as we hiked the trail to the lodge. "It allows us to live, but also to conserve."

Ecotourism has become one of the fastest-growing sectors of the tourism industry. Defined by the International Ecotourism Society in the 1990s as "responsible travel to natural areas that conserves the environment and improves the well-being of local people," ecotourism took off as a result of increased environmental awareness and a widening interest in nature and wilderness travel. But the trend highlights the clash between conservation and tourism. Some fear it may do more harm than good in places teetering on the edge of ecological balance.



In Ecuador—one of the most biodiverse countries in the world, yet one rife with economic challenges—the road to ecotourism is well traveled. From Santa Lucía to Darwin's famed Galápagos Islands, tourism is helping locals earn a living wage while providing funds to protect the jungles, forests and islands that are home to some of the most unique species on the planet.

But visitors, whose rates have more than tripled in the Galapágos over 20 years, bring the same set of issues—trash, pollution, traffic, noise and the introduction of alien species—wherever they go, whether it's Santa Lucía or San Francisco.

Santa Lucía was the first stop on a 10-day

PHOTOGRAPHS: SERENA RENNER

ECOTOURISM IS PROVIDING FUNDS TO PROTECT THE JUNGLES, FORESTS AND ISLANDS OF ECUADOR, THAT ARE HOME TO SOME OF THE MOST UNIQUE SPECIES ON THE PLANET. SHOWN HERE ARE THE ANDES.

PHOTOGRAPH: NOAH STRYCKER

tour of Ecuador. Next up was a cloud-forest lodge near the renowned bird-watching town of Mindo, followed by a drive on the new "eco route" to Quito. In two days, we would embark on a cruise through the Galápagos, which remains one of the best-preserved examples of how biological forces shape life on Earth. My boyfriend and I were invited to the "Enchanted Islands" on a press trip with Ecoventura, an Ecuadoran-owned company considered by many to be the environmental trendsetter among island outfitters.

The trip taught me that travel, when done sensitively, can have benefits that far outweigh the costs. The visitor and the visited—and even the environment—are all better off.

DAY 2

Down from the lodge, Tapia leads us to a makeshift greenhouse where tree saplings sprout from tiny pots. With support from Rainforest Concern U.K., Santa Lucía has planted more than 6,000 native hardwoods since 2001, revitalizing 50 acres (20 hectares) of depreciated land between areas of primary forest.

Descending into the valley, it's tough to discern new forest from old. Everywhere I look, giant *cedro* trees, oversize ferns and fanning palms are layered with lichen and moss. Orchids, bromeliads and mushrooms spike symbiotically off the bark, while vines coil up and around their trunks. More than 400 bird species, from tanagers and hummingbirds to the rare plate-billed mountain toucan and notorious cock of the rock, live in the canopy. Mammals like pumas and the endangered Andean spectacled bear have also returned to their native home.

I notice a green ribbon strung around a tree, and Tapia explains that scientists from EarthWatch use it to measure trunk growth and carbon capture. He hopes the research will lead to the introduction of carbon-trading money from the state, which he says would help local families. "Us poor people aren't educated," he says earnestly. "This is just what the scientists tell us."

Here in rural Ecuador, where subsistence

THE CERRO AZUL VOLCANO, ON THE SOUTHWESTERN PART OF ISABELA ISLAND IN THE GALÁPAGOS ISLANDS. WHILE MUCH HAS CHANGED SINCE CHARLES DARWIN VISITED THESE ISLANDS, 97 PERCENT OF THE GALÁPAGOS HAS REMAINED RELATIVELY INTACT AS A RESULT OF PROTECTIVE MEASURES INTRODUCED IN 1959.

is a higher priority than environmental concern, conservation often comes after economics. The members of Santa Lucía now make at least $292 a month—the Ecuadoran minimum wage, which is good by local standards—but they're still discovering the ecological significance of the forest, thanks in part to visiting researchers and volunteers. "When you're in the business of conservation and you watch other people who are interested in plants and insects, slowly you realize that everything plays a role in the ecosystem," Tapia says.

When we return from our hike, volunteers from the U.S., England and Germany are helping construct a new kitchen and laboratory from trees that have blown down. Even though we didn't have time to join the effort, it's nice to see that our money is reinvested in improving this beautiful place, which already serves as a model for ecotourism in the area and beyond. Locals have adapted to difficult circumstances and evolved into environmental stewards.

After our lunch of chicken soup, beef, rice and vegetables—ingredients produced on-site or purchased from neighboring towns—we hike down the mountain and set off for our second stop: Allpalluta Lodge, near the small town of Mindo, which is undergoing a reforestation project of its own. We will explore the "eco-route" that is bringing new life to the lush area between Mindo and Ecuador's capital.

DAY 3

I get slightly uneasy every time Roberto Nicolalde honks his horn. Yes, the dirt road we're driving on is curvy, but El Paseo de Quinde (the Trail of Hummingbirds) is a newly designated eco-route, and I worry the noise might frighten the 500-some bird species that flit around these parts. The road, which winds through towering trees and around cliff-hanging turns in the Mindo Cloud Forest region, used to be the main route from Quito to the coast. That was until a faster highway was completed in 1996, virtually shutting down commerce in the area and forcing many people out.

But this wasn't all bad news, Nicolalde's wife, Grecia Flores, told us as we sipped

PHOTOGRAPH: ANDONI CANELA/GETTY

PHOTOGRAPH: SERENA RENNER

mulled wine in the homey dining room of their Allpalluta Lodge the night before. "In 15 years, the native flora and fauna returned. Toucan and deer came back. So did the Andean spectacled bear."

Nicolalde and Flores opened Allpalluta in 2005, two years after they helped create the eco-route. The couple noticed that many visitors, mostly from the U.S. and Europe, continued coming to the area to see birds. "The International Audubon Society has ranked the region as the world's premier bird-watching destination for the past five years," Grecia says, "but the neighboring towns of San Tadeo, Tandayapa and Nono rarely benefited from this status." With help from the Ministry of Tourism, the Dutch import company CBI, the Belgian Development Agency and USAID, eco-route organizers trained 30 people in guiding, held courses in hotel service and built the infrastructure for this new nature destination.

Nicolalde and Flores say they've already seen a change in the local mindset. People no longer throw trash in the streets. Small businesses are sprouting, and natives are returning to their hometowns. The couple has learned tips from visitors, too, like separating recyclables, buying local and reducing electricity and water consumption. "Every day, I learn something new from our guests," Flores says. "And this, we pass on to our employees and the people in the communities."

Nicolalde slows the truck to point out the entrance to the Bellavista reserve. An Englishman named Robert Parsons and his Colombian wife, Gloria, protected 135 acres (55 hectares) of forest in 1991, several years before Santa Lucía got started. The reserve has grown to cover 1,700 acres (700 hectares), and judging by the number of cars in the parking lot, the lodge seems to be the most popular of the four eco-accommodations along the route.

Further along, Nicolalde points out places where local guides can take visitors to see waterfalls or the pre-dawn mating ritual of the cock of the rock. The vibrant red-black-and-white males of this cotinga species perform elaborate courtship dances—they squawk, jump, snap their bills and flap their wings to attract a female's attention.

We round a bend into the tiny town of Tandayapa, where two boys are playing soccer in the street, and a few restaurants with colorful façades are closed on this quiet Saturday afternoon. The road then makes a gradual climb until we can see the largest town, Nono, from above. It's a patchwork of pine trees, houses and businesses, which Nicolalde says have seen the greatest progress since the eco-route began.

Outside Nono, the dirt road becomes pavement and cars start zipping by, making me realize I haven't seen one in a while. Flores mentions that big companies bring tourists here by the busload and capture most of the market. This is the mass tourism the eco-route is up against. I cringe at the thought of Nicolalde's honks multiplied by several buses, not to mention the emissions this traffic would bring. Then I consider that the forest could probably swallow the air pollution in a single carbon-loving gulp. The eco-route needs more traffic to be successful, but organizers want to keep it manageable. "If it's run responsibly, it can function harmoniously, without causing environmental havoc," Nicolalde says. In Flores' words: "This project is for intelligent tourists, who are talking the same language about conservation. It's a very particular kind of tourism, and as a result, it's going to cost a little more."

> "Every day, I learn something new [about conservation] from our guests. And this, we pass on to our employees and the people in the communities"
>
> **GRECIA FLORES, LODGE OWNER, ECUADOR**

Experiencing a place of such pristine yet delicate beauty makes me more aware of how my actions might affect such an

EDUARDO TAPIA USED TO WORK ON THE LAND FOR AN AGRICULTURAL COOPERATIVE IN SANTA LUCÍA, BUT WHEN THE AREA WAS DECLARED PROTECTED, HE SWITCHED TO ECOTOURISM.

environment. I've learned not to flush paper down the toilet in Ecuador because it might clog the pipes or end up in the water supply. At Santa Lucía, I am more conscious about taking quick showers, knowing that diesel gas is being burned down the hill to send me heated water.

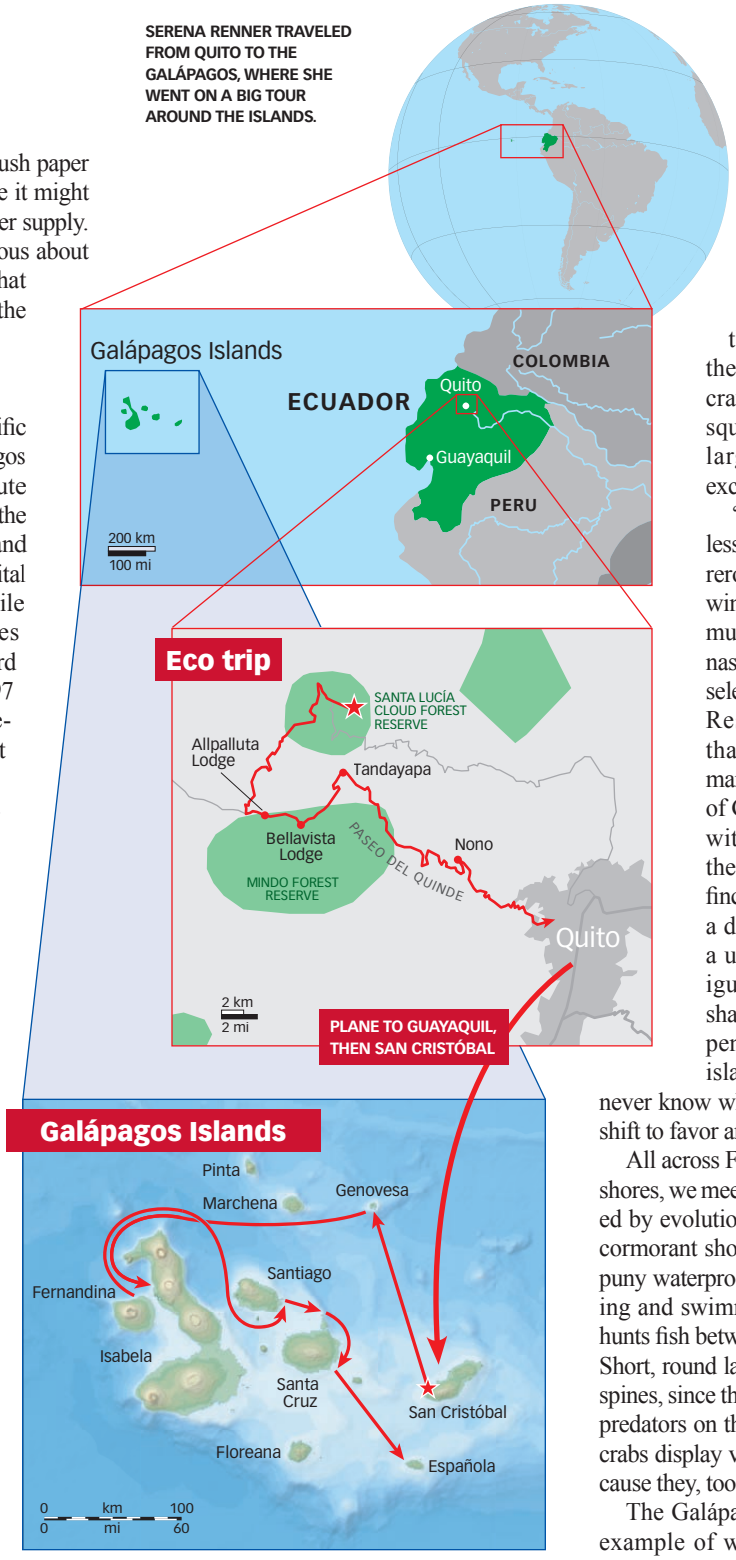
DAY 6

Seven hundred miles across the Pacific from the cloud forests, the Galápagos feels like the desert. The eco-route ended near Quito, where we spent the night before flying to Guayaquil and then San Cristóbal Island, the capital of this volcanic archipelago. While much has changed since Charles Darwin visited these islands aboard the HMS *Beagle* 176 years ago, 97 percent of the Galápagos has remained relatively intact as a result of protection in 1959.

Still, the number of visitors has more than tripled in 20 years, from roughly 40,000 in 1990 to about 140,000 in 2010. The population of locals has also jumped to meet the demands of tourism, and problems, such as introduced plants and animals and overuse of trails, led to the Galápagos being placed on the endangered list in 2007. As a result, the Galápagos National Park continues to tighten regulations on when and where tour boats can anchor. Starting in January of 2012, nearly 90 cruise ships have to spread out their impact by hitting visitation sites every 15 days, rather than every seven as the old rule declared.

But landing on the pristine island of Fernandina the second day of the cruise, all these problems become an afterthought. As the president of Ecoventura, Santiago Dunn, aptly said before my departure, "Once you're in the wild, you're going to feel like it's the 1800s again."

As soon as the other passengers and I step off the *panga* (dinghy) onto the cement platform shaded by red mangrove trees, we stumble upon a pile of Godzilla-like marine iguanas warming their charcoal-colored, sandpaper-skinned bodies in the sun. Although these "imps of darkness," as Darwin called them, have evolved from the Galápagos land iguana into seven subspecies of marine reptile, which swims and feeds on algae, these animals spend most of their lives on land.



SERENA RENNER TRAVELED FROM QUITO TO THE GALÁPAGOS, WHERE SHE WENT ON A BIG TOUR AROUND THE ISLANDS.

"Which size iguana do you think copes better in El Niño years?" our naturalist, Cecibel "Ceci" Guerrero, asks the group as we watch these fascinating creatures crawl all over one another, squirting saline from their large, oblong nostrils to excrete salt.

"The smaller you are, the less energy you need," Guerrero answers. The rains and winds of El Niño wiped out much of the algae the iguanas eat, resulting in nature's selection for smaller bodies. Researchers have shown that the bone structure of marine iguanas on the island of Genovesa shrinks to cope with food shortages. Like the 13 species of Darwin's finches—each equipped with a different beak that fulfills a unique purpose—marine iguanas come in different shapes, sizes and colors depending on which isolated island they call home. You never know when the conditions might shift to favor an alternate variety.

All across Fernandina's lava-covered shores, we meet other rare species molded by evolutionary time. The flightless cormorant shows off its long neck and puny waterproof wings, perfect for diving and swimming—not flying—as it hunts fish between underwater crevices. Short, round lava cacti have grown soft spines, since they don't have any natural predators on the island. Sally Lightfoot crabs display vibrant reds and blues because they, too, are invincible here.

The Galápagos is not only a living example of why animals evolved in certain ways, it's a constant source of new findings. Scientists just discovered the "pink iguana," which they believe might be the missing link between the land and marine versions of the animal. And with the increasing number of humans who factor into the island ecology, new adaptations are made every day. »»

DUE TO HUNTING, THREE SPECIES OF THE GALÁPAGOS GIANT TORTOISE, FROM WHICH THE ISLANDS GET THEIR NAME, ARE NOW EXTINCT.

PHOTOGRAPH: TUI DE ROY/MINDEN PICTURES/NATIONAL GEOGRAPHIC STOCK

ON THE GALÁPAGOS ISLANDS, MARINE IGUANAS HAVE EVOLVED INTO SEVEN SUBSPECIES, WITH DIFFERENT SHAPES, SIZES AND COLORS DEPENDING ON WHICH ISOLATED ISLAND THEY CALL HOME.

PHOTOGRAPH: FRANS LANTING/NATIONAL GEOGRAPHIC STOCK

I've read about the Galápagos in books, but its lessons really sink in when I see them in action. I know humans have left an ugly stain that locals and visitors are still trying to clean up. And I know getting people like me out here is still causing problems that entrance fees are only just beginning to address. But now that I'm here, with nothing more than a camera and notepad in hand, I'm inspired to help. People have to get here to feel this way.

That afternoon, we hike to an overlook above Tagus Cove on the largest island, Isabela. The trail begins at a rocky outcrop engraved with the names of whalers, buccaneers and explorers who've come before. The oldest year we can find is a sizable "1836"—declaring someone's arrival just one year after Darwin's.

The sandy trail reveals a dry landscape, with just a few species of trees and flowering shrubs. Guerrero stops at a small white glob clinging to the branch of a *Scalesia* tree like a piece of chewed gum. She says it's the cotton cushion scale parasite, which probably arrived on the islands accidentally via a plant brought by humans. Accidental or not, the parasite spread like wildfire and started destroying the white and black mangrove trees to the point that the national park had to intervene. Luckily, the park found a ladybug from Australia that feeds exclusively on this parasite. After being deemed safe, the ladybugs were released about 10 years ago, and they've been helping the mangroves make a comeback.

This is one of many eradication programs in place to fight alien species. The park recently completed an $8 million program targeting goats on Isabela; goats reproduce quickly and tear up native plants that both shelter and feed endemic species. The project was so large scale that it required helicopters to shoot the goats. Goats are now under control on Isabela, and the effort is acclaimed as one of the most successful goat eradication programs anywhere. The current generation must solve the problems caused by previous generations. Because locals and foreigners are working together, many species have come back from the brink.

The trail ends at a lookout where we can see all five of Isabela's volcanoes. One direction reveals a bright blue saltwater lagoon separated from the ocean by a thin slice of land, while the other side looks out over a sea of volcanic rock that stretches to the ocean. Guerrero points out a small cluster of mangrove trees on the protected coast across the lava. She says introduced rats have been killing off mangrove finches there, and they are down to 190 individuals.

> "One new animal can wipe out an entire species. That's how fragile this place is"
>
> **CECIBEL "CECI" GUERRERO, NATURALIST**

Rats are one of the greatest challenges, because they feed on the eggs of iguanas and giant tortoises; they also eat the babies of these animals as well as bird chicks and plant seedlings. Island Conservation helped remove rats on the small islands of Rábida and Bartolomé last January, and the nonprofit has more plans in the works.

A portion of the $100 national park entrance fee goes toward such projects. But while tourism is helping with recovery, new plants and animals keep arriving by air and sea without enforcement in place. "We blame the whalers and the pirates," Guerrero says, "but this should not be happening now that we're more conscious about the islands. One new animal can wipe out an entire species. That's how fragile this place is."

Back aboard Ecoventura's yacht, *Eric*, we're seated for dinner with captain Pablo Jaramillo, who's lived on San Cristóbal, one of the four inhabited islands in the Galápagos, since 1982. As we enjoy locally caught white sea bass, Pablo tells us that he used to be involved in commercial farming but now only produces a couple of non-aggressive crops like oranges, bananas, pineapple and sugarcane, while he works to restore the native vegetation of his property. He's switched away from pesticides and relies solely on hand techniques and a micro-organism that's helping regenerate the soil. "It takes longer, but it's nearly permanent and clean," he says. "What we require now is help."

We talk about tourism and how the islands have changed over the years. He mentions the money that comes in from visitors, which also provides jobs for native people. I ask Pablo his thoughts on island hopping, which Guerrero told me has become a popular alternative to cruising, mostly for young people. Instead of paying high rates for cruises, some travelers stay in hotels and hire boats for day trips to various sites. Pablo says this kind of tourism needs to be controlled, but it's important because it grants access to young people, who he says are more conscious and optimistic.

"There can't be too many people, but it also shouldn't be restricted so dramatically because then only a privileged few will be able to see this environment," he says. "If young people can access this, they will be the best ambassadors for Galápagos."

The topic of young people comes up at Allpalluta, too. Flores and Nicolalde talk about how conservation is becoming part of the school curriculum, helping reshape the opinions and values of both children and adults. In some ways, the Galápagos has an advantage because electricity and waste-management systems are still being developed. The more that young people are inspired to help, the greater the chances that

PHOTOGRAPH: SERENA RENNER

ALL ACROSS THE LAVA-COVERED SHORES OF THE ISLAND FERNANDINA LIVE RARE SPECIES MOLDED BY EVOLUTIONARY TIME, LIKE THE FLIGHTLESS CORMORANT, WHICH HUNTS FISH BETWEEN UNDERWATER CREVICES.

sustainability will be built into future plans from the start.

DAY 8

Today, we meet the Galápagos giant tortoise, from which the islands get their name. The word *galápagos* means "saddle," and that's what the tortoise shell looks like, though it's been morphed into different shapes depending on the vegetation of each island.

When I walk up to one of these giants on a farm-turned-reserve in the forested Santa Cruz highlands, it tucks its head into its shell and lets out a deep Darth Vader–like exhale. It's unusual to see Galápagos animals show fear, but in the case of the tortoise, which has been hunted since the 1800s for its meat and fat, the fear seems warranted. Whalers and fur traders would stock the halls of their ships with tortoises turned upside down, since they could stay alive for several months, providing a fresh source of meat for the crew. Later, tortoises were hunted for oil to light streetlamps in Quito and Guayaquil.

While the Galápagos giant tortoise originally evolved into 14 different species numbering in the hundreds of thousands, three species are now extinct due to hunting and predation by introduced species. Other populations have gotten so close to extinction that they've been plucked from their native habitats to breed in captivity at the Charles Darwin Research Center on Santa Cruz, which also receives funding as a result of the national park fee. One such example occurred on Española, where only 15 tortoises remained by the 1970s, after sailors hunted them clean and goats stripped the island of plants. After a successful captive breeding and repatriation program, the tortoise population on Española has grown to more than 1,500. "It's a gradual process, but we know it's efficient," Guerrero says. "It's going to take several more generations of humans to reverse the damage."

DAY 10

We've sailed from Santa Cruz to Española and finally back to San Cristóbal for our final afternoon in the Galápagos. In about five hours, we'll be in Quito again. I think about our previous day on Española. There, sea lion mothers nurse their pups and play with marine iguanas, while finches, mockingbirds, frigate birds, hawks, Nazca boobies, blue-footed boobies and waved albatross—some of them native to Española—all nest and mate and live together amid golden bluffs and ocean-splashed cliffs. It's hard to fathom that natural selection can create such a diverse and fascinating place, but it gave me the sense that we're all connected.

Walking back to the bus, we pass a wall mural that reads "*Biodiversidad somos todos*" ("We are all biodiversity"). It depicts a mosaic of a family of three with small pictures of the plants and animals that make up island life. I think back to the captain's reforestation project on this very island and our conversation around the dinner table. Like the families of Santa Lucía and the couple that started the eco-route, Jaramillo is trying to make peace with his natural environment—to live but also to conserve.

And we as tourists can help make that happen—by sharing ideas and resources when we travel and taking the message of conservation back home. ■

SERENA RENNER *evolved to appreciate Western plumbing and the vast array of birdcalls.*

PHOTOGRAPH: NIGEL PAVITT/JWL/AURORA PHOTOS

Leek out!

For a delectable snack, deep-fry this familiar vegetable

THERE ARE MANY GOOD REASONS NOT TO DEEP-FRY foods at home. Health: We already eat more than enough fat. Hygiene: Those greasy fumes smell up the house. Social: Because fried foods taste best fresh from the fryer, the one doing the frying can't join the rest at the table; he's busy cooking up the next batch of snacks. In short, you're better off greasing your gullet away from home.

Leeks are an exception to this rule. They defy the laws of deep-frying. To prepare them, first slice the white part into two-inch pieces. Slice these lengthwise into strips and rinse them thoroughly. Heat the deep fryer to 300 degrees (which sidesteps the blue smoke) and fry the leek strips for a couple minutes. Don't let them turn brown, and definitely don't wait until they feel crunchy!

When you remove the strips from the basket, they'll still be limp. That's the beautiful thing about deep-fried leeks: They get crunchy if you just leave them alone! Now you've got plenty of time to whip up a mouth-watering salad, because you'll be letting the leeks cool off on a few paper towels for an hour or two. A dash of salt, a little tossing to mix, and they're ready for use as a salad garnish. They have a surprising bite and can hold their own against bacon, the usual suspect for the job. And compared with bacon, that smidgen of oil in deep-fried leeks is nothing! | ELBRICH FENNEMA

PHOTOGRAPH: PIETER DE SWART

Inspiration

PRODUCT

Paint by carrot

ASHLEY PHELPS REGULARLY EXPERIENCED reactions like skin irritation to the chemical ingredients in art supplies. Not very convenient, given the fact that she's an artist, muralist and art teacher working with these products daily. She began searching for natural alternatives to toxic ingredients like lead and cadmium, often used in paints. In her studio in Berkeley, California, she set out to create her own paint from fruit, vegetables and spices, which she now sells through her company, Glob.

For example, she found she could make natural paint from annatto seeds, derived from the achiote trees growing in tropical regions around the world. The seeds produce a yellow or orange color historically used by native South and Central American tribes for body paint and lipstick. Other pigments she uses come from beets, carrots and turmeric. She uses gum arabic as a natural watercolor binder. Imagine painting nature with nature! | **ELLEKE BAL** | **FIND OUT MORE: GLOBITON.ORG**

ARTIST ASHLEY PHELPS CREATED NATURAL PAINTS FROM FRUITS, VEGETABLES AND SPICES.

Johnny Boy Would Love This: A Tribute to John Martyn
Various artists
HOLE IN THE RAIN

MUSIC

An unexpected tribute

THE SCOTTISH SINGER-GUITARIST JOHN Martyn, who passed away in 2009, was a maverick. Having started out as a folk singer, he kept pushing the envelope and developed a highly idiosyncratic style, borrowing freely from jazz and rock. Some fans lovingly nicknamed him "Strepsil Martyn," a reference to British cough drops and the way he forced his vocal cords to sound like the alternately crooning and ripping tenor saxophone of his idol, legendary jazzman Pharoah Sanders. The fact that this almost rendered his lyrics unintelligible didn't seem to bother him at all.

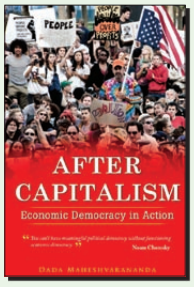
The highly personal and often harrowing nature of those lyrics, culminating in *Grace and Danger*—an album devoted to his painful divorce from his first wife, Beverley—made it seem unlikely that his songs would be covered by other artists. Yet that is precisely what happened, and it is heartwarming to see how Martyn continues to be an inspiration not only to his generation but also to up-and-coming acts like the Bombay Bicycle Club.

Most impressive are the contributions from unexpected quarters, such as "Small Hours," Martyn's 1977 prelude to trip-hop, performed here by Robert Smith of the Cure. Veteran gospel singers Clarence Fountain and Sam Butler convert "Glorious Fool" into the deepest of American soul music, and nu-folk pioneer Beth Orton gives a surprisingly lighthearted swing to "Go Down Easy." But there's lots more to enjoy in this package, which comes with an extensive booklet, two CDs filled to the brim, plus a DVD.

This is my last column for *The Intelligent Optimist*. Further musical musings can be found at tonmaas.nl. | **TON MAAS**

BOOK

A balancing act



After Capitalism: Economic Democracy in Action
Dada Maheshvarananda
INNERWORLD

IN NATURE, EVERYTHING MOVES AND changes all the time; nothing is static. From the single-cell bacterium to the most developed animal, each organism has its unique role. The 20th-century Indian philosopher Prabhat Ranjan Sarkar called a dynamic balance in our nature "prama," from a Sanskrit word used to describe this fully balanced system. Sarkar's economic theory is based on the same idea of a society that thrives because of cooperative coordination between all people, from local communities to nations.

We have lost our prama, both in nature and within our societies, argues American-born activist, writer and monk Dada Maheshvarananda in his book *After Capitalism: Economic Democracy in Action.* As evidence, he points to ecological destruction, financial crises and the extreme concern about the future that's prevalent in our culture. Inspired by Sarkar's philosophy, the author stresses the importance of restoring prama by creating an economy that allows for a balanced life. In practice, that means a decentralized economy, with cooperatives becoming the business model, as well as adequate minimum salaries and publicly run utilities.

Maheshvarananda published an earlier version of this book in 2003, but he has updated almost 80 percent of it. He explores different ways to create a spiritually fulfilling economic system. In addition, in 2007, he founded the Progressive Utilization Theory Research Institute of Venezuela to empower people through self-reliant communities and worker-based cooperatives, and this book includes detailed descriptions of hat project, making it also useful as a guide for activists and teachers. | **SOPHIE BLOEMEN**

Q+A

"Wishing is important"

BARBARA TAMMES, AUTHOR OF THE INspirational guide *A Blueprint for Your Castle in the Clouds* (Red Wheel/Weiser), tells us why a palace in the sky isn't airy-fairy. Instead, it's the place where change starts.

You write that everyone should build their own castle in the clouds in their imagination. Why?

"A castle in the clouds is a comfortable place to think about yourself. You can build many imaginary rooms in that castle that all have a special meaning. For example, the book has blueprints for the Royal Suite of Evil and the Hall of Tears. Once you've spent time in these rooms and accepted your own bad points, you'll be less shocked when you see them in someone else. The reverse is true, too: If you dare to pat yourself on the back for something you're proud of, you can do it for other people, too. And you can change the world that way."

WIN THIS BOOK
We are giving away five copies of *A Blueprint for Your Castle in the Clouds*.
Mail your name and address to editor@theoptimist.com for a chance to win!

You believe the imagination can create new realities?

"Yes, I do. If you want to make a change, you need to be able to picture it. You have to build the world you want to see in your mind first. If you can't even make the future you want to happen in your own head, how do you think it's ever going to become reality?"

That does sound a bit airy-fairy.

"Everybody knows the concept of a self-fulfilling prophecy. But the opposite also exists. I call it a wish-fulfilling prophecy. If you look in the direction you want to go, it increases the likelihood that you really will go that way. If you can see a goal before you and go after it, often you'll reach that goal. Wishing is important."

Do you need a vivid imagination?

"With material things, everybody's good at visualization. When you see a catalog full of clothes for sale, you want to buy some. That's why my book offers new choices in every room. It's a mail-order catalog of desires. When you're given a choice, you'll think about what you want. I chose a castle in the clouds because it's so far removed from reality. People have a hard time visualizing real change in the world, but a castle in the clouds is so far away from reality that you go along with the idea that anything's possible there." | **WILLEMIJN SNEEP**

PHOTOGRAPH: MICAELA NARDELLA AND OANA TUDOSE

CLICK FOR VIDEO!

"I don't know if polar bears need saving"

Canadian biologists predict that polar bears are likely to die out in the next three decades. But **Mitchell Taylor**, a polar bear specialist at Lakehead University in Thunder Bay, Ontario, says that's not true.

Isn't climate change posing an enormous challenge for polar bears to survive?
"If the warming of the Arctic region continues, it will probably have negative effects on polar bears. The sea ice has already been reduced in certain areas so that they're forced to stay on the land longer. Some populations have already been affected."

How worried should we be?
"Currently, there is no cause for concern."

What? You are kidding, right?
"It's not possible to do statistical comparisons, but there is general agreement that the number of polar bears has increased over the last 30 years. They are well managed throughout the Arctic, mainly thanks to Inuit support of hunting regulations. Polar bears used to be overhunted in the U.S., Norway and Canada, but hunting has been regulated by international agreement for many years now. The U.S., Canada and Greenland have quota systems within sustainable levels. Norway and Russia have banned hunting altogether."

But the image we get from the media is that they're dying out.
"I understand that, but it's not true. They are in no danger of extinction, even under worst case scenarios. No professional polar bear specialist thinks that polar bears are in any immediate danger of extinction. The concern is for the future and is entirely based on climate model predictions of continued warming. But climate has always changed, and global temperatures have not increased in the past 15 years."

Well, I don't think everyone agrees. In fact, the polar bear has been designated a threatened species by the U.S. government.
"Yes, to the frustration of the Inuit. They feel this is the time with the most polar bears. The experience of the Inuit is not consistent with the notion that polar bears are threatened with extinction or even a serious decline. Frankly, I don't even know if polar bears need saving. Hunting regulations are sound and well accepted. If you look at the facts, it is reasonable to be concerned but not appropriate to panic."

| MARCO VISSCHER

PHOTOGRAPH: ILO PHOTO

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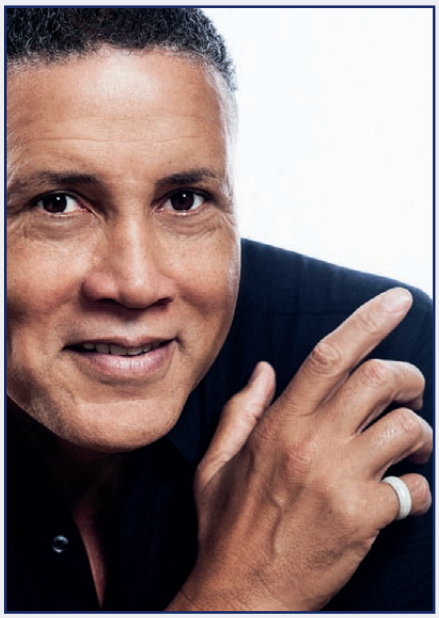

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